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Paul G. Clifford

THE CHINA PARADOX

AT THE FRONT LINE OF ECONOMIC
TRANSFORMATION

2ND EDITION

BUSINESS & ECONOMICS

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The China Paradox

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At the Front Line of Economic Transformation

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Advance Praise for *The China Paradox*, Second Edition

Paul Clifford knows China. He witnessed firsthand its emergence from Maoist madness, chronicled its reform, and advised companies on doing business in and with China. In this remarkable book of experience and insight, he explores China's trajectory under Xi Jinping with a keen eye to the enduring centrality of a Communist Party that is at once arrogant and insecure. With its wonderfully narrated cases of how businesses succeed and fail in China, this is required reading for any investor. Its rich, historical dissection of China's political economy under Communism should be read by any scholar of contemporary China. Engagingly written with the authority of an eyewitness to history, *The China Paradox* is simply an amazing book.

—Prof. William C. Kirby,
Spangler Family Professor of Business Administration,
T.M. Chang Professor of China Studies, Harvard University

Paul G. Clifford's deep experience in China is in full display in this second edition of his highly readable *The China Paradox: At the Front Line of Economic Transformation*.

As with his first edition he has done a masterful job in using historic facts and fascinating personal encounters, to outline the choices China's leaders have made and are likely to make in the future. This second edition is enriched by his coverage of how the technological revolution that continues to accelerate could affect China's future policy choices.

He skillfully raises the question of whether past policies of reform initially led by Deng Xiaoping that generated unprecedented growth will be permanently overtaken by Xi Jinping's policies of strict state control and outlines some of the factors that could be determinative.

The ultimate answer will have a profound impact not only for China but also for the United States and the rest of the world.

This is a "must-read" not only for those interested in China's trajectory but also for those interested in global economic and political issues.

—Carla A. Hills,
Chair and CEO, Hills & Company;
former US Trade Representative

In *The China Paradox*, Clifford combines his deep personal experiences conducting business in China to provide a sophisticated, engaging account of China's development trajectory, its successes, contradictions and challenges for the future. His bountiful experiences allow Clifford to introduce case studies of the state-owned, private sector and overseas activities to put flesh on the bones of the more familiar picture of how the Chinese Communist Party has paired tight political control with experimentation and greater openness in the economic realm. We learn definitively what doing

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business in China tells us about the broader political system and the possibilities for China's future development. A new chapter highlights how China's practices and the West's response has heightened tensions that both challenge the West's dominance and create barriers for China's future progress. Is the paradox sustainable? Clifford's study suggests that the policies and increasing centralization of control under Xi Jinping may well thwart the innovation and energy that China needs to meet its ambitious goals. *The China Paradox* should be read by anyone interested in China's development and what this means for the global community.

**—Prof. Anthony Saich,
Daewoo Professor of International Affairs,
Harvard Kennedy School**

We should be grateful that one of America's foremost China experts wrote an incisive book about China and should be even more grateful that he updated it and added additional insights. His experience over these many decades leads the reader to understand both China's successes and failures. At a time when so much written lacks balance, this book clearly explicates why decisions are made and what their implications are. It is a must read for both the China expert and the casual reader.

**—Stephen A. Orlins,
President, National Committee on US–China Relations**

This is a history of China's industrialization that focuses on the last forty years during which the paradoxical balancing act of Party autocracy and entrepreneurial renewal of economic life has prevailed. Its great strength is that every chapter is illustrated with cases and policies in which Paul Clifford was personally involved as a consultant to Chinese firms and serving as an elected member of a Chinese government advisory group. I used the first edition as a text for a master's course on China in Comparative Perspective at the LSE. I will now welcome this new edition with all its new material.

**—Prof. Stephan Feuchtwang,
Emeritus Professor, London School of Economics**

The second edition of *The China Paradox* provides a much-needed exploration of the rapid economic changes underway in Xi Jinping's China. Dr. Clifford's training as an historian offers the reader background necessary to understand the complexities of contemporary China. His experience as a management consultant assures the reader that the materials provided are detailed, concrete and actionable. This book is especially important for anyone working with or near Chinese state-owned enterprises and national champions, which are playing an ever-increasing role in the Chinese economy. He also offers an excellent perspective on China's complex impact on the developing world, especially Africa. As China continues to expand its role in the

global economy, this is an outstanding primer on how to evaluate and how to interact with an entirely new, unprecedented set of challenges and opportunities.

—Craig Allen,
**President, US-China Business Council;
former Department of Commerce Deputy Assistant Secretary for China**

Clifford's book has much to offer both seasoned China watchers and newcomers desperate to understand the country's twists and turns. He combines a first-hand narrator's ability to tell an interesting story with a much-needed, honest perspective on China's changes and complexities. I'd recommend it to anyone who wants to understand the last few decades and think critically about the future.

—Prof. Meg Rithmire,
Harvard Business School

Advance Praise for *The China Paradox*, First Edition

An invaluable and unique account of China's pathway to modernity by someone who has engaged profoundly with this process, living for much of the last three decades inside China. . . . A thoughtful, thought provoking, and, above all else, admirably pragmatic, sympathetic but astutely critical work.

**—Prof. Kerry Brown,
Professor of Chinese Studies,
King's College, London**

Dr. Clifford is a scholar with a deep knowledge of Chinese history and culture, who entered the business world at a time of dramatic change in China's political economy. His rich business experience in China across a range of industrial sectors combined with his deep scholarly understanding make this a uniquely insightful book. The insights are far more original and interesting than those of other studies in this field.

**—Prof. Peter Nolan,
Chong Hua Professor in Chinese Development,
University of Cambridge**

In this first-hand account based on years of working in China, Paul Clifford takes the reader deep inside the belly of the beast. . . . This well-written and engrossing inside account should be read by all China watchers.

**—Prof. David Shambaugh,
Professor at Elliot School of International Affairs,
George Washington University**

The China Paradox combines a highly-informed broad-sweep analysis of China, knitting together the economy, politics and history. Engagingly written and drawing on unique personal experience, it provides a penetrating guide to this most important country.

**—Jonathan Fenby,
Author and former editor of the South China Morning Post**

Paul G. Clifford's *The China Paradox* reflects the insights, sensibilities, and rich experiences of an individual who began living in China as a student in the late Mao period, and then stayed on as a business practitioner and globally-renowned consultant through the four decades of reform that would lead to the present. . . . Yet, as Paul Clifford argues, with the rise of Xi Jinping in late 2012, the emphasis on authoritarian control and state-imposed order has returned with fury, thus imperiling an equilibrium so important not just to China's past, but to its future as well. . . .

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The China Paradox, while offering an important framing narrative for understanding China's developmental trajectory, explains that narrative through fascinating firm-level examples and case-studies, ones that alone make the book an essential read for anybody trying to understand contemporary China. *The China Paradox* introduces fresh perspectives just when such new thinking—given the turbulent nature of our present moment globally—is most urgently needed.”

—Prof. Edward S. Steinfeld,
Professor and Director of the Watson Institute,
Brown University

How did China achieve such strong growth while maintaining the core elements of single party rule? Combining personal observations with astute analysis, Paul Clifford provides the answer through what he terms *The China Paradox*. . . . Clifford's decades of engagement with China allow him to present the reader with a deeper understanding of the contradictory forces that have made the China of today. Can *the China paradox* persist? His sobering analysis of the pros and cons make this a book worth reading for anyone with an interest in China's future trajectory and its potential impact on the world.

—Prof. Anthony Saich,
Daewoo Professor of International Affairs,
Harvard University

With decades of in depth and on the ground experience in Chinese business, Paul Clifford brings a unique and valuable insight into the challenges facing the Chinese Economy. In *The China Paradox*, he tackles head on the ability of China to move to a new business model and achieve the greater economic goals which the Communist Party desires. Within the hybrid economy which has dazzled the world, lie some profound weaknesses. *The China Paradox* will help any businessman or China watcher better understand the danger of those weaknesses.

—Fraser Howie,
Co-author of *Red Capitalism*

To Miriam, Jasper, Hugo and Zoë.

Acknowledgments

I should like to acknowledge many friends and colleagues who have contributed ideas and provided encouragement as I researched, shaped, and wrote the book, the First Edition (2017) and now the Second Edition (2021).

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I have greatly benefitted from a discourse with my colleagues at the Harvard Kennedy School, and in particular its Ash Center for Democratic Governance and Innovation.

I am grateful to so many more. Some of those in my extensive network shall remain anonymous, especially those in China. But I shall mention quite a few (in alphabetical order), even at the risk of missing names that should be included.

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My thanks also to my publisher Walter de Gruyter who were quick to sign me up and have fast-tracked both editions. It has been a pleasure working with their highly professional team: editorial director Stefan Giesen, content editor Jaya Dalal, copy editor Mary Sudul, production project manager Nijandhanraj, and editorial assistant Natalie Wachsmann.

Of course, I should hasten to add that I alone bear responsibility for the contents of the book. Any errors or omissions should be laid firmly at my door.

Finally, without the patience, encouragement and support of my wife Miriam, I cannot imagine having had the fortitude to pursue my academic and business life, and to complete both editions of this book.

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Preface

It may be useful to say a few words about who I am and what makes me tick. I have been connected to China since 1966 – originally as a historian of modern China, then retooled into business roles in banking, strategy consulting, and high tech. Although the bulk of my life has been devoted to China, I have also worked in Africa, Latin America, and other parts of Asia, the US and Europe; a fact that helps me avoid the pitfall of overstating China’s uniqueness.

I have an emotional and professional commitment to helping China succeed. I first lived in China in 1973–74 as a student and saw close-up the dismal impact of the Cultural Revolution, as well as the dysfunctional Soviet-style planning. I returned to live and work in China over several decades, had my children educated there, put up with the choking smog, and had my heart broken by the Tiananmen Square Massacre of 1989. I have invested my time, energy, passion, and patience in helping old Chinese state-owned firms transform themselves, in guiding emerging private Chinese firms, as well as in advising foreign firms that have invested billions of dollars in China.

This work is motivated by a deep-seated desire for China’s progress to be balanced and sustainable, permitting the nation to play a constructive role in the world commensurate with its economic scale and muscle. There are obviously contradictory elements in my embrace of China, as my friends and family hasten to point out. On the one hand, I remain closely engaged with China on the business side, while on the other hand I am repulsed by the one-party state, the absence of a true rule of law, and the top-to-bottom corruption that distorts economic activity and pollutes society figuratively and in reality. But I am willing to live with this contradiction. Influencing China’s economic progress is superior to watching and just hoping it does not lead to a failed state. If that were to happen to China, it would make all other failed states look like non-events and would have profound global implications.

As I engage with China, I find myself sitting in what is sometimes an uncomfortable middle ground, with my head exposed above the parapet, neither a “panda-hugger” (uncritical friend of China), nor somebody who expects or let alone hopes for China’s collapse. My deep wish is that my nuanced position is recognized as both constructive and principled.

Having participated so intimately in China’s recent development, I have chosen to tell the story of *The China Paradox* through my own eyes, through the projects I worked on across China and in so many diverse sectors, since this content is vivid, concrete, and hopefully fresh to the reader. While I eschew an ultra-academic approach, I have made sure that the narrative is founded on a rigorous historical framework and is not simply another exercise of show-and-tell.

My goal is to share with the reader the high drama, the twists and turns of China’s extraordinary path of reform and transformation over the last four decades or so; but mindful that readers – in business, students, and others engaging with

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China, or simply those tracking China's rise – are hungry for guidance on what the future may hold. As you will see, I have also assembled compelling evidence that can shed light on what will determine China's trajectory.

This is the second edition of this book. It is updated not only with extensive new analysis from the last five years but also with rich additional earlier materials that all along deserved to make it into the book. In this edition are two new chapters, one on the Chinese technology firm Huawei and another on China's frictions with the world.

As the author, I take some reassurance, but certainly no pleasure, that in many aspects the negative trends that I documented or forecast in the first edition, were directionally correct and today have to a great extent been validated by events. In this second edition I deliver a gloomier analysis that lays bare the fact that China's Party autocracy has hardened and that the economic reforms have largely stalled out. One of the striking new developments in the last five years has been the degree to which China's rise on the global stage has met with intense scrutiny and at times heavy pushback by other nations.

Though, in this Second Edition, I shall suggest that current trends may seriously undermine the sustainability of China's hybrid developmental model, which I term *The China Paradox*, that is not because I am sentimentally attached to that path China has taken over the last four decades. I demonstrated in the First Edition that this path carved out by Deng Xiaoping and his successors was not only highly pragmatic but also seriously flawed in many respects. It was also essentially a transitional model, a temporary and highly dynamic coming-together of apparently contradictory narratives (the Communist party-state and entrepreneurial business) for a common goal – "China's revival." In this second edition, based on new evidence presented, I reveal unanticipated results, certain undoubted outstanding successes under Xi Jinping, as well as depressing and dramatic failures. From among all the twists and turns of the many live and varied cases and situations I document, I not only corroborate the key, fundamental trends previously observed but also form a clearer insight into where China is going and what it wants to be.

Chapter 1

The Hybrid Development Model at the Heart of a Vibrant New China

How can we explain China's extraordinary and unanticipated emergence over the past four decades? Why did the ruling Chinese Communist Party (CCP) shed old dogmas and boldly lead the reforms that have permitted China's economic takeoff? How was China, against all the odds, able to throw off the heavy burden of historical legacies, both ancient and modern, and achieve progress that has stunned the world? How has China moved from "perpetual poverty"¹ to a situation where its companies can compete in global markets?

The answers lie in understanding what we term *the China paradox*, an unlikely balancing act or equilibrium between forces, motivations, and interests that under other circumstances would have been deeply inimical.

This unexpected and beneficial alignment of the stars that has underpinned China's hybrid developmental model is still young, having seen the light of day only after Mao Zedong died in 1976 and Deng Xiaoping took over the reins of power in 1978. This balance has been, and remains, an extremely fragile construct, vulnerable to disruption and derailment. Most troubling, based on current trends, the CCP today looks less and less like the CCP under Deng Xiaoping. There is certainly no guarantee that *the China paradox* will stand the test of time and that the China "miracle" can be sustained.

At the core of *the China paradox* has been the role of the CCP. This is not to undervalue the role the Chinese people themselves have played in China's rise. But the centrality of the CCP in creating this balancing act is undeniable. Post-Mao, the CCP was severely chastened and forced to acknowledge the dead end in which China found itself. Also, as part of that rare alignment of the forces, Deng Xiaoping showed remarkable courage in breaking free of old dogmas and allowing the bold experiment to unfold. The CCP displayed a profound pragmatism, unlike the hubris it exhibited under Mao or, most alarmingly, under Xi Jinping today. We shall see how the CCP's pragmatic actions unleashed reforms permitting foreign ideas, technology, and skills to be effectively grafted onto China, allowing oxygen to flow to China's economy and society.

This is not to suggest for one moment that the CCP was somehow converted to liberal democracy. It remains unyielding in its absolute rule of China and will not permit any challenge to its power. Superficially, that fact seems to be inconsistent with the changes it has led. Indeed, on occasions during the reform process, its repressive autocratic nature has come close to disrupting the fragile balance of forces and halting the process. But the CCP's willingness to experiment, adapt, and innovate flows directly from its quest for survival. Whatever supports its goal of holding

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on to power will be considered; whatever undermines that goal will not be countenanced. But at the same time, the CCP has proven to be deeply committed to wealth creation, improved health services, and, more recently, to environmental sustainability, which helps maintain its popular mandate and its hold on power. There is a strong logic to all this. It explains why *the China paradox*, which to the casual observer seems riddled with contradictory elements, has in fact helped China to hold things together in this transitional period and to achieve extraordinary economic results. It remains true that whenever the CCP is called upon to choose between its goal of survival on the one hand and the goal of economic development on the other, the former outweighs the latter, as we saw in the 1989 Tiananmen Square Massacre. Still, in recent decades those two goals have proven to be compatible most of the time.

The Chinese developmental model of recent decades is a striking piece of social innovation. Historically, the forces of conservatism, and after that ultra-leftism, had drowned out voices and movements that called for reform. But after Mao Zedong's death and the reforms launched by Deng Xiaoping, China finally turned its aspirations into reality through evolving this hybrid economic order. Even though the tensions, compromises, and adaptations that have permitted this model to function have resulted in China actually being an underachiever in some respects, we should not let that detract from its achievements.

Since *the China paradox* is new and fragile, what guarantees are there that it can continue indefinitely? Although commentators, both in China and abroad, hold widely divergent views on China's prospects, it is fair to say that the turn of events in China in recent years has overall increased the pessimism over the future. Some see China continuing to plow forward or at least muddle through, while others prophesy the collapse of China or of the CCP. Based on the evidence we assemble on how *the China paradox* emerged and operates, how confident are we that this model can be sustained and for how long? Will the increasingly assertive role of the CCP in society, and in the economy, disrupt the model that has delivered so much progress?

You may ask why it is so important to understand *the China paradox*. Although China certainly has its own complexity and distinctive features, we should avoid the mistake of overemphasizing its uniqueness. All societies are a blend of the fresh, new elements and the conservative incrustation of past centuries, creating not only disruptive social fissures but at times also supplying the social cement that smooths the way forward.

Given China's global significance, it is vital that we make the effort to understand what is shaping its emergence and will determine its future. China has entered uncharted waters. Its sheer size – both its geography and its population – and the pace of its emergence put it in a league of its own and make predictions difficult. Although step-by-step experimentation and pragmatism have permitted China to move forward through its reforms without foundering so far, there rightly is a deep

anxiety over what it would mean for China *and* the world if things in China became seriously unstuck. If we layer in China's history of volatility, rebellion, and even national fragmentation, then that anxiety is further heightened.

The nation wrestles with the conundrum of how to free up creativity while keeping a lid on the domestic volatility we highlighted above. A common expression in China is, "as soon as you relax things, there is chaos, but when you control things, they die" (*yifang jiuluan, yiguan jiusi*). Though more often than not this is used to justify more social control, not less, it nonetheless addresses a dark reality in China. Observers often speculate as to why the Chinese people tolerate such an oppressive regime. Well, as Chinese will tell you, their deepest anxiety is that an ungovernable nation would see a return to chaos. They argue that, as it stands, only the CCP can keep the lid on things. They are prepared to set aside the CCP's earlier track record of destruction and failure.

The vibrant economy and society that have emerged inspire admiration and respect. The Chinese people have with energy, confidence, and optimism broken free from the old order with unanticipated speed and scale. This massive burst of pent-up energy has helped raise hundreds of millions out of poverty. What the Chinese (the Chinese people themselves and not just their rulers) have achieved, dwarfs other economic "miracles," including postwar West Germany and South Korea. But at the same time, especially during the last five years, China's sheer size and its rapid rise way beyond any predictions, coupled with a new assertiveness – one might say hubris – under Xi Jinping have raised questions internationally about China's goals. Will it seek to go beyond great power status and attempt to dethrone the US as the world hegemon, the global superpower? China's rise, and recently demonstrated ability to innovate rather than just catch up, has sent ripples of anxiety across the world.

Moreover, during the last five years, the inevitable has crept up on us. After decades of growth, of imitation and catch-up, China has finally begun to innovate in high tech, for instance in telecommunications and in artificial intelligence. Not only has China shown that in some areas it can set the global pace, at the same time it has abandoned its former studied modesty in favor of an unprecedented confidence, assertiveness, and swagger. The rest of world, and in particular the United States, has woken up to China's rise, not just its economic scale but also its quality and speed. And beyond that, some even claim, with little evidence, to discern a Chinese mission aimed at global control. Friction between China and the US on trade and investment is longstanding but until recently was mitigated by both parties' self-interest. But now, the US, the erstwhile hegemon, faces threatening economic competition from China – and the friction has flared into economic warfare. This has been compounded by China's egregious human rights abuses domestically. So I have devoted a completely new chapter to addressing this massive geo-political upheaval which has undermined the pattern of globalization and forced China to rethink its economic posture.

On the positive side, China's vibrant side goes far beyond its throbbing new businesses and factories. There was the bright-eyed young professional I met who has adopted the name Ansel out of appreciation of the great American photographer Ansel Adams. Consider China's gleaming new transportation infrastructure, with its network of high-speed rail, new airports, and superhighways. There is the flourishing restaurant scene in which imaginative chefs create fresh twists to China's regional cuisines. We can see and feel a refreshing openness to change, the hunger for new ideas. We should celebrate China's "national revival" (*zhenxing*) and the achievement of its longstanding goal of "wealth and strength" (*fuqiang*).

Nor should we underestimate the power of historical legacies from traditional China and from Mao Zedong, which on a psychological level generate a chilly, stifling atmosphere that is the very enemy of vibrancy, antithetical to innovation and boldness. This "stifling" still permeates Chinese society, its traditions and culture, its institutions and organization. Furthermore, in recent years, the CCP has shown a strong and growing interest in Confucianism as a form of social cement to fill the gap left by the fading relevance of Marxism-Leninism.

Seeing Chinese so happily enjoying the fruits of economic success, it is sometimes easy to forget the quiet Faustian pact they are forced to make with their rulers. Over the past four decades of *the China paradox*, the energy generated by society, the introduction of foreign technology and business processes, all under the aegis of the reform-minded CCP, has proven a strong antidote to that dark side of China's historical legacy.

But the current leadership of the CCP appears oblivious to just how fragile the balance underlying *the China paradox* is and seems bent on reverting to a harder, more brutal version of one-party rule – not a return to era of Mao, but certainly not the kind of governance Deng ushered in. The breath of fresh air that the reforms brought may not be that long-lived.

The stifling atmosphere manifests itself in many ways, through reinforcing authority and breeding passivity rather than a questioning attitude. It rewards consensus over boldness, small steps over risk-taking. Social control is all pervasive, finding its way into every nook and cranny of society, so that just the hint of state violence is sufficient to ensure that citizens respond with self-discipline and self-censorship.

In my analysis of *the China paradox* and its implications for China's future, I shall focus primarily on China's economic transformation – its industry, commerce, and technology. This large arena provides a vivid illustration of how the vibrant creative forces interact with the choking aspects of traditional and more recent communist society.

I will also layer in political, social, educational, and cultural factors that are inextricably linked to China's developmental model. It is impossible to make sense of China's economic transformation without a full understanding of the role of the CCP, which has been the chief architect of the reforms while at the same time unswervingly maintaining its grip on its paramount imperative of staying in power. To

what degree are the autonomous and newly assertive economic forces outpacing the CCP's ingenuity and its ability to manipulate outcomes and to stay in control? Is China's current increasingly restrictive political governance looking out-of-step with the economic system it should be enabling rather than dominating?

A central and recurring theme in modern China, to this day, has been the effort to import and absorb foreign ideas, technology, and skills that can help transform the economy. I delve briefly into early failed efforts to use foreign ideas to reshape industry and commerce, first during Imperial China (before 1911) and then during the Republic (1911–1949). The traditional aspects of Chinese society vastly outweighed those shallow efforts at change.

During Mao's rule (1949–1976) in the first decades of the People's Republic of China (PRC), the pendulum swung the other way, away from traditional values and traditions. The wholesale adoption of the massively flawed Soviet economic and political system, then followed by still more missteps even further to the Left, led the nation down the path to what China's reformers were to characterize as a system that made a virtue of "eternal poverty." The depth and totality of these failures stand in stark contrast to recent achievements, permitting us to appreciate the boldness with which Deng and the CCP addressed the reforms.

Since the reforms began in 1978, a key component of China's newfound vibrancy and vigor has been an effective introduction of foreign knowledge and skills. Modern business concepts and processes have reshaped state-owned industry. Foreign investment has been absorbed, transforming whole sectors and the workforce. In this Second Edition I also include the quirky and fascinating case of failed attempts by foreign investors to establish casinos in China.

Chinese private firms have been permitted to flourish, driving productivity and the creation of wealth and jobs. The cost of the degree of autonomy which large and strategic private Chinese firms have to pay is acquiescence and subservience to the party-state. In the completely new chapter on Huawei, we show how that high technology firm has driven its own innovation while remaining fully aligned with national goals. We have added a new section to describe, blow-by-blow, the out-of-line behavior of Alibaba (a private firm and China's largest e-commerce platform) which provoked a furious reaction from the CCP. Other private e-commerce firms have also come under fire. In that context, we shall consider whether this pattern represents a major watershed in policy, aimed at reining in the private sector.

The government has funded Chinese research and development (R&D). Chinese universities now turn out countless MBA graduates, while students returning from overseas bring new attitudes, values, knowledge, and skills. This wholesale import of foreign knowledge is both broad-based and deep-rooted. Even allowing for the pervasiveness of Chinese authoritarian legacies, this absorption of new ideas provides modest optimism that the clock cannot be turned back and that the gains of the last four decades will not be erased.

Of course, China's adoption of foreign ideas and institutions can serve different objectives, in many cases contributing to positive, irreversible change, but sometimes being hijacked for other goals. A recurring theme in China over the past century and to this day has been the use of foreign ideas and mechanisms to prop up the status quo or, more narrowly, its rulers. China has recently become a world leader in certain applications of artificial intelligence (AI). It should be a surprise to no one that China's focus in AI has been on its use for facial-recognition and surveillance.

In the process of absorption, ideas may be changed to fit local conditions or distorted to defend the existing order. For instance, China's adoption of the "rule of law" is a thin veneer that is easily trumped by the police state. China's "corporate governance movement," which led to Chinese stock market-listed firms having "independent directors," ended up as a hollow charade designed to win the confidence of the capital markets. China claims there is an "open door" to foreign direct investment and that they are dedicated to "win-win" deals around the world. But the reality is often quite to the contrary.

Some might argue that having attracted, absorbed, or stolen vital foreign technology, China feels confident enough to slam the door shut again to protect its "national champions." But given the dynamics of technology innovation, I am convinced that China's rulers and entrepreneurs would prefer to remain integrated into the world's supply chains and to participate in global scientific discourse. That said, given the geopolitical tensions, especially the standoff with the US government with regard to Huawei, China faces little choice but to reduce dependency on foreign technology and imports and to build a more self-sufficient fortress China.

The volume and weight of imported foreign ideas and their positive impact may ultimately drown out the efforts of those who seek to use them simply as window dressing for a revamped autocratic CCP-dominated order. On the back of this economic breakout, Chinese firms are developing new business models, finding ways to innovate, organize, and compete.

Some firms, as we shall see, are based on a straightforward but effective "catch up" model; for instance, in railways and nuclear power. Some proved to have mastered the art of acquiring and turning around poorly performing global firms. Yet others, by operating under government patronage, can gain access to minerals, sell power plants, and develop consumer markets in emerging countries in Africa and Latin America. In this second edition, we update and expand a key company profile, which shows how its diamond business in Zimbabwe collapsed and with it the firm's ability to repay its bondholders in China.

One striking development over the last five years has been the extent to which Chinese firms have actually innovated in terms of truly novel products or technologies, something that earlier had remained elusive in China. In the first edition, we observed that many Chinese firms exhibit innovation in reshaping business models and tweaking existing technologies. Well today, the Chinese can celebrate the fact

that firms like Huawei have shot the lights out and, perhaps predictably, provoked the wrath of the US, which has fallen behind so far that it does not possess its own home-grown 5G technology.

We shall also acknowledge that alongside the US anxiety over Chinese technology innovation and capability, there is another much broader current – dismay and anger at China’s human rights abuses – whether meted out to the Uyghurs in Xinjiang, to Hong Kongers, or to Chinese citizens more broadly.

China is fully entitled to shape its own future. It has its own specific conditions, history, and aspirations. It is not for us to seek to dictate what developmental path it should pursue. China’s history will continue to be made by the Chinese people themselves in their own way and at their own pace.

Still, China’s huge significance today, its interdependence with the global economy, makes it unavoidable that the world not just observes China’s progress, but also offers suggestions and shares concerns. As noted above, some of the views on China are based on the notion that China is a threat, an enemy bent on world control. This hostility is in part founded upon a resentment at China’s new-found power and comes laced with racist language. Other views are based on legitimate concerns over China’s strident nationalism, its growing military assertiveness in Asia, its crimes against humanity, and the threat posed by Chinese technology running our telecoms.

Other concerns have more to do with China’s domestic developmental trajectory. Is the current path sustainable in the long term? What adjustments and choices should China make to avoid a social explosion, the ripples of which would undermine world stability? If further, deeper reform is vitally needed, what barriers stand in the way of such change?

In the shorter term, the concerns focus on how China is governed. In many nations, economics mainly rule. In China, there is little doubt that politics rule, or as the CCP puts it, “the Party leads in all things” (*Dang lingdao yiqie*). Remembering that mantra is the key to survival in China.

But we shall ask ourselves whether, in 2021 as the CCP celebrated the one-hundredth anniversary of its founding, it is flexible and creative enough to take on the heavy task of carrying China forward. Is Xi Jinping’s “new era” of reforms a needed rebalancing of the economy which portends China’s continued rise and flourishing? Or is it a poorly disguised quasi-imperial system which, in a late-dynastic sense, rounds off the CCP rule, after a brief revival under Deng Xiaoping?

Meanwhile, among China’s elite, minds also turn to short-term concerns. Now that Xi has abolished term limits for himself, does he really want a third term? Now that the succession process has been thrown into disarray, how does an up-and-coming politician in China contend for the top job?

We will explore the degree to which the cautious optimism about China’s future, widespread two decades ago, is being replaced by deep anxiety that China’s political risk has risen several notches. Furthermore, we will address the concern that even if China succeeds medium-term in sustaining its economic “miracle,” its

concomitant rise internationally, in itself, might ultimately be regarded to be at the expense of others and thus provoke a global reaction and countermeasures – way beyond the tensions that have emerged recently.

Some had previously sensed that China domestically and internationally was becoming more predictable and easier to interpret. But recent trends have proven that China's path remains tortuous and precarious. What we see is that China's drama, turbulence, and uncertainties – which have animated the last four decades (and before) – show few signs of abating.

Chapter 2

Early Attempts at Industrialization: The Empire and the Republic

[Zhang Zhidong] had erected a gigantic cotton-mill at Wuchang with thirty-five thousand spindles, covering six acres and lit with the electric light. . . . He erected a magnificent iron-works and blast furnaces which cover many acres. . . . He has iron and coal mines, with a railway seventeen miles long from the mines to the river.¹

– Written in 1894 by G.E. Morrison, an Australian adventurer who travelled up the Yangtze to Wuhan, where he observed this industrial complex established by the Qing dynasty official Zhang Zhidong.

During most of its imperial history, China performed well in the steady state of a sophisticated agricultural society but at the cost of leaving industry and commerce undervalued and stunted.

Beginning in the Southern Song dynasty during the 12th and 13th centuries, an autonomous merchant class emerged;² and in the subsequent Ming and Qing dynasties began to engage in industrial activities – porcelain, cotton, silk – that were distinguished from handicraft production by the scale of their operations, by free wage labor and investment by entrepreneurs, and supported by the existence of a national currency and early forms of banking.

However, these “shoots of capitalism,” as Chinese historians describe them, failed to flourish due to a range of factors. Max Weber³ draws attention to a cultural or religious aspect – the absence in China of the “protestant ethic,” which drove early European industrializers to remake the world in a new image, while adhering to frugality and ensuring strong capital accumulation. Others point to the massive power of the autocratic imperial China state, which could strangle or co-opt emerging businesses before they became large enough to challenge the status quo. At the same time, the merchant class lacked a strong identity and was more willing to haggle and make concessions to the scholar-officials than to seek independence. Bribery defined the relationship between the officials and merchants, serving as a way for merchants to obtain immunity from dispossession of a franchise – a pattern that persists to this day. Those in the nascent middle class lacked a “fighting spirit,”⁴ and their ambition was limited to achieving social mobility in terms of an official position, if only a lowly one, through investing their commercial profits in land, the traditional measure of wealth and status.

During the 18th century in Yangzhou, the government farmed out its salt production monopoly to merchants who received the exclusive rights to process, distribute, and sell salt in that part of China. Despite its scale and high level of profitability, the Yangzhou salt industry failed to develop since it was seriously undercapitalized due in

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part to official exactions, coupled with the division of wealth due to the family system. But another key factor in this was the diversion of capital to nonproductive uses, to conspicuous consumption and lavish cultural activities, and, of course, to education, which was the route to becoming a government official.⁵

The arrival of the military and mercantile might of the *Great Powers* at the gate of China from the late 18th century onward shook China's imperial system to the core and ultimately opened the path to revolution and economic modernization. The Opium Wars forced China to give foreign traders access to the China market under conditions that favored the foreigners and put local Chinese firms at a disadvantage.

China's economic modernization was also held back by the traditional close connections between officials and merchants, a symbiotic relationship that during the mid-19th century became known as "official supervision and merchant operation" (*guandu shangban*). These enterprises, run by merchants but owned and controlled by officials, failed to achieve long-term success.

The high point of this business model was during China's Self-Strengthening Movement in the last half of the 19th century. The Qing Dynasty externally faced the might of the great powers and internally faced rebellion. To shore up its shaky rule, it imported military technology, adopted half-hearted constitutionalism, and introduced some modern education and science. The key slogan was "Chinese learning as the core (*ti*), Western learning for practical applications (*yong*)." That *ti-yong* concept continues to pervade the thinking of today's Chinese leaders, who, while enthusiastic about foreign science and technology, stand steadfastly against broader Western liberal values that could undermine the political order.

A good example of "official supervision, merchant management" was the establishment in 1872, by Qing minister Li Hongzhang of China Merchants Steam Navigation Company, of China's first indigenous modern shipping company. He contracted the operations of the company out to merchants, and by 1887 the firm had about 30 vessels plying the Yangtze River, the China coast, and as far away as Singapore, Manila, and Japan. However, its largest shareholders "mined" the company's income for their own personal enrichment rather than reinvesting the funds to expand the fleet. In Wuhan, Viceroy of Hunan and Hubei Provinces, Zhang Zhidong built an industrial complex with a steel plant, an iron ore mine, and an arsenal that produced artillery of German design. He established textile mills, introduced technical education, and helped build a modern army. But after China was soundly defeated in the Sino-Japanese War (1894–95), the Self-Strengthening Movement, which had focused on making weapons and ships for China's defense, was utterly discredited. In fact, the steel initially made by Zhang Zhidong's steel plant was of low quality and not suitable for military applications.

The joint official-merchant approach as exemplified by Li Hongzhang and Zhang Zhidong was "too shallow a font of inspiration"⁶ to produce modern enterprises. As the historian McAleavy puts it:

The characteristic of this type of industry was that its management was in official hands throughout, or in other words that Li [Hongzhang] or whoever was the founder ran it according to his views through men of his own selection. The public at the most were permitted to buy shares, but had no real say in how the business was carried on. Thus, the modernization movement on the whole had only a minor effect on the development of native capitalism.⁷

Feuerwerker, in his classic work on what he calls China's "retarded industrialization" in the late Qing Dynasty, highlights the absence in China of government subsidies in terms of financing and infrastructure that laid the foundation for industrial development and that had helped the transportation industry flourish in Meiji, Japan during the same period. In China, there were only "isolated cases rather than an epidemic of industrialization" – focused on arsenals and railroads and, later, telegraph lines. Although the Qing government drew up a Company Law and Bankruptcy Law in 1903 and regulations to protect inventions, it was technically bankrupt and unable to make needed investments. The official-merchant joint enterprises were over-dependent on capital from Chinese businessmen in the treaty ports or from rural gentry living off land rent. Official appointees to management were unqualified to run a business. "Personal ties such as kinship and one's village were as important as competence and experience." There was a "vulnerability to official exactions," a "proclivity to graft or squeeze," and "a willful absence of initiative."⁸

Later efforts did move Zhang Zhidong's industrial center more in the direction of a functional corporate structure. In 1908, a senior official, Sheng Xuanhuai, merged the steel works and the iron ore and coal mines into the Hanyeping Company, which he ran as his personal business until 1916. The steel works were upgraded using Japanese bank loans and were able to supply steel rails for China's rapidly growing rail network. Today tourists can visit Zhang's former factory complex, described as "at that time the largest integrated steel production base in the Far East and the cradle of modern China's industry." As an illustration of China's recent surge into the modern world, there is nearby a new state-of-the-art steel works that produces special steels for aerospace engines, bearings, and machine tools.

The efforts of those late Qing dynasty modernizing government officials were too little too late. Independent entrepreneurs were weak and without a voice. But warning bells were ringing. While social Darwinism had initially served to provide justification for 19th century imperialism, for the Chinese, as the victims, the theory of survival-of-the-fittest was transformed into a call to action as China faced being carved up by the great powers along the lines of what happened in Africa. Soon the Qing reformers were outflanked by Chinese revolutionaries whose priority was to overthrow the dynasty as the first step in national survival. In 1911, the Qing's own modern army seized power and the Republic of China was established.

The industrial efforts of the Self-Strengthening Movement failed not only to achieve the task of propping up the decaying Qing dynasty, but were also shallow in that they tried to graft Western technology onto a Confucian society. Chinese revolutionaries in the early 20th century recognized this failing and called for radical

cultural change, including the adoption of Western science and education. Chen Duxiu and other leaders of the New Culture Movement, which began around 1915, called for “Mr. Science” and “Mr. Democracy” to replace “Mr. Confucius.” But even before the 1911 Revolution, many Chinese intellectuals began promoting radical views on the merits of industrial society.

In 1907, a group of Chinese anti-Qing revolutionaries established the *New Century* (*Xinshiji*) magazine in Paris. Though imbued with the utopian anarchism of Kropotkin, they pragmatically aligned themselves with the nationalism of Sun Yat-sen, who went on to establish the Republic. An essential part of the New Century’s platform was a fervent “industrialism,” which was derived from their exposure to Western society and which looked forward to an age of machines. It bore no relation to traditional Chinese utopian thinking, which looked back to an idyll of agricultural self-sufficiency.

Wu Zhihui,⁹ one of the leaders of this group, foresaw a world in which electric trains and airships would facilitate worldwide contact between experts who would design a new urban environment; while for short-distance travel, moving pavements, operating day and night, would make cars and trains obsolete. In science, emphasis would be placed on hygiene and medicine to lengthen life. Simplified Chinese characters would be adopted to improve access to knowledge, so that “ten-year-old children could already have the knowledge of present-day scientists.”¹⁰

In 1916, Wu confronted China’s traditional separation of intellectual activity from manual work, doubting whether China’s youth had ever seen a power lathe. He called on young people to forgo eating out or going to the theatre and instead build workshops in their homes where they could develop machines. He did not suggest total reliance on foreign products, but rather advocated the purchase of single foreign machines for the purpose of copying them.¹¹ We can see striking echoes of this in China’s current “catch up” business model.

In 1924, writing in the *Science Weekly*, Wu called on friends and compatriots to “take off their long gowns” and “put on the blue cloth of the workers and peasants” so as to achieve a bold industrial transformation. The world he espoused, which sounds a lot like China’s pulsating economy today, was:

Iron pillars will be cast like ten thousand tree-trunks, concrete will pour out in vast quantities, and experimental equipment will fill factory workshops. Chairs of shiny iron and oiled wood will fill the storehouses.¹²

These radical views on industrialization received pushback from some Chinese conservative intellectuals, who rejected the “material civilization of the Westerners,” complaining that many Chinese were dazzled by the West and calling for the defense of what they called “the national quintessence.” Following the establishment of the Republic, the new government in 1912 sent telegrams to each province stating that “industry is the lifeblood for the survival of the Republic.”¹³ Minister of Industry, Liu Kuiyi, who had studied in Japan in 1903, stated: “We should follow the

guidance of scholars and link science to industry as the path to creating a strong nation.”¹⁴ He set up universities and high schools devoted to agriculture, industry, and commerce and specialized institutions for shipbuilding, medicine, and pharmaceuticals. He issued laws to protect inventions.¹⁵ Though many of these efforts foundered in the instability of the early Republic, they demonstrate the commitment to science and industry.

During the Republic, just as during the late Qing dynasty, Chinese studying overseas had a strong impact on social change in China. Leaders of the Paris group of revolutionaries mentioned above were instrumental in establishing the Work-Study Movement, which brought hundreds of Chinese students to France, among them the young Deng Xiaoping, the future architect of the post-Mao reforms, who worked at a Renault factory in Paris. During the Republican period, many Chinese students returned from abroad with scientific knowledge. Hou Debang, having studied at MIT and Columbia in the US, returned to contribute to China’s nascent chemical industry. Geologist Li Siguang, who had studied in Japan and then Birmingham in the UK, returned to China in 1920 and played a key role in China’s oil and gas discoveries. This theme of returned students has remained ever-present to this day.

The early years of the Republic of China (1911–1949) were blighted by warlordism and national disunity. It was only in the late-1920s that some semblance of central control was established across the whole nation. Between 1928, when warlordism was defeated (or at least contained) and the nation largely united, and 1937, when Japan launched its full attack on China, the Republic had almost ten years of breathing space to begin building a modern state. While politically the regime borrowed heavily from European fascism and traditional Confucianism, in society at-large, enlightened reformers strove to modernize science, education, and healthcare.

Unfortunately, the government was able to focus effectively only on the cities and surrounding areas. Much of China, especially in the interior, was poorly controlled by the central government.¹⁶ The modern economy in terms of industry and transportation accounted for only 5% to 7% of the total economy.¹⁷ Demand for manufactured products was weak. There was a dearth of competent management – only 500 of 4,000 spinning mills in 1931 had managers who had received formal training. Foremen in Chinese factories had “long gown attitudes”ⁱ and looked down on manual labor. Senior management resembled that of the late Qing enterprises. Even within the cities, modernization was shallow. The Republic worked hard at building a modern finance system with a central bank, and it understood foreign trade and commerce. But when it came to industry there was no breakthrough. Progress was narrow in range and skin-deep in technology. Compared to foreign entrants to China, the growth of these businesses in centers such as Shanghai and Wuhan was

ⁱ This is a reference to Chinese intellectuals and officials who typically wore long gowns, which precluded participation in manual work.

“slow and precarious,”¹⁸ hampered by traditional official power and the privileges accorded to foreigners.

Industry was concentrated in the so-called treaty ports controlled by foreign governments, and the enterprises were often run by foreign interests. Many of the businesses owned by emerging Chinese capitalists remained under the thumb of the government bureaucrats. The focus was on services and consumer products: textiles, cigarettes, carbonated drinks, electric power generation, water supply, coal gas production, and ship repair.

Nonetheless, there is evidence of technological and industrial progress during the Republic. The indigenous cotton textile industry, through new machinery and stronger management, managed to double its efficiency in terms of output per employee,¹⁹ becoming one of the largest in the world. Pre-1949 industry provided the later PRC with valuable skilled workers and technicians who were able to work alongside Soviet advisors. Furthermore, small pre-1949 machine building firms in Shanghai helped the PRC sustain itself after the departure of the Soviet advisors.²⁰

Although Feuerwerker describes China's economy from 1912 to 1949 as “telling a story in minor key” without any takeoff, he is also careful to stress that while the industry inherited by the PRC from the Republican period was relatively small, during 1953–1957 more than two-thirds of the increase in industrial production was to come from the “expanded output of existing factories.”²¹ Without the industrial base inherited from the Republic, “China's industrial development in the 1950s and 1960s would have been significantly slower and would have had to rely more heavily on foreign technology . . . or both.”²²

The modern chemical industry, which was entirely new to China, began during the Republic. In 1918, having earlier set up a refined salt factory in Tianjin, entrepreneur Fan Xudong established a plant to produce soda ash (sodium carbonate, used with silica – sand – in glass production) using the Belgian Solvay Process with salt as its main feedstock. Even though he imported engineering drawings and key items of equipment from the US, he was unable to make the plant work. He hired Hou Debang, who had studied chemistry in the US, as his chief engineer. The problem had to do with the drying vessel being corroded by the soda. Hou, using what is today known as “Hou's Process,” revised the last steps of the process, making it more efficient and also producing ammonium chloride, a fertilizer, as a by-product. His book on his improvement of the Solvay Process was published in the US. The high-quality soda ash made in the plant was exported to Japan and Southeast Asia.²³

Japan's role in China's early industrialization was also important. Having defeated Russia in the war of 1905 and colonized Korea in 1910, Japan had a free rein in China's northeast (Manchuria), which it occupied in 1931, followed by most of the rest of China after 1938 until 1945. Even before that, Japan was tapping into natural resources in the northeast and, along-side that, established the process industry. In 1918, the Japanese opened an iron mine in Anshan and, after its full takeover of the northeast, created a steel plant as well as a coal mine (in Fushun) to supply it. After

the Soviets liberated China's northeast from the Japanese in 1945, they dismantled the steel plant and shipped it to the Soviet Union. Ironically, after the PRC was established, the Soviets returned to assist China in building a new steel plant in Anshan.

Taking advantage of locally available raw materials – limestone and coal – the Japanese also created significant cement-making capacity in the northeast. Dalian Cement Works, for example, was founded in 1907. When the CCP took power in 1949, that plant, with a capacity of 400,000 tpy (tons per year), accounted for 60% of China's national cement production capacity. When I visited the plant in 1986, its two original Japanese-made rotary kilns were still turning. Understandably, the Japanese role in China's early industrialization is not celebrated. But it certainly left its mark.

Although during the Republican period China may have been a chronic under-achiever in industrialization and, more broadly, in social development, there was nonetheless much that the subsequent PRC could have built on. But the CCP chose not to do so, cutting a deep trench between the PRC and earlier China. This was not just about the winning and consolidation of power. The CCP and the many Chinese who brought it to power saw the old society as dark and inhibiting, with few redeeming features. They wanted a clean break.

The establishment of the PRC offered the promise of a parting of the clouds, an injection of vibrancy and hope into the nation that had been called the “sick man of Asia.” The CCP promised enlightened rule and a revival of private industry and commerce, only to quickly renege on what it had offered. The Communist Party's rule brought a new layer of Stalinist social control, which neatly dovetailed with China's traditional autocratic legacy.

Chapter 3

The First Decades of the People's Republic: The Soviet Model . . . and Worse

Lacking both vitality and incentive.

- Gao Shangquan, a senior Chinese government official commenting, shortly after the reforms began, on the impact of Soviet-style planning on Chinese enterprises.

Chaos under heaven is a good thing.

- A slogan plastered on the wall of a Chinese factory visited by the author in 1974 during the Cultural Revolution.

The period 1949–1978, from the CCP's takeover to the beginning of the reforms following Mao's death, was marked by wave upon wave of revolutionary change that left China's economy severely damaged. Through understanding the depths of the social and economic dysfunction and the institutional cruelty meted out to intellectuals, educators, and scientists, we can appreciate just how remarkable was the subsequent success of the CCP under Deng in unleashing radical change and permitting the emergence of what we term *the China paradox*.

As we examine how China embraced the Soviet-style economic model in the 1950s and then sought to drive China farther along the “socialist” road, we shall find that this massive adventure was neither theoretically sound nor effective in practice. It led to disaster and untold human suffering. This is not to deride the legitimate efforts of citizens and officials as they rebuilt China. Nor is the goal to prescribe what kind of economic order China should adopt. Indeed, after taking power, the CCP had few options open to it, other than relying on the Soviets. But we shall demonstrate that the perverse and dysfunctional system that China adopted was not remotely “scientific,” and that it left economic activity in chains, systematically stifling innovation and creativity.

When the CCP triumphantly took power in 1949, it was on the back of the Chinese people's broad-based rejection of Chiang Kai-shek's Republic of China, which had become discredited and despised. To further consolidate its power, the CCP then systematically set about creating a clean break with the past and negating the legitimacy and track record of the previous regime, much as newly established Chinese dynasties had traditionally rewritten history to justify their own rebellion. That break with the previous regime is delineated by terms such as “New China” and “After Liberation.” Generations of Chinese have been brought up on the slogan “I recall the bitterness of the past and think about the sweetness of today.” The CCP's contribution is celebrated by the words “if there had been no CCP, then there would have been no New China.”

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The Fate of China's Capitalists: From Ally to Enemy

The CCP came to power with a broad popular mandate for change, based on its platform called New Democracy, but quickly abandoned the promises it had made and accelerated the pace of social revolution.

In 1940, in a well-written essay entitled “On New Democracy,” Mao Zedong defined the New Democratic Revolution as a stage that would lead to socialism, but “at a later date.” New Democracy, the first step, “will need quite a long time and cannot be accomplished overnight. We are not utopians . . .,” he stressed.¹ While he said that the state would own the large banks and large industrial enterprises, he also stressed that the government would neither “confiscate private property” nor “forbid the development of such capitalist production.”²

The essay, widely reprinted as a pamphlet and distributed across China including in the areas still controlled by the Nationalist government, proved to be highly effective in creating a broad multiclass alliance, albeit under CCP leadership. It is easy to see how Chinese businessmen were lured into imagining that they had a role to play in the new order.

Foreigners were also impressed by the program. In 1945, Gunther Stein, a German journalist, visited the communists in their remote base and interviewed Mao Zedong who stated,

We are firmly convinced that private capital, Chinese as well as foreign, must be given liberal opportunities for broad development in postwar China: for China needs industrial growth.³

Stein completely bought Mao's deceitful charm offensive and became a conduit for communicating to the world the myth that Mao was some kind of liberal reformer.

By 1947, with total control of China in his sights, Mao was ready to abandon New Democracy in favor of a more radical and accelerated approach to the revolution. Ironically, it was Stalin who leaned on Mao and got him to continue with the original, more inclusive, transitional policy.⁴

So, as the CCP came to power, New Democracy remained the party's platform. In May 1949, five months before the establishment of the PRC, Liu Shaoqi, number two in the CCP hierarchy, made a speech^{5,6} to a forum of Chinese businessmen in Tianjin that set out a program for a mixed economy within which private industry and commerce would be retained and protected. Tianjin, located on the North China coast, close to Beijing, was a modern, westernized city second only to Shanghai. It had a strong industrial base in textiles and chemicals, was a major port and trading center, and, like Shanghai, had a race course! Support from Tianjin's industrialists was critical to getting the economy back on its feet. Liu set out the key task of “reviving and developing production,” and stated that “probably the private sector will surpass the state-owned sector, but the government does not fear that.”⁷

Seeking to allay the anxieties of his audience, he emphasized that socialism was “several decades” away and added, “You have the right to hire and fire workers.” For

private businessmen, exhausted from years of war and moved by the patriotic drive to “Revive China,” the CCP’s platform was compelling and eminently reasonable.

But by 1952–1953 the political mood had changed dramatically. Mao Zedong made it clear that the transition to socialism was to begin *during* the New Democratic period. The collectivization of farmland and the nationalization of industry and commerce were to begin immediately. The Korean War and the encirclement of China by the Western powers likely influenced this. Moreover, the goals of the united front with other classes had been achieved. First, the main enemy (the Nationalist Party) had been isolated and driven off the Mainland. Second, the rehabilitation of the economy had gone much faster than expected. The tactic of a multiclass alliance was cynically discarded and the CCP proceeded to turn up the heat of class warfare. It began its assault on its erstwhile class ally, China’s business class.

In the cities, the “Five Antis” campaign was launched against the business class, directed at the “five poisons” – bribery, tax evasion, the theft of state property, theft of state secrets, and cheating on government contracts. Capitalists were urged to “confess all their crimes,” and suffered “a routine of denunciation, study, confession, and final deposition.”⁸

By 1956, the nationalization of industry was complete. Having brutally coerced factory owners to give up their property, the CCP smartly kept many of them on to run the enterprises.⁹

Nationalization was extended from industry to commerce: trading companies, retail stores, restaurants all came under government ownership. This also meant the end of much of China’s traditional, bustling, vibrant street life. Food stalls, cobblers, tinkers, scribes, palm readers, and the like simply melted away. The dreariness and drabness that shocked visitors to China at that time reflected not only the nation’s real poverty but also constraints imposed by the CCP which cherished control, uniformity, and blind obedience while punishing diversity and creativity.

Since the economic reforms that began in 1978, the old pattern of life has re-established itself with passion. Back are the sellers of Sichuan snacks, the street dancing, fortune tellers, knife sharpeners, plus of course the new arrivals, those selling DVDs, mobile phone covers, and apartments. Once again you can hear the cry of the scrap metal collector as he passes through the *Hutongs* (alleyways) in a donkey-drawn cart. Color has returned to the formerly pallid cheeks of city life.

The Dysfunctional Soviet Model Is Embraced

From 1952 onward, having rehabilitated the war-ravaged economy through a process greatly helped by the goodwill of China’s private business class, the CCP abandoned the notion of a mixed-economy (state and private) and adopted the Soviet economic model pretty well lock, stock, and barrel.

In 1929, Soviet Russia adopted a “hyper-industrialization” economic strategy, giving priority to heavy industry – metallurgy, machinery and related industry – but only after a protracted debate in which another faction had called for the use of market mechanisms and the development of agriculture, light industry (consumer products), and commerce as a way to create a market that would support industrialization.¹⁰

In China, there was no such debate. With the Korean War and the encirclement of “Red China” by Western powers as the Cold War intensified, the CCP “leant to one side” – that is, to the Soviet Union and its heavy industrial model. China may have had no alternative. But it was nonetheless a fateful choice.

The Soviet model was a poor choice, given China’s economic backwardness. In 1949, China’s gross output of industry and agriculture (a reasonable proxy for GDP) was only RMBⁱ 47 BN (about US\$ 10 BN) with per capita output at RMB 66. Agriculture accounted for 70% of output and 80% to 90% of the population consisted of farmers, many living in poverty. Heavy industry was less than 8%.

A heavy industry strategy “conflicted with China’s economic reality”¹¹ since it is extremely capital-intensive, and China’s capital was scarce and its economic surplus small. It required the import of equipment, but China had virtually no foreign exchange.

Since China could not rely on the transfer of the economic surplus through fiscal revenues from the backward rural economy, industry had to achieve its own accumulation of revenue to fuel its growth. To this end, macroeconomic policy was “to completely suppress the functions of market mechanisms and to distort artificially the relative prices of factors and products.”¹² Input costs were rigged to favor heavy industry whether in terms of access to low-interest loans, low wage rates, cheap raw materials, or energy. Prices for agricultural products and food were kept artificially low to help the urban residents who worked in heavy industry.

The emphasis on heavy industry created a variety of economic distortions. Though economic growth did occur, it was at the expense of construction, transportation, and commerce, all of which stagnated.

Within heavy industry, performance measures stressed simple volume or weight, creating an emphasis on basic materials rather than higher added-value processed or refined materials. Thus, China’s steel industry produced sufficient raw steel but had to import rolled steel. That imbalance continued to plague China after the reforms, as it ramped up its auto industry, a big consumer of steel sheet.

The Soviet-style economic strategy was enshrined in China’s First Five Year Plan (1953–1957), during which heavy industry accounted for 85% of industrial investment. Having systematically driven Western engineers, businessmen, and educators out of China, the Chinese government replaced them with a host of Soviet and Eastern

ⁱ The PRC’s currency, the *Renminbi* (RMB), Yuan, or People’s Currency.



Figure 3.1: Chinese view of Mao and Stalin in Moscow, 1949. Mao spent two months there negotiating economic and financial support.

Bloc experts. Soviet loans and aid supported 156 key industrial projects – steel, cement, pharmaceuticals, machine tools, railway locomotives, trucks, and so on (Figure 3.1).

The sheer scale and speed of the adoption was remarkable. Soviet style organizational structures, official posts, and job titles were faithfully translated from Russian, becoming all-pervasive from the central organs of power down to the remotest rural village, even to this day.

The First Five Year Plan did produce significant achievements whether in creating a comprehensive industrial base or in establishing a new infrastructure in science, education, and health. But the organizational principles of the Centrally Planned Economy, which permitted this initial rapid industrial transformation, in the longer run hampered China's development over the 30 years that it was in operation. Its legacy still creates barriers to progress.

The very principles of central planning lay at the heart of its failure. As the Chinese economic reformer, Professor Wu Jinglian, puts it, state-owned enterprises (SOEs) were:

Appendages of high-level executive administrative organs: people, finance, materials, supplies, production, selling all were decided by the State Plan, and [the SOEs] lost their vitality and vigor. At the same time, the quality of service from industry and commerce was creating consumer frustration.¹³

It compartmentalized economic activity into vertical administrative silos or stove pipes. Liu Guoguang, a Chinese economist who should know about Soviet planning since he received a doctorate in 1955 from a Soviet economics institute, in 1984 explained that,

The emphasis on vertical leadership created heavy barriers among different departments, trades and areas hampering the development of proper economic connections¹⁴

Within the silos, factories that manufactured goods had no control over their destiny. Their governance was entirely in the hands of officials in a central ministry (or its local bureau) to which it reported. The factory was not constituted as a corporation. It had a Chief Accountant but there was no treasury function, and it was not responsible for its own profit and loss. The government injected working capital for salaries and materials, and provided long-term investment funds while it took out surplus cash as it was generated or replaced it if the factory was loss-making. China's SOEs were devoid of any real decision-making power.¹⁵

In the modern economy, business achieves efficiency and responsiveness to market needs through an integrated supply chain within which information flows freely. In stark contrast, under central planning, factories were not permitted to have direct contact with their suppliers or customers.

Take, for example, a factory producing bicycles. To obtain raw materials, such as steel, it would first have to send the order up through the bureaucratic layers of the silo to its ministry, the First Ministry of Light Industry. The order was then agreed upon at one of the biannual "product ordering meetings" with the Ministry of Metallurgical Industry (which controlled the steel mills) and the Ministry of Materials (which handled all in-bound logistics) after which the decision was communicated down through those other silos so that the steel was delivered to the factory. This ponderous and slow process made it difficult for the factory to respond to changes in consumer demand. It encouraged the factory to err on the side of safety and to over-order and carry excessive inventory.

When it came to selling the finished product, there was a similar process. Information on the bicycles produced was communicated up through the layers to the ministry, which then agreed upon a sale with the Ministry of Commerce, which in turn handled the entire distribution of products through its exclusive control over outbound logistics, wholesalers, and retail stores. Likewise, with export products, there was no direct contact with customers. The factory's ministry worked with a specialist state Foreign Trade Corporation, which had exclusive export/import rights in its sector and met the foreign traders at the biannual Guangzhou (Canton) Trade Fair or at

the dreary “Negotiations Building,” in northwest Beijing. Cross-border freight forwarding was handled exclusively by a separate state corporation.

As Professor Wu puts it:

There was a lack of direct relationships and feedback between producers and consumers and between producers and producers.¹⁶

A deep irony of the planned economy was that it was very poorly planned. It could be argued that the Chinese economy functioned *despite*, not because of, the planned economy. The bureaucratic process entailed the State Planning Commission drafting the Five Year Plan, including detailed production targets, which were then approved by the State Council and passed to the State Economic Commission for execution. In fact, China often failed to finalize the Five Year Plan in time for the first year of the plan. Essentially, China worked to the rhythm of a series of rolling one-year plans.

The planning cycle was often disrupted by political campaigns and upheavals that punctuated the Chinese political scene. The gathering of statistics to support the decision-making under the plan were (and still are) severely compromised by local authorities cooking the books by reporting either what they thought the “Center” wanted to hear or what best served their local interests.

Short of dismantling the whole system, one route open was the decentralization of economic power, something that occurred periodically but with little success:

Each of the multiple attempts at decentralization during the period 1958–76 created chaos and subsequent recentralization. According to the principle of “as soon as you relax things, there is chaos, as soon as you control things, it dies,” so we created the vicious circle of relax-chaos-take back to the center-death.¹⁷

Ponderous and inflexible, the strictures of central planning predictably led to informal “back door” local arrangements, and with them, a culture of deception and corruption. At the local level in such a vast country, life simply went on despite central planning. Informal, direct relationships with other economic silos at the local level were forged, bypassing the centralized flows of the command economy.

Another side effect, in response to the dysfunction of this form of “planning,” was the creation of a series of largely self-sufficient economic areas, or autarky, based on major cities. Each area sought to mitigate the inefficiency of the central planning cycle, to assure supply, and to avoid being held hostage by out-of-province agencies and the railway bureaucracy. As Chinese economist Xue Muqiao explained:

Many of our enterprises, large and small, tend to be all-inclusive because the present system of management compels them to rely on no-one but themselves.¹⁸

Thus, redundant and subscale industrial capacity was created. Each locality created a comprehensive range of plants, whether iron or steel or motor vehicles, plus all their materials or components suppliers. Autarky led to “duplicate investment and products.” In 1978, 80% of China’s engineering factories produced their own iron

castings. Since it was too risky to outsource, plants aimed for maximum self-sufficiency.¹⁹ The legacy of this today is an economic landscape where regional hubs dominate their own neighborhoods and obstruct firms from other parts of China, a phenomenon termed by the Chinese as “local protectionism” (*difangbao-huzhuyi*). This hampers the development of an integrated national economy in which industry can achieve efficiency and economies of scale.

The Soviet model adopted by China was intrinsically flawed since it replaced lively, rational, and constructive contacts between customers and suppliers with a system of administrative processes that disrupted normal commerce and concentrated power in the hands of bureaucrats. On top of this, the use of government groups, rather than the productive entities, to control the information flow was increasingly ill-fitted to the modern economy, where information on consumer needs, products, technology, competition, talent – everything – needs to be communicated quickly and efficiently.

And Worse . . . Beyond the Soviet Model

What could be worse than that dysfunctional Soviet-style economic model? The Chinese found out painfully during the Great Leap Forward (1958–1961) and the Cultural Revolution (1966–1976). Mao led China’s society through waves of chaos and campaigns designed to force-march the economy to what was perceived to be a more advanced stage of socialism. During the disastrous Great Leap, China lurched to the left, discarding any semblance of economic reality and embarking on a voluntarist, almost religious, search for economic liftoff. It was hoped that any practical constraints, whether technical, human, or financial, would be compensated for by a mystical belief in the power of the people led by Mao’s philosophy, “the spiritual atom bomb.” In industry, steel (actually high carbon pig-iron) was produced in a myriad of backyard furnaces but it turned out to be unusable. Agricultural collectives were merged into the People’s Communes where farmers were forced to destroy their home cooking vessels and eat in communal kitchens. Bogus science was used to justify unsustainable crop-growing techniques. Economic targets were constantly raised and statistics falsified to fit. What followed was the Great Chinese Famine (1958–1961) during which as many as 45 million Chinese died of “unnatural” causes. State grain stores were left untouched while farmers ate tree bark, died an agonizing death from edema or swelling resulting from starvation, or survived through widespread cannibalism.²⁰

Though, on the surface, Mao successfully pushed back within the CCP leadership against the bitter criticism of his Great Leap; this left fissures that would precipitate the Cultural Revolution (1966–1976). Mao may have won the battle but not the war. He was relegated to the role of “philosopher king” and for a time was excluded from the day-to-day affairs of state. He plotted his return to power through

the Cultural Revolution when he launched the Red Guards in order to attack and demolish the government and the CCP infrastructure, essentially conducting a coup d'état against his own party.

Mao's actions were driven by two interrelated factors, his opposition to the post-Great Leap measures (backsliding as he saw it) that, for instance, had reinstated workers' incentives; and his desire to win back control of the CCP and to exact revenge on those who had opposed him.

In 1973, I went to study in China as a member of the first batch of British students after the UK normalized relations with China. As we walked down the steps from the plane in Beijing on a chilly October evening and were greeted by officials holding out a long cotton-padded coat for each of us, we entered a world of strict frugality and incessant propaganda, where the day began at 6 a.m. with loudspeakers blaring out the first bars of "The East Is Red," a paean to Mao, China's Red Sun and "savior." We were given the standard student issue of bed quilt, towel, enamel washing bowl and padlock for our room. When summer came around, we were also issued a mosquito net.

By then, the violence of the Red Guards had subsided, though political tensions and "red terror" (people were arrested, sent to prison camps, executed, or otherwise "disappeared") by the Left continued. On the surface, the political scene was going through a period of relative calm. There were signs of a return to a more rational approach to development, in particular the rehabilitation of senior officials who had been exiled from the capital.

On Mao's instructions, Deng Xiaoping, the future architect of China's economic reforms, was brought back from exile in Jiangxi Province to Beijing early in 1973 and rehabilitated in the leadership.²¹ During the 1974 January 1st New Year celebrations, we were taken to Beijing's largest gymnasium to see a table tennis tournament. In the VIP row, just across from us, was the unmistakable Deng Xiaoping and, next to him, also diminutive but with a more angular face, Chen Yun, Deng's close mentor on economic matters who had also been brought back from banishment. As my fellow Chinese students and our teachers realized what we were witnessing, there was excited murmuring and finger pointing. The reemergence of Deng was a pivotal moment in modern Chinese history.

But within a few months of my arrival in Beijing, a renewed bout of factional fighting within the CCP broke out, manifesting itself in a new "mass movement" of criticism and denunciation. The Left faction in the CCP felt undermined by more moderate educational and economic policies, not to mention the restoration of officials such as Deng. Moreover, Mao's health was fading and he at times was clearly gaga. So, in early 1974, Mao's wife and others on the Left launched the campaign to "Criticize Lin Biao and Confucius" (Figure 3.2).²² Lin Biao had been Mao's chosen successor but had died in a plane crash in 1971, allegedly fleeing from a failed attempt at a coup d'état. The denunciation of Confucius was a thinly veiled attack on Premier Zhou Enlai whose efforts to revive the economy were anathema to the Left.



Figure 3.2: Peking University students return from studying with the People Liberation Army, during the campaign to criticize Lin Biao and Confucius, spring 1974.²³

I had the dubious privilege of visiting a number of Chinese institutions that were celebrated as “models” during the Cultural Revolution. One was The Xinhua Printing Works in Taipingzhuang, Beijing, then on the outskirts of the city, among the fields. It had been selected by Mao as a model for the “cleansing of class ranks,” a brutal struggle waged against officials and managers deemed to be “class enemies.” A classic SOE, set up in 1949, it was responsible for printing 1.8 million copies annually of the Red Flag, the theoretical journal of the CCP. As part of the political campaign, long essays written by its workers on foreign policy were posted on the walls. Hand-painted slogans were draped across all the walls: “Chaos under heaven is a good thing,” “Carry the Criticism of Lin Biao and Confucius through to the End.” I visited other factories, the Beijing Jeep Factory (see Figure 3.3)), for instance, which likewise was festooned with slogans and “big character posters” handwritten by the workers.

During the period 1969–1973 (after the initial period of Red Guards chaos) the economy had shown some recovery. In 1974, economic output stagnated due to the political campaigns. On the consumer side, there were shortages of food, cotton, even matches. During the first five months of 1974, at the height of the campaign, there were sharp declines in the production of coal, steel, chemical fertilizer production, as well as a decline in goods shipped by rail.²⁵

Some places suffered more severe disruption than others. For the Lunar New Year break in February 1974, we were flown down to the Zhejiang provincial seat of Hangzhou.



Figure 3.3: Beijing Jeep Factory, 1973.²⁴

Our cadre minders had a full program of activities, but we clamored for some time to ourselves (“free activities”). Despite calls for us to “respect the collective” (that is, “Do what you are told!”), we simply said goodbye and headed off on public transportation to explore things.

Downtown Hangzhou was covered in handwritten “big character posters” attacking the city government, calling on the citizens to “Fight People’s War,” which in China is code for civil war. When we got back to Beijing, the national press had headlines praising the “excellent situation in Hangzhou.” This was a good lesson on how to interpret China’s Party-controlled press. We knew from close up that things in Hangzhou were on the edge of outright rebellion. The historical record shows that it took over two years for the faction entrenched in Hangzhou to be rooted out. Meanwhile, industrial production in Hangzhou’s factories was regularly halted by fighting and strikes. The combined output of Hangzhou’s Iron and Steel Works during the three years 1974–1976 was lower than that recorded in the single year of 1973.²⁶ A senior Zhejiang official has stated in his memoirs that due to disruption caused by the Criticism of Lin Biao and Confucius, grain had to be shipped into that province from North China to avoid famine.²⁷



Figure 3.4: Campaign to Criticize Lin Biao and Confucius. Big character poster in Beijing, 1974, addressed to Dear Chairman Mao and asking for injustices to be righted.²⁸

The Brutal Assault on Intellectuals and Science

In 1949, Hu Feng, a well-known writer and literary critic, wrote his poem *Song of Joy* to celebrate the CCP's coming to power:

Motherland,
My motherland
Today
At this sacred hour of your new birth
The entire world salutes you
The entire universe congratulates you.²⁹

But soon his joy turned to disillusionment, and he expressed concern at the political controls placed on writers. He was subjected to violent attacks in the press, made a series of abject self-criticisms, and in 1955 was imprisoned as a counterrevolutionary and head of a “secret anti-party clique,” emerging from prison only in 1979, physically and mentally damaged.

The CCP insisted on starting with a clean slate. It fueled its rise to power through fomenting national outrage against all aspects of Western influence, including Christians, who had established many of China's top hospitals and universities. During this cleanout of society, valuable social infrastructure was obliterated, foreigners were deported or fled, while the Chinese who had worked with them were treated as suspect for the rest of their lives.

During the Republican period, the Harvard-trained Minister of Health implemented a program aimed at establishing nationwide healthcare coverage at the

county level, with an emphasis on preventive medicine. But on taking power, the CCP swept this system away and started afresh with help from Soviet advisors.

Centers of medical excellence, such as West China Union Hospital in Chengdu and Peking Union Medical College in Beijing, which were founded and flourished during the Republican period, were taken over by the new government and the foreign staff expelled from the country. The same happened with foreign-run universities. Any Chinese with connections to the West became the CCP's punching bag over decades of political campaigns.

As the CCP took power, there was a flight of talent that included many industrialists from Shanghai and Tianjin who ended up in Taiwan, the US, and Hong Kong. The move of Shanghai textile mill owners and their wealth to Hong Kong was largely responsible for fueling the British colony's post-World War II takeoff. During the 1950s, 100,000 refugees a month fled from Mainland China into Hong Kong, some by surviving the short but hazardous swim.

This exodus was counterbalanced by returnees from abroad, who were motivated by patriotism, by the opportunity to help "revive China" after a century of decline. But many became victims of political campaigns.

China opened the door to ethnic overseas Chinese fleeing the violence unleashed against them first in Malaya, then Indonesia and Vietnam. About 210,000 refugees settled in 84 "Overseas-Chinese State Farms" dotted across South China, bringing with them skills in tropical crops, such as rubber and coffee. One refugee from Malaya told a reporter,

The seeds brought back by Huaqiao [overseas Chinese] were of superior quality, and together with their technical know-how, the first generation was able to plant high-grade rubber trees and harvest top-quality latex.³⁰

But during the Cultural Revolution, ethnic Chinese refugees again became victims of violence, this time in China, accused of being spies and even "foreign devils."³¹ For example, in one overseas-Chinese state farm in Guangxi, hundreds of farmers (including returned refugees) were brutalized until they became disabled or died.³²

Leading scientists were among the many who returned to help build the "New China." Many fell afoul of the CCP at some stage in their careers. The mathematician Qian Weichang was labeled a "rightist" in 1957 and for the next 26 years, until the verdict was reversed, he repeatedly "received all kinds of humiliation and suffering."³³ During the Cultural Revolution, he was sent to work at the Capital Iron and Steel Works in Beijing.

With regard to the role played by returnees from the West, it is instructive to look at how, in 1965, China made a stunning breakthrough in biochemistry, beating teams in the US and Europe in the race to be the first to achieve the artificial synthesis of crystalline bovine insulin.

In 1938, Wang Yinglai left China for Britain to study biochemistry at the University of Cambridge, gaining a Ph.D. in 1941. He returned to China and after the CCP

took power became head of the Institute of Biochemistry of the Chinese Academy of Sciences (CAS). In 1958, collaborating with other returned students, such as Zou Chenglu (Ph.D. from the University of Cambridge), as well as with locally trained scientists, he led the effort that on September 17, 1965, resulted in that extraordinary scientific achievement with insulin. In Spring 1966, Wang, Zou, and another colleague presented their findings to a conference in Warsaw. As Zou put it, “Little did we know that we were to face the ‘Cultural Revolution’ only two months after we returned home.”³⁴

During the decade of the Cultural Revolution, Wang and his colleagues were largely cut off from the international scientific community, missed out on being nominated for the Nobel Prize in Chemistry for their breakthrough, and were unable to continue their research. This is one of many examples of how knowledge and ability were squandered and wasted, to the detriment of China’s progress.

Through the 1950s China absorbed Soviet science and technology in a variety of ways: through the import of complete plants, Soviet blueprints, Soviet advisors in China, and the training of Chinese in the Soviet Union.³⁵ This highly integrated approach permitted the speedy assimilation of the technology and a rapid impact on China’s industrial infrastructure.

In this period, China sent 38,000 people to the Soviet Union for training, of which 28,000 were technicians. The Soviet Union sent 11,000 scientific and technical personnel to China. China established its Chinese Academy of Sciences modeled exactly on the Soviet Academy of Sciences, whose director, Sergei Vavilov, served as consultant to the Chinese. From 1954 to 1963, China and the Soviet Union met annually regarding more than 100 scientific projects, including those in nuclear science.

Soviet science and technology faced political constraints under Stalin, for instance, when biological research was stymied by Lysenko’s pseudoscientific theories on genetics. But it is generally accepted that in the fields of theoretical chemistry, materials science, mathematics, and physics (including nuclear) the Soviet Union did make significant advances.

China itself went through bouts of pseudoscience. In 1960, at the peak of the Great Famine, CAS was instructed to develop food substitutes and came up with a number of pseudofoods, including acorn flour, powdered roots of corn and wheat, leaf protein, man-made meat essence (from enzymes), dried algae, and insects.³⁶

Michael Kochko, the Soviet chemist and academician who spent several years as an advisor in China, criticizes the way China assimilated science and technology in the 1950s, arguing that it “blindly” and “slavishly” followed the Soviet system, focusing on specialized institutes and not on universities. There were not enough trained scientists and China would have been better off teaching new scientists instead. “Better [use] one to train 10. But instead they set up many research institutes, equipped them, but could not staff them.” “Instead of a good university in each province . . . they have set up in each province ‘branches’ of the China Academy of Sciences, which consist entirely of bureaucrats.”³⁷

He also faulted the Chinese leaders for their negative attitude to basic research:

[They] do not see that basic, pure research is the cornerstone of all applied science. Instead projects of pure science are mercilessly tossed out by the bureaucrats. This dooms Chinese applied science from the start and forces it to imitate foreign prototypes and borrow alien ideas.³⁸

Most damning was his view that “the party and government consider all scientists, especially those of the older generation, as ‘class enemies’ who cannot be trusted.”

China also set up a broad range of Soviet-style design institutes that housed China's engineering capabilities. But their high degree of specialization, whereby they operated in one of the ministry-led silos, obstructed rational horizontal expertise and collaboration.

Just as factories were kept separate from R&D, China's universities also were not permitted to conduct research and had to focus on teaching. Research was conducted in separate research institutes. The solid-state physicist Huang Kun returned from the UK to China in 1951 and was “allocated” to the physics department at Peking University where he taught but was prevented from engaging in his own research. It was only in 1977 that Huang Kun could get back to his research, which was to have an important impact on China's semiconductor industry.

Although the Soviet assistance was a poor fit with China's stage of development, presenting challenges in absorbing skills and technology, it did deliver results in kick-starting the construction of a broad industrial base. But in 1960, with the Sino-Soviet Rift, Khrushchev abruptly withdrew some 1,400 Soviet technicians and experts from China.³⁹ The Chinese, making virtue out of necessity, turned to the concept of “self-reliance.”

By the early 1970s, China was repairing relations with the Western powers and Japan (in part to counter the threat from the Soviet Union), bringing opportunities to acquire foreign technology. But this in turn fell foul of China's Left, which deemed such imports to be contrary to the principle of “self-reliance.”

This is illustrated by how the issue of chemical fertilizers became a political football. In the 1960s, China made its own significant advances in producing ammonia for fertilizer in small plants using not just coke, but also lignite and coal dust. In the period 1964–1973, production of nitrogenous fertilizers grew almost threefold. Most of this growth came from small plants.⁴⁰

But when compared to Japan, China's wheat and rice yields were low, the ratio (China/Japan) being 100:219 and 100:181, respectively.⁴¹ This was due to the intensive application of chemical fertilizers in Japan (in kilograms of plant nutrients per hectare of crop area: China 60, *Japan* 425). A nationwide survey in China showed that 80% to 96% of land was deficient in hydrogen, compared to 40% to 55% being deficient in phosphorus, and 15% to 24% in potash.⁴²

In 1973, Premier Zhou Enlai started the import of complete industrial plants. High priority was given to nitrogenous fertilizer and in 1972, China contracted to

import 19 dual ammonia and urea plants. Chinese were sent abroad for training, while staff from the suppliers helped with the construction in China.

China wanted to reduce its dependence on imports of both fertilizers and hydrocarbons and make them in China. Due to the oil crisis in 1973, the world market price of urea (high-analysis nitrogenous fertilizer) rose in 1974 from US\$ 46/ton to US\$ 250–280.⁴³

The Left started its attacks. In 1976, after he was purged for a second time, Deng Xiaoping was accused of attempting to “negate the Cultural Revolution” and to “strangle” small fertilizer factories. The same year, the policy of exporting oil to pay for the import of large fertilizer plants was heavily criticized. Jiang Qing (the wife of Mao) is said to have “decried” an imported ammonia plant as “comprador slavishness” and “national betrayal” and “even wanted the Taching [Daqing, a major oil field] to dismantle the plant, which was nearing completion.”⁴⁴ In October 1976, Jiang Qing and the rest of the “Gang of Four”ⁱⁱ were arrested. The Daqing urea plant was completed and came on stream.

There were other incidents of this kind. One of the most bizarre cases was that of a second-hand 10,000-ton passenger/cargo vessel bought as scrap on the world market, repaired, refitted, and made ready for service. But the Left is alleged to have said, “The ideology of worshiping foreign things is now spreading everywhere unchecked.” The vessel was forced to be left moored in Shanghai, and it was not until six months later, after the “Gang of Four” was arrested, that it could finally set out to sea again.⁴⁵

Farcical though that incident may appear (and putting aside the propaganda rhetoric, which sought to nail the “Gang of Four”), it was a manifestation of a serious pattern of factional political infighting that hampered the absorption of technology and undermined economic development. As a Chinese leader of the economic reforms put it, importing technology was labeled by the Left as “treason.” On the grounds of defending the principle of Self Reliance, they “refused to learn from and to utilize all foreign advanced science and technology.”⁴⁶

The Dead End of the Mao Years

China’s economic planners, armed with the towering confidence derived from “scientific Marxism,” coupled with massive Soviet support for a time, sincerely believed that they could somehow sidestep basic economic principles.

ii The “Gang of Four” was the label the CCP put on the political faction. Led by Mao’s wife Jiang Qing, it also included Zhang Chunqiao, Yao Wenyuan, and Wang Hongwen. They were arrested on October 6, 1976, leaving the path open for the economic reforms. Wang Hongwen was said to be behind the 1974 crisis in Hangzhou, mentioned above.

There were indeed some laudable results. Except for the period of the Great Famine, China was largely able to feed its huge population. From 1952 to 1978 (the first year of the post-Mao economic reforms) China's GDP and output of industry and commerce grew at average annual rates of 8.2% and 6%, respectively. Moreover, this was accompanied by major progress in areas such as women's rights, education and literacy, healthcare coverage, and disease control.

But growth was uneven and certainly not a straight line. After 9% GDP growth during the period 1952–1957, it declined by 2.2% in 1958–1962 due to the Great Leap Forward and the famine it precipitated. In 1963–1965, GDP growth surged back to 14.9%, only to fall back to 6.2% during the Cultural Revolution.⁴⁷

But the growth did not translate into wealth creation. China's *per capita* GNP, starting from a pitifully low base of US\$ 52 in 1952, reached only US\$ 210 in 1978, 25 years later. How was it that the economic development did not lead to a major improvement in China's living standards or, put another way, "Why did China fail to achieve economic modernization?"⁴⁸

Part of the answer lies in serious structural imbalances. Industry grew annually at an average rate of 11%, while agriculture and commerce grew at only 3% and 4%, respectively. Heavy industry grew 15%, at the expense of light industry. During the First Five Year Plan, investment in heavy industry was nearly 6 times that of investment in light industry and that rose more than 8 times by 1976–1978. China's economy was also highly inefficient. Energy consumption was much higher than that of other developing economies, let alone the developed ones, while the working capital of Chinese enterprises accounted for as much as 26% of total assets due to excessive inventories of raw materials and finished goods.

As a prominent Chinese economist puts it:

Because of the bias in the distribution of national income, personal income and people's living standards were persistently suppressed at a low level. . . . Living standards improved little over more than 20 years. Maximum resources were allocated . . . to the production of capital products while the production of consumer products was severely restricted. . . . In urban areas, people faced the policy of low wages and wage freeze. . . . In rural areas, because of the urban and rural segregation, people suffered from insufficient employment and lacked incentive for agricultural production.⁴⁹

Some observers still argue that the problem with the Soviet economic model was its faulty execution in China rather than its intrinsic weaknesses.⁵⁰ But there is abundant evidence that the Soviet system was not only a poor fit with China's low-level of development, but was also per se an irrational construct that hampered human economic activity.

For many sympathetic observers outside China, China had represented the hope that "socialism" could transcend the defects witnessed in the Soviet Union. The book "The Chinese Road to Socialism" (1971),⁵¹ applauded the Maoist model, taking at face value what the authors were told or shown, while ignoring its fundamental faults. For

some, it came as a surprise and a disappointment that China eagerly seized the chance, post-Mao, to ditch both the Soviet economic model and Mao's own variant of it.

So the root of the problem lay in the wholesale and unquestioning import of the intrinsically flawed Soviet economic model, compounded by the Maoist variant, which made a virtue out of poverty. In 1974, the loudspeakers I heard blaring out over the campus in Beijing urged citizens to "pass a frugal New Year" and to avoid "eating or drinking a lot." There was a deep bleakness about that vision of society. Even after several decades of peace and modest economic growth, there was still rationing of basic food and clothing.

Former Vice Premier Li Lanqing writes in his memoirs that after the ten years of the cultural revolution, the economy was "in tatters and with more issues than it could cope with."⁵² He explained that in 1976 (the last year of Mao's rule) China's per capita consumption of grain was only 381 catties (One catty = 500 g), compared to 395 in 1952. In 1976, the average annual industrial wage was RMB 575, lower than in 1966. Not only had urban wages not risen, but the actual standard of living had fallen; while in the countryside 250 million farmers "lacked sufficient food and clothing."

When it came to industrial enterprises, he pointed out that in 1976 the capital and profitability was one-half that in 1965, and that one-third of the enterprises were loss-making. In 1976, foreign trade was only US\$ 13.4 billion, while foreign exchange reserves stood at only US\$ 580 million.

He then went on to spend *four pages* documenting the rationing that was still in place 30 years after the revolution: rations coupons, whose style closely resembled the Chinese currency, were for grain, cotton cloth, etc. In making a transaction, you had to present both the coupon and the money. He recalled how a one catty "national grain coupon" could be bartered for one chicken egg and how a coupon worth several catties could be exchanged for a "plastic bowl which in those days was highly fashionable."

Having lived in China in the early 1970s, I too have the memory of rationing etched into my memory. We, as foreign students, were provided with more than enough coupons to visit our local restaurants to eat dumplings or steamed buns. For citizens it was much harsher.

Some foreigners deemed the rationing in China to be an element of the PRC's development process which ensured fairness in the allocation of basics. But they failed to acknowledge that it was also Mao's policies which contributed massively to China's failure to realize its potential during that period. Li Lanqing felt that rationing after 30 years of the PRC under Mao was an affront to the citizens and a potent symbol of just how much China had underperformed due to political factors.

In 1976, shortly before Mao's death, the Chinese government published the eye-catching pamphlet entitled, "Why China Has No Inflation."⁵³ Of course, the answer to this question was obvious. China's economy had been run into the ground and was largely excluded from global trade (in part through no fault of its own). The

result was no path to wealth creation, but instead bleakness and poverty. As Deng observed later, China's development had been set back several decades.

So the early decades of the PRC, far from ushering in a new dawn, saw China sail to economic ruin. As an ode to Mao Zedong from the Cultural Revolution puts it, "sailing the seas depends on the helmsman." The irony of that revolutionary anthem is now painfully apparent.

The year 1976 was pivotal for China. After Premier Zhou Enlai died, the Left was able once again to remove Deng Xiaoping. But its days were numbered. After Mao died later in the year, the Left found itself isolated and within a month, the "Gang of Four" (as the remaining leaders of the Left became known)⁵⁴ had been arrested and, following a show trial, were sent to prison. After a two-year transition, by 1978, Deng Xiaoping had full control of the CCP. He embarked on earthshaking reform of the economy and presided over a rebirth of the Chinese entrepreneurial spirit.

Chapter 4

Wrongs are Righted, the Reforms Take Shape

To free China from poverty and backwardness, we have for 30 years encouraged people to work hard and lead a simple life. . . . But hard work and a simple life are meant to achieve speedy progress in production and create the material conditions for a rich and happy life. Perpetual poverty is not what we stand for.¹

– Xue Muqiao, an architect of China’s post-Mao economic reforms, writing in 1981.
He had been imprisoned during the Cultural Revolution for calling for
modifications to the planned economy.

This is where in our narrative *the China paradox* takes the stage. During the last four decades of reforms, what might on the surface appear to be the incompatible interests of business and a ruling communist party have against all the odds proven to be highly symbiotic, feeding off of and reinforcing their respective strengths and goals.

Somehow, the stars were aligned, permitting the formation of a productive, if precarious, equilibrium between a modern economy and wealth creation, on the one hand, and the CCP-led political system on the other. China’s entrepreneurial spirit, which had been suppressed but not extinguished during three decades of Maoism, came pulsing back. Key to the emergence of *the China paradox* was the radically new state of mind in the CCP, which provided the conditions for the economic forces to be liberated. Without the CCP shift toward a strident pragmatism that permitted a wide variety of economic experimentation, China’s rise would not have occurred. While the CCP politically never wavered from its absolute autocratic power, it abandoned its economic dogmas in favor of Deng Xiaoping’s principle that “to get rich is glorious,” thus unleashing the Chinese people’s pent-up energy.

After the failures of the Maoist period, the CCP was chastened and humbled by the tough verdict of history. It became highly receptive to new ways to transform China as the only practical route to maintaining its grip on power. Though it has remained true to its Stalinist roots in lashing out at those who might threaten their rule, its overall demeanor showed that it was ready to learn and adapt.

In 1978, Deng Xiaoping launched China on a radical new course called “reform and opening up”² (*gaige kaifang*). Since the Chinese people were exhausted by years of violent political campaigns and economic policies that led to mass starvation, the post-Mao leadership had a very strong mandate to steer China in a fundamentally new economic direction. But the leaders were prudent about controlling the pace and depth of change; nor was there a master blueprint. The approach was extremely gradual and cautious, summed up by Deng’s principle of “crossing the river by feeling the stones.” It took a great deal of experimentation, trial and error, and social upheaval to arrive at today’s economic model, which delivers a GDP of more than US\$ 10 trillion, second only to that of the US, and a stunning 50 times China’s GDP in 1978, when the reforms began.

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Deng made it abundantly clear that the reforms did not extend to the CCP's relinquishing any of its political power. The CCP remains to this day acutely mindful of how the Soviet Union collapsed. It embraces much of what during the Russian reforms was called *perestroika* (economic restructuring) but utterly rejects *glasnost* (political opening up). For the CCP, the economic reforms and the wealth creation they have unleashed are central to its ongoing relevance and to shoring up its hold on power. This is a key aspect of *the China paradox*. Is China pursuing capitalism or autocracy? How can they coexist? In fact, the Chinese model embraces both, though the capitalism is shorn of any liberal democracy and is dominated by state enterprises. For China's rulers, there is no contradiction between the two, as long as the capitalistic tools and levers serve the goal of staying in power. But the model is also sustained by the autocratic side being kept in check, by power being wielded with a relatively light hand. If, as appears to be happening, the political aspect of the equation hardens, then what has been part of a beneficial inter-relationship may well morph into a fatal flaw.

To guide the reader, Table 4.1 and 4.2 shows the broad phases of China's economic reforms, the top leaders who presided over the process, and the country's key milestones.

Table 4.1: Phases and leaders of China's reforms.

| | 1976–1978 | 1978–1993 | 1993–2002 | 2002–2012 | 2012–Present |
|---------------------------------------|------------------------|---|--|--|---|
| Phases of the Economic Reforms | Post-Mao transition | Phase 1 Incremental reform Try to make the old system work | Phase 2 Speeding up of reform. Focus on hybrid “socialist market economy” | Phase 3 “Lost ten years” Cronyism “Vested interests” dominate | Phase 4 Hopes of deeper reform are dashed State dominates over private sector Heightened autocracy and social control |
| CCP Head | Hua Guofeng 1976–81 | Hu Yaobang 1981–87 Zhao Ziyang 1987–89 | Jiang Zemin 1989–2002 | Hu Jintao 2002–2012 | Xi Jinping 2012–Present |
| Gov. Head (Premier) | Hua Guofeng 1976–80 | Zhao Ziyang 1980–87 | Li Peng 1987–98 Zhu Rongji 1998–2003 | Wen Jiabao 2003–13 | Li Keqiang 2013–Present |

Table 4.2: Milestones in China's reforms.

| Milestones of the reforms | 1976 | 1977 | 1978 | 1988 |
|---------------------------|---|--|---|---|
| | Feb. Deng removed for 2 nd time. | July Deng re-instated | Deng gains full power, reform agenda set | Private firms become legal |
| | Sept. Mao dies | | | |
| | Oct. Gang of 4 arrested | | | |
| | 1989 | 1992 | 2001 | 2013 |
| | Tiananmen Square Massacre | Spring. Deng's Southern Tour revives reforms | China accedes to World Trade Organization | CCP agenda for "deepening" reform not realized. |
| | | Planned Economy to be abolished | | Main focus on economic rebalancing and anti-corruption. CCP tightens grip. Personality cult around Xi Jinping |
| | | Deeper SOE reform | | |
| | | | | |
| | | | | |

During the initial years of the reforms (1978–1993), the preoccupation was with liberating China from Maoist dogma, getting the economy back on its feet, and modifying the Centrally Planned Economy so that it could function better. However, once the realization struck home that the Soviet-style economy could not be repaired, the CCP, post-1993, sped up the reforms and moved China further toward a more market-oriented economy.

The year 1978 was a truly extraordinary year in China's history. Two years after Mao died and the "Gang of Four" was arrested, Deng Xiaoping³ was finally able to address a wide range of issues, setting forth his bold reform agenda in a series of impassioned speeches across China. He impatiently and courageously lambasted Mao's policies, issue by issue.

Issue: Maoist dogmatism. The year before, in 1977, Deng had begun the task of overturning decades of dogmatism, criticizing those who insisted on slavishly upholding "whatever" policy or instruction Mao had issued. He called for a verdict on Mao whereby 70% of his contribution was positive and 30% consisted of "mistakes."⁴ Though this was a massive break with the past, Deng was extremely careful not to undermine the entire historical legitimacy of Mao and the CCP and deemed Mao's faults to be mistakes (not crimes), which "brought the nation many misfortunes," adding the faint praise that "without him the Chinese people would, at the very least, have spent more time groping in the dark."

He now called for the "emancipation of the mind," smartly adopting for himself what was said to be Mao's original slogan, "Seek truth from facts," as the mantra of his pragmatism and the linchpin for his attack on Mao's policies.⁵

Deng was a passionate pragmatist (“I don’t care if it’s a white cat or a black cat. It’s a good cat as long as it catches mice”⁶), but with the powerful caveat, *only* as long as the actions were aligned with the preservation of CCP power. By 1979, Deng was already articulating the concept of “socialism with Chinese characteristics”⁷ that went on to become China’s guiding definition of the new economic system, placing the country at the “primary stage of socialism” and in so doing created a pragmatic umbrella under which a mixed economy (private business complementing a dominant state sector) was permitted to flourish. Thus, it could be claimed that China had not abandoned socialism for capitalism. This definition is not just an artifice to justify market reforms since it also reflects the new hybrid order with the dominance of state enterprises and the unyielding political power of the party.

Issue: Status of intellectuals. In a long speech attended by 6,000 scientists, Deng denounced the “wanton sabotage” of science and technology and the persecution of intellectuals by the “Gang of Four.” He derided the view that “the more knowledge you have the more reactionary you are” and “we would rather be a laboring class without culture.” He stated firmly that in socialist society, “intellectuals are part of the working class.”⁸

Even though we may take Deng’s intervention at face value (there was a pressing need to bring intellectuals back into the mainstream of society), how do we square it with other actions by Deng? Back in 1957, Deng had enthusiastically implemented the brutal Anti-Rightist Campaign, with more than half-a-million people labeled as anti-CCP, hundreds of thousands sent to the Chinese Gulag, and thousands executed. Then, in 1989, it was Deng who ordered the army to fire on students during the Tiananmen Square Massacre. The key to understanding Deng’s motivation is recognizing that his overarching goal was the preservation of CCP rule. What supports this goal is embraced; what threatens this goal is rejected. So, in 1957 and 1989, the CCP felt itself beleaguered and under threat, and it acted against the intellectuals.

But as the reforms took shape, Deng needed the skills of businessmen who, during the Mao-years, had been systematically stripped of their property, livelihoods, and professions. He said “we should allow former capitalist industrialists and businessmen to play a role.”⁹ A few were rehabilitated, but it had to be left to a new breed of entrepreneurs to revive or reconstitute that former capitalist class, which had been so systematically driven out of existence.

Issue: The restoration of educational standards. Deng showed strong resolve to raise educational standards by bringing back the University Entrance Examinations (*gaokao*), which had been abolished during the Cultural Revolution.¹⁰ Today, there is enormous competition to get into a Chinese university. The traditional culture, which places huge value on education and learning, has returned. Farmers and taxi

drivers all set the goal of getting their child through the *gaokao* and into higher education.

Issue: Combating excessive egalitarianism, restoring incentives in industry. Deng took aim at a key policy of the Cultural Revolution, the rejection of “material incentives” in industry. He stressed the importance of paying people based on the work they do and not their political attitude. “The bonus system should . . . be reinstated.”¹¹ Then in September 1978 in a speech in Anshan, Liaoning, the location of China’s then-largest steel plant, he pointed out that the plant had 23,000 administrative staff while a comparable plant in Japan had only 600. He called for a system of evaluations for both managers and workers, with larger bonuses for those with the higher ranking. Basic factory practice, we may think, but this was radical in China at that time.

Issue: Empowering factories. Deng took on the issue that Chinese factories had become lifeless extensions of the bureaucracy and argued that they should have “the right to make their own decisions and act independently.”¹² This set the stage for the retreat from the planned economy.

Issue: Foreign technology and investment. Deng mocked the “Gang of Four’s” view that importing technology was “worshiping foreign things,” and stated:

. . . we should be good at studying, and on a large scale take on the help that is available internationally. We should import international advanced technology, advanced equipment, and make it the starting point of our development.

We can detect Deng’s impatience as he bemoaned the fact that past mistakes had left China technologically 20 to 30 years behind the developed nations. “We have wasted a lot of time; we now have to develop rapidly. But how can we do this without repeating the mistakes of 1958 [i.e., Mao’s Great Leap Forward]?” He called for the “utilization of foreign funds” and invited foreign direct investment (FDI) into China. The Chinese door was being opened to foreigners, but the approach turned out to be highly selective and calibrated to avoid putting Chinese firms at too great a disadvantage.

In the arguments Deng put up to justify the importation of foreign technology, there are echoes of the late-Qing modernizers who imported foreign technology to prop up the collapsing dynasty. So far, Deng and his successors have done a masterful job of sustaining their “dynasty,” but the theme of economic progress without political reform, which is reminiscent of the Qing, may yet come to haunt the current rulers in Beijing.

Issue: How far can the economic reforms go? Deng drew a line in the sand, making it clear that he was not retreating from socialism:

Effective things that have worked in the past we must keep, especially the basic system, the socialist system, the socialist system of ownership; on that there can be no wavering. We cannot permit the rise of a new capitalist class. We import advanced technology so that we can develop the productive forces, raise the living standards of the people. This is beneficial to the socialist state and the socialist system.¹³

This statement may have been to placate diehard conservatives or Deng may have genuinely believed this. In any case, Deng later came to moderate this stance on capitalists in light of the unexpected emergence of the vibrant private sector that sustained the economy while the CCP sorted out the mess left by the planned economy. But Chinese leaders have not backed down on the primacy of the state sector.

Following Mao's death and the arrest of the "Gang of Four," there also began a process of righting past political wrongs. This was important to the CCP not so much in terms of what we might think of as fairness, but more as a pragmatic way to isolate any residual Maoist elements and forge national unity around the economic reform program. Many Chinese had a deep-seated anxiety that the clock might be turned back and were hesitant to embrace the new mood. Deng's decisive moves served to allay those anxieties. While today the social order remains autocratic, the limits for the tolerance of dissent are clearly set and acts of repression are less arbitrary than before. While this may not be much of a consolation to those who run afoul of the CCP, it does permit citizens to get on with their life peacefully, assuming they don't want to overtly challenge the political order.

In the last years of the Cultural Revolution, some victims of political persecution – officials, scientists, teachers, etc. – were given back their freedom and permitted to return to the cities, and many were reinstated in their jobs. With the death of Mao and the arrest of the "Gang of Four" in 1976, this process was accelerated as political offenders had their "crimes" annulled and were released from prisons, labor camps, or exile in the countryside. I personally met one of these victims.

Interview with a "Counter-Revolutionary Element"

In 1979, I visited Xinhua People's Commune, a rice-growing agricultural unit some 60 km from Guangzhou in south China. The authorities granted me what turned out to be a spinechilling and disturbing interview.

During my interview of Xu Jiwu, he was closely watched by an official who took copious notes. Smoking heavily and his hands quivering, Xu told me his story, which he had no doubt repeated in front of crowds gathered at countless "struggle" sessions over the years.

The son of a rural landlord, he had, in 1949 at the age of 22, been recruited by an "American espionage organization" at a university in Guangzhou. But it was not until 1950 that his "crimes" came to light. He was forced to write a detailed description of his life, and he confessed and was sentenced to five years in a prison camp

for being a “counterrevolutionary element,” by Chinese standards a relatively light sentence. His wife also received five years.

In 1957, he was released and returned to his home village, where he was to live for more than 20 years but strictly under supervision or “controlled” conditions. He was permitted to work in the fields but deprived of all political rights. He told me that since 1957, he and his wife had been regularly subjected to bitter criticism and denunciation, especially during the Cultural Revolution.

But since the removal, early in 1979, of his “class enemy” status, he had been appointed as a teacher at one of the commune’s primary schools, where he was teaching English for a salary of RMB 30, barely equal to the lowest income of local farmers.

Xu rarely looked me in the eye and spoke in a low voice. When I asked what friends he had, he explained that he had no close ones from the “progressive classes.” Mr. Xu was a broken and shattered man. For him, the changes had come too late. His life had been blighted by the violence of the revolution. I left the scene feeling somehow tainted as a voyeur of the violence that he had been subjected to.¹⁴

Setting the Boundaries of Change

When the photo of Deng Xiaoping famously donning a cowboy hat at a rodeo in Texas in 1979 was featured through the 1980s in Time magazine articles with headlines such as “Banishing Mao’s Ghost” and “Moving Away from Marx,” there was a strong but naive hope in the West that China, in abandoning the planned economy, would somehow at the same time embrace political reform and a truly free market economy so that over time it would increasingly look like us.

But while the government “reversed the verdicts” on victims of political oppression, thus building broad-based support for the reforms, it was in no mood to abandon its monopoly on political power. Those who seized on the loosening up to question the political order were quickly dealt with. Early in the reform process, Wei Jingsheng, a human rights activist, paid a heavy price for testing the limits imposed on public dissent, spending 18 years altogether in jail. Periodically, the CCP tightened the screws on dissent, whether it was the campaign against “spiritual pollution” [i.e., Western ideas] in 1983 or the more recent imprisonment and death of Nobel Peace Prize winner Liu Xiaobo. In June of 1989, the CCP ordered the army to turn its guns on unarmed students who had dared to challenge its authority. All this underscores the fundamental point that, from the CCP’s own perverse logic, holding onto power is the overriding priority, even at the expense of citizens’ lives or of economic development.

Since the reforms began in 1978, the CCP has played down communist ideology and theory, while clinging to Leninist principles of one-party rule. The resulting ideological vacuum has undermined the CCP’s historical legitimacy and put enormous

pressure on it to justify its existence by addressing the nationalist agenda of “revive China” (*zhenhua*) and to do so by sustaining China’s economic growth and rising prosperity.

The Initial Reforms – Limited and Tentative

In the first stage of the reforms (1978–1993), China was still seeking to make the old system work, rectifying the problems associated with the planned economy rather than dismantling it and patching up the state-owned economy.

There was no overt agenda to permit the private sector to compete freely. The full acceptance of a mixed economy (“socialist market economy”) only came in the 1990s. Still, while the government was focusing on breathing life back into the SOEs, there was the largely spontaneous flourishing of collective firms sponsored by local government and then ultimately of private enterprises. As one sociologist puts it,

The rise of private enterprise and capitalism in China was neither envisioned nor anticipated by its political elite.¹⁵

The explosion of private or quasi-private economic activity came from below and was not engineered as a central part of the reforms. Having become a fact and helping to prop up the economy while the SOEs were reshaped, the private sector was incorporated into the scheme of things. It came about *despite* the government (which initially put up obstacles) rather than the other way around.

The views of the Chinese economist Xue Muqiao in 1981 illustrate just how limited the reforms were in the initial stage. He certainly did draw a clear line under the Maoist model of development, stating that “perpetual poverty is not what we stand for,” echoing Deng, who stated that “poverty is not socialism, to get rich is glorious.” But although Xue laid bare the dysfunctional aspects of central planning in China, he also stressed that the reason for changing “this irrational system of economic management” was to “develop the superiority of the socialist system.”¹⁶ At that time he saw no apparent alternative to some form of state ownership. Only later on did he come to accept the private, nonstate component of the economy that emerged as if by accident.

So for some time, the centrally planned system continued to set detailed targets and quotas. The sixth Five Year Plan (1981–1985) contained specific production targets for washing machines, watches, TV sets, cigarettes, detergents. Without mention of projected market demand five year out, it stated with supreme bureaucratic confidence:

Manufacturing ceramic bathroom fixtures. China will produce 4.5 million pieces of these fixtures in 1985, an increase of 54 percent over 1980.¹⁷

During this initial period, reforms focused on increasing the autonomy of SOEs and reducing centrally mandated production quotas, price setting, control over foreign trade, and the state-allocation of jobs to graduates.

When in 1978 Deng called for more power to be given to SOEs, he sent a clear signal that central planning was not sacrosanct and that it was fine to experiment at the local level in ways that would ultimately lead to its demise. This is consistent with his style of avoiding issues of reform head on, but instead permitting local variation that, once proven effective, became the new norm.

We should increase local power. . . . Enterprises should have the right to make their own decisions and act independently. For instance, if they should increase the staff a little, if they need to reduce the staff, then they should have the power to handle that. Enterprises should have a little foreign exchange, so that they can order goods themselves and have technology exchange with other countries. There are some things which have to be done in convoluted ways, have to go up through the provincial government, the ministries and the State Planning Commission, which is all too slow. Today there are some comrades who . . . will not do anything until they hear the higher authorities say something and they themselves don't dare use their brains.¹⁸

This sent the message to local factories and government. The cat was out of the bag. In this process, conflict inevitably arose between the central government and the localities. At that time, I witnessed, close-up, one such battle in China's flat glassⁱ industry.

A Brave Factory Outguns the Central Government

In flat-glass production, China needed to advance from the vertically drawn process, learned from the Soviets, and adopt the float-glass process, whereby molten glass is floated over a bath of liquid tin to produce a very high quality product suitable for the cladding of modern high-rise buildings. The float process had been invented in the UK and then adopted by US, Belgian, and Japanese firms. China was attempting to develop its own float-glass capability in Luoyang, but this was beset with technical issues and the optimal path forward was to acquire the technology through forming joint ventures (JVs) with foreign firms.

Two protagonists in the state sector feature in this David and Goliath narrative. Sitting at the central government ministry-level was the State Administration of Building Materials Industry (SABMI) which, under the central planned economy, in theory held all the cards as the entity responsible for the strategy, management, and ownership (direct or indirectly through its local bureaus) of the nation's entire building materials industry (glass, cement, fiberglass, etc.). The other protagonist, seemingly the underdog, was Dalian Glass Works, a state-owned factory, nominally

ⁱ Flat glass is for architectural purposes, for windows and the cladding of high-rise buildings.

under SABMI's authority, located in Dalian, a major port city in northeast China's Liaoning Province.

A couple of foreign-invested float-glass plants were already under construction, including a Taiwanese one in Kunshan, Jiangsu Province, but were locally sponsored. SABMI wanted to claw back central control and in 1985 had issued a directive mandating that glass technology be first imported by the central government and then licensed out to various Sino-foreign JVs with glass exports paying for the investment. This directive has the ethos and tone of the old centrally planned economy written all over it.

The Dalian Glass Works had a long history. Established in 1921 by the Japanese, it became a SOE in 1950. Although it used the relatively backward vertically drawn glass production technology, it nevertheless had a strong reputation in China due to its rigorous quality control and excellent sales, service, and delivery.

The conflict arose because SABMI insisted that one of these new export-oriented glass projects be located in Dalian and had already earmarked a Japanese partner. It was said that China's top leaders had signed off on this program. But my client, a US producer of float glass, had already signed a letter of intent for a new JV plant with the Dalian Glass Works, which refused to work with the Japanese partner foisted on them by SABMI. This attitude at the Dalian level was in part fueled by genuine anti-Japanese sentiment. But beyond that, Dalian wanted the new plant to serve the domestic market, where it correctly projected the emergence of massive unmet demand for float glass as the construction boom began. Meanwhile, SABMI insisted on sticking to its idea of exporting the output.

We could not totally disregard SABMI since we needed its official approval for the project, which had a total investment of US\$ 100 million, way beyond the US\$ 30 million investment approval limit given to the Dalian authorities.

There had already been bad blood between the SABMI and the Dalian City Government over who had the final say in a cement plant project, and now Dalian was seeking to shut SABMI out of the negotiations for the glass project.

Communications between the two sides had broken down, with Dalian essentially turning a deaf ear to Beijing. I shuttled between Beijing and Dalian, becoming a communications channel between these two levels of Chinese government. Both sides fully supported my role. Mainly, it was the SABMI that wanted me to convey messages to Dalian. Dalian also used me to leak to my client details of agreements reached by SABMI with the Japanese on their role in the Dalian project, but prudently instructed me to wait until I was outside the PRC before transmitting the information, by telex (yes, it was pre-internet) or by phone.

For SABMI, the game was almost up. As the head of the Dalian Glass Works gleefully commented to me, "There is power at the local level as well as at the central level!" A rising star in the glass industry, she proceeded to work on many fronts. She pledged to conduct "ideological work" on SABMI to get them to cease interference. She met with the dynamic Dalian Mayor Wei Fuhai and won his support.

It turned out to be a case of “follow the money.” Dalian’s ability to fund the deal independently of the central government made it impossible for SABMI to wrestle back control. As a result of ongoing economic reforms, the Dalian Glass Works was now permitted to retain a proportion of the foreign exchange it earned from glass exports. Based on this, Dalian International Trust and Investment Corporation agreed to provide debt financing to the Dalian Glass Works, the partner to the JV, secured by a lien on the assets of its existing factory.

The joint venture between Dalian Glass Works and its US partner was finally signed in 1991 after complex negotiations including with the Ministry of Railways to build a railway spur line for inbound silica (sand) and outbound finished glass. In order to provide the central government with some face, SABMI and a Japanese firm were permitted to have small equity stakes in the venture. In 1998, the US partner, as part of a global plan to pull out of float glass production and to focus on coatings, sold its share to the Japanese partner. The very same year, as part of a government restructuring and the ongoing dismantling of central planning, SABMI was abolished and any remaining industry “guidance” functions were folded into a government economic commission.

Since then, Dalian has energetically diversified beyond basic industry supplies such as glass cement, shipbuilding, and railway locomotives and rolling stock. The city’s government has efficiently promoted the city as “the Bangalore of China,” so that it has become one of China’s key centers of business process outsourcing (BPO) (including international call centers) and IT outsourcing focused on software development.

As the government loosened its grip on price controls, distribution, and logistics and foreign trade, centrifugal forces drove SOEs to assert their autonomy and permitted managers and market forces, not faceless bureaucrats, to drive business decisions.

True market prices were established for most goods, an essential step in creating an accurate picture of economic activity, where inputs and output reflected real costs. This permitted industry to measure its actual productivity and competitiveness. But to avoid too much disruption to the economy, this was again a story of gradual reforms starting to unwind the old system. There emerged a two-track system for products, those “within the plan” (*jinei*) and those “outside the plan” (*jiwai*). If you had an urgent need and lacked confidence in the ability of the state to deliver the materials on time, then you went “outside the plan” and paid a premium.

As an indication of just how slow the reform process was, in 1985, seven years into the reforms, 98% of steel products were still mandated to be sold to the state and then distributed and sold at the fixed national state price by the State Bureau of Materials. The remaining 2% of steel production, which was surplus to the quotas set by the state, were left to the factories to be sold in the free market, but at a higher price than “within the plan.”

The Reforms Go into High Gear

While 1978 was the momentous year in which Deng launched the reforms, 1992 was the year in which he breathed new life into the process, which was facing serious opposition from conservatives.

Conservatives in the CCP leadership blamed the student movement and political crisis in 1989 on overly hasty and ill-considered reforms, and proceeded to roll back the relaxation in the economy and strengthen central controls. Students I met in Beijing during the protests in 1989 stressed that a key subtext to “democracy and freedom” was a demand for the transparency and accountability needed to counter the corruption that had become all-pervasive since the reforms.

While the conservatives wanted to slow down or even kill off the reforms, in order to curb the emerging “frontier capitalism” mentality that affronted their Maoist principles, Deng took a defiantly different view, adamantly stating that “development is the absolute principle.” He argued that deeper economic reform and wealth creation were essential to sustaining the CCP’s relevance. In response to the roadblocks to reform and his marginalization in the leadership, he came out fighting and turned things around quite dramatically. During the Lunar New Year festival, and without informing his fellow leaders, Deng made an extensive visit of South China, holding talks and making speeches at every point. He stressed:

If we don’t have the pioneering spirit, if we are afraid to take risks, if we have no energy and drive, we cannot break a new path, or accomplish anything new. . . . Try bold experiments and blaze new trails.¹⁹

This was a barnstorming exercise not unlike his dramatic intervention across China in 1978 to kick off the reforms. It did the trick. Urgency and passion returned to the reform process, and a much deeper transformation of the economy began.

During his “Southern Tour,” Deng called for risk-taking and experimentation, confronting the Chinese people’s aversion to stepping out boldly, a cultural trait with Confucian origins but massively reinforced by 30 years of the communist straitjacket.

While Deng also made it clear that they should be “vigilant” about going too far to the right (to capitalism), he stressed that the main danger to the reforms was the “Left,” that is to say, his conservative opponents who remained defenders of the planned economy.

Deng’s view had matured a great deal since 1978, when he had called just for the improvement of central planning. In 1992, he was ready to abandon the last vestiges of the traditional planned economy in favor of what came to be known as the “socialist market economy”:

The proportion of planning to market forces is not the essential difference between socialism and capitalism. A planned economy is not equivalent to socialism, because there is planning under capitalism, too; a market economy is not capitalism, because there are markets under socialism, too.²⁰

Between 1978 and 1992, China's GDP grew only modestly from RMB 0.4 trillion to 3 trillion. The 1992–1993 period, after Deng's Southern Tour, was the critical watershed when China's GDP growth reached its inflection point, soared, and has not looked back, reaching RMB 102 trillion (US\$ 15 trillion) in 2020.

Guided by Deng – the main architect of the changes, who remained in the background but was still hands-on – CCP head, Jiang Zemin, and Premier Zhu Rongji led this impressive second phase of economic reforms (1993–2002). The Centrally Planned Economy was finally dismantled, SOEs got to list their stocks in Hong Kong, and the rights of private enterprises were enshrined for the first time in the PRC Constitution. China opened its door more widely to foreign investment and Zhu Rongji, despite tough resistance from sections of the leadership, pushed through China's accession to the World Trade Organization (WTO).

Jiang also brought some reform to the CCP itself by allowing private entrepreneurs to join the CCP. He even created some lightweight theoretical basis to support this move – pointing out that many such businessmen had originally been workers and that the CCP had to represent the whole nation. But this was not out of generosity to the emerging new capitalist class. As he explained in 2000, this was part of his plan to strengthen the links of the party into the newly emerged private enterprises, 80% of which he said had no party members whatsoever.²¹

The Reforms Lose Steam (2002 Onward)

Under the stewardship of party leader Hu Jintao, China saw little progress on further deepening the reform. Standing still on the reform agenda, in effect, permitted backsliding and heightened cronyism in the state sector. It is true that China had to deal with the Wenchuan earthquake (2008) and also hosted a trouble-free (though fun-less) Summer Olympics in the same year. Since the era of Hu ended in 2013, many Chinese have vented their anger at what they see as “ten lost years” during which the reforms stalled while corruption and vested interests flourished. Of course, earlier they had mainly remained silent.

Much hope was pinned on the current CCP leader, Xi Jinping, who in contrast to Hu, exhibits a bold confidence and some human touch. But, although he began his rule with a broad agenda for further reforms, he has focused more on rooting out corruption and factionalism and has been distracted by unrest in Xinjiang, escalating tensions with neighbors in Asia and more recently friction with the USA.

Xi has concentrated power in his own hands. He has abandoned the more highly collective leadership style which had prevailed since the reforms began. Xi chairs two new committees within the CCP (separate from the government), one on security and one on the economy. He has sidelined Premier Li Keqiang who by convention should handle economic matters.

We have seen a slowing of GDP growth, partly because of global market factors and partly because China, after its catch-up growth spurt, is now seeking to rebalance the economy. The goal is to move up the economic ladder and achieve a GDP that has quality, efficiency, and innovation, not just growth at any cost. Xi promised deepening reform, calling for market forces to drive capital allocation, for further freeing up of SOEs, and for enhanced consumer spending as an alternative to infrastructure investment. The CCP set out a plan for “330 reform measures.” Xi stated with some honesty that, after more than 30 years, China’s reforms had “entered a deep-water zone.” “The easy part has been done. . . . What is left are tough bones that are hard to chew. This requires us to act boldly and progress steadily.”²² But progress on these issues has been slow and certainly not bold, overshadowed by anticorruption and the ever-tightening autocracy. Many in China and abroad became deeply skeptical about Xi’s reformist intent.

China’s Economic Planning Today

China’s centrally planned system was formally abolished only in 1993. Although there is still a National Development Plan, which sets economic growth targets, these are aspirational since the government no longer can enforce a target simply by direct administrative action. The government still allocates investment for the infrastructure and for science and technology. But mostly it uses indirect levers such as taxation, interest rates, and regional incentives to steer the economy in the desired direction.

In contrast to the old Soviet-style command economy, China’s five-year plans today embody the new principle of “macroeconomic guidance” and are littered with terms such as “foster,” “promote,” “support.”²³

Predictably in some of the less developed parts of China in the interior, the planning authorities may interpret “guidance” rather like an interfering parent telling a grown child “I am just helping.” But in regions such as Guangdong and Zhejiang, where private enterprises predominate, local government sounds much as government does in Europe or the US. Take the then Vice Governor of Zhejiang, Wang Zhong, who told me that his provincial government’s role was strictly confined to creating the supportive environment and infrastructure in which business can flourish.

Still, the impact of the residual state planning functions coordinated today by the National Development and Reform Commission (NDRC) is felt in a number of ways.

Within the framework of the Five Year Plans, projects are developed and state funds channeled into R&D for semiconductor, mobile handsets, high-speed rail, nuclear power, civil aviation, biotechnology, etc. Priority has been given to nurturing large SOEs to become national champions capable of competing on the world stage.

The NDRC, after consultation with other government departments, still exercises control over prices for basic utilities (electricity, gas, and phone), gasoline, transportation, and, with caps, certain meat or grain prices to combat inflation. While overall the NDRC's power and reach has been waning, its role has been somewhat reinforced by its responsibility for enforcing the anti-monopoly law.

Over the years, the old Soviet-style manufacturing ministries have gradually been shrunk and consolidated so that today a superministry, the Ministry of Industry and Information Technology (MIIT), provides "guidance" to the manufacturing industry. Working with the State-owned Assets Supervision and Administration Commission (SASAC), which acts as the representative of the state as owner of shares in SOEs, it is sometimes able to force mergers between SOEs and, where overcapacity exists, attempts to bring about consolidation and capacity reductions. But pressures from the central government are often thwarted by fleet-footed SOE management in cahoots with local government, whose top priority is preserving jobs and thus social stability, rather than adjusting capacity to market demand or improving environmental protection.

Enterprises can flex their muscles against government pressure, but we should not underestimate the residual impact of central planning, its institutions, processes, and, above all, its frame of mind. It helps to explain how, despite using capitalist methods, China's SOE-dominated economy remains far from a true market economy.

Chapter 5

What to Do with the State-Owned Enterprises?

Dr. Ke [Clifford], the strategy you give us must be implementable!

– Words of the CCP Party Secretary of a large SOE to the author in 2001 during a consulting project, sharing his concern about the adaptability of Western business practices to Chinese conditions.

Resolutely resist erroneous thinking such as ‘privatization,’ ‘denationalization,’ and ‘removing the leading role’ (of SOEs).

– Xiao Yaqing, head of SASAC, the SOE regulator, speaking in Beijing, March 2017, as Xi tightens CCP grip on SOEs.

Viewed superficially, in the early days of the reforms it seemed to some that China was privatizing its largest state-owned enterprises (SOEs). Surely this would undermine the fundamentals of the “socialist” political order? The reality was that there was no inconsistency, since China’s real intent was quite to the contrary. It was to breathe new life into the large SOEs in order to ensure their competitiveness and survival. It actually all fits together as part of *the China paradox*.

How is it that China’s large SOEs, having signed up for the transparency and corporate governance required to get their stock market listings, pay scant attention to shareholders’ rights and remain subservient to the vested interests in and around the CCP? At the end of the day, commitments made to improved SOE governance were little more than window dressing. The CCP’s main goal was to use investors’ money to reduce the burden of SOEs on the state.

The number one issue stemming from the legacy of the planned economy was what to do with the SOEs. This question dwarfed other legacy issues in size and complexity. The reform of China’s SOEs can be divided into distinct phases.

Weaning the SOEs Off the State (1978–93)

The principal goal was to radically increase the SOEs autonomy, get them off the state payroll, off life support, and make them “responsible for profit and loss” (*zifu yingkui*), thus enhancing their productivity, responsiveness to the market, overall financial performance, and survivability.

Xue Muqiao, a leading Chinese economist, writing in 1981, defined the powers that needed to be given to the SOEs as part of the reform:

1. Retain a proportion of their revenue for their own use and “abolish the government’s monopoly” over the SOEs’ income and expenditures.
2. Give the SOEs control over their fixed assets and working capital so that they can acquire new equipment without government approvals.

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3. Give them the ability to hire and fire employees; “break down the iron rice bowl system” (guaranteed lifetime employment and benefits).
4. Give the factory manager greater authority. “The Party Committee should not exercise direct control over production and business operations.”¹

The first three of these reforms were implemented across China under the banner of “separation of government and enterprise” (*zhengqi fenkai*). Tellingly, the term for state firms changed from state-run (*guoying*) enterprises to state-owned (*guoyou*) enterprises.²

The fourth reform, requiring the CCP to take a back seat in the SOE and not to interfere in its day-to-day business, was implemented to varying degrees. But the further extension of that reform, entailing the clear “separation of party and enterprise,” (*dangqi fenkai*) remains highly sensitive and hardly foreseeable under the current political order.

For SOEs to take on the “responsibility for profit and loss,” there had to be a standardized and appropriate accounting system. China moved quickly to reintroduce Western-style double-entry accounting, which had been used during the Republican period and then abandoned after 1949 in favor of the Soviet accounting system, which fit the centrally planned economy. Now, as the economic reforms gained momentum, China issued the Accounting Law (1985) and other related regulations.

SOEs were left to their own devices to struggle for survival. Smaller SOEs faced serious financial stress in the new environment as they were cut adrift from the mother ship of the state.

In 1994, I did due diligence on Beijing Jianzhong Machinery Company which dated back to 1953, when it was constructed with the help of Soviet engineers and loans and technically, still reported into the then Ministry of Electronics Industry. It was making a small post-tax profit but was in a downward spiral. Sales growth over the previous four years had not even kept up with inflation. As I noted at the time:

The overwhelming atmosphere . . . is that of an old-style factory which is illequipped to survive in the new economic order. . . . [Its] premises are run down and decaying. Grass grows from the pathways between workshops. The fountain at the factory entrance does not function. The buildings, which mostly date from the 1950s and 1960s, are in a state of disrepair and greatly underutilized, with the current production activities in some cases only occupying small corners of the large workshops.³

Jianzhong suffered from a dismal lack of strategic focus. In the 130,000 square meters of the factory compound it produced a broad range of custom-made products, including vacuum furnaces, equipment for the semiconductor industry, mass flow controllers, and other products such as resistors, capacitors, and transformers. It had tried recently to diversify into consumer products such as washing machines and that had failed. It was still searching for new product areas for the underutilized

factory. One new option under consideration was electronic ignitions and locks for automobiles.

It had 1,100 employees in the main factory and 300 more in subsidiaries. The largest of the subsidiaries had the task of seeking alternative employment for staff in excess of the factory's needs, essentially serving as an outplacement service. The factory also had 800 pensioners, which cost the firm RMB 3 MM a year.

The factory suffered from so-called "triangular debt," a backed-up chain of accounts receivable between Chinese suppliers and customers. The payment period for Jianzhong's receivables had increased from the normal 30 days to as long as one year, forcing it to take on large working capital loans.

Ultimately, the factory survived and moved into one of Beijing's science parks, where it now produces pressure valves. Today, the massive site of the old factory is part of the inner city, has been redeveloped for commercial real estate, and most of the workforce was let go with some compensation.

Another example of a small SOE that faced financial pressures was Xindu Brewery, located in the suburbs of Chengdu, Sichuan. In 1991, its parent, a chemical-fertilizer producer owned by the local government, had taken over the brewery, expanding it from 10,000 tpy (tons per year) capacity to 50,000 tpy. But that was still just half of what was deemed to be an economic scale. Those who have no interest whatsoever in accounting should probably fast forward past this anecdote. But for others it may serve as an interesting window into how things are not always what they seem.

The brewery shared with me the company accounts, which were set out according to China's new accounting standards. The beer business itself was booming. Over the previous four years, its production had grown three-fold while revenues had grown five-fold (in part fueled by inflation of about 25%). At the peak of the summer season, trucks queued up outside the brewery to get draft beer, which was highly prized by the consumer and in very short supply.

At first glance, the brewery seemed financially troubled. It was sinking under the burden of debt used both for fixed assets (equipment) and working capital. After payment of interest (equivalent to 10% of revenues), the pretax margin was 5% to 6%, a precipitous decline from 20% four years earlier. The brewery's financial leverage (that is Total Liabilities/Total Assets) was 93% and would typically rise to 100% as it built up inventory in preparation for the hot summer months. In other words, on paper, it was technically close to bankruptcy.

Looking more carefully at the brewery's accounts, it became apparent that its financial situation was poor, but certainly not disastrous. Though 80% of the loans were short term (not matching the long-term fixed assets they were financing), the bank debt (loans with a term of 3 or 6 months) was repeatedly rolled over at maturity, without objections from the bank lender.

Some of the other debt should have been reclassified as quasi-equity. Large beer distributors lent money to the brewery to ensure access to beer during the tight

summer supply situation. Interest needed to be paid on these loans, but there was no pressure whatsoever to repay the principal.

Tax payable for consumption tax (paid on “luxuries” such as beer) and value-added tax, was another large item on the balance sheet but remained waived by the local government tax bureau.

While it was true that profitability was shrinking under a heavy debt burden, when the accounts were reconfigured and examined closely, the brewery in fact was not facing imminent collapse. As Xindu emphasized to me, it was in much better shape than the seriously loss-making Chengdu Brewery downtown, which had problems with beer quality and was facing the collapse of customer demand.

In the end, Xindu Brewery found a buyer, and today is part of China’s largest brewing group. Beer production has been transferred to a new site with economies of scale, while on the old site, workers’ apartments, which used to be part of the old SOE, are on the market for the equivalent of about US\$ 63,000 per unit.

Central Planning Fades Away

As central planning was gradually unwound, ministries were merged or downgraded. Officials were retired or sent to work in government-sponsored industry associations. This was very traumatic for the bureaucrats who had been used to operating the economy down to the finest local level of detail.

Moreover, unraveling the old system also alarmed some reformers. In 1981, the reforming economist Xue Muqiao pushed back on the growing decentralization, expressing disdain for “the anarchy in production, typical of capitalism.”

Chinese production of replacement orthopedic implants for hips and knees is an example of the kind of market “anarchy” he inveighed against. Under central planning, China’s State Pharmaceutical Administration (SPA) not only regulated quality standards, but also controlled all factories producing medical equipment and pharmaceuticals. SPA had one factory in Shanghai and two in Tianjin producing hip and knee implants manufactured from materials such as titanium and cobalt alloys supplied from factories under the Ministry of Aeronautics Industry.

But by 1994, SPA’s control over the sector had essentially melted away. New entities outside of SPA’s orbit entered the market with their own implants. Among these were factories under the Ministry of Aeronautics Industry, using their materials expertise as the starting point for implant manufacture. Even a factory established by the Ministry of Education began producing implants. Some nonstate companies in Jiangsu had also jumped into the market.

The SPA found it impossible to supervise product quality, both the design and integrity of the implant itself and the sterile conditions in which it should be packed, leading to repeated incidents in which the implanted replacement joint broke after implantation or the entire joint became infected. One of these problems, the so-called

“Tianjin Incident,” was a milestone as one of China’s first successful consumer lawsuits over medical malpractice. China’s entire implant industry was backward and risky, something apparent to citizens and honest doctors alike. Poor quality in this critical area resulted in strong demand for foreign implants, permitting international firms such as Stryker, DePuy, and Zimmer to grow strong in China. China continues to be plagued by lax regulation and weak quality control, as was seen in the baby milk formula scandal.⁴

When the Chinese government finally abandoned central planning in 1993 and called for the establishment of a “socialist market economy,” progress had been made in giving SOEs control over their destiny. But the major questions had yet to be addressed. As an OECD report put it:

These measures [the first phase of SOE reforms] were limited in that they neither modified corporate governance nor significantly restructured business. As a result, the reformed SOEs remained intrinsically unchanged in their ownership and corporate structure.⁵

During the next phase, the pace of reform quickened and bold steps were taken to address these issues that held SOEs back.

Addressing Ownership and Governance (1993–2003)

After central planning was finally abandoned in 1993, China began a bold program whereby the largest SOEs were subjected to “restructuring and change of ownership” (*chongzu gaizhi*) (a diversification of ownership through stock listings but *not* outright privatization) with the goal of making them fit to compete in the mixed economy with local private firms and, most critically, with foreign entrants into the China market.

Meanwhile, many smaller nonstrategic or nonviable SOEs were completely privatized or sold off to Chinese or foreign interests. Others were simply closed down and their buildings demolished to make space for shopping malls, office blocks, or superhighways.

While the SOE sector had success stories, such as the well-run glass plant in Dalian discussed earlier, overall, it was falling behind and becoming a drain on the economy. The urgency for reform received a massive boost as a result of competition from the booming Chinese private sector, which was finding its feet, and the threat from foreign firms during the runup to China’s accession to the World Trade Organization in 2001.

Deng’s push for SOE reforms was encapsulated in the slogan “Grasp the large and let go of the small,” whereby several hundred large SOEs were restructured, followed in most cases by a stock market listing, while many small- to medium-sized SOEs, which we shall term the “dogs,” were privatized or closed.

Selling Off the “Dogs”

In 1995, the Chinese government began to openly seek private buyers of many thousands of small- to medium-sized SOEs, primarily owned at the province and city level or lower. These SOEs were in general subscale, inefficient, polluting, debt-burdened, and loss-making: classic “dogs,” or firms that were past saving as independent entities. In 1998, I visited two breweries that the government was seeking to sell off.

Jiutai Brewery, located among sorghum and corn fields on the broad plain 40 km north of Changchun in Jilin Province, was on the block to be privatized. Market conditions favored the brewery. The Changchun area had a population of six million with annual beer demand of 350,000 to 400,000 tons. China’s northeast had the nation’s highest per capita beer consumption. Nearby Changchun Brewery (capacity 30,000 tpy) had recently closed down due to poor management, high costs, and pressure from lenders, leaving Jiutai as the only brewery of any size in the area. Beers from all over China were shipped into Changchun, and there was clearly a market vacuum to be filled.

But Jiutai was struggling. Its brewing capacity had been increased from 25,000 to 50,000 tons but the bottleneck, so to speak, came as a result of the existing two Romanian-built bottling lines that limited output to 35,000 tpy.

The brewery was subscale and fixed costs were too high. Its beer quality was unstable, often having a sulfurous smell, and it had to resort to price cutting to win market share. It lacked premium brands. It was facing a net loss of RMB 5 MM (million) on sales of RMB 28 MM. Bank loans totaled RMB 39 MM and almost all were short-term, leaving no financial flexibility. Brewery Director and CCP Secretary Sun explained to me that to complete expansion to 50,000 tpy, the brewery needed additional capital of RMB 20 MM for a new bottling line, as well as working capital. Jiutai was ultimately sold to a Guangdong-based group.

Three years earlier, in 1995, I visited the Xingcheng Juhuadao Brewery in Liaoning Province. As a first step toward privatization, it had already been transformed into a “share” company with factory staff holding 5% of the company and the city government the rest. The plant director was seeking capital to expand the capacity from 30,000 to 100,000 tpy. When I returned in 1998, the director told me that he had personally invested RMB 3–4 MM to become joint owner along with three other individuals.

He did not explain where his capital came from and I did not probe. But, while in Liaoning, I learned that local entrepreneurs linked to local officials had been able to acquire the state firms for a knock-down price. As a result, the central government became outraged and forced the privatization program in Jilin to be suspended for a time.

Among the factories of China’s “light industry” sector, which produced consumer products ranging from bicycles to face cream and beer, there were numerous

such “dogs.” Many were sold to foreign companies seeking to create a manufacturing footprint across China. A classic example is Procter & Gamble, which formed detergent JVs with struggling Chinese firms at key regional points across China, from Guangdong to Chengdu, creating a network of satellite plants integrated into P&G China’s operations. The same detergent powder manufacturing capacity grab was carried out by Unilever and to a lesser extent by Henkel.

Transforming the Large SOEs

When it came to large-scale SOEs, most were first restructured, followed by a stock market listing (initial public offering, or IPO), a process described by the Chinese government as “Restructuring and Change of Ownership.” In contrast to the fate of the “dogs” discussed above, there was no intent to privatize these large SOEs.

The restructuring process corporatized the SOEs through establishing boards of directors and through making their subsidiaries clearly subordinate to the parent company. They were required to develop a market-oriented strategy with a clear business focus, which implied the disposal of nonviable parts of the business lines and the shedding of the heavy burden of surplus employees and social roles that they had inherited from the planned economy.

For the government, the key goal of the IPOs was to utilize “other people’s money,” that is to raise funds through selling a minority of shares (30% to 40%) to the public, which were to be used to recapitalize the ailing SOEs and reduce the burden on the state.

Although some foreign observers describe this as privatization, in reality it was far from that since the Chinese government (directly, through its residual shareholding) and the CCP (through its political role in every state firm) still called the shots.

Combining the restructuring with a stock market listing (IPO) also had the goal of utilizing market and shareholder pressure, as well as independent directors, to improve SOE corporate governance. Making SOEs conform to international stock market standards was intended to create momentum toward a degree of real and not just superficial change. As it turned out, such a check on SOE behavior proved to be pie-in-the-sky.

The SOE leaders themselves, as distinguished from the officials who oversaw them, described to me their stock listing as a way to create further distance between themselves and the government/CCP, thus giving them more control over business strategy, as well as over salaries and incentives. After a bright start, that vision has also not been fully realized so far. In fact, much of those benefits of increased autonomy resulting from the IPOs are being rolled back.

Management Consulting to the Rescue

In the West, management consulting is tolerated as a necessary evil. In China, it was embraced as a vital catalyst for SOE change and earned the respect of Chinese business and political leaders alike. International management consultants, hired for the restructuring and pre-IPO business plan, served as the hands-on change agents needed to push the SOE reform process forward. A handful of top (mainly US) strategy consulting firms took on this huge and daunting task. They worked alongside an array of other advisors, such as investment banks, accounting firms, asset valuation firms, PR firms, and insurers.

Encouraged by the knowledge that Premier Zhu Rongji personally was highly supportive of bringing in foreign consulting firms for the restructuring/IPO projects, large SOEs reacted swiftly to select their consulting firm based on criteria, such as specific sector knowledge, team size and composition, market reputation, and, of course, price. The project would last about three months and be staffed with 10 to 15 consultants.

The consultants provided fact-based analysis of the SOE to create consensus around a proposed direction. This was something that neither the government nor the SOE itself could do on its own. The consultants provided an initial diagnostic followed by comprehensive plans on business strategy, organization, and governance. Above all, the SOEs were keen to transfer international industry-specific best practices to the SOEs to enhance their competitiveness in the new domestic market environment and ultimately internationally.

While the SOEs were hungry for the transformation the consultants offered, they also felt an entirely justified anxiety that without the new business plan being tailored to fit objective Chinese conditions, it would be hard to deliver real change. One SOE CCP secretary waved his finger at me and stressed: “Dr. Ke [my Chinese name], the strategy you give us must be implementable!” The issue of creating a bridge between strategic recommendations and effective action is serious enough in the West, but it is infinitely more complex in the Chinese cultural and political context.

Keeping things on track was challenging. At one client site, the team members from the SOE side were happy to sit playing computer games rather than doing their allotted tasks. Another project came to a halt for at least a week while the SOE participated in a campaign to study CCP General Secretary Jiang Zemin’s “theory” on the “Three Represents.”

But more often than not, the delays we faced on projects had to do with the need for the SOE management to build a consensus around a given proposed path of action. In the West, top management will typically work with the consultant until there is a relatively fully formed plan. But in Chinese SOEs, the fear of making mistakes and an aversion to risk-taking make it common for senior management to delay a choice from among a series of strategic options presented to them by the

consultants. Instead they share half-formed plans with a broad raft of middle management to gain feedback. While this may be a smart way to uncover and deal with opposition or objections to the preferred option, and also provides the illusion of internal democracy at work, this tactic also leads to early and unnecessary concessions that can undermine the focus and coherence of the final plan.

Though it is tough working with SOEs, it has many redeeming features and is not all a hard grind. Senior SOE executives are often very accessible and typically embrace the presence of the consulting team. You can sit with the leaders in the cafeteria at breakfast time. Or you can simply walk the corridor, knock on the door, and have an informal chat. That includes the CEO and the CCP Secretary. Or they invite you to their senior offsite meeting at their retreat in the hills, often called an “activity center” but more like their own in-house club and spa.

Diagnosing the Problems

Before recommending a cure, we had to conduct a full diagnosis of the current situation. With Chinese SOEs, this is complex and time-consuming, taking our team weeks to analyze, pull apart, reorder, repair, and rework the firm’s accounts to make sense of them, to strip out extraneous factors, and to uncover the true picture of the firm, overall and by business line.

Typical was a central-level large SOE that was highly fragmented with approximately 1,000 subsidiaries. Approximately is the right term. It included its “estimated” 400 local JVs or partnerships; 541 of the thousand were third-level subsidiaries, with little or no direct interaction with central management since, like all the subsidiaries, they were legally constituted as semi-autonomous entities. This patchwork quilt of entities made it impossible to standardize procedures or to provide a consistent network of services for customers across China.

Given this type of fragmented organization, there was often no consistent accounting across the subsidiaries from year-to-year. The consolidation of accounts was incomplete and there was no common, shared management information system (MIS). The SOE parent company had an urgent need to improve its financial reporting and control.

As the restructuring proceeded, it was often difficult to transform the local entities and integrate them under central corporate control since they were closely linked into their respective local governments, which relied on them for tax revenues. Even when the SOE forced these entities to change their ownership structure, the local authorities still did their utmost to block the SOEs attempts to consolidate the firm’s finances. Without this consolidation of the subsidiaries’ accounts, the SOE was unable to minimize its tax bill by pooling the results of all its subsidiaries and using losses from one entity to offset the profits from another.

Having created a true picture of the SOE's finances, it was common to find that the company's selling, general, and administrative (SG&A) expense was not allocated accurately to the specific lines of business, thus masking their true performance. The painstaking patching together of disparate information resulted in the SOE seeing for the first time with the utmost clarity what the issues were, where it was profitable, where it was bleeding money. Most critically, it could see how the firm, based on certain key metrics, measured up to competitors, in particular, global players. As we shared the results of the diagnostic phase, the eyes of client's management teams became riveted on the data revealed. There were expressions of surprise and consternation. It was a revelation, a critical moment of shock, truth, and enlightenment.

In one project, some of the lines of business were deeply in the red, with little prospect of turning the corner. Overall, the firm showed a small net profit of 2%. Net cash flow after capital investment had been negative. The prognosis was that with declining margins, growing competition, and a heavy cost structure, the firm would likely become loss-making in the near future unless there was fundamental change. We described a "self-reinforcing downward spiral within the company," starting with the "deterioration in service levels and competitiveness" and leading to cash shortages and "underinvestment in assets, skills, and IT."⁶

This type of shock treatment through fact-based analysis, and not on emotion or denial, showed a completely fresh and unexpected picture that was just what was needed to galvanize SOEs into action, to get them to embrace the restructuring and the strategic rethink. Through the clarity of our diagnosis, we also built the credibility to win further management support as we moved on to recommendations for the path forward, which often entailed tough choices and painful decisions.

What Do We Want to Be?

Smart business strategy starts with an outside-in approach, which first looks at the market and customer needs and then meshes those against the firm's capabilities and skills (or what could be acquired or built).

This holistic concept was quite revolutionary to SOE leaders brought up on Stalinist engineering and production-led approaches, which paid scant regard to what the customer really wanted. On top of that, as central planning was slowly unwound, SOEs delighted in their newfound freedom and jumped into new business areas that appeared to have profit potential. The absence of a clear business focus became a major issue.

Strategy-making typically entails framing a series of options that offer the potential of profitable and sustainable growth. It is about "options" since there is never just one correct road forward. The profiles of the options, in terms of risk and return, complexity, ease of execution, etc., will vary enormously. The company has

to use its judgment to select one option (or perhaps maybe a hybrid version). At a certain point, a decision has to be made about the company's strategic focus, what it will offer in terms of products or services, how it can differentiate or position itself – essentially answering the fundamental question, “what do we want to be?” Without answering this basic question, it is difficult to address a series of other questions that logically follow – around required partnerships, processes, technology, organization, skills, funding, etc.

To help an SOE create a clear and differentiated business focus, the challenge often became building the case for de-emphasizing or completely exiting from business lines that did not fit the selected strategic option. Often, we had to deal with the sentimental attachment to a loss-making or ill-fitting existing business line built by one of the senior leaders of the firm.

When the strategic choices were developed for consideration by a Chinese SOE, we found that the criterion of profitability alone was rarely enough to trump the goal of maintaining jobs and social stability. But there were other ways to frame the choice. By adding the criterion of “attractiveness to investors” (that is, when it came to the stock market listing) we were able to win the day and arrive at management consensus within the SOE for a reasonably narrow focus involving significant cuts in the workforce. As one SOE chairman argued with passion, without the successful raising of funds at the IPO, there was no prospect of dealing with the massive overhang of the SOE's social obligations. Of course, even after the focus was agreed on, there were continued rear-guard actions, ambushes, and pushback to reduce the scope of the restructuring.

Good Company, Bad Company

The SOE restructuring typically entailed adopting a “good company, bad company” approach. Globally, it is common for failing banks to be divided into two entities, the “good bank,” which holds healthy assets and conducts new lending, and a “bad bank,” where the nonperforming loans are parked, pending sale or write-off. A similar process was used to resolve the legacy burden of large Chinese SOEs. The SOE parent established a subsidiary company into which were injected the strong core assets and staff needed for the restructured business that was to be offered to investors at the IPO. The rest of the assets and staff remained in the parent holding company, pending resolution of some kind.

At the heart of the burden SOEs inherited from the planned economy was the “work-unit” system whereby each large enterprise was responsible for schooling, healthcare, and retirees. An extreme example of this model was the massive chemical works located in Jilin City in China's northeast near the North Korean border. When I visited Jilin City in the mid-1980s, this was the quintessential one-company

town, with every element of social welfare for most of the city's citizens handled by the company itself (though, curiously, with the exception of the crematorium).

In 1994, Jilin Chemical went through a restructuring and the following year was listed in Hong Kong and New York. But rather than turning over a new leaf, it was unable to resolve the legacy SOE burden and sank into a financial crisis due to "heavy interest expenses, staff redundancy costs, and write-offs on receivables, inventory, and old equipment." Then in 2005, a series of explosions rocked one of its plants, sending a slick of carcinogens down the Songhua River into Heilongjiang and, ultimately, to the Amur River in Russia. In 2006, Jilin was delisted from the stock market and PetroChina took it over. The Jilin Chemical situation was an example of botched SOE reform. Fortunately, many other SOEs were more courageous in addressing the core issues.

In one SOE active across China, we found that prior to restructuring, once expenses were correctly reallocated to its provincial subsidiaries, eight provinces generated about 56% of total revenues and, of these, five generated 45% of the total net profit. These were all obviously candidates for inclusion in the to-be-listed part of the company. Meanwhile, 13 lossmaking provincial entities were annually losing a combined RMB 77 MM. Looking at the balance sheet, two of the firm's ten business lines accounted for a whopping 95% of its long-term debt. Thus, the detailed fact-based analysis began to lay bare the strategic choices that could be made.

Excess staff was typically a tough issue to be resolved during a restructuring. There was a constant tension between making the firm attractive to public investors on the one hand and the risk of unemployment leading to social instability on the other.

One SOE I worked with had, prior to restructuring, about 70,000 employees. About 31% were "nonactive" but still on the payroll, including retirees, early retirees, and those laid off but still supported by the firm. The staff did not have the skills or training suited to the new company or the new market conditions. Less than 25% had received education above the upper middle school level. Also, the workforce was aging, with one-third in the 41–50-year age bracket. Due to the excessive layers of management, only about 60% of the staff were directly related to business activities.

About 45% of the active workforce was excess to the firm's needs. The cost of addressing the excess and nonactive employees was estimated to be up to RMB 2.8 BN, with the cost being highest if the excess employees were made redundant immediately rather than step by step.⁷

This SOE was listed in Hong Kong and performed profitably until forced by the CCP to merge with another SOE. To maximize the success of the IPO, the excess employees were left in the unlisted parent and not included in the listed entity. Although resolution of the excess employee issue was not included in the offering prospectus as one of the uses of funds from the IPO, given the poor state of Chinese

SOE governance, it is likely that the parent company subsequently raided the funds of the listed entity to help resolve that redundancy issue in the unlisted part.

In some SOE IPOs, the redundant staff was included in the listed part of the company. This was the case of the refining and petrochemical company Sinopec, which raised more than US\$ 5 BN through an IPO in Hong Kong in 2000. At listing, Sinopec had 511,800 workers, raising serious concerns among investors and analysts. A year later, Sinopec had to take an RMB 2.5 BN charge to dispose of 68,000 employees.

Who Actually Owns Us?

It may seem strange but one of the most common complaints from SOEs was, as one CEO put it, “We are not clear who our owner is.” Even though the reforms gave SOEs a degree of management autonomy, they nonetheless belong to the “socialist” economy. In theory, the SOE is owned by the “whole people,” but in practice that ownership is exercised by the state. That is where things become unclear and confusing.

Under central planning, things had been clearer. Each SOE belonged under and reported up to its “department-in-charge” (*zhuguan bumen*), usually a central ministry or one of its bureaus at the local level. But as the reforms gained momentum, many industrial ministries were simply abolished and “ownership” was transferred to the State Economic and Trade Commission (SETC) which is now merged into the NDRC (National Development and Reform Commission).

In one SOE, we identified seven ministries, commissions, and the CCP, which all shared responsibility for its destiny, resulting in confusion and often paralysis in decision-making.⁸ The management of this SOE concluded that, given this array of stakeholders often with overlapping responsibilities, above them they essentially reported into a “vacuum.” The result was a Kafkaesque labyrinth of bureaucracy which threw up massive barriers to getting things done.

In 2003, the government established the State-owned Assets Supervision and Administration Commission (SASAC) specifically to play the role of the state owner of the SOEs. This move was welcomed by SOE managers, but due to its shortage of staff and weakness in specialist industrial knowledge, SASAC lacks the clout or teeth needed to rein in SOE power. There has been talk of making SASAC more like Temasek, which supervises Singapore’s state firms. This has not occurred. China’s vested interests are unlikely to embrace the Singapore-style of SOE governance, which prides itself on transparency and even-handed treatment.

While the role of the government in SOEs is widely debated in China, there is no open discussion of the “800-pound gorilla in the room” – that is, the remaining role of the CCP in SOEs. Early in the reforms there had been calls for the “separation of party from enterprise,” but this issue remains highly sensitive, unfinished business, since it goes to the heart of the endemic cronyism in China’s SOE sector. While the

government has pulled back from interference in the day-to-day operations of SOEs, the CCP has yet to do so.

The CCP still appoints the top management of the 50 or so largest SOEs, while a SASAC department (controlled by the CCP) handles appointment in the 60 or so other central SOEs, plus local ones. Within the SOE there is a CCP committee, the head (secretary) of which outranks the SOE chairman or CEO. He or she nominally takes a backseat role but can quickly spring into action. Also, with a permanent office in each SOE is a representative of the CCP's Central Commission for Discipline Inspection. A classic holdover from the paranoia of the Stalinist state, where nobody is trusted and where everybody watches each other, that person is intended to provide a check on corrupt practices in the SOE.

To what extent are we to believe that the listed parts of Chinese SOEs can adhere to the OECD Principles of Corporate Governance that they openly aspire to during IPOs – namely, fairness, transparency, accountability, and responsibility? Holding the management of publicly traded firms accountable to shareholders is tough enough in the West. In China, it is an impossible task. After the IPO, the government retains a controlling equity position and the views of minority interests cannot find a voice. Although Professor Wu Jinglian, credited as being the founder the Chinese “corporate governance movement,” did successfully lobby to make independent directors obligatory in the listed Chinese firms, their effectiveness as a means to improve accountability and transparency remains to be seen. It is common for funds to be siphoned off from the listed entity to help support the unlisted parent.

But to be fair, the risk of government influence and poor governance is clearly spelled out in the typical IPO investor prospectus of a Chinese SOE. It is made abundantly clear that SOE success hangs on more than just a sound strategy and management team. Political patronage plays a key role in determining the value of the firm. Given China's market potential, investors, whether large fund managers or small retail investors, have been perfectly willing to take on the additional risks created by the lack of transparency.

Can SOE Culture Be Changed?

Does this mean that the strenuous efforts to help SOEs transform themselves were in vain? Far from it. Following a restructuring, most SOEs became more confident, better run, and more competitive. But legacy issues such as political control and corruption weigh heavily on them, slowing their progress and reinforcing their old culture.

Once the management consultants had crafted a detailed strategic plan and implementation path, at the end of the day, it was up to the SOE to execute the recommendations. For the SOE, transformation to be deep rooted and sustained required an additional ingredient, namely a radical shift toward a corporate culture that fits

the emerging market-oriented economy. These changes may be summed up as shown in Figure 5.1.

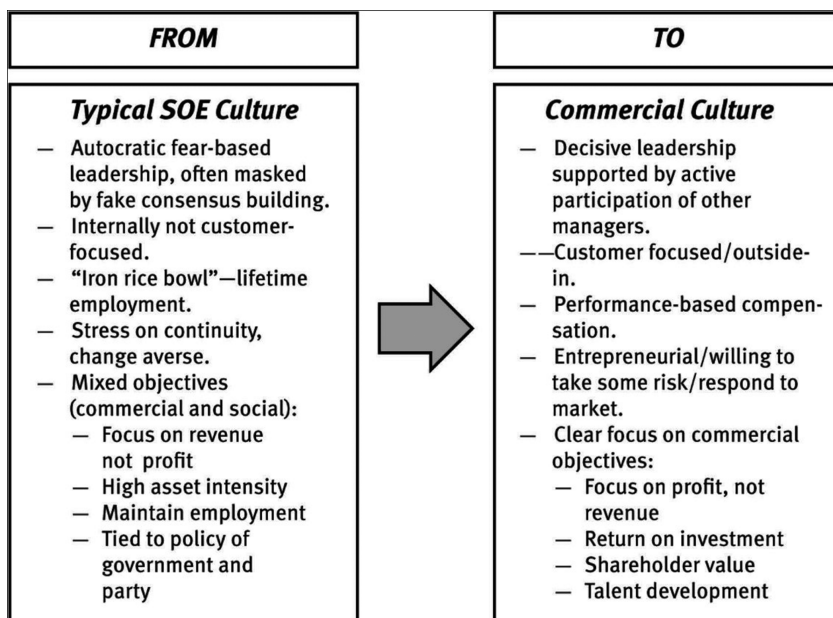


Figure 5.1: SOE Transformation.

Notwithstanding the heavy influence of old ways of doing things, SOE management has been eager to embrace these changes to the corporate culture, focusing on profit, not just revenues, on quality and customer service, not just on volume.

It is also true that reform-minded SOE leaders often make concessions to social or political goals and water down what in the West might be a “rational” approach to enterprise reform, resulting in something short of what was originally recommended. But it is not for us to say that China shouldn’t choose a cautious reform trajectory that can limit the social pain of such change.

Within large old-style SOEs, there is a strong, earthy camaraderie, not just within its “leadership group,” but between them and the working level. But one also comes to see the dark side, a fear-based autocratic culture that still manifests itself in institutionalized psychological cruelty and brutality meted out to employees that would not be tolerated for one moment in a Western corporate setting. The SOE boss often feels he needs to assert his authority by publicly humiliating an employee, much as a Mafia leader would. This is, of course, part of the fundamental culture of China’s ruling CCP. Although we are encouraged by a degree of social relaxation, the veil of civility and decency easily falls away, revealing a CCP faithful to its dismal tradition of violence. The leopard has not lost its spots.

Still, during the period 1993–2003, despite serious headwinds, many large SOEs successfully made radical changes to their strategy, organization, operations, and culture, thus putting them on a sounder financial footing and preparing them to face new competition.

Many reform-minded SOE managers look back at Zhu Rongji (Premier, 1998–2003) as a highly positive role model. Somewhat professorial in style and not a true CCP insider, he was given the risky task of turning the economy around after the initial period of gradual reform had failed to rejuvenate the state sector. He accepted what some say looked like a poison chalice.

He was impatient and often given to berating colleagues who did not share his urgency. He called for limited “managed” competition in state-dominated sectors, breaking up monopolies in telecoms, for instance. He not only radically transformed the large SOEs but also, at significant personal risk, pushed through China’s accession to the WTO against widespread domestic opposition. At a speech I heard him make in New York during the final stages of WTO accession negotiations, he said that when he returned to China he might well be regarded as a “traitor” (*hanjian* in Chinese).

That period was a peak of SOE reform, during which old-style SOEs made great strides toward a corporate transformation. The willingness of the CCP to embrace this change, and to use a light hand in that process, permitted the balance of forces within *the China paradox* to function smoothly. Unfortunately, that progress has not been sustained.

SOE Reform Falters (2003 Onward)

The reform of China’s old-style SOEs ground to a halt and in some cases was pushed back. Today, Chinese SOEs are typically much larger than enterprises in the private sector. They own about 30% of industrial and commercial assets in China, but account for only 3% of the total number of enterprises.⁹ Their sheer scale, coupled with their political connections and dominance in key sectors such as transportation, power generation, oil and gas, and telecoms, gives them a central and dominant role in the new mixed-economy.

The true picture of SOE health has been hidden from sight under subsidies and privileged treatment from the government. One nongovernment think tank in China reported that during the period 2001–2008, once you stripped out the effect of low-cost land and debt financing at an average annual interest rate of 1.5% that SOEs have enjoyed (compared to 5.4% for private firms!), many of them did not actually make a net profit.¹⁰ This think tank has subsequently been closed down by the government, due to its liberal capitalist leanings.

Other analysts estimated that after the crisis of 2007–2008, the SOE’s return-on-assets (ROA), a key measure of profitability, was about 4.6% compared to

9.1% in China's private sector.¹¹ The most recent figures show that in 2019 the ROA of industrial SOEs was 3.5% compared to 6.3% with private industrial firms. SASAC, government supervisor of SOEs, is, to its credit, working hard to clean up the remaining debris from the old planned economy. In the period 2016–2019, the number of remaining “zombie” firms – that is non-functioning subsidiaries of central-level SOEs – with residual legacy issues ranging from pension liabilities to polluted land, fell from over 2,000 to around 100, with the prospect of them being cleared up completely in 2020.¹²

Still, prognostications of the SOEs' coming demise proved to be way off the mark. One observer in 2001 wrote that [Chinese] “State-Owned Enterprises Are Dying.”¹³ Nothing of the sort has happened. Quite to the contrary, SOEs remain integral to the CCP's agenda for China and look set to be sustained come what may.

While Zhu Rongji had a sincere vision for a more market-oriented economy, his successors failed to push for further SOE reform and on the contrary provided privileged treatment for large old-style SOEs. This policy became commonly referred to as “*the state advances, the private retreats*,” a slogan created around 2008, when the Chinese government failed to assist a troubled private airline (named Okay) while at the same time it provided massive financial assistance to the three main state-owned airlines.

This cozy environment was not conducive to creating better, leaner, more efficient SOEs. On the contrary, it undermined financial discipline and created a polluting relationship between SOEs and the government/CCP. An example of this symbiosis is the way top government officials are regularly rotated in and out of the top jobs in China's telecom companies. Strong, informal relationships between the CCP and SOEs also feed the cronyism and corruption in China's SOE sector.

Just how beneficial this environment is for SOEs can be seen in the decision by a Chinese shipping firm around 2002 to change its key bank relationships. It cancelled the main syndicated loan facility it had with a group of foreign banks and refinanced with a facility from a group of Chinese banks. One reason for this move was quite simple. The shipping company was under significant financial stress. Chinese banks are less likely than foreign banks to strictly enforce loan covenants on balance sheet leverage (ratio of debt to equity) and call a default.

The RMB 4 trillion (US\$ 586 BN) economic stimulus plan announced by the Chinese government in late 2008 to help reduce the impact of the global recession greatly reinforced the power of the SOEs, which benefited from funding directed through state banks into major infrastructure projects. Much of that funding was misappropriated or simply spent badly on unneeded or environmentally harmful projects.

Under the leadership of Hu Jintao (2003–13), large old-style state firms became fiefdoms under the control of CCP factions and an expression of cronyism on a grand scale. Once Hu's rule was over, people finally began to openly say what they had been thinking for long time. A top economist based at Peking University said to me:

The recent period has been [a] wasted ten years, where no reform took place. If there is no progress, then you fall back. . . . By standing still on reform, it gave opportunity for people like Bo Xilai [mayor of Chongqing, who was imprisoned on charges of corruption]. The previous government had no strategy, no vision.¹⁴

A senior executive in the listed part of a large central SOE echoed that message when he told me:

The last 10 years have been lost years. If there were positive achievements during that period, then it was due to the remaining legacy of [former Premier] Zhu Rongji. In the new period . . . there will be the lingering negative effect of the last ten years.

The change of leadership with the arrival of Xi Jinping was accompanied by much hope that the deadening effect of the previous ten years would be replaced by revived energy to drive economic reforms forward. A CCP meeting pledged to “deepen” the reforms through improving the professionalism of SOEs and further reducing the role of government in their governance. It pushed for further diversification of SOE ownership, with additional private capital to be introduced into large SOEs. This cross-holding approach was ostensibly to improve SOE governance. But there is little chance of this since the CCP continues to have the final, decisive word. It invites the cynical view that this is the CCP using its muscle to siphon off funds from private firms.

To execute this policy, six central-level SOEs were selected for further experimentation in more diversified ownership, according the stated principle of “less controversial entities first.” This was indeed the case, since these six firms merely included an agro-industrial conglomerate, a building materials specialist, and a ductile pipe producer! More token than real. Just baby steps and no bold move that could demonstrate true intent.

Still, the government has sought valiantly to address overcapacity in the bloated state sector. China’s shipping lines, faced with global excessive tonnage and slumping freight rates, were forced to merge. To trim back the shipbuilding sector, where China has more than 5,000 shipyards accounting for around 40% of global capacity, China’s banks resorted to refusing to issue *deposit refund guarantees*, without which it is impossible to win new shipbuilding contracts. In the aluminum and cement industries, the government has pushed hard to reduce massive overcapacity, while slowing growth in the demand for electricity is forcing the consolidation of coal mines. But these attempts to deal with the hangover from China’s unbridled development binge often face bitter resistance at the local level. The government’s forced mergers of large SOEs will struggle to achieve true consolidation and a reduction in capacity. The outcome may simply be larger bad companies.

Early in Xi Jinping’s first term, he was keen to promote himself as reformer. It was not clear whether his efforts to root out corruption in SOEs were mainly to consolidate his political power or were the first step toward deepening SOE reform. Today there is little doubt that the anticorruption campaign against the SOEs had a primary purpose of giving the CCP the opportunity to claw back power. While the

CCP had never withdrawn from SOEs, since the reforms it had been forced to take more of a backseat. One SOE leader pointed out to me that under Xi the reforms are being rolled back:

Under the banner of anticorruption, the party is playing an increasingly strong role in the company.

For example, one of the key benefits he saw from the IPO was the freedom management gained over how it compensates employees. He complained that now the CCP was calling on the company to restrict bonuses, reducing its ability to recruit and motivate employees. He also criticized the decision to cancel Lunar New Year parties in SOEs: “This has greatly disappointed our employees. We are the wealth creators.”

The CCP had a well-established “political core” function in SOEs, but in 2016 this was expanded to the “leadership core” role, so that the CCP Committee and Secretary in the SOE would vet all business decisions before they are executed by the board. The CCP Constitution was amended to refer to the CCP playing a “leadership role” in SOEs. The Articles of Association of SOEs were also amended to reflect the CCP’s greatly enhanced control, to a great extent stripping away the autonomy SOEs had so carefully constructed in the course of the reforms.

The government official in charge of supervising SOEs with total assets of over US\$ 20 trillion, made it abundantly clear that the state sector is a key pillar of the economy. He stated emphatically that SOEs need to be made “big and strong” and that China must “resolutely resist erroneous thinking such as ‘privatization,’ ‘denationalization,’ and ‘removing the leading role’ [of SOEs].”¹⁵

The reformed old-style SOEs certainly are a massive improvement on the lifeless production units that they were under central planning. But this greatly amplified Party interference in SOE governance clearly represents a strong current which runs counter to further meaningful SOE reform. There was hope that the old state sector could be radically transformed so that it could stand on its own feet. However, now it looks likely to be a continued burden, a drag on progress. Its sustainability hinges less on its own performance and more on the survival of its godfather, the CCP.

Still, the old-style SOEs do vary greatly in terms of management, strategy, products, and services, operations, or ethics. This often depends on the degree they have truly transformed their corporate culture and gone beyond a limited and token patching up or “packaging” of the firm, just sufficient enough to satisfy foreign investors during the IPO stage.

A New Type of SOE Shows the Way Forward

One bright aspect of the reforms is that they have permitted a new breed of highly successful SOEs to emerge, largely unencumbered by the legacy of central planning.

Like China's private firms, although they survive by looking over their shoulder at the CCP and sacrificing some of their autonomy, they nonetheless have demonstrated the mettle to survive and flourish despite the political system.

Lenovo is an excellent example of this new breed of SOE. Later we will examine its extraordinary emergence to become the largest personal computer maker in the world with sales of US\$ 51 BN in 2020. Here we highlight its hybrid ownership.

The company was established in 1984 by Liu Chuanzhi and other engineers from the Institute of Computing Technology with initial capital from the Chinese Academy of Sciences (CAS), to which it reported. Though the state maintains an equity share through the original CAS investment, its management draws a clear distinction between its ownership status and that of the old SOEs.

Lenovo CEO, Yang Yuanqing, revealed the need to avoid pigeonholing the ownership of these newly emerged state-sponsored companies:

Lenovo is a 100% market-oriented company. Some people have said we are a state-owned enterprise. It's 100% not true. In 1984, the Chinese Academy of Sciences only invested \$25,000 in our company. The purpose . . . to invest . . . was that they wanted to commercialize their research results. The Chinese Academy of Sciences is a pure research entity in China, owned by the government. From this point, you could say we're different from state-owned enterprises.¹⁶

He stressed that even though the Chinese state has an equity interest in Lenovo, it is not treated like a traditional SOE.

This company is run totally by the founders and management team. The government has never been involved in our daily operation, in important decisions, strategic direction, nomination of the CEO and top executives and financial management. Everything is done by our management team.¹⁷

This is a key point. Based on government taking a backseat, Lenovo's governance is superior to that of old-style SOEs. This can help explain Lenovo's stellar track record and market reputation.

The Haier Group, based in Qingdao, a large coastal city in Shandong Province, is the world's largest manufacturer of white goods (washing machines, refrigerators, air-conditioners, etc.). Unlike computer-maker Lenovo, it is not a recent start-up. With its origins in the 1920s, it had become a local, city level State-owned enterprise in 1949.

It belongs firmly among a new breed of former SOEs in that its transformation into a modern enterprise was not part of ponderous restructuring instigated by the central government, but instead was the result of bottom-up entrepreneurial efforts within the firm, albeit supported strongly by local government.

In 1982, Haier's predecessor, Qingdao Refrigerator Factory, looked out-for-the-count, financially bankrupt but not yet closed down. The Qingdao government had the good sense to bring in Zhang Ruimin, a self-taught manager (he had not received a higher education due to the Cultural Revolution) to run the factory and today he remains CEO of Haier, which has today has global sales of US\$ 28 BN and

close to 100,000 employees worldwide. In 2016, Haier acquired GE's household appliance business for US\$ 5.8 BN, adding about US\$8 BN of annual revenues and making it number one in the US market, ahead of Whirlpool and Electrolux.

Haier Group's ownership is a blend of state-owned and private, which allows a variety of stakeholders to benefit without too much scrutiny. It is described as a "collective enterprise," owned by its Employee Shareholding Committee. The Qingdao government will tell you that the state no longer has any residual shares in Haier, but that it still "supervises" the company.

The high degree of autonomy from the government enjoyed by Haier has allowed it to flourish and grow. Meanwhile, the Qingdao government reaps enormous fiscal revenues from Haier's success. Behind the scenes, Haier's top managers are given room to become wealthy through cozy tie-ins with suppliers or distributors, or through being awarded shares in Haier's listed companies. Key decisions throughout Haier are all taken at the Haier Group level. It does not suffer from the fragmented governance through multiple subsidiaries that old-style SOEs live with.

Zhang first set about creating a solid foundation in China. He brought in refrigerator technology and manufacturing techniques from the German firm Liebherr. He spent 4% of revenues on R&D (in-line with international norms) and ruthlessly set about fixing quality control problems. At the request of the Qingdao government he rescued a series of failing Qingdao SOEs, in microwaves, air conditioners and freezers, a total of 18 firms. He quickly established the Haier as a premium brand, which became associated with high quality and excellent customer service.

In its rapid growth, Haier faced some challenges. It diversified into areas such as pharmaceuticals, logistics, tourism, computers, and mobile handsets, struggling in some of them. In its core white-goods business, the degree of customization it offered to customers was higher than normally seen in global markets, undermining profitability.

But Haier was able to raise funds through listing subsidiaries in Hong Kong and Shanghai. It also was supported and nurtured by the Qingdao government, but without being subjected to the interference that centrally controlled SOEs typically face.

Haier distinguished itself from other China white goods and consumer electronics firms by deciding to initially address the high end of the China market in the first and second tier cities, and avoiding getting sucked into the less-developed, poorer, and more price sensitive markets in China's interior. Instead, around 1998, it began exporting, then started setting up overseas factories (Haier's South Carolina plant was the first Chinese factory in the US) and five R&D centers. It decided to take on the difficult task of penetrating the developed countries first and then, only with an established global brand, moved into emerging markets. More recently it has set up factories in Pakistan, Jordan, and in five African countries.

Haier has focused on creating a truly "borderless" networked enterprise with IT systems and business processes that permit a flow of information so that production

can be fine-tuned to short-term shifts in market demand. It has embraced a consumer-centric approach rather than simply pushing products blindly out into inventory and the market.

Haier has made good use of foreign consultants. It is effective at publically articulating its growth trajectory and business philosophy (“entrepreneurship and innovation”). It connects to the consumer through its website, where it invited the public to participate in a contest to create “a slogan that expresses the essence of Haier.”

As you approach Haier’s sprawling campus at One Haier Road in Qingdao’s High Tech Zone in the clean, breezy sea air of the Laoshan District, you are looking at China’s vision for its large firms. A helicopter rises from the firm’s landing pad just in front of the main offices. The campus is spotlessly clean and tidy, with none of the litter or waste that is prevalent in areas just outside the gates of the company.

Working with Haier, it became clear that, putting aside the hype, Haier is representative of a powerful new breed of Chinese enterprises linked to the government but managed in a highly autonomous way. CEO Zhang Ruimin is concurrently also the firm’s CCP secretary, thus permitting a unified approach. He serves as on the CCP’s Central Committee. So far, the firm’s success has been closely linked to his ability to perform a delicate balancing act in addressing the agendas of the multiple stakeholders (many of them hidden from view) while limiting the role the government and the CCP to just a light touch.

Haier is hailed in China as a model of enterprise reform. CEO Zhang in mid-career earned an MBA from a Chinese university and likes to quote Western business gurus such as Peter Drucker and Jack Welch, while also drawing from traditional Chinese thinking such as that of Laozi and Sunzi. He is celebrated as an entrepreneur-philosopher who is loyal to the CCP. He has been awarded the medal of Reform Pioneer. He perfectly fits the Chinese state/private hybrid model.

Haier consistently performs to the satisfaction of its owners, stakeholders, Qingdao city, and the CCP. But on the other hand, it can be argued that to sustain its success, Haier will need to further evolve into a more modern and transparent entity. Its current murky and fudged blend of state and private ownership at the city level, just as we see in the next chapter in discussion of Township & Village Enterprises (TVEs), harkens back to late 19th century enterprise ownership and governance. It is a good example of China’s former state enterprises in transition at the local level. Some will dismiss this as unsustainable cronyism. But others will tell you that it is a creative and very Chinese way of resolving the legacy issues left behind as Central Planning melted away.

In 1992, the creative Qingdao government enjoyed continued success in fostering the emergence of another new-style SOE or hybrid state-private enterprise, Hisense. Originally based on a tiny local electronics factory, Hisense has grown to be a global player in consumer electronics and white goods with sales of US\$ 18 BN.

Other new SOEs have been established by the central government to play a more traditional SOE role, strongly plugged in to the government ministries. This occurred in the new but highly regulated area of mobile phone services, initially with China Mobile (spun off from China Telecom in 1999) and China Unicom (set up in 1994), established by the government to provide a duopoly in this sector. These kinds of new SOEs have more in common with the restructured old-style SOEs than with the Haiers of China. Despite having stock market-listed entities, these firms, in sectors regarded by the government as highly strategic, are held closely under the thumb of the CCP. They are subjected to forced mergers and divestment whenever the authorities choose to reshape the sector. Their top executives are changed at the whim of the CCP's Organization Department. Board governance and shareholder rights play second fiddle to the party-state.

In looking at China's SOEs, a clear pattern emerges, a close correlation between their degree of separation from the government/CCP and the quality of the SOE. The greater the separation, the better the quality. The Qingdao government seems signed up to this concept but that is not the norm. Stuffed full of government patronage, most of the largest SOEs are able to sustain themselves and dominate the economy – but only as long as the current political order exists. If that order melted away, these firms would find themselves ill-equipped to compete.

Hopes have been dashed that Xi Jinping was an economic reformer and that the outcome might be a bright new revitalized state sector, part of a true hybrid economy run more like capitalism albeit under CCP autocracy. Earlier trends in that direction have clearly been reversed. As one senior SOE leader put it to me, “the CCP has returned and now controls 100% of our strategic business decisions.”

Fortunately, the private sector, despite efforts of the CCP to rein them in (see the next chapter), and the new-style SOEs, may be strong enough to maintain their trajectory and underpin China's future growth. But most of the SOEs are fated to be part of the new experimental socialist order, their future resting precariously in the hands of the CCP.

The future of China's SOEs is inextricably linked to that of the ruling CCP. When you buy shares in a Chinese telephone company, you are placing your faith in the CCP. Assuming the CCP does not collapse or be overthrown, the large SOEs will be able to maintain their dominant position. Under current conditions, it looks highly unlikely that the CCP will choose to take SOE reform to the next level – that is, withdrawing from their governance. The trend is unmistakably in the opposite direction. Therefore, the large SOEs, for example in telecoms, electricity, shipbuilding, and transportation, will likely survive but not flourish. On the world stage, we shall meet Chinese firms in shipping, aviation, and oil and gas; but they will be ponderous and flat-footed, lacking the agility that could make them major competitors. In the absence of deeper reform, backsliding will continue and the conservative legacy will drown out the forces of change and innovation in those firms.

Were the CCP to melt away and China to experience regime change but under continued autocracy, the chances are the new rulers would doubledown on SOE dominance rather than break up the SOE oligopoly.

New-style SOEs such as Lenovo and Haier act more like private firms and, assuming there is no complete meltdown in China, they will continue to establish themselves in the world. Fortunately for China, their future does not depend so heavily on the CCP or a successor regime.

These new style hybrid firms are often referred to as *minying* (people operated) enterprises. There are specific legal terms for different kinds of ownership, but *minying* is not one of them. It is used as a makeshift popular term for not only these hybrids but also pure private firms. The first reason for this is that it serves as a euphemism for “private ownership,” which, despite now being perfectly legal, still sits uneasily in “socialist” China. Secondly, *minying* is a useful umbrella term for a range of truly private firms and quasi-private hybrids.

There are also some sectors where the Chinese government and SOEs are teaming up to take on the world. China has developed its own capability in high-speed rail and in Generation III nuclear power technology. This concerted effort to launch such technologies into global markets looks likely to pay off in the medium-term. We should not underestimate the CCP’s residual ability to make things happen when the stakes are high.

Chapter 6

The Private Economy Emerges Unannounced

Moving forward relying on one's own strengths.

- The declared guiding spirit of Wanxiang, one of China's leading private companies, adopted in the absence of state support.

What we have in China at present is not systemic financial risk, but instead the risk posed by China *lacking* a healthy financial system.

- Alibaba founder Jack Ma mocking an audience of Chinese regulators, October 24, 2020

Founders of China's tech unicorns¹ have built enormous personal charisma. Beijing is worried that they may grow political ambition, or at the very least influence the political agenda-setting with their popularity.

- Feng Chucheng, founder of Plenum consulting, May 19, 2021²

As the economic reforms began in the early 1980s, anxious officials in Beijing with furrowed brows were embarking on the slow unwinding of central planning and weighing the various options for reforming the SOEs, none of which were painless or risk-free. Meanwhile, far from their gaze, the future private economy was emerging at the grass roots.

The intent here is not to prescribe private enterprise as the best solution for China. Private companies come in many forms and much depends on how well they are regulated and, for that matter, on how much space they are given to flourish. But in the Chinese context, the private economy that has recently emerged stands out as, broadly speaking, more productive, innovative, and agile than the post-reform SOE economy. How then do we reconcile the existence of such a vibrant private sector in China alongside the dominant entrenched economic interests of the CCP?

First, the private sector in China survives only by diluting its independence through forging links to the CCP. Second, the CCP has learned not only to live with, but also to appreciate, the private sector since it contributes so much to the economy. This is part of the delicate equilibrium that underpins *the China paradox*. The CCP has shown remarkable pragmatism in permitting the private sector to take off, while always maintaining the dominant state sector as a counterbalance.

Will the private sector continue to be the poor relative within the Chinese economic order or will it, by dint of its own wealth and success, become more confident, assertive, and bolder to the extent that it can push back against CCP power?

In the period 1978–1993, China's GDP grew at an average of 9%. But the contribution of the SOEs to industrial output fell from 78% to 43%.³ So what was keeping China afloat? It was not foreign direct investment (it accounted for only 5% of investment in the 1990s) but the amazing growth of Township and Village Enterprises (TVEs), which occurred largely spontaneously. This stunning phenomenon, which occurred under the radar with limited support from the central government, ultimately turned out to be a key element that helped turn the national economy around

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during that difficult and risky transitional period. In turn, it became a foundation block of many of China's privately owned enterprises (POEs) once they became legally permitted. China's private sector today strongly outperforms the state sector both in profitability and in job creation.

TVEs – Engine for Growth as the Reforms Took Shape

One of Deng Xiaoping's first policy moves after gaining full power in 1978 was to abolish the People's Communes, rural units of 5,000 to 20,000 households, which since 1958 had combined collective farming with rural industry. Land use was given back to individual farmer households. Numerous small commune-based, collectively owned⁴ factories and workshops began transforming themselves into TVEs. These rural factories are one of the enduring positive legacies of the Maoist period. As one Western academic wrote with foresight during the Cultural Revolution,

China is today developing a high-level of machine labor skills and factory discipline in previously non-industrialized areas, and a pool of experienced engineering and technical skills necessary to convert production techniques to local equipment and materials are gradually being developed.⁵

The author went on to describe the rural bearings repair workshops he had visited in 1971: "these enterprises are usually fairly small, with between 50 and a hundred workers" and predicted that:

A number of these enterprises will eventually develop into small specialized bearings factories. . . . Small bearings factories may be able to take over the production of a considerable proportion of intermediate size ranges where quality requirements are not so stringent. Some small enterprises are already able to manufacture bearings used for simple machine tools, electric motors and . . . farm machinery.⁶

He added that some plants had even started to produce automobile bearings.⁷

This was spot on and highly prophetic. Fast forward to 1997 when I was working on China's bearings industry. About 200 of China's 500 bearings manufacturers were TVEs, accounting for 25% of output volume and 50% of export volume, primarily making miniature bearings used in consumer products such as electric fans. In the key product category of tapered roller bearings, used on vehicle axles, TVEs had a 35% share in China's agricultural machinery sector.

TVEs were loosely owned by local governments and did not count as directly linked into the state sector. Nor were they POEs (they only became legal in 1988). This relationship between local government and TVEs was highly symbiotic and mutually supportive, quite unlike that between SOEs and government. Management was contracted out to entrepreneurs (the *chengbao* system) and profits were shared. TVEs were a throwback to the late-Qing system of "*official supervision, merchant management.*"

The age of the TVEs in the 1980s and early 1990s was short but stunning in its impact. They were truly the “engine of growth.”⁸ Although the coastal provinces of Jiangsu and Zhejiang saw the most feverish TVE activity, it was a nationwide phenomenon.

The power of TVEs was brought home to me in the late 1980s when I was consulting to a US firm that wanted to set up a plant in China to produce medical consumables, such as lint, cotton, wool, and bandages. After the disbanding of collective farming, peasants could grow what they wished, and in North China, in some years, they switched away from cotton growing, leading to a serious shortage of raw cotton used by the SOE textile mills to produce cotton yarn, a vital raw material for my client.

I visited the northern city of Tianjin to see for myself. The large SOE textile mills, each employing thousands of workers, were indeed in dire straits, since, with no centrally planned procurement of cotton anymore, were at the mercy of the local farmers who switched crops depending on the market price. Although these large mills still had imported British spinning equipment dating back to the 1930s, they had to pay attention to work conditions, which, most importantly, had to be well-ventilated to take out cotton and dust particles that can do serious harm to workers' health.

The same day, I went 20 km out into the countryside. We bumped along narrow, tree-lined roads until we turned into a rundown-looking TVE textile mill owned by the local government. Inside, it was very hot and difficult to talk over the racket from the spinning machines. It was hard to breathe. The air was laden with dust and fibers from the production. The TVE management was fully confident of being able to supply the yarn, explaining that production was not threatened by any shortage of raw cotton since the mill had a captive supply from local farmers.

The vibrancy and energy of this TVE contrasted with the gloomy situation in the large SOE textile mill I had visited earlier in the day. But it was also obvious that the TVE's ability to compete was at least in part due to its backward and polluted working conditions. I saw this in many other TVEs. The TVE model played a key role for a time, but needed to evolve toward more modern and efficient production, as well as an ownership system less tied to venal local officials.

A TVE I visited in the mid-1990s had already successfully entered the export market. Originally part of a People's Commune located by the sea in Qingdao at the foot of the towering limestone Laoshan Peak, it harvested kelp (a type of seaweed), which its factory processed into sodium alginate (used as a thickener and stabilizer in food, including in the production of fake shark's fin!) and mannitol (used in pharmaceutical tablets).

The day we arrived there was a banquet at which the company went to great lengths to demonstrate its intimate relationship with the local government. Among those partaking of the meal of exquisite seafood were the head and party secretary

of Qingdao's Hi-Tech Park, the county mayor, and a representative from the local branch of the Bank of China.

In the negotiations that took place the next day, its managers gave off an air of rural simplicity that belied their excellent business instincts. After lunch, Mr. Zhou, the general manager and CCP secretary, lay full-length on a bench beside the negotiating table, sleeping and snoring and then waking up with perfect timing to reinforce a key negotiating issue. They were a well-organized and smart negotiating team.

Despite its energy and earthy smartness, like many TVEs, this one had an Achilles heel, which was its environmental impact. After we conducted a survey, the areas of concern included leaking toxic chemicals (e.g., formaldehyde), unsafe installation of tanks for sulfuric acid, and discharge of untreated effluent into the sea.⁹ There was little way the foreign company could invest with this TVE since it could not meet US Good Manufacturing Practices for the pharmaceutical industry or the foreign firm's own stringent in-house standards.

Many TVEs were highly flawed and ultimately faded away or transformed themselves into private firms. The litany of common defects included subscale operations, out-of-date equipment, poor product quality, low levels of efficiency, shortage of capital, environmental pollution, and dangerous working conditions. They were given to short-term thinking, with abrupt shifts in business focus or excessive and risky diversification, and were dependent on corrupt relationships with local government. Ultimately, cities were forced to bail out some TVEs and nudged others to broaden their ownership (including through stock market listings) or to go fully private.

Despite all their weaknesses, TVEs were a crucial transitional breed of Chinese enterprise that laid the foundation for the emergence of China's truly private enterprises.

In Guangdong's Shunde City, on the muddy west bank of the Pearl River, industry is almost entirely privately owned or TVEs. As early as 1990, Shunde had 19,540 TVEs, 38 of which contributed industrial output of RMB 3.3 BN. By 1998, its per capita GDP was already around US\$ 3,000 and rose to more than US\$ 14,000 by 2007, one of the highest in China.

Shunde is the home of Midea. Founded in 1968 as a small repair shop, it became a TVE and has grown to be a global supplier of home appliances and air conditioners, with globally sales of US\$ 40 BN, 150,000 employees and operations in 195 countries. Also based in Shunde is Galanz, which started life as a workshop making car dusters from poultry feathers and is now a world leader in microwave ovens.

POEs Flourish, Especially If Far from the Capital

Many TVEs were the forerunners of, or disguised private firms. After 1988, when regulations first permitted this, they began to show their true colors and transform themselves into full-fledged POEs. Between 1993 and 2002, the number of TVEs in

China fell from 1.69 million to 730,000.¹⁰ This trend from TVE to private enterprise was pronounced in Guangdong and also in Jiangsu.

In Zhejiang Province, POEs emerged fastest and often not through a TVE transition phase. Even before the law permitted POEs, Zhejiang entrepreneurs were operating essentially as POEs, without the need to share their profits with local officials. The Zhejiang city of Wenzhou was the “epicenter of private firm development,”¹¹ and the Wenzhou model was celebrated by free market advocates in China.

During the first 30 years of the PRC, Zhejiang had been neglected in terms of industrial development due in part to its location on the military front line close to the rebel province of Taiwan. Only Hangzhou had a significant population of large SOEs. Once the economic reforms started, Zhejiang benefited from its former isolation (Wenzhou was only connected to China’s rail network in 2009) and relative freedom from central government interference. It was also less burdened by the SOE legacy than other parts of China. However, the Wenzhou model had serious limitations. Accumulated wealth was not plowed back into the businesses, but was dissipated in risky real estate investment.

In Zhejiang, the port city of Ningbo, like Wenzhou, has played a leading role in the recent revival of private enterprise in China. Ningbo is famous for its successful traders and businessmen, and during the reforms there, it has seen a strong resurgence of that tradition. One milestone in the rise of private business in China was the US\$ 150 MM purchase in 2003 of the Shanghai Hilton Hotel by a Ningbo businessman who had made a fortune building expressways in Zhejiang. He sold it in 2012 for US\$ 328 MM. Then in 2011, another Ningbo businessman became the first Chinese entrepreneur to acquire land-use rights of an island in China, off the coast of Zhejiang, with plans to create a hunting park with wild boar and pheasants!

A striking aspect of Ningbo is the strong role permitted for private education, alongside the government schools. The city has 116 *private* primary and middle schools which receive government financial support and whose teachers enjoy the same pensions and social benefits as those in government schools. This is not to suggest that China is abandoning the primacy of state-run schools. But it does illustrate how deeply rooted the private economy can become in certain parts of China when there is a sympathetic local government.

The new middle class is also becoming more vocal on social issues. The Ningbo government backed off a plan to expand a paraxylene plant after residents demonstrated. Similar protests have also occurred in the cities of Xiamen and Dalian, both places on the leading edge of market-style reforms.

We shall look at three China POEs as distinct archetypes within China’s private sector. The first, Wanxiang, keeps a low profile with a high degree of autonomy from the party-state. The second is the e-commerce giant Alibaba, which, due to its size and disrespectful “attitude,” has found itself at loggerheads with the Party. This serves as a potent indicator that the productive co-existence between the

private sector and its rulers may be running out of steam; or put another way, that the delicate functioning of *the China paradox* may be under threat.

The third is Huawei, a private firm that has become a highly strategic national champion in the technology sphere, and as such is inevitably highly integrated into China Inc. Given the recent significance of Huawei and the new material on the firm, it is profiled separately in the next chapter.

Wanxiang – A Pioneering Private Company Forges Its Own Path

Despite instances of a supportive local government, most POEs have been forced to rely on their own strengths and resources. Hangzhou-based Wanxiang Group is an excellent example.

The story of Wanxiang's stellar rise began in 1969, when its leader, Lu Guanqiu, and six other farmers used capital equivalent to US\$ 500 to establish the Ningwei People's Commune Agricultural Machinery Repair Factory. As Wanxiang explained to me, from the outset the firm saw itself as a private concern, but needed a "Red Hat" to survive. It was called a collective enterprise, a TVE, and only later became a private enterprise. When Lu died in 2017, he and his family were worth about US\$ 6 BN. He planned for an orderly family succession and brought his son Lu Weiding in as President. After his father's death, Weiding succeeded him as head of the firm. Today, it is the world's largest producer of universal joint assemblies for the auto industry with market shares of 65% in China and 10% globally. Wanxiang has sales of US\$ 24 BN. It has more than 40 overseas factories and more than 10,000 of its 40,000 employees are outside China. It is a leader among Chinese firms "going out into the world."

By 1979, after ten years of operation, Wanxiang had what for a commune workshop was substantial revenue of RMB 1 MM to 2 MM. But Lu Guanqiu, with his eyes set on more rapid growth, addressed the issue of product focus and decided to concentrate on auto components, in particular universal joints. (In Chinese, wanxiang is the universal in universal joint, hence the firm's name). Later, Wanxiang expanded into drive shafts, bearings, and steering assemblies, and more recently into electric vehicles and batteries.

In 1979, Wanxiang's key challenge was that, as a TVE, it lay outside the state sector and the planned economy. It lacked access to quotas of raw materials supplied under the plan, and it was forced to smelt and to heat-treat scrap metal. When it came to selling its finished products, it was barred from participating in government-run sales planning meetings attended by SOEs. Even though Wanxiang took to waiting at the door outside such meetings, the SOEs were unwilling to give the company orders. After Lu lowered his prices and held low-profile meetings in his hotel room, sales began to take off since his product quality was comparable to that of imports, while SOE competitors could not reach that level.

Wanxiang found state-owned banks unwilling to lend, given the company's then TVE status. Today, as a major private company, Wanxiang finds things easier. For instance, China Development Bank provides loans to Wanxiang. But, as Wanxiang explained to me, even today, the state banks will lend only for specific projects (for instance, to support its battery and electric vehicle development program as part of the state's high-tech Plan 863), but not for general working capital uses. To raise capital to fuel its growth, Wanxiang has listed on the Shenzhen Stock Exchange.

Reflecting its painful emergence, Wanxiang encapsulates its business philosophy in the traditional Chinese saying, "moving forward relying on one's own strengths" (*liangli erxing*).

Given the obstacles in the domestic market, Wanxiang made an early decision to enter export markets. Even exporting was complicated since the bi-annual government-sponsored trade fair in Guangzhou was only for SOEs. Wanxiang was forced to exhibit at other firms' booths at the fair.

A breakthrough came in 1984, when Wanxiang won its first order from the Ohio-based Zeller Corporation, then the largest US supplier of universal joints. Profits from the export business were low but through it, Wanxiang was able to learn quickly and upgrade product quality, ultimately helping the company sell domestically to the fast-developing Chinese auto industry.

Auto component suppliers benefit from moving up the value chain to a stage where, as a so-called *tier one* supplier, they can enjoy an intimate relationship with the car assembler. Although Wanxiang initially only made parts, it progressed to producing assemblies, then systems, and finally to supplying complete modules for installation by the car makers, thus gaining that valuable tier one status.

Wanxiang also addressed the needs of the geographically dispersed Chinese auto makers, which, anxious about overreliance on the nation's unreliable logistics, insisted on being supplied from nearby plants. Local government also called for local investment to create jobs. Foreign firms were willing to put in extra warehousing close to the car factory to ensure just-in-time (J-I-T) delivery, but were reluctant to set up multiple subscale inefficient plants in China. Wanxiang took on this challenge, establishing 41 factories in China with a total floor area of 6 square kilometers to produce parts, assemblies, and complete modules close to their customers in Shanghai, Changchun, Wuhan, Hefei, Haikou, and other cities.

While Wanxiang spurred on its technical development by embarking on export sales, it declined the opportunity to sell exclusively through Zeller and was able to build its own sales channels internationally and under its own brand. Wanxiang was not prepared to be just another outsourced supplier to foreign component firms.

The next big step was to become established overseas as one of China's earliest multinational corporations, first in the US and then elsewhere internationally. Its

global workforce grew to 40,000. This extraordinary part of the Wanxiang story is discussed in Chapter 9.

Wanxiang's success was underpinned by the quality and continuity of Lu Guanhui's exceptional leadership, coupled with smooth succession planning which brought in his son.¹² Lu quietly built his global firm with very little publicity. He also had the good fortune to be located in Zhejiang, which for decades has had a highly enlightened government not inclined to interfere in private entrepreneurship. But when successful POEs reach a significant scale, they are driven both by pragmatic good sense (in autocratic China) and genuine patriotic feelings into a closer embrace with the government and CCP. To a degree, Wanxiang is certainly incorporated into "China, Inc." Lu was a delegate to the National People's Congress and also secretary of Wanxiang's CCP Committee. However, in discussions I have had with Wanxiang's management, they argue convincingly that the influence of the CCP is not as intrusive as that in SOEs.

Alibaba – The Consequences of Not Showing Servility to the Party

Wanxiang is an example of Chinese POEs that have thrived in the Chinese Communist Party-led hybrid system, *the China paradox*. I have argued that the Party has used a light hand with these firms and in so doing has permitted them space and air to flourish. But their survival has also been conditional on their founders and management showing loyalty and fealty toward the CCP. What we see in the following Alibaba case is a firm that seems to have grown too big, influential, and brash to avoid sanctions from the CCP. It may be that the key economic role Alibaba plays across China made this rift inevitable. But what brought things to the boil was Alibaba's head-strong founder, Jack Ma, who threw subservience out the window and told China's leaders exactly what he thought of them. What this demonstrates is the vulnerable status of China's private sector and the fragility of *the China paradox* under the new strains and stresses imposed by Xi Jinping's ramped up autocracy. What Jack Ma did amounted to *lese-majeste*.

Just Twenty-Two Years of Stunning Growth

Most recently established and successful firms like to talk about their humble origins. The garage in Los Altos, California, where in 1976 Steve Jobs started the business that became Apple, has been designated a historic site. Jack Ma, a former English teacher, started Alibaba.com in 1999 when he held a meeting with 18 friends in an apartment in Hangzhou, creating what would be China's Amazon and a lot more. Alibaba addressed a vital market need linking Chinese manufacturers and wholesalers with international buyers.

Alibaba Group was listed in New York in 2014 for a record US\$ 25 BN. It is, by far, China's largest e-commerce firm. By 2019, it has a GMV (Gross Merchandise Value, that is before the deduction of fees or expenses) of more than US\$ 1 trillion. Its revenues were US\$ 76 billion. It had 780 million customers in China and 180 million outside of China. Alibaba and two other Chinese e-commerce firms JD.com and Pinduoduo have a stranglehold on the market, together accounting for more than 90 percent of China's electronic merchandise sales. China's e-commerce is also driven by the fact that 90 percent of it is through mobile telephony, compared to only 43 percent in the US.¹³

But the most important difference from the US, and a strong indicator of why the Chinese government feels a need to increase regulation of e-commerce, is the sheer breadth of the China's e-commerce platforms. While in the US there remain a series of separate players in, for example, e-commerce, social media, entertainment, and take-out food, in China, Alibaba brings all these services and many more, including payments and lending, onto one platform. On the back of its success as a business-to-business e-commerce platform, Alibaba established a series of subsidiaries, such as Alipay (a payments platform), Taobao (a consumer-to-consumer e-commerce), Tmall (a third-party platform for brands and retailers), Alibaba Cloud (cloud computing), Cainiao (a logistics platform), and Yu'e Bao (the largest money market fund in the world). Jack Ma has become a global star, receiving top billing at conferences and meeting with President Trump. Prior to his recent problems, Jack Ma had a net worth of US\$ 48 billion. Alipay, now renamed ANT Financial, stayed outside the listed company and itself was days away from its own stock market listing in 2020 when Xi Jinping personally intervened to stop the IPO. How is it that Alibaba could have deserved this?

Despite its massive size and market muscle, Alibaba has been astute in how it projects its business and values. There is little doubt that it has played a key role in China's economy by filling a gap where China's myriad small and medium-size businesses were poorly served, both in terms of trading channels and the related financing. In its promotional literature Alibaba says:

We fight for the little guy, the small businesses, entrepreneurs and their customers. Through our ecosystem, we help merchants and customers connect and conduct business on their terms, in ways that best suit their unique needs.¹⁴

Despite its overwhelming size, Alibaba paints a picture of it enjoying equal relations within the "ecosystem" of users of its platforms.

Visiting Alibaba headquarters in Hangzhou is also an eye-opener in two respects. First, the way the senior management expressly goes out of its way to display alignment with Xi and the CCP by using language and goals taken from official vocabulary. Second, the image portrayed by Alibaba is one of having moved way beyond just e-commerce and embracing the Internet of Things and, using the data generated, also AI or machine learning. These new applications were focused on "smart" cities connected by the internet, across many sectors such as healthcare, transportation, and

security. In security, the focus is on facial-recognition, which is being used as a new tool to snoop on and coerce China citizens. But to deflect any criticism about this, the example they displayed on facial recognition was how it is used to track down missing children. What can be wrong with that?

How Things Have Unraveled

The CCP has solid reasons for being concerned about Alibaba. First, its monopolistic position, and second, the fact that ANT Financial operates as a bank but is not regulated as one. ANT and its competitor WePay (owned by Tencent) account for 90 percent of China's US\$ 17 trillion of payments in China made by mobile phones. But on top of this, there is the maverick behavior of Jack Ma. I have constantly been asked about Alibaba: "Should I invest?" My standard answer over a number of years is something like, "Alibaba has a massively strong market position in China and has further room to grow and diversify. However, I would keep my eyes carefully on the relationship of the firm and its founder Jack Ma with the CCP. That is where to biggest risk lies."

The 2018, the *People's Daily*, the premier Party newspaper, revealed that Jack Ma was a party member. Not a big surprise, since that can be helpful to the individual, and the invitation of capitalists into the Party had been sanctioned under former leader Jiang Zemin. The message being sent was as much for Jack Ma as for the world. Show fealty to the CCP . . . or else.

Recent events have substantiated that assessment. In China I met two former employees of Alibaba. They recounted how earlier that year, while they were still with Alibaba in Hangzhou, Jack Ma came back from a visit to Beijing where he had met with Xi Jinping. On returning to Hangzhou, Ma was extremely anxious because when Xi shook hands with him, he had not looked Ma in the eye. Ma called two days of meetings of his executives to try and get to the bottom of what might be going wrong. I have no reason whatsoever to doubt the veracity of this startling anecdote. In retrospect, this was likely an early warning to Alibaba of what was to come. Another sign that things were unraveling was that in 2018 Jack Ma announced that he would step down as Executive Chairman, and did so in 2019.

The rift between Alibaba and the CCP came to the fore in late 2020, when just days before an IPO of 11% of ANT Financial was expected to raise US\$ 35 billion in Shanghai and Hong Kong, Xi personally stepped in to cancel it. Alipay had developed from a payments platform to become a major lender. However, it lies outside the regulatory framework for financial institutions in China, and the CCP with some justification had concerns over systemic financial risk stemming from this. The ANT Financial lending contributes 40 percent of the Alibaba group revenue. Its loan portfolio amounts to US\$ 254 billion. It accounts for around 20 percent of consumer lending in China. Moreover, ANT Financial only holds about two percent of its loans

on its own balance sheet, selling the rest to Chinese banks who carry the risk, while retaining 30–40% of the interest generated by the transaction. A sweet business. Beyond the risk concerns, there was also no doubt a strong lobby from China's traditional state banks to force ANT to play by the same rules they are subject to.

A Fateful Conference

Shortly before ANT's IPO was suspended, there were public signs of trouble to come. A forum on China's financial system was held in Shanghai, attended by around 40 senior Chinese officials and businessmen from the financial sector. The most senior leader there was Vice Premier Wang Qishan, a close confidant of Xi. Other included the head of the China's central bank, heads of the large state banks and entrepreneurs from fintechs such as Alibaba's Jack Ma.

Wang Qishan's speech at the beginning of the forum set the scene from the government side. He started by stressing that:

We need to make sure that financial services are linked to the real economy . . . China's financial sector cannot go down the incorrect path of speculation and gambling . . .¹⁵

He continued:

Keeping to financial innovation and strengthening supervision are both important. Recently there been the broad adoption of financial technology. . . . While this raises efficiency and brings convenience, at the same time financial risks continue to grow. . . . We have to seek a balance between encouraging financial innovation . . . and our ability to supervise and regulate finance.¹⁶

This was a clear signal that firms like ANT Financial were going to face heightened regulatory constraints. Later that day, Jack Ma took to the podium and addressed the assembled leaders in a forthright way rarely seen in public in China on the subject of what he described as the largest IPO outside of the US "in the history of mankind." He used biting sarcasm to lay into Wang's concerns over financial risk and to attack the CCP approach to risk mitigation of the Xi era:

"Today there too many documents on this and that but too little policy. What I fear most is that when this supervision arrives it will change things so that oneself has no risk, one's departments have no risk, but that as a result the whole economy will have the risk of not developing."¹⁷

He then moved on to the heightened supervision being proposed:

How is that in just a few years several thousand internet companies have emerged in China? Shouldn't we consider the reason these companies were born. Good innovation does not fear supervision. But I fear that we shall use yesterday's methods for the supervision. It is like using train station management methods to manage an airport. We cannot use yesterday's methods to supervise the future.¹⁸

He poured scorn on the way things were currently regulated:

What we have in China present is not systemic financial risk, but the risk posed by China lacking a healthy financial system.¹⁹

He then debunked the notion that there was systemic financial risk (meaning in ANT Financial and similar firms). He acknowledged that the Basel Accords on the capital adequacy of banks has been effective. But he added that this was to resolve the issue of “senility” in the old banking system. In contrast, he stated,

China’s financial system . . . is still in its youth, and does not yet have a mature ecological system. . . . Large banks are like big rivers and main arteries, but we still need lakes, ponds and small rivers.²⁰

In a final salvo, Ma accurately pointed out his ANT IPO listing in Shanghai and Hong Kong, rather than New York, was a milestone in the emergence of China’s equity markets. But in reality, the imperative to force Ma and ANT back into line (subservience?) ranked higher than helping Shanghai grow as a financial center. Thus, Ma repeatedly snubbed and disrespected the top CCP leaders sitting in front of him.

This was a full-on, no holds barred, attack on the political leaders listening to him in the audience. For sure he already knew or sensed that his IPO was in danger. But his brash and combative demeanor made it inevitable. For Chinese officials more accustomed to acquiescence or at most a more timid, carefully coded, or veiled form of criticism, this was unexpected and extremely threatening. Although Jack Ma’s no nonsense, pragmatic tone and desire to experiment and push forward sounded a bit like Deng Xiaoping arguing the case for radical reforms, in the current conservative and conformist political climate this behavior came over not only as that of a spoiled brat or a disrespectful son, but also as a virulent public challenge to Party rule.

Seven days later, China’s Xi’s close advisor Liu He, Politburo member and Vice premier and office head the CCP’s Commission on Finance and Economics, which is led by Xi, met with the financial regulators. Two days later Jack Ma and ANT’s top executives were instructed to come to Beijing for “regulatory reviews” (*yuetan*) with the top regulators, which is generally accepted as being a serious dressing down. Shortly afterward, new regulations restricting firms such as ANT were enacted and the IPO was pulled. China also launched a monopoly investigation into Alibaba itself, which then saw US\$ 57 billion wiped off its net worth. Alibaba was subsequently fined US\$ 2.8 BN for the ways it maintains its hold on the market – and there is pressure on Alibaba to separate itself from ANT and also to sell off a Hong Kong newspaper it owns. Possible ways of addressing the government concerns that are being explored are said to be for Jack Ma himself to distance himself from the company he built.

Just after the government went after Alibaba, Xi Jinping visited Nantong, Jiangsu province, during which, in an unmistakable criticism of Jack Ma, he lavished

praise on Zhang Jian (1853–1926), a late Qing/early Republican “patriotic” textile mill owner and philanthropist, describing him as “the sage and model of Chinese entrepreneurs,” adding, “When you see a virtuous person, follow his example,” and calling on China’s private entrepreneurs to “strengthen their feelings for the country and assume social responsibilities.”²¹ The fact that Jack Ma had given much of his wealth to his foundation and other charities was not worthy of mention. As a pro-CCP blogger put it,

When entrepreneurs get rich, they should love the country more, rather than move money out of China then come back to make more.²²

It is no surprise that Jack Ma immediately dropped out of sight for a while and remained silent, only to reappear to reassure markets that he was not behind bars. Jack Ma has some tough decisions to make.

Though there are strong economic and regulatory reasons for the CCP’s concern over Alibaba, in the Chinese context we are bound to ask the question of whether there are deeper political or factional factors at play. The issues with Alibaba go way beyond financial regulation and have to do with the fundamental relationship between the Chinese party-State and the private sector of the economy.

The regulatory pressures on internet finance platforms should also be seen in the context of the party-state to muscle into this area of online payments. China’s central bank (People’s Bank of China or PBOC) is working on its Digital Currency Electronic Payment (DCEP) a central bank digital currency, or e-Yuan, which would in part replace physical RMB currency. Though built on blockchain technology, which enables a high level of encryption, the DCEP is different from a cryptocurrency (Bitcoin is banned in China at present) in that it will be legal tender backed by the PBOC. It is currently being piloted in four Chinese cities.

Though the final shape of things is still unclear, domestically the intention is for the digital yuan wallet to be integrated onto payment platforms such as ANT. All businesses would be mandated to accept DCEP as an alternative.²³ ANT, WeChat, and other platforms would continue to deploy their own current on-line payment methods. DCEP would seek to gain market share through having no transaction charge and being more usable in rural areas. DCEP (and PBOC), through participating in the payments system, will benefit in obtaining data for which, unlike the transactors themselves, they will have access to both sides of the payment transaction. This will help enhance government surveillance and regulatory powers over financial flows. In the long term, it is conceivable that the government may use DCEP to further curb the freedom of the e-payments firms were they not to fully comply with efforts to increase regulatory oversight.

The other goal behind the DCEP is to provide new momentum toward the Chinese yuan becoming a global force. As things currently stand, China’s currency represents only 4% of international transactions compared to the US\$ which accounts for 88%. As a starting point, it is thought that the DCEP may be used throughout

Central Asia and Africa as a currency for Chinese firms within the Belt and Road Initiative.²⁴

How do we assess what is happening to Alibaba? Given the need in China for stricter regulation of on-line payments to reduce systemic financial risk, this could be seen as part of a healthy give-and-take between the party-state and the private sector, between competing yet complimentary forces that we have observed in China's hybrid model. Or is the Alibaba case a watershed event from which we should draw broader, pessimistic conclusions with regard to the future of China's private sector and question the sustainability of *the China paradox*?

The effort to bring China's e-commerce platforms and their related financial services under stricter regulations is probably long overdue and reasonable. It is not just about Alibaba. Other e-commerce firms such as Tencent, Pinduoduo, Meituan, and ByteDance²⁵ are also being subjected to severe pressure by China's banking regulators.

My experience suggests that, while the Alibaba crisis was precipitated by the imminent regulatory moves, it was also heavily compounded by "personal overreach"²⁶ by Jack Ma. It is about his willingness to stand in front of CCP heavyweights and brazenly tell them to their face that they are wrong and out-of-touch. It is about his meetings with the world's leaders, his high profile that upstages or takes the limelight away from Xi. Jack Ma's dissent is shared by other POE CEOs.

Wang Xing, CEO of meal-ordering platform Meituan, astonishingly posted on the web a late-Tang dynasty poem²⁷ that expressed opposition to the Tang autocracy by showing outrage at the way the earlier Qin emperor had "burnt the books" and suppressed intellectuals. Firmly embedded in the Chinese tradition of veiled criticism using historical analogy, this was a hugely powerful and barely oblique attack on Xi Jinping's rule today. The censor immediately erased the post.

In 2020, we saw the fate of Ren Zhiqiang, a wealthy retired real estate developer, who, in response to the CCP's bungling of its response to Covid-19, described the situation as "not an emperor standing there exhibiting his 'new clothes,' but a clown stripped naked who insisted on continuing being emperor." This was seen as a direct personal attack on Xi. Ren was tried on charges of business corruption and after a trial lasting one day was sentenced to 18 years in prison.²⁸

The China paradox is a broad river, with rocky falls and big silent pools. Having been unleashed, it has a momentum of its own. It is not dependent on any one event such the Jack Ma affair. That said, I am prepared to ascribe a high degree of broader significance to what has happened to ANT and Alibaba. Under the rubric of *the China paradox* there was inevitably going to be friction between the urge to break out in new directions, on the one hand, and the urge to control and avoid chaos on the other. But I am increasingly convinced that the forces of conservatism in the CCP have decided that enough is enough. It saw POEs as useful in underpinning the economy while the SOEs were restructured or closed down. But in the way the CCP has behaved toward Alibaba, we can see the limits to their mental enlightenment or

emancipation. It is hoped, but not assured, that Alibaba can find a working compromise with the party-state. In the short term it is likely that Alibaba and ANT (and other e-commerce platforms) will continue to flourish, but under new constraints. But it could sadly mean that Jack Ma may have to fade into the background or leave China.

I hope we are proven wrong. But the signs are that the CCP relationship to the private sector is becoming frayed at the edges. That relationship comprises three aspects: (1) regulatory questions (discussed above), (2) Party control of the commanding heights of the economy, and (3) the issue of political control and avoiding centers of power other than the Party.

The commanding heights of the economy are mostly in the hands of the party-state and its SOEs. China's e-commerce and social media platforms, as mainly POEs, stand out as a major anomaly. Moreover, as observed above, these platforms integrate many more services than is the case in the US, further increasing their strategic significance (and risk). China's censors are, of course, already able to act efficiently to silence internet discussion and have the ability to require the platforms to hand over data on customers. But if we consider the Xi Jinping heightened autocracy, it is reasonable to assume there are officials that would wish to heighten the party-state's control over these e-commerce giants, and with that increase their access to big data on Chinese citizens. Many POEs are already taking their cue from the government, whether it be Huawei, or lesser firms such as Wanxiang. To Party bureaucrats it makes perfect sense to now bring the e-commerce firms into line, especially since they seem to be a hotbed of dissent.

With regard to social control and dissent, we should note that the Chinese new middle class has become slightly more strident but still is relatively acquiescent. So the phenomenon of Chinese multi-billionaires speaking out so strongly and publicly is rare and might conceivably represent a future focal point of resistance to Party rule. As one observer commented:

Founders of China's tech unicorns have built enormous personal charisma. Beijing is worried that they may grow political ambition, or at the very least influence the political agenda-setting with their popularity.²⁹

But the Party is quick to snap into action to nip any dissent in the bud. My expectations are that these types of POEs will need to buckle under. Nonetheless, it vividly illustrates the fissures in current Chinese society and why the Party is constantly on edge and nervous.

Over recent years, other Chinese POEs have felt the heavy stick wielded by the CCP. It is true that some Chinese POEs have become sprawling conglomerates with a weak strategic focus. Loaded with bank debt, they have made risky forays into international business. The Chinese government, worried about capital flight and systemic financial risk began reining in these firms, such as Anbang, Fosun, Wanda, and HNA, and their billionaire owners. HNA, the parent of Hainan airlines is now going through bankruptcy amid accusations of US\$ 10 BN of assets being stolen.

But I would argue that what is happening to Alibaba and its fellow e-commerce firms is much more significant than what happened to those sprawling conglomerates. It is a powerful lesson for other POEs and may represent a watershed in the way the private economy exists in the shadow of the State.

Private Firms Sustain the Economy But Must Remain Acquiescent

There is little doubt that POEs have been and remain a key motor of the Chinese economy:

The combination of numbers 60/70/80/90 are frequently used to describe the private sector's contribution to the Chinese economy: they contribute 60% of China's GDP, and are responsible for 70% of innovation, 80% of urban employment and provide 90% of new jobs. Private wealth is also responsible for 70% of investment and 90% of exports.³⁰

Chinese government data indicates that the profits of larger industrial POEs are growing at double the rate of profit growth at state-owned industrial firms. POE profits now outstrip those of SOEs.³¹ When we consider the smaller universe of firms that are listed on the stock market, there is a similar picture: private firms are outperforming SOEs in terms of higher profit margins, higher return on investment, and lower indebtedness.³²

While the funds from the 2008 stimulus plan flowed mainly to SOEs and local government, POEs remained starved of capital. The inevitable result was the emergence of what is called “shadow banking” (see Chapter 11), an informal banking system (estimated at around one-third the size of official bank lending) which filled the gap that the state banks were unwilling or unable to fill. To be fair, the state banks have had good reasons for not lending to private small and medium-sized enterprises. As one foreign banker explained it to me:

They didn't know how to lend to small companies without getting cheated. They look at the [borrower's] balance sheet, or take the security of pledged assets, but these are not reliable.³³

China's interest rate regime has also done little to encourage banks to diversify their lending toward POEs. The controls on interest rates have meant that there is a large spread between deposit rates (2% to 3%) and lending rates (6% to 7%). Thus, “banks can earn easy money. They don't need to use technology to distinguish risk and to fund [the real needs].”³⁴

Fortunately, China continues to slowly relax controls over interest rates, which will force banks to compete for new business and begin lending to small POEs. But China is still short of market-based risk pricing of loans. Banks typically look at the quality of the borrower but do not pay enough attention to the actual transaction being financed. Moreover, given the risk profile of many of the new private firms in China, bank lending is often not the appropriate source of funding. China's financial

system is still being transformed and still lags behind in capital markets as an alternative to bank lending.

Even large, well-established and financially strong POEs can find funding an issue. One private Chinese real estate firm requested loans of RMB 3 BN from a Chinese state bank, which was able to offer only regular loans of RMB 50 MM. The remainder of the financing was provided through shadow banking.

So, China's private sector emerged largely by dint of its own efforts. Many reform-minded officials acknowledged the ability of the private sector to keep the economy afloat while the SOEs were being patched up and rebuilt. But it has and still does face opposition and discrimination from bureaucrats brought up on a diet of opposition to free market capitalism. The CCP shows an ambiguous attitude, stressing its "unwavering" commitment to the primacy of the SOEs while in a somewhat patronizing fashion stating that it will continue to "encourage, support, and guide" the "healthy development" of the "nonstate" (private) sector.³⁵

POEs continue to have this curious status. On the one hand they create jobs, innovation, profits, and tax revenues; while on the other hand, they live exposed and vulnerable, in the shadow of the formidable vested interests that rule the state sector. While planning their path forward, China's entrepreneurs are forced to look over their shoulders and stay vigilant of predatory, venal, and interfering government officials. The good news is that many of China's private enterprises have grown to a point where they can be more assertive and begin to dictate their own terms. As they (and the new-style SOEs, which operate like private firms) become full-fledged multinationals, they will be less easily intimidated within China.

POEs such as Wanxiang and quasi-POEs such as Lenovo and Haier with better corporate governance than old-style SOEs, are able to maintain a high degree of autonomy, without excessive government interference.

But we see in the next chapter that although Huawei, China's largest technology company, is permitted more space to grow and innovate than SOEs normally have, given its central strategic role in China's economy and national security, it is inevitably extremely closely tied into the Party.

The consequences of resisting the power of the Party are clear to see in the Alibaba case. Even the largest POE has to buckle under, at least in the short to medium term. It is likely that the dramatic comeback of China's capitalist class, which was eradicated during Mao's rule, is irreversible, whether the CCP likes it or not. In the unlikely event that the CCP embraces further deeper economic reforms, then the private sector might just come to be accepted as the foundation of the economy, not the second-class citizen that it is today. At present there is no sign that this will happen. To the contrary, POEs are on notice that, while their contribution is appreciated, any steps by them or their charismatic leaders to challenge the party-state status quo will be dealt with immediately and, as deemed appropriate, punished severely.

One way or another, the genie is out of the bottle. But it is not yet apparent whether private enterprise in China might be able to muster sufficient influence to

drive the party-state in a more reformist direction or even become a focal point for a cohesive opposition to the CCP. Or, will the autonomy of POEs continue to be eroded by an increasingly assertive Party, thus fudging the private/state distinction and in so doing undermining the economic effectiveness of POEs. In the short term, the scenario of fudging seems likely to continue. However the visceral reaction by the Party to outspoken POE leaders is an indication of just how threatened the Party feels over this issue.

Chapter 7

Huawei: A Private Company Becomes a National Champion

Huawei is a malign Chinese state-directed telecommunications company that poses a clear and growing threat to the economic and national security of the US and our allies.

– Senator Marco Rubio, December 2019

... in many ways, the challenge posed by China is as much about some of our own self-inflicted weaknesses as it is about China's emerging strength.

– US Secretary of State Antony Blinken, highlighting the need for the US to invest to compete against Chinese firms such as Huawei, February 2021

Based on its origins and governance, Shenzhen-based Huawei Technologies is a private Chinese firm. But due to its role as a national champion in ICT [Information & Communications Technology], it is closely wedded to China's political system. Its founder Ren Zhengfei has been happy to play that role while, in a productive symbiosis, the Chinese authorities have permitted Huawei a degree of autonomy which has allowed Huawei room to grow and ultimately achieve true technology innovation. However, these two elements, Huawei's breakout in terms of innovation coupled with its close ties to the Chinese government, have made it the principal target of US government sanctions over national security concerns. The Huawei case is instructive in highlighting the risk of a technology cold war between China and other nations, primarily the US.

History of China's ICT Industry

In the 1860s the Qing government began to build a telegraph network and in the 1900s the first telephone system was installed. Although during the Republican period and the Japanese occupation a few factories were established to make telecom equipment and radios, most equipment was imported. The first 30 years of the PRC saw the growth of the telecom manufacturing sector with assistance from the Soviet Union and the Eastern Bloc countries. Now repurposed as an entertainment area, Factory 798 in Beijing was part of a military-run wireless-making complex established with help from East Germany.

But as China began its economic reforms in 1978, the world was entering the digital age. The electro-mechanical switches, which took over after the manual switchboard went away, became obsolete and were being torn out to be replaced by electronic or digital switches around the world. China did not possess such technology. China entered the digital area with its nascent and backward ICT manufacturing industry fragmented between a series of central ministries each with its own array of factories.

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Ultimately, during the late 1990s, the bureaucracy of central planning was largely dismantled and political power, and with it the economy, was decentralized to the city level. This left space and fresh air for Chinese ICT firms to begin their emergence.

China has created a narrative of how things changed which stands up well to historical scrutiny. It describes how, in the 1980s, China, faced with explosive demand for telecoms, imported eight different systems of digital telecom equipment (mainly switches) from seven countries (*qiguo bazhi*), and with them came unwanted complexity of interoperability and maintenance. Then finally in the 1990s, China achieved a degree of self-sufficiency, through building the “Chinese backbone” (*zhonghua bei-liang*) of five Chinese telecom equipment firms known as the “five golden flowers” (*wuduo jinhua*). Initially these firms competed with the global giants by filling a gap in the market, in poor rural provinces.

Of these firms, Huawei, private from the beginning, and ZTE (or *zhongxing*), with state-owned original owners but now, having listed on the stock market, operating with relative autonomy, have survived, flourished, and become national champions. Tellingly, both established themselves in Shenzhen, far from the capital, at a time when that city was the crucible of China's early economic reforms. They did not rely heavily on state intervention, but instead their take-off benefitted from the government's light hand.

Huawei's Origins

Much like other POEs, Huawei is a story of humble and harsh early years. Its founder Ren Zhengfei was born in 1944 in Guizhou, a remote province in South West China. He became a technologist in the People's Liberation Army. His father's role in the previous Republican government created problems for him during the Cultural Revolution, prevented him from reaching officer rank, and delayed his entry into the CCP. He retired from the PLA in 1982 and moved to Shenzhen in Guangdong where he established Huawei in 1987 with RMB 21,000, (US\$ 5,000). By then it had just become legal to establish a private enterprise. Shenzhen had a freewheeling economic climate where everything was possible or at least could be tried. Huawei started by importing electronic equipment through Hong Kong and eventually developed the ability to manufacture similar equipment – switches for telephone systems.

Though Huawei located itself in Guangdong, it was the antithesis of a local company. It brought highly-educated scientists and managers in from all over China. To create a corporate culture that was national and not Cantonese, signs were posted in conference rooms stating: “Comrades please talk in Putonghua” [Mandarin].

1998–1999: A Pivotal Year for Huawei

Huawei was at a crossroads. It had grown through focusing on providing low-cost telecom switches to the less wealthy provinces in China's interior. Its sales revenues were about US\$ 6 BN, significant but not world scale. It lacked a long-term strategy and lacked organizational expertise.

At that time, Huawei produced mainly telecom switches. It had just 8% of the installed base in China, behind foreign firms Alcatel, Siemens, and Fujitsu, which all had factories in China. By then the switch market had changed from high margin, high growth to a commoditized one with little product differentiation and tough price competition. Between 1993 and 1997 the price of digital switches in China had fallen from US\$ 130/line to US\$ 70/line.

Global trends showed that future growth was to come from mobile systems rather than landlines. At the same time, global data communications were growing fast due to the internet. Huawei wisely decided to heavily invest in growing its mobile infrastructure (then 2G) business and in entering overseas markets.

But Huawei faced many of the issues that any fast-growing company experiences. How to transform itself into a world class firm? Ren brought in foreign advisors. There was an abundance of issues to be addressed if their strategy was to be realized. Huawei had hired many PhDs, each with the title of General Manager, but without clarity about what or who they managed. There was a need to present a more seamless approach for the customer – create clear processes and protocols for coordinating the technical teams and the sales teams. There were no clear performance standards or service levels when measured against their main competitors.

Ren complained that on-time delivery was only 50%, compared to 94% in competing foreign firms, while annual inventory turnover was 3.6% compared to the 9.4% of its competitors.

Huawei needed to improve IT infrastructure to reduce costs, improve business reporting, and control. Huawei brought in Management by Objectives (MBO) which enabled the setting of specific and measurable targets.

Huawei 20 Years Later – Its Scale and Scope

Huawei's sheer scale gives it muscle and staying power. In 2019, it had US\$ 122 BN in revenues, 9 times larger than ZTE and 4 times larger than its major competitors (in mobile infrastructure) Nokia and Ericsson. Huawei has 194,000 employees in more than 170 countries.¹

Huawei is very broad based and strategically placed through the telecoms value chain. They began with switches, but today also have routers, servers, base stations, mobile handsets, and its own semiconductor design subsidiary. On the back of these areas, it is active in IoT and using big data for AI through machine learning. It

has moved from being just a hardware manufacturer to playing the role of a complete solution provider – including services. As part of cloud computing, it is beginning to operate its own data centers (server farms).

Huawei operates in three telecom segments: (1) carrier (telecoms infrastructure) (34% of total revenues), (2) consumer (handsets, tablets) (54%), and (3) enterprise (selling to corporations and banks) (12%).

Huawei's broad portfolio is rare and has perhaps only been paralleled by Motorola at its peak around 1995. This straddling of multiple sectors allowed Huawei room to maneuver. For instance, the highly profitable and fast-growing mobile handset business made up for the market time lag in 5G roll-out – until, that is, the US placed restrictions on chip supplies for Huawei's handsets.

Huawei is a true multinational corporation with 40% of its revenues coming from outside China. 24% comes from Europe, the Middle East, and Africa. Huawei has a presence all African countries (except Swaziland, which still recognizes Taiwan). At the same time, its dominant position in China's large domestic market in all its segments provides Huawei with a long-term hedge against adverse geopolitics restricting international growth.

Punching Bag of the Trump Administration

In mid-2019, the penny dropped. The US woke up to the fact of Huawei's strong position in the 5G market. In 2019, the US government added Huawei's to its "Entity List," a blacklist of foreign companies, and later further tightened the restrictions.

It has banned Huawei from selling in the US and also forced semiconductor firms to seek government licenses before supplying Huawei. The restrictions were further tightened to include foreign produced products using US technology, software, or equipment. This included equipment used in wafer fabs (fabricators), such as photolithography. This created issues for large Chinese, Korean, Taiwanese, and other wafer fabs who had to stop supplying Huawei or face exclusion from the US. Although Huawei stockpiled chips, that supply is currently running out.

Initially this assault on Huawei was based on widespread and reasonable concerns over Huawei and China building the world's 5G mobile telephony networks. But the situation with Huawei goes way beyond such legitimate anxieties and closely fits an agenda among some circles in the US aimed at containing or disrupting China's rise. In line with these policy goals, much of the narrative portraying Huawei is a caricature – one dimensional and selective in facts. Now, there is little disputing Huawei's intimate links to the China party-state. But it is instructive and revealing to look below the surface, beyond that superficial view, so as to add nuance and veracity with regard to Huawei's role in China. The reason it is valuable to delve more deeply into what makes Huawei tick is that otherwise it is hard to make sense of how the firm has grown and prospered. Let us consider four

aspects: How is Huawei funded? Who owns and controls Huawei? How does Huawei compete? How has it innovated?

Where Does Huawei's Funding Come From?

In its early days, Huawei, being a private firm, did not have access to funding from China's state banks. Huawei executives are always quick to note that, back then, Huawei was always ranked last on the list of the "Five Flowers," the up-and-coming China ICT firms. It is true that Huawei has for much of its life enjoyed a privileged position as a core supplier to China's state-run telecom firms. But that was only possible once it could design and build equipment up to a capability and quality standard that satisfied the mission-critical applications.

Over the last decade, Huawei, as part of a "pillar industry" and a key element within "Made-in-China 2025," has received financial support from the Chinese government in the form of government grants usually in relatively modest pieces (US\$ 60–100 MM/year). On top of this, China Development Bank has provided Huawei with a US\$ 30 BN line of buyer credits to finance Huawei's overseas sales, of which only a small proportion has been so far used.

To this day Huawei has been unable, or much more likely, unwilling to raise funds in the equity markets, whether through a stock exchange public listing or through private placements of stock. Investment banks have looked into this over the years and have concluded that Huawei's unwillingness to share full details about its ownership makes access to the equity markets impossible. Huawei's founder, Ren Zhengfei also has strong views on avoiding an IPO, stating that to do so would constrain Huawei's freedom of action and make the firm more short-term focused. Another, but unstated, goal of not listing the firm is to preserve Ren's power.

Most of the financing for Huawei's breakneck growth has been through their issuance of long-term US\$ 4.5 BN of 5–10 year bonds. But due to adverse publicity, in 2018 Huawei pulled (cancelled) the issuance of a US\$ 500 MM bond, leaving its future financing in question. Huawei has had to rely on bank lending. Its borrowings have been growing rapidly, largely to finance R&D. Chinese banks stepped up to the plate to replace foreign banks such as HSBC and Standard Chartered who had stopped new lending to Huawei in the wake of the US sanctions. For a while, Huawei's continued strong earnings from handsets made up for the growing debt, with the result that the company's leverage did not deteriorate. Huawei was viewed as a sound credit risk. But the handset business has also subsequently been hit by a stranglehold on its semiconductor supply.

Notwithstanding the current geopolitical headwinds Huawei faces, it has the valuable backstop of the Chinese government's deep pockets and strong support. On the funding side, it can be argued that Huawei is closely aligned with the Chinese government and would not be allowed to fail.

Who Owns and Controls Huawei?

Huawei is not a family company in sense that Hangzhou Wanxiang is. It is true that Ren's daughter Meng Wanzhou is CFO. Ren Zhengfei enjoys veto rights on key decisions which will be passed on to his yet to be announced successor. But he has said that he will hand over to the board and not to his children.

Huawei states that it is “a private company wholly owned by its employees. Huawei's shareholders are the Union of Huawei Investment & Holding Co., Ltd. (the “Union”) and Mr. Ren Zhengfei.” 97,000 employees participate in the share program and thus receive bonuses and profit sharing. They cannot take their shares with them when they leave. Some argue, unconvincingly, that since it is owned by the union and all Chinese unions report into the state, then the firm is state-owned. In fact, what seems to be the case is that the ownership arrangement is a left-over of the highly flexible early years of the reforms. It remains an employee stock ownership scheme. But being a private firm does not make Huawei truly independent of the Chinese party-state. On the contrary, its role as a national champion in ICT makes it inevitable that its autonomy is highly constrained.

Just as the state-ownership question is something of a red herring, so are the concerns that Ren was originally in the Chinese army and that his co-founder and, until recently, Number Two, Ms. Sun Yafang, came out of the national security apparatus. They have spent decades building Huawei and their background is not the key to understanding Huawei's national role.

Over the years, Huawei has been far from transparent. In its early days Huawei was useful as a low-profile entity not directly connected to the government that could be used for sales to rogue nations such as Iran. Huawei's efforts to avoid scrutiny are well known. Former Premier Zhu Rongji complained about their secretive habits. Against this background it is somewhat surprising to see Huawei making a big deal of inviting journalists and academics to visit their Shenzhen archives to inspect the staff ownership files, to demonstrate that it is really independent of the government. But that tells us little. Huawei expends enormous effort in trying to convince the world that they do not take orders from the government or would not be forced to hand over secrets. This is disingenuous and unhelpful. In China's harsh autocracy, Huawei is subject to the rule of the party-state. There is some dispute as to what Chinese law requires of their companies. But that is academic given that, in practice, Party power transcends the laws and the state constitution.

Huawei refutes the claims of that its 5G technology presents a security risk. Though Huawei extensively uses Western public relations firms and lobbyists to argue its case, this is a losing battle since it is hard to prove a negative, that there is no spyware. Huawei states it “has not and will never plant backdoors,” and “will never allow anyone else to do so in our equipment.” Huawei leader Guo Ping points out that allowing backdoors in its equipment would be “suicide” for the firm. Huawei states they “have made cybersecurity and privacy protection our top priorities

since 2018.” It provides detailed charts showing how they will achieve “cyber resilience based on trustworthiness” (trustworthiness really referring to the reliability, not whether you trust them).

But due to Huawei’s scale and strategic security significance it is inevitable that Huawei is closely linked in China’s party-state. But that linkage is created by supervision from central-level Party bodies such as the Leading Groups for Central Financial & Economic Affairs and for the Belt and Road Initiative. Communications are mainly on key strategic issues and reach Huawei direct from the CCP to the firms’ Party Secretary (Ren) and the Board. This degree of autonomy is unlike the day-to-day Party control of SOEs which is through a host of mechanisms, including freely appointing and removing the top executives. This may seem a relatively subtle distinction, but on the ground it means a lot and can help account for Huawei’s strong governance over the years. Still, the fundamental point remains that, regardless of debates around who technically owns the company, Huawei is ultimately answerable to the Party. No getting around that.

How Does Huawei Compete and Does It Innovate?

We shall see that Huawei has competed not only through blatant IPR (intellectual property rights) theft coupled with predatory pricing but, against all the odds, significantly through technology innovation.

In 2003–2004, Huawei stole Cisco’s core router source code and used it in their product. Even Cisco’s product instructions manuals were copied by Huawei. People estimate that this theft may have gained Huawei 10 years in terms of catch-up. More recently, a US court found Huawei guilty of technology theft from T-Mobile with regard to a robotic arm for testing the touch on mobile phones.

Another side of Huawei is that, compared to other Chinese firms, Huawei has been bold and open in participating in the global supply chain, despite the vulnerabilities this creates. Huawei has its own semiconductor chip design subsidiary. But most of the chips it designs are based on architectures created by UK firm ARM, just like pretty much all other mobile handset producer – including Apple. Huawei pays royalties for that core technology. The possible acquisition of ARM by US semiconductor firm Nvidia may make it impossible for Huawei to update that technology. Even though Huawei has made progress in terms of designing 20–40% (sources disagree) of the chips it uses, it still has a high degree of dependence on suppliers of chips and other key technology. It has published a long list of its 92 core suppliers, of which 33 are from the US, including Qualcomm, Intel, and Microsoft. In the current international environment, Huawei has rushed to reduce these fundamental business risks. Huawei has used Android (from Google) for its handsets, and Windows for laptop and tablets. To replace this US technology, Huawei has launched its own Harmony OS for smartphones and computers.

Now to Huawei's value proposition, which is business jargon for what differentiates a company, what gives it an edge. Initially it was based on price, not quality, which suited the poorer areas of China. It has over the years continued to seriously undercut its competition massively on price. It has used predatory pricing to kill the competition then jack up prices later as it maintains the installed network. It is widely known to use shell companies in interior provinces to corruptly channel back a rebate of 60–70% of the investment to telecom officials. Today, Ericsson and Nokia are much smaller than Huawei. Huawei is able to buy market share by subsidizing customers and selling at a much lower price. It is said that today Huawei's pricing (on telecom infrastructure) may be 20% below that of the competition, versus 50% in the case of its main Chinese competitor ZTE.

But this is only part of the story. Quality has increasingly played a key role. In the late 1990s/early 2000s Huawei came of age when it sold mobile infrastructure equipment to Hutchison in Hong Kong and to Vodafone in the UK. British Telecom followed. That was on the basis of quality as well as price. Huawei had achieved international quality and reliability standards. On the enterprise side of the business, Chinese banks required mission-critical routers and preferred those from Cisco. But some fifteen years ago Chinese customers began insisting that their purchases had to be split between Cisco and Huawei. Huawei had achieved that quality level.

Huawei owns many patents but is often willing not to charge the license fees and to lower the price accordingly. It makes its money from the gear. Its competitors rely more heavily on the license fees. In mobile phones it has moved into the high end. Its products have design quality which creates excitement. Its phone cameras, from Leica, are quite superb. It has pioneered the foldable phone.

This shift from catch-up and low-price mode to a high-quality innovation business model has been fueled by Huawei's consistently high level of spending on R&D. The bust-up with the US is really less about Huawei's murky catch-up path than the fact that it is now becoming a true technology challenger on the world stage.

On R&D, Huawei has consistently outspent its competitors – in 2019, US\$ 20 BN or 15% of revenues. Ericsson and Nokia each spent around US\$ 5.5 BN. Huawei plans to spend US\$ 100 BN on R&D in the next 5 years. Also, when it comes to R&D, Huawei has a cost advantage. In China it can hire 1,000 people for the cost of 400 in the US. 96,000 of Huawei's employees work on R&D in labs around the world and 15,000 of these are scientists.

This is where we get to the heart of the matter: Huawei's emergence as one of the top innovators in mobile telephony, in particular 5G (Fifth Generation). 5G is of massive strategic importance, provides a quantum leap in wireless speeds, and is central to the future of IoT and AI. Huawei played an active role in the creation of the international 5G standards (finalized in June 2018). The global standards incorporated Huawei's Polar Codes technology developed legally over ten years from a

concept originated by a Turkish Professor Dr. Arikan. Huawei is leading in the number of the accepted 5G patents. Vodafone made its first 5G call using Huawei technology.

Today Lucent, Motorola, Nortel and Siemens are all out of the mobile infrastructure business leaving just Huawei, ZTE, Nokia, and Ericsson standing. Huawei's 5G technology is praised for being able to handle traffic from legacy phones (3G and 4G/LTE), so that those, such as the Europeans, that have earlier Huawei gear would not need to rip it all out.

Huawei sought, without success so far, to use the US courts to overthrow the 5G ban in the US. It has sent its PR people around the world trying to find support. Huawei has created large stockpiles of chips. The Chinese government has retaliated by created an Unreliable Entities List, similar to the US one.

The US assault on Huawei is based on the view that Huawei is an arm of the CCP and as such presents a security risk if their 5G is adopted in the US. The US security concern legitimately resonates with many who fear that autocratic China is keen to exercise control globally. In future hot conflicts, the first stages will be in the form of a cyberattack designed to disrupt society and disable the enemy. Given the massive step up in performance and capabilities that 5G represents, way beyond 4G, there is no denying that selection of a 5G infrastructure has long-term strategic security implications.

Although Huawei's denials of its relationship with the Chinese party-state sound rather hollow and largely fall on deaf ears, it has had some success in deflecting the assault from the US by establishing joint laboratories with countries which have used Huawei 4G gear in the past and are now considering working with Huawei on 5G. In the UK, Huawei has established the most important such lab, the Cyber Security Evaluation Center, which is run by the UK's security establishment GCHQ (Government Communications Headquarters). Huawei's goal is specifically to demonstrate there are no back doors to their technology. After millions of lines of code were read, the findings by the UK government were that Huawei's source code is messy, "very very shoddy," creating a "nationally significant" vulnerability to security breaches but that it is "not the result of Chinese state interference."² Huawei set up a similar lab in Germany. 45% of Germany's previous generation 4G base stations are from Huawei and, so far, there is no evidence of espionage.

These relatively positive verdicts from the UK and elsewhere help Huawei to a certain extent. There is no smoking gun showing that Huawei's gear actually has "back doors." But it is hard to allay concerns that down the road such vulnerabilities could be exploited by China. Some also point out that, in any case, there may not be a need for back doors since there are front doors that can be exploited, through vulnerabilities in the software. It is pointed out that it is not efficient to use base stations for espionage. It is much easier to use conventional, existing attack vectors such as phishing.

The US government claims to have its own insights into and knowledge of Huawei, but asks us to take that on trust. Ironically, there is a reason to believe these

claims, since we know (from Edward Snowden) that starting in 2007, in response to massive hacking attacks coming from China, the US's National Security Agency started a covert project to penetrate Huawei and ZTE. Run by NSA's Tailored Access Operations Unit, the code-named *Operation Shot Giant* around 2010 hacked into Huawei's Shenzhen servers and created a back door in Huawei's equipment with two-fold objectives: First, to search for linkages between Huawei and China's army. And second, to exploit the gear that Huawei was selling in order to gain surveillance of states such as Iran, Afghanistan, Pakistan, Kenya, and Cuba which might not be interested in buying US gear.

Two years after *Operation Shot Giant*, in 2012, the House Intelligence Committee issued an unclassified report in which it provided no evidence of Huawei's links to the Chinese government but still urged caution about working with Huawei.³ We also know from Snowden that one reason the US government is suspicious of Huawei and China is that the US itself puts spyware into US-made gear being shipped from the US. A 2010 report from the NSA Access and Target Development Department stated that they routinely intercept routers, servers, etc., as they are being shipped out of the US and implants "back door surveillance tools, repackages the device with a factory seal and sends them on."⁴ Through this "supply chain interdiction," the implanted devices connect back to the NSA infrastructure. So called "beacons" were communicating back to the US from the gear shipped overseas.⁵

So the US knows what harm China could do, since the US itself has been able to penetrate Chinese firms such as Huawei. This all sounds a lot like the pot calling the kettle black, but the US has every right to defend itself. There is a strong argument for being extremely vigilant about China's intent. For all its failings, the US remains a democratic nation in which the government is to a significant extent accountable to the people. China is quite the opposite and that guides how we work with them.

Why did the US Administration under Trump seek to exclude Huawei from global markets and supply chains? This goes far beyond security concerns over 5G. The reason the US fears Huawei is that through being an avid learner of Western business practices and through spending 15% of its revenues on R&D, Huawei is now innovating, and in so doing has had the temerity to challenging the technology hegemony the US has enjoyed in the past. Seen in that context, the attack on Huawei seems like the linchpin of an exercise to slow, disable, or derail China's remarkable economic revival. It has the look of a technology-age equivalent of the US attempt to "contain" China after 1949.

One outcome of the Huawei situation is that it is accelerating Huawei and China's drive toward technology self-sufficiency. China's Made-in-China 2025 program, which created panic in the West, was always to an extent aspirational rather than entirely achievable. But the actions against Huawei are a strong warning sign for China's leaders and have put renewed fire and urgency into that program.

Maintaining a high level of vigilance over security threats from China is not at odds with permitting Huawei and other Chinese firms to take their place on the global stage. We should not use the smokescreen of security concerns to attempt to bring down global technology rivals such as Huawei. Huawei is a world-class, self-made company, that has succeeded through maintaining a degree of autonomy. But given the demands of China's party-state it would be foolish to overestimate that autonomy or to claim somehow that Huawei is not an agent of Chinese policy and global reach.

It is misguided to force American and other global firms to disengage from Huawei with whom they are heavily involved in strategic partnerships and supply relationships. Working with Huawei and China does not mean you have to surrender your core technology. US firms are certainly capable of protecting their intellectual property. Chip maker Intel has no problem staying ahead given the speed of technology development. On 5G, Huawei will justifiably face continued push-back due to its role as China's leading ICT firm. That is the burden of being part of China Inc. But it is hard to see why its role as a leading mobile handset producer should also be in peril. Moreover, although China has not done this so far, it may well retaliate against the likes of Apple. In 2018, Apple had sold around 30 million handsets in China and generated revenues of US\$ 50 BN in that market. 99 percent of its phones are assembled in China. It is not difficult to see that China has plenty of ability to hit back. Apple is a major part of the US stock market.

Seeking to slow or undermine China's technological rise implies a decoupling of the US and Chinese economies. It may lead to a technology war that manifests itself in a new technology iron curtain. We should disavow restricting global discourse and collaboration in telecommunications that is such a fast developing and socially transformative tool.

How should the US react to the fact that its previously unassailable lead in technology is finally being challenged by China? This is a psychological challenge, not just a matter of technology or business. It is better to avoid a paranoid response that leads to conflict and instead to respond in two ways: (1) by investing to compete, which implies a massive rethink of US industrial policy, and (2) by cooperating with China, wherever prudent, recognizing that we have complementary skills and approaches.

The demonization of Huawei is the wrong path. The integrated global technology supply chain in which Huawei and China participate needs to be further developed, not dismantled. The interdependency this brings is a healthy counterbalance and antidote to the breed of nationalism that leads to conflict.⁶

The new US Administration under President Biden has shown no signs so far of lifting the sanctions against Huawei. Time will tell whether there is intent to keep them in place or perhaps use them as bargaining chips with China. But there is a nuanced difference in tone from the new administration, which acknowledges the "extreme competition" with China, but also stresses the need to the US to up its

game in technology investment and address the nation's "own self-inflicted weaknesses." These broader issues are addressed in Chapter 10. Meanwhile Huawei is seeking ways to mitigate the risks posed by the US sanctions. It is rolling out its Harmony OS (operating system) for mobile phones, as an alternative to Android. It is diversifying into green energy and electric vehicles. It is collaborating with a number of Chinese automakers to design EVs which are capable of autonomous driving. All the electronic guts of these cars will come from Huawei, including the chip, which coordinates all the vehicle's functions, and the computer operating system. These cars will have a sub-brand entitled Huawei HI (HI standing for Huawei Inside which mimics the *Intel Inside* approach.)⁷

Chapter 8

Magnet for Foreign Investment

1987: If we say there are areas [of the Open Door implementation] that are inadequate, then it is that the door is not opened wide enough. – Deng Xiaoping defending his policy, 1987¹

2005: Some 80% of AmCham survey respondents continue to view Chinese IPR enforcement as ineffective or totally ineffective. – American Chamber of Commerce PRC, 2005²

2010: Many [members] have begun questioning their long-term viability in China as they consider the obstacles presented by an increasingly difficult regulatory environment. – American Chamber of Commerce PRC, 2010³

2020: China now faces an even greater challenge to boost the allure of its market ... By carrying out necessary reforms at home and collaborating with the global community to build a modern, rules-based order, and free and fair markets ... China can yet again become a catalyst for progress and growth, both at home and globally. – European Union Chamber of Commerce in China, 2020⁴

The CCP was acutely aware of the disastrous impact of China's isolation during the Mao years and acted quickly to reverse that mindset. Setting aside its narrowly nationalist and restrictive instincts, it launched the "Open Door" (*duiwai kaifang*) policy, which has enabled the massive flow of foreign direct investment (FDI) into China, but, it should be stressed, only to the extent that it served the Party's goals of national revival.

FDI has been used to fill China's gaps in skills, technology, products, and services. The Open Door policy has been integral to China's "catch-up" approach. But once those goals are achieved, China is happy to scale back the welcome to FDI and erect new barriers. At no time has this the policy been anything approaching a true open door. It is true that foreign firms have profited greatly from the opportunity to operate in China. China, to its credit, is doing much to create what looks like a level field with "national treatment" for foreign players. But foreign investors do not harbor any illusions that they will ever be treated truly like Chinese firms or that there will be a complete "opening up." On the contrary, they brace themselves for potential new restrictions once China feels strong and self-sufficient enough to discard their erstwhile foreign partners and investors or when China, as a result of geopolitical tensions or conflict, chooses to make foreign firms a punching bag or, as has happened already, take foreigners hostage as leverage in an international dispute.

At the beginning of the reforms, Deng Xiaoping pushed back against colleagues who feared that FDI would threaten the monopolies enjoyed by SOEs or that encouraging entrepreneurial attitudes might lead to corrupt behavior. He took the view that FDI would help transform the state sector and encourage business innovation.

From virtually zero in 1978, FDI grew only slowly during the 1980s, but expanded explosively in the early 1990s after Deng Xiaoping put new life into the reform process

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and created the surge in market demand. By the late 1990s, FDI was running at annual rates of around US\$ 45 BN. By 2019, it had more than trebled to US\$ 137 BN annually, globally second only to the US, which attracted FDI of US\$ 246 BN in that year. China's accumulated stock of FDI was US\$ 1,769 BN in 2019. The continued surge in FDI into China is accounted for by a number of large ticket investments, for example by Tesla (total of US\$ 5 BN for a factory in Shanghai) and Exxon Mobil (a total of US\$ 10 BN for a petrochemical complex in Guangdong). In turn, these large investments spawn further investment from their supplier ecosystems. For example, French auto component producer Faurecia has announced it is investing in a new car seat plant in Shanghai to supply Tesla, while Swiss chemical firm Clariant is investing in additional catalyst production in China to supply petrochemical facilities such as Exxon.

Though many foreign firms have found the process of investment in China to be painful and frustrating, they have typically accepted this punishment and gone on to achieve acceptable returns from their investments. Over recent years, surveys of US firms have shown consistently that around 80% are profitable, even since Covid-19 hit and since the US-China trade war broke out, but with smaller margins than before, due to domestic competitors, rising costs, and discriminatory government policies.⁵ Despite sustained profitability their expectations on revenue growth and market demand in China are more pessimistic. Also, IPR (Intellectual Property Rights) protection remains a major concern of foreign investors.

There is a distinct air of disenchantment among foreign investors in China. With the emergence of home-grown Chinese firms that can deliver the quality needed, China's earlier massive hunger for foreign investment has largely been assuaged. The Chinese government surreptitiously creates an environment that benefits local firms and restricts foreign players.

Moreover, we should be mindful of the extent to which the ultra-large investment projects mentioned earlier might be masking a cooling-off of FDI interest in China more broadly.

Why Did China Welcome FDI?

Access to technology. China sought access to overseas technology and management skills to drive productivity, industrial upgrading, and innovation. Especially in the early days of FDI, there was the hope that, through engagement in JVs with foreign firms, technology and skills would be absorbed, “rub off” onto the Chinese side, be informally transferred to, or stolen by local firms. This has occurred but not to the extent envisaged.

Capital formation. At the beginning of the reform process in 1978–1979, China spent heavily on imports of capital equipment for industry, severely straining the

economy. FDI, which encouraged foreign investors to pony up some of the investment, was rightly seen as a more sustainable route.

However, Chinese firms today have ready access to investment funds from the stock market or from state banks. It is hard today to get major Chinese firms interested in a JV. If they are willing to partner, then they will typically demand majority equity and operating control.

Jobs. FDI was important in creating jobs, in offsetting the impact of layoffs resulting from the restructuring or selling-off of SOEs, thus permitting a softer landing during the pain of unwinding the planned economy.

Getting rid of small SOEs. In the wake of the meltdown in the state sector, FDI offered China an opportunity to find investors or buyers for countless smaller SOEs that had little or no viable future. Typically, these firms brought nothing to the table in the way of products or skills. At best, they might provide some market access and product distribution. At the end of the day, their main value might be the land assets that could be cleared for a new factory, plus some residual connections to local officials.

For the foreign investor, taking over an old state factory was fraught with a range of issues, including poorly defined land ownership rights and the risk of having to remediate the land due to toxic chemicals. Many investors gravitated to the simpler solution of developing a greenfield site already laid out in a development zone.

Why Has China Been So Attractive to Foreign Investors?

Cheap labor. Much of the early FDI was in export-oriented industries attracted by China's low labor costs, and FDI still accounts for about half of China's exports.

But with rising salary levels and the RMB appreciation, China has become less attractive as the location for labor-intensive industry. Factory workers' pay in Suzhou, one of China's richest cities, is US\$ 600 per month compared to about US\$ 500 in Romania. Production is being switched to countries with lower labor rates, such as Cambodia or Bangladesh.

The size of the domestic China market. Even before China's GDP began to surge in the early 1990s, most major multinational firms had their eyes on the potential that China might represent and laid plans for market entry. Some went in too early, while others got the timing right. After China's phenomenal takeoff in the 1990s, for most major multinational firms, it became hard to argue against establishing a position in the China market.

New infrastructure coupled with financial incentives. China focused the initial opening-up of the economy to FDI in a series of Special Economic Zones (SEZs) in South China, first in Shenzhen (1979), then in Zhuhai, Shantou, Xiamen, and Hainan. These were at first mainly export-oriented. Then in 1984, industrial zones were established in 14 coastal cities, with an emphasis on domestic market-oriented FDI.

Today, there are around 400 central government-approved development zones in China, including high-tech zones and export-processing (duty-free) zones. One fifth of accumulated foreign direct investment is located in 210 of these zones, and this in turn accounts for one eighth of China's GDP.

When I first visited the Shenzhen SEZ in the early 80s, shortly after its establishment, it had a population of several hundred thousand compared to more than 10 million today. Explosions periodically shook the zone as dynamite leveled mountain tops, after which huge excavators and trucks brought the rocks to the sea for massive land reclamation. A pall of construction dust hung over the zone. Broad new roads, with scarcely a car on them, crisscrossed the landscape. Flying over the SEZ, you saw one enormous construction site with red bare soil where earlier there had been lychee orchards.

Today, Shenzhen is a bustling, tidy, and green city with an excellent subway system and enjoying much more space than nearby Hong Kong. It became the home of Chinese corporate giants such as the telecom equipment firms Huawei and ZTE. Shenzhen became a magnet for talent from all over China.

The success of Shenzhen and other SEZs was built on a number of factors. To make the economic experiment more acceptable to conservative elements in the CCP, it was conducted in South China, far from the capital, and there was, in effect, a border (called the "second line") with police and customs posts on all roads between it and the rest of China, limiting access for Chinese citizens. That way it could be claimed that the experiment would not impinge on the broader economy. Of course, once the successful role of the SEZs was fully validated, "opening-up" was extended beyond this Trojan horse of Deng's reforms.

Processes in Shenzhen were streamlined. On economic matters, its government reported directly to the central government, bypassing the Guangdong province government. In contrast to other places in China where land ownership was often unclear and an impediment to forming new ventures, this issue was quickly clarified. Tax incentives for FDI were initially more generous than outside the zone and project approvals from the government were smoother and quicker.

China Has Its Cake and Gets to Eat It, Too

Due to the size and potential of its market, China was not only able to attract massive FDI, but was also able to do so on its own terms, with restrictions on what types of firms were invited into China, the timing of that entry, and under what conditions.

Having welcomed FDI only in oil exploration, China quickly expanded it into auto and other manufacturing. But it was slow to open-up sectors such as the services industry, including logistics and retailing. Some areas, which are deemed to be highly strategic and sensitive from a security point of view, such as telecommunications and publishing, remain firmly closed to FDI.

Initially, foreign firms were only permitted to establish JVs with Chinese partners. Though the intent behind this was to enable the upgrading of the Chinese businesses through the transfer of technology and management skills, this proved more problematic than expected. It became apparent that many JVs were stymied by disputes between the foreign and Chinese partners, by ponderous decision-making, and by bloated workforces that the Chinese side sometimes insisted on contributing to the JV.

In the late 1980s, after ten years of forcing foreign investors to form JVs, the Chinese government finally legalized ventures that were 100% foreign-owned, and this mode quickly overtook JVs as the preferred vehicle for new investments. Enlightened officials⁶, whom I came to know and appreciate, openly accepted that firms fully owned by foreigners were more efficient and productive than JVs.

As part of its accession to the WTO in late 2001, China agreed to further open-up the economy, for instance, in logistics, banking, and insurance. But this loosening up was phased in over four years, allowing Chinese firms time to get ready for the new competition.

After WTO accession, China carefully implemented the further relaxation of FDI regulations it had agreed to. But, at the same time, it resorted to other tactics to limit foreign competition, requiring government agencies, for example, to procure only foreign technology that had been developed in China as “indigenous innovation.” After outrage from foreign firms who saw this as a ploy to force them to transfer sensitive technology to China, these measures were officially abandoned. But the cat was out of the bag. The government’s desire to foster local Chinese players had been clearly signaled to its procurement offices. Compounding this squeeze on foreign suppliers has been Chinese concern (reinforced by the Snowden revelations) that the security of foreign information technology has been compromised by the US government.

In part in response to US pressure, in January 2020, China introduced a new Foreign Investment Law (FIL) bringing all FDI legislation together under one statute. Over the last decade reforms have been made to FDI rules in China, including doing away with most incentives to foreign firms, while lowering the corporate tax for foreign investments to the same level as Chinese firms. The FIL provided further relaxation on equity caps (how much of the business the foreign party could own) in the auto and financial services industry. These measures were intended by the Chinese government to show good faith and to defuse US criticism. The professed goal was to create a level playing field for FDI in China. However, it could be argued that this was not in the least painful for the Chinese side since they had sucked as much benefit as they could out of the forced 50/50 joint ventures. The priority had

switched to maximizing the FDI volume, for instance by permitting, as from 2018, wholly (100%) foreign ownership of plants making electric vehicles, something which was decisive in attracting Tesla.

At the end of 2020, China and the European Union signed the Comprehensive Agreement on Investment after seven years of negotiations. When and if it is ratified within Europe (it has currently stalled out due to European concerns over China's human rights abuses) many of the provisions, for instance with regard to investment in China's auto and financial sector and to ending forced technology transfer would mirror the 2020 Phase One trade deal reached between the US and China. The EU and the US are working toward a more level playing field by calling for the reduction of the non-tariff barriers erected by China. But there is no shortage of skeptics, including myself, who, mindful of China's past track record, see China's concessions as doing relatively little to improve investment access. Meanwhile, FDI finds it imperative to be in China and its threats to quit the China market ring hollow. China enjoys most of the leverage.

Based on my own experience, the following contrasting examples in the auto, logistics, and high-tech sectors illustrate how China has been highly selective and cautious in its approach to "opening the door" to inbound FDI.

Win-Win in the Auto Industry

Early in the reforms, China moved quickly to attract FDI in certain strategic manufacturing areas, such as automobiles. Auto assembly/OEMs (original equipment manufacturers) were opened up to foreigners but until very recently their equity stake could not exceed 50%.

The 50/50 JVs were problematic due to no clear equity control, often resulting in management friction and poor governance. But although foreign auto firms in China faced many serious challenges in the early years, the remarkable outcome has been that, against all the odds, these 50/50 auto JVs have for the most part worked smoothly to the benefit of both the foreign and Chinese sides. At the end of the day, there was a productive give-and-take between the partners, motivated by the enormous market opportunity they were sitting astride.

China's opening up of the auto sector to foreign firms had two goals. The first was to kick-start the industry, which under central planning had failed to keep up with world trends, to create a local supply of vehicles and to avoid further growth in auto imports. In this respect, the opening up has been a huge success. But the second goal, to help local Chinese producers learn the ropes and create strong local auto brands, had not been fully realized.

Early in the reform process, China formed a series of auto JVs with foreign firms: Volkswagen (VW) (Shanghai, 1984), American Motors (Beijing, 1984), and Peugeot (Guangzhou, 1985). They bore the full burden of being early pioneers. The

volume market was not yet there, auto parts suppliers were absent, and Chinese red tape made it difficult to find the foreign exchange to import kits for assembly. Meanwhile, the Japanese car makers stuck to exporting to China (China imported more than 350,000 cars in 1985, mainly complete fleets of Toyotas used as taxis). After the reforms were put back on track in 1992, consumer demand finally took off, permitting economies of scale and profitability. In due course, other auto makers, such as Toyota in 1993 and GM in 1997, made more timely entries into manufacturing in China.

The Starting Point

It is easy to see why China turned to foreign auto firms to help transform the industry. From the previous 30 years they had little to show for their efforts, despite help from the Soviets. As China began its reforms, representative local auto products (photos below) were:

Left: The “Liberation” (Jiefang) truck. First produced in 1956 by the First Auto Works, Changchun, it was a five-ton, medium-size, gasoline-powered vehicle, and a copy of a Soviet design. China lacked locally made heavy trucks needed for long-distance haulage.

Middle: The “Shanghai” Sedan. First produced in 1958 by Shanghai Auto had a Chinese body on a chassis derived from a World War II Benz. It was underpowered and with extremely poor handling. This living antique was phased out in the 1970s.

Right: The “Red Flag” limousine. First produced by the First Auto Works, Changchun, in 1963 was based on a 1955 Chrysler. Production ended in 1980. It was built in small numbers so that Chinese leaders and visiting dignitaries did not have to ride in Soviet-made ZIL limousines, which had been used in the 1950s (Figure 8.1).



Figure 8.1: Central planning yielded poor results in the auto sector.

Writing in 1989, I highlighted a series of constraints faced by China's auto industry, many of them related closely to the legacy of the planned economy:

Abysmally low productivity: In 1987, 470,000 vehicles were produced by an industry with 1.4 million employees and fixed assets of US\$ 15 BN.

Absence of economies of scale: Auto production was dispersed among more than 100 factories. Only two had a capacity of 100,000 vehicles per year. One Chinese official, with a clear awareness of the challenges, described the industry to me as being composed of “fragmented or disconnected yet overlapping entities.”

Unresponsive to market demand. As part of the Soviet heavy industry model, Chinese manufacturers focused not on passenger cars but on trucks. But even with trucks, they got it wrong. The Jiefang truck (shown above), although a reliable workhorse, could not satisfy demand for heavy trucks (10–15 tons), except, of course, by being dangerously overloaded.

Lack of investment funds. The government had ambitious plans but no real money had been allocated. My conclusion at that time was they would need to rely on foreign investors to foot part of the bill.

Shortage of raw materials and components. One GM executive, working on the firm's potential entry into the China market, stated to me in 1988:

There is not enough steel, gas, rubber, or roads, there are bottlenecks for every component, and they don't have the money to develop anything.⁷

GM delayed its China entry until 1997.

In 1988, China's Second Auto Works (SAW) in Shiyan, Hubei, which made trucks, had to close for ten days due to their state supply of steel being cut by more than 25%.

Shortage of foreign exchange. Initially, foreign investors such as VW and American Motors, given the absence of suitable local components and the low production volumes, began assembly through importing SKD or CKDⁱ kits. Their expansion of production was constrained by government restrictions on foreign exchange to pay for the kits.

ⁱ SKD is semi-knocked down, CKD is completely knocked down.

Volkswagen: An Early Entrant Pays Its Dues

The early foreign investors in China's auto industry (VW, American Motors, and Peugeot) had to sweat it out with slow growth, compounded by issues around the local supply of components and foreign exchange controls.

A visit I made to Shanghai VW (SVW) in 1989 highlighted the tough conditions this early entrant had to contend with. Output of VW Santanas had been 15,000 in 1988 and were projected to be just 20,000 in 1989. At that time, VW's component suppliers had not yet followed them into China, and they were dependent on the import of kits for local assembly. In China, the foreign exchange, needed to pay for the kits, was a scarce resource. SVW hoped unrealistically to get around this massive bottleneck by generating its own foreign exchange through the export of engines and a few finished cars.

On the plus side, SVW told me they had reached a quality level superior to that achieved in Brazil, Mexico, and South Africa and were confident of reaching or exceeding the quality levels achieved in Germany. Productivity at SVW Shanghai was also improving rapidly. The amount of direct worker time on the line needed to complete a vehicle had fallen from 20 hours in 1985 to 6.6 hours at the end of 1988. Further productivity gains were to be achieved through the introduction of spot-welding robots in the body shop. Although SVW was still importing the high value, heavy-weight "short block" – a sub-assembly including the cast engine block – it was constructing a new engine facility in Shanghai to manufacture 100% of the engine.

The shortage of foreign exchange limited SVW's growth and created friction with the Shanghai government. On top of that, VW was working on a separate JV with the First Auto Works (FAW) in Changchun. VW urged the Shanghai government to have the Shanghai JV join forces with the new one in order to bring economies-of-scale and efficiency in a shared component supply technology platform. The Shanghai government demurred, suggesting that VW focus on growing SVW's production. Shanghai Mayor Zhu Rongji (later to be China's premier) quietly threatened VW that Shanghai might consider bringing other foreign manufacturers into Shanghai. VW went ahead with the JV with FAW (signed in 1991). While the realities of Chinese provincialism or "localism" prevented the two centers of VW production in China from merging, later some limited synergy was created between the two entities by VW's China Holding Company, which owned 10% of each JV's equity.

VW paid its dues and survived to become dominant in China. The VW Group, which includes VW, Audi, Skoda, Porsche, and Bentley brands, sold 3.16 million vehicles in China in 2019, making it number one in that market. VW's profitable growth in China has served to counterbalance poor results elsewhere in the world. Even with the cooling of the Chinese economy, China remains critical to VW's global business, accounting for 40 percent of its global profits.

The Foreign Component Suppliers Arrive

From the late 1980s onward, a wide range of auto component suppliers established factories in China. I personally consulted on projects for auto glass and auto paint, piston rings, starters and generators, auto electronics/engine management systems, bearings, auto air-conditioning compressors, catalytic converters, bonding agents for radial tires, and more. For these investors in the auto component sector, the choice of location and partner was often strictly dictated by the Chinese side in the OEM JVs and the local government that manipulated them. This pressure was most pronounced in Shanghai.

In 1985, VW pledged that the minimum local content of materials, parts, and so on in their Shanghai vehicles (measured by value) would reach 85% by 1991, but by year-end 1988 they had reached just 25%. To turn this around, SVW set up the Shanghai Santana Localization Community comprising 120 manufacturers and research institutes, mainly from Shanghai, while the Shanghai government also set up its Santana Local Content Office. Potential component suppliers were invited to meetings where they were addressed by SVW leaders and the Shanghai Planning Commission. When Shanghai referred to “localization,” it went beyond just location in China; it meant *in Shanghai* (or close by). Foreign suppliers who were bold enough to locate elsewhere were threatened with being shut out of Shanghai.

This pattern of “localism” was repeated in other cities. A manufacturer of auto air conditioning was told bluntly by the Chongqing government that to supply the Ford plant in that city, deep in the interior of Western China 1400 km from the coast, it would have to form a JV, rather than simply put up a warehouse. The Chongqing government won the day. A full manufacturing JV with a local company was formed, even though from a simple commercial market point of view, it would have been more efficient to be located elsewhere.

General Motors Benefits from a Late Entry

GM reaped the benefits of a later market entry. My discussions with GM in the 1980s centered on the question of whether it should follow VW into the China market immediately and before there was a significant local supply of high quality components, or whether GM should wait until the local supply infrastructure was more complete. GM chose to wait.

In 1997, after years of negotiations with multiple partners in China, GM pressed the button and established its JV in Shanghai (SGM, Shanghai General Motors). Today, China is GM’s largest market where in 2019 it sold 3.09 million vehicles in China making it GM’s biggest market. It is investing US\$ 11 BN to achieve further growth.

By waiting to become a late entrant, GM benefited in several ways. It resisted government pressure to establish a JV with Second Auto Works in Hubei province

far into the interior. Then when it came to building the plant in Shanghai, there was a viable infrastructure of foreign auto-component suppliers around Shanghai and more broadly in China.

Once established, the GM management in Shanghai forged an excellent working relationship with the JV Chairman Hu Maoyuan (from the Chinese side), demonstrating a successful approach to the complexity of a 50/50 JV. SGM's complete redesign of the cockpit of the Buick Regal for the China market won praise from consumers.

GM did face problems when its Chinese partner SAIC (Shanghai Automotive Industry Corp.), for instance, illegally transferred technology from GM's Daewoo subsidiary to the Chinese firm, Chery. When I asked a senior GM manager in Shanghai whom they saw as their main competitor, he responded "our partner!"

GM's success in China is closely related to the impeccable timing of its entry, whether by design or partly by luck. In 1997, consumer demand for cars in China was at an inflection point, taking off, in stark contrast to the late 1980s. Ford entered much later and probably missed the perfect timing, resulting in a China market share of only 4%, compared to GM and VW, each with 15%.

In terms of creating a domestic supply of vehicles that can satisfy the nation's needs (barring some imports of very high-end vehicles such as Ferrari and Porsche), the introduction of FDI achieved its goals. The Chinese auto market is now the largest in the world with sales of around 26 million vehicles in 2019. After having grown for 26 years, 2018 had seen the beginning of a market contraction due to the economic cooling, restrictions on ownership, and the restoration of a car purchase tax which had been earlier removed to stimulate demand. The stalling out of growth in new car sales could also be attributed to the increased maturity of the market, with used cars now an alternative to new cars. Auto makers in China have in some cases trimmed production. Profit margins in China are under pressure. Even though the era of high growth and fat profits in China compared to the developed markets may be over, China remains central to the plans of global auto firms.

Local Auto Firms Fail to Impress

While the opening up of China's auto industry should be deemed a resounding success in terms of satisfying market demand, the goal of sparking the emergence of globally competitive Chinese automakers simply was not realized. Chinese auto brands produced by 171 companies reached a peak China market share of 49% in 2010 in part due to US\$ 1 BN of government subsidies. This government support was abandoned and the market share of Chinese brands declined to 39% in 2019. Chinese branded vehicles have a place at the low-end of the market, but find it hard to command consumer loyalty.

Given the ready availability of auto components, many of the barriers to entry into auto manufacture and assembly have fallen away globally. Most component

suppliers have established production in China. Moreover, there is plenty of capital to fund Chinese start-ups. So how do we explain China's poor showing in this area?

Foreign automakers have perfected the art of efficient, lean, high volume manufacturing while Chinese home-grown vehicles suffer from poor product quality and unreliable after-sales service. But at the heart of the challenge facing Chinese players is the fact that the global auto industry has become less about engineering and more about design that provides an enhanced experience to the consumer. This involves not just the vehicle's look but its instrumentation, ride, and handling, all of which is fine-tuned for specific market segments. In turn, this design and customer appeal is reflected in the brand positioning. So far, auto design, software (in the broadest sense), and branding, as opposed to the hardware (components), is where China lags behind.

So, it is not at all surprising that the first China-built vehicles to arrive in the US are all manufactured by foreign firms which are able to achieve global standards in quality, safety, and design. GM and Volvo (albeit owned by Chinese firm Geely, but still run by the Swedish management) have already shipped vehicles from China to the US. This trend is underlined by Ford's decision to base its global production of its Focus car in China.⁸

The Greening of China's Auto Industry

Nobody should imagine for one moment that auto sales in China can sustain double-digit annual growth rates. In recent years, the auto market has cooled down and it needed to. Vehicle emissions in China have had a devastating impact on public health. China's leaders have "declared war" on pollution, which has become a major source of dissent especially among the emerging new middle class. Fifteen years ago, I would regularly hear China's officials and economists embracing "auto-centric development," much like the old US model, whereby auto production has a knock-on effect across the economy. Some officials even regarded the growing pollution as a badge of honor in that it demonstrated that China was moving forward. You will not hear that view in China today.

In each major city, quotas have been placed on new vehicle registration, and registration fees have been increased. In some cases, these fees are higher than the price of the cheapest cars, resulting in local auto brands retreating from megacities like Beijing.

The issue is complicated. At its peak, Chinese car production has been over 25 MM units per year. In 2018, the Chinese government stated that the auto sector (everything from producing parts and assembling cars, to servicing them and insuring them) accounted for 16 percent of jobs and 10 percent of retail sales. After a recent slide in the market, especially during Covid-19, car sales in China are now rebounding. The good news is that China is plowing funds into the development

and introduction of what China calls “New Energy Vehicles” (electric vehicles/EVs and hybrids), and, with it, new battery technology. Until recently, the Chinese EV producers have been protected from large-scale foreign competition. But in 2020 the US firm Tesla sold 150,000 cars in China and is investing US\$ 5 BN in a plant in Shanghai which will have an annual capacity of 550,000 vehicles. Chinese firms Geely and BYD are responding by launching premium EVs. Leading Chinese mobile handset producer Xiaomi is also entering the EV market using its powerful brand. There are a large number of new entrants such as Li Auto, Xpeng, and NIO. Such is the feverish activity in the area that shortages of semiconductors used as CPUs or microprocessors in these vehicles have occurred.

Although in 2020 EVs accounted for only 6 percent of China’s new car sales, that proportion is expected to multiply 15-fold by 2035, the date the government has set for halting sales of new internal combustion engine cars. In the interim, the government has set strict mandates for car makers to sell at least 25 percent NEVs or face penalties. During this transition, the definition of NEVs has been broadened slightly to include regular hybrids as well as battery EVs and plug-in hybrids. China’s electricity utilities are rapidly increasing China’s infrastructure of charging stations so that soon it will be the same size as the entire network across Europe.

Chinese R&D is heavily focused on ‘new mobility solutions’ using artificial intelligence which will permit autonomous driving. Given the centrality of technology to the future of vehicles and transportation, Chinese technology firms such as Baidu (search engine) and Huawei (telecoms equipment leader), as well as the Taiwanese firm Foxconn are forming alliances to enter this sector. It is widely recognized that Chinese firms, with government support, coupled with China’s large domestic market and the ability of the government to enforce the move to EVs, may well emerge among the global leaders in the EV market. That said, foreign firms such as VW are making a bold transition to EVs and, along with early mover Tesla, will compete strongly for market share in China.

Why Did China Neglect Logistics and Resist Its “Opening Up” to FDI?

At the beginning of the reforms, China’s logistics industry was in very poor condition, just like the auto industry. The highly centralized state-planned distribution system had melted away, leaving logistics in a primitive, fragmented, and highly inefficient condition, quite unsuited to the requirements of a modern economy.

Logistics may not be the most glamorous or eye-catching subject and is unlikely to be an attention grabber at a dinner party. But the importance of modern logistics cannot be underestimated since it is the lubricant that keeps industry and commerce running smoothly. Sadly, China delayed addressing its backward logistics resulting in serious bottlenecks that have held back the integration of the national economy.

First, what do we mean by modern logistics? Once, logistics often referred to the military supply system. More recently, as logistics has become a buzzword, even small trucking companies have taken to labeling their companies as logistics firms. For the sake of clarity, we define modern logistics as follows: It is increasingly an outsourced service (thus the commonly used term “third party logistics,” or 3PL) in contrast to logistics handled in-house by the shipper (that is, the manufacturer). It is an integrated, seamless solution including transportation, warehousing, freight forwarding, customs clearance, and certain value-added services (break shipment, repackaging). While with more basic logistics there is a spot market (you switch logistics providers regularly), contracts between the modern 3PL and the shipper are usually long-term or multiyear.

At the heart of the entire process is sophisticated computer software that enables time-specific delivery, tracking of shipments, electronic links to the IT systems of customers and officials (e.g., Customs at the port), in effect creating a digital supply chain. The 3PL is focused on the integrated solution and may choose to adopt an asset-light approach, itself outsourcing trucking and warehousing.

The Woeful State of China’s Logistics

With the dissolution of the centrally planned economy, the Ministry of Domestic Trade (successor to the Ministry of Materials) was abolished. Some of its staff stayed on to manage the government-run China Federation of Logistics and Purchasing (CFLP). In 2002, I was bestowed with the honor of being the only non-Chinese to be elected by its annual congress as an executive director of CFLP for a five year term. Professor Ding Junfa, my good friend and vice chairman of CFLP, published a book in which he set out in no-uncertain terms the drastic backwardness of China’s logistics.

China’s logistics costs accounted for 20% of GDP compared to only 9.9% in the US. Huge quantities of working capital were tied up in raw materials inventory, which was held on an average of 30 days, far from a J-I-T (just-in-time) approach. Logistics costs represented 30% to 40% of product cost – “unimaginable in developed, market-oriented economies,” he added. Finished product inventory periods in China totaled 80 days (45 days in the factory warehouse and 35 days in the retail store), compared to 12 days in the US. Many enterprises had set up their own transportation fleets and warehousing, which were costly, underutilized, and inefficient. Seventy percent of truck haulage was done by factories themselves. Empty backhauls represented 37% of the transportation. Average truck speeds were 50 km/hour.⁹ This was a stark indictment of the weakness of China’s logistics capability.

China’s truck fleet was dominated by locally built, five-ton (medium-size) vehicles that were unsuitable for long-haul goods transport and even today are often covered by a tarpaulin, rather than a secure, waterproof box car. It is common for trucks to be seriously overloaded, which creates hazards and quickly wears out the

roads. Things are improving, in part since foreign heavy truck firms such as Daimler Benz (and its subsidiary Freightliner) have established production sites in China.

China's road infrastructure has also been transformed. In the space of about 20 years, some 149,600 km of superhighways have been built, making it the largest such network in the world. But other factors hold China back from using this network effectively. Road tolls are too high. There is also a widespread practice of local governments levying their own illegal tolls.

China's rail freight system has proven to be a major bottleneck. Back in 1993, Shanghai People's Printing Factory No. 8, then China's leader in packaging printing, told me it relied on rail freight and explained with pride that a key government relationship was one it cultivated with the local goods railway station, where someone was permanently posted to ensure products got loaded onto the wagons. It had to pay "fees" or bribes to facilitate matters.¹⁰

China's rail freight system still lags behind the world. Its intermodal system (that is, containers carried by rail with short haul by truck at both ends) remains seriously underdeveloped. Although the height of rail tunnels is being increased to accommodate double-stacked container trains, containerization of railway goods traffic is still at an extremely low rate of 5% to 6%.

When in 2001 we conducted a comprehensive survey of China's 3PL market, we found Chinese manufacturers highly reluctant to outsource their logistics, since post-reforms they had already built their own in-house logistics capability and in any case had no confidence in the service levels of 3PL providers. More than ten years later, another survey revealed a continuing resistance to contract logistics (3PL) with only one in four respondents saying they outsourced this service.¹¹

So why did China not embrace foreign investment to drive change in logistics in the way it did in the auto industry? There are a number of possible explanations.

First, domestic transportation, logistics, and domestic trade were regarded as having high strategic and security importance to the nation and, therefore, should not be exposed to foreign investment and control.

Second, as a legacy of the Stalinist planning mentality, China's leaders were engineering-oriented (that is, hardware- or product-oriented) and heavily focused on manufacturing. They undervalued the critical role played by service industries, such as logistics.

Third, they wanted to provide local service industries with time to find their feet before opening things up to foreign competition. This applied not only to logistics, but also to the service industry more broadly, including the retail sector and department stores, where foreign investment initially was also highly restricted.

Beginning with its WTO accession in 2001, China began slowly opening up logistics to foreign investment. It took until December 2005, four years later, for regulations to permit 100% foreign-owned freight forwarding/logistics companies. Foreign firms such as DB Schenker, Ryder, Kerry, and Schneider National entered the market, focusing largely on their multinational customers in China and the cross-border logistics

they require. Beyond that, there is the need for ever more complex supply chains as their customers penetrate China's interior, including the remote western areas.

To this day, the China logistics market remains bifurcated. Foreign 3PLs typically serve the multi-national corporations (MNCs) who have entered the China market. A handful of China logistics players, such as China Merchants/Sinotrans and Cosco Logistics, have reached high levels of modern logistics service that permit them to win long-term contracts from foreign firms in China. But most Chinese logistics firms focus more on Chinese manufacturers, a market segment that remains fragmented, with low levels of service and highly price-conscious customers.

There is an urgent need for world-class logistics services. But it will also require a shift in the mentality of Chinese manufacturers. While many have made great progress in understanding the impact of logistics on their cost structure, for others there is a long way to go before they rate the quality of logistics service (safety, reliability, transparency, tracking, etc.) as highly as the price of the service. Serious efforts are required from central government to rein in the illegal tolls imposed by local government. National operating licenses for 3PLs should not have to be supplemented by local provincial operating licenses.

The Motorola Breakthrough

Chicago-based Motorola, which started as a manufacturer of car radios, grew rapidly during World War II as a producer of two-way radios for the military. Based on its radio technology, it went on to be a pioneer in pagers and cellular phones (it invented the first mobile phone in 1973), both the handsets and the infrastructure. It also designed and made semiconductors to drive these and other devices.

In the mid-1980s, Motorola CEO Bob Galvin, son of founder Paul Galvin, had the vision to see the potential that China represented. But he stated adamantly that, "I do not want to form a joint venture [in China]." Looking around the Chinese semiconductor industry at that time, it was perfectly obvious that there was no potential Chinese partner that could bring any benefits to the table, except government connections. One major concern was protecting the firm's leading-edge technology and skills. Motorola wanted to create a "center of excellence in China" without the impediments and risks implied by taking on a Chinese partner. That sounded reasonable but flew in the face of what some Beijing bureaucrats, stage-managing this sector, wanted.

The Chinese government, then as now, is not monolithic on policy issues. There are different views reflecting different stakeholder interests. Just as with the auto industry, many officials of the state-owned semiconductor industry had a distinct preference for forcing foreign entrants into JVs. Firms such as Philips, Alcatel, and NEC agreed to form JVs in which the Chinese side typically had a majority equity position. But Motorola stuck to its guns and would not entertain putting its first and primary China investment into a JV.

Meanwhile, there were other Chinese officials who had the foresight to encourage top-flight foreign firms to enter the market on a very different basis. In 1986, China published the first regulations permitting 100% foreign firms (wholly foreign-owned enterprises, or WFOE). Initially, they were restricted to businesses that were export-oriented or high technology. Motorola naturally was able to cross the high-tech hurdle. In 1986, Bob Galvin visited Li Tieying, who headed the Ministry of Electronics Industry (MEI) and the next year presented the Chinese government with what he called the Track B Proposal (“B” was the vision of a wholly Motorola-owned venture in China, in contrast to the more standard JV route).

Some aspects of the Track B proposal were already possible, at least in principle, under the new WFOE law. But given it was such a strategic area, the government had a free hand to frustrate a foreign entrant if it so wished. The Galvin proposal set out its wish list: WFOE as the investment vehicle, domestic market access, full operating control, ability to deal directly with employees, and no union interference (Galvin had initially objected to having a trade union but when it was explained that it was just a tool of the CCP, his concerns were allayed!).

Motorola worked assiduously at different levels of the Chinese government arguing the case for this bold experiment.

Winning central government support. Minister Li Tieying, with whom Galvin worked closely, was a very senior figure, since he concurrently served as vice director of the State Council’s Leading Group for the Invigoration of the Electronics Industry and, most significantly, as a member of the CCP’s Politburo. Motorola also worked with the MEI Vice Minister Zeng Peiyan, who warmed to the idea of Motorola’s China proposal being a trial project, in line with China’s practice of introducing reforms experimentally. He validated Motorola’s strategy of working with the government just a few steps ahead of what the evolving regulatory environment technically permitted – or, so to speak, riding the wave of regulatory change in China. Risky but rewarding, if you get it right.

The then Ministry of Foreign Economic Relations and Trade (MOFERT) and Ms. Ma Xiuhong, head of its department that handled foreign investment approvals (she later became vice minister), was reform-minded and strongly supported the Motorola project. But given the project size and the features that lay beyond what the law permitted, coupled with the strategic nature of the semiconductor business, the proposal needed to be referred up to China’s State Council, which had the authority to issue a “special approval.” This approval would make the deal fully legal, even though it was some steps ahead of the regulatory change.

Tianjin government acts decisively. Motorola’s hand in selecting the site of the venture was to a great extent guided by the Chinese government, which recommended either Xiamen (in Fujian in South China) or Tianjin (close to Beijing). Both cities predictably promised Motorola impressive support.

Xiamen's mayor praised Motorola's choice of a WFOE investment vehicle, stating that "our biggest problem is management" and adding that they had done an investigation of 200 foreign enterprises in Xiamen and found that WFOEs were better managed than JVs. "That is why we encourage WFOEs," he concluded. The mayor also addressed Motorola's anxiety over its ability to decide employee issues. Motorola would, he said, be "fully free in all areas, including recruitment, salaries, and firing." That may not seem so astounding today in China, but at that time, it was extremely hard to make changes to the workforce, even if the foreign investor ostensibly had full operating control.

Motorola's choice of location was ultimately Tianjin, on the coast of the Bohai Gulf in North China, not far from Beijing but separated enough from the capital so as not to be overburdened by the central government bureaucracy. The Tianjin Economic-Technological Development Area (TEDA) was a fast mover in attracting FDI and actively urged investors to form WFOEs rather than JVs. TEDA was also hungry for a major anchor investment and believed that winning the Motorola project would be a breakthrough for the zone as it competed with other cities, such as Dalian and Shanghai.

The president of TEDA's commercial arm was Ye Disheng, a Cantonese electronics engineer who had worked for ten years in the MEI under Li Tieying. Chairman of TEDA's government arm, its administrative commission, was Zhang Wei, then still in his 30s and described by his colleagues at TEDA as a "rising political star." Zhang had been a delegate to the CCP National Congress in 1987 and was close to Hu Qiuli, a reformist member of the Politburo's Standing Committee (the highest level of the CCP). He also had good contacts with Li Lanqing, who had previously been Tianjin Vice Mayor and at that time was vice minister of MOFERT, which handled foreign investments.

Zhang Wei and TEDA worked extremely closely with Tianjin Mayor Li Ruihuan, another CCP moderate who had been responsible for pulling Tianjin out of a 40-year slumber, building a new road system and putting the city back on the map. Mayor Li was also concurrently Tianjin CCP secretary and a member of the CCP's Politburo.

In the middle of 1988, Zhang Wei and his colleagues engineered a round of golf in Tianjin for Mayor Li and CCP General Secretary Zhao Ziyang (China's top leader) at which an agreement was reached on moving forward on Motorola's Tianjin deal, the "Plan B."

Some may shrug their shoulders and say this was just another case of using relationships (*guanxi*) in China to get early mover advantage. In fact, it went far beyond that model of doing business and was an important milestone in history when reformist leaders in China were in ascendancy and strongly motivated to push out the boundaries of how foreign firms operated in China.

The next year, in June 1989, the Tiananmen Square Massacre occurred. Zhao Ziyang, who had supported the deal with Motorola, was dismissed and held under

house arrest in a Beijing hutong (alley) until his death in 2005. Zhang Wei, by then promoted to head of foreign trade in Tianjin, took the courageous step of resigning in protest at the imposition of martial law (that was *before* the actual massacre). He was then held under house arrest and ultimately left China and went into exile. Conservative elements took advantage of the political chill to try to recentralize the economy and put a brake on further reforms.

While many companies pulled back from China, Motorola continued its efforts, culminating in March 1992 with the official approval of its Tianjin WFOE, which was licensed to produce the full range of Motorola products: pagers, cellular phones, cellular infrastructure, two-way radios, auto electronics, and semiconductors. Motorola minimized its risk through pledging to install a full semiconductor wafer fab (fabrication plant) *only* when “market conditions permitted.” This permitted wiggle room, and it took a number of years before the Motorola venture in Tianjin started its semiconductor production, first with “assembly and test,” then investing in a full wafer fab in 1995.

Tianjin rightly perceived the Motorola project to be the linchpin of its strategy to attract major foreign investors. Its persistence in pushing the project forward, even while cold winds were blowing in the post-Tiananmen Square Massacre period, was rewarded. Other major firms followed Motorola into TEDA, including Samsung, which located a major manufacturing complex there.

Having established itself, Motorola enjoyed a long period of fast growth and profitability in China. It used China profits to pay several hundred million US\$ of cash for its new office in Beijing. It first dominated the pager market, then the mobile phone market, until Chinese and South Korean competitors arrived on the scene. In the 1990s, Motorola was regarded by aspiring Chinese professionals as one of the most admired foreign-invested firms. Later, Motorola’s global disarray and dismemberment led to the sale of the Tianjin venture and the rest of Motorola’s businesses in China. But that is another story.

The Curious Case of Casinos in China

The story of the hunger of foreign casino owners for a stake in the China market is a vivid example of how China’s legal environment, characterized by grey areas and wiggle room, provided too much of a challenge.

It is well known that the Chinese love gambling and also that the Chinese Communist Party has steadfastly prohibited it, except in the former Portuguese enclave of Macau. Chinese flock to Casinos in Singapore, Thailand, Australia, and Nevada, USA. I well remember drafting itineraries for Chinese business delegations which included San Francisco and Los Angeles but, at their request, omitted mentioning the weekend side trips they made to Reno or Las Vegas in Nevada for gambling or, as the casino operators like to call it, “gaming.” Today it is hard to miss that on-line

betting is heavily focused on Chinese bettors and that it sponsors numerous English soccer teams, even to the extent of having the Chinese characters for their brand on the players' shirts as well as around the stadiums. The firm LoveBet has its Chinese name *Aibo* blazoned across the chests of Burney FC footballers. But, for now, let's go back again 30 years.

When, in the early 1990s, there were rumors that there might be a loosening on gambling in China, foreign casino owners pricked up their ears. News came that the US firm MGM Grand were negotiating a casino deal on Hainan Island, a loosely administered tourist area in the tropical far south of China, just across the Gulf of Tonkin from Vietnam.¹²

When I first lived in China under Mao, Chinese were restricted to non-gambling board games such as Western chess (known in Chinese as International Chess), Chinese Chess, and Weichi (also known in Japanese as Go) and non-gambling card games such as bridge. Deng Xiaoping was an avid bridge player and when he retired from official positions, his last remaining title was Chairman of the China Bridge Association.

After the economic reforms began, the government sponsored "social welfare" lotteries. But there also emerged a broad array of gambling disguised with business licenses that referred to "entertainment" (*Youxi*). Mahjong was tolerated since it was not regarded as gambling and is played mainly at home. Horse racing began in Guangzhou but without wagering. While slot machines, electronic poker games, and electronic horse racing were regarded as gambling whether there were cash prizes or not, the authorities often turned a blind eye, while periodically clamping down, usually around National Day or when too many high school kids became addicted to this activity. Slot machines were nicknamed *Laohuji* or Tiger Machines due to their propensity to eat coins.

Other types of gambling such as baccarat, black cat, roulette, and craps were strenuously prohibited but were constantly popping up underground across the country, only to be periodically closed down by the police, in a form of whack-a-mole. China's Public Order Law explicitly bans "gambling" along with "pornography," with breaches punishable by fines and short jail terms.

In conducting research on this subject, I was struck by the fact that plenty of Chinese officials at the central and local level speculated that it was only a matter of time, maybe three to five years, before gaming became legal in China. In Fujian, a senior government tourism official told me that gaming would be beneficial to the population, but they first had to find a way to regulate and control it, much as Nevada has. The commonly expressed view was that in the meantime it was better to adopt the Chinese tactic of "alternative" (*biantong*) or "flexible" ways around the problem. The Ministry of Culture pointed out that gaming is widely conducted under the guise of "amusement." In Hainan I saw electronic gaming premises with the sign "all the machines are for amusement. Gambling is absolutely prohibited." In that remote southern part of China, one official stressed to me that it was their policy "not to encourage gaming," only to add that "gaming is underground and unavoidable."

In China and among overseas foreign casino operators there were persistent rumors about China opening the gaming sector. There were reports that a numbers of gaming projects were sitting on the desk of top Chinese leader Deng Xiaoping awaiting review and possible approval. The guess was that, as in other sectors, opening up to foreign investment would be done through a few pilots or experimental projects after which legislation would be drafted to make it fully legal.

In Hainan Province the several gaming projects involving two Las Vegas firms had been given approval by the local authorities but still lacked final central government endorsement. These projects combined beach resorts with slot machine and table gambling. One was restricted to foreign passport holders. Las Vegas casino operators naturally focused on Hainan Island, with its tropical climate, clean sandy beaches and, most critically, a free-wheeling provincial government enjoying a high degree of autonomy from the central government.

But the fever for gambling was to be seen across China, with case after case of local government and Chinese entrepreneurs preparing projects in anticipation of the hoped-for change.

Tianjin, which was twinned with Melbourne, Australia, where there is gaming, had for some time been trying to get a casino project off the ground. In the Liaoning Province coastal city of Dalian, a Hong Kong firm had teamed up with the son of the Dalian police chief to set up an “international club” with card tables, roulette, and slot machines. But it was closed down due to its links to prostitution. Separately in Dalian, there was an attempt to operate a gambling ship that would leave the dock in the evening and anchor off-shore for gambling. This effort was thwarted.

Jinxi, a small coastal city on the Gulf of Bohai in Liaoning Province had prepared an elaborate plan for a massive tourist resort on Juhua Island – 12 km from the shore and with a population of around 2,000, farmers and fishermen. Although the island had been designated a National Tourism Zone, the project had only so far been approved at the provincial level. One stumbling block was the proposal to include a casino as part of the hotel and conference center. The project also called for a yachting club, luxury villas, a golf club, a cable railway round the island and a heliport. The project was never realized.

In Shanghai, the tourism authorities had proposed a casino and nudist colony to be located on Hengsha Island in the Yangtze river estuary. The local Baoshan District government had visited Las Vegas, but even though the project was to be only for foreign passport holders, central government approval was not forthcoming.

Starting in mid-1993, after several years of tolerating gambling, there began a marked increase in legal enforcement. In Dalian in 1994, seventeen members of the Chinese mafia were executed for organized gambling, prostitution, and other crimes.

As an official at Tianjin’s Public Security Bureau (police) explained to me, “the main difference between socialism and capitalism is the attitude to sex and gambling.” China’s main Party newspaper, the People’s Daily, railed that:

the winners indulge in eating, drinking and whoring. The losers end up stealing, picking pockets and mugging. That is the assessment of gambling by the common people. . . . Failure to wipe out this scourge will bring calamity to the country and the people.

This sent a strong signal to the police and the Ministry of Culture who had the mandate to jointly (i.e., to watch each other and prevent corruption) oversee the control of gambling, that a clamp down was required. Deep down, the Chinese authorities were anxious about public order and social disturbances. Foreign passport holders-only casinos were regarded as hard to control. Ideas of deploying the Chinese army rather than the police to supervise casinos was also considered.

Despite the hardening attitude of the government, there was still an expectation that local authorities might continue to turn a blind eye to casino activity, while periodically closing them down, usually just before National Day, October 1. That was something that the Chinese were used to and worked around. But for a foreign casino there was no way they could play in this environment. The answer was simple. Under Nevada Rules, brought in to regulate casinos and control mafia activity, if a Nevada casino company had a casino closed down in another jurisdiction, then the Nevada-based casinos would have to be shut down. A Las Vegas casino firm could not risk their lucrative Nevada business by investing in China where they could easily face government sanctions. And to this day, gambling in China, except in Macau, remains strictly banned. The hopes of foreign and Chinese entrepreneurs for the opening up of gambling have never be materialized.

Moreover, things were further tightened. As China's economy grew and boomed, so government and Party officials gained access to illicit wealth. In 2015, as part of his never-ending anti-corruption campaign, Xi Jinping took action to limit access to off-shore gambling. Macau casino companies, including US investors, found their business severely hit as the flow of wealthy gamblers from Mainland China was constrained. Overseas casino operators had established teams of salespeople on the Mainland China who organized package trips for Chinese high rollers to their casinos, with the publicity carefully edited to avoid direct mention of gambling. The Chinese authorities arrested the entire China-based sales teams of three offshore casinos, one in Australia and two in South Korea. They were accused of "promoting gambling" and organizing gambling trips with "more than 10 Chinese," as well as having links to Chinese organized crime, which saw this as an opportunity for money laundering. Found guilty, a number were jailed, the head of the Australian team getting 10 months.¹³

The notion of legalizing gambling in China and the participation in it by foreign investors today looks far-fetched and illusory. But earlier in China's new model, the Chinese party-state was slowly feeling its way toward what limits should be placed on reforms and cultural activities. The outcome is that concerns over public order and the desire to maintain "socialist" morality have trumped business opportunities *and* traditional culture.

Satisfying Consumer Demand

FDI has a major impact on Chinese consumer products. China under Mao did have brands – the Flying Pigeon and the Phoenix bicycles, the Red Flag limousine, the Liberation truck, Panda candies, the Haiou (Seagull) camera, White Cat soap powder, Five Star Beer, and more. But the arrival of foreign firms such as P&G, Unilever, Henkel, and Kao and their countless brands such as Head & Shoulders (Chinese name *Haifeisi*) quickly set the pace once the retail industry was opened up to foreigners. US food chains such as McDonald's and KFC expanded across China and in turn were imitated by Chinese chains selling not just Western food but also Chinese cuisine from pig heads to up-scale Sichuan food.

The wave of consumerism that has swept China was not just about consumer choice but also about quality and safety. Foreign branded ice cream, baby formula, or pharmaceuticals were unlikely to be tainted. French-branded yogurts could be shipped longer distances due to the introduction of cold-chain logistics. Locally branded face creams often contained bacteria that irritated the skin, while foreign brands did not.

Why FDI Will Stick with China

Although FDI remains at a high level and the Chinese regulatory process has been greatly simplified, the Chinese side's hunger and enthusiasm for FDI that we saw in the 1980s and 1990s has waned. FDI is simply not as significant to the economy as before.

Chinese firms now have alternative sources of investment capital, including the stock market. They have acquired new management skills and show a newfound confidence. Though they may engage with a foreign partner as part of a learning process, their eyes are firmly fixed on becoming a global force themselves and so they are unwilling to form JVs in which equity and management are ceded to the foreign party. Foreign investors should take note that any JV arrangement is likely short term – a marriage of convenience until the Chinese side is ready to go it alone. Moreover, the Chinese government has proven to be perfectly willing to step in to block potential “national champions” from being taken over by foreign investors, such as private equity funds.

While China remains an investment magnet, the foreign investors in many sectors are more sanguine about the possibility of establishing a long-term, profitable business in China. Many have been disappointed by the lackluster performance of JVs and since as early as the year 2000, the WFOE overtook the JV as the most popular foreign investment vehicle. Most investments now entail entirely new facilities built on greenfield sites, without the burden of preexisting operations and the legacy of a bloated workforce with skills ill-suited to the new business.

China still has an “open door” to FDI since, quite apart from its WTO obligations, it sees merit in having foreign companies competing in the domestic market. This not only keeps local firms on their toes but also permits access to foreign technology and business processes. Foreign firms in China are an excellent training ground for managers and engineers that eventually move on to Chinese competitors.

In some sectors, foreign investors have been relatively free to grow in line with China’s economy. This has been the case with manufacturers of fast-moving consumer goods, such as P&G and Unilever; with fast-food chains, such as KFC and McDonald’s; and with the auto industry. It is true that foreign firms are singled out and held to higher standards than local firms with regard to issues such as product quality, environmental compliance, and employee working conditions. Some foreign firms have been fined under China’s anti-monopoly law for rigging prices. Patriotism can be stoked by going after high-profile foreign investments and foreign brands.

Some foreign investors quietly accept that the market will increasingly be rigged by the Chinese government in favor of local players. This feeling is most acute in information and communication technology (ICT), where the government has control over most procurement. It is fair to assume that the Chinese government at the level of the State Council’s Leading Groups, using data fed from the ministries below them, carefully and painstakingly monitor the entire China operations of the largest foreign ICT firms, such as IBM, HPE and Dell, and manipulate the market. On the one hand, foreign firms are permitted to have a limited market share and a degree of profitability within a range that sustains their interest in China, while on the other hand China is able to put boundaries on their growth so that they do not pose an excessive threat to the designated Chinese national champions, such as Huawei.

Though all this is troublesome and frustrating, most foreign investors will grin and bear it. They will stick with the China market. The few firms that decide to relocate out of China mainly go to Southeast Asia for reasons of labor costs and do not go back to the US.¹⁴ For the time being, the door to FDI remains open or at least ajar. Those foreign firms with strongly differentiated products or services can still profit from China’s growth. The American Chamber of Commerce continued to hold its annual Appreciation Dinners, a black-tie event “to thank Chinese and US government officials for their support of US companies in China.”¹⁵ These dinners are attended and addressed by senior Chinese officials including the Minister of Commerce.

Meanwhile we should note that China’s educated elite in business and academia are not blind to the tactics adopted by the CCP. One senior figure told me quietly over a coffee that the CCP had “lied to and deceived the Chinese people” about the true implications of China’s WTO accession and while faithfully executing the provisions of accession had failed to implement the true spirit of WTO, with the result that the US had instigated the trade war. This person placed responsibility for the dismal US-China trade and investment relations firmly on the shoulders of Xi Jinping. Though the WTO accession was concluded under Zhu Rongji and Jiang

Zemin back in 2001, the accusation is that Xi misread Trump and brought this disaster on China. This is just one area where Xi Jinping is coming under fire from within China's *nomenklatura* or party officials.

Looking further out, the role of FDI looks more uncertain. Over recent decades, the CCP has smartly engineered an uneasy but productive balance between FDI and Chinese interests, something that has been a key plank of *the China paradox*. While the government has used all kinds of red tape to control and guide the flow of FDI into China, at the same time, early in the reforms, it showed a strong hunger for FDI and at times displayed a cap-in-hand, almost subservient posture to foreign firms.

That posture certainly belongs to the past, and there are signs that China may be swinging in the other direction, going beyond just self-confidence and more toward dangerous hubris. Feeling that it has sucked all it can out of foreign firms, it may ultimately abandon any belief it ever had in a true "open door." China's confidence that it can go it alone is supported by its views that the large SOEs are well stabilized and fit to compete.

China has continued to tweak and relax its foreign investment laws and regulations. It predictably professes adherence to the WTO rules and puts out the red carpet for large investors who are bound by their shareholders not to neglect the current size and future growth potential of the Chinese market.

In 2020, Xi Jinping introduced his "dual circulation" (*liangge xunshuan*) concept for guiding China's economy strategy. It served to rebalance the economy with the main focus on the "inner circulation" (the domestic economy) rather the "outer circulation" (the global economy). It was a rational response to the efforts by the US to constrain or even derail China's economic rise. China seeks less reliance on global supply chains and an emphasis on China innovating and upgrading to achieve the self-reliance that the last 40 years of reforms has failed to deliver. But Xi himself has stated strongly that this is not a form of isolationism, that he wants to bring multinational firms into China and to build strong linkages between China and the global economy.¹⁶ In addition to major industrial projects, China is encouraging capital flows into China, for instance in domestic bonds or for institutional investors and fund managers.¹⁷

It is true that in addition to relying on inbound FDI, China is increasingly looking to overseas acquisitions as an alternative way to acquire technology. There is a strong logic behind this. China was disappointed to find that foreign investors have steadfastly hesitated to bring their technological crown jewels into China, for fear of IPR theft. However, many of these efforts by China to acquire overseas foreign assets, technology, and skills have increasingly found the way blocked by the vigilance of the US and other governments. This high-stakes cat and mouse game continues in full view and also clandestinely.

Having received a bloody nose from the Trump administration's actions to limit sales of ICT components to China, China is determined to rapidly reduce what it sees as excessive dependence on overseas suppliers, something which undermines

its national security. As a Chinese academic put it, “China needs to prepare for the worst-case scenario, in which the US seals off China in certain tech areas.”¹⁸ China feels the need to hedge its bets in case the future turns out to be a divided world, defined by a technology wall designed to exclude China.

Let there be no doubt that if foreign (likely US) pressure to “contain” China rose to new heights, then China would have little compunction about going after foreign investors in China. Such moves by China would be carefully calibrated as tensions rise. They would likely proceed in stages and be targeted at the nation seen as most threatening. There is a wide range of scenarios that foreign enterprises in China could face, such as being cut off from imported components, government-arranged strikes (I have seen that happen before), restrictions on power supply, customs clearance delays, arrest of foreign executives as hostages, and, ultimately, the complete closing down of a factory. In light of these real risks, large multinational manufacturers in China typically have detailed plans to address such events were they to arise, including the timely evacuation of foreign personnel.

There is at present little to suggest that, under the self-reliance implied by the “dual circulation” concept, China would move toward de-emphasizing inbound FDI. But if that came to pass, it would be an enormous mistake. Such a move would also send a strong signal that *the China paradox* was under threat, since during the extraordinary period of reform foreign businesses have contributed massively to China’s rejuvenation. FDI in manufacturing and R&D can continue to benefit China’s economy. Such is the speed of technological change that China needs to remain connected to the global knowledge economy if it is to break through into the big league of advanced nations.

The US’s recent disastrous attempt at decoupling from China so far does not appear to have seriously threatened the flows of FDI into China. Although China has certainly woken up to its vulnerability and the need for greater self-reliance in technology, its preferred route remains encouraging FDI into China and stronger engagement with the world, not less.

Chapter 9

Business Models at the Heart of China's Emergence

We've been trying to exchange market access for technology, but we've barely gotten hold of any key technologies in the past 30 years.¹

- A leader of a Chinese car maker bemoaning the fact that the “learn and catch up” business model has failed to create a competitive indigenous Chinese auto industry.

The significant scientific and engineering obstacles and the resulting high cost of developing thorium-powered reactors may require the sort of long-term commitment and resources that only another world power, like China, can provide.²

- A foreign commentator expressing the hope that China will achieve “novel product” innovation through developing power generation using molten salt reactors.

Are we going to permit a company to VIOLATE our water resources because we received/have been promised aid by the government of the People's Republic of China? Is this part of a “pay back package” for the National Stadium . . . ?³

- Outrage from a citizen of the Caribbean country of Grenada at the destruction of an aquifer by a Chinese investor.

China has built the largest high-speed rail network in the world. The impacts go well beyond the railway sector and include changed patterns of urban development, increases in tourism, and promotion of regional economic growth . . . and the network has laid the groundwork for future reductions in greenhouse gas emissions,⁴

- World Bank Country Director for China

The following four business models highlight different ways in which Chinese firms have grasped the opportunities created by the reforms that have contributed to China's meteoric rise.

Model 1. Learn and Catch Up

After Mao died, China found itself in a developmental dead end, lagging far behind the industrialized countries. Although we may concede that catch-up from such a low base was bound to be impressive, still it is fair to say that China, using the “learn and catch-up” model, has achieved stunning results beyond what had been anticipated.

China's use of this model is not without its critics and detractors. Some observers do not equate this model with innovation, preferring to give that accolade to the development of purely novel products or technologies. But as a leading US economist told me, “China has developed a marvelous system for extracting value for business training and playing catch-up in technology. This is significant innovation.”⁵ Based on analysis of China's IT industry, it is argued that:

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China shines by keeping its industrial production and service industries in perfect tandem with the technological frontier. . . . It runs as fast as possible in order to remain at the cusp of the global technology frontier without actually advancing the frontier itself.⁶

This model is also more complex than some would suggest, involving participation in multiple elements of the value chain (the entire process through which goods and services are delivered). China, through taking advantage of the way globalization has fragmented the production steps, has created:

. . . a formidable competitive capacity to innovate in different segments of the research, development and production chain. . . . China's innovation capability is not just process (or incremental) innovation, but also in the organization of production, manufacturing techniques, and technologies, delivery, design, and second-generation innovation. Those capabilities enable China to move quickly into new niches once they have proved profitable by the original innovator.⁷

However, in some instances, China's zeal for acquiring foreign technology has extended to IPR theft. China with impunity stole the float glass technology developed by the UK firm Pilkington. We shall see below how a Chinese firm brazenly ripped off GM's auto technology. I recall in the 1980s having to physically pull down Chinese business visitors at a chemical plant in Pennsylvania who were clambering up access ladders at the plant to take measurements of valves that gave vital clues to the proprietary technology.

But we should also give credit to China's efforts at further developing technology, also known as *re-innovation*, even though it may at times enter a grey area close to theft.

The Chinese desire to create its own proprietary technology bears some resemblance to the path taken by South Korea. In 1986, I helped Samsung to do an audit of its consumer electronics technology. Our findings showed that Japanese ownership of the technology meant that virtually nothing could be freely transferred into ventures that Samsung might establish in China. But within ten years Samsung had developed its own proprietary VCRs and other products, including the semiconductors that powered them, all of which could be deployed in China. Taiwan went through a similar process as South Korea. China now follows suit.

China's large domestic market and its resulting ability to attract foreign direct investment stand out as key advantages in gaining access to foreign technology. China has been willing to share some of its large domestic market with foreign players since in that process foreign technology is transferred into China. The Chinese side in JVs with foreigners can absorb and in some cases further develop, tweak, and improve the technology – the so-called “re-innovation.”

While some skeptics doubt whether this model is sustainable, arguing that it is running “out of steam,” or has outlived its usefulness due to flagging interest in China from foreign investors, there is ample evidence that foreign firms, such as those in semiconductors, are still willing to deploy their technology in China.

Few foreign investors have deluded themselves about the risk of technology theft they were exposing themselves to. Most subscribe to the principle of “use it or lose it.” If you do not participate with the Chinese, then Chinese firms will sooner or later reverse-engineer the technology, absorb it from one of your competitors, or, more to the point today, acquire the foreign company and its intellectual property outright. At the end of the day, the best protection for technology rights is to ceaselessly innovate to keep ahead of competitors, be they Chinese or others. In particular, this is the case with foreign semiconductor firms which trade and invest with China with the knowledge that whatever technology they are transferring will be overtaken by new generations of products which they have in their own pipeline.

Disappointment in Auto and Semiconductor

In these sectors, this model fell frustratingly short of the key goals of propelling China up the technology ladder. China became a manufacturer but not the product innovator.

We saw above how China attracted massive FDI into its auto industry. But although China is now the largest auto market in the world, the 50/50 JVs, that, until very recent changes to investment rules, were legally the only market entry route for foreign players, did not directly achieved China's goal of spawning its own indigenous auto industry and successful national brands.⁸

The JVs have, of course, indirectly contributed to China's local auto sector. First, they have provided the Chinese partners with huge piles of cash used to establish their own separate auto plants. But the results have been unimpressive. Today only about 10% of the profits of these Chinese partners come from their own brands, while the rest is still easily earned money from the JVs.

Second, with the foreign entrants to the Chinese auto industry came the establishment in China of a comprehensive locally based supply chain of auto-components manufacturers – some foreign, some Chinese. This has dramatically lowered the technological barriers for a new breed of local Chinese entrants, such as the SOE Chery and private firms Geely and BYD. But despite these advantages and the process of learning (and theft), China has failed to create its own strong indigenous auto industry. Why do Chinese auto brands today remain confined mainly to the low end of the Chinese market and have a market share of less than 40% which continues to decline?⁹

The focus of global auto makers is increasingly not just on the underlying technology, but also on design and consumer appeal. This aesthetic aspect is an area where Chinese players struggle to impress Chinese consumers, even as quality and functionality continue to improve. Some Chinese firms have brought in foreign designers who have formerly worked for Ferrari or Pininfarina, while Shanghai Auto purchased the brand and designs from Rover of the UK.

The lack of strong design capability, let alone flair, is not the only reason why Chinese auto makers have failed to make the grade. The key competency of foreign auto firms includes how to establish dealer networks, after-sales service, and auto financing. A study I conducted in 2003 on the Chinese auto industry found sales and service to be chaotic and in their infancy.¹⁰ Chinese players focused mainly on getting cars made and sold, rather than on providing service for the life of the vehicle. They treated their products more like a microwave oven than a car. We anticipated that foreign entrants could use their refined skills in the area of auto service to outpace emerging Chinese auto makers. This is exactly what happened.

Given the failure of this “learn and catch-up” model to propel China’s indigenous auto industry forward, China is predictably migrating toward taking holdings in or acquiring foreign auto firms. In 2010, private Chinese auto maker Geely acquired Volvo. In 2014, China’s SOE car firm Dongfeng acquired an equity stake in its partner’s ailing French parent company Groupe PSA (maker of Peugeot and Citroen. PSA recently merged with Fiat Chrysler to form Stellantis), permitting Dongfeng’s participation in PSA’s R&D process, including the soft art of product design.

Despite the poor showing of Chinese auto brands, we can expect the Chinese to export vehicles into developed markets and not just emerging markets of Asia and Africa. The foreign acquisitions will help in this respect. Volvo has already begun exporting certain China-built models to the US. Chinese auto makers, when ordering parts from the US for delivery three years out, are beginning to specify that they should meet US and European regulatory standards.¹¹ China shows strong signs that it can sidestep the tough challenge of improving the traditional car through achieving a leapfrog into a strong position in electric vehicles.

The limitations of the “learn and catch up” model can also be seen in China’s semiconductor industry. In the 1990s, China was successful in enticing Taiwan, Japan, and US chip manufacturers to establish plants in China. But such is the pace of technology development that China has fallen behind and today can supply only 10% of its semiconductor needs. China is annually spending over US\$ 300 BN on semiconductor imports,¹² equivalent to a year of oil imports. While much of these imported chips are almost immediately exported in China assembled products, this still remains a major and concerning dependency. As a key part of China’s ten-year “Made in China 2025” plan, a National Industry Investment Fund has been established which is plowing US\$ 20 BN into the semiconductor industry.

As an indication that China is still able to trade market access in return for technology, foreign semiconductor firms are continuing to invest in China. Qualcomm has formed a JV to design and produce chips used in servers, while Intel has invested US\$ 1.5 BN in Tsinghua Unigroup, a commercial spin-off from Tsinghua University, which owns two chip design companies.¹³ On top of this, Intel converted its existing facility in Dalian to produce memory chips and has pledged overall to invest US\$ 5.5 BN in China.¹⁴ China has a strong bargaining position. Intel has only 10% of the equity in its recent JV while Qualcomm has only 46% of its JV.

The Chinese government has been racing to create China's own independent semiconductor capability, having in 2014 formed the China National Integrated Circuit Industry Investment Fund which raised RMB 343 BN in funds.

The results have been impressive, in part. The government selected Wuhan firm XMC to lead the establishment of a plant to produce memory chips (including DRAM). US\$ 24 BN was raised to finance this massive 87-acre facility, which will ultimately have a capacity of 300,000 wafer starts per month.^{15,16} Also in Wuhan, Yangtze Memory Technologies (YMTC) owned by Tsinghua Unigroup, is producing flash memory chips of the kind produced by Samsung, Hynix, and Micron.

The downside of this rush to self-sufficiency has been the failures along the way. Billions of government RMB were poured into three semiconductor firms, Huixin (HSMC) also in Wuhan, Tacoma (Nanjing), and Dehuai (in Huai'an, Jiangsu) which have run out of cash and are now bankrupt. The government funds were invested alongside funds promised from the private sector which did not materialize. HSMC seemed to offer a lot and was able to attract an experienced Taiwanese executive to lead it. He ultimately quit, saying that the firm was a "nightmare." It was revealed that the Chinese founders of the firm had not been educated beyond lower-middle school and had a history of murky trading activity.

On orders from the government, as another plank to their strategy, China's semiconductor industry is seeking to gain access to core semiconductor design technology through a buying spree, scouring the global market for foreign semiconductor design firms it can acquire.¹⁷ But this has met with strong obstruction from the US government.

China has accumulated a significant semiconductor manufacturing infrastructure in terms of wafer fabs and foundries, as well as in some areas of chip design for consumer products. But US action under the Trump administration highlighted China's vulnerability in this critical area of technology. China technology giant Huawei was put on the US Entities List which forces firms to obtain special approvals before supplying Huawei with semiconductors or producing them to Huawei's design. Huawei, through its HiSilicon subsidiary, only does chip design. Even if Huawei could find a foundry to manufacture its chips, its design capability was, for a while, also at risk because of US firm Nvidia's US\$ 40 BN bid to acquire the UK firm ARM, which provides the basic design for Huawei chips. That risk has receded due to the intervention of the UK regulators seeking to halt the deal on anti-monopoly grounds.

When it comes to chip manufacturing, the restrictions have been extended to any chips made using US equipment, such as gear for photolithography. In this way, the US has sought to cut Huawei off from its main chip suppliers such as Samsung, TSMC (of Taiwan), and Chinese firm SMIC. In the context of the Trump moves, Samsung and TSMC, who have invested heavily in China, are having to consider whether they have to make a choice – supplying either the US or China. There is also talk of such firms breaking themselves into two parts, so that they can supply both. Much will depend on whether the Biden administration leaves these sanctions

in place. Hopefully he will decline to go down the path toward technology war, toward a world divided into two technology camps.

The US currently has the ability to undermine Huawei through multiple chokeholds in chip design and manufacturing, including in the equipment used. China is working flat out to fill the gaps in the technology it owns and controls. Meanwhile the US semiconductor industry has worked hard to resist the zero-sum game played by Trump. It has pushed for a dual strategy of continued sales to China coupled with large scale investment in the US to sustain the technological lead it still has in semiconductors. The pressure to increase US investment bore fruit on January 1, 2021, when a bipartisan act was passed which included funding for semiconductor R&D in the US. The actual provisioning of the funds, which may be as much as US\$ 25 BN was expected to follow.¹⁸

China's leaders since the reforms have underestimated how difficult it will be to get beyond the "partner, learn" model in high tech. As fast as China grasps global technology innovation, the breakneck speed of technology development means that, frustrating for China, the goal of self-sufficiency and "domestic innovation" still seems elusively distant. But we should not underestimate China's determination and skills needed to get there.

The Model Works Well – In Consumer Products, High-Speed Rail, and Nuclear Power

This model is not confined to absorbing manufacturing technology or product design. Shanghai Jahwa, a producer of fast-moving consumer products, was able to suck valuable marketing and sales skills out of its foreign partner. Jahwa's roots go back to 1889 as a cosmetic company established in Hong Kong. In the 1930s, it established a factory in Shanghai and, after 1949, as part of the forced nationalization, it was merged with other factories in Shanghai into an SOE. In 1987, the Shanghai government instructed it to form a JV with the US firm S.C. Johnson (also known as Johnson Wax) into which Jahwa contributed its main brands and key personnel.

The JV marriage, which was foisted upon Jahwa, turned out to be far from ideal. First, S.C. Johnson's emphasis on household cleaning products did not mesh that well with Jahwa's cosmetic brands, which, once subsumed into the JV, lost market share against foreign brands. Friction developed between Jahwa's charismatic leader Ge Wenya and S.C. Johnson. The JV was dissolved in 1994.

As part of the dissolution of the JV, Jahwa got its brands back at no cost and, moreover, S.C. Johnson had to pay Jahwa significant compensation associated with the costs of about 1,000 employees being taken back by Jahwa from the JV. Furthermore, Jahwa managers explained to me just how assiduous and systematic they had been in learning S.C. Johnson's state-of-the-art marketing and sales knowledge and systems, including brand management, organizational structure, and distribution

channels. Jahwa successfully absorbed this intellectual capital and took it with them when the JV was dissolved.

Next, let's discuss how China tweaked high-speed rail (HSR) technology. Under central planning, China's Ministry of Railways (MOR) controlled the entire rail sector, responsible for policy, regulation, operations, rolling-stock manufacturing, and railway construction. During the early period of the economic reforms, the MOR remained a perfect fossil of Soviet-style planning and fought tooth and nail against efforts, notably by Premier Zhu Rongji, to break it up. The first achievement in these efforts to reform the MOR came with the spin-off in 1986 of the MOR's rolling-stock manufacturing factories into a new commercial entity, followed 14 years later, with that entity being split into two new companies, CNR, comprising factories in North China, and CSR, comprising those in South China.

The rationale of forming these two companies was twofold. First, it created a duopoly, achieving Zhu's goal of limited or "managed" competition in strategic sectors. Second, it offered two Chinese partnership options for foreign rolling stock and locomotive manufacturers who wished to enter the China market, but were forced to do so through JVs. The foreign firms could tell their top management that the technology they were to transfer into the JV would be kept separate from that deployed by other foreign firms in another JV. But in reality, behind the scenes at CNR and CSR, things converged at the Chinese government level.

China's massive domestic demand for railway equipment proved to be irresistible to the world's HSR suppliers, who piled into the China market through JVs. Bombardier and Kawasaki partnered with entities under CSR, while Alstom and Siemens partnered with factories under CNR. Under the JV agreements, the foreign firms' proprietary HSR technology was transferred to the JV but with the restriction that it was only for use within China.

In the space of 20 years, China has built 37,900 km of HSR in China. The network continues to expand, with the announcement, in late 2020, of US\$ 13 BN of investment in a HSR line between Chengdu and Chongqing in South West China.

But bold and transformative as it has been, China's HSR program left many issues in its wake. The MOR and related companies amassed enormous debts. One rail construction firm had debts of US\$ 88 BN. An HSR accident in China left 40 dead. Although it was due to faulty signaling and the train was not traveling at high speed at the time, it nevertheless cast doubt over the future of the entire program. Even worse, the program was riddled with bribery and corruption. The MOR minister received a suspended death sentence and other senior MOR officials were also imprisoned.

Despite these problems, China has emerged as a powerful force in railway technology. The Chinese side of the JVs took the foreign technology and, in their words, "redesigned" key components that permitted the HSR to run at 350 to 380 kph compared to the original maximum of 250 kph. Warning signals went off when the Chinese began registering patents on this supposedly new technology in developed

countries in preparation for export. Kawasaki threatened to sue for IPR infringement on its bullet-train technology. The Chinese government stressed that it had “absorbed foreign [rail] technology but also innovated it” and that they owned the “independent intellectual property rights.”

The Chinese elaborated on the “innovation” they had made to permit the higher speeds of this “new generation” of HSR: new bogies, low derailment factor, new welding techniques for the lightweight aluminum body, and a redesigned nose with 5% less drag than that of Kawasaki. The Chinese bragged that their “new generation” of HSR was hugely different in “speed, comfort, and technology.” Kawasaki later backed off of its threat of legal action, while the other foreign players avoided direct confrontation since they still hoped to sustain their sales in China and purchase China-made components for their international business.

One Japanese businessman expressed regret: “The *Shinkansen* is the jewel of Japan. The technology transfer to China was a huge mistake.”¹⁹ But others in Japan were more resigned to the situation. One pointed out that “with the German Bombardier and the French Alstom poised to enter China, there was no way we could just sit back and watch” while another admitted, “If you put high technical ability on display like that, then it (copying) is inevitable.”²⁰

In 2015, the Chinese government re-merged CSR and CNR with the stated goal of avoiding a price war with each other in international projects. The resulting CRRC Group, with a market worth of around US\$ 26 BN, annual revenues of RMB 215 BN and 180,000 employees, became the largest firm of its type in the world. We may also add that that since the foreign technology has been sucked into China and largely appropriate by Chinese firms, the purpose of having those two firms, to create the fiction that on the Chinese side there was genuine competition and that somehow the intellectual property rights would be respected, had run its course. The focus became combining forces for the deployment of the “re-innovated” rail technology that has been so cleverly absorbed and tweaked by China.

There is a new “global race” developing between China and Japan to bring magnetic levitation” (maglev) trains into widespread use. The only operating maglev line runs 30 km from downtown Shanghai to Pudong Airport, at a speed of 430 km/hour. It was built by Transrapid, a joint venture between German firms Siemens and ThyssenKrupp, which was unwound a decade ago.

After the Pudong airport line was built, China had considered using this German technology for a line between Shanghai and Beijing. But China demanded that, for this next step toward large-scale deployment, Transrapid had to transfer its core technology into China. I recall long conversations with Transrapid executives in Shanghai who were wrestling with this dilemma. In the end, Transrapid famously gave a firm “no” to this offer from the Chinese. Today China is testing a prototype Chinese version which will run at 600 km/hour, competing strongly with domestic air travel. Japan is competing to bring their own version to market. The initial cost of building maglev lines is very high because it is incompatible with conventional

track and runs on a custom-built overhead concrete infrastructure. But its long-term operating costs and environmental impact are significantly better than that of other forms of rail.

Through its domestic HSR program China has amassed enormous capability not just with locomotives and rolling stock but also in the efficient civil engineering needed to build the network. China's goal is to deploy this knowledge and technology worldwide. The World Bank has praised China's standardization of HSR design and construction, which they say results in a construction cost of US\$ 12–21 MM/km which they say is two-thirds of comparable international costs. This price advantage is in line with figures provided by the Chinese government.²¹

In South East Asia, Chinese engineers are already boring tunnels through mountain ranges, building bridges and laying track in Indonesia (the Jakarta-Bandung Line) and in Laos. The China-Laos line will ultimately extend across Thailand, down Malaysia's East Coast to Singapore. In Europe, the Hungary-Serbia HSR line is under construction.

The progress in this overseas program has at times been fraught. Due to geopolitical tensions, India pulled out of rail construction deals with China. There have been issues between China and Thailand and Malaysia over the costs of rail projects, though these have largely been resolved by China cutting its price.

The Hungary-Serbia project is part of a larger rail project from Belgrade down to Northern Macedonia and on to Athens and the China-run Piraeus Port. Hungary's 166 km section of the line initially came under scrutiny due to EU regulations on contract bidding. The rising cost of the line has become controversial. 15% was to be paid by Hungary and the remaining 85% covered by loans from China. Despite demands in Parliament to release details of the Chinese loans, the government has insisted on keeping the information "classified,"²² that is, not public.

Laos is a desperately poor nation, essentially a client state of China. It was in no position to say no to China's offer of help. The Laos rail project is costing US\$ 6 BN. Despite pleas from the IMF not to do so, Laos has taken on US\$ 1.5 BN of debt from China, while it has an annual GDP of only US\$ 13 BN. For good reason, China is accused of creating dependency through debt diplomacy.²³

China is already strong in international non-HSR projects. It has new rail line construction contracts with Nigeria, Sudan, Turkey and Brazil. In the US, it is supplying electric locomotives and rolling stock to Boston, Chicago, and Los Angeles, often creating new jobs through assembly plants in the US.

China is exploring HSR projects round the world, including HSR linking China with Europe through central Asia. We shall likely see China winning major HSR projects in which it not only supplies rolling stock, but also undertakes the complete construction. In some cases, China will partner with local firms. But the bulk of the work will go to China.

In the UK, the high-speed rail line HS2 is forecast to cost GBP 100 BN, compared to the original budget of GBP 60 BN. While many contracts for HS2 Phase 1, from

London to Birmingham, have been awarded, prospects for Phase 2 (two branches to Manchester and to Leeds) are uncertain. There is push-back from sections of UK public opinion which regard HS2 as a vanity project or a white elephant. There are concerns that while the connected cities may benefit, those cities in between, where the train does not stop, will lose out.

In February 2019, shortly before Covid-19 hit the UK, China Rail Construction Corporation wrote to HS2 management offering to complete the project more quickly and at a lower cost.²⁴ Such help would likely come with favorable Chinese financing. It would also pose some issues since the construction contract would likely include commitments to using Chinese locomotives and rolling stock, and even signaling. Through this UK project, China would gain broader global recognition of its technology. China already has a proven record for rail construction both in terms of the efficient construction and the safety and efficiency of the finished system. With the right safeguards and controls put in place, the UK may find it hard not to seriously consider this offer.

Next, the case of Generation III nuclear power. The pattern is similar to what we have seen in the rail sector. A large domestic market attracts foreign players willing to share their technology, after which China further develops the technology, which in its new form is now China's own property, ready to be deployed on the world market. But the main difference with the rail business is that the foreign suppliers of the nuclear power technology were fully complicit in the Chinese "re-innovation" of the technology and felt they had achieved a remarkable win-win with China. Their hopes were dashed.

China is set to remain the world's largest market for nuclear power technology. After a lengthy suspension of new nuclear projects following the Fukushima nuclear accident, China resumed its nuclear program. The growth of nuclear power is of strategic importance to the nation as it seeks to reduce its reliance on coal-fueled power generation, which contributes heavily to pollution. China has 48 nuclear plants in operation and a further 11 under construction. In the period 2020–2025 it plans to add 6–8 new reactors per year, reaching a total operating capacity of 70 GW, compared to 52 GW in 2020. The proportion of power from nuclear stations is expected to rise to 7%, compared to the current 5–6%. The target is 200 GW of nuclear power capacity in operation or under construction by 2035.²⁵

But some observers point out that the relatively modest growth of nuclear in China's energy mix indicates a waning interest in nuclear power, compared to solar and other renewables which are being ramped up faster. One expert pointed out that, "China is important to nuclear power, but nuclear power is not important to China." In other words, the export of nuclear power technology is the most important focus of the Chinese government.²⁶

Much as happened with high-speed rail, the Chinese government is closely controlling China's push in the international nuclear power market. China's home developed version of Generation III nuclear came in two variants of Hualong-1. The

government insisted that they be transformed into a unified design. The three Chinese nuclear power technology companies were allocated separate overseas markets so as to avoid China/China competition for contracts – CNPTC got South Africa, CNNC got Argentina, while CGN was allocated most of Europe including the UK.²⁷

China's original nuclear reactors were supplied by France, Russia, and Canada. Then in 2006–2007, China purchased the Generation III nuclear reactor technology, which, unlike the Fukushima-type PWR (pressurized water) reactor, has a “passive” safety system, with gravity-driven cooling that does not require electric pumps and can function even during a power cut. China signed Generation III contracts with Westinghouse (a US firm, then owned by Toshiba of Japan) and with Areva (a French firm).

For Westinghouse, the China deal was make-or-break. The US had stopped new nuclear plant building, and Westinghouse's AP 1000 Generation III technology was ready to go, but untested in operation. In return for a contract worth about US\$ 8 BN to build four reactors, Westinghouse signed not only the standard contracts for the construction of the nuclear island and for nuclear fuel, but also a third nonstandard “comprehensive technology transfer contract” under which it provided the Chinese side with “technical information, design analysis, and other supporting information so that they have everything that they need to go ahead and build AP 1000s themselves in China in the future.”²⁸

Westinghouse formed a technical JV with its Chinese customer to qualify Chinese equipment suppliers and to enable them to produce all the components, including those highly critical to the safety of the reactor. The stated goal of the JV was not only to create a supply chain for Chinese reactors (with local content rising from 30% to 100% by 2015), but also to facilitate the export of critical nuclear components from China. Until then, Westinghouse had used South Korean suppliers for these key components. Westinghouse handed over 75,000 documents to China and today four of their AP 1000 plants are operating in China.

Westinghouse had bet heavily on working with the Chinese and was hopeful it could continue to enjoy a share of China domestic sales. But when it came to a further eight AP 1000 reactors, on top of the four agreed to in 2006, it was outbid by Chinese firms using local Hualong-1 technology. Then in 2020, China announced that, after 14 years of work, it was building two CAP1400 or Guohe One (with 1400 Mwe capacity) reactors of Chinese design which had been developed from the AP 1000 design with consulting help from Westinghouse. The Chinese claim that this reactor has achieved 90% localization of components, at a cost 20% below the original foreign design. China intends to take CAP1400 global, targeting markets such as South Africa. Beyond the original AP 1000 contracts – Westinghouse has little to show for their patience in dealing with the Chinese. The international market had been stacking up to be a China-foreign win-win. But as it turns out, China is in the driving seat and Westinghouse plays a very minor supporting role.

Areva, of France, experienced much the same as what happened to Westinghouse. It went through a process of transferring EPR (European Pressurized Reactor) technology to China in return for market access. Areva's EPR project in Taishan, west of Hong Kong, is now in operation, providing valuable experience which unpins efforts to sell further plants, for instance in the UK.

China further developed Areva's technology into their own version of the 1000 MWe reactor called Hualong-1. This initial redesign left the French as owners of the technology and thus the recipient of license fees when it was transferred outside of China. But in 2014, after further technical development and local China-sourcing of components, the Chinese authorities certified Hualong-1 or HPR1000's intellectual property rights as belonging to China. China also developed more powerful 1200- and 1400-megawatt (MWe) versions. In November 2020, China's first Hualong-1 (capacity of 1,150 MWe) began full operations in Fujian and was connected to the grid. As the Chinese company that designed and built put it, this project:

Indicates that China has broken the monopoly of overseas technology and has become a country with advanced nuclear techniques.²⁹

In 2006 and 2007, China took a risk in signing up for the Westinghouse and Areva technology. Westinghouse had not yet built one of their Generation III reactors while Areva were facing serious technical challenges and cost overruns with a first project in Finland. But under these circumstances, China was able to drive a hard bargain in terms of technology transfer.

For the two foreign suppliers, the China projects were the perfect opportunity to showcase their technology and lay to rest market concerns over their attractive but at that time totally untested technology. They had hoped that after the successful Generation III launch in China using their technology, they would be to go out into the global market competing for new projects.

Unfortunately, the financial burden of delivering such complex, risky, expensive, and controversial projects took its toll on both these two firms. In 2017, Westinghouse filed for Chapter 11 bankruptcy protection. Its parent, Hitachi of Japan, sold it to a private equity firm and it still operates but on a reduced scale. Areva faced financial collapse on the back of its Finland debacle and most of its nuclear power business was sold to French electricity utility EDF, the main shareholder of which is the French government.

China has been active in selling nuclear power plants into emerging markets. Pakistan has been generating 5% of its electricity from a series of Chinese built small reactors and it plans to increase the nuclear proportion to 20% by 2030 through three large-scale Chinese Hualong-1 reactors that are currently under construction. The Hualong-1 deal with Pakistan was not a good test of China's technical or cost competitiveness since it was political and did not require competitive bidding. China has built coal-fired power stations in Turkey, but so far there is no agreement with Turkey on Hualong-1 or CAP1400 deployment. Argentina has agreed to purchase one Hualong-

1 reactor at a cost of US\$ 10 BN. But to break into developed markets, China needs independent unimpeachable evidence that its own technology is safe, reliable, and cost-efficient. That is where the UK comes in.

In the UK, we have seen significant resistance to nuclear new-build, an attitude which is fueled by the Fukushima accident, the falling cost of renewables and concerns over the long term disposal of nuclear waste. There is also evidence that the introduction of electric vehicles may only increase electricity demand by 10–20%. It is argued by some that even with the phasing out of all fossil fuels, there will be no gap to be filled by nuclear.

But to achieve the UK's goal of “zero net” emissions by 2050, the UK government aims for an energy mix of “intermittent renewables” and a “firm baseload.” In addition to natural gas, that baseload will also include nuclear. Over the last decade, the UK has been decommissioning its old obsolete Generation I Magnox reactors, the operational life of which could not extend beyond this decade, leaving a gap that, it is claimed, needs to be filled. The UK government's “Ten Point Plan for a Green Industrial Revolution” calls for “large scale” nuclear reactors, as well as the development of small modular reactors (such as being promoted by Rolls Royce and separately by both Westinghouse and the Chinese).³⁰

In the UK, investors had pulled out of a number of nuclear power projects. There has been talk of Westinghouse looking at restarting one of these. But the biggest play underway is by French firm EDF (incorporating Areva) in partnership with one of the China's two large nuclear power technology firms, China General National Nuclear Power Group (CGN).

EDF is deploying its EPR technology in two UK projects, Hinkley Point C (HPC) and Sizewell C, in which EDF has a majority equity interest: two-thirds in HPC and 80% in Sizewell C, with China's CGN taking the remaining equity. EDF will be operator of the finished projects. The first project, HPC, is under construction, at a cost of US\$ 18 BN. As an indication of the sensitivity of the Chinese presence, EDF has been forced to deny that the Chinese are heavily involved beyond the financing, explaining that of the 6,000 people working on the project, only 30 are Chinese, there to share experience from the Taishan project which has the first operational EPWs. In mid-2021, EDF expressed concern about an “imminent radiological threat” at Taishan. It is said to be caused by a build up of inert gases, but below the Chinese regulated danger level. This is unlikely to disrupt HPC. But it demonstrates the jitters surrounding the new technology.³¹

China's intent was quite transparent in the UK. Initially:

The main involvement will be in the supply chain, providing some components. . . . [They] see Hinkley . . . as the first step towards their goal of building a nuclear station using Chinese technology in the U.K. and as a stepping stone to starting a plant export business to rival the Russians, the Japanese, and the French.³²

In return for providing vital investment in the first two projects, CGN managed to extract a commitment from the UK government that on the third project, Bradwell B, the shareholding percentage would be reversed, with CGN taking two-thirds and EDF the remainder. For this project, CGN would have the prime role, deploying its own Hualong-1 technology, providing the complete manufacturing infrastructure for nuclear equipment and ultimately serving as operator of the finished power station. As CGN put it: “If we are accepted in the UK . . . it would heighten our acceptability to other countries.” They also showed openness to assuaging UK concerns by offering to cede operating control of Bradwell.³³

Through participating in the UK’s nuclear new build, China seeks to demonstrate international confidence in its own nuclear power capability. Success in the UK, which is a highly regulated developed market with an existing set of operating nuclear plants, would be an important business reference for the Chinese to win contracts elsewhere in the world. Certification in the UK is seen globally as the gold standard in technical vetting and approvals.

As a first step, the UK government is conducting a General Design Assessment (GDA) of the Hualong-1 technology. Indications are that that this final and critical Stage 4 of the GDA is progressing smoothly and that the technology is on schedule to be certified in 2021.³⁴

There are still hurdles for CGN to surmount at Bradwell B. There is strong adverse public opinion in the UK about a China-operated nuclear power station. The local town council is blocking attempts to prepare the site. Permitting China to build this project will be part of a political decision with regard to the UK’s broader relationship with China. It is possible that China may only get to have its technology certified by the GDA, itself an important objective.

China is providing vital investment funds for HPC, which is underway. There are reports that China is considering pulling out of funding Sizewell B, in which it has a 20% share.³⁵ This is likely linked with the UK’s resistance to permitting Huawei to build the UK’s 5G infrastructure. Notwithstanding contractual obligations, China may well play hard ball and insist on a quid pro quo (Bradwell B in return for the passive funding of the other projects, plus other things such as Huawei). Its willingness to cede operating control shows how high the stakes are of getting a Hualong-1 plant up and running in the UK, which has globally respected regulations.

Nuclear new-build is a highly strategic element of China’s Belt and Road Initiative (BRI). Short -term, China will still rely to some extent on foreign partners to help it into developed overseas markets. But China is playing a long game. Using its financial muscle and its domestic nuclear power market as a test bed for its own technology, China will ultimately outgrow its partnerships with foreign firms, which it had earlier relied on to acquire technology. The difficulties faced by Areva and Westinghouse have served to accelerate China’s emergence as a dominant force in this sector. The win-win from the China-foreign link-up in nuclear power will have been shorter lived and less lucrative than had been anticipated by the foreign firms that placed such heavy bets.³⁶

Meanwhile China is pursuing further advances in nuclear power, such as Generation IV large reactors and small modular systems, as well as nuclear fusion and molten thorium salt reactors. More on China's ambition to innovate with thorium later in this chapter.

Model 2. Picking Off Underperforming Overseas Assets

China's outbound direct investment (ODI), the flow of investment capital out of China into specific businesses, grew rapidly following China's accession to the WTO. Government approval for ODI deals were decentralized and the size of deal after which it required such approvals was increased.

While early Chinese overseas acquisitions were focused on natural resources such as oil, iron ore, copper, and lumber, there emerged a strong appetite for acquiring overseas assets in real estate, hotels, tourist resorts, and manufacturing. Chinese firms acquired iconic businesses such as Club Med, the Waldorf-Astoria, and AMC Theaters.

By 2016 China non-financial (i.e., industrial and commercial) ODI reached an annual rate of US\$ 183 BN and briefly China became a net exporter of investment capital. That situation was bound to be reversed. This form of economic freedom did not fit well into China's hybrid system which focused on "guiding" and, in reality, controlling Chinese firms, whether state-owned or private. After experimenting with a relatively loose regimen for ODI, in 2017 China tightened things up, putting strict limits on overseas investment in areas such as real estate, hotels, cinemas, film, entertainment, and sport clubs (such as the investment in English soccer clubs). These restrictions arose from concerns about China's balance of payments, China's currency, and the Chinese debt these outbound investments had racked up. There were also paternalistic comments about Chinese firms not being ready for risky overseas markets, leading to the possibility that poor behavior could harm China's image. A government official stated that "irrational outbound investment [from China] has been curbed."³⁷ In fact, there was a rationale behind this outflow. Many Chinese firms and wealthy entrepreneurs simply lacked confidence in China's trajectory under Xi Jinping and felt they had to get their funds out of China, even if that meant paying a high price for the overseas assets.

Today, China talks about a more "balanced" ODI, which in 2019 had declined to an annual rate of US\$ 111 BN, of which US\$ 15 BN went into Belt and Road projects in Africa and elsewhere. In the same year, China's total ODI stock (accumulated total) was US\$ 2.2 TN, third behind the US and the Netherlands.³⁸

The overseas manufacturing acquisitions that Chinese firms have made, ranging from agro-industry to cars and semiconductors are strategically driven by the desire to gain access to technology, skills, brands, and distribution channels. These acquisitions enjoy government support since it helps create "national champions"

in key sectors while at the same time driving improvement in corporate governance through exposing Chinese firms to more rigorous regulatory environments overseas.

China's surge of activity in ODI is, by global standards, large and significant. But it is still not a surprise, given China's economic status, stage of development, and national ambitions. And we saw a similar phenomenon in the 1980s when Japanese firms also went on a spending spree in the US, acquiring the Rockefeller Center, Firestone Tire, and Columbia Pictures, to name just a few. Just as then, alarm bells have rung in some quarters. Is that justified? It seems unfairly discriminating to push for China to further open up its market, while arguing that China does not have the right to invest overseas and enter our markets. Globalization may have started out as a concept to which seems to put all the advantages in the hands of the developed nations. Well, much as a tail may wag a dog, so China, India, and others have turned the tables on the West, creating a two-way superhighway of global trade and investment. Notwithstanding this, the world remains dominated by extremely strong non-Chinese multi-national corporations (MNCs), typically with two dominating in each sector.³⁹ Attitudes to the Chinese emergence are more strident than those expressed earlier about Japan. This is likely because China presents a true and much larger strategic challenge to the US's post-WW2 global hegemony than did Japan. On top of that, China's reputation has been seriously damaged by its human rights abuses.

Obstacles to China ODI

So Chinese companies seeking to “go out into the world” face a host of obstacles in China, such as government approvals for capital transfers out of the country. A Chinese government think tank stated bluntly that the red tape leaves Chinese firms less nimble and entrepreneurial in their bidding for foreign acquisitions.⁴⁰ Even in the period when Chinese ODI regulations were relaxed, that is up to 2017, that relaxation only applied to industries or countries not deemed to be “sensitive.” As we saw above, China has since backed off that limited freeing up and it is much harder today for a Chinese firm to use its funds to buy overseas. In late 2020, in response to US moves to limit technology sales to China, China expanded and tightened its regulations on technology transfer from China, not just targeting IPR such as patents but also limiting what industrial processes and know-how can be shared with the outside world.

When it comes to overseas jurisdictions, Chinese ODI also faces challenges. In 2005, China's CNOOC (offshore oil firm) pulled out of its US\$ 18.5 BN bid for Unocal, after objections from US politicians. The US-firm Fairchild Semiconductor rejected a Chinese acquisition bid on the grounds that the Committee on Foreign Investment in the US (CFIUS), which reviews potential investments for their national security implications, might oppose the deal.

But many of the problems faced by Chinese firms overseas clearly result from their own lack of experience and local knowledge, in a way much like foreign firms sometimes floundered as they invested in China during the early days of China's reforms. Still, the positive examples of China ODI set out below demonstrate how Chinese firms have confounded the skeptics and defied the odds by acquiring and turning around underperforming businesses.

How Lenovo Mastered the Art of Turning Around a Troubled US Business

Lenovo, as one of a new breed of SOEs which runs essentially as a private company, is a successful Chinese multinational firm. It is the world's number one maker of personal computers and tablets, with sales of US\$ 52 BN, 63,000 employees and operation in 180 markets globally. At the heart of this remarkable story is how Lenovo acquired IBM's PC business, turned it around, and created sustained and profitable growth.

The early years. Lenovo was founded by Liu Chuanzhi and other electronics engineers at a research institute under the government-owned Chinese Academy of Sciences, which provided them with the RMB equivalent of US\$ 25,000 of seed capital.

Initially, Lenovo served simply as an importer and distributor in China for foreign electronics manufacturers such as Toshiba and IBM. This was a low margin business and would become vulnerable as foreign computer firms established themselves in China and took control of their own distribution. Lenovo began the first of many "re-inventions" of itself, anticipating market transitions and seeking more profitable opportunities. By the mid-1990s, only 28% of its profits came from its original business (distribution/agency and components), while 82% came from new activities, much of them higher margin – PC manufacturing, systems integration, and software.

Lenovo innovated through developing a motherboard for typing China characters on a computer that was first used in imported PCs and then later on their own PCs. It learned from Dell's lower cost direct sales approach, complementing the relationship selling ("pull approach") it had learned from IBM. CEO Liu also westernized the firm by requiring employees, for instance, to address superiors by their given names, rather than in the traditional manner of using the surname plus a job title (e.g., General Manager Wang, Chinese: *wangzong*).⁴¹

Having for a period protected its local computer industry from foreign competition, the Chinese government in 1992 began to open up China's computer market by reducing import tariffs and abolishing import quotas. Lenovo was soon to overtake then market leader Great Wall Computer through its leaner manufacturing operations and superior quality. Great Wall was slow to respond to the market changes.

Lenovo's dominance of the China market gave it economies of scale, as well as access to low-cost manufacturing. It was the perfect launching pad. But the China

market was also attracting foreign competitors, such as Dell, which established a manufacturing base in Fujian province. Lenovo's leaders responded by entering the international market. Its foreign name was changed from Legend to Lenovo in 2003. Lenovo conveyed a more forward-looking brand than Legend. The Chinese name *Lianxiang* (meaning linked thoughts or aspirations) was excellent and has been retained to this day. Management consultants were hired to develop the "going out strategy," that is entering global markets.

IBM's PC division was up for sale and in 2004 Lenovo moved to acquire it, taking a massive and risky step into the unknown. The Chinese press described it as the "snake that swallowed the elephant." Here was Lenovo acquiring a loss-making foreign business many times its own size. One year after the acquisition its total revenues had leapt from US\$ 2.9 BN to US\$ 13.3 BN.

IBM played a continuing role. So the deal was done. Lenovo purchased IBM's PC division for US\$ 1.75 BN, of which, US\$ 500 MM was assumed debt; a strong indication of the poor shape the IBM business was in.

A further US\$ 600 MM of the payment was in Lenovo shares, giving IBM nearly 19 % of Lenovo. This tied things up for IBM to continue to support the PC business. For the next five years, Lenovo could use the IBM brand and sales and service support outside of China. This continued role for IBM helped Lenovo pass the hurdle of US government approvals.

It should also be added that Lenovo maintains an extremely close relationship with Intel, its primary source of semiconductors. Intel's role has also helped to shield Lenovo from US government sanctions during the recent tensions with China. Its annual report published in 2020 during the Trump administration barely addressed these risks, just referring quietly to "geopolitical . . . challenges."⁴²

Successful post-merger integration (PMI). The PMI of two companies is always complex and risky. It is commonly botched or poorly executed. In the case of Lenovo, there was the added dimension of China-US cultural integration. Against all the odds, Lenovo's PMI proved to be successful. But that does not mean that the process was easy or smooth.

PMI is an art, not an exact science, with different options or choices to be made. Lenovo chose to take it gradually, step-by-step, reassuring the former IBM executives and workers that things would not change too fast.

Lenovo's head office was first moved from Beijing to Armonk, New York (IBM headquarters), and then to North Carolina, the site of the IBM's manufacturing facility. Today Lenovo, though technically a Hong Kong entity, have dual head offices in Beijing and North Carolina. US and global workforces were retained. English was adopted as Lenovo's official language. Multiple former IBM executives took key roles in Lenovo, including the head of IBM's PC division, who stayed on through the transition as CEO of Lenovo. From competitor Dell, Lenovo recruited its chief diversity officer, an African-American woman who is credited with helping Lenovo cope with the tough issues that arose during the PMI. Serious tensions did arise because of

what was described as a “toxic” environment, with a “pervading sense of distrust”⁴³ between senior and working levels. It is said that at meetings Chinese employees would simply get tired of how much their US counterparts talked, even when they had nothing to contribute!

In 2012, after Gianfranco Lanci resigned as CEO of Taiwan computer maker Acer, Lenovo recruited him to their top management team and today he is President and COO, alongside Yang Yuanqing, the CEO. Lenovo is justifiably proud of how it somehow achieved an extraordinary melding of Western and Chinese skills and culture.

Complementary businesses fit together. The IBM PC business was loss-making. There was a major market shift from desktop to laptop. IBM did have its own notebook (ThinkPad) but was heavily focused on the high-end large enterprise segment. Moreover, it was suffering from “value migration” whereby profit was moving away from the equipment manufacturer/assembler (IBM) to those firms supplying the PC's operating system (Microsoft), microprocessors (Intel), and hard drives (Seagate). Despite the excellence of its PCs, for IBM it was an unsustainable business and a poor strategic fit. But for Lenovo it was quite the opposite. The IBM PC business was hugely complementary to that of Lenovo.

Lenovo dominated the China market and was highly focused on the consumer segment. IBM's business, in contrast, offered Lenovo access to global markets, strong distribution channels, and untapped potential in the small business area. IBM's ThinkPad notebook and its strong brand identity brought credibility and a quality image to Lenovo, of special value in dealing with large enterprise customers.

The large Chinese market provided economies of scale and profits. Lenovo is the leader in global PC markets, with a share of 26%, ahead of HP and Dell. But the Chinese PC market is the only one where, with a market share of over 40%, it has total dominance. The Chinese market also provided a buffer during the 2008 recession. While Lenovo suffered its one and only loss-making year due to a slump in large enterprise sales globally, it was the Chinese market that permitted Lenovo to recover.⁴⁴ During the recession, Lenovo also benefited from the Chinese government's stimulus spending that was channeled into rural areas and small- and medium-size businesses (SMBs).

Consumer electronics globally is a low-margin business that can be compensated for by large volumes. Globally, Lenovo's operating margin is 4% compared to HP's 7%. But in China, Lenovo enjoys an operating margin of 7.5%. This strength in China has permitted Lenovo to live with smaller margins in mature markets. In the US, Lenovo fought its way onto the shelves of Best Buy by accepting “razor-thin margins and potential losses for the first year or two.”⁴⁵

How the Chinese government helped. It is apparent from its fleet-footed management style and the absence of typical SOE culture that Lenovo operates pretty much like a private company. Still, the fact remains that the government-owned Chinese Academy of Sciences holds a 36 % share in its parent, Legend Holdings, which in

turn hold 32 % of Lenovo's shares. Therefore, behind the scenes Lenovo does track back to "China, Inc."

Though Lenovo behaves as if removed from its government roots, at the same time it enjoys benefits from its hybrid status and its enormous significance to the Chinese economy. This implies that its financial stability is largely underwritten by the government and that it would not be allowed to fail. As a Chinese firm, it can enjoy healthy sales from Chinese government procurement.

Improving operational efficiency. Lenovo has been astute in hiring senior executives. The late Mary Ma (Ma Xuezheng) was brought in as chief financial officer. A Chinese woman who had studied in the UK, she was able to bridge the cultural divide, helping the interaction with the external world of finance. She put energy into streamlining processes, reducing procurement and manufacturing costs, and improving performance in the supply chain.ⁱ Foreign logistics experts were hired. Lenovo trimmed the number of products it inherited from IBM. Travel expenses were reduced. An overall cost-reduction target of US\$ 150 MM in 18 months was achieved well ahead of plan.

Financial stability and growth. The loss-making IBM business, many times larger than Lenovo, was absorbed and turned around financially with mainly double-digit revenue growth since the IBM PC acquisition. There was one year when Lenovo was loss-making, due to global recession and restructuring after its next wave of acquisition (see below). Lenovo responded by cost cutting and restored its bottom-line growth.⁴⁶

Lenovo has stayed financially disciplined, maintaining low levels of bank debt, strong cash reserves, and easy access to the equity, bond, and loan markets, with financial flexibility to sustain its path of acquisitions.⁴⁷

Responding to market transitions: diversification and further overseas acquisitions. Lenovo was successful in navigating the changes as the market shifted away from desktops to notebooks and laptops. Lenovo pursued two strategic tracks, "protect and attack." It sought to "protect" its core desktop and notebook business, overtaking HP in part by its success in selling through the mass-market Best Buy stores in the US. Success was based not just on price, but also on consumer appreciation of Lenovo products' sleek looks.⁴⁸ On the "attack" side, Lenovo stressed not just its laptops and tablets but also acquired mobile phone and low-end server businesses, which offered the prospect of both fast growth and better profit margins.

Lenovo has reduced its reliance on the China market. Its business is balanced across all global markets so that today each region of the world accounts for 20–30% of revenue. It has also worked hard to reduce its reliance on the PC market, which has fallen from 82% of its total business to 75% over the last decade. To achieve this goal, Lenovo returned to the acquisition trail, hunting down distressed or undervalued assets.

ⁱ Sadly in 2019 at the age of 66 Mary Ma died from cancer.

In 2014, Lenovo announced its purchase of IBM's low-end x86ⁱⁱ server business for US\$ 2.3 BN and of Motorola Mobility (smart phones) from Google for US\$ 2.9 BN. The 2005 acquisition of the IBM PC division had received US government (CFIUS) approval ahead of the statutory deadlines in part because IBM would continue to provide the division technical and sales support for five years. In the case of the IBM server business, there was a similar five-year arrangement, which allayed US concerns, and the deal was approved swiftly. The Motorola Mobility deal was also approved by CFIUS. Although Lenovo assumed 2,000 patents, the most sensitive of them stayed with Google.

While these businesses had been troubled and were poor fits with their original parent companies, Lenovo believed that in their hands they presented significant upside, as had been the case with the original IBM deal. As one observer put it, "one company's reject is another's potential gold mine."⁴⁹ The margins of the low-end server business were low by IBM's standards, but for Lenovo they were superior to those of the PC business. Moreover, the business helped to fill out Lenovo's product offerings to the enterprise market. IBM had wanted as much as US\$ 6 BN for this business, but settled for less than half that, partly in stock. While IBM's sales had been badly hit by Chinese reaction to the Snowden whistle-blowing, Lenovo, being Chinese, was not vulnerable, in China, to this issue.

The Motorola Mobility deal revealed a similar strategy. For Google, the sale of its Motorola handset business has been described as "offloading a doomed business." But Lenovo, in acquiring the business, saw things quite differently.

As it has turned out, when it came to the mobile and the server businesses, Lenovo's Midas touch proved to be missing. Both businesses have been a drain on the firm's profitability, despite cost cutting and restructuring.

Lenovo felt great pressure to play in the mobile phone market. The advent of smart phones transformed the market as consumers wanted to receive data and video on their handsets. Lenovo established a handset factory in Wuhan. It used its own Lenovo brand and the newly acquired Motorola (or Moto) brand. Lenovo stated openly that it wanted to overtake Samsung, the China market leader in handsets in 2013. In 2014, Lenovo shipped 84 MM mobile phones (including Motorola) which accounted for 15% of its revenues. But since then Lenovo smart phone shipments have declined steadily to around 50 MM, even though the total market has grown strongly. The world is today dominated by Apple and Samsung phones, while in China, Huawei, a late entrant in mobile phone handsets, roared ahead to become a strong #3. Lenovo is not even in the top five in China. In the smart phone arena, Lenovo's steady hand in marketing and branding showed itself to be wanting. The revival of the famous Motorola Razr model caused market interest. In the US they sell their Motorola handset through Best Buy and in Walmart with positive reviews which stress the value for

ii X86 is a reference to the Intel microprocessor they run on.

the money and also mention that, although the brand is now owned by a Chinese firm, they are made in a US factory. But the Lenovo brand was integrated into the Motorola brand in some markets but not in other ones, causing marketing confusion. In 2014, around the time of the acquisition, Lenovo also pointed out that the “hyper-growth” in China handsets was at an end.⁵⁰ They predicted a consolidation coming in the China handset industry, but argued that it would be one of the survivors. What actually happened is that growth has continued and new entrants such as Huawei and Xiaomi have driven Lenovo out of the top five in China. As Apple and others roll out their 5G phones, Lenovo is facing even greater competition.

In the first couple of years after it was acquired, Lenovo’s server business lost several hundred million dollars. It remains today a low-margin, commoditized, low-end business where Lenovo is heavily out-performed globally and in China by market leaders Dell and HPE (the enterprise side that was separated from HP’s consumer side). There is an additional competitive threat. When it comes to cloud computing, the servers used in datacenters are increasingly designed in-house by the cloud “hyper-scalers” such as Amazon, Google, and Facebook. Lenovo has limited space to grow or to enhance profitability.

Like most ICT hardware manufacturers, Lenovo has set the goal of growing its presence in software, and in software-defined infrastructure (with software integrated into gear) and into services, including the cloud. It also has a program of venture capital investment in technology startups.

The Lenovo case is striking in that it demonstrates how a Chinese firm can succeed at the daunting task of acquiring, merging with, and turning around a foreign manufacturing business, in making a success of a business where others had failed. Of course, as a hybrid quasi-private Chinese firm with state-owned connections it has benefited from government support and the advantages of the large Chinese market. But the way it has succeeded has been to embrace Western business principles, theory, organization, and processes, creating a true Chinese multinational corporation that functions effectively around the globe.

While it is useful to call out Lenovo’s remarkable history, it is not helpful to idolize the firm and to gloss over the challenges it faces. Based on Lenovo’s recent track record of less successful acquisitions, we can see just how difficult it is to escape the low-margin world of consumer electronics. Lenovo may have for a long time been a poster-boy for Chinese firms going out into the world. But the last decade of Lenovo’s short life of 35 years has shown just how tough and unforgiving the ICT market is to navigate. That said, Lenovo is well established and, given its scale and strong backing from many quarters, it will likely have longevity as a firm. Lenovo will likely play a big role in future consolidation and mergers among Chinese ICT players, led by the “guidance” of the unseen hand of the Party.

Successful Overseas Auto Industry Acquisitions

Examples of Chinese firms successfully acquiring underperforming foreign firms also exist in the auto industry. In 2010, the loss-making Volvo car business was off-loaded from Ford to the private Hangzhou-based Chinese auto-maker Geely for US\$ 1.8 BN. Once again, the snake eats the elephant. At that time, Geely had sales of around US\$ 2 BN, compared to Volvo's US\$ 12 BN. But Geely was profitable and was able to support the acquisition though taking on debt and also finding co-investors.

Volvo strongly complemented Geely's capability. Volvo was a global firm established in the premium market with a strong brand and a reputation for safety innovation. Geely was number 10 in the China market, at the low-price, low-quality end, and unknown globally.⁵¹

Geely used a light hand in integrating the acquisition. The Volvo team and organization was left in place. The head office remained in Gothenburg, Sweden, while its two plants, in Sweden and Belgium, were untouched. Meanwhile, Geely expanded the Volvo production capacity in China and established a factory in the USA. Globally Volvo now sells 642,000 vehicles/year and has set a target of 1.2 MM vehicles by 2025.⁵²

Geely is known to be seeking to have their Volvo subsidiary listed on a Chinese stock exchange, with the target value at listing put at as high as US\$ 30 BN. Geely states that funds raised in this way will be used to make Volvo essentially a manufacturer of a range of all-electric and plug-in hybrid vehicles.

At the same time, Geely is also aiming to create more synergy between Volvo and its other brands by creating a more efficient common platform for the cars which can share the same supplier base in China. The stated intent is to still to keep the two brands separate. However, Geely will need to tread carefully in this move or run the risk of undermining the premium branding enjoyed by Volvo globally.

Another close parallel is the case of Wanxiang, a Zhejiang-based manufacturer of auto components which we have discussed earlier in the context of its gutsy emergence as a private enterprise. Ni Pin, son-in-law of Wangxiang founder Lu Guanqiu, who was studying for his PhD in Kentucky, established Wanxiang USA in Chicago in 1995 with only US\$ 20,000 of capital due to the restrictions on taking funds out of China. Within fifteen years, Wanxiang USA had several billion dollars of revenues. American banks were keen to lend to the company. Now its parent firm has 30 subsidiaries worldwide in manufacturing and R&D.

In the auto industry, because of shipping costs and the need for timely delivery, it is typical for parts suppliers to be located fairly close to the OEMs (the assembler of the final vehicle). In order to enter the US market, Wanxiang acquired a series of poorly performing parts producers in the US, gaining not only local manufacturing capacity and proprietary technology, but also sales and distribution channels and relationships with OEMs.

In the US, Wanxiang America created a strong local team recruited from the auto industry. Working alongside its Chinese president is the COO/CFO, an American who has been with the US subsidiary since its inception.

Wanxiang America continued to be highly acquisitive and in 2013 bought A123, a bankrupt US company that produces batteries for electric cars, winning against a joint bid from Johnson Controls and NEC.⁵³ Having resolved technical and safety issues with the lithium-ion batteries which had led to the original bankruptcy, in 2020 A123 announced a major contract supplying batteries to VW in China. Wanxiang America also acquired California-based Fisker, a bankrupt maker of electric vehicles (EV), rebranding it as Karma Automotive and is now producing its own luxury EV.⁵⁴ It has also invested in a Chicago-based private equity firm.⁵⁵

Chinese management teams have demonstrated unanticipated wisdom and subtlety in maintaining the best of the acquired overseas firms and creating a cultural hybrid, while at the same time moving them towards profitability. Meanwhile, the global consumer does not automatically link the Lenovo and Volvo brands to China, any more than Acer Computer is linked to Taiwan or Jaguar/Land Rover is associated with India.

A common pattern among firms such as Lenovo, Geely, and Wanxiang is that they have put distance between themselves and the debilitating interference of government and the CCP, permitting them to move with agility, responding to customer needs and market transitions. The overseas experience gained by those bold and well-run Chinese firms is then implanted back into the China market, sharpening China’s overall competitiveness and quality of business management.

Model 3. “China, Inc.” in Emerging Markets

The China, Inc. model works through three key sets of players – the government/CCP, financial institutions, and companies operating in lockstep to reap benefits from political relationships with emerging markets. This is controversial since China is widely perceived as playing a neocolonial role. In many cases, the trend also is creating tensions between China and the recipient nations.

The Government/CCP

At the heart of the model, the Chinese government and the CCP take the lead, forging relationships with the country in question, while other players in the model sit under the umbrella of government-to-government agreements.

China has some history of providing aid to Africa. In the period 1970–76, China paid for, constructed, and equipped the 1,860-km-long Tanzam (or Tazara) Railway linking landlocked Zambia with Tanzania’s port Dar es Salaam, thus avoiding Zambia

having to ship its goods through Rhodesia (now called Zimbabwe), then run by a hostile white minority regime. About 25,000 Chinese toiled to construct the railway. Zambians and Tanzanians were trained in railway engineering in Beijing. After being handed over to the two local governments, the railway fell into disrepair and financial insolvency, while congestion at the port also slowed the throughput of goods. China, in its current more business-like mode, has recently returned, providing an interest-free loan to revive the railway.

The rationale for China's engagement with emerging countries starts with the laudable goals of providing development aid. China publishes very few statistics on overseas aid and much of the effort is fudged with more commercial activities. In fact, the overseas development assistance (ODA) offered by China differs in certain key respects from that provided by other countries.⁵⁶

China's ODA largely is comprised of concessional loans (low-interest, long-term) and government-sponsored investment. Grant aid and debt cancellation account for only about 5% of the total provided. Many of the loans are also repaid in kind (minerals, cotton, etc.).

As was observed in the 1970s, "Aid' has never been an unconditional transfer of resources,"⁵⁷ and in this new age, strings are predictably still attached. China as a donor is no exception, but does not bother to go through the hypocrisy of pretending that the aid has an essentially ethical foundation. China's aid comes without caveats concerning human rights or national debt levels in the recipient countries. China's politically backed economic presence in many countries has become dominant, serving as a source of corruption and engendering civil dissent. There are accusations that China's actions are stifling job creation and economic growth in Africa by taking natural resources and shipping back finished products, in other words, behaving like a neo-colonial power. While China does not back up its political presence with direct military threats or action, it does provide military funding, assistance, and weapons for client states.

China's political initiative can be driven by a single issue. For instance, in 2005, China got the tiny Caribbean nation of Grenada to recognize the PR China and break with Taiwan, and in return provided US\$ 60 MM to build a new cricket stadium, a national stadium, and a port.⁵⁸

Typically, the Chinese leader and the leader of the recipient country sign broad-based agreements focusing on economic development needed by that nation, but which also serves Chinese economic interests – for instance, roads, railways, and ports that can facilitate the export of mineral resources the Chinese firms extract. During these same state visits, leaders of China's banks sign loan agreements with their counterparts, while key Chinese firms attend receptions where they are introduced into the commercial arrangements.

Financial Institutions

Three Chinese government financial institutions provide the finance at the heart of this business model.

The Export-Import Bank of China (China Exim Bank) is the only Chinese bank with the power to offer government concessional loans and preferential buyer credits (loans to purchasers of Chinese goods or services). China Exim Bank's loan commitments (that is not necessarily all drawn down and disbursed) to Africa during the period 2000–2018 were US\$ 86 BN. As an example of the projects it finances, China Exim Bank provided two major loans to the Ivory Coast, one of US\$ 500 MM for a hydroelectric plant to be constructed by the Chinese firm Sinohydro and another of US\$ 875 MM to construct a second container terminal in Abidjan, with advisory services provided by a Beijing-based firm.

China's loans to Africa exceed those provided by the World Bank. There is a long bureaucratic process to obtain World Bank financing. The process for China loans is simpler and shorter, allowing "democratically" elected African leaders to show on the ground results within their typical five-year terms of office.

China Exim Bank does not have it all its own way. In 2012, it was forced by Niger to revise its US\$ 980 MM loan so that the interest rate would not exceed 2%. During the Covid-19 crisis, many African nations have suffered severe financial stress. China, along with other nations, has been active in restructuring its loans to Africa.

Over the last decade there have been repeated accusations of China using "debt-trap diplomacy," that is using defaulting loans as an opportunity to acquire assets, some of which were originally pledged as collateral to the loan. Much of this has revolved around the threat of ports falling into China's hands in this way, for instance in Kenya (port Mombasa), Djibouti, and Sri Lanka. China is aware that such events would be toxic to its relationships along the Belt and Road and strenuously denies such charges.

American academic specialists on Africa have stated that they do "not see China attempting to take advantage of countries in debt distress. There were no 'asset seizures' in the 16 restructuring cases that we found." In the case of Ethiopia, China Exim Bank rescheduled a US\$ 4.2 BN loan being used for railway construction from 10 years to 30 years.⁵⁹

This is not to say that countries in sub-Saharan Africa, which receives most of the attention from China, are happy with the loan arrangements. But as a Rwandan official told me, "only China came knocking" [offering loans]. In 2020 there are reports of US Eximbank resuming its financial support to African nations in a conscious effort to balance China's thrust.⁶⁰

China Development Bank Corporation (CDB),ⁱⁱⁱ though officially transformed into a commercial bank in 2008, remains, for all intents and purposes, a government policy bank.⁶¹ At the end of 2019, CDB's total assets (that is, mainly loans) stood at US\$ 2.52 trillion, most of which is in the domestic China market, for instance financing the massive Three Gorges hydro power project. About US\$ 250 BN or less than 10% are overseas loans, mainly in emerging markets. CDB, through its funding by sovereign risk-rated bonds, makes it the only commercial bank in China that can make loans beyond five years, suitable for long-term infrastructure projects.

Today CDB provides critical financing to China largest technology firms in overseas market. Chinese national champion in mobile telecoms infrastructure, Huawei (a private firm), and ZTE (a stock market-listed former SOE) both have buyer credit facilities from CDB, of US\$ 30 BN and US\$ 20 BN, respectively. Whether in Russia, Brazil, India, or Sub-Saharan Africa these loans to the purchasers of the telecom gear strongly underpin China's push into new markets. Other countries such as Sweden and Finland, and some corporate entities, of course, also provide similar financing, but not on such as a broad scale.

CDB has also established a series of private equity funds. Its China-Africa Development Fund (CADFund) was established in 2007 with initial capital of US\$ 5 BN and with the mandate to take equity stakes in investments alongside Chinese firms "going out into the world." Today, CADFund has made investments of US\$ 5.4 BN in 37 African countries.

As with most "aid" offered by other countries, China's aid is closely linked to benefiting its own national companies. So, when in 2010 CDB lent the Zambian government US\$ 1 BN for a hydro-electric power station, the CDB vice governor made the strings attached quite clear, stating: "[the Chinese firm] Sinohydro Corporation . . . , which has expressed an interest in developing the . . . power station, could bring valuable experience to the project." In project after project, arranged by China with local governments, it is typical for Chinese firms to be shoehorned into the projects without a competitive bidding process.

Figure 9.1 provides an example of how CDB plays its role in government-to-government-initiated deals by inserting itself into the financing at multiple stages. This particular story began in 2005 when China signed a memorandum to fund the refurbishment and upgrade of Zimbabwe's radio/TV network. US\$ 90 MM was lent to Zimbabwe, US\$ 63 MM of which was spent on equipment supplied by the private Chinese firm Star Communications. But given its dire financial condition, Zimbabwe was forced to fund the repayment through a JV chrome processing project formed with Star. Zimbabwe has very high-quality chrome ore deposits. Its reserves are second only to those in South Africa, though in terms of production it is only sixth in the

ⁱⁱⁱ I have a detailed knowledge of CDB since while at Cisco Systems I was in charge of our strategic relationship with that bank.

world. CDB financed Star’s equity share in the project, which processes chrome ore into ferro-chrome for export. The revenues from the chrome project received by the state-owned Zimbabwe mining firm partnering with Star are then remitted to CDB to pay back the radio/TV loan.

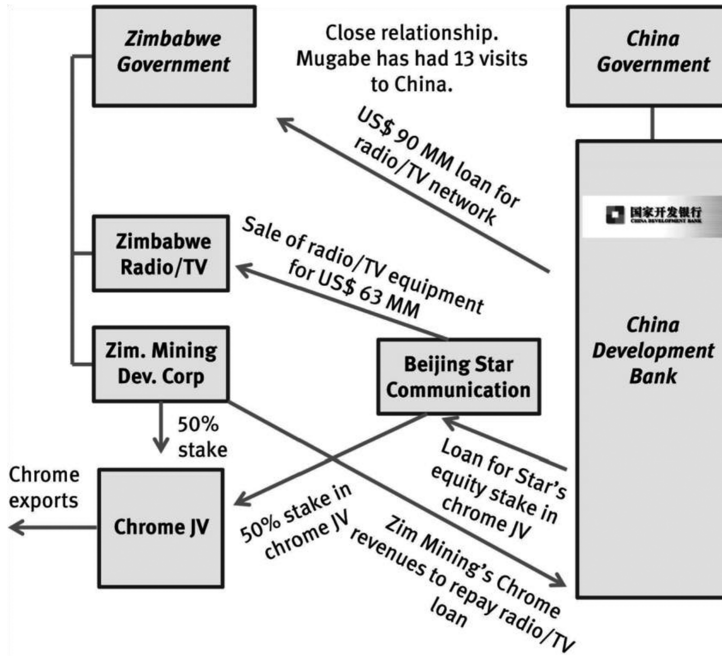


Figure 9.1: China/Zimbabwe chrome for telecom equipment deal.

The history of this new phase in the Zimbabwe-China political/economic embrace dates back to the early 2000s, when Zimbabwe launched its “Look East Policy,” aimed at attracting Chinese investment to fill the gap left by departing Western firms. Even though he became a global pariah, Zimbabwe’s then President Mugabe, as China’s “old friend,” was able to sustain his crumbling economy with Chinese money. Other foreign banks would not have touched the convoluted deal described above.

Although in this project China has taken on some financial complexity and risk, it has created not only immediate value for Chinese firms, but has also obtained longer-term strategic access to chrome. This exemplifies the view that “aid is trade” and demonstrates how Zimbabwe is mortgaging its future wealth to China. Moreover, any wealth generated by such mineral extraction (as described in the diamonds case below) was siphoned off to ensure the loyalty of the military.

Chinese Firms

The arrival of Chinese firms on the world stage was initially in natural resources. Due to the scale of its appetite for natural resources, manufacturing-heavy China has been a key driver of world commodity prices. Despite its slowing pace of growth, China remains heavily dependent on overseas supplies of minerals. Only in rare earths – critical to the electronics industry – is China self-sufficient. Despite the advantages in world trade that come from its sheer buying power, China has adopted a variety of means to further assure its access to strategic commodities. Since 2007, CDB has lent Venezuela well over US\$ 40 BN for a variety of purposes, but all to be repaid in oil, which has turned out to be a very risky proposition given the collapse of the oil price and the dire political situation in that nation. This pattern of loans being paid back in kind (natural resources) has been a key characteristic of this business model but is likely to fall out of favor as its true risks unfold over time.

In absolute terms, China's natural resource investments have been described as "tiny" or "peripheral," in comparison with the mining or oil giants of the West. But China's investments in natural resources have nonetheless had very large dollar numbers and, given China's scant interest in the ethical issues associated with these investments, many have provoked outrage in the world community; for example, the Chinese oil firm CNPC's investment in Sudan's oil.

The second type of Chinese firms participating in this model are construction companies. On the back of Chinese government funding, they win contracts to build basic infrastructure – roads, bridges, railways, power stations, cement plants, airports, mobile phone networks. The sector is highly orchestrated by the government-run China International Contractors Association (CHINCA), which Chinese construction firms are required to join in order to be able to operate overseas, and which provides a range of assistance, including seminars on foreign project risk management, to its 1,300 members.

Infrastructure construction by Chinese firms typically also include labor contracts under which large numbers of Chinese workers are imported. There is often serious friction with the local communities in Africa since the Chinese workers are seen as taking away local jobs. There have even been accusations that China is deploying prison labor. Though the Chinese workers wear uniforms and are subjected to heavy discipline within heavily guarded fenced-in compounds, there is, so far, no convincing evidence that they are indeed convicts. Chinese firms argue that local labor does not have the Chinese work ethic and some African observers concede that point.

Tied in with the construction contracts is the supply of process equipment for cement plants and off-road construction machinery. Chinese manufacturers have supplied South Africa, Thailand, UAE, Indonesia, and Belarus with world-scale 10,000 tons per day (tpd) cement plants.

The next phase of this China, Inc. model of overseas expansion is Chinese factories located in emerging markets. Chinese auto companies, such as Great Wall Auto, Geely, Changan, and Chery, already export into emerging markets, where product certification is easier than in developed countries. China’s homegrown autos have a poor reputation in Africa, and are described as “rubbish quality, appalling design, and having a disturbing smell of glue.” Chinese products in general are characterized by Africans as falling apart quickly, attracting the nickname “Fong Kong” in South Africa, while in Zimbabwe they are called “Zhing Zhong.”⁶² But China autos fill a market gap for low-end vehicles and, as sales volumes grow, Chinese cars are being assembled in Ethiopia, Nigeria, and South Africa, while China’s two top truck makers Foton and FAW have established factories in South Africa and elsewhere in Africa. But the impact on Africa of this in terms of knowledge and technology transfer will initially be limited since these vehicles are assembled from kits of Chinese components imported from China. Most of the value remains created in China.

In China, the textile industry is facing rising wages and cotton costs. Much of the textile and garment production, except at the very high end, is being moved from China to Africa and Southeast Asia. A Zhejiang firm has 40% of its production located in Nigeria, Ghana, and Tanzania, employing 2,600 African workers. It recently acquired a cotton plantation in Mali which will supply its African textile mills and reduce raw material costs by 50%.⁶³ Two Qingdao-based textile firms have invested in a textile mill in Zambia.

A Little-Known Firm from Anhui Grows and then Falters in Africa

To illustrate the diversity of China’s activity in emerging markets, it is instructive to look at the extraordinary development of a low-profile Chinese construction firm, Anhui Foreign Economic Construction Group (AFECC), based in Hefei, Anhui province. AFECC was established in 1992 as a vehicle for China’s “going out” policy and later became an important part of the Belt & Road Initiative. It enjoys close relationships with China’s top leaders, as well as with those of emerging countries. Today it has subsidiaries across Africa, the Caribbean, and Asia, and staff in 30 countries. It diversified into hotel ownership, supermarkets, and then into mining in Africa. AFECC presents an invaluable case study of a company which ultimately had its wings clipped, due to problems in Africa and its sources of finance back home in China.

Hefei natives are proud that the celebrated late-Qing official Li Hongzhang and the current Premier Li Keqiang, were both born there. But to be honest, landlocked Hefei is the unremarkable capital of the undistinguished province of Anhui, overshadowed by the neighboring, much wealthier coastal provinces of Jiangsu and Zhejiang. Anhui has a flourishing cement industry, which coats much of the rural landscape with a fine dust, as well as a steel plant and its own homegrown car firm (Chery). Within Anhui, there is a big gap between its industrialized regions and its

poorer agricultural areas, and it is not surprising that Anhui is a major source of itinerant unskilled labor for the rest of China, and for AFECC's overseas construction projects.

AFECC's headquarters building dates back to 1992, when the company was established. The 30-floor block dominates the largely low-rise southern suburbs of Hefei. The building is dated and tired looking. Space inside is cramped, with small desks and paneling of heavily varnished pine, all very humble and understated. The staff is young, friendly, and well-informed on project engineering issues. Many have traveled widely through Africa.

AFECC was initially established as a state-owned business under Anhui Province's Bureau of Construction. During the period 2001–2002 there was a big push by the government sell off such medium-sized firms. AFECC was encouraged to “restructure” (*gaizhi*) and to become a private firm. To this day it remains a classic example of how ownership in such firms has been diversified to form an entity that straddles or fudges the state-owned/private divide. The State, in the form of Anhui State Assets Administration now owns only 9.72% of the firm. AFECC's chairman Jiang Qingde has 46% of the equity, while the AFECC workers' union owns 38.36%, and a local building materials firm the remaining 5.92%.⁶⁴ However the firm's trade union does not play any management role and has ceded its share voting rights to Chairman Jiang who thus has a strong controlling interest of 83.36%.⁶⁵ College-educated chairman Jiang was previously Deputy Head of the Construction Bureau. He is a party member and was accorded the title of National Labor Model in 2010. He has regularly received visits from Chinese leaders including the then Party Head Hu Jintao.

AFECC is not a very large firm. But its declared revenue rose rapidly from about US\$ 600 MM in 2010 to about US\$ 1.4 BN in 2018. But in 2019 AFECC fell into a massive debt crisis. Back in 2013, a Chinese ratings agency, while noting AFECC's rising debt leverage, provided an overall highly positive assessment of AFECC, citing central government support for overseas construction contracting and the low risk that AFECC would not get paid for its work due to the fact that it is focused on aid projects financed directly by the government or through China Exim Bank.⁶⁶ Let us look at how things went awfully wrong for this company.

AFECC started out doing overseas construction projects supported by Chinese government concessional loans: sports stadiums (Grenada), airports (including Maputo, Mozambique), hospitals (Zambia), conference centers (Myanmar), universities (Malawi), government buildings (Mozambique), and military buildings (Ghana).

On the back of those construction projects, it also traded in building materials and then branched out into investing in its own hotel chain (the Golden Peacock Hotels in Malawi, Grenada, Mozambique, Madagascar, and Zambia) and supermarkets.

Then in 2009, AFECC made a bold move to diversify into mineral resources, which today include diamonds (Zimbabwe and Democratic Republic of the Congo), gold, emeralds, titanium-zirconium (Mozambique), and copper. CDB has provided loans to support these projects.

Except for its diamond business, most of AFECC’s activities are routed through SOGECO, its Paris-based subsidiary (see Figure 9.2). AFECC does not seek to disguise its relationship with SOGECO, but the use of this structure nonetheless does provide a smoke-screen and dilutes the potentially negative impact of being seen as a Chinese firm.

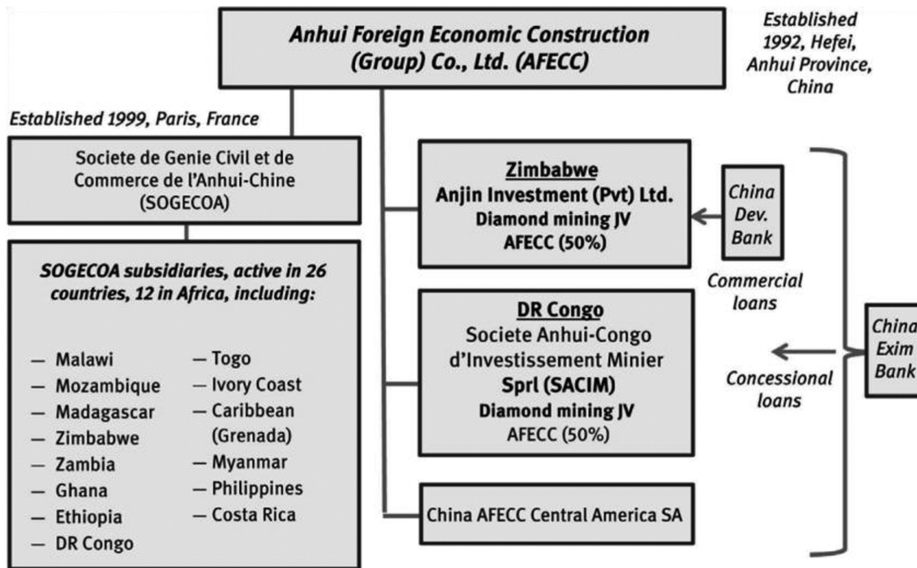


Figure 9.2: AFECC Organization Chart.

As mentioned above, China got Grenada to switch diplomatic allegiance from Taiwan to the PRC by building a new cricket stadium. Through China Exim Bank, China has also provided financing for a new national stadium, bridges, and a port expansion. AFECC successfully completed these projects using imported Chinese labor.

Grenada is a small Caribbean nation with a population of 110,000 and a GDP of less than US\$ 1 BN. For good reason, the IMF advised Grenada against taking on significant debt from China Exim Bank, since it is out of proportion to the national economy. But this wise counsel fell on deaf ears. It was agreed that the bank would finance a new airport in Grenada. China and Grenada also agreed a mutual waiving of visa requirements, thus facilitating Chinese tourism into the island.

Although AFECC’s stated corporate values are “sincerity, innovation, and pragmatism,” reality indicates otherwise. In Grenada, AFECC owns the Sogeco International Hotel, which has created controversy. Initially, the Grenada government halted the hotel’s construction, alleging that AFECC was illegally importing furniture for the hotel, using containers supposedly holding building materials for the stadium. The

hotel was completed, but a leading local critic of the government wrote an open letter to the government:

Consider the Sogecoa International Hotel and Restaurant, located in Woodlands on an AQUIFER from which NAWASA distributes water to the South. How in the world was this company permitted to build on this area, much less build a hotel and restaurant?!! What happened to our planning authorities? What happened to our water authority? Are we going to permit a company to VIOLATE our water resources because we received/have been promised aid by the government of the People's Republic of China? Is this part of a "pay back package" for the National Stadium?⁶⁷

AFECC has a major presence in Mozambique, having built the new airport in Maputo, as well as a series of government buildings. Alongside its business activities, it also participates in China's exercise of soft power.

Corporations like AFECC [that is AFECC] often appear as state actors, and their corporate managers like to have their pictures taken with government officials. Photo-ops also arise when agreements are signed, for instance when a Chinese communist party delegation visited in 2011 to found a Confucius Institute in Maputo and to provide antimalaria medications. Spreading goodwill and generating soft power in Mozambique are an ongoing effort. Soft loans or outright bribes to officials are common.⁶⁸

Commenting on an AFECC charitable program called "Journey to Brightness" which is providing free cataract operations in Mozambique, the same commentator stated:

Efforts like this one serve as a glossy veneer to distract from hard-core business moves that take place in a darker and shadier place, one without cameras and without a presence on the internet. What we see here are parts of a well-coordinated strategy by the Chinese government and its dependent corporations to become a dominant force in the economy of Mozambique and to exert greater influence over its government.⁶⁹

In Mozambique, despite its charitable work, AFECC has not been immune to problems with the recipient country. In 2012, 60 of its Chinese workforce in Mozambique were arrested for not having legal work papers. In Malawi, where AFECC built the new parliament building, its efforts to diversify into minerals and obtain a license to drill for oil in Lake Malawi (Lake Nyasa) have met resistance due to allegations that it bribed a government minister during the bidding process. In 2013, in Zambia, AFECC's local subsidiary was charged with bribing the previous government by providing 10 campaign vehicles. In Zimbabwe, AFECC was known for paying its local construction workers US\$ 4/day, far below the minimum wage.

Where AFECC's role becomes most problematic is in its diamond investments in Zimbabwe and in the Democratic Republic of the Congo. In Zimbabwe, it invested, jointly with its local partners, an initial US\$ 310 MM to form Anjin Investment (Pvt) Ltd. (see Figure 9.2) in Zimbabwe's Marange diamond fields. To finance Phase 2 of the project, AFECC borrowed more than US\$ 600 MM from CDB. By 2011, the JV had become the world's largest producer of rough diamonds (industrial diamonds). Moreover, it received approval to sell on the open market from the Kimberley Process Certification

Scheme, which was established to stop the sale of “conflict” diamonds, but has been largely ineffective. Anjin’s sales were approved against the strong objections of a participating NGO, which then resigned from the Scheme.

AFECC’s environmental record in Zimbabwe’s diamond fields is not impressive. The Zimbabwe Environment Law Association and villagers have taken AFECC to court for polluting three rivers with sewage, chemicals, and mineral deposits. In a letter, AFECC accepted some responsibility: “It happened one or two times. Pumps broke down and little recycled water was not pumped away in time, resulting in the overflow of the water from the ponds. . . .”⁷⁰

But the biggest issue with the Anjin JV was its vital role in keeping Mugabe in power. AFECC had 50% of Anjin’s equity, while the government-owned Zimbabwe Mining Development Corporation held 10%. The remaining 40% of the equity was held by a company under Zimbabwe’s Ministry of Defense.⁷¹ Anjin did not pay any taxes to the government and the revenues due to the Zimbabwe side were sucked out to provide off-budget financing for the country’s military forces. Meanwhile, Zimbabwe had a GDP of around US\$ 13 BN and the government’s international debt was US\$ 7–8 BN. Interest payments on that debt had not been paid since 2000.

For Anjin, however, even under Mugabe, things in Zimbabwe had not been smooth sailing. In 2012, it fired 1,500 local workers for striking for higher wages. In 2013, it had to lay off 190 of the remaining 845 workers due to falling diamond prices and the cost of shifting from open cast to underground mining.

But AFECC continued its investment in African diamonds. In 2013, in the DR Congo, AFECC partnered with local interests to form a JV which took over two diamond exploration permits with access to reserves of 158 MM carats and a target output of 6 MM carats by 2016. As part of the deal, AFECC agreed to build a hydropower plant and an office for the “diamond regulator” at Kinshasa airport, and to help arrange a loan for an additional hydropower project.

AFECC was fueling its growth not only using bank debt but also by issuing RMB denominated bonds. Early in 2016 it received government approval for the issuance of RMB 5 BN of bonds. Later that year it issued an investor prospectus for a bond – a RMB 1.5 BN five-year medium-term note. The issuance went ahead, largely because of its long debt rating of AA+ and, although it was not guaranteed by external agencies, a perception that given the firm’s hybrid private-state background, Anhui government would bail out the firm in case of problems.

In fact, the 2016 bond prospectus already hinted at future problems. It showed that AFECC revenues had fallen 75% compared to the previous year, and that profits and cashflow also slumped. There was a significant build-up of payables and of inventory (construction materials). The weakening performance was in the firm’s largest businesses – construction and mining where revenues fell by 77 and 89 percent, respectively.⁷² In 2016, Zimbabwe had nationalized its diamond mines. Mugabe claimed somewhat extravagantly that illegal diamond smuggling cost the

nation US\$ 15 BN. AFECC's Anjin was stripped of its mine ownership but continued to mine covertly with help from the Zimbabwe army.⁷³

Then things began to unravel. In 2017, allegedly with support from China, a coup d'état removed Mugabe and the coup leader Mnangagwa became president. In 2018, Mnangagwa told his parliament that AFECC's Anjin had used mis-invoicing to shift US\$ 500 MM of proceeds from diamonds illegally into Botswana. The Zimbabwe press went after Anjin:

The Chinese miner [Anjin] . . . was kicked out by the government for allegedly looting the country's diamonds . . . The Chinese company were accused of disregarding environmental laws, underpaying workers and smuggling diamonds . . . Anjin officials reportedly stashed diamonds in wooden sculptures which they would export to China via Mozambique.⁷⁴

In April 2018, Mnangagwa visited Beijing seeking funds and investment to prop up his economy. China's Xi Jinping complained that Chinese investors were being treated "unfairly" in Zimbabwe. To mollify China, AFECC was awarded a large US\$ 2 BN road construction contract in Zimbabwe but was unable to raise the funds to carry out the project. AFECC said it had invested over US\$ 1 BN in Zimbabwe.⁷⁵ It said bitterly that it had received no return from its diamond investments in Zimbabwe.⁷⁶ It had sunk US\$ 225 MM into one of its two mines, which presumably was lost. Relations with China have deteriorated seriously with bitter complaints by Zimbabwe that Chinese aid to their nation has all but dried up.⁷⁷

In 2019–2020, the chickens came home to roost. AFECC's debt load overwhelmed it. In May 2019, a Chinese rating agency reaffirmed AFECC's rating as AA+ only to lower it to AA- only one month later, citing concerns over the firm's liquidity and ability to cover debt repayments.⁷⁸ Then in June AFECC defaulted on its interest payments to CDB (part of the foreign exchange loan mentioned above) and another bank.⁷⁹

Shortly later, the firm defaulted on RMB 6.7 BN of domestic bonds. One commentator fumed that the Shanghai Stock Exchange was slow to announce this and the three main Chinese rating agencies also were slow to respond in reducing the rating of AFECC itself and its debt to C, in four stages. One rating agency explained that most of AFECC's assets were overseas and that there was no way to verify their liquidity and the firm's ability to repay.⁸⁰ Under instructions from the Chinese authorities, AFECC set up a Creditors Committee to negotiate a path out of the crisis. Chinese banks, many of which had purchased and still held AFECC's bonds, sued AFECC in the courts. The press noted the dramatic failure of what they called "The Great King of Landmarks [projects] in Africa."⁸¹ In August 2020, the Chinese finance regulatory authorities issued a "warning" [*Jinggao*] to AFECC and CEO Jiang, and banned the firm from issuing bonds for one year. In delivering this decision, it mentioned that it had not been possible to identify all the names of the firm's various subsidiaries and that in the accounts over a number of years the notes had provided incorrect information on the firm's largest projects.

The punishment meted out to AFECC may seem not much more than a slap on the hand. But one needs to view the debacle in its full context. This was not like a truly private company getting into trouble. Although the court cases against AFECC described it as private (*minying*), in reality the Chinese state still played a key role. The firm was a vehicle for delivering government-government projects under the Belt and Road Initiative. CDB and other Chinese banks were perfectly happy to load the company up with debt. All involved imagined that in the final analysis the Chinese government would intervene and save the firm if things went south. In a sense that is true. The firm enjoyed a high degree of autonomy to the extent that the government was blindsided by AFECC, which massively exceeded its original mandate in construction and engaged not only in retail and hotels but also in diamond mining, which turned out to be its undoing. Now the Anhui government, central government, and state banks are trying to patch things up, rather than simply declare AFECC bankrupt, as would happen in other countries.

The case of AFECC tells us a lot about China. It illustrates how private firms with their origins in the state sector operate essentially with a hybrid ownership serving government and private interests at the same time and exhibiting a highly entrepreneurial mindset due to the high degree of autonomy from the government. This hybrid nature marks them off from true private firms such as Huawei.

This status as a transitional kind of entity evoked some kind of false sense of security that it would ultimately be bailed out if things fell apart. Their debt, while not underwritten by the government, was viewed a bit like taking Anhui government risk. That view was only partly true. The investing public and the banks will likely have to share in a compromise to keep AFECC running.

The cozy arrangements that kept AFECC afloat for so long reveal legacy weaknesses of China’s financial system. In the end, AFECC’s business risk tracked back to the banks that lent to the firm or held its bonds. Despite plainly visible red flags in 2016, the Chinese rating agencies proved absolutely useless in protecting the creditors. The government and banks missed the signs that AFECC’s assets were in distress.

This also reveals serious flaws in how China’s Belt and Road Initiative is operating in Africa. It lays bare the political risk of associating too closely with tyrants that will ultimately be removed. It demonstrates that the model whereby funding (including foreign exchange) is raised in China for projects in Africa which lack transparency, accountability, ethics, and probity is liable to unravel.

AFECC’s defaults were part of broader pattern. In 2018, 120 Chinese firms defaulted on US\$ 17.6 BN of domestic corporate bonds, and the figure for 2109 was 150 firms, including AFECC, and US\$ 19 BN.⁸² This pattern is likely not as dangerous as it might appear. Some see it as part of Xi Jinping’s clean-up of the debt overhang. Rather than throwing good money after bad and simply bailing out AFECC by further lending, the government let the matter take its course in the courts. But it does vividly illustrate how systemic risk pervades China’s financial sector.

The latest research showed that AFECC was still operating. CEO Jiang was on a business trip to Africa. Key employees had been laid off.⁸³ Time will tell whether the firm or its leader Jiang, a state official turned global business figure, will face further consequences. Meanwhile their wings are severely clipped.

Transportation, Mines, and Downstream Industry

Since 2007, China has invested more than US\$ 20 BN in Peru's copper mines, making Peru the second largest copper producer after Chile. In 2019, China bought 68% of Peru's copper output, before Covid-19 hit the mines. Serious concerns have been raised about China's copper mining in Peru since it is conducted in areas of high biodiversity and environmental sensitivity and also is responsible for controversial resettlement of indigenous populations. Although China is currently renegotiating its 2010 Free Trade Agreement with Peru, it still lacks provisions on those issues. China has other interests in Peru including in ports and natural gas.⁸⁴

In Africa, the Democratic Republic of Congo (DRC) possesses high grade copper deposits and also has half of the world's cobalt which is essential for the production of laptops and mobile phones. Two separate Chinese firms have bought controlling interests in copper/cobalt properties in DRC's Haut-Katanga region.⁸⁵

Likewise in Zambia, copper is the key attraction for China. In 1998, when Zambia privatized its copper industry, China Nonferrous Metal Mining Corporation (CNMC) took an 85% stake in the Chambishi copper mine. (see discussion below). Other projects and investment supported by China have followed: hydropower, roads, railways, farms, textile mills, industrial parks, and even a factory producing ammunition and uniforms.

Infrastructure improvement such as the revitalized Tan-Zam Railway and a new port in Tanzania were aimed to facilitate the copper operations. In 2013, Xi Jinping visited Tanzania and signed an agreement with the then President for a new port, Bagamoyo, to be built just north of Dar es Salaam. It was to have a capacity of 20 million containers, making it bigger than Kenya's Mombasa port, and a development zone, at a cost of US\$ 10 BN to be financed by China Exim Bank and with additional investment from the Oman government. The Tanzam railway was to be extended to this new port, massively assisting Zambia's export of copper and other goods. But Tanzania's government under the next President decided to renegotiate its agreements with foreign firms over mining, natural gas, and ports infrastructure. The Tanzanian official in charge of ports stated that:

the conditions that they have given us are commercially unviable. We said no, let's meet halfway . . . It would have been a loss . . . they shouldn't treat us like schoolkids and act like our teachers.⁸⁶

The issues over this China-Tanzania project remain unsolved.

China is also financing and constructing Lamu port in Kenya, with three berths completed in late 2020, out of a total planned 32 berths. It will be linked by an oil pipeline to South Sudan and by railway to Ethiopia and Uganda, greatly enhancing those countries’ ability to export. There is a pattern to China’s activities across many countries. Using its massive financial clout, it can build infrastructure that benefits the recipient country, Chinese construction companies, and equipment manufacturers, while providing China with long-term access to strategic minerals.

In buying into Zambia’s Chambishi, which at that time was a “shell,” a “dead mine,” China, to its credit, was taking on significant risk which other firms were not willing to accept. In Chambishi, production was restored at two open-cast copper mines and US \$ 220 MM in a copper smelter built. Annual capacity at Chambishi from the mining extraction, followed by ore concentration and then smelting rose to 55,000 tons per year of grade A copper cathode (i.e., 99% pure copper) and 6,800 tons of cobalt metal anode (cobalt has many applications including in rechargeable batteries). China announced that it had invested US\$ 1.2 BN in Chambishi, creating 5,000 jobs. Recently work started on a third mine, with investment of US\$ 870 MM and final output of an additional 60,000 tons per years of copper cathode. This is important to the Zambian economy.

But on the negative side, the Chinese have also offered the worst employment terms among the Zambia’s mines, with lower wages, poor healthcare, and a proclivity for union bashing.⁸⁷ Fifty-one workers died from an explosion at a Chinese-run explosives factory related to the mining.

For good reason, China has met strong pushback from the Zambian citizens and the political opposition. There were riots at the Chambishi copper mine, and a strike at the smelter and at a coal mine. On several occasions, the Chinese owners panicked – shooting and killing local workers. Chinese managers have also been attacked and killed by local people.

The outrage over China’s presence led the Zambian opposition to call the relationship with China one of “slave and master” and threatened to break diplomatic relations and revert to recognizing the rebel government in Taiwan. As it turns out, once the opposition leader got into power, on his first visit to Beijing in 2013 he was entirely acquiescent to China.⁸⁸ Money talks!

A local rapper voiced his anger:

They put on smart suits and fly to China to sell our country. The roads belong to China. The hotels are for the Chinese. The chicken farms are Chinese. Even the brickworks are Chinese.⁸⁹

Tensions between Zambia and the Chinese in their country are at a boiling point. Chinese citizens living in Zambia have been murdered.

Zambia’s copper exports increased five-fold over 10 years but, due to concessions given to investors, did not improve Zambia’s fiscal income. The Zambian government has issued bonds but the most recent one had a coupon rate of over 9% and there are doubts about the ability of Zambia to service this debt. Zambia’s electricity utility

Zesco has invested in a US\$ 1.5 BN hydropower project alongside Chinese investor Sinohydro and CADFund (see above). Zambia's external debt has risen from US\$ 2 BN to 12 BN and China holds between 30% and 66% of it, depending on your source. No wonder there is plenty of talk that if Zambia and Zesco were to become financially distressed, then China might insist on ownership of Zesco.⁹⁰ China already provides technical support to Zesco, given the importance of electricity supply to its copper operations. There are also rumors that if Zambia defaulted on its China loans, China might also take over an airport, the broadcasting network, and some key roads.

A Zambian made this online comment in response to a report of China taking over Zesco:

It would be nice if government first asked the Zambian people for permission to sell the nation into economic slavery. The borrower will always be the slave to the lender. WE were slaves to the West now we are slaves to the East. When shall we rule ourselves?⁹¹

Now, this not to suggest that China has a “debt-trap” in mind when it bids on major projects. Owning assets in Africa comes with huge risk, as AFECC found out. But whether there is conscious intent or not, the pattern of China loading client nations up with debt is apparent. On the positive side, it is possible and actually happening that China will have no choice but to restructure of this debt pile littering the Belt and Road.

Anger and pushback in countries which are recipient of Chinese investment will surely continue, as will international protests of moral outrage over how this model operates. Many more projects will fall apart or face local opposition. But at this stage I do not have the confidence to assert that this model is inherently unsustainable, at least in the short- to medium-term. Though much of this BRI push is perceived to be a grand scheme for Chinese control, stretching from Latin America, through Asia and Africa, to the Balkans, as it stands today this push is firmly grounded in economics and business since it provides new markets where China's technology, skills, and products, developed over four decades of reforms, can be deployed effectively and profitably. The political and diplomatic aspects between China and these nations, cemented in “strategic alliances” and hyperbolic talk of ancient links and interconnection, coupled with pledges of solidarity are, as yet, not the main driver of China's expansion but play a vital supporting and underpinning role to permit the smooth delivery of this enormous wave of investment and trade coming from China.

Model 4. Novel Product or Technology Breakthrough

Globally, truly novel product or technology breakthroughs are few and far between. Long ago, there was bronze and the long bow. Then more recently there has been longitudinal navigation, steel, the spinning jenny, the steam engine, aircraft, antibiotics, the internal combustion engine, the cathode ray tube (TV), biotech, the

computer, semiconductors and the internet. Although China also has a history of inventions – the compass, papermaking, printing (block and movable type), gunpowder, complex water control systems – in recent centuries that innovative spirit has stalled out, and we cannot point to major advances that have originated in China. The forces of traditional conservatism, a culture that looked back to a golden age rather than seeking to create change, a steady-state economy in which agriculture was prized and commerce looked down upon all canceled out, or rendered inoperable, ideas on industrialization, whether homegrown or imported.

More recently, China has demonstrated the ability to import, adopt, develop and tweak existing technologies. But for any nation, the holy grail is the novel product or technology breakthrough. Such events are rare, across nations and across history.

While China's research and development (R&D) has received government resources, it has remained hostage to the vagaries of policy shifts, of stop-and-go reform, acceleration followed by temporary retrenchment, all of which have bred a cautious approach to R&D, deterring innovation.

This ever-changing environment of extreme uncertainty, with high risks and high gains, has a far-reaching effect on the behavior of the actors. Rational actors opted to focus on securing short-term gains while trying to minimize risk. Since industrial R&D, especially novel-product development, is both long term and high risk, the particularities of Chinese reform have kept actors from engaging in it.⁹²

But as China emerges as a world-class scientific and industrial power, expectations are high that China can ultimately achieve its own breakthroughs. China enjoys significant advantages as it pushes the boundaries of science, such as strong domestic demand for environmentally sound technologies, massive financial muscle, a well-trained scientific establishment (including returnees from abroad), and, most critically, a determined and highly supportive government.

On the minus side, as discussed in Chapter 11, research and development is focused on government research institutes and traditionally separated from the industry that can commercialize the new technology. There are also cultural factors that stifle out-of-the-box thinking and risk-taking. The impact of government money for science and technology is dissipated by bureaucracy, waste, and corruption.

China today is pursuing R&D in areas where there are prospects of novel technology breakthroughs, in electric vehicles and autonomous driving, for instance, or in utilizing metadata on gene sequencing to develop new medical treatments. But perhaps the most tantalizing of all the efforts going on in China has to do with molten salt reactors (MSRs) whereby thorium is used to generate electricity.⁹³

The concept of MSR technology has been around for decades, but to date has promised much but delivered nothing, with failed or abandoned projects across the globe. In 2011, China took up the challenge and, building upon technology acquired legitimately from the US Oak Ridge National Laboratory, launched its Thorium Molten Salt Reactor Project, being run by the Shanghai Institute of Applied Physics (SINAP).

SINAP and Oak Ridge signed a Cooperative Research and Development Agreement to develop this technology, though it is thought to have fallen inactive in recent years. For the US, having decided decades ago not to pursue this technology, it is somewhat embarrassing to have provided support for the Chinese program, especially since any resulting technology would ultimately be owned by the Chinese. The US Department of Energy, which was responsible for the agreement with China, is now tight lipped and cagey about the entire matter.

At SINAP, the project was originally under the leadership of Dr. Jiang Mianheng, who studied at Drexel University and happened to be the son of former Chinese leader Jiang Zemin. He was removed, having predictably fallen foul of Xi Jinping's anti-corruption campaign which had as one of its objectives the removal of any vestiges of the influence of Jiang Zemin. But the project continues.

Initially, in 2011, the project had received relatively modest government funding of US\$ 350 MM over five years with a team that started out with 140 PhDs, with plans to reach 750 scientists. In 2018, the Chinese government allocated a further US\$ 3.3 BN in order to speed up the program.

Why then go down this road, which so far has yielded no results? How does this technology compare to the new, safer Generation III light water reactors (LWR)? From China's point of view there are four advantages to MSRs – raw material supply, location of reactors, nuclear proliferation, and waste disposal.

Thorium, a rare earth, is plentiful in China. It is not a fissile material and, though it needs to be combined with uranium or plutonium to achieve the nuclear reaction, the uranium or plutonium used is reprocessed spent fuel from LWRs and so would greatly reduce China's dependence on uranium imports. Another potential benefit is that due to the high temperature in the reactor, hydrogen can also be combined with CO₂ to form methanol.

China also has massive and growing electricity needs in its interior that cannot be easily addressed by LWRs, which are water cooled and need to be located on the coast. MSRs use 95% to 97% less water than LWRs and thus can be located in the interior.

Waste products from MSRs have extremely high gamma radiation, rendering them highly trackable and fundamentally unattractive for those bent on nuclear proliferation for weapons use. The radioactivity of waste from MSRs has a much shorter half-life than that of waste from conventional LWRs, making disposal far less of a burden on the economics of nuclear power.

SINAP's initial target of building an operating experimental commercial-scale MSR within 25 years (by 2035) has been reset to ten years from 2014 (that is, by 2024). In 2018 Chinese government accelerated the program in order to build two prototype reactors, two small MSRs both 2 megawatts (MW): one molten salt-cooled high temperature reactor, commonly known as a fluoride salt-cooled high-temperature reactor (FHR) using solid fuel; and one pure thorium molten salt reactor (TMSR) using liquid thorium. The plan calls for subsequent experimental versions of 10 MW, then 100

MW, up to full size 1000 MW reactors. The first experimental 2 MWe reactor, which uses solid fuel, is under construction at the Wuwei research area in the Gobi Desert in China's Gansu province.

The challenges facing China in these endeavors are enormous. In addition to SINAP, other institutes in Shanghai, Changchun, and Shenyang are working on various aspects. Efforts elsewhere in the world to make thorium power work have been stymied by the extremely high temperatures the technology operates at and the corrosive effect of the fluoride in the molten salts. China is working on high temperature salt pumps for the molten salt loops and new types of nickel alloys and other materials, such as silicon carbide.

There has been intense global interest in China's MSR program. When first launched, it received gushing praise:

It may mark the passage of strategic leadership in energy policy from an inert and status quo West to a rising technological power willing to break the mold. If China's dash for thorium power succeeds, it will vastly alter the global energy landscape and may avert a calamitous conflict over resources as Asia's industrial revolutions clash head-on with the West's entrenched consumption.⁹⁴

The safety aspects of thorium were lauded:

. . . thorium must be bombarded with neutrons to drive the fission process. There is no chain reaction. Fission dies the moment you switch off the photon beam. There are not enough neutrons for it to continue of its own accord.

However, based on the "bad history" of thorium nuclear technology, some experts, while acknowledging that on paper the design for MSRs may look "elegant," have expressed "deep skepticism that such an exotic technology will get built."⁹⁵

Countering this, supporters of thorium stress that the thorium route was originally abandoned since there was abundant uranium from the weapons program for use in power generation and pointed out that experts in the UK, US, and France at that time all believed a thorium reactor could be built. Moreover, in the ensuing years, there have been major advances in materials science that can help make thorium a practical option. They also add that much of the opposition to thorium comes from proponents of competing LWRs.⁹⁶

Given the potential longshot rewards, it makes perfect sense for the Chinese government to invest in the SINAP program. As one of China's multiple tracks towards energy security, the thorium program is an "extremely sensible and rational strategy."⁹⁷

Discussing the US failure to sustain its thorium research, a commentator points out that the program requires "the sort of long-term commitment and resources that only another world power, like China, can provide."⁹⁸

Even given the significant challenges along the path to a breakthrough in thorium power, China's deep resources and tenacity (the team in Shanghai is said to be

working under “warlike” pressure),⁹⁹ coupled with China’s urgent need for new energy sources, should give us some optimism that China may succeed where others have failed. China would own the technology that it can sell around the world. The effort being put into China’s MSR program will also yield broader, knock-on innovation in materials science, for instance.

Implications for the Emergence of Chinese Firms on the Global Stage

Without detracting from the energy of Chinese firms in embracing Western technology and management skills – and in some case further innovating – in all the models discussed we can see the hand of the Chinese government and the CCP, sometimes a light touch and at other times calling the shots. It is no exaggeration to say that the CCP’s willingness to lead the reform process is central to the auspicious balance of forces that have animated China’s recent rise. The CCP, unburdened of earlier hubris and motivated by the need to prop up its rule, has been at the heart of what we term *the China paradox*.

But the nature of China’s hybrid economy is that business independence can ultimately be trumped by the power of the autocratic CCP. Any sizable Chinese firm, whether private or state-owned, that you may deal with can be leaned upon by the CCP, which exercises its power from behind the curtain. If the deal is of any national significance, then you are probably dealing with China, Inc. Behind the scenes, information is upstreamed to government or CCP “working groups” sitting in the shadows.

Understanding China, Inc.’s agenda and then aligning with it is often the path to a win-win transaction. But China plays a very long game. It shows flexibility in the short term to suck foreign investment and technology into China, while keeping its sights on the longer-term national advantage. The same is true in foreign markets where it operates with distant time horizons others could not contemplate.

Though *the China paradox*, and the role of the CCP in it, has proven hugely enabling for Chinese business, there is a cost to it. Given the CCP’s power in the shadows, Chinese firms may not be as fleet-footed as their international competitors and may not achieve their true potential. Thus, foreign firms may rightly be cautious about accepting a bid to be acquired by a Chinese company, given the risk that the deal may be inspired by higher powers in China who never appear at the negotiating table.

While in the big picture there is no doubt that the CCP rules the roost across the economy, we should not paint too simplistic a picture. Chinese firms across the state-owned/private divide are neither simple pawns of government policy nor passive subjects of the CCP Puppeteer-in-Chief. Chinese companies have gone through a crash course in how to run a business and feel pressure to perform. They face fierce competition at home and abroad.

Even in recent decades, when the CCP showed remarkable restraint in using a light hand as it influenced and guided Chinese firms, there was a constant effort by Chinese firms to assert their autonomy and to get the CCP out of their hair. The CCP under Xi Jinping shows a trend toward greater autocracy and a claw back of power and authority within Chinese firms, especially SOEs. This, coupled with anticorruption efforts, undermines the entrepreneurial spirit and is harming business decision making. Chinese firms are riled at this apparent backsliding on the reforms, but are powerless to push back. The powerful and healthy dynamic between the CCP and the economy that fueled development appears under threat.

In the short term, we may expect Chinese firms, whether operating in China or overseas, to feel the heavy burden of CCP influence. Foreign firms working with them need to be cognizant of this. As the CCP struggles to “readjust” the economy, there will be continued forced, bureaucratically driven mergers. Chinese investments overseas will be increasingly vetted by the CCP, mindful of capital flight which in part is prompted by anti-corruption efforts.

But longer term, as China’s modern-style firms, private, state-owned, or hybrid, grow and innovate, relying less on government patronage and creating their own profitable path, they will go beyond their current mutterings of dissent and increasingly be unwilling to accept interference from the CCP. These firms, bolstered by their own autonomous commercial success, will be harder to coerce than old-style SOEs and will increasingly seek to break free.

As the CCP hunkers down, its relevance to the economy will come under scrutiny. Firms that have hitherto participated in these recent business models built on the symbiotic relationship between business and government will stride out in innovative ways. While this may imply the end of the brief four decades of flourishing of *the China paradox*, there is also a positive side. Even if the CCP were to stumble seriously or fade towards irrelevance, these modern-style Chinese firms will still be able to persist and grow, taking their place on the world stage. Those seeking to forge business relationships with Chinese firms are well advised to determine whether their future partner is part of that new breed.

Chapter 10

China's Friction with the World

Beijing's actions threaten our people and our prosperity.

– Trump's Secretary of State Pompeo,¹ 2020

China today is not the China of 1840. . . . The days of Chinese people being bullied by the west have passed. We are not an easy target any more . . . We will fight tooth for tooth until the end.

– Xu Guixiang, senior party official in Xinjiang, refuting criticism over the treatment of Uighurs² 2021

This book does not attempt to take on the enormous subject of China's international relations and has stayed largely focused on China's internal development. External issues have been largely confined to foreign investors entering the Chinese market and Chinese firms entering global markets. However, since the first edition of this book was published there has emerged a new global trend led by the US which abandons what had been a highly collaborative relationship with China and replaces it with a more combative posture. This new attitude, and actions taken as a result, have reshaped the global economy, having a large impact on China's economy, its national strategy, and politics. In recognition of this we include this new chapter.

Over the past five years, global sentiment has turned against China. This fast-growing animus is based on a wide range of long-present issues – political, economic, environmental, disease control, and human rights, which have recently merged into a torrent of actions and counteractions on the economic front and mainly between the US and China. At the heart of the matter are two basic issues.

The first is a global anxiety about what China ultimately wants to be. What are China's goals and intentions? Can China fulfill its ambitions and, if so, will it be at the expense of other nations?

The second is the US psyche reacting to a global challenger. For the first time since WW2, the US feels it has, in China, a global competitor which can match the US in technology and innovation.

Judgments formed around these two key issues serve as the fundamental basis for many conclusions that shape relations with China. The serious friction that has developed between China and the US is judged by most to be something which cannot simply be put back in the bottle, even with strong political will on both sides. So how do we address this friction and, where feasible, mitigate it?

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A Glance Back at the Emergence of Globalization

While today's globalization is a highly competitive two-way street, that was not always the case. Around 1973, while China was still under Mao's rule, Premier Zhou Enlai pushed hard for the Four Modernizations, under which China spent hundreds of millions of dollars importing 13 pairs of complete ammonia/urea plants from the US, Japan, and elsewhere, to produce high analysis nitrogenous fertilizer to be used to raise rice yields to the levels achieved in Japan. At that time, China was beginning to earn some foreign exchange from oil exports but these purchases of fertilizer plants put a huge stress on China's economy. In 1978, China only had US\$ 0.17 BN in foreign exchange reserves (compared to US\$ 3.2 trillion today). These complete plant purchases indicate that the globalization of that period saw the power, technology, and wealth concentrated in Western nations and Japan.

After WW2, the US took over as the UK faltered and retreated globally. This one-sided version of globalization dates back to the 18th-century East India Company and colonialism. Back then, India and China felt the sharp sword of nations that insisted on imposing their version of "free trade" on other weaker nations.

Against most predictions, in just the last 40 years, globalization has been transformed so that the "tail wagged the dog," whereby China, and also India, have benefitted enormously from the free flow of goods around the globe. Of course, this change has not benefitted all nations. Many emerging economies, such as those in Africa, have lost out and now find themselves "target markets" not just of Western MNCs (multi-national corporations) but also of Chinese firms.

Globalization in its new incarnation came about as China (more on hardware side) and India (focusing more on software and services) – with large, poor and hard-working populations – linked up with other nations such as the US to satisfy ever-growing global consumer demand for low-cost products and, as China moved up the economic ladder, also high quality products.

How Does China Position Itself Today?

During the Mao years, China became a specialist in taking the side of poorer nations against not just the West but, later on, also against the Soviets. With Indonesia, Egypt, and others it formed the non-aligned block of third world nations, exemplified by the Bandung Conference in 1955 – attended by 29 countries representing 54 percent of the world's population. In 1972, as China re-established contacts with the US – the Joint US-China Shanghai Communique formalizing this move – included these words from the Chinese side:

All nations, big or small, should be equal: big nations should not bully the small and strong nations should not bully the weak. China will never be a superpower and it opposes hegemony and power politics of any kind.⁴

That was said in 1972 when China's GDP was less than one-tenth that of the US. Its per capita GDP was only US\$ 132 (compared to well over US\$ 10,000 today).

Now, China's GDP is on course to overtake the US. Assuming China's economy grows by 4.7% and the US at 2%, then China will match the US in GDP by 2030, or if the US grows at 3%, China will get there by 2035.⁵ But this should be considered with the caveat that GDP size does not make you a superpower. It is worth considering how the *quality* of China's development seriously lags, something Chinese leaders openly talk about these days. For the first time, China's latest economic plan does not set a GDP target. Does China's size *and* performance pose the global threat that many have warned about?

In 2021, China's message to the world is "peaceful coexistence, mutual benefit, and win-win cooperation."⁶ The win-win cooperation is a relatively new addition to this message. It is intended to cover China's overseas business dealings, in particular with respect to the Belt and Road Initiative (BRI). However, many foreign governments and various currents of Western public opinion (left and right, liberal and conservative) have already formed a contrary view, which, based on China's specific actions globally, regards such statements as disingenuous and unconvincing.

A More Assertive China Draws Attention to its "Rise"

First, it should be stressed that China itself bears shared responsibility for the shaky relations with the US and the negative perceptions around the world – and not just because of its human rights abuses. Since Xi Jinping took over, China has radically reshaped its soft power and how it portrays itself. Deng Xiaoping had consistently advocated "keep a cool head and maintain a low profile. Never take the lead – but aim to do something big." That stealth doctrine served China well and helped avoid China's rise setting off alarm bells.

Under Xi, things have changed so that China is taking a more assertive and ultra-confident position vis-a-vis the world. In 2015, Xi's Premier Li Keqiang introduced "Made-in-China 2025," a strategic plan for China manufacturing. Although much of the plan was purely aspirational, it was perceived by many outside China as laying down a gauntlet as an economic rival. This and other signals from China sowed the seeds of much of the economic pushback China faces today. Some Chinese officials express concerns that this raising of China's profile, coupled with Xi's cult of the personality (see Chapter 11), amounts to dangerous hubris which inevitably provoked confrontation with the US. But others will tell you that under Hu Jintao (Xi's predecessor), China was too acquiescent toward the West and needs to stand up to "bullying."

When Xi stood atop the Tiananmen Gate in Beijing on July 1, 2021 to address the nation on the centenary of the CCP, he stated that “the Chinese nation does not carry aggressive or hegemonic traits in its genes We have never bullied, oppressed, or subjugated the people of any other country.”⁷ There is certainly plenty of historical truth in this, but it also ignores China’s recent behavior for instance in the South China Sea which China unilaterally claims to be an internal matter. Having somewhat disingenuously disavowed aggressive intent, Xi went on to say:

By the same token, we will never allow any foreign force to bully, oppress, or subjugate us. Anyone who would attempt to do so will find themselves on a collision course with a great wall of steel forged by over 1.4 billion Chinese people.⁸

Globally this was rightly picked up as a signal of China’s increased assertiveness. However, it should be added that this was likely directed mainly at the Chinese domestic audience. These words received the most vigorous response from the crowd below. Moreover, the official English translation above is toned down from the more violent language in the Chinese original.

China is itself guilty of bullying other nations. It has used trade as a weapon to punish Australia after it asked for deeper investigation on the origins of Covid-19. Thirty percent of Australian exports go to China. Australian meat, wine, lobsters, and timber were hit but fortunately for Australia most of the exports are of iron ore which is vitally needed by China and so have not been affected.

China’s soft power efforts have of late seemed rather lame, weak, and unpersuasive. In their place there are raucous denunciations. For example, China has recently issued statements personally naming and attacking UK lawmakers and others for their views on Xinjiang.

The deep truth is that China is happy to welcome foreigners – academics, scientists, journalists, politicians, businesspeople – into their midst as “foreign friends,” but not unconditionally. In 2009, on the sixtieth anniversary of the PRC, a massive electronic screen was erected in Beijing’s Tiananmen Square. One of the slogans displayed on the screen in Chinese was: “We salute our foreign friends that support Chinese development.” I blinked and immediately realized its significance, namely that foreigners are friends only to the extent that they support China’s development path *as defined by the CCP*.

Human Rights Abuses

Over the 40 years of reforms, human rights have periodically come to the forefront in China’s relations with the world. But even after the Tiananmen Square Massacre in 1989, foreign outrage quickly reverted to deeper business engagement with China. Throughout the reform period, China has remained a highly autocratic state that brooks no opposition to Party rule. However, over the last decade we

have seen, under Xi's rule, a hardening of repression. The crimes against humanity in China's Xinjiang region and the tightened Mainland grip on Hong Kong have deeply affected people around the globe. In Western countries, many who consider themselves on the progressive Left have recently abandoned any support they might have had for China and in this have joined forces with those on the Right who argue the case for the containment of China on the grounds that China intends to outperform and displace the US. Any sympathy for China's point of view has largely drained away.

In his first contacts with his Chinese counterpart, the new Secretary of State Antony Blinken made a strong statement condemning China's human rights abuses. The Chinese side then predictably warned the US not to interfere in its domestic affairs – specifically Taiwan, Hong Kong, Xinjiang, and Tibet. The US government intends to handle issues with China in a compartmentalized and siloed way. With both sides having vented on the issue of human rights, there is a path to constructive discussions on other issues. That may sound glib. But foreign relationships move in such ways.

But China's bitter resentment over foreign attitudes to China, both current and historical, runs very deep. A senior Chinese official in Xinjiang recently hit back at accusations of genocidal action against the Uyghurs:

China today is not the China of 1840. . . . The days of Chinese people being bullied by the west have passed. We are not an easy target any more . . . We will fight tooth for tooth until the end.⁹

Even if the US would like to handle China's human rights abuses separately from other issues, the passion and rage this issue provokes on the Chinese side may well overflow into other areas. On top of that, world opinion is increasingly demanding specific action against China on this issue, to an extent that trade and investment with China may be affected.

Is the BRI a Neo-Colonial Program?

Given its isolationist and domestic US-centric positioning in recent years, the US has been slow to pay attention to China's Belt and Road Initiative (BRI). But sentiment in the US against BRI as a neo-colonial play by China is part of the mix when it comes to "standing up" to China.

As we look at China's BRI, 18th and 19th century history provides plenty of evidence of how nations, as they develop, progress from trading, then to investment, and then to military action, first to defend the business interests and then to seize territory. But so far, with a few small exceptions, China has stopped short of giving the BRI a military dimension. In fact, since the Korean War, China has avoided major overseas wars (there have been smaller border wars with India and Vietnam), choosing to focus on domestic development.

One strident right-wing US organization has carried this dire warning:

The purpose of the BRI is not economic or cultural but strategic, and is an effort to mask the expansion of Chinese power. In its strategic intent, the BRI should be considered an imperial project alongside the likes of the British East India Company . . . China is exercising the ‘imperial excuse.’¹⁰

China has strongly denied that its BRI has a military component. However, in 2019, China’s Defense Minister controversially stated that the BRI would include a “framework” for military cooperation with participating nations. Whether the Minister’s words were a case of the mask slipping and China revealing an underlying agenda is hard to say. But there is bitter experience of China’s companies operating in Sudan being left heavily exposed in 2013 during the civil war, leading to mass evacuation. More recently there have been attacks on Chinese interests in Pakistan¹¹ and in Myanmar (Burma). With some justification, the US is convinced that in addition to Djibouti, China will build a series of military bases globally to protect its economic interests.¹² If one looks at the pattern of Chinese strategic moves through the BRI, they certainly amount to more than just something restricted to trade and investment. China is investing heavily in an economic zone placed strategically beside the Suez Canal in Egypt. China owns a controlling share of the Port of Piraeus in Greece and is investing heavily in the Gwardar Port in Pakistan.

Countering such views, China predictably plays down a geopolitical subplot to BRI by emphasizing its commercial nature:

We will launch a series of business cooperation projects that are based on huge market demand and generate a positive ripple effect, boosting trade creation, investment promotion and industrial clustering.¹³

Despite China’s extensive efforts to sell its vision for the BRI, many voices across the world raise concerns. China is chagrined at the “accusations” that China’s behavior in Africa is “neo-colonialism” and that it underpins local “dictatorships” and “rogue nations,” that the relationships with BRI nations are unequal and favor China. China complains that its voice is drowned out by these views.¹⁴ But there is indeed plenty of evidence that much of China’s behavior has not just been unacceptable but truly atrocious (see Chapter 9). Serious questions remain about China’s relations with recipient countries, whether it refers to contracts awarded without any transparent bidding process or loans that can never be repaid and lead to local assets (minerals, ports, and more) becoming Chinese property.

To understand China’s outward push into emerging countries, and the rest of the world for that matter, it is useful to look into what exactly that underlying agenda might be. The drivers behind it include political and commercial elements which are often intertwined. My view is that, at present, the economic and commercial aspects dominate, while the political, national strategic part follows and supports it. There are undoubted examples of the opposite. Although this includes

Djibouti mentioned above, we should note that to date it is primarily to protect against the disruption of trade routes. My view of the primacy of the economic, trade, and investment factor is controversial in the minds of some observers who take the view that China has an imperial design on the world. I dissent from the view but do acknowledge that, in the BRI, economics and geo-politics are intimately connected.

Does China Want to Export Its Development Model?

BRI seems to be fundamentally driven by economics and, given industrial overcapacity in China, by a search for new markets for Chinese products and services. But this, coupled with the political dimension that underpins these business activities, has led to concerns that, despite Chinese denials, this is a neo-colonial program in the making and that China intends to export its economic model.

Francis Fukayama, a US writer and thinker who stresses the positive role of liberalism and market-driven economics, has written that “for the first time, China is seeking to export its development model to other countries.”¹⁵ He views China-Western economic relations as a struggle between competing models. I have met many Chinese who see things in those terms, but of course from the other side, expressing an over-confident complacency that the Chinese road to “market socialism” is worthy of sharing with other nations, and mocking India’s seeming failure to achieve a “national revival” such as seen in China.

The issue with even contemplating the replication of China’s success elsewhere in highly diverse nations is that the Chinese development model is a hybrid political-economic construct specific to Chinese culture and history, which has grown organically and gradually from China’s specific conditions. Still, the notion that China might want to export its model casts a shadow over China’s trade and investment thrust out into the world, creating negative optics suggesting a neo-colonial posture or at best an arrogance that argues that China’s development path is ready-made for others to emulate. However, there are those in China who are aware that exporting the China model is both impractical and politically damaging. In discussing China’s system versus Western democracy, Fudan University Professor Zhang Weiwei in the celebrated *Debate of the Century* with Francis Nakayama, stated “China does not have the intention of marketing its model as an alternative for other peoples or countries.” But he still could not resist touting the Chinese way:

But if you do well it is true that others will follow your example. Today virtually all China’s neighbors . . . are learning in one way or other from China.¹⁶

China’s top leader Xi Jinping addressing the CCP at the beginning of his second term in October 2017 abandoned much of the calculated modesty that Deng Xiaoping and his successors had adopted to deflect international concerns. Xi stated:

the path, the theory, the system, and the culture of socialism with Chinese characteristics have kept developing, blazing a new trail for other developing countries to achieve modernization. It offers a new option for other countries and nations who want to speed up their development while preserving their independence; and it offers Chinese wisdom and a Chinese approach to solving the problems facing mankind.¹⁷

The overwhelming hubris that permeated that Party congress in no small measure contributed to a heightened global concern over China's rise. Just over a month later, Xi was forced to backtrack and seek to allay anxiety about a more assertive China. He made it clear that discussion on the exportable model had to cease: "We will not export the China model. We will not ask other countries to copy the Chinese practice."¹⁸ Such denials, aimed at walking back his earlier statements, are not convincing.

Have We Been Fooled by China or Are We Kidding Ourselves?

There are many in the West who sincerely, but mistakenly, believed that by facilitating China's economic modernization they would contribute to China moving in a more liberal or democratic direction. Now that this has failed to happen, they feel somehow duped or deceived by China. Talking in the Nixon Presidential Library, then Secretary of State Pompeo weakly praised Nixon's 1972 breakthrough on China relations. He then added that times have changed and asked:

Did the theories of our leaders that proposed a Chinese evolution towards freedom and democracy prove to be true? . . . American policy makers increasingly presumed that as China became more prosperous it would open up. It would become free at home and indeed present less of a threat abroad. It'd be friendlier. It all seemed, I'm sure, so inevitable. But that age of inevitability is over.¹⁹

This rhetoric is weakly founded and flatly incorrect. China never showed any interest whatsoever in adopting or moving toward our political and social system. On the contrary, as we documented earlier, China explained repeatedly that it was eager to bring on board capitalist methods and levers to help the Party stay in power and make "socialism" work.

Racism Rears Its Head

It is not controversial to say that the key underlying and unresolved issue in the US is that of racism, whether directed at native Americans, blacks, or immigrant groups. Chinese have not escaped their share of such prejudice: Chinese who had flocked to the California Gold Rush suffered severe discrimination leading to the 1882 Chinese Exclusion Act. Chinese were demonized through Fu Manchu films.

The Yellow Peril was coined in the 19th century but was still used in Cold War propaganda against “Communist China” or “Red China.” The Chinese people were described as the “blue ants,” a reference to the ubiquitous blue (or green) outfits the Chinese wore during the Mao era.

This racism, an irrational fear of the Chinese people, was well displayed in Trump’s rhetoric, even in the way he pronounced the word China. It was seen in discussions around the origins of Covid-19 (“China-virus,” “Kung Flu”) and in the raw language around the theft of US jobs. It was demonstrated when the FBI had swarmed over institutions such as MIT looking for any researchers who might be Chinese, or have Chinese origins or a Chinese name. There has been a spike in racial abuse and deadly attacks directed at Chinese and other Asians in the US.

Trade War Breaks Out

Globalization has morphed into a global division of labor, voluntarily entered into by both sides, whereby the US has become the key consuming nation rather than the one that manufactures, and China has served as the “factory of the world.” This has led to China enjoying an overall trade surplus with the world which reached of US\$ 535 BN in 2020, despite the trade war with the US and disruption from Covid-19.

Given the power of the US dollar as the global currency, the US has been able to sustain massive trade deficits by issuing its sovereign debt. China in turn has purchased a significant proportion of these US securities as a safe haven for its foreign exchange reserves. This cozy arrangement worked for both sides until the Trump Administration, which adopted as part of its political platform the notion that China is guilty of stealing US jobs and that putting additional tariffs on Chinese goods would bring jobs back to the US. So 25% in additional tariffs were levied on hundreds of millions of dollars’ worth of Chinese imports and then China retaliated in the same way.

The Trump-initiated trade war with China was bizarrely claimed to hurt the Chinese most and that they foot most of the bill. But there is abundant evidence that first the middlemen and mega traders such as Walmart absorbed some of the additional 25%, and second that it is the US consumer who shouldered the main burden. Discussions with those running the local stores of the US’s ACE Hardware chain quickly identify how the extra costs are passed onto the consumer, once their pre-trade war inventory is exhausted.

Moreover, China is also in a better position to weather the trade war than the US, since it is a “domestic demand-driven economy.”²⁰ Exports now account for only 17% of China’s GDP, compared to 35% in 2007. China has been able to diversify its trade relations away from the US. Meanwhile, China’s trade surplus with the US grew in 2020 to US\$ 317 BN, just US\$ 7 BN short of the record level recorded in 2018

when Trump started the trade war. Of course, Covid-19 dampened some of the extra trade Trump had pushed for. It is hard to see this as a victory for the US. Obviously, the trade war has harmed both nations. It is a zero-sum game.

Furthermore, the much-vaunted process of “on-shoring,” whereby US businesses abandon “off-shoring” to China and return to the US is occurring to some extent but really is a disappointment. Some US businesses are leaving China, but mainly moving to places like Vietnam and Laos where there is cheaper labor than in China. Interestingly, China’s basic low-labor cost businesses are also migrating to Southeast Asia for the same reason.

The Biden Administration is clearly inclined to settle trade issues, not unilaterally as with the Trump tariffs, but through multinational agencies such as the WTO. Moreover, the US has stated that it will review all of the recently imposed tariffs to determine whether they are “beneficial” to the US people. This is a strong signal that they will ultimately be removed or trimmed down. The US is likely to back away from the crude weapon of tariff barriers which are easy to retaliate against, while at the same time keeping up pressure on China to further level the playing field for foreign investors and traders in the China market.

A Drift Toward Technology War?

The Trump Administration introduced a series of measures with the intent to economically decouple the US from China, that is, to reduce or even break the deep inter-relationships that underpin the functioning of the global economy – or, put more simply, to reverse the process of globalization. The general premise behind the Trump action was that China is not a partner, not a competitor but intrinsically a strategic “adversary” (just a notch short of enemy). The resulting actions taken as a whole were a conscious attempt to contain, slow, or even halt China’s global rise.

The idea of China as a “threat” to the US was stated strongly in 2020 by Trump’s Secretary of State Pompeo:

That if we want to have a free 21st century and not the Chinese century of which Xi Jinping dreams. The old paradigm of blind engagement with China simply won’t get it done. We must not continue it. And we must not return to it.²¹

In dealing with China, he adapted and went beyond a piece of Reagan language, saying that the US should:

“Distrust and verify.” [Reagan said “trust and . . .] . . . We the freedom loving nations of the world must induce China to change . . . because Beijing’s actions threaten our people and our prosperity.”²²

Trump’s Attorney General Barr took on issues of intellectual property stating in blunt terms:

That the ultimate ambition of China's rulers isn't to trade with the United States, it is to raid the United States.²³

It is perfectly true that over the course of its reforms, China has actively committed IPR theft. But it is also patently true that such theft, especially in the ICT sphere, may save you time but rarely gets you ahead. Given the pace of ICT advances, you are still left behind. We should not be deluded by such arguments around IPR theft. It is quite apparent that the US feels threatened because China is *actually innovating itself* and not just ripping off others. I personally recall then Cisco CEO John Chambers stating in internal meetings that his most serious competitor is Huawei. He was not saying this because 10 years earlier Huawei had stolen Cisco IP. Rather, he was showing respect for Huawei because they were innovating and now were able to compete with Cisco in high-end mission-critical routers.

There is no doubting China's ambition to become a true "great power." But will that be by becoming a constructive participant in the global economy or wanting to replace the USA as the global hegemon and gain *global control at the expense of other nations*? History will tell. Meanwhile we should indeed be wary of China's actions. But vigilance does not preclude us working together or at a minimum conducting trade and investment in an orderly manner, relying on rules-based multilateral approaches as epitomized by the WTO.

The wake-up call for the US was around 2019 when global standards for 5G mobile telecom technology were announced and it became apparent that China had emerged definitively as one of the leading global players in this area. There was no US firm that could match the Chinese (Huawei and ZTE), Swedes, or Finns in 5G. 5G is infinitely more transformative than earlier generations of mobile technology, in terms of its speed and capacity which enables new technologies running over it such the Internet of Things and the collection of big data that can fuel AI and machine learning.

On top of that, China initiated a series of highly effective hacks into US systems, raising further red flags about China's intentions and capability. The US retaliated with its own hacks into Huawei (see Chapter 7).

Since WW2, the US had led in most key transformative technologies, especially in ICT. Emblematic of this was the now dismembered Motorola (see Chapter 8), which dominated in mobile telecom infrastructure and handsets, much as Huawei has more recently. The 5G issue was a blow to US self-confidence.

I am laying bare this fundamental motivation with the intent of demonstrating that the US actions have some rationale. It is too easy to just dismiss them as the floundering of a fading US empire, as the Chinese or Russians would put it. Despite all their failings and blemishes, highly developed democracies are worth defending. The 2016 US election and the UK's Brexit vote both suffered interference from foreign powers. The risk to the national security of the US, or for that matter the UK or

Germany, posed by relying heavily on China for 5G telephony infrastructure is real and needs to be addressed.

Unfortunately, the actions under Trump dramatically exceeded those national security exigencies. What I have demonstrated above is that while China is innovating in some areas, overall, it will also continue to play catch-up in most other areas. China is still far from being a super-power. We should not confuse China's stated lofty aspirations with what it is likely to achieve.

For some time, the US had been preventing Chinese firms such as Huawei from selling their 5G infrastructure technology in the US. Then in 2019, Huawei was placed by the US on its Entities List, thus banning US sales to Huawei except with certain approvals. In 2020, these measures on Huawei were extended to a ban on sales to Huawei from firms that also work with the US or firms which use US equipment in their production process. These measures were aimed at disabling Huawei's highly profitable consumer business which sells mobile handsets. Not just US suppliers of semiconductors were stopped from supplying Huawei, but so were Chinese, Taiwanese, and Korean chipmakers (Huawei does do some chip design but outsources all of its chipmaking). This was a frontal assault on Huawei, beyond just the 5G infrastructure business. China has so far failed to react significantly to this unprecedented declaration of technology war on China, preferring to wait and see how Biden handles things before unleashing countermeasures such as action against Apple in China.

First, the main impact of these US attempts to disrupt Huawei is to drive Huawei and China to minimize reliance on the global supply chain and to accelerate its progress toward self-sufficiency.

In 2005, the US famously urged China to be a "responsible stakeholder" in the world. In my opinion, China did just that. For example, Huawei worked closely with world bodies to finalize the 5G standards and also participated actively in the global supply chain, working closely with US chipmakers. In light of recent developments, Huawei's reliance on the global supply chain can be seen as a mistake. But to be fair, few would have anticipated that Trump would take actions contrary to the interest of the US semiconductor industry which is so important to the US economy.

The CEO of Ericsson, an arch-rival of Huawei on 5G technology, has tried to reverse the Swedish ban on Huawei and has threatened to pull his firm out of Sweden if the ban stands. This may be seen as self-interested, in that Ericsson wants to continue to sell in China and feels pressure from the Chinese to help them out. But there is more to this. The Ericsson CEO not only stressed the need for open markets and competition, but also gave Huawei much credit commending them on how they have cooperated with the world community on setting 5G standards.

Second, the US and other technology suppliers, at the behest of their shareholders, will fight to find ways to continue their relationships with China. That might lead to major technology players creating two separate companies: one that works with the US (and allies) and one that supplies China. If executed fully, that implies

separate R&D in both parts, and a dilution of global innovative effort. This would be one element of what some fear is a new “technology cold war,” or a technology wall dividing the world. It is however much more likely that technology firms that comprise a large part of the US stock market will put massive pressure on the new Biden administration to abandon or moderate the sanctions imposed by Trump.

Third, due to the large presence of US technology firms such as Apple in China, the Chinese have leverage in the situation. In 2020, China introduced an “Unreliable Entity List” in retaliation to the US list. Early in 2021, it went further, issuing new rules on “counteracting unjustified extra-territorial application” which allow foreign firms to be prosecuted in Chinese courts for complying with foreign restrictions.²⁴ The threat being made by the Chinese is of great significance. Whether it is acted on will depend on whether the US government sustains its wholesale attack on Chinese firms such as Huawei.

President Biden has smartly stuck to a message of staying tough with China. Playing to his domestic US audience, he explained how well he knows Xi Jinping and stressing that Xi “doesn’t have a democratic small D bone in his back.” In saying this, Biden may have unwittingly flattered Xi, who makes much of his role of protecting China from such dangerous Western ideology.

While standing strong, particularly on Xinjiang and Hong Kong, Biden at the same time has sent ample signals that this toughness will not resemble the Trump doctrine toward China. Biden’s characterization of relations with China as “extreme competition,” “steep competition” is regarded by some as hard line. But, in reality, it is different from Trump’s view of China as principally a “strategic adversary.” Biden says we “need not have a conflict” with China and we are “not looking for confrontation.”²⁵ He focuses on “international rules of the road” and “strong alliances” which is a strong rebuff to Trump’s bilateralism against China. Biden stresses that we must “avoid zero-sum” games, a statement which indicates a rejection of trade war. This is confirmed by Biden’s Secretary of State Blinken who has stated, regarding the tariffs, that “the first question we ask ourselves: Is this in the interests of our people.”²⁶ Meanwhile the tariffs remain in place for the time being.

Blinken has provided a nuanced view of US-China relations, stating:

There’s no doubt that China poses the most significant challenge to us of any other country, but it’s a complicated one. There are adversarial aspects to the relationship, there’s certainly competitive ones, and there’s still some cooperative ones, too. But whether we’re dealing with any of those aspects of the relationship, we have to be able to approach China from a position of strength, not weakness.²⁷

In stark contrast to the Trump doctrine toward China, which essentially was a blanket denunciation of China and a pledge to disable its rise, here Blinken is saying that the US will place different issues in different buckets or silos and, based on an

assessment, determine whether the path forward on each specific issue is adversarial, competitive, or cooperative.

Moreover Blinken does not lay all the blame at China's door arguing that:

. . . in many ways, the challenge posed by China is as much about some of our own self-inflicted weaknesses as it is about China's emerging strength.²⁸

Blinken was hammering home the obvious truth that the best way for the US to compete is to invest in innovation, so as to maintain its technological lead. This is refreshing to hear since, throughout the Trump years, I and others have urged the US to "invest to compete."²⁹ In early 2021, the authoritative and bipartisan National Commission on Artificial Intelligence (AI), appointed by the US government, stressed the importance of competing with China on AI, stating that China "is an AI peer in many areas and an AI leader in some applications." It called for US\$ 40 BN in federally funded AI R&D and concluded that "China possesses the might, talent, and ambition to surpass the United States as the world leader in AI in the next decade."³⁰ This was a powerful message.

Evidence suggests that, while the US will continue to push China on further opening up and making the China market a more level playing field for Chinese and foreign firms alike, something which is entirely reasonable, the crazy drift toward a global technology war and even a technology bifurcation/technology wall may be halted. Meanwhile, US semiconductor firms are actively lobbying to get the new administration to relax the actions taken during the last days of Trump to further cut Huawei off from chips used in cell phones. There is the possibility that Biden will not immediately abandon these sanctions and hold them in place to strengthen his bargaining power with China.

Although the US will continue to deploy some bilateral measures to put pressure on China, the trend is likely to be a gradual reversion to a more conventional tool kit to extract concessions from China which includes putting life back into old alliances (for instance with the EU) and operating multilaterally and collectively through the WTO and other institutions.

We can also look forward to positive moves in US–China relations, along the vein of Blinken's "cooperation." It is too early to say whether the US–China Strategic & Economic Dialogue, launched by Obama and Chinese leader Hu Jintao in 2009 may be revived. So far two areas look most promising for renewed cooperation between the US and China. First, given the US re-entry into the Paris Agreement on climate change, a key focus of US collaboration with China has already been put on climate change and environmental protection, which will likely include related technologies, much of it conducted in the commercial and industrial area. Also, notwithstanding China's rage over demands for transparency with regard to the origins of Covid-19, we may expect that the US's return to the WHO will lead to constructive engagement between the US and China on epidemiology and biosciences more broadly.

Moreover, the National Security Commission on AI argues that “the US can compete against China without ending collaborative AI research and severing all technology commerce” and calls for a “US–China Comprehensive Science and Technology Dialog in emerging technologies (e.g., AI, quantum, biotech).” Hopefully, these recommendations will fall on receptive ears.³¹

Despite my cautious optimism that some cooperation between China and the US will be revived, there has emerged recently a serious trust deficit between the two nations which cannot easily be rectified or reversed. The US has enjoyed unparalleled global power for a very long time. So its national psychology is reeling at China's threat to this dominance. One may hope for a global order that permits multiple centers of power and which can escape the Thucydides trap of an inevitable drift toward war (referring in the Peloponnesian War between Greece and Sparta in the 5th century BC) or avoid the fate that befell Britain and Germany in the run up to the First World War. But reflecting US anxiety over China's rise, Biden has also recently made statements which seem to contradict his sane words rejecting confrontation. He has stated bluntly that we must “ensure that the US, not China, dominates”³² and that “China will not be the wealthiest, most powerful country on my watch.”³³ But my expectation is that, rather than pick fights with China, Biden will turn this situation into a strident and timely call for the US to “invest to compete.”

China's friction with the world, set out above, reveals just how new factors can strike out of the blue, sending out shockwaves which have a significant impact on China's economy and on the policies of its leaders. A raft of further factors that could disrupt the *China paradox* or for that matter sustain it, are discussed in the next chapter.

Chapter 11

What Could Disrupt or Sustain the China Paradox?

China's current problem is that the government-dominated economic structure has led to the collusion of public power and capital.

– Chinese economist, addressing a conference at the New York Stock Exchange, 2013.

The China paradox has emerged as a complex, fragile, yet highly effective equilibrium between forces that on the face of it might seem inimical, but in this specific historical context have proven to share common ground. China's pragmatic CCP rulers energetically embraced foreign business ideas resulting in China's extraordinary revitalization without abandoning its fundamental *modus operandi*. The reforms have been critical to shoring up the autocratic political order.

The China paradox has been a highly successful construct that has served China well and confounded many naysayers. But it is also unsettling to observe just how shaky this edifice is. As we examine the factors underlying *the China paradox*, we shall throw light on how sustainable it is. Do the growing social, political, and economic fissures opening up in China imply that the Chinese model of recent decades will unravel unless fuller and broader reform is on the agenda?

Peace, Stability and the CCP

It is obvious that social order, peace (the absence of disruptive internal conflict or external wars), and stability¹ are fundamental to China's rise. While the conventional wisdom in developed Western countries is that the economy holds sway over politics, in China the opposite is the case. Politics weigh heavily as a factor determining the economic outcome. The CCP's role at the heart of China's governance is without doubt the most fundamental and troubling question facing China. In the language of scenario planning, it stands out as the "critical uncertainty." The CCP was founded in 1921. What is its state of health as it celebrates its hundredth birthday in 2021?

The CCP Has Survived and Adapted

While 1949 did bring national unity to China, it can hardly be said that, during the 27 years before the economic reforms began, the CCP presided over a peaceful China. Externally China was sucked into the Korean War. Domestically the CCP force-marched the population down a political and economic dead end, was responsible for a huge man-made famine, and brutally attacked the nation's intellectuals. After Mao launched the Cultural Revolution, which came close to civil war, a Western academic wrote that

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the CCP Congress held in 1969 “pronounced the last rites for the national organization that had brought the revolutionary movement to victory in 1949 . . . ”² As it turned out, the CCP was rebuilt and regained its position of authority. The CCP “teetered on the verge of self-destruction numerous times,”³ but survived repeated errors and crimes.

In assessing social order in contemporary China, it is common to seek analogies from history, to compare the PRC with past imperial dynasties and regimes. Was the Maoist period a short dynasty that laid the foundations for a longer flourishing, as the Qin dynasty did for the Han dynasty and as the Sui did for the Tang? Alternatively, is the current reforming regime more like a brief dynastic revival before the ultimate demise of the dynasty, or will it see a fate similar to that of the Nationalist government (1911–49) which, having reunified the nation, then collapsed under the weight of cronyism and corruption?⁴

In the post-Mao era, the CCP “has so far proved to be a sinuous, cynical and adaptive beast in the face of multiple challenges,”⁵ shedding dogma and embracing change, while sustaining its hold on power. Having led the complex and risky reform process, the CCP is justifiably credited with this success by a grateful population. The CCP’s credibility no longer lies in ideological leadership or its revolutionary achievements (though it still harkens back to these), but in its role of delivering economic growth year-in and year-out. The CCP openly discusses the risk to social stability (code for its hold on power) were the rate of economic growth to decline too far. While it may seem ironic that the People’s Government fears its own people, we should also add that this anxiety is shared widely in society. As one senior Chinese business figure put it to me recently, “the Chinese themselves fear the Chinese people.” Given the history of destructive social upheavals in China, the CCP is regarded by many as the only institution that can keep the lid on the Chinese pressure cooker.

For nearly two decades, Harvard Kennedy School’s Ash Center has put out an annual survey of how satisfied Chinese citizens are with their government, and by inference the Party. What is striking is that each year the satisfaction level has “increased virtually across the board” thus reinforcing “narratives of CCP resilience.”⁶ It is still an immensely useful data point which puts to bed the notion that in the short term the ordinary Chinese people are ready to rise up against the party-state. That said, this sound evidence should be viewed alongside a rising level of dissent and negative chatter among the Chinese political and economic elite under Xi Jinping’s rule. In modern times, China’s elite have played a key and disproportionate role in driving change. China’s rulers are perfectly aware of that and are day and night active in trying to erase or root out such opinion, in a whack-a-mole style.

Effective though the CCP has proven to be during the reforms so far, the question is whether it will be able to take China to the next level, to permit it to ascend the developmental ladder toward the “knowledge economy.”

In contrast to the red terror that lay at the heart of Mao’s system, the post-reform system also relies heavily on “seduction,” the co-opting of the population

through economic progress, but still backed up by a more sparing use of terror.⁷ The past four decades have, by the standards of modern Chinese history, been largely peaceful, thus creating the conditions for economic take-off.

That said, terror is still used against courageous individuals who have the temerity to speak out. To name just a few, there was Wei Jingsheng (1978, activist who called for the “Fifth Modernization” – democracy), Wang Dan (1989, a leader of the democracy movement before the Tiananmen Square Massacre), Liu Xiaobo (1990, writer and human rights activist, Nobel Peace Prize Laureate, died in prison), Gao Yaojie (who in 2001 blew the whistle on HIV-contaminated blood in Henan), Jiang Yanyong (2003, the medical doctor who exposed the extent of SARS cases in Beijing), Ai Weiwei (2008, the artist who highlighted substandard schools that collapsed during the Wenchuan earthquake), Dr. Li Wenliang (who blew the whistle on Covid-19 in Wuhan for which he was initially censored and punished and then posthumously celebrated), Zhang Zhan (journalist who reported on Covid-19, four years in prison).

The Tiananmen Square Massacre underscored the priority the CCP places on its survival. But although at that time some predicted the breakup of China into regional entities, the nation and the CCP passed a severe stress test.

Most of what I and so many others thought was true and inevitable at that time turned out to be wrong. There was no civil war, no fracturing of the country, and no return to Maoism.⁸

China is working hard to be the world champion in social control. A key feature of Xi's rule since 2013 has been the roll out of the China Social Credit System. This is a nationwide technology platform through which courts, police, banks, and many other institutions can contribute data on individuals, who then accumulate a negative or positive points score depending on their social behavior. It functions a bit like Western credit scores used for financing, but it is much broader with far reaching implications for the citizen. The heart of the system is the ability to identify and act against those showing any signs of a bad “political attitude,” that is those who pose a threat to the CCP monopoly on power. But the data can also relate to even small matters such as jaywalking or having a barking dog.

Ever since the CCP took power in 1949, files have been kept at local police stations tracking the behavior of each citizen or resident. As was the case in East Germany, the individual does not have access to his or her file. Chinese know that those contributing to their file include colleagues, neighbors, friends, and close relatives. They are truly concerned when you explain how, once East Germany collapsed, the files became public to those who were the subject of the file or those who had a valid historical need to know.

China's Social Credit System goes far beyond the paper files kept at police stations. It is a national electronic network which the party-state can use to observe and control all citizens. There are consequences for having a poor social credit

score. Since it was established, millions of citizens with a poor score have been banned from using Chinese air travel or high-speed rail.

How Well Is the CCP Functioning Today?

There are many conflicting views on this. The CCP exhibits two apparently contradictory characteristics. At times it looks flat-footed, incompetent, systemically corrupt, out of touch with the needs of the age, and increasingly irrelevant. The other side is that the CCP is still able to lead strongly when absolutely needed. While it has exhibited a degree of atrophy or ossification such as was seen in the Soviet Union, it has also battled that through a powerful adaptability since Deng launched the reforms that helped strengthen its survivability.⁹

Though riddled with problems, the CCP is not weak or effete. It remains an effective organization and does not yet resemble the tired, isolated, and discredited regime it overthrew in 1949. Today, it has 95 million members, plus the Communist Youth League which serves as a funnel for new CCP recruits.

In the early years of the PRC, the CCP ruled with an iron fist and could implement policy swiftly at every level of society. No village, factory, school, family, or individual was untouched. Everybody was required to be an “activist” in support of CCP policy or face punishment. It had the power to determine every facet of people’s lives. Today, the CCP is willing to leave the people to run their own lives and pursue wealth, just as long they are not engaged in public opposition.

Administratively, the reforms brought a massive decentralization of power down to the major cities, and the CCP at the center finds it hard to prevent problems from arising. Even if it does see a problem, it has to weigh whether it merits the full use of its authority to override or coerce local authorities who have stepped out of line. The center has to use its limited political capital very sparingly. On top of this, the loyalties of the CCP at the local level are often closely aligned with local interests. Information does not get transmitted up through the CCP structure to the center, leaving the CCP leaders blindsided.

The CCP’s ability to anticipate or prevent problems has been hugely diminished. Due to weak control and pervasive corruption, man-made disasters – such as the huge explosion at a warehouse in Tianjin or the landslide in Shenzhen – occur with painful regularity. But when such events do occur, it has the muscle and determination to fix things and reassure the population, to dig itself out and salvage its credibility. When a massive problem does arise, the CCP is forced to pull its levers of power and make sure they work.

This is vividly illustrated by the CCP’s reaction to natural disasters. During the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2002–03, the CCP initially chose to lie to the people about the outbreak’s scale until a courageous physician served as a whistle-blower. This undermined confidence in the CCP’s ability to

handle a crisis. But once the CCP changed its stance, fired the Minister of Public Health, and began an inquest into what had transpired, valuable reforms were implemented in the monitoring of infectious diseases. All local governments had to establish Medical Information Centers, which were linked by the internet to the central government. That was a needed innovation that has proven valuable in permitting a speedier response to disease outbreaks and has greatly reduced the ability of local government to hide the facts.

But despite massive investment in technology to link central and local authorities on public health issues, the CCP continues to show a pattern of a weak initial response to crises. In January 2020, when the Covid-19 virus first emerged in China's Wuhan, a city of 11 million people located in the interior province of Hubei, the Chinese authorities initially played down the outbreak and quickly disinfected the evidence at the seafood market which was linked to the disease. As mentioned above, a whistleblower doctor was intimidated. After a critical delay, which likely cost many lives worldwide, the Chinese party machine went into high gear to control the disease. Sophisticated electronic techniques, using citizens' mobile phones were employed to track and quarantine cases or contacts. Traditional methods were also adopted, such as party activists in Street or Neighborhood Committees intervening with people on the street or in their homes.

Initially, after the massive Sichuan earthquake in 2008, the lack of helicopters hampered an effective rescue of survivors in the remote affected areas. Moreover, many schoolchildren had perished when poorly constructed schools collapsed while neighboring buildings were left standing. But through its role in the subsequent rescue and recovery operations, the CCP was able to claw back its reputation. Working on establishing remote-healthcare networks in Sichuan as part of the reconstruction, I saw close up how effective and well led the CCP can be. Temporary housing sprung up almost overnight. Each of China's provinces was allocated a Sichuan town or county to support during the recovery. Huge convoys of military vehicles brought in troops and materiel to support the efforts. This war-scale mobilization was stunning and impressive. Less impressive, of course, was the CCP's frantic but successful efforts to silence parents of dead schoolchildren who were calling for an investigation into why the schools had collapsed.

This all shows two contrasting sides of the Chinese political and social order. First, there is the Party's pathological hesitancy to share bad news with the people, until there is a sign that things are under control. This issue is seen not just in public health, but also in the way news about serial rapists is suppressed until the rapist is apprehended. Second, it demonstrates how effective China's autocracy can be at imposing a common purpose on the people when it is called for.

Following the economic reforms, China's looser governance, with much of the power residing at the local level, has meant that the CCP will continue to be set back on its heels and forced to be reactive. When things fall apart, it is forced to reflect hard before using its residual power. But when it does scramble to intervene,

the CCP does certainly deliver and, in that respect, cannot be regarded as a broken institution close to collapse.

Still this pattern of late intervention is a symptom of the CCP's less than complete control and inevitably casts doubt over the CCP's longer-term relevance and survivability. Not surprisingly, the CCP is riddled with anxiety over its future and acutely mindful of how history has unkindly treated other ruling communist parties once they have lost their legitimacy.

The CCP Is Embedded in Businesses

Despite its softer touch compared to under Mao, the CCP remains inserted into the fabric of Chinese society, whether through the ubiquitous street committees, which keep watch on citizens, or in universities and businesses. Faithful to its Leninist roots, the CCP presence is a political insurance policy, a cell to be activated in a crisis. The CCP aims to “have an activist and advocate inside every significant institution in the whole country,” so that it can intervene in the event of a crisis.¹⁰

The CCP has some kind of presence within all businesses of any scale, whether an SOE, a POE or a Foreign Invested Enterprise (FIE). The most formal and controlling presence is to be found in the large SOEs. The CEO is appointed by a CCP group at the central level. The Secretary of the firm's CCP Committee sits on the board and outranks the CEO. In large SOEs there is also a permanent representative (with his or her own office in the firm) of the CCP Disciplinary Commission who is supposed to deter or catch any bad practices in the firm, but is usually too close to the firm to play a useful role.

The clout of the CCP secretary in a SOE, in practice, depends very much on the guidance and signals emanating from the CCP's top leaders. At the height of the reforms under Zhu Rongji, the priority that CCP leaders set was for bold restructuring with a focus on profitability and shareholder value, as China listed its large firms on the stock market and prepared for the foreign competition that would enter the market after accession to the WTO. I witnessed how a feisty and charismatic CEO pushed through a radical agenda that included drastically slashing the workforce, winning the argument against the firm's CCP Committee, which preferred a much more gradual, less painful but less effective restructuring process.

In large SOEs, the CCP Committee plays a key role in shaping the corporate culture. It uses notice boards on each floor to share information on the firm's CCP elections and member awards, CCP campaigns, and its leaders and congresses. It determines what political “study materials” members should focus on. I have seen business activities halted for several days to permit political meetings to drive home CCP policy. It also organizes the firm's social activities and celebrations.

There is a CCP Committee in most large Chinese POEs, but in the absence of state ownership, it throws its weight around less intrusively than it does in SOEs,

preferring to permit more operational autonomy while insisting on being able to “guide” the POE on big issues, that is have the final say, that have a strategic or national security impact on China. Huawei is the perfect example of this *modus operandi*. It is common for the founder or CEO of the private firm to also be its Party Secretary. In stark contrast to SOE governance, CCP meetings at the firm are typically not permitted to interfere with business activities.

When it comes to foreign-invested enterprises (FIEs), there is normally just an unpublicized CCP cell in the firm, not a formal CCP Committee. All FIEs are required to have a trade union, not a free union but one controlled by the CCP. In a Sino-foreign JV, the human resources director is typically selected from the Chinese side of the JV and runs the trade union and, by implication, the CCP cell. In a 100% foreign-owned enterprise there is also a trade union, likewise controlled by the firm’s undercover CCP cell. Although the role of the CCP in FIEs and their trade unions is generally benign, I have witnessed local authorities mobilize the FIE’s trade union to shut down production as a negotiating ploy during heated negotiations with the foreign side. Also, the presence of the CCP in FIEs is taken into consideration when the foreign owner weighs the risks of transferring sensitive proprietary technology into the venture.

In late 2020, the Western press was full of the “bombshell” news that the names, jobs, even phone numbers of 1.95 million members of the CCP active overseas and working in foreign firms such as banks and defense contractors and at foreign consulates had been leaked. US firms were “riddled” with CCP members.

As discussed above, foreign firms in China have long had openly operating trade unions. In contrast to Chinese firms, their Party cell or full committee exists under the radar and not in public. But many Chinese working for foreign firms have chosen to join the CCP since it serves as a path to business and official government jobs. Many join the CCP out of a patriotic desire to serve society. While most Chinese don’t talk about their Party membership during your first meeting with them, it is certainly not a secret. In China, resumes in the Chinese language typically have an item on “Political Status” (*zhengzhi mianmao*) to tell you whether the candidate is a CCP or Youth League member (English versions do not have such content).

China’s Fault Lines, Tensions, and Crimes Against Humanity

There are abundant threats to stability that need to be built into a risk assessment of China. Wealth inequality is massive and the gap continues to grow. Each year there are tens of thousands of officially recorded civil disturbances, many of them related to land-use rights.

Christianity continues to grow rapidly, with over 50 million Protestants, Catholics, and evangelical sects, some of them defiantly worshipping in churches or home gatherings outside the main government-controlled religious institutions.

Tensions between the CCP and a number of Chinese ethnic groups are either tense or at breaking point. The situation is most serious in China's Xinjiang Uyghur Autonomous Region (XUAR), home to 11 million Uyghurs, Moslems of Turkic origin, as well as other non-Han Chinese such as Kazakhs and Kyrgyz. Violent uprisings and terrorist attacks by the Uyghurs, mostly internally initiated but also encouraged by some exiles, in response to the growing Han-Chinese ethnic dilution of their region, led to a brutal Chinese clampdown including mass incarceration in "re-education" camps.

In highly unstable Kashgar in Xinjiang's far west, close to Pakistan, the repression is especially harsh. Trucks of Chinese troops patrol the city with weapons pointed directly at the residents. Such is the tension that even on the famed Karakoram Highway, among the glacier-covered Pamir mountains many hours drive outside Kashgar, Chinese soldiers in roadside stations sternly instruct visitors not to talk to or visit the Kyrgyz villagers who live at high altitude herding sheep around their encampments of yurts.¹¹

Western newspapers are full of first-hand reports, such as a Uyghur woman's harrowing account of being forcibly sterilized in a Xinjiang re-education camp.¹²

I should add that the Chinese government is quick to vehemently denounce such statements as nothing more than lies concocted by Uyghur "terrorists" living overseas who wish to overthrow Chinese rule in Xinjiang and establish an independent East Turkestan there. The Chinese government likens its struggle against this insurgency to the efforts of the West to combat Al-Qaeda and ISIS.

In any case, there is abundant other evidence we have of the re-education camps for Uyghurs which leaves little doubt that crimes against humanity are being committed in Xinjiang.¹³ The well-respected Human Rights Watch has said that the repression in Xinjiang amounts to crimes against humanity and that "the Chinese leadership is responsible for widespread and systematic policies of mass detention, torture, and cultural persecution, among other offenses."¹⁴

Elsewhere in China, the Hui people, Muslims who to an extent have been integrated into the broader population, has also uncharacteristically taken violently to the streets of northern Chinese cities to protest discrimination by the Han majority.

China is also highly repressive in the Tibetan Autonomous Region (TAR) but due to the relatively small number of the TAR's ethnic Tibetans dispersed over such a massive territory, coupled with China's overwhelming military presence, it is much more under control than is Xinjiang. The control is exercised in a multitude of ways. In the TAR, each monastery has a police station. But even so, monks still appear out of the blue in front of visitors clutching a photo of the exiled Dalai Lama, making it clear they will not lie down and accept the Chinese repression. While Tibet is well locked-down, other areas of China such as Sichuan Province's remote Aba (Tibetan: Ngawa) County with a large Tibetan ethnic population sees repeated protests including self-immolations by Tibetan monks.

The former British territory of Hong Kong was returned to China in 1997 under an arrangement termed “one country, two systems” whereby for 50 years Hong Kong would enjoy a “high degree” of autonomy from Mainland China, permitting the existing social system and rule of law to be retained. China also made a commitment to give Hong Kong fully democratic political rule. This transition to a full one man one vote democracy did not materialize. On the contrary, things moved toward a fuller integration of Hong Kong with the Mainland, including illegal kidnapping of dissidents and removal to the Mainland. All this has led recently to long periods of riots and social disturbance. The Hong Kong government first used a British colonial law from 1922 to clamp down. Then in June 2020, the Chinese introduced a new Hong Kong National Security Law which has been used to arrest numerous dissidents, some of whom have already been convicted and jailed. The pace and savagery of the Hong Kong clamp down is surprising. But the writing had been on the wall for a long time. Hong Kong would be able to enjoy its business freedom. But civil society was to be reined in and deprived of basic liberties.

The one country-two systems (1C2S) was implemented in Hong Kong, not just to keep people docile after the handover to China, but also to send a message to Taiwan that such a path was open to them as well. This proposal to Taiwan was always rather hollow. Hong Kong is linked to the Mainland and dependent on it for water and food. Taiwan is not like that. Moreover the courage of Hong Kongers and the brutal response by the Chinese authorities, leaves little doubt that the 1C2S proposal to Taiwan is insincere, empty, and, for Taiwan, extremely perilous.

China’s burgeoning new middle class is increasingly militant about environmental threats to their families. It is also anxious to defend its newfound wealth. Anger over China’s stock market performance has spilled over into blaming the government. Were the people’s savings to be lost through widespread Ponzi schemes (one already has been brought to light) or a real estate market collapse, things could get out of hand. The new middle class might turn on the CCP, which it has supported until now.

From China’s internal point of view, the ethnic tensions and the resistance from Hong Kong are extremely threatening. But tough and severe action by the Chinese government to keep the lid on all this is likely to be successful in the short term. Even with the draconian measures being imposed on Hong Kong, it is likely that it will continue to be a vibrant financial center. But the real risk with all these tensions domestically is that foreign governments, as they have started to do, will impose political, trade, and investment sanctions on China as a way to put pressure on China to stop the repression. Although this kind of “ethical foreign policy” was effective against apartheid South Africa, in recent decades it has proven to be largely ineffective. At the end of the day, global economic relations and real politik tend to outrank the drive to halt or censure human rights breaches. Nonetheless, that should certainly not prevent us from trying, since silence implies complicity.

On top of the domestic tensions, we should add the risk of regional conflicts (for example, with Taiwan, Korea, Japan, and the Philippines) that might arise whether by design or sparked by an unintended event, thereby derailing economic growth and heightening the risk of domestic strife. Were regional tensions to reach a boiling point, it is easy to envisage container ships stopping their services to Chinese ports, cutting off access between China and its global markets.

In the previous chapter, we detailed the friction between China and the rest of the world over issues of technology and national security and more broadly how to respond to China's rise. This unanticipated confrontation has disrupted the world order of globalization and has forced the Chinese government to mitigate these new risks through an increased focus on its domestic economy.

The CCP and China's Future

The future role of the CCP is a thorny and highly sensitive issue. China's leaders today are well-versed in the conventional Marxist theory that the "economic base" plays the decisive role in determining the social system and that if the social-political "superstructure" gets out of kilter with or becomes unresponsive to economic change, then it has to transform itself or face social friction and worse. But the CCP seems willing to challenge this Marxist concept, preferring to cling onto the Leninist fundamental of not yielding on the fundamental of Party rule.

Is China's unreformed, rigid one-party system – the type conceived of by Lenin and Stalin – appropriate for the China of tomorrow? Is it a living fossil that has outlived its usefulness? Will its proven tenacity and adaptability ultimately be outweighed by its own limitations and by the constraints it imposes on China's progress?

There are two fundamental and linked aspects that do not bode well for the CCP's future role: the tightening of its autocratic rule and the implications that may have for China's bid to move up the global economic ladder.

It is unsurprising that the CCP has absolutely no intention of giving up or diluting its monopoly on political power. Having shaped itself and China through violence and brutality over the last 100 years, the CCP is mindful of blood debts that have yet to be settled and of citizens (albeit a tiny minority) who can never forgive or forget. The CCP knows that, having ruled by the sword, it would likely die by the sword. The example of Gorbachev and the fate of the Soviet Union and its satellite countries remain seared into the brains of the CCP leadership, Xi Jinping included, who stated in 2012;

Why did the Soviet Communist party collapse? . . . An important reason was that their ideals and beliefs had been shaken . . . It's a profound lesson for us . . . nobody [in the Soviet Union] was man enough to stand up and resist.¹⁵

In that speech, Xi insisted on two things: first, that China should not deviate from ideological orthodoxy, and second, that the CCP, not the State, should remain in control of the army. It is said that Xi is tormented by two traumas. In the Cultural Revolution, Xi's father, who had risen to Vice Premier, was imprisoned and Xi himself was "sent down to the countryside." The other trauma was the fall of the Soviet Union. Based on Xi's political trajectory over the last decade, it is fair to say that his concern over political excesses such as occurred under Mao, are greatly overshadowed by his fear that his own precarious rule, constructed on harsh control of society, might harbor the seeds of its own destruction.

The CCP is haunted by the specter of the final brutal moments of Romania's dictator Ceausescu and his wife. It stands resolute against anything that might undermine one-party rule. Though it may have become savvy in communicating its message, in hiring public relations firms and dressing its leaders in smart suits, the iron fist is always there, ready to be used as needed.

But while during the early decades of the reforms there was a distinct political relaxation, we are now seeing a steady tightening of the CCP's authoritarian grip. On the economic front, the mood in SOEs has changed dramatically. Take the case of a mild-mannered CEO of a major SOE, whom I have known and appreciated for many years, who was forced to resign for his handling of a merger. A CCP official responsible for investigating CCP "discipline" denounced him, stating:

the [merger] plan doesn't have a single word about how to strengthen the leadership of the party committees and party organizations. Not a single word. What kind of reform is this?¹⁶

On the political front, a cold wind is blowing. Under Xi Jinping, power is concentrated in one man's hands to a greater extent than at any time since Mao. A personality cult around Xi has been constructed. Journalists are required to swear total obedience to the CCP. Newspaper headlines cry out, "Love the Party, protect the Party." Although Xi may only be "using Mao's methods to walk Deng's path,"¹⁷ the call for total loyalty and tighter controls on the freedom of expression go far beyond the strict limits set by previous leaders. The new hyper-autocratic tone has attracted opposition from influential individuals who hitherto have worked within the system.¹⁸

Indicating its deep anxiety (not paranoia, since it may be fully justified), the CCP issued an internal CCP document listing "Seven topics not to be discussed" (*qibujiang*) since they "challenge" or "undermine" the CCP. The forbidden topics include "Western constitutional democracy" and anything that "negates the historical inevitability of China choosing the socialist path, and argues that the wrong path was mistakenly taken."^{19,20} Uncompromising words from a hardline party.

The CCP faces the challenge of having a weak ideological underpinning and legitimacy. Given the vacuum created by its fading Marxist-Leninist credentials in the wake of Deng's ultra-pragmatism, Xi has gone further than other recent leaders in promoting the value of ancient Chinese philosophy – not just Confucianism but also Legalism. Confucianism stresses the innate virtue of humans while Legalism holds

that only draconian laws can ensure stability. Although the two schools may appear incompatible, the Confucianism that emerged during the Han Dynasty (206 B.C. – 220 A.D.) incorporated plenty of Legalist principles, creating a hybrid statecraft that looked gentlemanly on the surface but was hard and cruel on the inside. Today, this is echoed in one of the CCP's guiding principles: “externally relaxed, internally tense.”

Xi has put energy into tackling the issue of corruption. In a “measured and calculating” manner²¹ he has taken on independent power bases in the security services, the army, and in key sectors of the economy. In so doing, he has not only consolidated his own personal power but also reasserted the absolute authority of a Leninist party, which had been undermined by factionalism during the previous Hu administration.²²

The anticorruption campaign was welcomed by many, especially by the man-in-the-street. Moreover, since corruption is the life blood of the vested interests, it can be argued that taking on corruption is a prerequisite for any potential deepening of SOE reform.

But as Xi pledges to sustain the campaign long term, he runs the risk of undermining the CCP's own credibility as more court trials of its leaders take place. It is apparent that the CCP has not resolved the vexing question of how to smoothly handle political succession. Xi has talked about dealing with “political plot activities” that sought “to wreck and split the party,” language that comes close to describing a potential coup d'état.²³ The concentration of power in his hands heightens the risk that he will be made the fall guy.

One consequence of the CCP's autocratic rule is a stifling intellectual environment resulting from what is popularly called the “Policy to keep the People ignorant” (*yumin zhengce*), which is directly in conflict with China's goal of entering the “knowledge economy.”

China has spent the past 150 or so years finding ways to selectively import certain aspects of Western society while at the same time steadfastly avoiding social contamination by Western liberal ideas. We saw how in the late 19th century the Self Strengthening Movement failed to protect the Qing Dynasty from collapse. Since the economic reforms began, the CCP also has led China down a similar path. On the one hand, it has opened the door to foreign investment but, on the other hand, it has railed against “spiritual pollution.” This time around, China's absorption of things foreign has certainly been much deeper than earlier attempts. But the pragmatic spirit that imbued the CCP during Deng's rule is now being drowned out by a more ideologically driven CCP. The CCP looks more and more out of tune with the needs of a modern economy.

Chinese business leaders plainly see how the autocracy stymies innovation. As a SOE board director put it to me:

Innovation is about challenging things, it is like rebelling. If you don't have democracy then you won't dare to rebel. If an official has a good idea, then his first consideration is will I get

into trouble with the party's Disciplinary Commission, will I be put under house arrest. Therefore, people keep silent.²⁴

A senior Chinese banker explained to me the need to complement economic progress with political reform:

I accept that the last 30 years' development has been made possible by dictatorship. But in the future the economy needs political reform – openness, accountability, an independent judiciary, open networks. Institutional reform is the key but it will bring many challenges.²⁵

There is a deadening effect due to increasing government monitoring and restriction of the internet. The government installed the so-called Great Fire Wall of China (GFWC), which filters and blocks internet traffic with the rest of the world. Websites are closed down almost as quickly as they are put up. Crude and arbitrary trawling of topics to be stopped catch general traffic and slows the internet. More and more Chinese are forced to use virtual private networks (VPNs) to circumvent the GFWC. In its cat and mouse game with internet users, the Chinese government has declared VPNs illegal. At certain times, the internet is simply taken down. This happened for six months in 2009 in Xinjiang against the background of attacks by Uighur separatists, forcing businessmen who relied on the web for their commerce to travel to neighboring Gansu province to conduct their transactions. In order to stifle any conceivable threat to its power, the CCP restricts intellectual discourse and basic telecommunications, even at the cost of hampering economic growth. If, as is likely, social tensions grow, the prospect is that the restrictions will be increased, further undermining China's participation in the world's knowledge economy.

We also see a radical tightening of controls on foreign technology. Responsibility for regulating government procurement is being moved from the government to entities under the CCP. Technology procurement has become an ideological issue, not just a commercial or scientific one. It is ideological in the sense it has to do with national cybersecurity. Foreign high-tech products are seen as a threat.

The CCP is perfectly happy to accept some medium-term negative impact on the economy as a cost of supporting the paramount goals of national security. Foreign firms find it hard to comply with the new rules on technology procurement, leaving Chinese banks scrambling to find local technology suppliers that can meet their mission-critical standards, even though purchasing from them may well increase their security vulnerability. Chinese banks also estimate that this may reduce their efficiency in handling bank transactions by 20% to 30%. Once again, political power takes priority over economics.

With the long-term campaign against corruption has come a wave of fear among SOE leaders and government officials that is debilitating for the economy, freezing decision-making and deterring risk-taking and innovation.

As the post-Mao reforms took shape, the CCP exhibited a deep pragmatism, dynamism, and willingness to learn, thus creating the conditions in which *the*

China paradox could emerge and unleash China's economic growth. However, while showing extraordinary adaptability, the CCP not only proved unwilling to entertain changes but most recently under Xi Jinping has re-asserted and strengthened its role across society at all levels. Now that Chinese society (or at least a significant part of it) has achieved relative wealth and predictably pushes for more transparency and accountability from government, the CCP looks increasingly out of step with a modern economy. The CCP's overconfidence, growing assertiveness, and deepening social repression puts the delicate balance between CCP power and the forces of economic and social change at serious risk.

After 100 years, 70 years of that governing, the CCP is acutely aware of the need to stay relevant and to be seen as capable of carrying China forward. In his July 1, 2021 speech on the CCP's centenary, Xi Jinping's speech not only asserted the "fact that Marxism works," that is, China has succeeded where all others have failed, but also put a strong focus on the CCP's ongoing rule, with references to "looking ahead" and "towards the second centenary." He stressed that the CCP is "vital and vibrant," "still in its prime" and will "continue to succeed in the future."²⁶ The CCP projects an image of itself brimming with confidence and self-belief.

The CCP will still have the flexibility, adaptability, and experience to sustain its present *modus operandi* in the medium term, over the next couple of decades. But that is very different from saying the CCP will be able to lead China to the next level of development.

Despite its key role as architect of the reforms, the CCP may represent as much a liability as an asset for China in the longer term. The CCP's deft navigation of uncharted waters up to now should not blind us to the risks it faces. What makes it difficult for those running the CCP is that they are boxed in, since both options – reforming the CCP role or maintaining the status quo – present serious dangers to its rule.

The collapse of the CCP, let alone the Chinese nation-state, does not seem on the horizon. But at the same time the direction that the CCP is taking makes it hard to share the optimism of a prominent Chinese professor who foresees a China that, while still a one-party state, "will be more pluralistic and diversified politically, and will strengthen its legal system and find ways to protect human rights."²⁷

It will take a yet-to-be-discovered extraordinary leader or group of leaders in the CCP to let their grip on power relax even slightly. As the CCP continues to ride the Chinese tiger, it surely feels there is no convenient or safe time to dismount from the beast.

In maintaining the status quo and continuing to tighten its grip, the CCP runs the risk of not only undermining its credibility and social relevance, but also of stifling China's creative side. The danger is that it may feel that the economic reforms have run their course and imagine that what we have now created is a sustainable model. Having saved itself from near-death after the failure of the Mao years, is the CCP somehow prematurely declaring victory?

As China seeks to move up the developmental ladder and join the global knowledge economy, success will necessarily require further opening up, both economically and politically, not less. The current trajectory of the CCP is neither bold, nor wise. Its recent hunkering down is dangerous and short-sighted. The political dimension in China is the most critical risk factor and looking out to the medium term the prognosis is gloomy.

Will Xi Serve Beyond His Second Term?

The 19th Congress of the CCP, held in October 2017, was a key watershed in Xi Jinping's rule. In his first term, starting in 2012, Xi had originally presented himself as a reformer much in the mold of Hu, Jiang, and Deng before him. But, as discussed above, it soon became clear that, rather than continuity, what he presented was more of a break with the past. After the rampant and disastrous factionalism of the Mao years, China had established a more stable, collective leadership. But under Xi this trend was reversed. Power and authority have been increasingly concentrated at the central level and in the hands of Xi.

Xi created and chairs new high-level CCP Leading Groups not just on security but also on the economy. Li Keqiang, who as State Premier is traditionally in charge of the economy, has to some extent been sidelined by Xi. In 2016, Xi was named as the Party "core" putting him strongly in the number one position. He allowed himself to be referred to as Xi Dada (Uncle Xi) as a term of endearment.

At the same time, the Chinese public used social media to mock Xi as Winnie The Pooh, directed at his rotundity and smiling pomposity. The Chinese authorities have labored tirelessly to take down or censor the Pooh content. Real estate developer Ren Zhiqiang who has long been a vocal critic of the Party, went after Xi Jinping for his handling of Covid-19, calling him a "clown stripped naked who insisted on continuing being emperor." He was arrested and is now serving 18 years in prison. Former professor at the CCP's Central Party School, Cai Xia has fled China. She was stripped of her party membership after she called Xi a "mafia boss" and the CCP a "political zombie."

The 19th Congress in 2017 took the elevation of Xi to a new level. Xi's keynote speech lasted three and a half hours, leaving some of the oldest delegates dozing off. The Party Constitution was revised to include "Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era." The change from Deng's original formulation was the addition of "for a New Era." To many within China this implied a break with the past – a new, tougher, more authoritarian and less laissez-faire vision of the Chinese hybrid model. Earlier he has been referred to as "Leader" (*lingxiu*), but by 2019 he was called the "People's Leader," mirroring the term used for Mao. China's Party newspapers and roadside posters stress the need to "Hold High the Great Red Flag" of Xi's Thought. Party members and university students are

expected to study Xi Thought. Xi's speeches and writings have been brought together into three volumes on *The Governance of China* with eye-catching sections ranging from "governing the Party with strict discipline" to "cultural confidence." There is nothing on which Xi does not have a view. The veneration of Xi harks back to Mao and further back to China's emperors, whose every word was taken down as worthy of emulation.

China's State Parliament, the National People's Congress (NPC), rubber stamps the Party's policies. It sits every five years in March, following the Party congress the previous October. In March 2018, the NPC added Xi Jinping Thought to the State Constitution. In another revision to the Constitution, it removed the limit of two terms for the State Chairman (*zhuxi*) (also translated as President), a position held simultaneously by the Party's top leader, General Secretary, that is Xi today. This opens up the prospect that Xi could serve a third term as Party and State leader. There is a rule in the CCP that top leaders retire at 68 years old, and Xi will be 68 at the 20th CCP Congress in 2022. However, this age limit has been waived in the past (for Jiang Zemin).

One of the great achievements of the period since Deng began the reforms has been the institutionalization of an orderly transfer of power from one top party leader to the next. The serious inner-party factionalism in the CCP which manifested itself in the senior leader Bo Xilai being sent to jail and in Xi's ongoing anti-corruption campaign had already revealed the risks of party splits. It is not yet clear whether Xi will seek a third term or step down in 2022. So far there has been plenty of speculation over a successor but, unlike on previous occasions, nobody has been openly groomed or promoted for that role. Many in China are dismayed at the uncertainty this creates. There are plenty of emerging and talented senior party officials whose rise may be stymied by a third term for Xi. The removal of term limits has greatly heightened the level of political risk in China.

Xi Jinping's Cult of Personality: Ecology and Yucun Village in Zhejiang

As a reward for speaking at an academic conference in Beijing, the Ministry of Culture took me and other delegates on a visit down to Hangzhou, capital of Zhejiang province. There was plenty of tourism and entertainment but also a strong dose of political education which, although happening in 2018 under Xi Jinping, could have easily fit into my experiences during the Cultural Revolution in the early 1970s.

We drove several hours from Hangzhou up into the mountains of Anji County, finally reaching the tiny Yucun Village, nestled in the valley below terraces devoted to growing Chinese white tea. A pamphlet had been printed especially for our visit. In it were listed 27 names from the Chinese side there to greet us: government and Party officials from the central, provincial, county, and local village level.

In Yucun Village we were ushered into the auditorium of the newly built Anji Ecological Museum where the Yucun Communist Party Secretary addressed us on the history and significance of what is really a shrine to the cult of Xi Jinping.

The breakneck development of the first decades of the economic reforms had devastated Yucun Village. Limestone mining and the cement plants that consumed the limestone has poisoned the air and left the tea bushes covered with a thick white dust. Starting in 2003, the quarries and cement plants were closed down. Initially the village's income declined precipitously but as the environment was cleaned-up so the village became a "national 3-A level scenic area." A miniature train was built to take tourists around the picturesque village of wooden houses. Tourist income has surged.

From 2002–2007, Xi Jinping served as Zhejiang Province Party Secretary, the top provincial official, out-ranking the province's Governor. In 2005, Xi visited Yucun Village which was undertaking its clean-up and he made his famous statement "green waters and green mountains are gold mountains and silver mountains." He explained in tortured Marxist terms that although the green waters and green mountains seem "in contradiction," they can be "dialectically integrated." Put into more straightforward language, he meant that China should switch to a more sustainable development path, and that protecting the environment is perfectly compatible with earning a living, in this case from tourism.

This concept had been coined before, but Xi took it as his own. Yucun Village is now described as the birthplace of Xi's "Two Mountains Theory" (*liangshanlun*) a key plank of the Ecological Civilization (*shengtai wenming*) strand of Xi's ideas.

Xi's insistence on moving from the early reform period where "development" and GDP was achieved at any cost, toward a more balanced approach which stressed the quality of growth, is clearly of value and to be welcomed. However, taken in the broader context, my overwhelming take-away from that carefully orchestrated visit to that perfect village is that it was part of massive propaganda machine pumping up the Xi Cult. Way back in my late 20s I had come face-to-face with the realities of China under the CCP and pledged to myself not to be fooled ever again. On this visit to Yucun Village I was acutely aware of the charade going on before me. But up to a point I still played the role given to me, as I sat in the audience listening to the village Party Secretary.

This example of the Xi Cult illustrates just how un-adaptive the CCP remains, how hard it is for the CCP to ditch the legacy of Soviet Potemkin villages or Mao's model village Dazhai (after the reforms began it was revealed that Dazhai, a small mountain village in Shanxi Province, faked its amazing grain production statistics). The issue with this revival of the political cult on a scale not seen since Mao is that after decades of economic reforms and even a slight softening of political control, many Chinese see the cult for what it is. Rather than building blind respect (as Mao did in his time) this revival is widely mocked by China's intellectuals and even by its political class as not fit for the "new era" but instead a further example of Xi's risky hubris. It is risky for Xi and for the Chinese nation in that if Xi's rule falters for whatever reason there will only be Xi to blame.

The Rule of Law or Rule by Law?

The weakness of the rule of law in China is closely related to the CCP and China's flawed governance. Since the end of Mao's rule, China has built and strong legal framework, but it falls down in its ability or willingness to enforce the law.

China uses the Chinese term *yifa zhiguo*, which translates best as the “rule by law,” in contrast to true “rule of law.” To quote the highly respected lawyer Jerry Cohen, the CCP “totally dominates the legal system, including the education, training, and day-to-day operation of its personnel and institutions. ‘Judicial independence’ . . . is the enemy and forbidden by party rulers even to be discussed in law schools.”²⁸ He also sees a further deterioration:

The law reform spirit of the earliest years of this century began to die in China during the Hu Jintao era. . . . It came to an end with the ascension of Xi Jinping, despite the greater professionalization of the judiciary. . . . Most new laws produced . . . are designed to expand the party's repressive policies.

Barring changes to the role of the CCP, true rule of law will be a pipe dream in China.

In China, the theft of intellectual property rights (IPR) is all-pervasive. Foreign firms operating in China complain bitterly. It constrains them from deploying their core technology in China. For example, because of the risk of IPR theft, GE refused to transfer to China the production of aircraft engine turbine blades at the front of the engine, which require special coating and hardening to withstand high-speed impacts.

Chinese courts threw out the suit brought by US semiconductor producer AMSC after Chinese turbine maker Sinovel was caught red-handed stealing source code.²⁹ GM filed an unfair competition lawsuit in Shanghai against Chery Auto, claiming that Chery's QQ “shared remarkably identical body structure, exterior design, interior design, and key components” with the Matiz produced by GM's Daewoo in South Korea. GM even had strong evidence that Chery brazenly used the original Daewoo model for crash testing to get its own model approved in China! But an out-of-court settlement was the best GM could get.

Other foreign auto makers have sued Chinese firms in Chinese courts: Toyota (against Geely), Honda (against Shuanghuan, claiming that its local S-RV looked exactly like Honda's CRV), and Nissan (against Great Wall Auto). All these lawsuits were either thrown out by the Chinese courts or settled out of court. These examples demonstrate why China's judiciary has been deemed to be unreliable and certainly not independent.

However, there are signs that China's enforcement of IPR is improving, largely reflecting national self-interest and the need to protect the IPR of emerging Chinese companies. As an economics professor at Peking University put it to me:

China has abundant talent and capital. The bottleneck is IPR protection. . . . IPR protection is vital for start-ups, for trade secrets. This issue has a big impact on China's ability to innovate . . . [As a result] finance is not directed at innovation.³⁰

While foreign firms make the most noise on IPR protection, arguably the bigger story is the harm that such wanton IPR theft has wrought on Chinese firms, serving as a serious disincentive to the pursuit of innovation. This affects large firms, such as technology giant Huawei, which seeks to defend its large portfolio of patents, or a small publisher of trade directories, whose chief editor shared with me his frustration at not being able to use IT to expand his sales because of the risk of IPR theft.

There are also signs that in response to rampant patent infringement, Chinese courts are becoming more receptive to suits, even those lodged by foreign firms. Foreign plaintiffs have been winning more than 80% of their patent-infringement suits against Chinese companies, though it should be added that they “only sue in China if they are confident they can win.”³¹

The Chinese government does deserve some credit for its awareness of the need for a stronger legal underpinning of business transactions and a more even-handed application of laws relating to property and contracts. But China's weak rule of law will continue to hamper innovation and to drive Chinese firms and individuals to hold assets and wealth offshore. Foreign firms will still invest in China due to the market opportunities, but will continue to hold back on deploying some of their most sensitive or valuable technology. This is all to the detriment of China's progress.

Despite the signs of a better legal regime for businesses, that treatment does not extend to society more broadly. Calls for the nation's constitution to be upheld are punished as an attack on CCP rule. Without radical changes to the way the CCP controls China's legal system, it is hard to see how the rule of law can be dramatically improved. Chinese lawyers seeking to defend dissidents and human right protesters are routinely disbarred and imprisoned. Lest there be any doubt about how the laws are applied in China, the nation's Chief Justice and head of the Supreme People's Court Zhou Qiang stated bluntly:

We should resolutely resist erroneous influence from the West: ‘constitutional democracy,’ ‘separation of powers’ and ‘independence of the judiciary. . . . We must make clear our stand and dare to show the sword.’³²

Culture, Education, and Civil Society

China today suffers from a poorly functioning civil society. One litmus test of this cultural dissonance is to consider how Chinese function when transplanted into other societies. Chinese educated and living in the US and Europe, for instance, display a greater propensity for creativity and innovation than their brethren who remained in China.

Chinese business leaders are acutely conscious of China's cultural problems, and prominent on their list of concerns is an aversion to risk-taking. As the head of a Chinese private equity firm put it to me:

China's entire education system discourages peoples from taking risk. People are afraid to take risk. Innovation needs to be driven by entrepreneurs.³³

As an explanation for the dearth of innovation, others point to China's fast-growing market, which has no shortage of business opportunities and where success has not depended on breakout thinking or risk-taking. "There is lots of easy money to be made without R&D. You can make money in other ways."³⁴

A Cocktail of Confucianism and Leninism

China also carries a heavy load of cultural baggage. Contributing to the lack of bold long-term thinking are the two schools of statecraft that have intersected in modern China – the Confucian tradition and Leninism (or Stalinism).

Modern China has seen repeated efforts to replace traditional values. In the early 20th century, Chinese intellectuals began an assault on what they saw as the oppressive ethics of Confucian society in which the people were subservient to their ruler, the child to the father, and the wife to the husband. On taking power in 1949, the CCP took up that theme and the new Marriage Law of 1950 freed Chinese women from arranged marriages and concubinage. But the CCP also systematically destroyed the traditional Chinese extended family, including the ancestor worship that underpinned it and the ancestral halls where tablets recording family histories were held and offerings made. The ancestor-oriented Qingming Festival (involving grave sweeping) was banned.

The CCP demanded exclusive loyalty and would not accept the extended family as an alternative focus for the people. At times during the Mao years, the CCP went even further by undermining the nuclear family through, for instance, encouraging children to turn in their parents for activities deemed to be "counterrevolutionary" and forcing farmers to eat in communal dining halls.

In place of Confucian values, the CCP instilled loyalty to the party. Love of the party was deemed to be the only path to love of the nation. A regimen learned from Stalin's Russia was put in place under which nobody was trusted, where everybody was watched, and those who were not *active* supporters of the new order were hunted down and severely punished. The CCP pioneered new psychological techniques, "brainwashing," to force confessions and to drive people into a full mental embrace of the "New China."

Many older Chinese today will express nostalgia for that period since there was a high degree of predictability and it was in some ways less stressful than today. But it came at a high social and economic cost, and not just because wealth

generation was weak. Throughout society, from factory directors to research institute heads and university lecturers, the instilled culture was dominated by the fear of failure. Conformity and caution were valued over new ideas or risk-taking. Everybody looked over his or her shoulder, paying attention to any shift in the political climate.

While the CCP did a thorough job of eradicating Confucian institutions such as the extended family, in other respects its actions had the effect of reinforcing old cultural norms, such as the concept of “obedience” (*fuzong*), but with the CCP as its new focus. The content of education changed, but the ethos and methods used in education owe much to the past. Many Chinese will tell you that the driving principle underlying social behavior is still the Confucian tenet called the Doctrine of the Mean (*zhongyong zhi dao*), which encourages conformity to a middle way and deters bold thinking.

China is actively rebuilding the connection back to traditional Confucianism. In his 2019 address to a meeting commemorating the 2,570th anniversary of Confucius’ birth, China’s Vice President Wang Qishan specifically linked Confucianism to the 70 years of “brilliant achievements” of the Party.³⁵ Xi Jinping himself has expressed a deep respect for the highly authoritarian Neo-Confucianism of the Song dynasty, in particular the philosophy of Wang Yangming (1472–1529) who lived in Zhejiang, where centuries later Xi served as CCP Party Secretary. Wang was a military general, politician, and thinker. His school of thought argued that a strong man can have innate conscience and insight and can move straight to action without too much prior study or self-cultivation. As Chinese friends observe, this philosophy fits perfectly into Xi’s *modus operandi*. It is a useful extra tool for enhancing social control and Party power, given that over the 40 years of economic reforms, the tenets of Marxism-Leninism have faded in their direct social relevance, leaving a gap that needed to be filled.

Lenin famously said in 1920 that “Communism is Soviet power plus Electrification of the Whole Country.”³⁶ I have zero interest in following in Vladimir Ilyich’s footsteps, but I think we can use that kind of expression to characterize China’s state ideology today. In my mind, Xi’s “New Era” could be summed up as: *Socialism with Chinese characteristics = CCP power + Neo-Confucianism + Artificial Intelligence*.

The Party’s ideology reinforced by traditional Confucian philosophy is a powerful cocktail of power and control. In turn, that is further enabled by Artificial Intelligence (AI) for social monitoring and coercion to produce an autocracy the likes of which the world has not seen before. I am using AI to encapsulate the entire swath of ICT innovation, which starts with the internet and mobile telephony, moves on to the Internet of Things (IoT) on top of those networks and then through the processing of the mass data thus generated by AI and machine learning. This gives China’s police state the ability to identify almost any face that appears on the street, along with that person’s personal details.

With Mao's death, Marxism-Leninism retreated and was relegated to near irrelevance. Although the autocratic statecraft learned from Lenin and Stalin have remained firmly in place, the Chinese are free to participate in the economy and privately express their opinions within certain limits. The Chinese people breathed a sigh of relief and began to revert to building their lives with minimal interference from the CCP.

But the years of the socialist straitjacket, coupled with the legacy of traditional philosophy, have left their mark on Chinese businesses, especially in the SOE sector. The corollary of the aversion to risk-taking is a tendency to hide behind collective actions as a way to avoid personal responsibility for leadership decisions. A key factor holding China back is:

a wish for consensus, not being willing to make a decision, thus slowing things down. They are not willing to make a mistake, while in the US you can make a mistake as long as you get things back on track.³⁷

Anything Goes, as the Market Latches onto New-Found Freedoms

While large SOEs may stick to a deadening consensus approach that stifles decisive action, at the other end of the spectrum certain segments of society have embraced the newfound freedoms in ways that have been described variously such as *laissez faire*, frontier capitalism, hedonism, free-for-all, market “anarchy.” All these fit to a certain extent. Now that the former externally imposed perverse moral and ideological straitjacket of Mao's China has been removed, it is as if the Chinese people are now struggling to find their own internal moral compass.

Countless Chinese firms blazon the word trust (Chinese: *xin*), a key Confucian value, across their websites. Many Chinese CEOs display on the walls behind their desks the calligraphy for the Confucian word *ren*, which translates into something like “not bearing to see the suffering of others.” These words are unfortunately mainly aspirational. There is precious little “trust” or “*ren*” in China today. The bogus argument the government gives for establishing its highly intrusive Social Credit System, mentioned earlier, is that it will help enhance and enforce social trust in every nook and cranny of society.

While sound strategy and strong legal documentation are increasingly the norm, Chinese businesses still rely too heavily on traditional and often crooked “relationships” (*guanxi*), which often speed things up, but may become a shaky approach once the official who facilitated matters changes job or, worse, is arrested.

Fortunately, in between those two extremes of stifling consensus and unbridled “grab what you can” there is an impressive coterie of Chinese firms that are enthusiastic about modern management skills and keen to play according to acceptable standards.

Corruption, Moral Turpitude, and Social Alienation

Corruption, which tracks back to the privileges enjoyed by the educated official class in traditional Confucian China, has come back on a scale unseen in world history. Like many of the cultural aspects being discussed here, corruption saps the life out of business, rewarding those who are well-connected rather than those who innovate.

The Chinese press is full of examples of moral turpitude. We have all seen examples of passers-by on the street walking past an injured or sick person for fear of the legal consequences, even though they had no part in that person's condition. Caught on a video surveillance tape, a driver accidentally ran over a child and then reversed back over it to ensure the child was dead (there is a fixed financial penalty for a death, but continuing and larger expenses involved with an injured person).

Living in China opens up a fuller understanding of how Chinese society is brimming with optimism about the future, motivated by the aspirations of its hard-working people who want their children to get into university, and centered around sharing good food with family and friends. But this bright and warm side exists alongside a darkness which is hard to ignore. I am haunted by things I have seen and experienced. Let me share some of them.

The Wenyu River flows through the suburbs of Beijing. Upstream a dye plant had turned its waters into an oily black flow, littered with other debris, all pushing up against a sluice. One morning shortly after sunrise as I was on a walk, I heard a muffled "help" (save my life: *jiuming*) coming from the water. I grabbed a cold oily hand and pulled an old man from water who was shaking and muttering. Attempted suicide or just a bad stumble? I called the villagers who took him away.

The same river at another time: In the fields close to the river, crops were being grown and sheep herded. The poor farmers, many from distant provinces, who tended the fields, pumped water out of the river onto their fields of lotus roots, so valued in Chinese cuisine, even though they were perfectly aware that the water was highly toxic (I talked to them and they shrugged). Close by, a small detachment of Chinese soldiers were tending vegetable fields close to their barracks. But they prudently insisted on drilling a clean well for their water needs, rather than sucking poison out of the Wenyu River.

Up the road, massive, gated communities with large villas for China's new wealthy were under construction. The police made a raid on the dormitories of the poor contract laborers, recruited from the interior, because they were watching pornographic films. Two of these workers fled down into underground water conduits where they suffocated from poisonous fumes.

I have repeatedly seen posters pasted on neighborhood walls on which local courts used a large red check to indicate that death sentences have been carried out. China is thought to carry out more executions than the rest of the world put together. To streamline the executions, China has introduced "mobile execution

units,” vans in which executions through lethal injections can be carried out. However, concerned at public opinion against exposed cases of innocent people being executed by local authorities, it is now mandated that local death sentences have to be confirmed at the central government level.

One day on the street, I pulled a high school boy off a schoolgirl whom he was pummeling mercilessly as she lay on the ground. Meanwhile the crowd watched but did not intervene.

Over the years I have witnessed the carnage on China’s roads. On a wet winter’s evening I saw a crumpled bicycle and, around it the scattered, crushed brains of the kid who used to ride it.

Due to increased urbanization and wealth creation, China’s suicide rate has fallen from one of the highest in the world to one of the lowest. But the suicide I saw remains etched in my mind. We were standing on part of what remains of Beijing’s city wall dating from the Ming dynasty. Below us we could see the platforms of one of Beijing’s main railway stations. An elderly man climbed up a fixed ladder to the top of a pole carrying an overhead railway electric cable. He grabbed the cable and there was a burst of flames and a puff of smoke. He fell onto the platform, dead, with his stiff, burnt arm reaching up like some final gesture of hopelessness. Two railway workers approached slowly, kicked him to confirm his obvious death and then walked away to get further help.

Shortly after the earthquake hit Sichuan in 2008, I traveled to the affected areas as part of my company’s efforts to provide help through tele-health and remote diagnostics. In one village, the local school had completely collapsed due to construction defects. Surrounding buildings with more solid construction, were left standing. Dozens of children were in class as the earthquake struck and were buried under the rubble. I recall a small group of mourning parents sitting on top of ruins where their children had perished. They were not just mourning the children but, in silent protest at the negligence that led to the school collapsing, they refused to abandon the site. As part of the relief effort I got to see this. Meanwhile journalists who had originally had access were prevented from visiting the village which had become a political issue that needed to be hidden.

Chinese people are dismayed by these aspects of the new society but largely feel powerless to change it for the better, and they mouth the ubiquitous words “nothing can be done” (*meiyou banfa*). Despite all the liveliness, joy, and color that have flooded back into Chinese society, there remains a troubling alienation.

In 1922, the radical Chinese writer Lu Xun described Chinese society as “an iron house without windows, absolutely indestructible, with many people fast asleep inside who will soon die of suffocation.” That nadir was followed by a new pit of despair during the first decades of the PRC under Mao. Although today much of the ideological baggage of the Mao era has been largely shed, the tools and levers of social control, propaganda, and coercion, the habits learned from Stalin’s paranoia,

all remain well-oiled and in daily use. Though Chinese citizens today get on with life, there is still a strong undercurrent of alienation and frustration.

Figure 11.1 shows a work by contemporary Chinese painter Su Xinping.³⁸ The room has windows, certainly an improvement on Lu Xun's room. But the alienation and stifling atmosphere of China today shouts at us. There is a deep mood of yearning, yearning to be somewhere else.



Figure 11.1: Su Xinping, “Vacation No. 7.”

The Chinese government is acutely mindful of this moral vacuum. It has shown some appetite for nurturing religion (while showing anxiety over the fast-growing Christian church). There is even (albeit limited) discussion about allowing religious believers into the CCP, much as capitalists were recently welcomed in. In an effort to strengthen the institution of the family, which it ironically spent decades undermining, the CCP has restored a series of public festivals that have roots in the old Confucian society.

We should also note that nationalism serves as a vital bonding agent in China today. Nationalism has been an integral element of Chinese communism, just as it was with communism in Russia, Vietnam, and Cuba. Now that China has abandoned social revolution and economic collectivism, we are left with nationalism and the goal of China's revival (*zhenhua*) as a key cultural element that serves as the glue holding the Chinese people together. Nationalism and patriotism energize

and define Chinese society. The Chinese feel a “national mission and passion.”³⁹ The CCP is perfectly happy to cynically utilize international tensions to rally public support. With that often comes ugly anti-foreign feelings that lie not far below the surface in China.

Education Falls Short

There is also a strong perception among Chinese that education is failing to deliver the needed results. Starting from the 7th century during the Tang Dynasty, the Chinese used a complex imperial examination (*keju*) system to select government officials. While this was not the meritocracy some paint it as (only a tiny proportion of Chinese were able to write characters and thus compete in the exams), it was nonetheless highly efficient and stood the test of time, eventually only being abolished in 1905.

But the efficiency of the examination system came at social cost. As one Chinese scholar has observed, it “diverted scholars, geniuses and thinkers away from the study or exploration of modern science” and was:

designed to reward obedience, conformity, compliance, respect for order, and homogeneous thinking. . . . It was an efficient means of authoritarian social control Success on the *keju* enforced orthodoxy, not innovation or dissent.⁴⁰

While China’s educational system owes much to the borrowed Soviet model, it remains influenced by the old imperial system and emphasizes rote learning and orthodoxy. At its heart today is the *gaokao*, the countrywide examination used to select students for the universities.

Having been suspended during the Cultural Revolution, the *gaokao* was reinstated in 1977. In 2020, over 10 million students took the test, competing for some 7 million places. Wide swaths of the Chinese population motivate their children to study for long hours late into the evening. They struggle to accumulate wealth to pay for their children’s tutorials.

But although Chinese schools outperform the world in scores, “where they fall short is creativity, originality, divergence from authority.”⁴¹ The tests are “a well-designed and continuously perfected machine that effectively and efficiently transmits a narrow content and cultivates prescribed skills.”⁴²

One Chinese university student wrote with courage and earthy eloquence:

In elementary school, they rob us of our independent values; in middle school, they take away our capacity for independent thought; and in university they take away our dreams and idealism. Thus, our brains become as empty as the underpants of a eunuch.⁴³

Chinese universities still face the lingering post-1949 Soviet-style emphasis on engineering, manufacturing skills, and hardware, at the expense of management, design,

and marketing – that is, software (in the broadest sense), which lubricates industry and commerce.

Foreigners, perhaps having come to China with low expectations and having been surprised by the quality of the Chinese they recruit or deal with, tend to single out the education system as a key factor for China's continued economic success.⁴⁴ Meanwhile, Chinese business people still feel the burden of the past and fault China's education for not inculcating entrepreneurial attitudes.⁴⁵

China's emerging middle class is increasingly looking overseas for their children's education. Applications for Chinese universities actually peaked at 10.5 million in 2008 and since then have been declining. According to the Ministry of Education, about 1 million upper-middle school students opted not to take the *gaokao*, mainly because they intended to study overseas. The number of students going overseas has been increasing 20% annually. Since China's economic reforms began in 1978, about over 5 million Chinese have gone abroad to study, and, before Covid-19 and the trade war with the US, the annual rate was running at around 400,000.⁴⁶ The majority went on to find jobs overseas, marry, and put down roots in their host countries; less than half of the those studying returned to China.⁴⁷ In recent years there are signs that this trend has been reversed. Official Chinese figures, if accurate, indicate that of the 2.5 million who went to study overseas in the last five years, 80% are, after their studies, are now returning to live in China.⁴⁸

This shift toward returning to China is likely the logical outcome of anti-China sentiment in the US, which led to teams of FBI officers being sent to US universities to identify Chinese spies. It also reflects the corresponding heightened nationalist sentiment in China which drives young Chinese to return home to contribute to China's rise. Given China's steady progress up the ladder into the knowledge economy, there are plentiful opportunities in China, whether to serve the nation, get rich, or both. Chinese student returning from overseas will continue to play a vital, transformative role, just as in earlier generations, starting in the late 19th century.

Business Education Flourishes

Over 200 Chinese universities provide courses for a Master of Business Administration (MBA) and Executive MBAs (EMBA).⁴⁹ The EMBA approach has been an invaluable tool for sharpening the knowledge and skills of senior business managers who had missed out on education often due to the Cultural Revolution. Many Chinese, typically already having strong business experience, are enrolling at top business schools around the world, from Wharton (the US) to INSEAD (France) and the London Business School.

As we evaluate the impact of this current flourishing of business education, it is not just a question of numbers (by that measure China leads the world), but also about quality.

China's press used to be full of complaints about the poor quality of its business education. A decade ago, only three Chinese business schools were in the global top hundred while today there are nine. Most impressively, the China Europe International Business School (CEIBS), established by the European Union and the Shanghai government, achieved fifth place in 2020, compared to fifteenth a decade before. Its MBA program is ranked ahead of Sloan (MIT), London Business School, Kellogg (Chicago), Yale, Columbia, Tuck (Dartmouth), Judge (Cambridge) and Said (Oxford).⁵⁰ Its EMBA program is ranked number two in the world. It has campuses in Shanghai, Beijing, Shenzhen, Ghana and Switzerland. CEIBS' alumni now total 11,000. Four business schools based in Hong Kong also make the list of the top 100.⁵¹ Chinese business schools are also making it into the 100 top Master of Science in Management programs (a notch below MBAs).⁵²

In 2019, due the adverse climate between the US and China and tightened US visa controls, foreign MBA students in the US declined 14%. And that was before Covid-19. In contrast, Chinese business schools are experiencing a rise in enrollments.

Even with the expanding volume and quality of home-grown graduates, plus the returnees, there will to be a continued, perennial shortage of business talent. This in turn puts great pressure on Chinese and foreign firms to develop sophisticated programs to attract, train, and retain the staff needed to fuel future growth and innovation.

Economic and Financial Stability

For several decades, it seemed that China's reformed economy would continue to exceed all expectations. Each year, China shot the lights out. That heady period has now passed.⁵³

China's economy has gone through a painful but necessary adjustment, striving to switch from smoke-stack industry to the knowledge economy. China does not want to remain the "factory of the world." It also seeks to move from a government investment-led model to one that relies on consumer demand. All of this implies structural change.

While the slowdown of China's growth reflects this period of healthy "rebalancing," it also has set off alarm bells across the world. Is the global reaction to the cooling of the Chinese economy justified or an overreaction?

Most of China's economic metrics or vital signs remain healthy by global standards. GDP growth has been declining but, at 6.1% in 2019, remained one of the highest in the world. At the beginning of 2020, the Covid-19 pandemic sent China's economy into serious decline for a brief period, but when, after initial blunders, the government got control of the situation, we saw an impressive V-shaped recovery in both domestic consumption and exports. In 2020, China's GDP growth was only 2.3%, but that in itself is an achievement. No other major economies showed growth

during the pandemic. GDP growth is expected to be 9% in 2021, before stabilizing at around 5% overall during the period Five Year Plan (2020–2025), still a significance pace. Beyond 2025, the target for 2035 is to double the GDP, which suggests GDP growth declining further to around 4%. Even though this is way below former double-digit growth rates, the actual growth is still massive since the denominator of the ratio is so much greater. Moreover, if the government can manage economic growth to a more sustainable level while maintaining social stability, that would be a massive achievement in its own right. So why has there been so much angst about the Chinese economy?

Five years ago there were dark predictions that China's economic and financial system was a tower of playing cards and close to collapse. That concern arose partly from the unreasonable expectation that China could sustain super-high growth. But it also justifiably arose from some troubling deterioration of hitherto healthy metrics. Fortunately much of that concern turned out to be misplaced.

The main concern has been China's debt burden (public and commercial), described in the foreign press as a "ticking time bomb." The concern is focused not just on the amount of debt, but also its rapid growth. Over the years, the Chinese government has injected money into the economy, sometimes to recapitalize floundering state banks, sometimes to sustain GDP growth and avoid social turmoil. In 2008, in the wake of the global financial crisis, China launched a stimulus program of around US\$ 600 BN, which led to a lending binge and in particular the ballooning of local government debt. An estimated 10,000 local government financing vehicles (LGFVs), devoted to real estate and other infrastructure projects were permitted to raise funds. My experience with LGFVs on the ground is that their opaque corporate governance and ill-defined and overlapping roles make them fertile ground for corruption and a recipe for financial disaster. The government has moved urgently to rein them in. Meanwhile, one LGFV defaulted on seven bonds with a value of RMB 3.1 BN.⁵⁴ LGFV debt was 38% of GDP in 2020, while other, separately counted, local government debt also continued to rise, reaching 25% of GDP.

Reflecting the risks from the debt overhang, from 2015, China's financial risk rating has declined from Aa3 to A1 (Moody's) and from AA- to A+ (S&P).

Before the global financial crisis, China's non-financial sector debt was equivalent to 150% of GDP. But in 2018, after the stimulus, it increased to 248% of GDP reaching 284% in 2020. While this rapid ramp-up of debt is of concern, it is similar to that of the US (260% of GDP). Moreover, other fundamentals are relatively healthy and most importantly the government is taking a wide range of measures to reduce the debt. There are a series of factors that can mitigate the risks of the Chinese financial system buckling under the debt load and which are grounds for modest optimism.

Commercial debt remains a burden but the buck stops with the government. The debts of commercial enterprises (excluding the LGFVs) have continued to grow

and now are over US\$ 18 TN, or equivalent to more than the nation's GDP. Most of this debt belongs to SOEs. These loans are mainly from state banks which are, in turn, part of the government apparatus. But generally speaking, the buck has ended up sticking with the government which has had the means (financial reserves) and willingness to bail out the banks, something which has happened on a number of occasions during the last few decades. After the Asian Financial Crisis in 1997, the government cleaned up China's Non-Performing Loans (NPLs) which accounted for 35% of all bank loans.

This pattern of economic boom followed by government bail out, was sustainable for a period of time given China's extremely rapid economic growth, which in turn provided the financial reserves that the government used repeatedly to prop things up. The government provided, and still does to a great extent, an implied guarantee behind bank lending and, for that matter, also commercial bonds.

As economic growth slows, the government is mindful of the risks inherent in this model and is slowly distancing itself from the role of ultimate backstop to lending. There has been an uptick in bankruptcies, triggered by defaults on loans and bonds. This trend away from government bailout should be welcomed since it will surely impose a degree of financial discipline, something that has often been sorely lacking in the Chinese corporate world. The government will still stand there when new crises emerge, but will likely use its financial rescue power less broadly and in a more cautious and focused manner.

LGFV debt still growing but is not the threat that it was. Over the last five years, LGFV debt has grown by over 40%, reaching US\$ 5.9 TN in 2019. But government measures to shore up this massive exposure have included permitting city government to issue US-style municipal bonds (munis), which leaves some breathing space, while land and development rights are sold off as a way to generate revenue.

Foreign exchange reserves have been replenished. At the end of 2014, China's foreign exchange reserves (excluding gold) reach a peak of US\$ 3.8 TN more than any other country. This compared to US\$ 1 TN in 2006 and only US\$ 2.3 *billion* in 1977. But in 2015, alarm bells went off as the reserves declined by US\$ 500 BN, as the economy cooled and growth slowed. But since then the coffers have been replenished and in 2021 foreign exchange reserves stood at US\$ 3.2 TN, not far short of the peak of 2014.

Ongoing urbanization will sustain wealth generation at the local level. As urbanization rises from the current level of 60.3% to the target of 70%, there will be new waves of development and wealth creation moving into the Western interior. This will likely create land price appreciation and the ability to service and repay debt used to finance the infrastructure development.

China is a domestically oriented market. Currently 60% of China's GDP comes from domestic consumption (i.e., within China). This can help shield China from the shocks of global slowdowns and crises, including the global Covid-19 pandemic. Xi Jinping's Dual Circulation concept for China's economy explicitly calls for the *current* emphasis to be on Domestic Circulation as a buffer against external uncertainties.

Residential real estate does not resemble the US bubble. Much of the 2008–09 stimulus financing went through infrastructure projects into real estate. In some places, the construction got ahead of demand, creating empty, so-called “ghost cities.” But the financial stress it created relates mainly to the indebtedness of the LGFVs, not to that of the consumer. As one Chinese investment fund head put it to me:

In real estate, the problem is not on the market [demand] side. Real estate is red hot. But China's financial fundamentals are good. With home mortgages, buyers have to put down 30% on their first home and 60% down on their second home. The leverage is low.⁵⁵

That said, the falling value of residential property has undermining the wealth of not just the new rich, but also of many ordinary citizens who plowed their capital into property. Were property prices to go into a deep decline, then China's financial risk, and with it political risk, would be greatly magnified. So far there are no signs of this happening.

China's national savings rate is 49.9% of GDP, one of the highest in the world, and way above that of the US (19%). Future likely improvements in China's social safety net is expected to reduce the savings rate and release funds for increased consumer expenditure.

China has little or no overseas debt. This means that it can resolve issues of excessive indebtedness or nonperforming loans within its own system and at its own pace, if necessary through the recapitalization of the state banks as has happened in the past.

Much of China's shadow banking plays a useful role. Shadow banking covers a range of financial services: “wealth management products” (investment packages offered by banks, off-balance sheet), pawn shops, and “popular loans” (informal, high interest loans between individuals or companies). The rise of China's shadow banking is the result of a couple of factors. First, there was the government stimulus package in 2008 which pumped cash into the system. Then there was the imposition on banks of a rule that they could not lend more than 75% of their deposits (the so-called Loans-to-Deposits Ratio – LTR) which prompted them to start selling Wealth Management Products (WMP), investment schemes that were unregulated. The government has described these as Ponzi schemes and one, involving US\$ 7.6 BN of online investment products, affecting 900,000 investors, was closed down. It is easy to see that if

these financial products were to continue to unravel on a larger scale, the resulting public outcry could undermine political stability.

Though China's shadow banking peaked in 2015, the first official Chinese figures on this subject show that in 2019 shadow banking still had assets of US\$ 12.9 TN, or 29% of all bank assets. But in a narrower sense when you strip out the highly risky WMPs and similar investment products, the remaining 39% of shadow banking is more traditional lending. In other words, "[shadow banking] is simply filling the gap that the official system does not want to fill."⁵⁶

The key will be to bring shadow banking out of the shadows, so that the true risks can be understood and addressed through regulation. Banks now have more lending ability since the 75% LTR cap was abandoned in 2015. Interest rate reform (ending the floor on lending rates and the cap on deposit rates) has undermined the rationale for shadow banking and helped halt its growth. As one foreign investment banker put it:

Chinese banks are finally addressing the financing needs of SMEs [small- and medium-sized enterprises]. There is greater flexibility in interest rates that can be charged. If SMEs were paying 18% interest to shadow banking, they surely will be willing to pay 10% interest to official banks. The official banks are now able to eat the rice bucket of shadow banking. Now with flexibility on interest rates, official banks can lend at interest rates that reflect the true risk.⁵⁷

Using the most recent figures from the IMF, in the period 2015–2019, China's shadow banking declined from US\$ 3.6 TN to 3.2 TN; though still a very large number. But its share of the GDP which had continued to grow, declined from 32.2% to 22%. The government increased legal bank lending to needy firms and also brought many formerly illegal shadow banks into the government regulated establishment.

In addition to the risk-mitigating measures being taken by China's bank regulators, including their actions to place controls on Alibaba's financial arm discussed earlier in Chapter 6, we can also layer in our knowledge of how China has, over the last four decades, successfully handled complex economic and financial risks. But while there is widespread confidence that the CCP has mastered the levers of running a modern economy, we still find the Party looking more like a novice and, at times, out of its depth when it comes to market-driven economics. Its fumbling during a stock market meltdown drove home just how skin-deep many of the newfound skills are.

Confronting the Environmental Crisis

China's breakneck growth has been accompanied by catastrophic environmental destruction. Twenty-five years ago, the key catchphrase from Deng Xiaoping was that "development is a rigid principle." The drive for "development" to pull China out of poverty and stagnation left little room for debate about exactly what kind of

development to adopt. China embraced an automobile-centric approach that relied on the broad impact of the auto production value chain in pulling up the rest of the economy. Back then, when I asked a Chinese official about the environmental impact of mass car ownership, he shrugged off the issue, pointing out that the pollution sent the positive message that China was achieving economic takeoff. The government bristled at concern over China's greenhouse gas emissions, seeing it as an attempt to stop China from achieving its legitimate national goals of wealth and strength.

China's environmental crisis finally came to a head: air pollution, unsafe drinking water, water shortages, poisoning from metals, contaminated baby formula, poisoned former industrial sites, and more.

China is by far the world's largest emitter of CO₂, accounting for just under 30% of the total. China's annual emissions in 2019 were 10,175 million tons, double that of the US (5,285). But looked at from a per capita basis, China at 7.1 ton/CO₂/person was less than half that of the US (16 tons/person). China's per capita electricity consumption is just one-third that in the US. The problem for China is that it is still at a relatively early stage of industrial development, especially in some regions, and the demand for energy is bound to keep growing for the foreseeable future.

Green GDP. Environment protection is an area where public opinion has flexed its muscle. The Chinese government belatedly but vigorously took up the issue of environmental protection. In 2006, it published a report showing that environmental degradation and pollution represented an annual cost to the nation of more than US\$ 80 BN, or 3% of GDP, a sum that should be subtracted from reported GDP to arrive at a true "green GDP." These figures have continued to be monitored and the cost was said to be US\$ 248 BN, or 2.5% of GDP, in 2010. Although adding green GDP targets to local government performance objectives were abandoned due to resistance from officials and disagreement over methodology, nonetheless, the central government remains committed to drawing a line under the "development at any cost" model and is rebalancing priorities to achieve this.

Slowing the growth in energy consumption. With regard to tackling pollution and climate change, not enough is written about China's efforts to transform construction design and building materials to make them more energy efficient. Starting in the 1980s, China has been active in establishing new national and local building codes to reduce energy consumption, a process led by the China Ministry of Housing and Urban-Rural Development (MOHURD).⁵⁸ In 2009, Obama and Hu Jintao met in Beijing and established the US–China Clean Energy Research Center focused on energy efficient buildings. Foreign companies with green construction technology and materials have grasped the opportunity and have lobbied MOHURD for further tightening of the building energy code. They have established factories in China to produce environmentally sound materials, such as gypsum board for drywall (LafargeHolcim), float glass coated and tinted to permit LEED green-rated buildings (PPG Industries),

and building insulation (Owens Corning). Philips has provided more efficient lighting solutions. And state-owned China National New Building Materials (CNBM) has pioneered new energy-saving construction materials.

On the high tech side, Siemens, Johnson Controls, and Honeywell have brought their integrated smart building electronic automation technology to China.

China is also tackling energy consumption issues with regard to primary industry such as cement and aluminum. Danish firm FLSmidth, the world leader in cement plant technology, set the pace in China for reduced energy usage and reduced emissions in cement making. China's indigenous cement plant technology has incorporated such improvements.

China's aluminum industry (the process from bauxite to alumina and finally to aluminum) is the largest in the world and is a massive consumer of electricity. Aluminum facilities in Shanxi, Henan, and Shandong, which currently consume electricity from coal-fired power stations are being moved to sites further inland, for instance in Yunnan, which can be powered by the hydro-power out west. Many of the old aluminum facilities were not only highly polluting but also loss making. Propping them up with government subsidies left China vulnerable to anti-dumping sanctions.

Fines imposed on polluting companies have been increased to a level that hurts. As of 2019, energy consumption in large industrial enterprises had fallen by 15% compared to the level in 2015, showing progress on that aspect of the Paris Agreement metrics.

China and the Paris Agreement. Through the Paris Agreement on climate change of 2016, China pledged voluntarily to achieve four goals as its “Nationally Determined Contribution” (NDC) by the year 2030. Under the Paris provisions, five years later (December 2020), the NDC goals were to be assessed and if possible increased. Xi announced that targets set in 2016 would be revised upward and, while addressing the United Nations, added a new target: carbon neutrality by 2060.⁵⁹

There is no doubting the enormous domestic pressure of public opinion that the environmental crisis is putting on the CCP to further radically reverse the results of unbridled development.

But these actions being taken by Xi will also thrust China into a leadership position in climate change geo-politics, asserting the image of China as a responsible participant of the world community. It will also likely spur on the efforts of the US Administration under Biden and John Kerry, his chief on climate change. Kerry has already acknowledged that China is spending more on environmental R&D than the US and he has stated that climate change action by the US is “not to counter China” but “to work together to reduce emissions.” Biden has already held a Climate Change summit which was attended by Xi.

Table 11.1⁶⁰ summarizes China's revised targets and also the progress made so far, whether in reducing carbon intensity, increasing the part played by non-fossil

fuels, including wind and solar, or in planting trees. It shows that wind and solar power in China is growing at a very fast rate. New wind capacity built in China in 2020 was three times that installed in China in 2019, and more than all the world's new capacity in 2019.

Table 11.1: China's Voluntary Targets Under the Paris Agreement on Climate Change.

| China's NDC targets under the Paris Agreement | China's 2015 NDC targets for 2030 | China's 2020 NDC targets for 2030 | Progress as of 2019 |
|---|-----------------------------------|-----------------------------------|---------------------|
| Carbon intensity reduction (compared to 2005) | 60–65% | 65% | 48.1% |
| Non-fossil fuel share of primary energy mix | About 20% | About 25% | 15.3% |
| Forest volume increase (compared to 2005) | About 4.5 billion M3 | 6 Billion M3 | 5.1 billion M3 |
| Wind and solar power generating capacity | No target | Over 1,200 GW | 414 GW |

Source: *Chinadialogue.net*

To achieve its ambitious goals China will need to do more than maintain the current cap on coal-based energy. Although the *proportion* of energy generated by coal may be contained or reduced due to the more rapid growth of alternative energy sources, at the same time China continues to increase its coal-fired electricity generation.

While some argue that Xi has made a strong recommitment to climate change targets, others are more cautious about taking it at face value and argue that the 2030 target for carbon emissions which has been revised upward is still a “soft” target which is relatively easy to achieve.⁶¹ The 2060 target is much more challenging and open to question. This shift away from coal is difficult and faces opposition from major Chinese generators, some of them private firms with strong connections to local government, that have argued the case for using advanced technology to further limit carbon and sulfur emissions from coal-fired stations.

But as China seeks to wean itself of coal, it has been actively constructing coal-fired stations through Southeast Asia and the Middle East. It by far the largest financier of such stations, providing such support to 53 GW of new capacity. Many other nations have stopped such financing and that may soon include Japan. Recently Bangladesh stopped construction of new coal-fired power stations and Indonesia, the Philippines, and Vietnam are said to be following suit. The world rightly judges China poorly for having double standards in promoting this polluting technology globally, while at home it seeks to reduce its dependence on it.

China's energy mix. China's ultimate long-term goal in terms of its energy mix is widely accepted to be renewables (wind, solar, hydro, etc.) plus nuclear to provide a base load. Also part of the mix would be hydrogen.

Meanwhile, as discussed above, China's has slowed the growth of coal as an energy source, so that it represents a smaller proportion of the energy mix. Although coal is still used to produce 57% of China's electricity (down from 70% around 1978 at the beginning of the reforms), hydro and wind already account for 19% and 5% of electricity generation capacity, respectively. If we include direct (non-electricity) use of energy for industry such as cement or steel, then the proportion of coal in the mix increases to 80%.⁶²

Statistics for China's 2020 electricity *production*, show that wind and solar production grew by 15 and 17% respectively compared to 2019. Coal use in power stations fell by almost 1% in 2020. When looked at from the perspective of electricity projects completed in 2020, wind power capacity grew by a massive 70% in comparison to 2019, while new thermal projects (that is coal, natural gas, and oil) declined by 27%.⁶³

While by 2030 the total power generation capacity is projected to more than double, coal-fired generation will fall to around 44% of the much larger total, while solar and wind power will account for 13% and 14%, respectively, accounting together for 1,200 GW. These new sources of energy, plus biomass and geothermal, will together contribute to a lowering of China's CO₂ emissions.

Nuclear power will account for around 5% of electricity production by 2030.⁴⁶ That will mean increasing nuclear power capacity from the 2019 level (43 GW operating, and 10 GW under construction) to 120–150 GW total by 2030. To achieve its Paris targets, some estimate that China's nuclear power generation capacity may need to rise to 554 GW by 2050. Though nuclear waste disposal issues remain unresolved, concerns over safety are in part addressed through China's mastery of Generation III technology, which permits passive safety, thus reducing the risk of meltdown. It should also be pointed out that there is some uncertainty with China's nuclear power targets, given that the cost of solar and wind power has been falling rapidly, making those energy sources more competitive.

China is the world largest producer of hydrogen (20 MM tons/year), mainly using natural gas. One goal is to ultimately move to "green hydrogen," produced using renewables, and in so doing provide a new way to store electricity for use when renewables are not delivering. Long-term plans call for hydrogen to also be used to power aircraft, cars, and ships. It can replace natural gas in the production of chemical fertilizers. China, along with other major steel makers, is already experimenting with the use of hydrogen to replace coking coal in the steel process. The steel industry currently accounts for 7–9 % of the world's direct emissions from fossil fuels.

The industrial upside. The priority given by the Chinese government to renewable energy sources has also propelled China into a strong global position in the manufacturing that supplies this industry. Chinese wind turbines account for 30% of the world

market, and one Chinese firm, Goldwind, accounts for nearly 14%. Chinese solar power equipment accounts for over 70% of the global market. Most of the top 10 producers are Chinese. In solar, China is present throughout the value chain, from producing its own polysilicon to photovoltaic (PV) cells, glass and modules.

As mentioned earlier, China will likely not only be the largest producer and user of electric vehicles (EVs), but is also set to become the world's fastest adopter of new urban mobility solutions using internet social media platforms to provide consumers with access to fleets of EVs as an alternative to private car ownership.⁶⁴ As of 2019 China accounted for 55% of global EV sales.⁶⁵

While *the China paradox* opened up the path to development, the powerful combination of unleashed commercial forces and a CCP exercising a light, non-interventionist hand had the unintended, but perfectly predictable, disastrous impact on the environment. Now, as the central government struggles to reverse this trend, it meets heavy resistance from vested interests at the local level. As we see throughout the Chinese economy, local power can often thwart central policies. In a striking admission of this issue, the Ministry of Environmental Protection, in an attempt to control its local agencies, set up separate regional bureaus at the local level with staff from the central ministry.

The Mega Domestic Market

For China, its domestic market is a strategic advantage that distinguishes it from other Asian economies, such as South Korea, Taiwan, and Thailand. The market is not only already very large, but will continue to grow. In the wake of the economic takeoff of the coastal cities, the central and Western regions present wave-upon-wave of development potential. As urbanization increases there is the prospect of further decades of wealth creation.

The scale of the domestic market accords China a series of major key competitive advantages.

China is not heavily export-oriented. Its ratio of exports to GDP is 18%, and has been declining from a peak of 36% in 2006. China's current level is much lower than that of South Korea (40%), Thailand (60%), or Germany (47%). Moreover, if you compare China's exports to GDP on a value-added basis, the ratio falls to around 10%. That's because the proportion of product imported for assembly and re-export has been growing as Chinese exports become increasingly high tech. As China becomes even less reliant on exports, it is creating built-in resilience against the impact of global downturns.

The large domestic market gives China the ability to attract foreign investment and technology. Though it is tough to do business in China and may put one's technology at risk, the scale of the Chinese "opportunity," however illusory, has proven to be a powerful magnet for attracting foreign investment.

Chinese firms use the domestic market to launch, test, and improve their products; to develop management skills and organization; to achieve economies of scale; and to accumulate capital to support growth. It provides a low-risk test ground prior to taking on tougher global markets.

Gleaming New Ground Transportation Infrastructure

China's new ground transportation infrastructure – its expressways, ports, bridges, tunnels, high-speed rail, subways, and its future EV fleets – will be of critical importance to China's future growth, not only linking China to the world, but also helping crucially to integrate the highly regional and fragmented domestic economy.

This excellent infrastructure marks China off from India, which is held back by its poor ground transportation. President Obama expressed admiration for China's transportation infrastructure, saying it is “embarrassing” when he compares it with that of US. Though, as part of the hangover from the developmental spurt, China's cities are snarled with traffic jams, overall its transportation is a strong foundation for future growth.⁶⁶

By 2019 China had built the largest expressway system in the world, totaling 149,600 km, compared to the 77,556 km of the US interstate system. Its high-speed rail system (defined as speeds of 200–350 kmh) is 37,900 km long, the largest in world. It is planned to deploy more widely the The Maglev (magnetic levitation) technology (top speed 620 km/h) which is already used on the short Shanghai-Pudong airport line. In shipping, China accounts for seven of the world's top container ports.

The expansion of Shanghai port, the largest in the world with an annual throughput of 40 MM containers (twenty-foot equivalent unit, or TEUs), more than the entire throughput of US ports, was achieved through constructing the new Yangshan deep-water port, which is linked to the mainland by a 33 km sea bridge, the longest in the world. Shanghai's old city (*Puxi*), on the west bank of the Huangpu River, has been connected to the Pudong New Development Area on the other side by 7 bridges and 12 tunnels.

Most major Chinese cities now have a subway system. Shanghai has 17 lines running 700 km. Beijing, with 24 lines, is the world's busiest in terms of ridership, handling 3 *billion* journeys per year. Its daily ridership is 11 million and its record is 13.8 million in one day (July 12, 2019)! Guangzhou already has 12 lines and new ones are planned. China is also making great strides in other modes, for instance bus rapid transit (whereby buses run along routes segregated from the other traffic), which is operating in 30 Chinese cities and is planned for more. New urban mobility solutions using EVs will begin to reduce pressure for private car ownership. More than that, once public transport is even more ubiquitous, efficient, and pleasant to use, China's autocratic government may take further draconian measures to limit or essentially prohibit personal cars, at least in major cities.

The CCP has shown pragmatism in inviting foreign companies to operate its public transport, such as in subways and buses, as a way to introduce new capital, management skills, and to raise efficiency (and in turn to reduce government subsidies). Should the service underperform, the foreign operator is held responsible, deflecting criticism away from the government.

Government-Sponsored Research and Development

China's expenditure on research and development (R&D), excluding that for the military, reached US\$ 321 BN in 2019, second only to the US – which it may soon overtake in this respect. However, in terms of R&D intensity, China at 2.2% of GDP has some way to go before catching up with the US (2.8%) and lags far behind Germany and Japan.⁶⁷ Broken down by type of R&D, we find that China's basic research is only 6% of its total compared to 17% in the US, and likewise in applied research, China is at 11% and the US at 20%.⁶⁸ China's focus has been on downstream “experimental development” around product and service development and prototyping which accounts for 84% of China's total R&D and has ballooned since 1995 in relation to the other elements of R&D. First, this underlines the US's continuing dominance in pure and basic research and China's catch-up mode based on purchasing or licensing technology, reverse engineering, improving, or stealing existing core technologies. Second, it makes perfect sense in the context of China being the “factory of the world” with an emphasis on that part of R&D just short of actual market sales.

Only 23% of China's R&D is directly government-funded, surprisingly low when compared to about 30% in the US. But to capture the full impact of the Chinese government's role in orchestrating China's R&D we need to also consider the multiple ways in which it supports R&D, in addition to just funding.

Under the Soviet-style central planning system, R&D had been concentrated in research institutes divorced from the factories, defined by bureaucrats rather than by consumer or market needs. Upstream, pure research was neglected in favor of practical application-focused R&D, thus starving the nation of the life blood of fundamental innovation.

Since the reforms, the government has dealt effectively with that dysfunctional legacy. In 1985, the CCP admitted the old system hampered “the full use of the intelligence and creativity of scientists and engineers.” Deng called for “an atmosphere in which top-notch persons can show their true potential.”

The bloated scientific bureaucracy was scaled back and research pushed down to enterprises. The Chinese Academy of Sciences (CAS) was reformed, with cuts to its 60,000 employees and a consolidation of its 120 overlapping institutes.⁶⁹ There has been a migration of scientists and engineers into the business sector, which now dominates China's R&D. 78% of China's R&D is conducted by businesses. Research in government-run institutes and labs account for only 15% of the total.

Chinese planners today call for the nation to:

Promote industrial upgrading by scientific innovation. Guide the investment, talents and technology flow to enterprises, promote the strategic union of production and R&D, and increase the industrial core competitiveness.⁷⁰

The “union of production and R&D” addresses the issue of R&D being overconcentrated in research institutes, largely divorced from the companies that would ultimately produce the goods. In recent decades, government R&D investment has been channeled to enterprises, either through direct grants or loans from state-owned banks. Many government research institutes have grasped the opportunity and transformed themselves in commercial entities. Notable among these is the world-leading computer maker, China’s Lenovo, which started life as an institute under CAS.

This shift of R&D from research institutes to companies may have gone too far since it has reduced basic research while encouraging commercial applications, thus ironically stifling the innovation that can spawn new generations of products.

The Chinese government’s role in spurring R&D and innovation has borne a strong resemblance to the earlier efforts of other Asian economies, such as Japan, South Korea, and Taiwan, to move up the technology ladder.

Japan’s Ministry of International Trade and Industry (MITI) funded research and investment that contributed to Japan’s postwar economic “miracle.”⁷¹ In the 1970s, MITI actively intervened in Japan’s machine tool industry, leading to Japanese global dominance of a new breed of numerically controlled machine tools and machining centers.⁷² Korea’s Economic Planning Board in the 1970s provided low-interest loans and tax holidays, which were instrumental in creating the shipbuilding industry dominated by the likes of Hyundai and Daewoo. In 1973, the Taiwan government established the Industrial Technology Research Institute (ITRI),⁷³ which was instrumental in creating Taiwan’s dominance in semiconductors and personal computers, especially laptops.

The Chinese government’s science and technology program for 2006 to 2020 took as its slogan “indigenous innovation, leapfrogging in priority fields, enabling development, and leading the future.”⁷⁴ It defined “indigenous innovation” as including not only “original innovation” (a very high target), but also the revealingly termed “re-innovation based on the assimilation and absorption of imported technology” (a much more achievable target). “Re-innovation” (from learning, improving, and licensing all the way through to outright IPR theft) is a key aspect of China’s economic catch-up strategy.

Government support for R&D comes in many forms. First, there is policy setting and economic planning, handled by the NDRC, the Ministry of Science and Technology (MOST), plus the MIIT. Once the specific plans are approved from the Ministry of Finance, funds are directed to projects at the institute or at the enterprise level through some 70 government agencies, the largest of which are MOST, CAS, and the National Natural Science Foundation of China; and also through loans from state-

owned banks. The 863 State High-Tech Research and Development Plan launched in 1986 by MOST covered biotech, space, IT, automation, and energy. Over 16 years, RMB 11 BN of funds were disbursed to 5,200 R&D programs employing 40,000 researchers in 200 institutes, 100 universities, and 100 enterprises. Results from the plan included supercomputers and the Shenzhou spacecraft.⁷⁵ In 1997, the 973 Program, China's National Basic Research Program, focusing on energy (including nuclear), natural resources, and environmental protection, was launched, and in the period to 2008 it invested RMB 8.2 BN into 382 projects. In 2013, MOST provided RMB 22 BN of R&D funding through the main 863 and 973 programs.⁷⁶

New efforts with a focus on the underlying technology, rather than mainly on manufacturing, require a much more costly approach. In 1995, the government launched Project 909 to reduce China's dependence on semiconductor imports, but with only mixed results. The government more recently pledged RMB 1 trillion to basic chip design in an effort to become less reliant on foreign firms. The NDRC made available US\$ 20 BN to Chinese firms acquiring foreign semiconductor companies. However it has proven difficult for China to surmount the barriers set up by other countries to obstruct such transactions. In 2012, the government announced investment of US\$ 1.5 trillion to support a program to address strategic emerging industries, which included 11 areas including next generation IT, biotechnology, and new energy vehicles.⁷⁷

In 2016, at the beginning of the Xi era, China's Premier Li Keqiang announced the "National plan on scientific and technology innovation" (2016–2020). It aimed at a more entrepreneurial approach to R&D. Government funds have been allocated to construct a series of innovation parks across the nation to attract small technology start-ups. The process of transferring technology and patents from old style government institutes down to businesses has been streamlined.

How then does government support for companies mesh with the market economy? In the ICT sector, the two market leaders are Huawei and ZTE, producers of telecom infrastructure equipment, one a private firm and the other state-owned, are both based in Shenzhen. They have a very strong rivalry, and each has its own R&D, unique products, and branding; and they compete for customers and for talented engineers and salespeople.

But that should not lead us to miss the reality that, in such a strategic sector as ICT, ultimately the interests of the nation transcend the competition between companies and converge behind the scenes into a centralized and single-minded approach, driven by the CCP. The competition that does exist pushes each company to improve, innovate, and excel, but at the end of the day it is as if they are just different runners on the national athletics team.⁷⁸

Where do things converge behind the scenes into what we can call China, Inc.? Given the rivalries between government ministries, this convergence and the setting of broad goals occur principally at a higher level, through the State Council's Leading Groups, led by the premier or vice premiers, or increasingly within the CCP top

echelons. Foreign ICT companies face not only well-run Chinese firms, but a behind-the-scenes approach coordinated by the Chinese government and Party that can call the shots when needed.

The Mobile Handset Example

China's mobile handset sector is a powerful example of just how effective the government has been in actively nurtured "national champions." In 1991, it launched a plan to create locally made and Chinese-branded mobile handsets, providing RMB 1.4 BN in state grants over five years to SOE players such as Xiahua, Kejian, Soutec, and EastCom. It took some time to show results. But in 1998, CCP head Jiang Zemin triumphantly made a call from a GSM handset made by the Chinese firm Xiahua. Foreign competitors took a while to wake up to the challenge.

In 1999, when the Chinese share of the China handset market was only 5%, the government set market share targets of 10% for 2001 and 21% for 2003. As it turned out, Chinese players in fact achieved a market share of 21% in 2001 and a stunning 56% in 2003, before falling back to 48%, as the Koreans gained traction and incumbent players such as Motorola found ways to deliver a lower-priced product in the Chinese mass market.

The government carefully limited the issuance of manufacturing licenses to nine Chinese firms out of 30 that had applied, with the goal of achieving some "managed competition" while allowing room for these nine firms to grow. It set company-specific quotas limiting the import of mobile phone kits for assembly in China with the goal of spurring local production.

Moreover, by 2000, access to mobile handset technology had greatly improved, dramatically favoring new entrants. Foreign suppliers of integrated circuit "chipsets," (which are the guts of a handset), such as Lucent, Motorola, Philips, and Siemens had strong relationships with Chinese firms. Motorola provided chipsets to EastCom not just for its production of Motorola-branded product but also for EastCom's own new handset. Foreign suppliers, impatient at the slow progress being made with CDMA and 3G infrastructure in China, were willing to sustain their chip sales through selling into the Chinese low-end market, even though they were unwittingly building competitors who would quickly ascend the quality ladder and take them on.

Other components, such as ear pieces, antennae, and casings, were all readily available. Since handset production on a subcontracted basis was migrating to China, there was no shortage of firms that could supply Chinese former subcontractors, now turned competitors.

Chinese handset makers came from varied backgrounds and sought to take advantage of their domestic sales channels. Telecom switchgear manufacturers, such as EastCom, ZTE, Bird, and Huawei, sought to utilize their close links with the telephone companies. Others, such as Konka, Xiahua, Kejian, and Haier, had a consumer goods

background and could make effective use of their efficient distribution channels to sell the handsets.

At the heart of the problem for the foreign handset brands was a rapidly changing market structure. There was explosive 95% annual growth in mobile phone subscribers (they went from 10 million in 1997 to 100 million in 2001). In the same period, China's mobile phone penetration rate rose from less than 1% to 6%. Indicative of the growth potential in China, this compared to South Korea's penetration rate, which in 2001 stood at 56% and that of North America and Europe at around 100%. As mobile phone ownership shifted from business managers to workers, small traders, and students, an enormous mass market was being created.

The Chinese handset producers were successful in addressing this mass market, selling attractive looking handsets at a price far lower than the foreign brands, but still with comparable functionality. Quality issues, such as notoriously poor ear pieces, were successfully dealt with.

Market incumbents in China, such as Nokia and Motorola, responded aggressively to the body blows rained down on them from Chinese entrants and adopted new strategies to address the emerging mass market in China. They achieved a lower price point through the redesign of their phones, through outsourcing more of the production and through simplifying their overly complex distribution chain. The foreign players made a successful comeback. While the rich profit margins became a thing of the past, on the plus-side the market was by then so much larger.

Today the situation in China with smartphones shares some similarities with what we saw developing in the year 2000 with the earlier generation of mobile handsets, in the sense that Chinese products are proving highly competitive against foreign brands. However, the government role is *no longer* a defining factor in this success story.

There is now a plethora of Chinese smartphones on the market, based on the Google-controlled Android operating system (OS), competing against the likes of Apple and Samsung. But, compared to 20 years ago, market success is defined not mainly by manufacturing skills, but also by the ability to create designs and apps that satisfy the consumer. This skill set is something still being developed by Chinese firms and does not lend itself to the old style of government support and funding.

Nonetheless, this did not stop the Chinese government from complaining that that 97.7% of China's 300 smartphone producers are Android-based. "Even though the Android system is open source, the core technology and technology roadmap is strictly controlled by Google," with the result that Chinese firms "constantly face Google's commercial discrimination, including the delay of timing on code sharing due to agreement restrictions."

The government's interest in creating China's own smartphone OS, coupled with failed efforts to restrict the Android system, lay primarily in a desire to gain access to mobile phones for security reasons and had little to do with commercial factors. This move met with skepticism from Chinese smartphone manufacturers, which were perfectly happy with the Android OS and were beginning to make their

mark overseas. Few believed a new China-developed OS was needed or desirable.⁷⁹ The perception was that government involvement in R&D would hold Chinese business back. At that time, a decade ago, that government's effort on OSs did not bear fruit and went nowhere.

In fact, today the Chinese government could be viewed as oddly prescient in that concern about relying on Android. The Trump administration, as part of its assault on China's ICT sector, focused on Huawei, banning Google from providing any new updates to the Android OS for Huawei smart phones. This included new apps. Huawei scrambled to launch its own Harmony OS which will be used on Huawei's smart phones and other devices in 2021. Some Android apps run on Harmony OS and in addition Huawei is busy creating its own separate app store.⁸⁰ This is a perfect example of how trying to isolate China simply spurs them on to conquer new technologies. Now it is inconceivable that Huawei could simply pull its new home-grown OS like a rabbit out of a hat. It stands to reason that this Huawei OS has been under development for some time. But if Android had not dried up as a source, Huawei would likely to have continued to use it, at least in the short term.

One further observation from this is how enterprise-based R&D is where innovation is occurring. Furthermore, while the earlier reverse engineering of the old GSM mobile handsets demonstrated the decisive power of the government to incubate new production that could compete with global incumbents, it still did not stack up as an innovation breakthrough. In light of the history of meager returns from massive government investment in technology and the serious issues of governance and corruption, there has been good reason to be skeptical about China's R&D potential. Below we look more deeply into this and actually see signs that China is already improving its technology performance, not least in Artificial Intelligence (AI) ownership, which will help define future geo-political power and influence.

R&D Results Were Patchy but Outlook Is More Positive

China has achieved a great deal in its space program. It grew out of China's nuclear weapons program, which achieved its first atomic bomb explosion in 1964, followed by a nuclear bomb test in 1967, plus ballistic missiles to deliver them. On the civilian side, China has put its first man into orbit. It has also established a manned modular space station. In 2020, it sent the unmanned Chang'e mission to the moon. Its Tianhe-1 unmanned mission has recently made a successful landing on Mars. A mission to the Sun is planned. Other examples of strong R&D results include China's leading the world in large-scale gene sequencing and performing strongly in other aspects of biotech.

Moreover, by some standards, China's R&D performance appears impressive, be it patents filed, academic articles published, or the volume of funds directed into R&D. But such statistics can mask underlying structural issues.

Despite the rapid growth in overall R&D expenditure in China, there has been a decline in scientific research in favor of product development with identifiable commercial outcomes. A Chinese academic has written:

The low share of scientific research expenditure has negatively affected China's innovation capability and may jeopardize China's ambition to become an innovation-oriented nation. The shrinking of applied research is a serious problem, because applied research links basic and development research.⁸¹

Great weight has been put on creating manufacturing capability, while the push up-stream into the science, design, and software that makes the manufacturing possible has been neglected. The government is mindful of this issue, as can be seen from its evolving approach to the semiconductor industry.

In 1995, Project 909 was launched to reduce dependence on semiconductor imports and it achieved major success in attracting investment into China by semiconductor producers such as Japan's NEC and firms from Taiwan and the US. But with the exception of some low-end "commodity chips" used for certain consumer products, this knowledge transfer excluded access to strategic skills in *chip design*, which remained largely offshore and in the hands of the foreign firms such as Intel, Samsung, and Qualcomm. This risks of this dependency were starkly exposed as the Trump Administration used the US's technology leverage to undermine Huawei. Huawei has in recent years developed its own chip design capability through its HiSilicon subsidiary which supplies its Kirin chips for Huawei's smartphones. But HiSilicon faced serious headwinds under the Trump Administration. Its chip design relies on the basic underlying architecture from UK firm ARM and other software from US firms. US chipmaker Nvidia has bid to acquire ARM. Were that transaction go through, then HiSilicon might be cut off from ARM. On top of that HiSilicon is a fab-less firm, meaning that it relies on others with wafer fabs to manufacture the chips. Those wafer fabs, including many in China which rely on foreign chip manufacturing technology (for example, for lithography) may not now supply Huawei or risk being cut off from the US market. Huawei's active and bold participation in the global ICT supply chain has left it very vulnerable to hostile action by the US and other governments. For two years Huawei have stockpiled Kirin chips for its handsets, spending US\$ 24 BN on this just in 2019. But the stockpile became exhausted with little prospect of further supplies.

Some aspects of the governance of China's R&D, notably the role of the CCP, are unlikely to change:

The restrictions that hinder innovation . . . permeate deeply into the Chinese economy. They are ties that bind. They create a constrained environment for Chinese engineers, an environment that would be unacceptable to their peers in other industrialized countries. They limit innovation by favoring ideas that emphasize stability rather than transformation. You find this atmosphere in universities, of course, but it is also prevalent in laboratories, offices, and engineering professional societies.⁸²

Light has been shone on how endemic corruption has inevitably reached into China's state-funded R&D. The anti-corruption campaign netted more than 50 scientists and two senior CCP officials in Guangdong, who were accused of siphoning off government R&D funds. In another case, leading scientists (including one academician) were accused of diverting funds from projects and two were sentenced to ten years in prison.⁸³ Only 40% of China's total government R&D budget actually gets to the research it was allocated to, while the rest is accounted for by business expenses. To quote a Chinese academic: "If China spends so much money, why haven't we achieved more significant accomplishments? Part of the reason may be that much of the money is stolen."⁸⁴

In 2014, the Chinese government announced that "government will no longer directly manage technology projects"⁸⁵ and that MOST would lose its current role in this. This bombshell was aimed at addressing the problem that competitively bid projects – that is, the largest ones – are awarded "on the basis of personal connections, not scientific validity."⁸⁶

It is easy to see how MOST was forced to announce its withdrawal from active management of R&D funding. MOST is generally recognized as having underperformed over the years. In my contacts with that ministry, I found it to be unimpressive. MOST worked closely with the Ministry of Railways on high-speed rail. Although China's high-speed rail is functioning well after a disastrous accident involving poor oversight over a research institute responsible for signaling, this was at the cost of corruption that left the railways under a massive pile of debt.

In China there is a clear realization that old-style government-sponsored R&D has not cut it. It has been wasteful and with limited results or output. But the 2016–2020 national innovation plan represented fresh thinking and is considered to have been extremely fruitful.

In 2019, a Korean world champion in the highly intellectual board game Go (that is its Japanese name. It is *Weiqi* in Chinese) was defeated by the AI developed by Google's Deepthink subsidiary. The champion declared AI to be "invincible." Xi Jinping was strongly impressed by this historic event which some have described as his "Sputnik" moment, referring to the Soviet satellite that drove President Kennedy to realize the US was falling behind in space.

The technology war by the Trump Administration against China also added to the urgency for China to decrease its technology dependency. Across China, numerous government-funded AI projects are underway. In the city of Tianjin alone, US\$ 16 BN of funding has been earmarked for R&D on AI.

As mentioned in the previous chapter, a US government commission on AI recently stated that China could overtake the US in AI within a decade. Of course the commission had its own agenda which included seeking US\$40 BN in funding for US AI R&D, including in the military sphere. Referring to the race to lead global AI, it stated that "China is organized, resourced, and determined to win this competition." It pointed out, "AI sits at the center of the constellation of emerging technology, enabling some and enabled by others." It explains that AI is "central to China's global

expansion, economic and military power, and domestic stability” and presents the wide range of measures China is taking in order to lead the world in AI by 2030.⁸⁷

One observer writing in 2018 argued that while the US dominated in the initial theoretical research or “discovery” phase of AI, the new phase of AI “implementation” or application is well suited to China which has “abundant big data, hungry entrepreneurs, AI scientists” and a supportive government. Within AI, he anticipated that China would be strongest in governmental use of AI while the US will be stronger at corporate applications. The same writer showed a bold predictive ability when he stated;

Artificial intelligence will be the first GPT [General Purpose Technology] of the modern era in which China stands shoulder to shoulder with the West in both advancing and applying the technology. During the eras of industrialization, electrification, and computerization, China lagged so far behind that its people could contribute little, if anything, to the fields. It is only in the last five years [that is since 2007] that China has caught up enough in internet technologies to feed ideas and talent back into the global ecosystem, a trend that has dramatically accelerated innovation in the mobile internet.⁸⁸

The evidence today suggests that this was spot on. Interestingly, the writer talks about not just AI but also mobile telephony, a reference to China’s leadership in 5G technology.

This new energy and life put into China’s R&D efforts set off alarm bells. A US academic said in 2019:

We are being outspent. We are being out-researched. We are being outpaced. We are being out-staffed . . . We have failed . . . to see China as a militaristic, economic and diplomatic pacing threat when it comes to AI.⁸⁹

Chinese enterprises will continue to be the biggest spenders on R&D, principally on product-related development. The overwhelming leader in this is Huawei, which in 2020 increased its R&D to US\$ 20 BN, keeping it consistently at around 15% of its revenues. That said, the Chinese government has learned much from the last 40 years in terms of how to better allocate government funds and to motivate scientists and entrepreneurs. It has learned the importance of basic research, the need for innovation not imitation. I would rate China’s transformation and improvement in this area over the last decade as impressive and sustainable. The Chinese government will remain a key force driving the broader hunt for “indigenous innovation” and technology leap-frogging that has so far largely eluded the nation. The interaction between industry and government on technology innovation seems currently to be well handled and productive.

Connecting with the Consumer

Until very recently, whether it involved cars or mobile phones, Chinese firms have had easy access to the technology and components needed to produce consumer

products, especially since many of the foreign component suppliers have migrated to China. The barriers to entry for Chinese players in manufacturing were low. In many sectors, such as auto manufacturing, that remains the case. US sanctions against Huawei make it less easy in the mobile handset industry.

A decade ago, China's challenge was how to master the design skills needed to create attractive products that resonate with the consumer. But if we look at smartphones, there were, until the Trump measures, encouraging signs that Chinese players will finally be able to break out of the trap of low-quality, low price, and poor design (feel and look) that have bedeviled them to date.

The China smartphone market is the largest in the world but is very crowded. Chinese brands such as Huawei and Xiaomi jostle for market leadership with foreign players such as Apple and Samsung. In 2019, despite being blacklisted by the US in May of that year, Huawei shipped 240 MM handset globally, with its sales of high end phone up 50%. Other Chinese firms, such as Xiaomi (2019 global handset sales of 25 MM units), Coolpad and Lenovo, have also competed strongly.

Given the China smartphone market's competitive intensity, profitability is becoming an issue. Yulong, the manufacturer of Coolpad, despite its market strength in the high end, saw its net profit margin decline to 2.3%. Xiaomi also has razor thin margins. Predictably, Chinese smartphone producers are increasingly looking to overseas markets to sustain their growth. This move is a vital test of whether Chinese consumer design can take on the world.

Huawei has been selling its new Ascend P6 in 100 countries, including across Europe. It has many of the features of the latest iPhones and Samsung phones, but is a good deal cheaper.⁹⁰

Globally 87% of smartphones now run on the Google-owned, Linux-based Android operating platform, which is customizable by manufacturers. A wide array of application software written specifically for the platform is available. Although Huawei found its access to Android, related apps and chipsets cut off, most Chinese smartphones still have free and open access to Android.

Low-end smartphones sold by Huawei, ZTE, Yulong, and other Chinese firms did originally come under heavy criticism from American consumers. While Yulong sold a full range of models in China, including a high-end one with a titanium case, in the US it focused on "budget shoppers," with a price of US\$ 99 for a noncontract phone with prepaid service. In online reviews of this phone, most opinions were at the lowest level (one star) with comments such as, "This phone is horrible," "stay away from this turkey," "please beware," "sucks."⁹¹

With smartphones, the design aspect is critical: the thickness, size of the screen, shape, color, all combine with the functionality and software of the phone to produce a consumer experience, a feel and touch that appeals.

Huawei sought to innovate in design and functionality, building the world's thinnest smartphone, a water-resistant model, and one with the largest display – 6 inches. Having plugged away patiently,⁹² before Trump threw his monkey wrench

into the works in 2019, Huawei showed clear signs that it was turning the corner in the US, where its high-end phone received positive reviews:

Apart from being the slimmest smartphone yet at 6.2 millimeters thick, many will find the Ascend P6 to be the most beautifully designed Android OS mobile device as well. This is quite surprising for a manufacturer that generally has not cared one bit about the design of its phones in the past. This is why Huawei has managed to get the interest of possible purchasers with this truly beautiful product.⁹³

Consumer feedback must have been music to the ears of Huawei executives:

The P6 shows that Huawei can build high-quality phones. What goes inside those phones can easily be improved, but making something that feels and looks good is a harder skill to nail. Huawei appears to have made good ground here. . . . The takeaway message here is that Huawei means business.

Chinese smartphones have been achieving the hitherto missing design quality, permitting them to compete against the iPhone, which, although assembled in China, still has the powerful caché of being “designed by Apple in California.” We should not discount Huawei and other Chinese smartphones continuing their global surge in volume, quality, and consumer appreciation, with or without the US market.

Prospects of Deepening Economic Reform

Once Hu Jintao’s leadership ended, the era of massive infrastructure investment was widely and openly criticized as being fundamentally unsustainable, a wasteful, inefficient, environmentally polluting, and often corrupt way of supporting economic growth. The Xi Jinping regime that followed was left with the task of “cleaning up the mess” (as one Chinese observer put it to me) from the earlier stimulus program. A rebalancing of the economy was begun.

There began a consolidation of industry where massive overcapacity had reduced or eliminated profitability. The government instructed companies in 19 sectors, including coal mining, steel, aluminum, and shipbuilding to cut capacity and reduce production.

The current government shows some determination to force things to happen. “Zombie enterprises” are being merged, reorganized, having their debt restructured, or even bankrupted and liquidated. Although this process is expected to entail several million redundancies, the hope is that the unemployment will be sucked up by the services sector, which is growing faster than the rest of the economy and now accounts for 46% of GDP.

Massive mergers have already taken place, including that of Cosco Shipping and China Shipping, the nation’s two largest shipping firms, which created a firm with combined assets (ships, wharfs, shipbuilding, etc.) of RMB 600 BN. Baosteel merged with Wuhan Iron and Steel to create combined steel capacity of 60 MM tons.

The same process took place in the cement industry. But it remains to be seen just how effective these mergers will be in forcing consolidation. The danger is that rather than reducing capacity, this is simply creating even larger bad companies that will not be allowed to fail.

Chinese citizens still save half of their income to cover health, education, and retirement. Though the weak social safety net is being improved, in the short term it is unrealistic to expect a huge uptick in consumer spending. So, inevitably, propping up economic growth through infrastructure investment will continue. But the stated goal is for those funds to be allocated more smartly and efficiently with an emphasis on smaller cities and townships, rather than creating unlivable megacities. Moreover, the absence of a major stimulus program during the Covid-19 crisis indicates that the government is mindful of the economic distortions and waste such spending typically brings with it.

Steps are being taken to reform the “residency permit” (*hukou*) system, which has been in place since 1958 and restricts the ability of rural citizens to gain residency in cities, seriously hampering rational flows of labor and talent. Without a *hukou*, there is no access to city health benefits or children’s education, creating an underclass of illegal urban migrants. China officials state that it has 290 million migrant workers.

Although *hukou* reform is challenging since it places a heavy burden on public finances needed to cover the new residents and meets with resistance from existing urban residents, pilot programs are already under way. It is estimated that if 160 million migrants could obtain city *hukou*, then the nation’s consumption would increase by 11.8%.⁹⁴ The expectation is that even if China’s GDP growth were to slow to as low as 3% to 4%, the more consumption-led economy would provide the needed additional wealth creation.

In 2019, *hukou* requirements were abolished for cities of 1–3 MM inhabitants. But cities over 3 MM are free to set their own criteria for obtaining *hukou* including “educational background, employment, and achievements.” This a highly subjective points-based system which does little to improve the lot of the vast majority of rural residents who receive greatly inferior pensions, education, and medical care, compared to their urban brethren.

If the CCP can wean China off the previous hyper-growth while maintaining wealth creation and avoiding civil disorder through a smooth rebalancing of the economy, then it would be a massive contribution to the reform process and a remarkable achievement.

The CCP also continues “structural reforms,” including the reduction of the bureaucratic burden on businesses. It calls for further diversification of SOE ownership through inviting investment from private firms. It pledges a more rational and fair allocation of bank financing to POEs on conditions similar to those enjoyed by SOEs.

These are useful changes but amount to tinkering around the edges rather than taking on the bigger, overarching issue of the CCP’s role in the economy. This is not

a new topic. In 1980, Deng argued that the CCP should reflect on whether the role it plays in a given enterprise is constructive or useful. If not, then the CCP should pull back and avoid “having a finger in each pie,” and thus “the party’s prestige will grow.”⁹⁵ In 1987, CCP head Zhao Ziyang stressed that CCP power should be separated out of factories and universities.⁹⁶

At the height (in my mind) of the reforms, under Premier Zhu Rongji, the CCP maintained its presence in SOEs but used a light hand, minimizing its interference in business matters. But during the “lost ten years” of the Hu Jintao regime, the CCP beefed up its hold on enterprises. Although policy statements under the current Xi administration did call for further SOE reform, actions speak louder than words. SOE leaders feel strongly that, in fact, the CCP is drastically tightening its grip on their firms, further “going backward” and reverting to a pre-reform model. They will tell you in private that the “separation of party and enterprise” (*dangqi fenkai*) is a crucial unfinished piece of the reforms. They express frustration at the way that even the stock market-listed part of their SOE is subject to interference by the CCP, in the setting of salaries and bonuses, for instance.

Some liberal, highly market-oriented Chinese economists openly urge the government to pursue further reforms that will stop the interference of the CCP in business governance. They vigorously oppose China’s new version of socialism, which is seen as an unholy alliance between the SOEs, the state banks, local government, and the CCP.

One such liberal who is a former SOE chairman and still, remarkably, a member of the CCP recently stated:

China’s current problem is that the government-dominated economic structure has led to the collusion of public power and capital, and hence special interest groups have been formed. . . . The key to achieving this goal is to change the functions of the government, which means the government’s role must transform from dominating the economy to a role to provide public goods and services.⁹⁷

He went on to say:

China’s market-oriented reform still has a long way to go. The promotion of the rule of law, and a new round of comprehensive reform in the political system and in social governance is inevitable.⁹⁸

He is correct when he says that a true market economy is a long way off, but he is surely over-optimistic with regard to the inevitability of political and social reform. Assuming that the CCP is still in power, there is little prospect of the end game being anything remotely like liberal capitalism. One senior Chinese business leader during a one-to-one meeting with me characterized the system as state capitalism (a commonly held view) and then smiled and added candidly that “some even talk about it being like prewar [pre-World War II] Germany.”

Another SOE manager put it to me: “SOEs are driven by political interests. If there is no political reason they will not act on anything. One party [the Communist Party] monopolizes resources.”⁹⁹

The views by that liberal Chinese economist quoted above are remote from those of China’s current leadership. When economic reform entails, as he puts it, “comprehensive” reform of the political order, then it will meet a brick wall since it goes to the heart of the CCP’s monopoly of power. One may speculate that his view was either naïve or perhaps, more plausibly, a careful part of the Chinese government’s deceptive soft power messaging to the West.

The current rebalancing of the economy is a reshaping of reforms in a more sustainable direction, a significant retuning or refining of the economic model underlying *the China paradox*. But the optimism over a true deepening of the reforms that accompanied Xi’s appointment has been replaced by a gloomy opinion that the CCP has little intention of pursuing that route. The CCP remains focused on its own survival and views any dismantling of its role in the economy as a slippery slope to irrelevance and a fate similar to that of the Soviet Union under Gorbachev.

We should not imagine for one minute that the CCP is looking to either create a true Western-style market economy or for that matter would agree to take a back seat. Even more concerning, it today seems bent on reasserting itself in SOEs and, in so doing, undermining the past achievements of the reforms.

Initially in 2016, there was some optimism that Xi was first regaining full control of the nation and consolidating his personal power in order to ensure there is sustainable short-term progress, with the sincere intention of later reinvigorating and deepening the reform process. But that optimism has evaporated. The evidence simply does not point in that direction. In contrast to what we saw at the peak of the reforms when the CCP exhibited a willingness to experiment and learn, its leaders today show an overconfidence, rigidity, and autocratic spirit that does not bode well for the sustainability of *the China paradox*.

It is as if the CCP – having dismantled central planning, put the state enterprise sector back on its feet, and created a hybrid economy with some room for the private sector – is declaring victory in the reforms, with a new viable version of one-party autocratic socialism. Unfortunately, this posture flies in the face of China’s urgent desire to move up the economic ladder toward an innovative knowledge economy. The CCP’s “locking down of the information environment” in response to the “digital subversion of the PRC” is the kind of action that will prevent China from achieving its true economic potential.¹⁰⁰ The outlook is both opaque and gloomy. Whether that gloom is justified depends on many factors, not least the future of Xi Jinping – whether his “Thought” rises to the occasion, or whether he is left as an emperor without clothes, I can only ponder. The Chinese will decide.

Chapter 12

Conclusions

Much of the last two centuries of Chinese history has been one of conflict and war, a painful and fruitless search for wealth and revival, a trail of national humiliation and dashed hopes and aspirations. Thus, as we evaluate China's development during the last four decades, what I have termed *the China Paradox*, or its remarkable hybrid model, there is much to admire and to celebrate. Given China's bleak modern history, the emergence of a functioning system that has brought peace and prosperity to the Chinese people is both unexpected and welcome. Credit is also due to China's ruling CCP which, while never abandoning its harsh grip on power, permitted fresh air to blow through the economy, enabling a rebirth of China's entrepreneurial spirit. I have a strong personal appreciation of the positive changes having been a close witness to this extraordinary transformation from the bleak days of the Cultural Revolution to the vibrant and optimistic China of today.

But as we acknowledge the undoubted success of China's economic reforms, we are constantly reminded of what Chinese society has paid for this equilibrium, or its Faustian choice, of achieving economic progress on condition of accepting Party autocracy. In the First Edition of this book, we identified serious concerns that the economic reforms had given way to a stifling atmosphere which militated against innovation. China's debt burden cast doubt of future sustainability. CCP rule lay in the way of China achieving its potential.

Five years later, as I write this Second Edition, much we observed about China remains the same and earlier conclusions are largely valid. Still, when asked what changes we have witnessed, I am bound to say there are plenty and that they are highly significant, materially important to our assessment.

First, the global concerns about weaknesses in the Chinese economy have dissipated, to be replaced by a deep anxiety that China's new burst in its economic rise threatens the world order. As noted, China's innovation in certain spheres is today real and quite different from the earlier catch-up mode. Xi Jinping can take a fair share of credit for putting fire into China's R&D. The recent global pushback is at the same time a reflection of moral outrage at China's increased repression in Xinjiang and Hong Kong.

Second, over the last five years, the China party-state has seen significant changes, which revolve around on the much heightened Party autocracy and the concentration of power in Xi's hands. The moribund, drifting rule of Hu Jintao has been replaced by a supremely confident and driven leadership under Xi who has permitted a personality cult to be constructed around him. Over the last five years, the CCP has continued down the path of recapturing its power across society included in all businesses. The Party has taken steps to rein in the autonomy of mega-large Chinese e-commerce firms, suggesting that the golden days of China's private sector may be numbered.

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As we have noted, China has long struggled to gain control of its own destiny. The late 19th century offered the very real prospect that China would be dismembered by the Great Powers just as was happening in Africa. Social Darwinism, the theory that only the “fittest” nations would survive, had initially been part of the justification of imperialism. But as those ideas were translated into Chinese, they were transformed into a clarion call for China to strengthen itself or face annihilation. Thus nationalism became the dominating mainstream of Chinese political thought up to and including today. Foreign ideologies, in particular Marxism, were adopted but were harnessed to serve national goals. The Chinese slogan Revive China (*zhenxing zhonghua*) perfectly encapsulates this virulent nationalism which continues to course through the veins of Chinese citizens.

Concepts such as democracy, freedom, and constitutionalism took their place on the smorgasbord of ideas imported not just from the West but also from Japan, at the beginning of the 20th century. But, particularly after the Versailles Treaty of 1919 rewarded Japan with a colony in the form of Chinese port city formerly held by Germany, Chinese intellectuals took a dim view of what they saw as the hypocritical views of Woodrow Wilson on national “self determination” and abandoned Western liberalism.

Under this overarching nationalism, the common theme that has been consistently embraced over these two centuries in China is science and technology as the key to national survival. China has proven to be an avid learner of Western scientific, technical, and managerial skills. This learning was translated into a strong impulse toward industrialization and ultimately urbanization. China has shown little sentimentality for the hard grind and cultural backwardness that most Chinese farmers experienced.

We should add that China’s embrace of industrialization was not necessarily linked to social and political change, and often to the contrary it was deployed to protect the status quo. As we saw, Chinese officials in the late 19th century established iron and steel plants, cast heavy guns of German design, and constructed modern naval ships, all with the goal of halting foreign military encroachment and defeating domestic rebellion. That narrow path of selective industrialization proved of little use and the Qing dynasty was replaced by the Republic. The forces of conservatism drowned out any vision for deeper change. The Qing reforms were too little and too late to save the dynasty.

After the overthrow of the Qing dynasty, the Republic of China that took power was debilitated by massive corruption, communist rebellion, plus Japanese occupation. It failed to achieve full national unity, or deliver economic take-off, leaving it easy prey for the CCP. Although there were plenty of useful reforms made during the Republic, whether in education or healthcare, the CCP-led PRC that followed started afresh without building on many of these strong elements.

In 1949, the CCP had ridden to power in the civil war on a platform of social reform that attracted broad-based social support including from the urban middle

class and industrialists. But the CCP quickly shifted gears pushing the nation forward in a left-revolutionary direction, first along Soviet lines and then later, at Mao's instigation, beyond that toward what he imagined was a more complete form of "socialism," which in fact were unachievable utopian goals. Such was the failure of this path that after the economic reforms began in 1978, collective ownership of the land was reversed and in the cities the private economy permitted to emerge. Under Deng and his successors, China acknowledged Mao's error in trying to leapfrog historical stages and, in Marxist terms, revised China's developmental stage to "early" socialism. In fact, one could argue that after the first 30 years of the PRC, China was still at the early stages of *capitalism*. The laissez-faire, anything goes culture during the early years of China's reforms in some respects looked like the Wild West of early US industrialization.

We laid bare just how dysfunctional and, ironically, poorly planned, the Centrally Planned Economy was. Rigid vertical administrative structures and centralized procedures obstructed rational economic activity to the extent that cities set up local subscale factories to ensure supply, while factories widely used gray market channels to avoid reliance on poorly functioning official distribution channels. For much of the first 30 years of the PRC, the Five Year Economic Development Plans were little more than a series of rolling one-year plans.

This is not to say that China under Mao did not have achievements. Massive effort went into establishing a stronger educational, healthcare, social welfare, and electrification infrastructure including in remote and poverty-stricken rural areas. Although Mao's People's Communes were dismantled during the post-1978 reforms, their rural workshops stood the test of time and emerged, post-reforms, as factories producing, for instance, industrial bearings. A large-scale heavy industrial base, including from iron and steel to shipbuilding and automobiles, was created, initially with help from the Soviets and other Eastern Bloc countries. Bridges were built across the Yangtze. Onshore oil and gas production was ramped up.

The centrally planned economy that China adopted was not only intrinsically wasteful, irrational, and unscientific. The Soviet-style heavy industry-oriented development path was poorly suited to a poor agrarian country such as China. Heavy industry was established at the expense of wealth creation. Funds were drained from the broader economy to finance massive industrial projects, to the extent that while GDP did grow, per capita income in China stagnated. This was all greatly compounded by Mao's efforts to take China further "left," whether it was the Great Leap Forward and the man-made famine or the Cultural Revolution when Mao overthrew the Party leadership that had resisted his disastrous policies.

I devoted space to explaining what China looked like on the eve of the economic reforms because it sheds light on why at that time China had a deep hunger for change. China was exhausted after three decades of extreme leftist doctrine, political violence, and economic hardship. A reforming Chinese economist later denounced the Maoist path as one which led to "perpetual poverty." The color had been drained from

the cheeks of society. Human relationships were undermined by citizen spying on citizen, child on parent. The extended family and ancestor worship was wiped out. Religion was discouraged and, at times, banned. Passivity toward the political process was held to be tantamount to opposition and was punished as such.

Now to bring together all the threads of *the China paradox* – economic, political, social, scientific, cultural – and on that foundation, assemble a view of possible scenarios for China's future.

Since Mao's demise, China has given birth to *the China paradox*, which has proved so far to be a highly successful formula. It permitted a relatively smooth economic transition and transformation. China's hybrid developmental model has worked well since the forces of change, of entrepreneurialism, of innovation have enjoyed a productive equilibrium with the ruling CCP, which, while not abandoning its autocratic instincts, displayed remarkable pragmatism in leading the economic reforms. Incompatible forces unexpectedly became mutually supportive and aligned. Hence, *the China paradox*.

In launching the economic reforms, Deng Xiaoping was sailing into uncharted waters. It was about learning through doing, an *ad hoc* experimentation and a search for what might work. It was a seat-of-the pants exercise that ultimately delivered beyond all expectations. The reforms unleashed creativity and energy throughout Chinese society.

It is hard to understate the massive social impact of these reforms on China. Deng's bold pragmatism was critical in drawing a line under the Mao era and sending the signal to society that there were very few limits on what could be considered. Deng barnstormed through China convincing skeptical officials of the need for radical change, since that was the only way to ensure the survival of the Party. He reassured citizens that they would be no return to the policies of the Cultural Revolution. He systematically took action to abandon key aspects the Maoist legacy, releasing political prisoners, restoring standards to education, giving management control to factories, and, in countless ways, rejecting dogmatism in favor of science and logical argument (based on Deng's principle of "seek truth from facts").

The reforms and the future shape of the shape of the economy were defined cautiously through trial and error, through pilot schemes to demonstrate that something can work. But that should not lead us to conclude that Deng did not have a vision. Through the twists and turns, he never deviated from his core vision of a prosperous China that continued to be ruled autocratically by the CCP. What he did not have was a clear path to that goal.

The fundamental goal of the CCP is to stay in power. When we acknowledge that simple but core fact, then China is less puzzling. Things fall into place. People ask why a ruling autocratic communist party would provide the business class room to grow. The answer is that wealth creation underpins the longevity of CCP rule. What seems a paradox is perfectly logical.

The reforms were chaotic, with a stop-and-go pattern of rapid progress followed by clampdowns or readjustments to rein in what was seen as “market anarchy” and also to put a lid the rising democratic expectations of civil society. As the old strait-jacket of central planning was dismantled, power was devolved to the local level, where, despite China’s unitary legal system, almost federal-style variations were permitted. As the government fretted over how to resolve the problem of the dysfunctional SOEs, the private sector of industry emerged and proved vital in creating wealth and jobs. This bought time for the government to sort out the heavy legacy of the Mao years. Civil society started to stir, spurred on by the internet and social media. Environmentalists prodded the government, which belatedly began to admit the air pollution crisis. Religion flourished, filling the gap left by the retreat of Marxism. Private commerce returned and the street cries of small traders again rang out in the alleys of Beijing.

But the CCP has all along been quick to nip in the bud any potential challenges to its power, not thinking twice about imprisoning dissidents (inside and outside the Party) and members of religious cults. Lawyers who defend the dissidents are brought to trial. Ethnic minorities such as the Uyghurs and the Tibetans suffered abuse and repression by the CCP and the Han majority. The positive balance of forces within *the China paradox* was at times massively disrupted. In 1989, in response to a perceived threat to its rule, the CCP has no compunction about turning its guns on its citizens. Officials who abhorred the free-wheeling new order quickly sought to roll back the reforms. But the cat was out of the bag. The Chinese had grasped their new-found economic freedom. Deng, doggedly stuck to his thesis that growing prosperity was the key to the CCP’s survival. He fought back to restore momentum to the reform process.

As China struggled to dismantle the Centrally Planned Economy without bringing the whole house crashing down, three aspects of the new economy emerged – a reformed state sector, the private sector and foreign direct investment.

While thousands of smaller SOEs were sold off or shut down, the large central SOEs were mainly transformed into modern enterprises, merged and often listed on the stock market. They were slowly weaned off government subsidies and their unfunded pension liabilities were dealt with. Their business models were radically rethought, some lines of business shut down and the remainder refocused on customer needs and profitability. This was something which was unheard of under Mao’s rule when factories set inflexible production targets and quotas whereby products were shipped out regardless of changing market demand. Although the remaining 98 large Chinese central SOEs are still subject to a high degree of control and interference from the party-state and underperform the private sector, their vital signs are stable, and given their role at the commanding heights of the economy (steel, coal, aluminum, railways, airlines, electricity generation, telecommunications) they look set to continue to lead a charmed existence, receiving the bulk of government attention and

financing. As it stands today, the government can point to the surviving state sector and say that the hybrid economy is still “socialist.”

Though parts of the old economy have been reshaped and given a corporate veneer, much of it remains a series of fiefdoms of the CCP, often functioning in cozy duopolies and loaded up with debt that the government will never let them default on. Now under Xi’s rule, the CCP, in response to decades of centrifugal, decentralizing forces during the reforms, is seeking to claw back its all-encompassing authority. For large old-style SOEs, this will mean that their already weak corporate governance will increasingly be held hostage by the plans of bureaucrats who exhibit the lingering legacy of the planned economy, creating an atmosphere that hampers legitimate risk-taking.

It is hard to generalize about the state sector. When it comes to new-style SOEs, or former SOEs, the story is refreshingly different. Strong CEOs have rescued them from oblivion and in so doing have achieved a high degree of autonomy from the party-state, a degree of independence which should be unassailable. Many such former SOEs, particularly at the local level have evolved to mixed government and private ownership, and function more like private firms. Such is the case with the Qingdao-based Haier Group, global leader in white goods, which has expanded through overseas acquisitions. Its exemplary corporate leadership coupled with its mixed ownership has permitted it to function extremely well, combining entrepreneurial excellence with close ties to government which provides a soft hand of support while enjoying a share of the pie in multiple ways. This corporate model harkens back to the dominant pattern in the late 19th century, with mandarins supervising and merchants doing the business. This opaque ownership structure may today look anomalous. But it has proven to function well in China. We also profiled Lenovo, a global market leader in computers that began life as a central government research institute and likewise combines a high degree of autonomy from government with outstanding corporate leadership and smart business strategy. Given their management skills, which compare favorably with those of their global peers, these hybrid state/private entities will continue to compete strongly on the world stage.

The evidence suggests that the key is the quality of management, rather than who owns the firm. At the beginning of the reforms, there was a stark contrast between, on the one hand, the SOEs, before their restructuring at the hands of foreign consultants, which looked like fossils from the previous era, and, on the other hand, go-getter POEs emerging through dint of their own determination and energy. Today that distinction is less consequential. When we looked at the collapse of the Anhui construction firm operating in Africa, its issues arose less from its mixed government/private ownership and more from the failure of its top management and the government officials (at local and state level) who turned a blind eye to the firm’s business blunders.

During the period in which the SOE sector was undergoing heart surgery, the private sector (POEs) emerged uninvited as a potent economic force that was able to

bear the nation's economic burden during this painful and protracted transition from the planned economy. The private sector has been and continues to be more efficient and profitable, and creates more jobs, than state firms. It initially grew by relying on its own resources, by cobbling together capital from friends and relatives. While the planned economy was being phased out but still functioning to a degree, POEs were excluded from the sales channels used by SOEs and were rarely able to receive loans from the state banks. While many small and medium POEs are still cut off from state funds, when it comes to large and significant POEs, the picture today is very different. The telecommunications infrastructure giant Huawei, while technically a POE, is closely linked to the party-state, serving as a national champion in its arena. Compared to large SOEs, Huawei enjoys a much higher degree of day-to-day autonomy, which improves its corporate governance and strategic responsiveness to market shifts. But, as a reflection of its national role, it is able to offer its foreign customers buyer credits funded by China Development Bank. It is naive to imagine that Huawei is not a vehicle for the party-state's global ambitions.

Yet others POEs, such as Alibaba, while of high significance to the national economy, had initially worked to find a balance somewhere between autonomy and subservience. Today that attitude is not effective in keeping the party-state at bay. We have documented the tribulations of Alibaba whose financing arm is being brought more closely under state supervision. Alibaba's founder made things worse by displaying open scorn for China's leaders. Other similar e-commerce platforms are also being affected. The action against Alibaba might just be a step to mitigate systemic financial risk, but my assessment is that this is also a watershed in China's private sector, a sign that such POEs will in the future steadily be cut down to size, instructed to stop swaggering around world conferences, upstaging CCP leaders, and ultimately being forced into closer union with the Chinese party-state.

Yet other POEs, such as the auto parts maker Wanxiang, are of less national strategic importance and, while that firm is carefully deferential and respectful toward the CCP it is not subject to extensive interference by the Party. This raft of POEs have established a strong culture of independence. They will of course look over their shoulders, watchful of CCP intentions and playing a visible game of token participation in the political process. But they can stand on their own feet. State banks are now willing to finance them. They show the ability to integrate and turn around foreign firms they have acquired. That bodes well for the future.

Assuming China continues on the trajectory set by Xi Jinping, it is reasonable to expect a further convergence between the state and private sectors, at least with regard to the hand the party-state has in their governance. That said, there is no evidence to suggest there might be any wholesale retreat or reversion to pre-reform modes of economic management whether in terms of state planning or enterprise governance. In fact, I would go as far as to say that much of China's economy, be it private or public will still perform strongly, *despite* government interference. To return to that issue, the key is the quality of management and strategy. This extends

to Chinese firms entering global markets. Based on how firms such as Lenovo and Haier are functioning overseas, there are grounds for optimism about the competitiveness of China firms.

The third leg of China's economic stool, so to speak, has been in-bound FDI. Although during the early reforms, China relied heavily on FDI to fund its national development, since then alternative sources of financing have emerged and the focus has been heavily on using FDI to transform its backward industry (the auto industry is a good example) and to bring technology, processes, and management skills to China. Initially China insisted on foreign firms establishing joint ventures as a way to transform domestic industry and speed the transfer of technology (not just through contractual agreements, but also illegally). Many high tech firms held back, fearing IPR theft. More radical or reforming Chinese officials pressed the case and won the argument for permitting foreigners to own 100% of the equity in a given venture. We saw with the Motorola case in Tianjin just how that enlightened move facilitated FDI entry into China.

We also saw how the entry of foreign consumer brands into China improved choices for Chinese citizens and most importantly raised quality and safety standards, having a knock-on effect whereby their Chinese competitors had no choice but reach the same standards.

The signs are that FDI will continue to find the Chinese market irresistible. That said, foreign MNCs active in China have to take into account the fact that their China risk has risen significantly – for instance, in terms of potential Chinese retaliation against them in response to foreign sanctions. We have noted just how exposed Apple, which is a major component of the Dow Jones Industrial Average, is to Chinese sanctions. Many MNCs have for some time had in-place detailed contingency plans around what to do if China becomes a hostile environment. The chance of those plans being needed has risen in recent years.

The government has played a vital role in China's emerging business models. China has worked hard at technology catch-up (autos, semiconductors, nuclear power, high-speed rail) with mixed results. China has proven it is capable of acquiring and turning around underperforming foreign firms. However, as serious frictions with the world continue, regulatory barriers in the US have been increased in order to slow China's takeovers and investments. We have documented the rapacious activities of Chinese firms in Africa as part of the contentious commercial and political push of the BRI. Although China's BRI investment and projects will continue, there are signs that China, facing failed projects, defaulting loans, and pushback from host countries, is becoming more circumspect about what it gets involved in. Novel product innovation is tough anywhere and for a long time China seemed an underachiever. But in recent years we have seen a spurt in China R&D and technology application in areas such as mobile telephony, AI, and biotech.

We have looked at key factors that could continue to drive China forward and others that might derail that progress. Albeit with occasional tiffs or minor conflicts, China has enjoyed decades of mainly fruitful engagement with the world, both as the “factory of the world” and also as the recipient of FDI and related technology.

Over the last five years, with US trade, investment, and technology sanctions against China, and talk (more talk than action) about decoupling, a question mark hangs over the sustainability of that previous system. Both China and the US bear responsibility for this crisis. There is legitimate concern that China, as an autocratic, opaque nation may have a say in our telecommunications. This is compounded by Chinese human rights abuses which solidifies overseas public opinion across all political spectrums.

China meanwhile has abandoned caution and taken a highly belligerent attitude. It is fair to say that US–China relations are unlikely to revert to the old *status quo*. That is probably a good thing. There is merit in insisting that China abide by global norms whether in world trade, in giving foreign firms a level playing field in China, or in how it treats its ethnic minorities. My hope is that many of the frictions that inevitably emerge can be resolved through multilateral agencies such as the WTO. While being vigilant about China’s 5G technology, it is also ill-advised to go after an entire firm such as Huawei, including their handset business. Such action seems not to be a rational step to protect national security but more like an attempt to derail China’s legitimate rise. Quite apart from being contrary to healthy international behavior and possibly opening a path to technology war and worse, it is also not that smart since China has, but so far has not used, a strong choke-hold in terms of its ability to retaliate in China against FDI.

Moreover, the Huawei saga has highlighted the vulnerability of China’s own national security. It has prompted China to redouble its effort to catch-up and, where possible, innovate in key technologies. The frictions with the world have also prompted Xi to put the highest priority on the domestic economy. This makes sense in the current climate and sends a strong signal that China can go it alone, if necessary. That said, it is China’s preference and ultimate goal to play the fullest possible role in the global economy. Xi is in no way proposing a return to the Maoist doctrine of “self reliance.”

Though the Biden administration has been cautious about removing Trump’s sanctions against China too soon, so as to maintain some leverage, the US has made it clear that the relationship with China has three distinct aspects – adversarial, competitive, and collaborative – and that it will assess each issue individually. That is constructive thinking. On the subject of collaboration, the US and China have already announced a program of joint efforts on climate change.

Trade and investment friction with the world is an immediate issue that shows some sign of cooling down short term. But the longer term issue which looms over China is the nation’s governance and specifically the role of the CCP, which presents many risks and critical uncertainties down the road. We discuss that below in the context of Xi Jinping’s rule.

On the bright side, we have seen how China's excellent newly built transportation infrastructure sets it apart from nations such as India. China's educational system still suffers from the Confucian and communist legacies, but functions well nonetheless. Coupled with the impact of students returning from overseas, China is able to make good use of the nation's brain power. China is not only a pacemaker in adopting renewable energy sources, but also has become a leading supplier of the wind turbines and solar panels needed for this. China will likely become a leading producer and user of electric vehicles and internet-based new mobility solutions.

China's financial condition has been a bone of contention and in some aspects remains murky. But despite repeated Western warnings of doom and gloom, China's financial risk seems entirely manageable at present. In the West there is even some sneaking respect for how China has managed its economy and appreciation for China's positive role during the 2008 financial crisis. Although within China the buck still ultimately stops with its state-owned banks and the government, it still has the financial resources and levers to navigate these risks and handle the heavy load of enterprise debt. Moreover as we saw from the AFECC (diamonds in Africa) example, there is a move to increasingly use China's bankruptcy law as an alternative to simple bailouts, which send the wrong signal. Based on the positive factors we have identified, there is every prospect that, in the short term, China's economy, rebalanced to enhance sustainability, will continue to make progress, not at the crazy pace of past decades while China caught up, but still growing. Even faced with US sanctions and the Covid-19 pandemic, China has continued its growth.

Notwithstanding all its blemishes and flaws, *the China paradox* came to be viewed by many in a largely positive light – a hybrid system composed of a mixture of spontaneous economic activity and creativity on the one hand and bureaucratic “guidance” on the other. The model was humming with positive energy while underpinned by the government as the backstop to prevent any meltdown.

Many younger Chinese are today not aware of the vibrancy, fresh air, and relative openness of the first decades of the reforms. It was a heady time of experimentation and breakthroughs. I worked with reformist officials who pushed through new regulations on foreign investment. Chinese firms that had been forced to hide under the smokescreen of being a TVE had their private status recognized under law. The CCP began to welcome private businessmen into their ranks. Senior CCP leaders abandoned some of the opacity that surrounded one-party rule. Zhao Ziyang (CCP head, 1987–89) held press conferences in which he talked without notes for two hours. Zhu Rongji (premier, 1998–2003) boldly forced SOEs to modernize and risked his political life by pushing for accession to the WTO.

Throughout the last four decades of reform, *the China paradox* emerged bit-by-bit, through an evolutionary process to form a functioning system that could permit China to perform the difficult balancing act of dismantling the earlier economic system, fostering a sustainable new economic order and all while keeping a lid on China's centrifugal tendencies that in the past had led to long periods of national

disunity. Throughout this risky but ultimately successful process it was clear that this was a transitional *modus operandi*.

I have focused on China's economic transformation and how China's enterprises have been reformed or have emerged. Thanks to the Chinese people's energy and creativity, the economic story has been one to celebrate and admire. But in telling this story I have also been able to shed light on the broader picture of China's reforms since 1978. What stands out is that in the final analysis it is the CCP or the party-state which is the determining factor. It is politics not economic forces that dominate. In this aspect there is continuity between Mao's rule and Deng Xiaoping's, in that the core mantra "The Party Leads in All Things" is shared by these two very different periods. Today it is a different economic system but the same, albeit evolved and adapted, CCP, imbued with an ethos which puts its survival above all other things.

As we look out into the future, our conclusions on China's likely path are necessarily rooted in our perceptions of the CCP and its leadership.

Around the year 2000, two decades after the beginning of the reforms, China's steady rise seemed all but inevitable. The CCP had faced challenges but always seemed to muddle through and come out as an unlikely hero. It had managed the mixed economy effectively, achieved smooth political succession and allowed civil society some space to grow.

But fast forward a further decade, as I began research for the first edition of this book, I identified weaknesses in China's governance reflecting a widespread view that the reform energy was falling away, leaving China less well equipped to compete in the global, technology-driven economy. China's track record looked rather tattered around the edges.

Back then I commented that the world's verdict on China had swung from adulation to serious concerns. While *the China paradox* had proven successful in kick-starting the economy, there had been a heavy cost to this model, resulting in China actually turning out to be an underperformer. Unbridled development had left China with a serious hangover. Unprecedented wealth creation was a mixed blessing since it opened the door to corruption on a grand scale that amounts to nationwide kleptocracy. While hundreds of millions of Chinese had indeed been pulled out of (or better phrased, had *pulled themselves* out of) poverty, much of the wealth had gone missing, siphoned off into the families of top leaders, salted away in real estate in London or New York.

Those problems stemmed from Deng's *laissez-faire* tactics encapsulated in his slogan "development is a firm principle," allowing things to rip, so that change could take hold. But that mood for change dissipated itself and that cooling of reform zeal was coupled with a dull and uncreative CCP leadership under Hu Jintao, so that the *China paradox* began to run out of steam. At that time, the CCP looked less and less like the architect of a new order that could stand the test of time. It had missed the opportunity to learn from other societies' experience while reveling in

the economic takeoff. Growing air pollution back then was seen as a badge of honor, a sign that China had somehow mastered the principles of “development.” Things having been permitted to rip, it proved hard to rein them in. Regulations on environmental protection, industrial consolidation, illegal local taxes, and a host of other aspects were systematically obstructed by local interests.

Today it is fair to say that China has gotten itself out of the doldrums that I commented on back then. Under Xi Jinping’s more assertive rule (which began in 2012) we can say with confidence that China, which under Hu Jintao had showed lack of purpose, with flapping sails, becalmed in political mediocrity and complacency, has been reinvigorated and put on a steadier course. The Chinese people feel this strongly.

Though Xi began his first term with talk of deeper economic reform, later, especially in his second term, he abandoned deeper structural reform in favor of a creating a much more autocratic state, with a Xi personality cult and tighter Party control over businesses (state and private) and other aspects of society. The earlier concerns of China lacking direction and sinking into stifling mediocrity have today been replaced by new concerns over Xi’s rule, over the more repressive nature of the party-state and China’s trajectory and intentions in global politics and economics.

We are at a watershed in China’s development. Having stumbled so badly during the Mao period, Deng and his successor reformers appeared to have learned many lessons and exhibited less hubris and more practical common sense than the CCP had in the past. Whether it was in insisting on a truly collective CCP leadership, in tolerating a burgeoning private economy, or in permitting the entry of global firms that could easily outshine local SOEs, the reformers showed wisdom and pragmatism. It did the trick and *the China paradox* created the illusion that China had somehow broken the code for making “socialism” work, where Lenin, Stalin, and Mao had failed. It seemed that China had created what has been described as the “perfect dictatorship.”¹

As the CCP experimented with this hybrid system, it was prepared to try many formulas, to explore ways to further liberate the productive forces and drive technological and business innovation. It showed a true inquisitiveness about how things work in other societies. It exercised restraint in how it handled political control, with, of course, certain egregious exceptions. In the early phases of the reforms, its leaders were, in the main, tentative, cautious, and mindful of not disrupting the economic forces they had liberated.

So how should Xi Jinping rate across the many dimensions of his rule? What kind of scorecard does he deserve?

It is no surprise that most risks in China track back to the CCP, to the party-state, which in theory holds all the levers that might avert economic or political disaster. So, the critical uncertainty in China is the nation’s governance – that is, the ruling Party. Our once cautious confidence in the CCP as an institution we hoped

had adapted and morphed from Stalinist cadres into technocratic custodians of *the China paradox* has melted away.

Xi's abandoning of term limits for the position of State President, leaves the way open for him to have a third five-year term. In so doing, he undid the good work by the Party in setting up a workable succession process. Much to the distaste of many colleagues, Xi has engaged in an extensive cult of the personality, for instance in the Zhejiang tea producing village I recently visited which harks back to the Maoist period. Like Mao's works, Xi's Thought is referenced in the revised Party Constitution.

Having reaped the benefits of the reforms, the CCP, under the strong hand of Xi, is revealing its longer-term vision on how it plans to rule. Its goal is to restore more of its central authority and play a stronger coordinating role in the economy. This does not mean a revival of the discredited central planning, but it implies a move from an improvised system, like jazz, in recent decades, to one more like classical music, with a conductor, in the future. Of course, the CCP is the sole conductor.

A cold, chilling wind blows through civil society. Not a return to Mao's "red terror," but certainly many steps backward. Civil rights lawyers are imprisoned. Those who call for true respect for the state constitution are treated as enemies. China is continuing to further balkanize its internet, and in so doing isolating its scientists, academics, and society as a whole from international discourse. This presents a serious barrier to China climbing up the development ladder toward a knowledge-based society connected to global science and culture.

Does Xi Jinping's *New Era* of Socialism with Chinese Characteristics represent continuity or a break with the last 40 decades? There is no black and white answer. There are plenty of aspects of continuity, such as strong management skills in many of China's largest firms, which suggest the sustainability of *the China Paradox*. At the same time, other elements, in particular the role of the Party in society, do not bode well for the future.

In the short term, China looks strong, purposeful, well-run, and, to many looking from the outside, menacing – a threat and a moral issue that must be confronted. I have little doubt that, assuming China continues along its current path, that this will lead to continued international push back, based on both national security and human rights issues. Still, I do not believe world opinion will easily force China to modify its behavior. China will stand up to what it sees as foreign "bullying" of the kind it has experienced throughout modern history. On the economic front, China will become more self reliant in key areas of technology. At present, China still struggles to catch up in semiconductors which are a key building block of modern society. But nobody should bet against China's continued rise and its further break-out technology innovation.

My concern is based on *longer term* greatly enhanced political risk resulting from the heightened autocracy, the concentration of power in Xi's hands, and his hubris, with overtones of imperial rule, coupled with the absence of clear processes

for leadership succession. It may represent the beginning of a new hybrid, driven more strongly by the party-state, and incorporating aspects of traditional philosophy. I have summed up China's state ideology today as The New Era of Socialism with Chinese characteristics = CCP power + Neo-Confucianism + Artificial Intelligence. In this new phase of heightened autocracy, technology innovations (AI and other areas) brings social surveillance and control to a new level.

A decade ago, our concerns over China related more to a sluggishness among its leaders, a mood of complacency and a serious innovation deficit. Xi's rule has changed many things including putting China's technology catch-up back on track.

On the economic front, Xi has concentrated power in his hands and in so doing sidelined his Premier, Li Keqiang, who by tradition should be in charge of the economy. Authority has been transferred from government institutions to organs of the CCP. The CCP is ramping up its interference in the management of old-style SOEs. The CCP vision is for the SOE sector to absolutely dominate the economy under the close control of the CCP. This is essential to the CCPs *raison d'être* since it can claim it presides over a new, more successful iteration of "socialism," and not a version of capitalism. It has also been clear to POEs such as Alibaba that they will be forced to become more subservient to the party-state.

We have explored how China is still struggling to make molten thorium reactors work. True innovation is hard to achieve. But under Xi we have seen the government adopt more thoughtful and effective measures to support R&D, especially in biotech, 5G, big data, AI, quantum computing, and block chain. Government-funded investment parks devoted to these new technologies dot the Chinese landscape. Chinese pre-eminence in 5G mobile communications infrastructure created panic in the US and resulted in the imposition of broad sanctions on Huawei. Global experts state with some confidence that China will soon catch up or overtake the US in the application of AI. China's impressive technology track record under Xi has contributed to the US push-back, which includes trying to use the choke-hold of semiconductor supply. It must be stressed that, despite China's recent spurt in technology innovation, catch-up in semiconductors is still not happening, a fact that *blocks China's path to becoming a super-power*.

If the US, as I think it will, listens to people calling for "investment [in the US] to compete," China will not easily have a path to *super-power* status and is highly unlikely to unseat the US as the global hegemon, even if it wanted to. We should not confuse Chinese aspirations with what actually might happen.

Xi has presided over crimes against humanity, meted out to China's Uyghurs in Xinjiang. Hong Kong is under a clampdown that has surprised even hardened observers. Nationwide, the Chinese surveillance state should receive a modern equivalent of the Stalin Medal for its effective operation of its police state through the Social Credit System and high tech tools.

Even before technology war (or skirmishes) broke out between Trump's US and China, China was strutting around threatening its Southeast Asian neighbors and

stealthily building its military might, ranging from aircraft carriers to future hypersonic missiles. The Mainland threat to Taiwan may be a flashpoint for war, into which the US will be dragged. The Chinese government is happy to fuel a virulent strain of Chinese nationalism. China's attempts to project its soft power internationally are totally undermined by China's harsh side, including the intimidation of foreign friends and institutions which choose to speak out.

I have demonstrated that China is partly to blame for the current poor state of relations with the world. That said, I have stuck to a nuanced view which on the one hand argues for vigilance regarding Chinese gear running our telecoms, while on the other hand strongly opposes efforts to demonize and bring down Huawei, as part of a futile program to slow China's rise.

Unfortunately, the CCP is less adaptable or evolved than we had imagined. Few doubted its resolve to maintain its tight grip on China. But what we have witnessed is a progress from the early chaotic and exploratory period of post-Mao China toward a truer expression of the innate violent and brutal instincts of the CCP. In particular since Xi took over, it is as if the CCP feels massively confident and less constrained. Xi is not only consolidating his own personal power, but also ensuring that the CCP is utterly dominant. He turns the screws on civil society and on a country that has been slowly finding its voice.

There always was, in some people's mind, a ray of naive hope that China would somehow evolve politically toward a softer kind of regime, that somehow there would be a gradual convergence between universal human values and the Chinese model. The absolute opposite has occurred under Xi (and also earlier). China had played a strong game of poker and kept a low profile. That is now all out the window. The ultra-confident CCP flexes its muscles and stridently proclaims China's rise.

The balancing act that has served China so well is looking fragile. We have highlighted the fissures opening up in China: the human rights abuses in Xinjiang, a civil society striving to find its voice despite internet controls, factionalism in the CCP, burgeoning religion, not to mention the widening gap between rich and poor. What if, for instance, there was an outbreak of rebellion that was exploited by a charismatic, messianic figure. In fact, the well-oiled Chinese security apparatus should be able to handle most eventualities. But the required clampdown would undermine or even derail economic progress.

Events outside the China Mainland could also trigger such a clampdown. It could be heightened dissent in Hong Kong or a push toward fuller independence in Taiwan. It could be a standoff in the South China Sea. The CCP will not stand by and permit what it deems to be attacks on China's sovereignty. Military action, or just the threat of it, would disrupt trade and air and sea transportation, sending tremors through the Chinese economy. Just as with the domestic economy, the CCP's survival trumps the economy and could throw China into a tailspin.

Growing CCP interference in the economy and the focus on creating “national champions” and erecting barriers for foreign firms casts doubt about the future. Given the pace of change, one can never declare victory in the acquisition or development of technology. Today, you may achieve self-sufficiency, but tomorrow you may find yourself left behind. Integration into the global economy is the best way forward. The Great Fire Wall of China, erected by the CCP to block ideas deemed to be poisonous, hampers intellectual exchange, including in science and technology. Again, the CCP’s political survival trumps economic development. The recent frictions with the world also play havoc with China’s participation in the global economy, whether it is working with researchers at MIT or plugging into the global supply chain.

How should we rate the chances that the CCP could manage to transform itself? Today, it is a secretive, opaque institution that outranks the government and the state constitution. Organizationally, it adheres to Leninist principles while its behavior on the ground often resembles that of the Mafia. Designed for an insurrectionary program that won power over 70 years ago, the CCP seems an anomaly in a modern industrialized society. But in view of the historical lessons etched in its psyche from the collapse of the Soviet Union, the CCP refuses to take even a baby step toward its own reform.

Barring an unlikely change of heart by the CCP, we should expect to see increasing friction between China’s flawed governance and the needs of the modern economy. The notion that China will, in the near future, become the next super-power is wide of the mark.² History also tells us to expect unanticipated events that could derail the Chinese economy and might even force the current CCP leaders to move aside. The bold confidence exhibited by Xi Jinping, must surely exist alongside a nagging anxiety that his high profile puts him at greater risk of being blamed should things fall apart.

So, the CCP is at, or close to, a crossroads. A figure or group of people within the CCP may summon the courage and foresight to gradually and carefully shape a new political order that will not become a roadblock to future economic progress and give China the ability to extricate itself from the current trajectory. The CCP might even change its name to reflect the new economic reality.

Of course, the emergence of new leaders is obstructed by the abandonment of the succession process created by Deng. Any attempt to assert a claim to future power can easily be interpreted as “factionalism” and as before would be dealt with by the never-ending anti-corruption campaign. I fear that, rather than embrace further reforms, the CCP is more likely to try to sustain the status quo. Indeed, a new set of leaders might well choose to further roll back the reforms.

Even if the trends we have identified in China’s governance continue without political reform, we can still have confidence that China will continue to perform strongly for another couple of decades. That confidence is derived both from China’s

entrepreneurial energy and vigor, and from the government's better grasp of the challenge of driving China's technology innovation.

Looking out beyond that couple of decades time-frame, the political risks become greatly magnified. When it comes to social control and civil society, the CCP hunkers down. The CCP that functioned effectively during the peak of the reforms may well become the fundamental obstacle to China's development and come under severe pressure. The recent measures against Alibaba and Jack Ma shed some light on the CCP's anxiety over any alternative centers of power and influence. As it stands, it seems that the CCP would rather double-down in the hope that it can contain any pressures for change, rather than take preemptive action to defuse things. While the evidence shows that the Chinese people are increasingly satisfied with their government, that may only remain the case if economic progress is sustained. On top of this, I can vouch for the existence of people in China's political and economic elite who cannot abide Xi's rule and can't wait for him to slip up.

As we look at what China will become, we should be cautious not to overestimate the ability of the CCP and the vestiges of the old order to strangle or debilitate the free-market element of the Chinese economy. The CCP's effort to strengthen its hold is precisely because it senses its waning relevance. The CCP is bluffing when it says that, without the Party, China has no future. We should have confidence that the new economy has taken root and is underpinned by the new middle class and the buying power of the consumer. The strong performance of the private sector, as well as of the new-style SOEs, will counterbalance the ponderous and wealth-draining old-style state sector.

If the economy were to deteriorate dramatically, the CCP might be forced to rethink its current iteration of the developmental model or face pressure to hand off to a new set of leaders or, worse, face a meltdown toward a failed state. Unfortunately, the odds are that the CCP would default to an even harder line, putting at risk the fruits of the reforms and leading to a downward spiral of the economy.

How then should we respond to China's rise? There are two distinct ways of making an assessment of China today. One is to look at China's transformation over the last four decades against the continuum of the nation's history. The other is to use a more outside-in view to compare China with our own value systems. These two approaches are not mutually exclusive nor is one intrinsically more valid than the other. But they do imply slightly but significantly different conclusions and courses of action.

Let us begin briefly by noting the state of global sentiment toward China today. Over the four decades of China's economic reforms since 1978, world's opinion on China has vacillated from initially something close to adulation to today when it is almost universally negative. This is partly because there is an air of disillusionment among those who falsely hoped China was set on a path to become more like us, while in fact, as we have exhaustively documented, China had absolutely no such

intent. But this shift in global opinion also reflects the fact that China's party-state has over the last decade chosen to impose a heightened autocracy.

Even though part of the hostility toward China today stems from the US's desire to protect its long-standing super-power dominance, it is also the case that China's very recent trajectory, including crimes against humanity, provides a sound factual basis for serious ethical and political concerns. This would imply according China pariah status, making China a global outcast, with the political and economic sanctions that come with that status. We should be ready to combat common specious Chinese moral equivalence arguments or whataboutism that claim we have no authority to criticize China because, for instance, the Anglo-French forces sacked the Old Summer Palace in 1860, because the US illegally invaded the Middle East and there is systemic racism in the US.

In the approach focused more on China's development in the context of its own history, we should put ourself in the place of China's citizens and determine the extent to which their long-standing hopes, goals, ambitions, and dreams have been realized as a result of path of development launched by Deng Xiaoping, which I term *the China paradox*.

I would argue for a position which takes on board both these points of view. This implies not a severing of relationships or a decoupling with China. Instead there needs to be *concerted pressure and even sanctions* from allies around the world to get China to back off actions that the global community see as crimes against humanity (such as in Xinjiang) or the breach of international undertakings (such as in Hong Kong).

But at the same time there needs to be *widespread collaboration* in areas that make sense, be it on climate change, environmentally sound technology, biotech, or AI for medical applications. Such engagement permits a dialogue and reduces tensions and the danger of military conflict. But this will take accommodation and compromise by both China and the rest of the world. It implies toning down the extreme nationalist rhetoric current on both sides.

We should hope, of course, we are proven wrong and that China's unrelenting march, that we have identified under Xi, toward a new harsher type of developmental model loses momentum or is halted, so that *the China paradox* has longevity and does not unravel. Fortunately there is still time for these trends to be reversed. We certainly should not discount the possibility that Xi's comrades in the Politburo might exert their residual collective power and force Xi to abandon his path toward quasi-imperial status.

My feelings over China are pulled in many directions. I have a deep admiration for China's remarkable and unanticipated achievements over the last four decades. Having myself made a small contribution to China's development, I not only feel some pride at what has been achieved but also sadness at aspects of the China that is emerging from this long transition.

The trends we have uncovered are perfectly visible to the Chinese themselves. We may stand on the sidelines helping to tell China's story – its successes and blemishes. But I am also mindful of how little say we have in the outcome in China. The Chinese people will determine their nation's destiny. That said, I shall continue my close engagement with China, in the earnest hope that China can pursue a development path that combines wealth creation with universal human values, and contributes not only to its long-standing goal of national revival and but also permits it to play a vital and constructive global role.

Endnotes

Chapter 1

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Chapter 2

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Chapter 3

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Chapter 4

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