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YOUR TRADE MOVE

Despite supporting the World Trade Organization, both the US and China are looking increasingly at bilateral and regional trade agreements

- Business schools need to undergo a paradigm shift
- China's manufacturing sector is embarking on a digital upgrade
- George Magnus on the future of the economy post COVID-19

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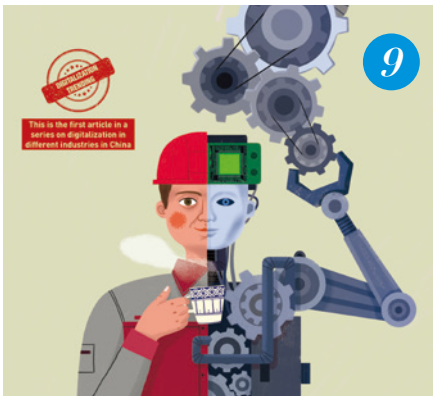

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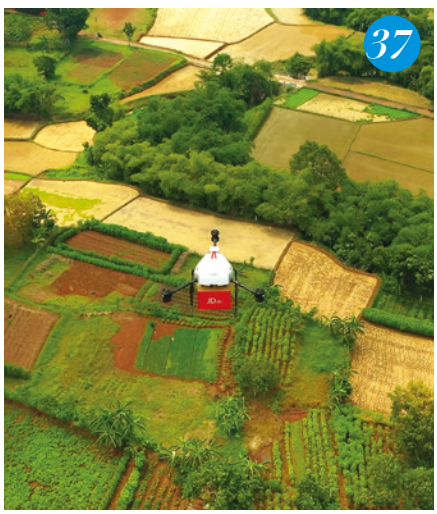
Business Trends



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A Step Forward

With the pandemic proving that the unexpected is always a possibility, China has been looking to the future and trying to forge a way forward into a new post-pandemic world. This issue of *CKGSB Knowledge* looks towards what comes next and considers China's ever-expanding role in it.

Our cover story, "**Your Trade Move**" (page **21**), explores how China is looking increasingly to bilateral and regional trade arrangements to offset problems with the World Trade Organization, and our commentary "**Paradigm Shift Needed for Business Schools**" (page **6**) discusses the need for business schools to adapt to fast-changing demands in the world of business. The first article in our series on the impact of digitization on society and the economy, "**Automated Future**" (page **9**) delves into China's manufacturing sector as a whole, and how it has embarked on an ambitious digital upgrade, while "**Special Delivery**" (page **37**) looks at how logistics companies are beefing up efforts to apply drones, driverless vehicles and other unmanned technology to delivery activities.

With heavy rainfall and flooding making headlines globally, attention is increasingly focused on the potentially catastrophic effects of climate change. "**Green Shoots?**" (page **25**), looks at whether China can kick its decades' long coal addiction in order to meet its bold carbon emissions goals, while "**Glass Half Empty**" (page **16**) examines how China's water crisis could threaten its economic future and what can be done to turn things around.

As usual, we look at some key developments impacting China's domestic economy, with "**Bolstering the Base**" (page **32**) exploring issues facing the state-owned enterprises which so dominate the Chinese economy and how reforming them has proven to be a major challenge for China's leaders.

With everyone spending more time on screens and getting used to a new way of shopping online during the pandemic, "**Coming of Age**" (page **62**) examines the vital role that Key Opinion Leaders now play in helping brands to reach consumers in China. Local Chinese brands, meanwhile, are not only aiming to lead in their home market, but are increasingly expanding into leading positions abroad as well, and "**Oppo-tunity Knocks**" (page **48**) studies how just one Chinese brand, Oppo, has become one of the top-selling smartphone brands in Southeast Asia.

COVID-19 has led many people across the world to feel less optimistic about the future, and even China's richest have not been able to escape that volatility. "**Leap of Wealth**" (page **44**) looks at how becoming a billionaire in China is possible, but maintaining that top spot is becoming increasingly difficult. For those who have resorted to smoking to maintain a sense of calm during difficult times, "**E-Smoke Revolution**" (page **55**), studies how e-cigarettes have taken off globally, but the future of the industry is still uncertain and subject to regulatory changes.

We have some great interviews in this issue, including a conversation with Kevin Rudd, the former Prime Minister of Australia, who foresees trade as the major battlefield of the future (page **13**). George Magnus, economist and author, looks at the future of the economy post COVID-19 (page **29**), while James McGregor, Chairman of APCO Worldwide, delves into the constantly-changing dynamics of US-China relations (page **41**). Sun Baohong, Professor of Marketing at CKGSB, discusses the merits of machine learning and how it can help businesses understand consumer behavior (page **52**).

Our Snapshot in this issue provides an overview of the world's largest car market and offers data on the dramatic rise of electric vehicles, trends in China's auto imports and exports and which brands are taking the lead.

As always, if you have any comments or opinions to contribute, please feel free to contact us at (lzhou@ckgsb.edu.cn or ckgsb.knowledge@ckgsb.edu.cn).

Yours Sincerely,

Zhou Li
Assistant Dean, CKGSB
Editor-in-Chief, *CKGSB Knowledge*

For more insights on the Chinese economy and business, please visit the CKGSB Knowledge *site: http://knowledge.ckgsb.edu.cn/*

CKGSB COMMENTARY

Paradigm Shift Needed for Business Schools

Business schools need to adapt to the fast-changing demands of the world in order to survive

Zhou Li, Assistant Dean of the Cheung Kong Graduate School of Business, Editor-in-Chief of CKGSB Knowledge

All commentaries reflect the personal opinion of the author and are not necessarily the official position of the school and the magazine

Business schools, as they currently exist, were a by-product of capitalism and the first Industrial Revolution in the 19th century. For more than a century, and especially since the end of the Cold War, their number has grown massively to about 13,000, to meet the demand for competent business managers in not just the developed world, but also countries at different stages of economic development, from India and China, to Brazil, Russia and South Africa.

But in the last few decades, and particularly since the Global Financial Crisis in 2008, economic and business paradigms have shifted, and criticism of business schools has been on the rise. In addition to their relevance to the real business world, their legitimacy and ethics, the breadth and depth of the content of their programs and the key pedagogy—all have come under the spotlight. As with all established institutions, however, business schools have tended to assume that things will all go back to normal before too long. Too many schools still see the COVID-19 crisis as just another temporary shock and are really struggling to respond to the fundamental changes taking place in the real business world.

There are at least three core changes that business schools must now address to survive and succeed in what Thomas Friedman calls the After Corona or A.C. world.

The first issue is that the paradigm of capitalism itself, the core philosophy of business schools, has been transforming towards a new form of capitalism, which stresses inclusiveness and sustainability. A growing chorus of people are calling for the system to address societal and environmental problems that laissez-faire capitalism has failed to address. The growing consensus around the world is that capitalism, companies and managers have a responsibility that extends beyond the bottom line and the selfish interests of shareholders.

While it is true that almost all business schools already offer some courses on business ethics, as well as the social value and responsibilities of companies, many of these courses are electives and are essentially there as window dressing.

Fortunately, there are schools that do take it more seriously. For example, CKGSB, with many well-recognized business leaders in China as its students and alumni, has been exploring how to systematically raise the awareness and capabilities of its students with regard to social responsibilities. This has been

integrated into the school's approach towards teaching management of the "whole wealth cycle"—so the focus is on not only *how* to do business, but also *why* we do business, and how we use the wealth generated. As early as in 2005, the School systematically incorporated the humanities (history, philosophy and religion) into business education to enable executive students to develop a more global, long-term and humanistic view to inform their business decisions.

More recently, CKGSB has introduced a one-year compulsory course in its Executive MBA program that asks students to look at improving their own companies in the area of ESG (environmental, social and corporate governance). In addition to the professors, the school has identified more than 100 mentors for its 500 EMBA students this year. These mentors are comprised of seasoned professionals with expertise in social innovation from the private sector, government agencies and NGOs. (For this and other innovations at CKGSB, please refer to CKGSB's "Innovations in Business Education", an article written by its Founding Dean, Xiang Bing, in the book titled *Executive Education after the Pandemic: A View for the Future*) edited by Santiago Iñiguez de Onzoño and Peter Lorange).

Secondly, the key competitive element for companies has been shifting from the efficient use of limited resources, such as land, labor and capital in the Industrial Era, to creativity and innovation in this new Digital Information Era, in which entrepreneurship, the mindset traditionally associated only with startups, has now become essential for all companies, big and small.

Business schools have typically been driven by what might be called the "Wall Street mindset", and the fundamental assumption underlying the courses has long been that students are being groomed to be a part of an established larger organization that will, in due course, prepare them for senior management roles. The result is that the graduates of business schools today, to a large extent, are completely unprepared for the entrepreneurial and intrapreneurial opportunities that are now such an important part of the global economy.

Professor Jing Bing teaches students in the ASEAN Global Leadership Program (AGLP) at CKGSB

Most business schools have been overly emphasizing critical thinking skills that are essential to established businesses, and have placed little emphasis on the creative thinking and people skills that are sorely needed in an increasingly dynamic business environment.

Partly driven by the faster pace of developments in technology than in management, many engineering schools seem to have become more entrepreneurial and innovative than business schools. Many have even started their own entrepreneurship programs and operate incubators. I have had the privilege of sitting in on entrepreneurship classes and visiting incubators in engineering schools, and I must say that the business training they offer is often more practical and relevant than that provided by many business schools.

Under pressure from the digitalization of the business world, many business schools now offer content on digital technology, but they mostly focus on the technical side of it. How, one has to ask, can business schools churn out better data analysts than engineering schools, especially those majoring in computer science, data analytics and AI? In the end, again, what is the core value that business schools are offering to real business, as it becomes more digitalized every day?

> For business schools, sticking with the traditional curricula and their old role is no longer an option

Participants of the "Cutting-edge Insights from China" course visit ByteDance in Beijing in 2019

Some business schools have teamed up with engineering schools, and the common model is to have students select courses from the other school. They may need to be reminded, however, that those selective courses were initially developed for students whose interests, domain knowledge and more importantly mindsets are quite different from those of the home school. Instead, the faculties of the business and engineering schools need to jointly design new courses to make the students' cross-disciplinary learning truly valuable.

Various business school rankings, organized by the media, may in fact have served as a straightjacket that has slowed down or even stifled innovation in business schools. In all of the rankings, the dominating factor measuring the value of an MBA degree is compensation upon graduation, rather than the much more difficult to calculate measure of business success in an ever-changing world.

Bloomberg, in its commentary on the latest MBA ranking, said that nowadays, "students see entrepreneurship as central to their overall training, whether they want to start their own businesses or work at a big bank." My question, then, is if entrepreneurship is so essential to students, why was it only given a weighting of 15.7% of the total score of its own rankings? This also suggests that many top schools would not have achieved such high rankings if the entrepreneurship factor was given a higher percentage.

The third issue facing business schools is that the world of business, once dominated by Europe and then North America, has become more multipolar and is led now by the rise of China, although Japan and other Asian countries like Singapore and South Korea initiated the trend with the export boom in the 1970s and 1980s. Asia today is moving into a dominant position that has huge implications for companies around the world. And business education needs to address the new reality, that Asia and emerging economies in other continents now account for the lion's share of the global economy. Furthermore, people in these massive and dynamic economies hold different values and favor different political systems from those in the West, and business schools must take this into account to remain credible.

Nowadays, executives receive many more useful reports on China and other emerging economies from corporations, investment banks and think-tanks than they do from business schools. These organizations are conducting and distributing in-house research reports, organizing forums, and providing online programs covering emerging economies to attract and serve their clients.

The economy and business in China are moving at least as fast as, and probably faster than, anywhere else in the world. At CKGSB, with our main campus in Beijing, we face a constant need to upgrade and replace our case studies to make sure that students find them relevant to their real-world business environment and their entrepreneurial goals.

Business people today must understand the geopolitics, history and culture of many parts of the world, recognizing that what is relevant in North America and Europe may not be relevant, or even correct, in other markets.

The future prospects of many companies hang on the evolving relationship between China and the US. The challenge today is for the two largest economies in the world to achieve a model of peaceful coexistence that allows for competition between incompatible visions of the world and cooperation on geopolitical and climate-related matters. Can business schools, with their influence and connections in the world, help political leaders to apply the principles of the competition model between competitors in business to their world?

To provide real value beyond the traditional business community for their shareholders is the only way for business schools to survive and succeed in the new global-digital era. Otherwise, there will be no catch-up games to play for them as business is moving so fast that it will leave many, if not most, business schools in the dust. For business schools, sticking with the traditional curricula and their old role is no longer an option. Instead, they should seize the opportunity to help businesses and individuals to successfully navigate these problems and make the world a better place for the whole of humanity.

AUTOMATED FUTURE

China's manufacturing sector has embarked on an ambitious digital upgrade but is still far from a large-scale deployment of lights-out factories

By Shi Weijun

This is the first article in a series on digitalization in different industries in China

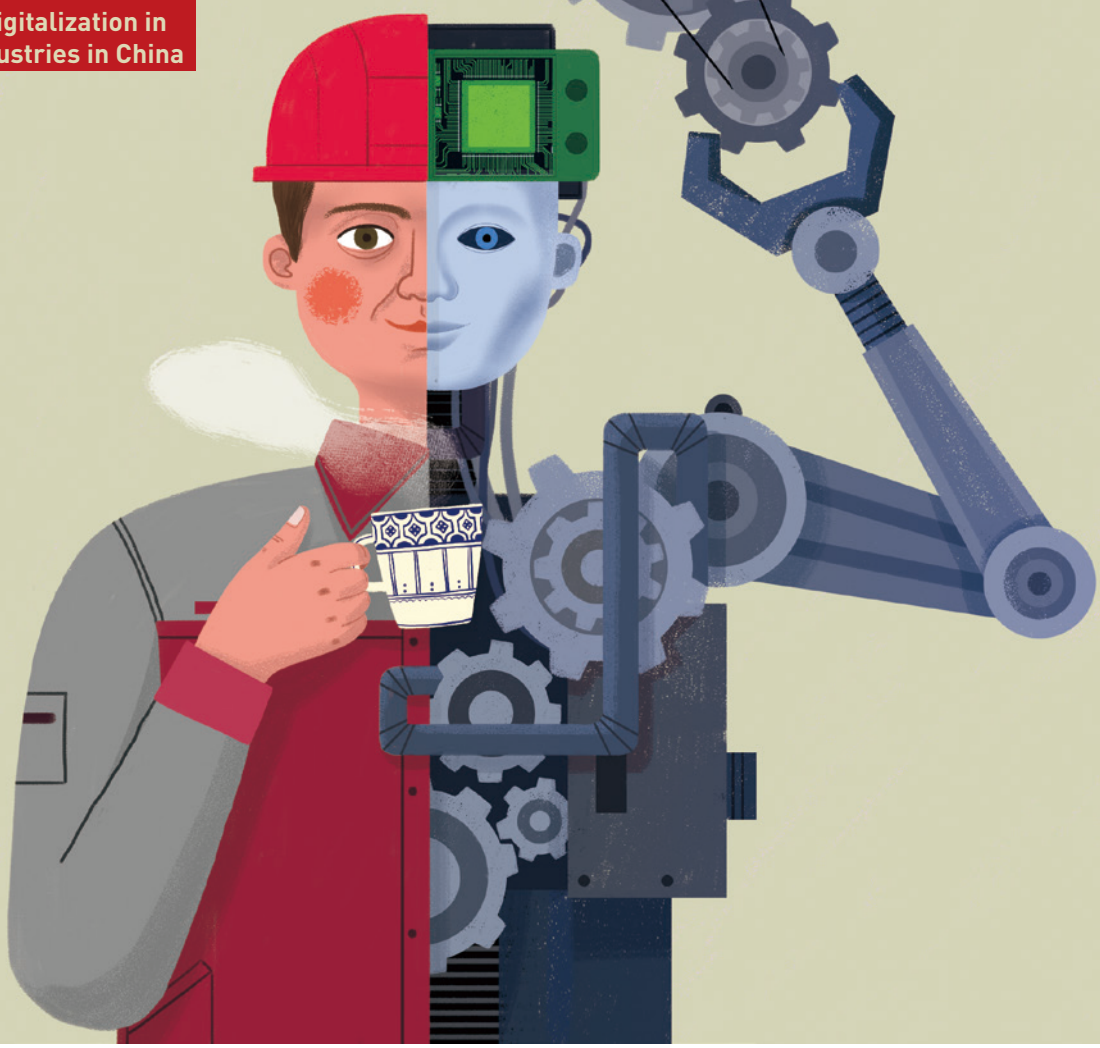


Image by Yuyu

China has a vision to digitalize its manufacturing sector. How is it doing on its path to achieving that goal?

The microwave oven in your kitchen hardly counts as cutting-edge technology these days, but the factory built by Midea Group in southern China's Foshan to manufacture millions of them every year certainly does.

Automated production lines in the pristine factory beam operational data via 5G networks to an industrial internet platform, while a handful of engineers watch a giant screen for alerts indicating problems in a production process which cranks out more than 44 million microwaves annually.

Thanks to digitalization and automation, the state-of-the-art factory has shaved production costs by 6%, more than halved order delivery times, and lowered carbon emissions by one-tenth. These improvements have won international acclaim for Midea, now the world's biggest home appliances maker—in March, the World Economic Forum selected the Foshan factory as a member of its 'global lighthouse network', which recognizes plants leading the way in the adoption and integration of frontier technologies.

Of the 69 "lighthouse" facilities worldwide, 20 are in China, including the high-tech Tsingtao brewery in Qingdao and Alibaba's pilot factory for "smart manufacturing" in Hangzhou. These are only the most visible parts of the ambitious digitalization plans being implemented by Chinese manufacturers.

But the degree of automation varies widely between different industries, says Georg Stieler, managing director for Asia at STM, an international consultancy specializing in B2B market research and strategic management for companies in the engineering industry. "Whereas some automotive factories in China are basically on the same level of automation as in early-industrialized countries, we still have a low degree of automation in light industries."

Still, the gains won via digitalization at Midea's factory demonstrate the appeal for manufacturing, and the COVID-19 pandemic dramatically underlined the importance of digitizing factory operations. Fewer staff means less disruption, and digital production allows for much faster readjustments to production, such as switching suddenly to the mass production of masks, gowns, gloves and other personal protective equipment (PPE), as many factories did in early 2020, including Midea, fellow white goods maker Gree and automaker BYD.

Such efficient transitions could only be achieved with digitalized management of inventories, manufacturing processes and the labor force, as well as a high level of industrial automation based on digital design, modelling and 3D printing, according to Wilson Chow, leader of the global technology, media and telecommunications practice at PwC China.

"Digital capabilities are an increasingly important factor for manufacturers' ability to respond to changing customer demands, better manage supply chains, build resilience and maintain sustainable growth," says Chow.

Automation nation

With an enthusiasm for automation that begins at the top—China's leader Xi Jinping called for a "robot revolution" in a 2014 speech—the Chinese state is throwing itself fully behind a push for automation across its vast economy, looking to revolutionize everything from agriculture to assembly lines.

Chinese manufacturing's embrace of digitalization shows up most prominently through the use of industrial automation—a market worth an estimated RMB 62.7 billion ($9.6 billion) in China last year, up from RMB 58.1 billion in 2019 and RMB 61.1 billion in 2018, according to MIR, a Beijing-based research firm specializing in industrial products.

The money is mostly being invested in equipping factory floors with robots to churn out high value-added products like cars and electronics faster and with more precision. But increasingly, robots are cropping up in other sectors of the world's second-largest economy, performing tasks previously handled by humans with greater efficiency than ever before.

China's rising labor costs and looming labor shortages in the coming years are important drivers for increased automation,

which offers efficient and cheap manufacturing capabilities that officials hope will solve the problems, says Wang Jiegao, chief scientist at Estun Automation, a Nanjing-based supplier of industrial robots and robotic components listed on the Shenzhen Stock Exchange.

"Factories have found it tougher and tougher to hire manual labor workers. The situation has become progressively worse in recent years, especially since the onset of the pandemic last year. There are more and more companies that are urgently investing in automation and robots," says Wang.

Song Xiaogang, secretary general of the China Robotics Industry Alliance (CRIA), an industry association, recalls visiting factories a decade ago in China's manufacturing heartlands of the Yangtze River and Pearl River deltas that were already struggling to find enough workers to fill production lines. "They were under big pressure to get employees because the younger generation started to dislike heavy-duty work."

The robotics industry in China enjoys strong government support and a myriad subsidies from both central and local authorities. Robots first entered national strategic planning in 2006 as part of the *National Medium and Long-term Science and Technology Development Plan (2006-2020)*, and in 2015 were elevated to be a core component of the *Made in China 2025* industrial policy, aimed at making China self-sufficient in key technologies.

A year later in 2016, Beijing published the *Robotics Industry Development Plan* which laid out how the industry should reach end-2020 goals of domestically producing 100,000 robots annually and achieving a robot density of 150 robots per 10,000 manufacturing employees—both of which have been accomplished.

"Before 2015, China was working with robots in much more limited ways than it is today. It was mostly in automotive and a little in electronics, but not much outside of those," says Emil Hauch Jensen, China general manager at Gain & Co, an independent advisory on robotics and automation.

Government support has helped kickstart more than 1,000 robotic automation startups in China since the start of 2015—a record 367 were founded in 2016 alone, according to Gain & Co. There were close to 4,000 such companies in operation by the end of last year, quadruple that of 2009.

Do the robot

Even before the pandemic, China was well on its way to automation—particularly in the electronics, automotive and logistics sectors. China overtook Japan as the world's largest market for industrial robots in 2013 and in 2019 accounted for 38% of new installations, according to the International Federation of Robotics (IFR).

But the COVID-19 outbreak supercharged China's automation journey, says Chow. "As overseas demand boomed last year, China really needed to speed up efficiency and automation in order to not be heavily reliant on its locked-down human workforce."

The enthusiasm for robots has led some Chinese manufacturers to venture overseas for foreign knowhow, the most prominent example of which is Midea's €4.5 billion ($5.3 billion) acquisition in 2016 of Kuka—the Augsburg-based company once regarded as one of the pearls of Germany's manufacturing industry. The Chinese company overcame considerable political friction in Berlin and opposition within Kuka itself to clinch the deal, a sign of how much it valued the German giant's high-tech robotic and automation technology.

"It was a great win for Midea and for China," says Jensen. "It was probably a combination of this deal and other factors that alerted Europe and the US to China's intention to compete."

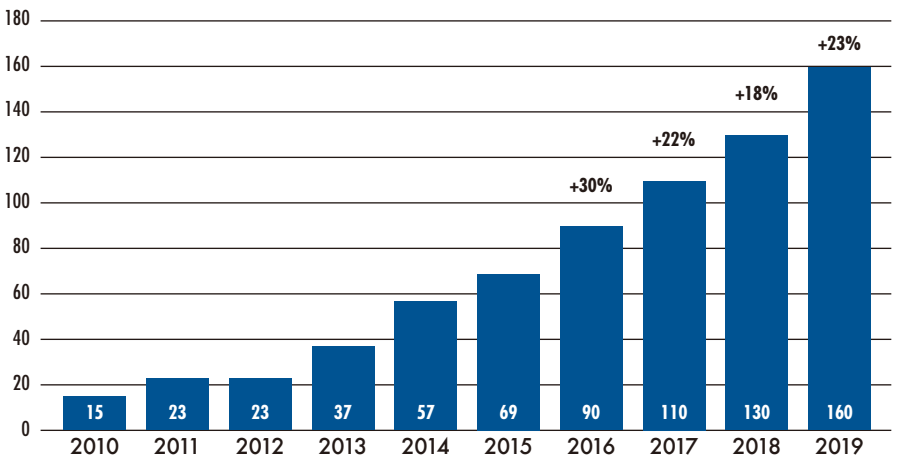
Industrial robots continue to be installed in China at a staggering rate across industries, with 140,492 added in 2019, more than the next four-largest markets of Japan, the US, South Korea and Germany combined.

"China is a special market because it is so much bigger than all the others and has so much labor-intensive manufacturing," says Wang from Estun, the industrial robot supplier. "The demand for automation to replace labor work provides a much bigger market."

Automation has helped China maintain its status as the factory of the world even as its manufacturing workforce shrinks. China's value-added industrial output reached RMB 31.3 trillion ($4.8 trillion) in 2020, equivalent to nearly 30% of global manufacturing output and up from RMB 23.5 trillion in 2016. High-tech manufacturing in particular clocked average annual growth of 10.4% in value-added output between 2016 and 2020, despite

RISE OF ROBOTS | 40% of the world's global supply of robots goes to China

Annual supply of industrial robots to China 2010-2019



Sources: International Federation of Robotics, The Robot Report

official statistics showing a contraction in China's urban manufacturing workforce from a peak of 79.6 million workers in 2014 to 71.9 million in 2018.

Automation in Chinese factories is concentrated in the use of industrial robots—a category where China punches well above its weight, with more sold in the country than in Europe and the Americas combined.

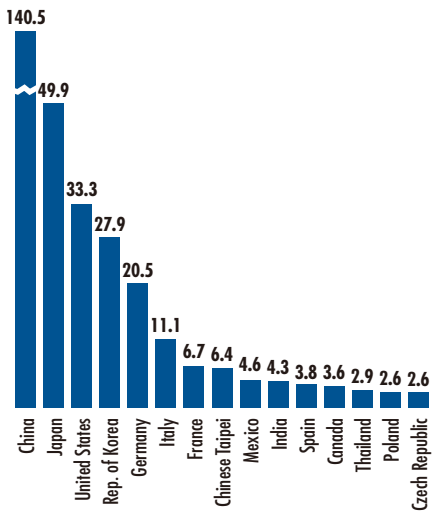
Four suppliers, ABB, Kuka, Fanuc and Yaskawa Electric, dominate the market for industrial robots, but the fast pace of innovation has helped broaden the types of robots in play, from traditional welders and palletizers to more futuristic categories such as collaborative robots ('cobots') and autonomous mobile robots.

With Chinese factories continuing to rely heavily on foreign robot makers, domestic robotics companies still need to address their lack of competitiveness in the higher reaches of automation. "Even though China is a major producer of industrial robots, the types it is manufacturing are still more geared toward the lower end of the production process. Higher-precision types of robotic technology are still in the hands of the Europeans and Japanese," says PwC's Chow.

For decades, robots were heavy, bulky machines caged off for safety because they were hard-programmed to follow a preset path without regard for any humans in the way. But with better sensors and more powerful software, robots are becoming smarter and more flexible. For instance, advances in machine vision are helping Chinese firms develop cobots that can recognize what is in front of them and decide which parts to pick up and how. Increasingly, they are designed to work in close proximity with humans.

INSTALLING THE FUTURE

China installed the most industrial robots globally in 2019



Source: International Federation of Robotics, World Robotics 2020

A smarter Factory of the World

Even with all of these new developments, however, a future fleet of hyper-advanced robotic factories that run themselves with inhuman efficiency and speed is some way off.

"We need quite a long time to reach that level," says Song Xiaogang, secretary general of the China Robotics Industry Alliance (CRIA), an industry association. "China has so many different manufacturing sectors. Some of them can compare with the world's most advanced digital manufacturers such as Siemens. Then there are some very traditional manufacturing sectors that are taking baby steps toward automating some processes. Overall, the level of digitalization in Chinese manufacturing has a long way to go."

China's robot density—measured as the number of robots per 10,000 manufacturing workers—is one of the lowest among major manufacturing nations. In 2019, China had 187 robots installed per 10,000 employees, ranking 15th and below Italy, Spain and Austria, according to the IFR. Singapore and South Korea top the charts with robot densities of 918 and 855 respectively. But factories in China are pushing for automation with an enthusiasm unmatched by peers in other manufacturing nations, says Jensen from Gain & Co.

"In China, we see a lot of smart manufacturing ambition, with customers wanting to go all the way with a fully digital factory that comes with analytics, Internet of Things (IoT) and robots. In the US and in Europe, customers are usually content with easy wins like automating small specific processes. For them, smart manufacturing is still five years or more down the road."

But that won't necessarily result in massive unemployment. Apart from high-tech precision jobs that even humans cannot do, many robots are being used to fill undesired '4D' jobs—dull, dirty, dangerous and/or delicate—meaning that the impact of automation on employment in China could be perhaps less severe than has been feared. "I haven't seen any signs that robotics adoption has influenced employment," says Song. "Remember, for the traditional manufacturers, the main reason they want to use automation or robotics is because they struggle to find new workers."

Song argues that automation has in many cases been a job creator as companies have sprung up to cater to the growing demand. He points to the swelling membership of the CRIA, which has grown from 70 members when it was founded in 2013 to nearly 500 today.

A large industrial base, the can-do spirit of Chinese businesspeople and an openness for new things will continue to catalyze automation in China, says Stieler. "Constant change is in the modern DNA of China's people. Leapfrogging also happens in automation, as some companies are turning the lack of legacy infrastructure into an opportunity."

But the general sense is that China's manufacturers need to learn to walk before they run off to build fully-automated smart factories. "I don't think we need to hurry. It's a step-by-step process. This is the best way for the most of Chinese manufacturing," says Song.

Manufacturers would also do well to bear in mind what one of Jensen's colleagues told him: "Smart factories are rare as unicorns; we've never really seen one."

But as Midea's microwave factory in Foshan demonstrates, Chinese companies have the means and the motivation to achieve digital manufacturing excellence.

"The big dream is intelligent, unmanned factories that can make and deliver products with drones or self-driving cars and so on," says Jensen. "I don't know exactly when they will happen. But I know that they will be in China before anywhere else."

A Counter Narrative

Kevin Rudd, former Prime Minister of Australia, discusses the cost of protectionism and foresees trade as the major battlefield of the future

While the world's geopolitical environment is never stable, the volatility we see today is unprecedented and is having a greater impact on a wide range of issues including business and trade. Kevin Rudd has witnessed the geopolitical play firsthand, first as Australia's 26th Prime Minister from 2007 to 2010 and then as Foreign Minister from 2010 to 2012. He has since remained active in a wide range of international issues including global economic management, the rise of China, climate change and sustainable development.

In this interview, Rudd looks at a whole host of issues including rising protectionism, the risks facing China's economy and the future of the Australia-China relationship.

Q. The theme of decoupling has been prominent in recent years with regard to China and the United States, and some other countries. To what extent would you say the word is appropriate?

A. The term decoupling fits neatly in the land of journalism, but the reality is infinitely more complex. Describing the US-China relationship as, for example, a new Cold War is fraught with complexity and inaccuracy because it doesn't capture the depth of continuing engagement. When you deconstruct decoupling, several parts of it come to mind. One is whether we are talking about trade, finance, investment, capital markets, technology, talent markets, or people-to-people decoupling more broadly. The more you look at that, the more you have to conclude that this is a highly differentiated beast where the generic term of decoupling doesn't easily apply.

But we are going to see some continued constraints in the area of trade, and a lot of constraints in terms of foreign direct investment (FDI) in both directions. The capital markets is the huge unknown quantity, because the degree of enmeshment is large, and the process of de-enmeshment is complex but not impossible. In the technology market, of course, constraints and decoupling are going to be larger, but by no means complete. People-to-people interactions will return to a greater level of normality post COVID-19, once vaccine passports and visa protocols are in order.

Decoupling is not just the sound of one hand clapping, it's the sound of both hands clapping. Most Americans looking at this question have failed to understand that the Chinese themselves, led by Xi Jinping, have embarked upon their own version [of decoupling], or, shall we say, separation from the US and some of its closest economic allies.

Q. What do you see as the future trajectory in terms of what is at least a clarification of boundaries?

A. The organizing principles both in the US and China strike me as being more along the lines of national self-reliance and degrees of mercantilism rather than decoupling and Cold War. And if [the pendulum moves] away from interdependency and towards national self-reliance, I would anticipate that we are in the beginning stages of that pendulum effect, that the pendulum still has some way to swing in the direction of nationalism, national self-reliance and various forms for mercantilism/protectionism.

It is difficult to foretell what would cause the pendulum to reach its natural extension in that direction, but the bottom line is that there is an economic cost to be paid, and the growth dividend delivered through the globalization revolution of the last quarter of a century, which has been phenomenal, will begin to become impaired. There is no such thing as a free lunch. If you are going to be sub-optimal in allocated efficiency terms by injecting a whole raft of national security, national self-reliance as well as mercantilist/protectionist factors into the economic equation, then you will begin to see retarded growth rates. That then translates

Kevin Rudd served as Australia's 26th Prime Minister from 2007 to 2010, then as Foreign Minister from 2010 to 2012. In 2014, he was named Senior Fellow at the John F. Kennedy School of Government at Harvard University, where he led research on the future of China-United States relations. He is also Chair of the Independent Commission on Multilateralism, Chair of Sanitation and Water for All, and Chairman of the Board at the International Peace Institute. In January 2021, he was appointed the 8th President and CEO of the Asia Society.

into slower increases in living standards and for certain countries not fully escaping from the Middle-Income Trap.

Q. China's economy has grown at a phenomenal rate over the past 40 years, underpinned by a certain balance of state-owned enterprises, private enterprises and foreign enterprises. What do you see as the current trend in that balance?

A. If you deconstruct the language used to describe Xi Jinping's Dual Circulation economy model, it seems to be along the lines of: We in China will become, in terms of our future growth, much more dependent on domestic drivers, primarily through private consumption, but also in terms of private fixed-capital investment. The externally-derived growth for the trade sector in the economy will progressively hold declining significance for China's overall growth numbers. The question is whether that model then translates into high-level sustainable growth in the future or whether we'll see an arresting of growth levels compared to where they've been in the past. One of the big open questions in the Chinese economy is the extent to which the private sector will still play a role in terms of growth, tax generation, employment generation and innovation generation.

One of the unknown variables here is the extent to which the more restricted regulatory space in which China's entrepreneurial elites now find themselves will begin to flow through to private fixed-capital investment decisions by large Chinese corporations. Will that have a material effect on growth, given the overall significance of the private sector within China's overall gross numbers?

The counter narrative in China is that we don't need to worry too much about what's happening with the billionaire class, because we have tens of thousands of Chinese millionaires on the make, none of whom represent a real threat in terms of a tech-oligopoly or tech-monopoly. Therefore, innovation unleashed on a much broader scale across the breadth of the economy will more than offset any loss to net economic performance. To me this is an open-analytical question and I cannot answer it, but I think we need to pose it.

The second potential constraint on China's growth will be the extent to which China has to adopt a range of corrective measures to deal with its continuing high debt levels. The central monetary authorities will have to implement corrective measures to keep debt from ballooning further, but when there is a threat to growth, the Chinese economic system's response is always to loosen credit lines through local governments to local firms. That is likely to continue, but with one caveat: The Chinese financial system is deeply alert and toxic towards the possibility of a domestically-induced financial crisis. We could say that the regulators would never allow that to happen, but I do know that it is a concern for Chinese macro-economic managers.

SOEs as of a year ago represented around 40% of China's GDP, which is significant. From the early 1990s, we've seen SOE-related reforms, and most recently, the reconcentration of nationally-significant SOEs and provincially-significant SOEs. But we know that the rolling reform drive to bring down the number of SOEs and to make the remaining ones operate in more contestable economic environments to enhance their efficiency has now lost momentum, particularly post 2015. The problem is that political and regulatory restraints are being imposed around the major private tech companies to prevent monopolies, but there is still a willingness to tolerate monopolies in the SOE sector. Both of those actions are going to be a further drag on the economy's growth.

If you put all that together, China's performance in terms of growth vis-à-vis net exports will continue to be robust. China's public investments in infrastructure, either national or local, will continue to be significant. Consumption is still likely to be healthy. But private fixed-capital investments for me is the big question mark.

Q. What do you see as the role now and in the future for foreign companies and foreign investment in how the Chinese economy operates?

A. Here you have a large debate unfolding within the Chinese system. According to China's medium-term needs, particularly in the financial services sector, it will be deemed to be not just welcome, but necessary over time. One purpose is to increase the efficiency of credit and capital allocation within the Chinese banking system, which is still heavily administratively-driven. Given the scale of the Chinese financial markets and economy, and given the intelligence level of Chinese financial regulators, I think there will be continued opening as far as the finance sector is concerned to international direct participation. However, if large global financial institutions think that the door is simply going to be swung wide open for participation at scale across all the subsets of the Chinese finance industry, my judgement is that it's going to be much more gradual than that. There will be further opening, and yes, we can explain it in terms of the need for greater efficiency in Chinese domestic financial markets, but not at a scale which would cause the hawkish elements of the Chinese system nationally to conclude that we would in any way become vulnerable to external manipulation.

Q. What is your view on reciprocity and the extent to which the concept can actually be used to create a change to the situation?

A. Chinese political leaders and financial regulators fully understand, intuitively, rationally and experientially, the whole argument surrounding reciprocity. Secondly, there have been

series of rhetorical positions from China over the last 20 years, usually around its developing country status, that have been used in the period since WTO accession to justify a range of non-reciprocal arrangements. Thirdly, whether we think it is valid or not, the reality is that it's now the mainstream consensus in international financial communities and international economic communities with regard to China. It is not just a product of Trumpian popularization of the reciprocity argument in the US. You don't have to travel far in Europe to find the same argument applying, whether it's in FDI, trade or on financial market access. The Chinese political and regulatory class must be prepared, as I believe they increasingly are, to deal with the reality of the reciprocal access argument across the board. The flip side is that as far as full access is not provided, full access will not be provided reciprocally within various markets around the world.

The Chinese counter case will be that 'We're big and we can dictate terms.' But with that view, you will find increasingly the OECD economies mounting a common cause against China across the board, demanding reciprocal access in each of the domains I just referred to.

Q. What would you like to see as a way of organizing trade agreements or trade organizations as a mechanism in resolving some of these issues?

A. The WTO will only work to the extent that the member states allow it to. With the demise of the Trump administration and Biden on a search-and-rescue mission for the WTO at the moment, there are some prospects, possibly even supported by China, that a reconstitution of its dispute mechanism is possible. The more important point, beyond dispute mechanism resolutions, is the overall momentum tide around free trade versus protectionism globally and the extent to which that can be navigated in a positive way for the future.

Right now, we have the US in a mega protectionist mode, but that will come at a cost for the US economy, which the current administration is in the process of working out. But secondly, if the US remains neuralgic about re-embracing free trade agreements in the Indo-Pacific region, either in the form of RCEP, TTP or about the Quad turning into something which actually has an economic trade dimension which was real as opposed to rhetorical—if the Americans don't do that, China is now robust in terms of its global trade volumes, global trade growth, global trade presence and most acutely global trade significance to all the major economies in the world. This will be the single domain in which Xi Jinping can outflank the Americans altogether. RCEP is simply the entrée and the main course will be Chinese accession to the TPP if the Americans are still undecided about whether they like it or not. Beyond that, a digital TPP or digital free trade agreement across the RCEPs and more broadly which would be radically to the advantage of the Chinese, should not be ruled out.

This is the major battlefield of the future and it will be determined by whether the Americans can lift themselves out of their own self-determined political trenches on this question to re-embrace free trade as they once did. If that doesn't happen, then watch this space in terms of China moving forward and filling these vacuums.

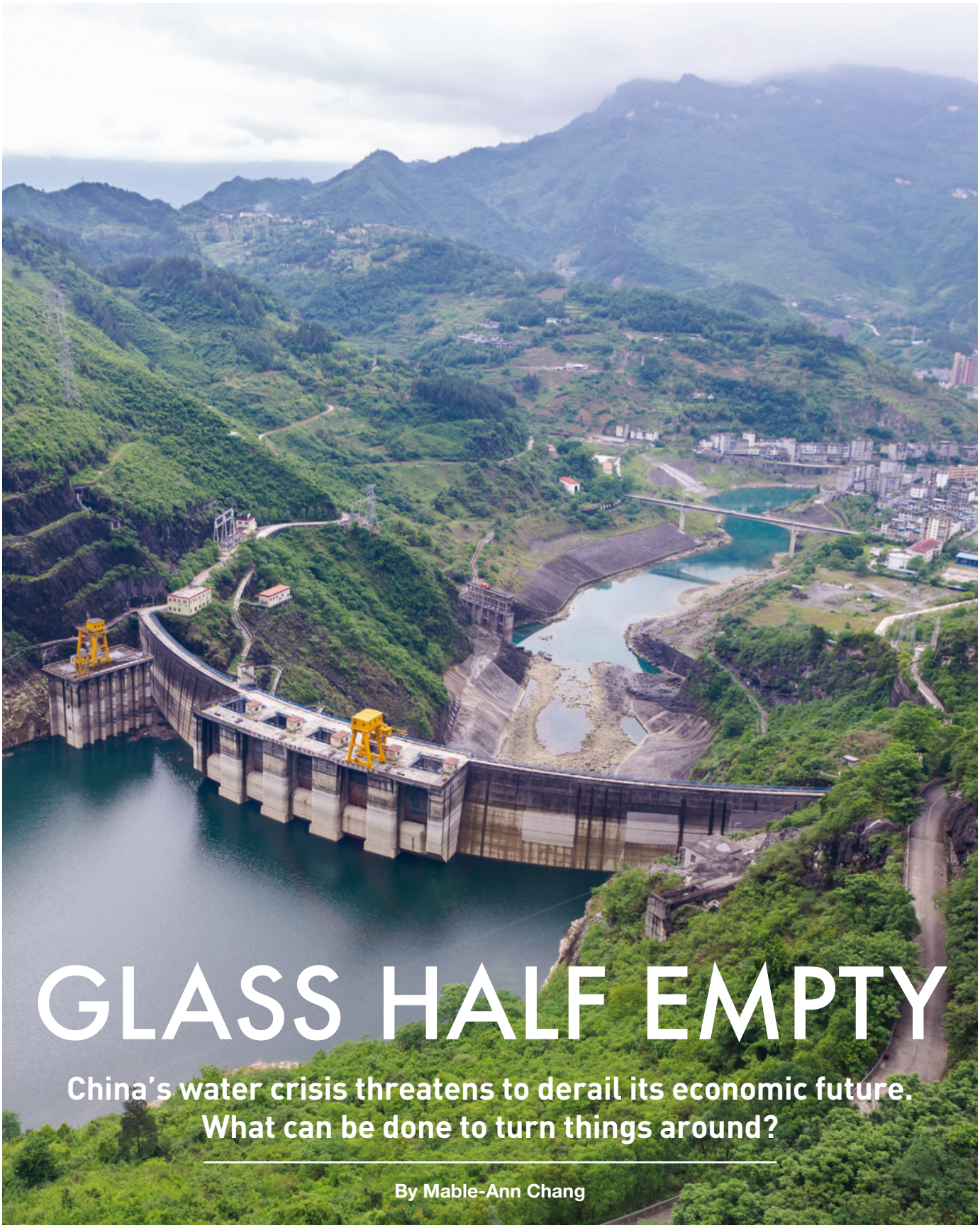
So what should the Australian government do about the China relationship? My advice is: Talk less, do more

Q. The relationship between China and Australia has moved into difficult waters in recent years. To what extent do you see this as being an anomalous situation or reflective of changes in China's overall relationship with other countries?

A. It has been politically to the advantage of certain politicians in Australia to beat their chests as being "tough on China," sometimes in excess of the objective material differences of policy between Beijing and Canberra on any relevant set of security, environment and economic policy questions. It is the rhetorical turbo-charging of what would ordinarily be a complex set of operational policy questions which has further shifted the Australia-China relationship in a negative direction. So what should the Australian government do about the China relationship? My advice is: Talk less, do more.

Australia is a consolidated liberal democracy, an ally of the United States, and outward looking in the Indo-Pacific region. These facts are fundamental to the character and worldview of Australians. They don't want to be pushed around by anybody. There is a problem if the calculation in Beijing has been that Australia is a piece on a chessboard capable of manipulation simply by the application of maximum pressure. So, if we want to restabilize the Australia-China relationship, it would be useful for both sides to actually push the pause button in terms of public rhetoric. We should regroup around particular policy issues, interests and values where there actually is a material difference, and then prioritize those and work through them one by one. The problem with rhetorical fusillades in both directions is it just turbo-charges existing difficulties.

Interview by Mable-Ann Chang



GLASS HALF EMPTY

China's water crisis threatens to derail its economic future. What can be done to turn things around?

By Mable-Ann Chang

Beijing has made efforts to tackle China's long-standing issue of water scarcity, but will it be enough?

If you visit the city of Taiyuan on the dry north China plain, don't be shocked if your hotel tells you that running water is available for only one hour a day. Such is the state of affairs in this city of 3.7 million inhabitants that taps sometimes run dry. The situation in Taiyuan is just one indicator of a dire situation confronting China. Over 28,000 rivers have disappeared from the country's landscape in the past three decades and groundwater levels are plummeting in most regions of the country. The writing is on the wall: China has a water crisis that's worsening by the day.

If further evidence was needed of just how valuable water is in China today, one needs to look no further than the bottled water empire Nongfu Spring, whose CEO Zhong Shanshan is now the wealthiest person in the country, with a net worth of $68.9 billion, making him the 14th richest person in the world (see "Jumping Above" on pp 44-47).

China has been facing growing water shortages in many parts of the country since the 1980s, and its leaders have for years recognized it as a serious issue. But solving the problem of how to ensure sufficient water supplies for 1.4 billion people as well as huge requirements for agriculture and industry is getting more and more urgent.

"China's water crisis is very acute," says Martin Tillotson, Chair in Water Management at the University of Leeds. "Not just because of the situation that it is in at the moment, but because we expect the situation to deteriorate further in the coming years, as a result of climate change, but also rising or migrating populations and increased industrialization."

In 2005, the Ministry of Water Resources declared that it was necessary "to fight for every drop of water or die, that is the challenge facing China," while the Premier at the time, Wen Jiabao, identified water shortages as a threat to "the very survival of the Chinese nation." Many officials including China's current leader Xi Jinping have echoed these concerns in the years since, but China's water usage continues to grow, climate change continues to alter weather patterns, and the specter of 'not a drop to drink' is becoming ever more real.

Too much or too little?

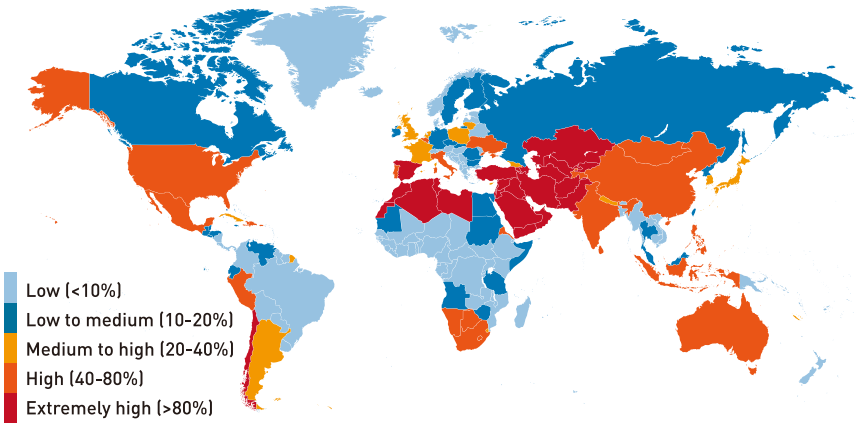
With nearly 20% of the global population, China only possesses about 7% of the world's fresh water. But there is a problem in distribution as well as volume. Simply put, there is too much water where too few people live, and too little water where too many live.

Around 80% of fresh water resources are in the south of China, while huge expanses of the north—where Taiyuan is—regularly suffer from water shortages. The 12 provinces and regions that make up northern China account for 38% of China's agriculture, 46% of its industry and 41% of its population.

All surviving rivers in China are dammed many times along their courses, drastically damaging their ecology, and

> **Anything that is able to make more efficient use of water will be something that will be in high demand in China**
>
> Martin Tillotson
> Chair in Water Management
> University of Leeds

PARCHED | China is expected to have a high withdrawal-to-supply ratio by 2040



Sources: World Resources Institute, ReliefWeb

in some cases also causing foreign policy problems where the rivers stray downstream beyond China's borders. Burma, Cambodia, India, Thailand, Kazakhstan, Laos and Vietnam have all been affected by Chinese water conservancy projects.

"On the world scale, China is the leading country in terms of dam construction," says Olli Varis, distinguished professor at Finland's Aalto University specializing in water resource management. "China has so many dams, no other country can compare. While benefitting agriculture, energy generation and flood protection in a big way, it has a big impact on water quality and quantity and in many ways has distorted the ecosystems and natural flow of waters. Dam construction has increased water usage, particularly for agriculture. So it has caused a lot of water shortages."

Water security issues are widely seen as a threat to the Chinese economy and to social stability. According to a 2017 analysis in *Global Risk Insights*, nearly half of China's GDP is generated "in regions that have a similar water resource per capita as the Middle East."

"China's economy is extremely dependent on water, not least when you think about the water requirements for agriculture and food production and the fact that China's obviously got a huge population which needs feeding," says Tillotson. "You also have to take into consideration the huge industrial base that China has not just to supply its own population, but in terms of global demand for Chinese products. The 'Factory of the World' uses a lot of water."

More than 80% of China's water supply comes from surface water, such as rivers and lakes, and the Ministry of Ecology and Environment reported in 2018 that nearly 26% of available water is either so polluted that it is unfit for use at all or considered only suitable for agricultural or industrial use.

China averages 2,700 cubic kilometers of renewable freshwater resources per year, which does not differ greatly from the 2,930 cubic kilometers average in the United States, according to an academic paper published by ScienceDirect. But China's fresh water serves a population four times the size of the US and is heavily concentrated in the south of the country. Groundwater levels in populated areas, meanwhile, have been falling for decades.

"You can keep pumping ground water but eventually it's going to run out, and when a car gets short of oil, it may continue running for several miles, but then suddenly the engine will seize up," says former British diplomat to China Charles Parton, currently an associate fellow of the Council on Strategy and of the Royal United Services Institute, both London-based think tanks. "China's economy is very heavily dependent on this one key resource. I've been saying for some time now that when I look at the Chinese future and development of the economy, the biggest long-term constraint and serious problem is the water question."

Wells running dry

The water crisis is caused by fundamental factors including fast urbanization, booming industrial production and changes to China's agriculture that require much higher levels of water usage than before.

"Geography is a key cause of the water shortage—there's always been a lot more water in the south of China than in the north," says Simon MacKinnon, Chairman of clean technology company Xeros. "Number two is very likely climate change. Number three is the rapid growth in use per person during the second half of the 20th Century, together with urbanization. When you have large concentrations of people, you then have great strain on local water supplies."

Aalto University's Varis says that growing population density is a major concern. China's urbanization rate is currently at around 60.8% and is forecast to rise to 70% by 2030. "China is changing really fast and urbanizing very fast," he says. "Many of these economic developments have a lot of negative influence on water."

Beijing, China's second-largest city by population, with 21 million people, has seen its water resources per capita plummet from 1,000 cubic meters in 1949 to less than 230 cubic meters in 2007, according to Probe International, an independent environmental advocacy group. Nearby reservoirs stopped meeting the requirements of Beijing's population long ago and the central government has resorted to drastic measures, including redirecting water flows from as far away as the Yangtze River in central China in order to slake the city's thirst.

"There's also a lot of internal migration as the Chinese population moves evermore eastwards towards the major population centers of the coastal areas," says Tillotson. Between 2001 and 2015 the top four recipients of internal migrants were Guangdong Province, Shanghai, Zheijang

Province and Beijing, with a net inflow of around 37 million people. "And these areas tend to be quite arid with limited local water resources. You've got a population that's effectively moving towards an area of water scarcity and that, in turn, then drives even greater water scarcity," he says.

Changes in lifestyles, higher levels of meat consumption and an explosion in consumer activity have all contributed to skyrocketing water usage. "It's a population with rising affluence and with affluence comes increased water demand," adds Tillotson.

Data on water usage by industry is difficult to obtain, but there is no doubt that China's role as the biggest manufacturer in the world involves the use of massive amounts of increasingly precious water. "China's economy is very different from other economies around the world," says Parton. "It's much more water consumptive than service-based economies."

Stopping the drip

Solutions to China's great water problem have primarily focused on the kind of massive infrastructure projects which the country has proved itself to be so good at. Chief among these is the South-North Water Diversion Project, a series of canals, reservoirs, and tunnels that divert water from the Yangtze River basin northwards over 1,600 kilometers to Beijing and other centers.

The yet-to-be-completed multi-armed project, initiated in 2002, is the biggest water diversion in human history and when complete, will directly benefit more than 130 million people. But it comes at a high cost.

"I'd love to see a proper water audit of the project, because although the central arm of the two arms that are operating is largely run by gravity, the east isn't, which means you have to pump water up 600 meters which requires an awful lot of power," says Parton. "And generating power requires water, because a lot of water is used in geothermal and nuclear power generation, which still despite great efforts, is a large amount."

One answer to the macro water problem would be to move large numbers of people out of the dry north down to the wetter south, but very little has been done to implement this idea. The creation of new urban centers in the north, such as the city of Xiong'an near of Beijing, now under construction, would appear to worsen the problem rather than ease it.

"Xiong'an is just crazy from a water point of view," says Parton. "You do not set up a major water metropolis in a place which has a very acute water shortage." The total water consumption per year of nearby Beijing, which is facing water shortage issues, is 3.95 billion cubic meters. While Xiong'an's multiyear average volume of available water resources is only 173 million cubic meters.

Other solutions involve technology in one way or another, and desalination is one of the top long-term prospects. The current Five-Year economic development plan, covering 2021-2025, allows for investment in desalination plants to raise capacity to 2.9 million tons of water per day, and the government has announced the construction of demonstration seawater desalination facilities along the north China coast.

"It's worth it in some coastal or urban areas, for urban use," says Varis. "But desalination requires a lot of energy and in that sense, a lot of money. It's an expensive solution. But, for a wealthy urban area, it can be an option."

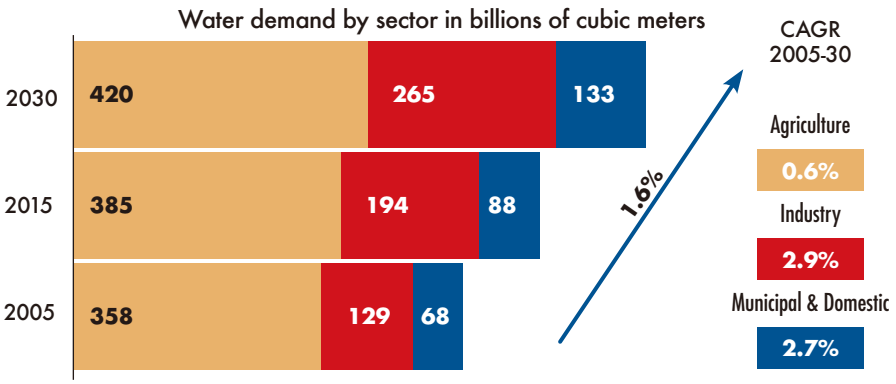
Tillotson agrees on the high costs involved and also points to another problem with desalination. "Desalination is a very energy intensive process," says Tillotson. "By solving, potentially, a problem in terms of water supply, depending on where that energy comes from, you then create another problem in terms of greenhouse gas emissions."

Another idea is "sponge cities," a new urban model for flood management and water retention, which requires road surfaces to be porous, so that water does not simply flow away. Following major flooding in Beijing in 2012, the Chinese government put in place a program of sponge city urban developments across China, which has now expanded to over 30 locations, including Shanghai and Beijing, according to architecture company Chapman Taylor, which has been involved in the design of a number of major sponge city projects in China.

MacKinnon says his company Xeros is marketing polymer technologies which can reduce water usage by up to 80% in major industries including laundry and textile manufacturing. "We are being encouraged and supported by Chinese partners and the government to help Chinese customers to adopt this technology," he says. "There are many others out there addressing different areas of industry."

"The new technologies have been improving the situation a lot, I would say," says Varis. "But of course, the volume of water usage has been growing also. It

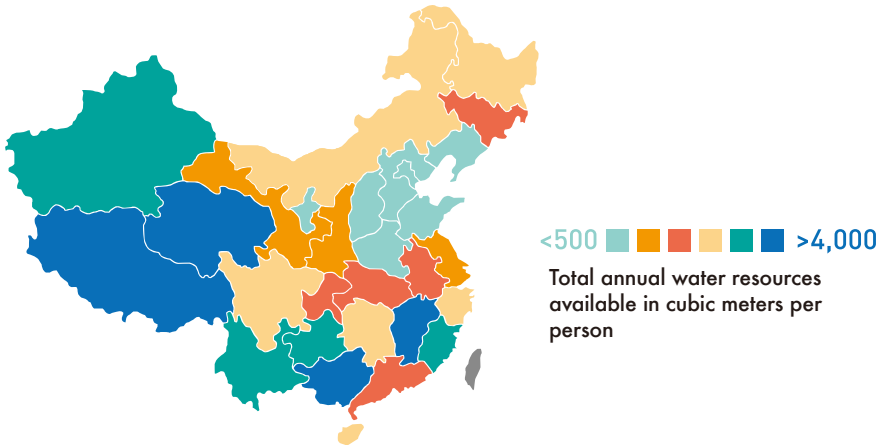
GROWING DEMAND | The demand for water in China has skyrocketed



Sources: China Environment Situation Fact Book, China Agriculture Annual Book 2030, 2030 Water Resources Group (a water resource management partnership hosted by the World Bank Group)

GEOGRAPHIC SCARCITY

Globally, the average amount of water available per person is 5,922 cubic meters



Sources: National Bureau of Statistics, United Nations, World Bank, Bloomberg

doesn't happen in one night, but there can be a lot of changes in a period of 10 or 15 years, changing old technologies to new ones that require less energy and are less carbon intensive."

Water forecast

How soon China's water problems could reach crisis point is a matter of great debate among experts, and none of the people interviewed for this article were willing to hazard a guess as to how close China is to running out on a significant scale in any region. But it seems clear that China is moving closer to that point and Greenpeace has predicted that water consumption could outstrip supply by as early as 2030.

"The current pace of development of solutions to this crisis are not keeping up with demand," says Tillotson. "There is this looming crisis that, ultimately, will have a huge economic, environmental and social impact on China. You reach a point at which the ability of the Chinese authorities to supply people with the water that they need starts to become limited. That means then that people are starting to go without the water that they need. While there are glimmers of hope that change is starting to happen, the speed at which that change is happening is important."

As water shortages intensify, there will be growing consequences for businesses in various regions and sectors, particularly manufacturing, says MacKinnon. "Regulations will only be enforced more strictly across the board, and technology will play a greater role in terms of monitoring each step of the manufacturing process to ensure less wastage and any excessive use will be fined heavily," he adds.

On the other hand, Tillotson sees opportunities for business in the parched outlook. "Anything that is able to make more efficient use of water will be something that will be in high demand in China," he says. "Anything that is able to improve the water efficiency of existing production processes, whether that be irrigation in agriculture or car production or clothing production."

The ruling factor

Water shortages are a growing problem in many parts of the world, not just China, and it is simply a matter of who hits the brick wall first.

"Chinese policies have been ambitious and I would say they are doing a fairly good job, but there's still a lot to do, and water needs to be seen in a bigger context than before, particularly in terms of ecosystem management and climate change," says Varis. "The biggest unknown here is climate change. The north is very dry and the east is very crowded. If that area dries up even a little due to climate change—and there's considerable risk that it would happen at least in some years—that would be a big unknown and big stress factor."

MacKinnon predicts higher water prices and more careful usage of water. "Already, there are improvements," says MacKinnon. "If you visit Baosteel (a major steel plant near Shanghai), for example, the amount of water that they are now recycling is tremendous compared to five or 10 years ago. I predict in 10 years' time, China will be aggressively addressing water problems and that will feed through into changed behaviors, increased prices, and a lot more conservation of water by industry."

But there are pessimistic scenarios, too. "Water is the one factor above all—beyond demographics, debt and education—that makes me wonder about the future of China," says Parton. "If the leadership can be open and can solve it, then they've got a very good chance of becoming the superpower of this century. If they can't, then I don't see them reaching that point."

> "Water is the one factor above all—beyond demographics, debt and education—that makes me wonder about the future of China
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> Charles Parton
> Former British diplomat to China,
> Trustee of Chinadialogue

YOUR TRADE MOVE

Despite supporting the World Trade Organization, both the US and China are looking increasingly at bilateral and regional trade agreements

By Ralph Jennings

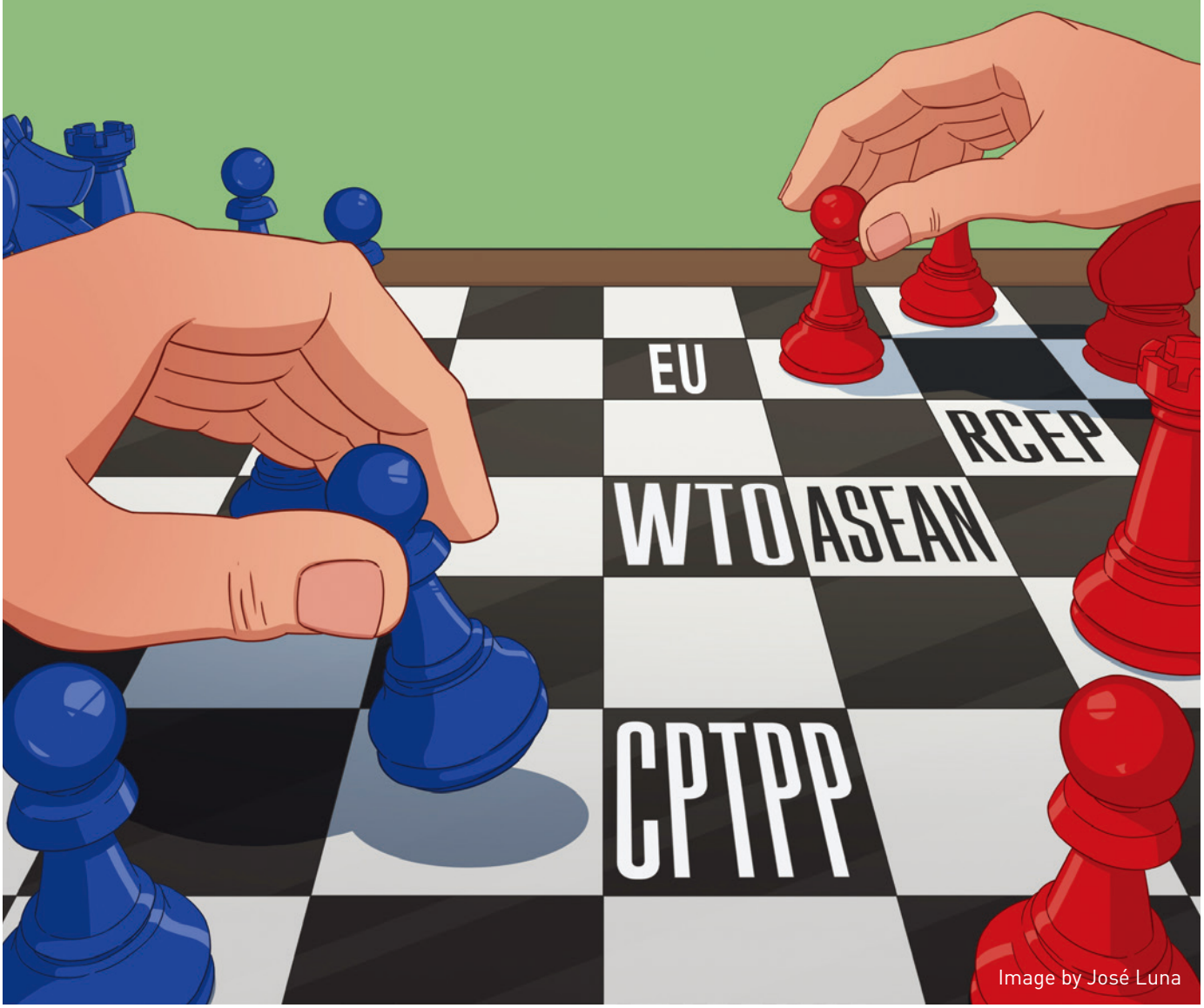


Image by José Luna

How does China fit into the world's complex web of trade agreements?

In April 2021, China ratified one of the biggest multinational trade deals ever reached—the Regional Comprehensive Economic Partnership (RCEP), which encompasses 15 countries in East Asia and slightly beyond, setting the groundwork for the launch of a grouping that could further boost China's already dominant role in global trade. Japan and Singapore are the only other signatories to join China in the ratification of the partnership, but six more countries are required to ratify the agreement for it to take effect.

The RCEP agreement, signed in November last year after eight years of negotiations, is the largest regional trade grouping ever created, encompassing 30% of the world's population and 30% of global GDP. But notably absent from the list of RCEP member countries are India and the United States, increasing the likelihood that China will be the core player in the organization.

India was part of the initial RCEP discussions, but decided in 2019 not to take part, basically for fear of the Indian market being overwhelmed by Chinese imports. And the US has for several years followed its own path on trade groupings—in the Obama years, the US promoted the Trans-Pacific Partnership (TPP) which was expected to not include China, but Donald Trump canceled that plan right at the start of his presidency in 2017 and followed the path of bilateral trade wars and tariffs in an effort to influence China's trade and economic practices.

Then came Joe Biden's win in the US presidential election in November, raising the possibility of a new direction in US policy, and China was eager to get the RCEP signed, sealed and delivered ahead of his inauguration in January.

"I think they felt this was their opportunity to get an upper hand over the US," says Jayant Menon, a visiting senior fellow with the ISEAS Yusof Ishak Institute's Regional Economic Studies Program in Singapore.

"RCEP is seen as China's victory against Trump's anti-China policy and Biden's China-containment coalition," adds Yun Sun, East Asia Program senior associate with the Stimson Center in Washington. "It is regarded as China continuing to emerge and gain regional momentum despite US hostility, a sign of regional support for China's leadership."

An intricate game

The jigsaw puzzle of global trade arrangements, generally aimed at reducing tariffs and other obstacles to trade between member countries, has become increasingly complicated in recent years as disillusionment has grown with the World Trade Organization. A growing list of disputes and problems, along with stalemate on reforms of the organization, have led to a plethora of bilateral and regional trade agreements designed to streamline trade between partners.

"The reform of the WTO is seen as a challenge for the long term, with little expected in the short or medium term," says Menon. "This is why there is a sustained interest in the pursuit of bilateral and regional trade deals."

Immediately after the RCEP signing, Chinese leader Xi Jinping announced that China was also considering joining the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), a trade grouping of 11 countries including Japan, Peru, Vietnam and Australia created in 2017 to replace the US-backed and then abandoned TPP. The irony is that the TPP was originally envisioned as an organization that would exclude China. "The TPP would let America, not China, lead the way on global trade," former US president Barack Obama said in May 2016.

"China's interest in the CPTPP is to demonstrate their commitment to participating in trade agreements and to show they have support from within the group," says Derek Scissors, resident scholar at the public policy think tank American Enterprise Institute (AEI).

The right pawns

China is easily the world's biggest trading player by volume and value of exports and imports. Through the matrix of trade deals, China is looking to expand its influence while securing the sources of raw

materials it needs and the markets for its products. Creating stable long-term trading relationships with countries that supply essential ingredients for manufacturing and growth is a major priority in light of Beijing's perception that the US and others are looking to constrain China's development.

"When you're that big with such a large industrial base, concern about raw materials is natural," said Song Seng Wun, an economist in the private banking unit of Malaysian bank CIMB.

Data from the Asian Development Bank shows that China has signed or is in negotiation on 47 separate free trade agreements (FTA), most of them bilateral. Eighteen are signed and in effect, and four others are signed but pending a formal launch. In most cases, China is the biggest trading partner within these partnerships.

An FTA with New Zealand signed in 2008 was among the earliest of such agreements, and has created a structure the Chinese government felt comfortable with. Under the New Zealand agreement, tariffs on 97% of the country's exports to China were eliminated, thus giving China greater access to the New Zealand market. Red tape was reduced, and trade dispute settlement procedures were simplified. Between 2008 and 2018, New Zealand's annual two-way trade with China quadrupled to $20 billion.

All the trade deals involve cuts in import tariffs for each side and a degree of opening of one another's markets to trade in both goods and services. Market liberalization is meant to be reciprocal. The RCEP calls for pass-through imports, the smoothing of e-commerce procedures and easier procedures for factories outsourcing across borders, says Frederick Burke, partner with the law firm Baker McKenzie in Ho Chi Minh City. "For instance, a Vietnamese product for which most of the materials are sourced from China that make it ineligible for tariff preference when exporting to Australia, Japan or Korea now can enjoy a tariff lower than the most-favored nation rate thanks to the RCEP," Burke says.

China's commerce vice minister Wang Shouwen has said that the RCEP will remove tariffs on nearly 30% of China's exports.

Adrian Lorentz, chief operating officer with Teleport, a logistics venture under Malaysia-based airline AirAsia, says China's entry to the RCEP opens up opportunities for business expansion. "This partnership is expected to further simplify the barriers we still face today," he says.

Between 2017 and 2021, the Trump administration canceled, ignored or undercut many multilateral agreements, including the North American Free Trade Area (NAFTA) linking the US with Canada and Mexico. In 2018, the US under Trump launched a trade dispute with China that resulted in the addition of tariffs to $550 billion worth of Chinese shipments to the US and $185 billion in US goods headed the other way. The Biden administration has so far not removed those tariffs.

The dispute prompted China to steer exports towards markets other than the US, including Southeast Asia, which form the core of the RCEP. "China was able to compensate [for the US-China trade war] by ramping up sales to nearly everyone else," the Carnegie Endowment for International Peace report said in 2020.

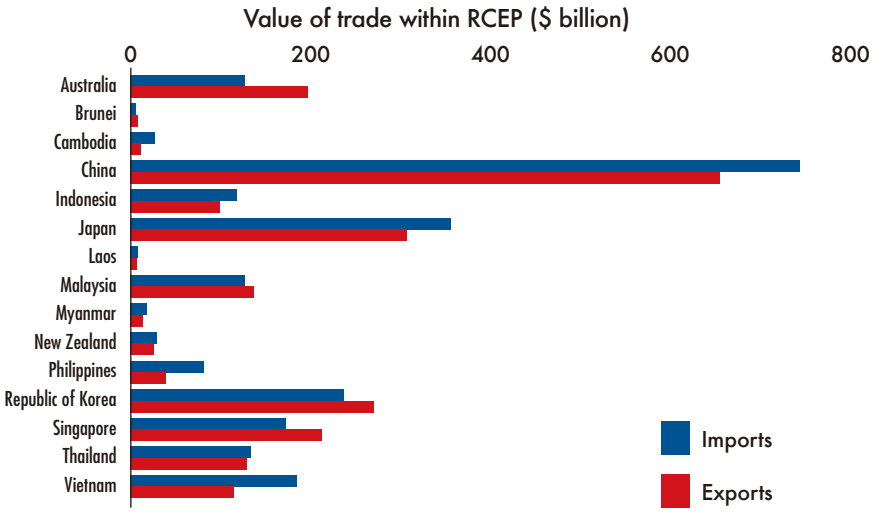
In 2019, the 10-country Association of Southeast Asian Nations (ASEAN) overtook the US as China's second-largest trading partner after the European Union, the report said, and trade between China and the ASEAN countries has in most cases continued to grow, partly as a result of the Belt and Road Initiative, the Chinese strategy for extending economic and transport links through Central Asia, Africa and elsewhere.

The Ministry of Commerce says it is working on a three-way pact with Japan and South Korea, and an agreement under discussion with the Cooperation Council for the Arab States would be important in helping to ensure supplies of raw materials, according to Zhao Xijun, Associate Dean of the School of Finance at the Renmin University of China. "The Middle East is a major energy producer and it is key for China to build better relations with them as energy supply stability is very important," Zhao says. "This agreement will be quite effective for the production chain."

Grandmaster moves

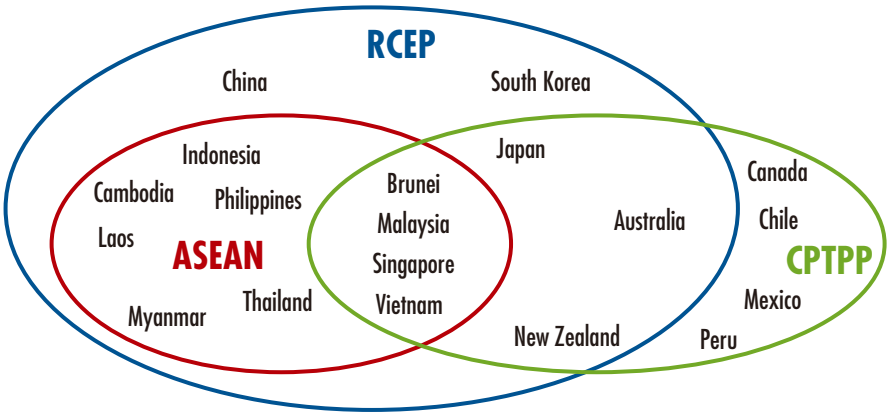
Trade deals which open up other markets matter to China because they can help companies break out of the domestic market, which is saturated in sectors such as consumer electronics, and give its manufacturing sector—accounting for 40% of GDP—a lift through lower tariffs on exports. "It just creates opportunities for your businesses," says Song. "These deals are more important to China itself than what the US is up to or not up to."

STRONGER TOGETHER | In 2019, trade among RCEP members was close to $2.5 trillion



Source: UNCTAD calculations based on UNSD COMTRADE data

TRADING WITHIN | The many countries involved in Asia-Pacific trade deals



Sources: International Institute for Strategic Studies, Global Risk Insights

But the Chinese government tends to prefer bilateral deals over regional ones because they give China as the larger nation more negotiating power, says Menon. "Chinese negotiators may push countries to open markets without opening its own [to the same extent]."

"Two-way deals compared to wider ones stress 'flexibility' for each side to drop barriers on shipments from the other," adds Zhao.

Existing Chinese trade deals are basically aimed at protecting domestic market access, says AEI's Derek Scissors, while benefitting the "highly competitive" export sectors such as consumer electronics. "China is entirely willing to drop its tariffs," Scissors says. "It's not at all willing to curb the privileges of its state-owned enterprises. As a result, there is no such thing as a free trade agreement with China."

China stands out, too, for the diversity of countries with which it has concluded free trade agreements, from tiny Costa Rica in the Americas and the former Soviet republic of Georgia to its political ally Pakistan in west Asia. China finalized its first free trade pact with an African nation in January this year by signing a deal with Mauritius after three years of talks, the state-owned *Global Times* newspaper reported.

Checkmate!

China became what it is today, the factory of the world and the number one trading nation, thanks largely to the agreement which allowed it to accede to the World Trade Organization in 2001. The deal was to a large extent based on the premise that China would change many of its economic policies within 15 years of joining to match those of the other major trading nations of the world, but the premise turned out to be flawed.

China did not completely conform as the US and other countries had hoped, said the Council on Foreign Relations think tank in a recent study. Instead, the report said, China was "taking advantage of provisions that suit its interests while skirting less convenient restrictions." It says some among the WTO's 164 members have accused China of "market-distorting practices" and "cheating the system in various ways". China riles some peers by taking actions to subsidize or provide extra support to certain domestic companies, an approach that arguably goes against WTO principles.

"WTO membership allowed China both access to global markets and continued abuse of WTO principles with regard to subsidizing its state sector," Scissors says.

China, for its part, denies any wrongdoing, and the WTO in 2018 ruled that the additional tariffs levied on Chinese goods by the US violated international trading rules.

In any case, the WTO has lost much of its global clout because the Trump administration sidelined it, blocked its dispute resolution system, and "effectively dismembered it, by refusing to reappoint members to the appellate body, and thereby deny it a quorum," says Menon.

But the WTO may still provide a solid basis for organizing international trade, and as Burke says, "Biden represents a course correction, re-committing the US to the rules-based global trading system." China said in a 2018 position paper that it supported reform of the WTO "to enhance its authority and efficacy, to build an open world economy" by addressing an "imbalance of trade rules" and called for "safeguards" for developing countries.

The Nigerian-American economist Ngozi Okonjo-Iweala took over as WTO Director-General in March 2021 and quickly said that China would be central to any changes to the organization's rules and procedures.

The WTO's dispute settlement system is a major problem, and China and the US are the countries most frequently either accusing others, or being accused by others, of inappropriate trade practices. In total, the US is involved in more than five times as many WTO trade disputes as China, according to the World Economic Forum.

In the absence of progress on resolving WTO issues, countries in Asia will increasingly look to alternative ways of managing trade relationships, says Liang Kuo-yuan, president of the Taipei-based economic think tank Polaris Research Institute.

"The WTO has a lot of problems and one is the number of member countries is too big, the levels of economic development are too varied," Liang says. "So, everyone is thinking, what are the alternatives? They have the RCEP—the number of countries won't be so large, plus they've got closer ties in terms of economy, politics and culture."

This could in fact be China's strategy in dealing with the WTO impasse.

"I'd think mainland China's intention is, if regional agreements can replace the WTO, then it will take that direction," Liang adds. "It can be the top player—its economy is massive."

GREEN SHOOTS?

Can China kick its decades' long coal addiction in order to meet its ambitious climate targets?

By Crystal Wilde

China's massive use of coal is a global problem. Can the country fulfill its goal of becoming carbon neutral by 2060?

The winter of 2020 was brutal. An unexpected atmospheric cocktail created in part by a warmer Arctic made the mercury plummet to unusually low levels in China. In several southern cities long lines of workers climbed up the stairs in their office buildings, feeling perhaps the warmest they would all day thanks to the activity—elevators and office heating had been shut off due to power shortages.

The situation hasn't been much better in northern China either. More than 2.5 million households across Hebei province were converted from coal to electricity or natural gas in 2017, but gas shortages and a lack of infrastructure disrupted the operations of industrial firms across northern China, and left some villages without heat amid sub-zero temperatures in the winter of 2018, forcing authorities to suspend the conversions.

Meanwhile, in September, China's leader Xi Jinping made an ambitious pledge to reduce China's dependence on coal, currently the country's main energy source, in order to peak carbon emissions by 2030 and achieve net zero status by 2060.

The answer to both the power shortages and the need to limit carbon gases is to cut coal usage and boost renewable energy sources. China is rapidly ramping up investment into alternatives to coal-fired energy production, but it has a long way to go. While coal usage is plummeting in much of the world, coal still accounted for 58% of China's total primary energy production as of 2019. This was actually an improvement over the past—the share of coal in China's energy mix had already declined from 80% in 2010. However, China still currently has around 1,080 coal-fired power plants in operation, around half of all coal-fired plants in the world, and the number is still growing.

In 2020, China put 38.4 gigawatts (GW) of new coal-fired power capacity into operation, more than three times the capacity put online in the rest of the world combined, Reuters reported. The plants had been approved long before Xi Jinping made his carbon-neutral announcement, but the reality of China's energy landscape clearly does not yet match its ambitions. Whole provinces as well as millions of workers still depend on the coal business, as well as the power grid.

China's power paradox

Lauri Myllyvirta, lead analyst at the Center for Research on Energy and Clean Air, an independent climate tracking organization, says Xi's pledge to make China carbon neutral by 2060 was surprising given the country's urgent need for energy to fuel fast economic growth, particularly given the nature of growth in the past few years. "This [growth] had been very energy intensive, driven by construction and heavy industry, resulting in increased fossil fuel investment, including coal-fired power plants. COVID-19 just made those trends a lot more pronounced. So what Xi Jinping was announcing was really a complete change in direction."

China is currently the world's largest consumer of energy, the largest producer and consumer of coal, and the biggest emitter of carbon dioxide. While climate experts the world over have applauded China's long-term goal to shift towards renewables, it comes after 40 years of breakneck economic growth fueled largely by coal.

From 1990 to 2019, the country's coal consumption nearly quadrupled. Since 2011, China has consumed more coal than the rest of the world combined, and the China Electricity Council predicted in February that the country would use 6-7% more electricity this year than in 2020.

On the other side of the ledger, China has for several years been the clear leader in investment in clean, renewable energy, and already produces more energy using non-coal methods than the United States. Energy output using wind, solar and hydropower are all growing fast. Xi's September 2020 statement was an acknowledgement of China's role in the global climate emergency, and Premier Li Keqiang later said that an action plan would be drawn up this year to meet the 2030 target. Drastically reducing the use of coal to create electricity will be a crucial part of that plan.

"The transition towards a low-carbon electricity system is a mainstay of China's bid to become carbon neutral before 2060," says Muyi Yang, senior Asia electricity policy analyst for the energy research firm, Ember, and an author of a recent report on China's increasing coal capacity. "This requires substantial changes to be made in the generation technology-fuel mix to replace coal and other fossil fuels with non-fossil fuels. Making these changes requires a reconfiguration of the wider electricity and economic systems, as already recognized by the central government." The process of phasing out coal is extremely complex, given the way in which the fossil fuel is embedded in China's system, he says.

"It is also worth noting that promoting coal phaseout and electricity and economic reconfiguration require sound and effective policies," adds Yang. "Making these policies require, among other factors, closer coordination and collaboration both horizontally between government agencies, state-owned enterprises, and private actors, as well as vertically across different levels of government."

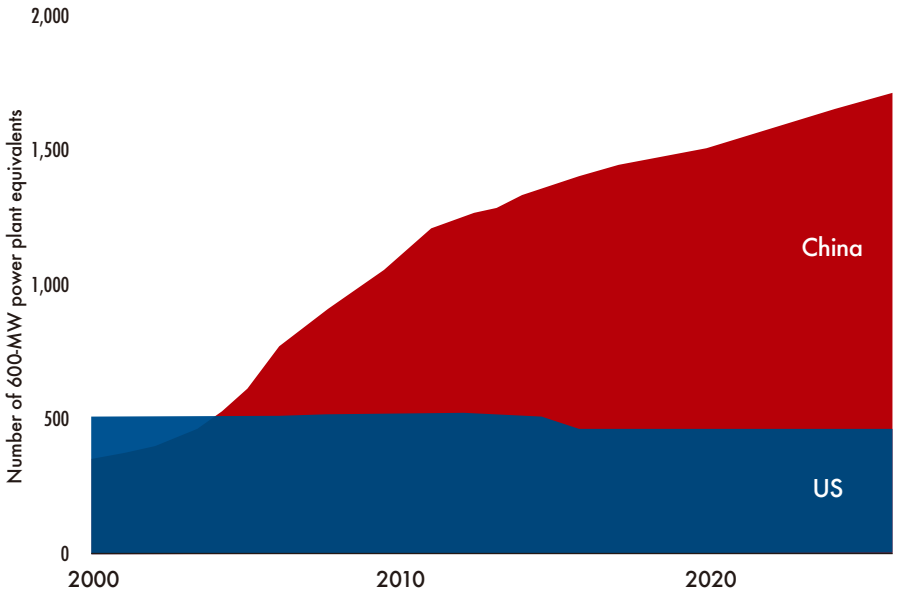
An insufferable reliance

The country's domestic coal supplies mainly come from the northern provinces of Shanxi, Shaanxi and Inner Mongolia, with the industry dominated by state-owned enterprises (SOEs) such as the China National Coal Group and the China Energy Investment Corporation. Energy security is a key concern for Beijing, and huge investment and preferential government policies, such as imposing quotas on coal imports, have helped keep the price of domestic coal high, protecting both the industry and the jobs within it and reducing reliance on imports.

With a shift in focus in energy policy, this preferential treatment for coal production is expected to be phased out, leading to a financial vacuum in certain provinces requiring deep population and economic changes.

"Some resource-dependent regions and mining towns may bear much of the costs associated with coal phaseout," says Yang. "Low-carbon technology industries are more likely to create jobs in close proximity to energy demand centers [in the east], and the skills and knowledge required by low-carbon technology industries are quite different." But local authorities are reluctant to retire inefficient fossil fuel plants in a bid to keep both the energy system and the economy stable, and those in the industry are keen to profit while they still can.

CONSUMING COAL | China currently burns significantly more coal than the US



Source: Climate Central

One solution touted by those determined to see coal continue to play a role in China's future energy landscape is carbon capture technology, whereby emissions are either stored underground or used to create new industrial products. But while China's newest coal plants are some of the most clean and advanced in the world, such technologies are still a long way from being economically viable. "The costs are just too high to do that across all of China's power plants," says Alvin Lin, China climate and energy policy director for the Natural Resources Defense Council, a US advocacy group.

A more successful scheme can be found in Yunnan, where coal contributes just 20% of power generation. To make up the difference, local hydropower stations deposit one Chinese cent into a "standby fund" for coal plants for every kilowatt hour of electricity they generate. While such actions could be seen as a compensation mechanism for outdated technologies, it at least gives coal plants not yet ready for retirement a pathway to withdrawal from base load operations.

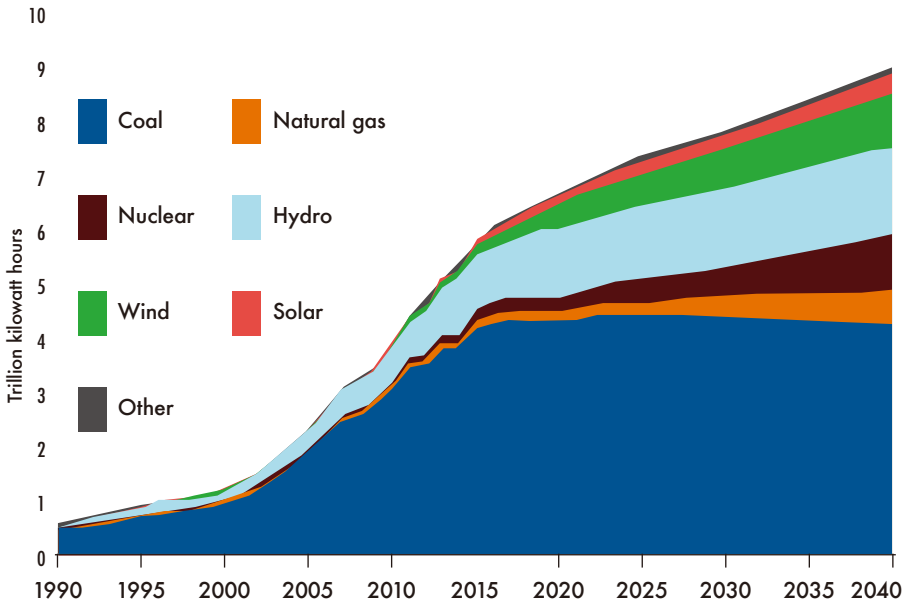
China will need to shut down at least 600 coal-fired plants in the next 10 years and replace them with renewable electricity generation if it is to achieve net carbon neutrality by 2060, according to a report by climate analytics provider TransitionZero released in April. The Draworld Environment Research Center, meanwhile, says that to meet its 2030 target, China must shrink its current coal-fired power generation capacity from 1,100 GW to around 680 GW immediately, stop building new coal power plants and double wind and solar energy in order to reach its 2060 goal.

Switching on the sun

The provinces that rely on coal for their economies will ultimately need to diversify their economies, and there are signs it

A SHIFT TO RENEWABLES

Chinese coal-fired electricity generation is expected to plateau in the future



Sources: US Energy Information Administration, International Energy Outlook 2017

is happening. Even Shanxi province in the mining heartland of China has been investing heavily in solar energy, electric vehicles, high tech manufacturing and tourism in recent years. "If you've got an economy that's just too reliant on one kind of resource, then it's going to be a fragile economy when the demand falls for that resource," says Lin. "Shanxi realizes this and has been looking at how to upgrade its economy."

In 2020, China added a record amount of wind and solar power, almost double its 2019 figure, and has managed to reduce the share of coal in its energy mix from 70% a decade ago to 56.8% last year, even though absolute volumes rose. However, non-fossil fuels only met around 15% of China's 2020 energy needs, with the vast majority of that made up of hydropower and nuclear, both of which come with their own set of ecological concerns.

The Chinese government has invested heavily in renewable energy research and China currently boasts the world's highest number of renewable energy patents. It has also for years offered substantial subsidies to renewables, but these are now being pulled back as the renewable industry becomes mature and government support becomes harder to justify.

"True renewables like wind and solar only make up a tiny fraction of China's current energy mix," says Ma Jun, the director of Beijing-based NGO the Institute of Public & Environmental Affairs. "But with the economic downturn and many regions in a bad fiscal situation, it's not sustainable for the subsidies to be given like before."

The switch away from coal to renewables creates a lot of pain for the system in many ways. There are issues of generation reliability with renewable energy sources, as well as transport and distribution of energy, sometimes over huge distances from wind and solar power generation sites, mostly in the west of China, to urban centers, mostly in the east.

"In the short to medium term, yes, coal is not going away in China any time soon," says Simon Nicholas, energy finance analyst for US non-profit the Institute for Energy Economics and Financial Analysis. "In the longer term, however, the fact that renewable energy beats coal-fired power on every measure, including cost, means that towards the middle of the century, coal-fired power will be disappearing rapidly."

A tough transition

With a clear plan of action still lacking, making the shift from coal to renewables will not come without challenges, given the heavy investment and dependence on the coal industry. "You have some provinces and SOEs that see the period before the 2030 peak as a window of opportunity to add new fossil capacity and grow emissions, as they think it will be easier to decline emissions afterwards from a higher base," says Myllyvirta. "Then there are people in the environment ministry who take a more rational approach and think you have to start turning things around now. It's really a tug of war between these two interests at the moment." For China to meet the 2060 deadline, people in the bureaucracy and business who are taking a more environmentally-aware approach, will need to prevail.

But despite the challenges, in rhetoric at least, China's climate goals are still front and center. In April, in fresh climate talks with the Biden administration, both President Xi and the country's climate envoy Xie Zhenhua reiterated pledges to reduce emissions. And if the history of China over the past few decades has taught us anything, it is that the country is capable of major changes in economic and social strategies.

"The global energy transition is a challenge but China will be helped by the fact that many of its green and economic/energy security goals are well aligned," says Nicholas. "Increased reliance on renewable energy improves energy security without the air pollution caused by burning domestic coal. Wind and solar are also increasingly the cheapest source of power generation."

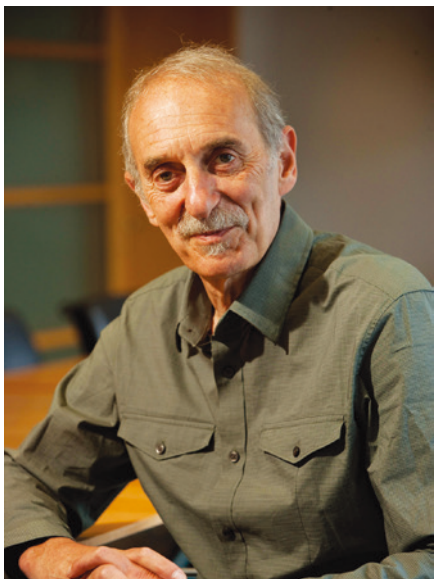
"It's like a big ship trying to change course," adds Ma. "It will take some time, but the most important thing is that all the political statements [on clean energy and the environment] are translated into action. It's imperative for the world that the US, the EU and China can all sit in the driving seat and power this global effort forward."

The Road to Recovery

Economist and author George Magnus, looks at China's falling birth rate and the future of the economy post COVID-19

George Magnus has enjoyed a ringside view of the world-changing events of recent decades that have challenged governments, economies and financial systems around the world. The former Chief Economist of UBS, Magnus is widely credited with having identified the triggers that led to the Financial Crisis of 2008 and helped us understand its lingering consequences.

In this interview, Magnus discusses the impact of the huge COVID-related stimulus injections around the world, China's debt burden and other problems that China's economy is facing.



Q. You have studied aging populations and even written a book on this topic. China recently released its latest census results, showing a sharp fall in birth rate. What would be your sense of China's demographic situation?

A. I don't think the recent census was a huge shock, but it did remind us that China's fertility rate at 1.3 (births per woman) is lower than we thought it was and that China is aging much faster than the high-speed trajectory we already built into projections. Introducing a three-child policy or lifting all restrictions on the number of children would be like chasing shadows. We know of no empirical cases where countries have succeeded in reversing weak fertility with statements, gimmicks or even cash.

With weak fertility—and rising life expectancy—the economic problem about aging is the squeeze on the size of the working age population. This started to fall in China in 2012, and will continue to do so relentlessly for the foreseeable future. It will fall about 1% per year, and take roughly that amount off potential growth. But it is also likely to mess with affordability of public pensions and healthcare, as well as with the financial and perhaps physical well-being of China's retirees. China is already a low spender on age-related spending (in relation to GDP), compared to, say, peer countries and developed economies.

China's task is to evolve coping mechanisms to act as offsets to the economic consequences. These comprise of immigration, higher participation rates for women and older citizens in the labor force via higher retirement ages and better childcare and higher productivity. Not all of these work for China, but the country certainly needs to work harder at those that do.

Q. The indications are that many young people are just not interested in having more than one child despite the relaxation of rules. What's the reason for that and what can the government do about it?

A. It is no secret that rising income per capita is probably the most effective form of contraception that mankind has, and China is no exception. It's a global phenomenon with higher income raising the opportunity cost of having children, and fertility rates holding up only in poorer countries. There are always country-specific factors, of course, and in China's case, these include the high cost of education, the patchy availability of readily accessible and affordable childcare, and the additional upward pressure on home costs in preferred school districts in some cities.

It's ironic that among OECD countries, those with higher fertility rates also tend to have high female labor force participation, better child care infrastructure and availability. Consequently, the Chinese government would be better advised to focus on education, childcare and women's lifestyle and work choices to try and arrest the fall or reverse the trend in fertility.

George Magnus is an independent economist and commentator, as well as a Research Associate at the China Centre, Oxford University, and at the School of Oriental and African Studies in London. He is the author of *The Age of Aging* which assesses one of the world's leading contemporary economic and social challenges, and of *Uprising: will emerging markets shape or shake the world economy?*, which considers the rise of and prospects for emerging markets, especially China.

Q. The pandemic has fundamentally changed the world in many ways. What would be your sense of how it has impacted China, its economy and its position in the world?

A. Leaving to one side the public health consequences, I suspect most people would judge that the pandemic's biggest and most enduring effects have been to accelerate lifestyle and work style changes that were already in the pipeline, and to torpedo what was already a fractious relationship with the US and other liberal leaning democracies (LLDs), including, of course, India and Japan in Asia.

It's certainly true that opinion about how to manage relations with China in LLDs is divided and that antagonists and protagonists of engagement are also using China relations to fight other political battles. As a result of all this, I think China now faces an external environment that's as bad as most people can recall. This will be a hindrance to China's economy and will get in the way of the change needed to reboot its development model. Moreover, while it might prove difficult to disentangle much of the economic integration that has been accomplished over the last 30 years, I think we will see more pushback against China in the global system.

The impact on the economy is a good news/bad news story. The good news was that by last spring, China had pretty much suppressed COVID-19, and the economy came back with speed, opening up through year-end and into 2021, save for periodic outbreaks of infection in the northeast early on this year and recently further south. The huge setback to consumption in 2020 which took the already low consumption share of GDP back to where it was in 2010, has been partially reversed this year, and the extra credit creation growth accepted last year has been pretty much unwound so far in 2021.

However, there is not much evidence, once you set aside the economic noise of the pandemic, that the economy is in a radically different place from where it was before the pandemic. In other words, it is slowing down again, partly due to official attempts to clamp down on egregious risk-taking and on private firms, but overwhelmingly because of the deadweight of excessive debt, poor demographics and stalled productivity growth. There's little sign of a willingness to embrace education, economic and social reforms while the government maintains a sternly Leninist, supply side, and production focus on managing the economy.

Q. The pandemic has resulted in huge stimulus injections into most major economies. What is your view on the prospects for inflation and also on the ability of central banks in the West and in China to handle the consequences of such massive stimulus injections?

A. The pace of the bounce-back, highest in China first but now in the US and some other parts of the world, is certainly creating some demand pressure which is running ahead of supply responses in many markets, including commodities, shipping and semiconductors, and pushing up inflation. There are, though, also constrained supply factors at work, too, arising from trade friction, constrained foreign investment, and supply chain recalibration, all in the context of exceptionally easy fiscal and monetary policies. The current inflation scare may not yet represent a regime change, but is likely to persist for a while, and could potentially become longer-lasting.

Politicians will be slow to withdraw fiscal stimulus, but central banks, which have seemed to be similarly reluctant to upset the apple cart, may continue to send out warnings to the markets that no one should expect the status quo to last for too long. The question is how long is too long. We might start to see a shift by early 2022. China seems to be ahead of the pack, clearly signaling an unwillingness to keep policies too easy for too long.

Q. China's overall debt levels are high, but the risk of a resultant crisis seems to be significantly lower than in a Western economy. What do you think of this?

A. Because China's financial system is almost entirely state-owned and no major banks will be allowed to fail, I don't see China's debt problem ending up in a sort of Lehman moment. China's debt is both owned by and owed to domestic institutions in their own currency. Domestic debt problems are still problems: Debt has to be paid for one way or another, and stressed balance sheets have to be restructured or unwound. Shadow banking loans and liabilities have been the target of policymakers, but much of these have moved back on-balance sheet where they are at least more visible, it should be said.

Several smaller banks and Huarong, one of the asset management companies created after the 1990s banking crisis, have gotten into trouble and needed capital, bailouts or other assistance. The funding structure of the liabilities of hundreds of smaller and regional banks is quite tenuous and will be highly sensitive to any sign of higher interest rates and or reduced liquidity.

So while China may not have a spectacular financial crisis as we saw in 2008-2009, the burden of debt will be felt though reduced lending growth, higher default risks as, for example, the authorities try to loosen the system of implicit guarantees, and liquidity issues among smaller lenders. All of these things will weigh on loan and economic growth in the coming decade as balance sheets have to be brought back into better shape.

Q. The Chinese economy is doing remarkably well, but what problems do you see on the horizon?

A. The economy is certainly doing well when you look at annual

growth in GDP, but last year makes for an easy comparison. As 2021 matures, the year over year effects get harder. So for this year, I think the economy will grow by about 7-7.5%, but by 2022 and after I think the economy will be back onto a slowing trajectory due to pre-existing structural headwinds. Debt is the most pressing constraint on growth, especially if the government stays the course in trying to constrain its growth. Poor demographics is another which is more medium-term, as is stalled productivity, which may well be the most important problem to resolve for China, as for many others.

Many economists, inside and outside of China, agree that China's development model needs a makeover, but the government seems unwilling to embark on the kind of reforms that would promote a more consumption and services-oriented economy in contrast to the current investment-heavy model. There are also serious shortfalls in educational attainment and skill formation which, at best, might take a generation to address, if the will and the financing were both available.

Q. China's financial markets have opened up to foreign investment firms quite substantially in the past couple of years. How do you see the role of foreign investment banks and other financial institutions developing in the China market?

A. It is easy to see why foreign, especially US, financial firms want to build up their businesses in China, and why China has been especially welcoming to these firms. They bring capital, especially US dollars, to China, along with knowhow and expertise in areas in which Chinese financial firms are relatively weak, for example, investment banking, wealth management, capital market intermediation.

Until now, foreign financial firms have certainly been active in China but without really upsetting the natural order of things where domestic firms dominate, and without raising their share of total deposits or funds under management. It'll be interesting therefore to see if and how this changes in the future. But there's no question that foreign financials can now do things that were previously out of bounds, and it suits China in important ways to be able to show that whatever foreign politicians say, foreign finance firms are committed to China.

Both sides surely want this to continue, but we shall have to see how far politics allows it to. For example, to the extent that foreign financials are funding coal-fired energy capacity and development, how will shareholders and investors back home take this on board? There are wider ESG issues that may become problematic, along with the risk that foreign firms may become compromised if forced to choose between abiding by incompatible regulations and rules.

Q. Many economists are of the view that China's centralized approach provides an opportunity for continued strong growth in the years ahead. Would you agree?

A. I honestly think centralized governance systems such as that which China is embedding are more likely to hold growth back than promote it. We have no empirical evidence of any nation with, shall we say, central control that has succeeded in escaping the so-called middle-income trap, and attaining the type of income per head which describes the richer members of the OECD. This is not to say that China might not be the first, but the odds are stacked firmly against.

For that to happen, China would have to use and exploit its centralized system to overcome the hurdles that I have referred to here. In other words, to clean up the debt system, so that balance sheet freedoms are restored; to develop coping mechanisms for aging; to embrace the kind of demand-side and supply-oriented reforms of institutions that would result in higher productivity growth; to evolve true innovation which is basically about business efficiencies, and better management and organization and rollout of new technologies to the humdrum parts of the economy; to address the need for higher education attainment levels for workers; and so on.

These all require root-and-branch reform and opening up, stronger redistribution and social welfare policies, changes in the tax code, local government fiscal responsibilities, *hukou* (China's household registration system), state-owned enterprises (SOEs) and so on. Many reforms potentially entail political and institutional changes, which China currently looks set to move further away from, not nearer.

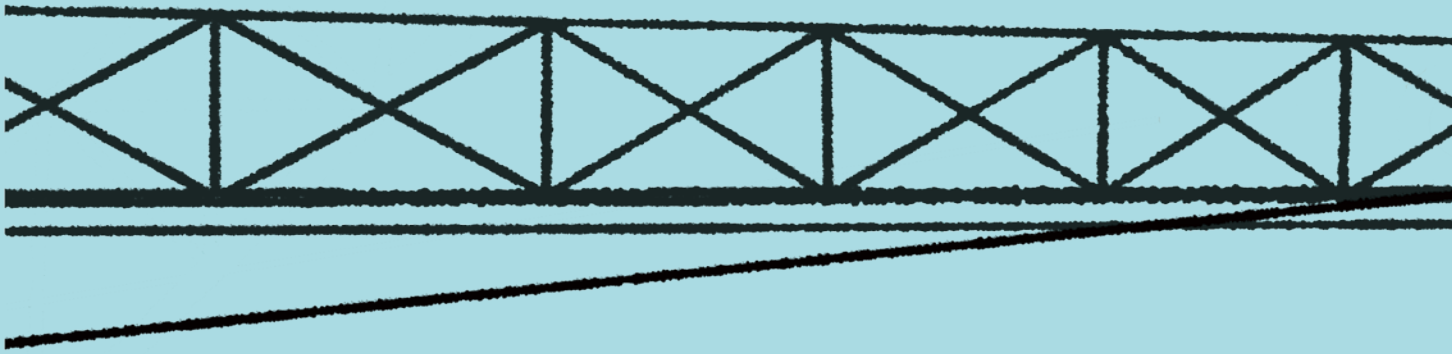
Q. The story of China's economic growth over the past four decades involves a delicate balance between SOEs, private enterprises and multinational corporations. What is your sense of the current balance and the trends of that balance?

A. It seems that for all the rhetoric that is designed to make the private sector feel better, China's priorities are firmly to support and back state enterprises and the party's presence in private sector boardrooms and operational management one way or another. SOEs are widely seen as being favored even more in the future, with the government looking to them to steer China toward the party's lofty and ambitious goals in technology and overall economic performance. A significant number of foreign firms in China see the politicization of business in China, with the CCP and its agencies in the driving seat, as a worrying development in the future.

China is certainly attempting to bring more certainty to business in China by passing new laws or strengthening judicial treatment, for example as these apply to intellectual property, cybersecurity, and foreign investment. Yet, the law and the legal system are nevertheless party-centric, and foreign firms see little change in things they have long complained about such as market access, negative lists, opaque licensing and approval procedures, unequal treatment, and compelled technology transfer.

The current year's major private enterprise event so far, the take-down of Jack Ma, and the crackdown on Alibaba and other Chinese tech and data-centric firms, suggests that life for private entrepreneurs and their firms is not set to get any easier.

Interview by Mable-Ann Chang



BOLSTERING THE BASE

Making state-owned enterprises more efficient while allowing them to retain their crucial policy role is one of the biggest challenges that the Chinese leadership faces

By Major Tian

October 2020 proved to be a watershed moment for state-owned enterprises (SOEs) in China. China's investor community reeled with shock when it discovered that the Shenyang-based Huachen Automotive Group, one of China's largest state-owned enterprises (SOEs), had more than $20 billion in debt with cash reserves that could only cover a quarter of it. Things moved fast and by November, the massive group had entered bankruptcy proceedings.

What was extraordinary about the development was not so much the size of its debt, but the fact that such a massive piece of China's state-owned ecosystem was apparently being allowed to go bankrupt. For perspective, Huachen has controlling stakes in four public-listed companies and for the past 20 years, it has been the joint manufacturer of BMW vehicles in China.

Such a bankruptcy would have been unthinkable even a few years ago, but suddenly all bets were off and the steadfastness of SOEs came into question. Huachen, which employs 47,000 people according to its website, is not alone among SOEs in its debt-heavy predicament—two other major SOEs which have recently defaulted on debt repayments are Yongcheng Coal and Electricity on a payment of $151.9 million and chipmaker Tsinghua Unigroup on $198 million.

Despite often being poorly managed and lacking transparency, SOEs have over the years received high credit ratings from international as well as domestic lenders because of an implicit assumption: that the state will not allow them to fail. In their pecking order of goals, SOEs place social stability and employment ahead of profitability—unlike private enterprises whose priorities are clearly different.

"Local governments in China have long been so reluctant to let their SOEs go under because the firms are used to provide employment and social welfare, which is closely linked to social stability," says Tianlei Huang, Research Fellow at US think tank Peterson Institute for International Economics (PIIE).

The lesson from the Huachen episode seems to be that this is no longer necessarily a valid assumption across the board.

Image by Yuyu

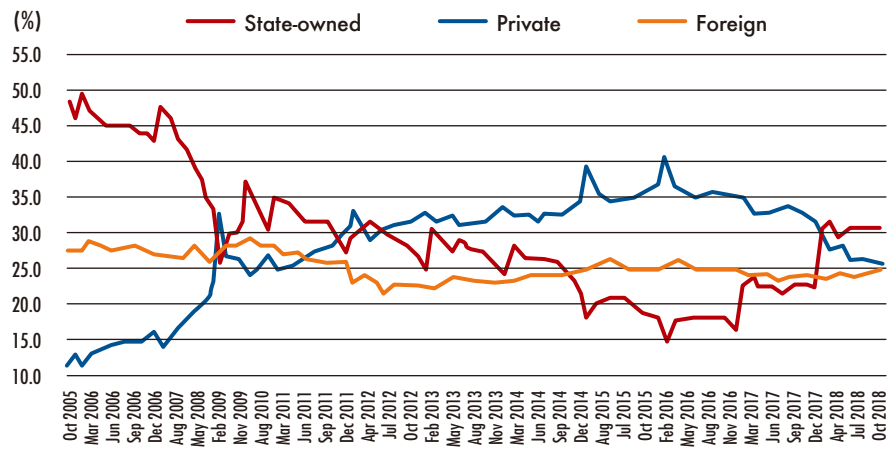
> Long-term profit maximization is indeed important for SOEs, but the objective is first and foremost to use SOEs to further national strategies
>
> Tianlei Huang
> Research Fellow
> Peterson Institute for International Economics

Ever since the establishment of the People's Republic of China in 1949, SOEs have been the anchor and foundation of the Chinese economy. And while the economy today has broadened to include huge numbers of private enterprises, SOEs still play a crucial role in facilitating China's state-mandated economic agenda.

SOEs make up 70% of Chinese companies on the Fortune Global 500 list and more than 50% of China's 500 biggest companies by revenue. SOEs are the dominant or only players in a wide range of sectors including energy, telecoms, aerospace, finance, transport and construction. As outlined in Beijing's 14th Five-Year Plan in March, the government views the continued strengthening of the SOEs as key to improving China's economic system and reaching its strategic development goals.

While there is no doubt that China will continue to prop up almost all of its national champions, the rash of recent default cases have inserted a seed of doubt into financial market considerations with regard to the prospects of SOEs, particularly smaller companies. Tens of thousands of SOEs report to local governments which over the decades tended to indiscriminately bail out financially stressed SOEs to avoid negative social ramifications. But today, Beijing is apparently encouraging officials to allow some unviable SOEs to fail, sometimes spectacularly.

SHARE OF PROFITS | SOEs returned to becoming the largest generators of overall industrial profits in 2018



Sources: National Bureau of Statistics, The Economist Intelligence Unit

Shattered faith?

Huachen announced in October 2020 that it would not be able to repay a privately-placed bond worth RMB 1 billion ($150 million), just six months after the group had told bond holders that it had adequate financial backing to service the debt. The following month, bankruptcy proceedings commenced, sending ripples through the financial markets. And before investors could wrap their heads around Huachen's situation, Yongmei Group, another triple A-rated SOE, started defaulting on a series of bonds worth more than RMB 3 billion ($460 million). The default by the Henan-based coal producer, with total bonds outstanding worth RMB 47 billion, puzzled the market too, for Yongmei is one of the largest SOEs in the province and local authorities have every incentive to maintain its stability.

Senior officials in Henan told domestic media that the government was trying to resolve the issue "using market-oriented methods," but could no longer direct funds to its SOEs "blindly without principles".

"The provincial government in Henan was reluctant to bail out Yongmei because the government itself was struggling with its own surging fiscal deficits," says Huang.

The low profitability of many provincial SOEs such as Huachen and Yongmei means that local governments have increasingly had to rely on Beijing's support to bail out such companies, according to credit rating agency Lianhe Ratings. "In most of the SOE default cases that happened last year, local governments were less willing to bail out these distressed state firms, which was rare in the past. It seems like the implicit state guarantee is no longer a golden rule," Huang adds.

In 2020, SOE defaults blew up to RMB 98 billion ($15 billion). This was five times more than in 2019 and accounted for almost half of all bond defaults in the entire market. "It's harder and harder for local

governments to garner enough financial resources to pull off bailouts nowadays," says a senior debt capital market (DCM) banker whose clients include many local SOEs. "They also lack influence on big banks because such large loans are now subject to approval by their head offices in Beijing."

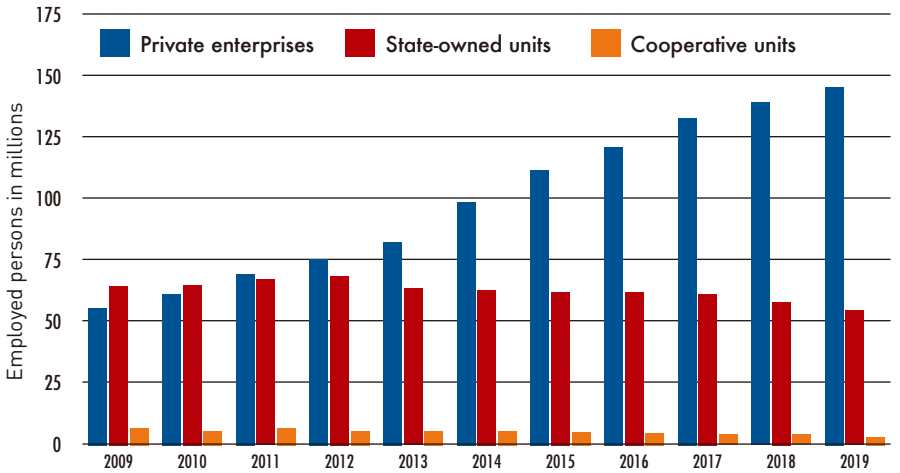
Before 2015, defaults of any sort were almost unheard of in China's capital market, especially for SOEs. Investors would happily snap up SOE bonds without closely studying the fundamentals of the issuers, convinced that local governments would always step up to support them. But in recent years, China's total debt has soared to 273% of the nation's GDP, and the central government is concerned about both reducing the debt mountain and forcing SOEs to operate more efficiently.

There has been a debate at the top levels of China's leadership ever since market reforms were first instituted in the late 1970s about the correct balance between state-owned and privately-owned companies in the Chinese economy. In recent years, statements from the center have encouraged assumptions on the ground that the leadership favors an expansion of the role of SOEs.

Some economists take the view that allowing unviable SOEs to fail could make room for emerging private businesses that would be more efficient, which would help boost the vitality of the Chinese economy. "It is a positive thing to always have new kids on the block," says Xiang Bing, Founding Dean and Professor of China Business and Globalization at the Cheung Kong Graduate School of Business. "That means the rise and fall of companies, whether they're private or state-owned enterprises, is a healthy process."

Following the Yongmei default, Chinese Vice Premier Liu He, who chairs the central government's Financial Stability and Development Committee, publicly vowed "zero tolerance" for fraudulent debt-raising activities. Investment banks and rating agencies associated with the defaults were later slapped with hefty fines. By April, Beijing rolled out a tighter scheme to monitor local SOEs' debt problems, imposing limits on various financial indicators for the firms. But while so-called faith in the SOEs may have been somewhat shaken, market analysts are generally of the view that such failures will always be carefully handled and that a run of large-scale defaults is unlikely.

TAKING STOCK | State-owned enterprises provide employment to a significant portion of the workforce in urban China



Source: National Bureau of Statistics

Bittersweet memories

For long-time China watchers, this is a moment of déjà vu. "It's a pale reflection of the changes that happened in the 1990s, when Zhu Rongji was determined to clean up the banks for global listings and reduce the influence of unprofitable state firms," says Andrew Collier, Managing Director of Orient Capital Research, and author of *Shadow Banking and the Rise of Capitalism in China*.

Collier is referring to the vigorous SOE reforms spearheaded by then Chinese Vice Premier Zhu Rongji, who oversaw the closure of large numbers of SOEs in the 1990s. As many as 40% of SOEs at that time were losing money, putting huge pressure on the country's fiscal and monetary systems. The result of Zhu's reforms was millions of workers being laid off, but the burgeoning private economy in that era allowed them to find other work.

In 1995, the government declared that the reform of the SOE structure was at "the center of the restructuring of China's economic system", and the SOE management model was officially deemed "unfit to development requirements of the socialist market economy".

In the years since, the surviving SOEs generally have become more efficient and have taken on many of the characteristics

> The social purpose or social function of SOEs may be used to justify their underperformance
>
> Xiang Bing
> Founding Dean and Professor of China Business, CKGSB

of major business groups anywhere in the world. But while the SOEs in some ways look like capitalist entities, they still publicly acknowledge that their first responsibility is not to be profitable on behalf of shareholders, but to meet state policy requirements. The SOEs provide employment and social services for millions of people.

Today there are an estimated 460,000 SOEs with total assets of RMB 234 trillion and a total of 50 million employees. They are supervised by the State Assets Supervision and Administration Commission (SASAC), which was set up in 2003 after China's entry into the World Trade Organization.

A fine balance

Studies have shown that the SOEs have a significantly lower rate of return on investment and business efficiency than private enterprises.

"Long-term profit maximization is indeed important for SOEs, but the objective is first and foremost to use SOEs to further national strategies, be it the Belt and Road Initiative, technological self-sufficiency or industrial policies like Made in China 2025," says PIIE's Huang. "SOEs are also used as a shock absorber during crises," such as the Global Financial Crisis and the COVID-19 pandemic.

"The social purpose or social function of SOEs may be used to justify their underperformance," adds CKGSB's Xiang. "Ten to 20 years ago, a [private] company that offered many job opportunities would very likely be welcomed by the mayor of a city. But the social function of enterprises is going to become more and more prominent in this new era. In this regard, SOEs may be looked upon more favorably today to shoulder more social burdens, as the government can impose policies on SOEs more easily than on private companies."

Solving the SOE dilemma, making them more commercially efficient while allowing them to retain their crucial policy role, is one of the biggest problems that China's leadership faces. One solution that has been floated is mixed-ownership, where private companies are introduced as strategic shareholders of SOEs to boost competitiveness.

Beijing is firm on its policy of encouraging the most important SOEs to be "bigger, better and stronger". But on the other hand, it is grappling with how to "release the small"—essentially allowing the weakest of the SOEs to die without causing social or financial market disruption.

While gradually shrinking the role of SOEs in "competitive sectors" has been discussed many times over the years, implementation is another story. "There has been considerable pushback and friction around the designation of firms," Huang adds. "The central SASAC has been working on the categorization policy for more than half a decade, but it has never released publicly what firms fall into which categories."

The approach generally taken in recent years has been for the center to order the merger of failing SOEs with stronger ones to avoid public defaults. An example of this was the merger in 2016 of the weak Wuhan Steel with Baoshan Iron and Steel to become the Baowu Steel Group, now the world's second-largest steel maker, just behind ArcelorMittal.

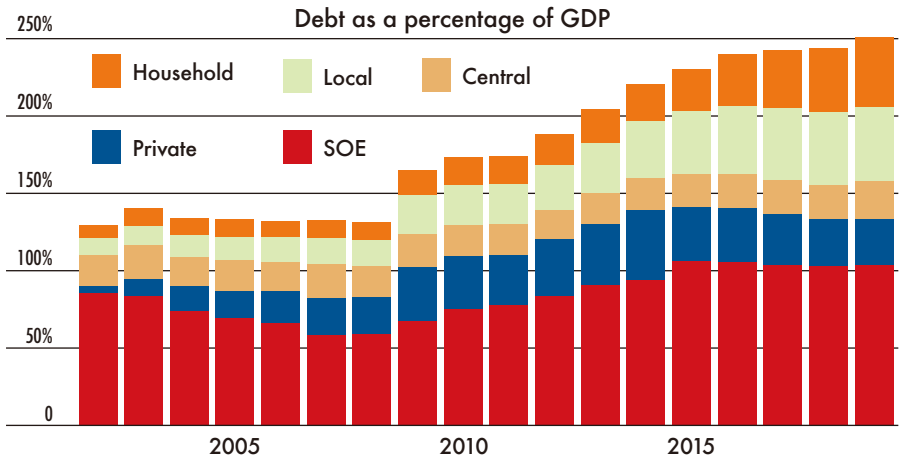
"On the surface, merged SOEs may present better financial statements right away. But does that really boost the efficiency and competitiveness of the business?" the DCM banker asks.

Beijing is now developing a legal framework to facilitate SOE bankruptcies, and in 2019, established six specialized bankruptcy courts and issued new interpretations of the bankruptcy law, as well as improvement policies to fix the loopholes.

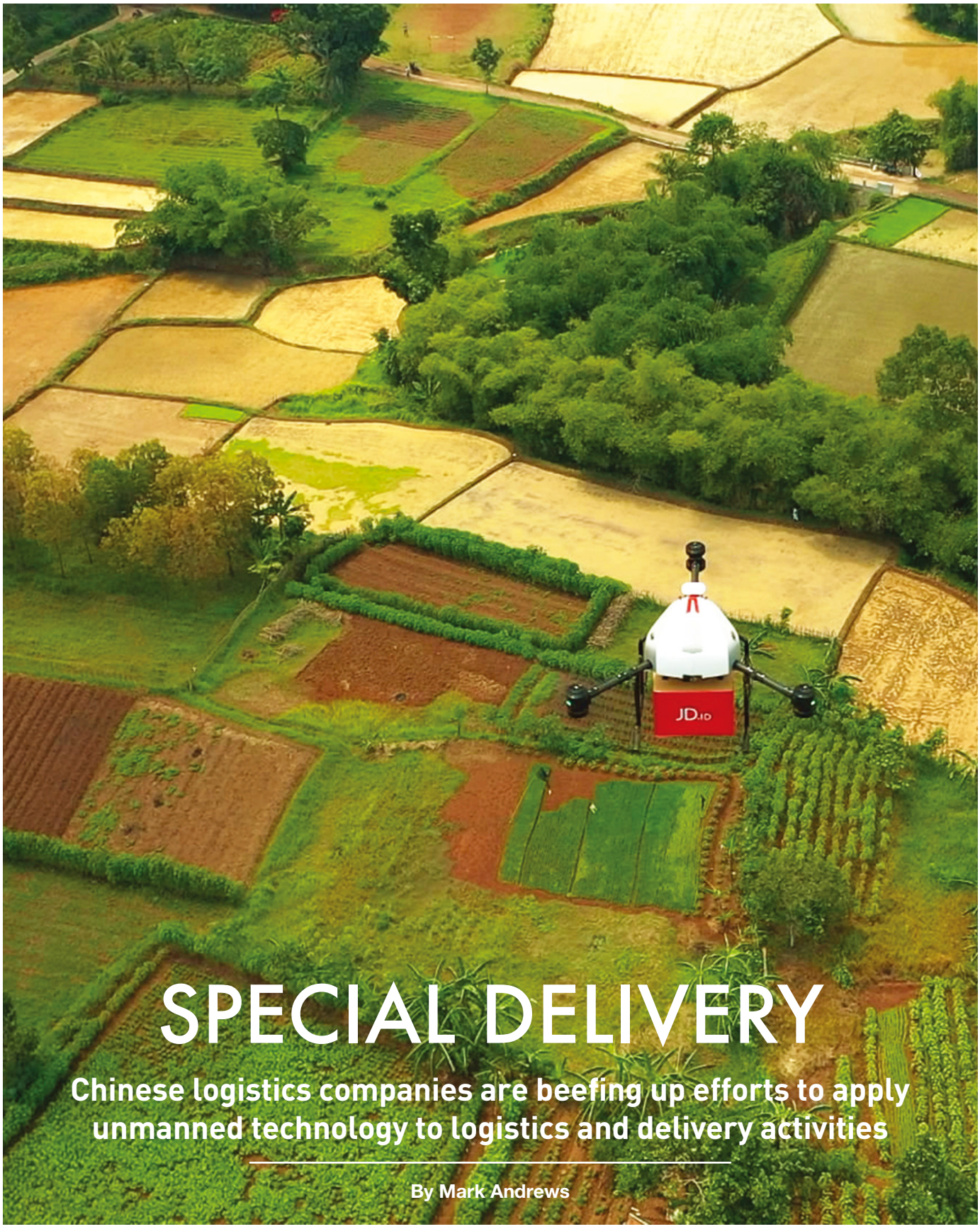
"The greatest challenge was getting a court's acceptance of the bankruptcy case, because Chinese courts are reluctant to accept and administer such cases," says Xiao Ma, a visiting Harvard Law School scholar and Doctor of Juridical Science candidate who specializes in bankruptcy laws. "As bankruptcies become less uncommon, the public has to gradually adapt and develop a healthy expectation for bankruptcy processes."

Whether it is bringing in new shareholders, creating synergies through M&A, or facilitating bankruptcies using legal methods, China is treading extremely carefully to maintain a fine balance in one of most complicated SOE reform processes in the world. As for SOE defaults and failures, there may very well be more of them in future. But as the country doubles down on its current development model stressing the role of SOEs, one can also expect the continued strengthening of the overall SOE system. "They want to have it both ways, it's a classic Beijing answer," Collier says.

GROWING DEBT | SOEs make up a large portion of China's total debt



Sources: Macquarie, The Wall Street Journal



SPECIAL DELIVERY

Chinese logistics companies are beefing up efforts to apply unmanned technology to logistics and delivery activities

By Mark Andrews

Will drones, driverless vehicles and other unmanned technology form a part of the future of logistics in China?

One of the most talked-about movies in China in 2020 was *Coffee or Tea*, the story of three young men who leave the big city to set up a parcel delivery service back in a remote village, fundamentally changing the role of the local market through connecting local residents to the world of online shopping. The movie addresses one of the country's major logistics developments of recent decades—the creation of an army of at least three million people involved in delivery of packages at the most basic level, either on motorbike or on foot.

But while much of Chinese logistics landscape is still incredibly low-tech, behind the façade of motorbike-riding couriers lies a high-tech world of warehouses and package tracking which leverage automation and data at a level seen nowhere else—the country now has some of the best logistics systems in the world. "China is slightly ahead of the leading Western companies like Amazon and years ahead of most other companies and nations," says Sofya Bakhta, China market analyst at Daxue Consulting.

China is also the largest logistics market in the world, worth an estimated RMB 14.8 trillion ($2.3 trillion) in 2020. In 2019, it represented 14.7% of the GDP with its compound annual growth rate projected at 5.3% until 2025, according to the listing documents for JD Logistics, a subsidiary of JD.com which debuted on the Hong Kong Stock Exchange in May 2021.

China's enormous size has been spurring that growth—both in geographic as well as population terms—along with the fact that the country is the world's second-largest economy and has, for many years now, been the "factory of the world". And one of the key ingredients of China's high-octane economic growth over the past 15 years has been e-commerce.

In the mid-2000s, e-commerce retailers received huge numbers of complaints from customers because logistics companies were unable to meet the coverage and speed demanded by the business model. So e-commerce company JD.com responded by founding JD Logistics in 2007, and Alibaba founded its own logistics unit, Cainiao, in 2013. Cainiao is now a major player and is growing faster in revenue terms than any other part of Alibaba's empire. Cainiao aims to deliver anywhere in China within 24 hours and anywhere in the world within 72 hours, and partners with 3,000 companies around the world to achieve this.

Holding the controls

An inspection of the documentation for the JD Logistics IPO reveals the huge fragmentation of the logistics market. Despite being the largest integrated supply chain logistics services provider, JD Logistics only accounts for 2.2% of the market by revenue, and the combined market share of the top ten players is just 7.9%.

There are 400,000 logistics companies in China, most of them very small. "You have a swathe of medium and small-sized logistics providers which are laggards and you have a handful that are gargantuan in size and truly world-class," says Martin Lockstrom, a senior associate professor at Xi'an Jiaotong-Liverpool University and founder of International Business Consultants.

But the high-tech players are gaining ground and the logistics industry in China looks like a candidate for restructuring. "Obviously there are some national champions which are winning at the game because they leverage technology and capital investments and others that are falling behind, but that would hold true in any major market," says DHL Hong Kong & Macau Managing Director, Mark Slade.

Although there are foreign players such as DHL in China, their operations are limited partly due to an inability to compete with the low cost of many local services. Lockstrom characterizes them as largely confined to international shipping, and Bakhta adds that although DHL is the largest of the foreign players by revenue, it fails to register among the top ten delivery companies for the whole China market.

The drive toward intelligent logistics is coming from some of the largest players, and predominantly those with their roots in technology companies. "All of them

started out pretty much as B2B buyer-supplier matchmaking platforms and then they diversified into various directions such as payment services, cloud computing, and they started handling logistics as well. They branched off into this direction and then spun off into separate companies like Cainiao from Alibaba," says Lockstrom. Their technology-driven nature sets them apart not only from small domestic competitors, but also the international logistics companies which, Lockstrom says, may well have started out a century ago with a horse and cart and are still to some extent constrained by legacy issues.

Cainiao, for instance, uses machine learning and predictive analytics technology to pre-order items for China's massive 11.11 "Singles Day" shopping event each year in November. "This enabled us to pre-stock many popular items and respond more quickly to orders, reducing the delivery time and improving customer experience in the process," William Xiong, chief strategist at Cainiao, told Parcel and Post Technology International, a daily tech news platform. The company has created a number of proprietary technologies such as Apollo and Sky Eye, cloud-based video monitoring systems that use Internet of Things (IoT) technology, in order to handle large volumes of parcels and streamline delivery in the most efficient manner.

In 2020, the pandemic caused a general shift from offline to online shopping the world over, which gave a huge knock-on boost to the logistics industry in China. As in the US, there was also a big push for contactless solutions.

"During the lockdown amid COVID, in particular, JD.com deployed driverless vans to deliver vital supplies such as food and medicine to hospitals, residential areas, and offices," says Jenny Chan, assistant professor at the Department of Applied Social Sciences, Hong Kong Polytechnic University. JD Logistics did the first commercial deployment in the world of a Level 4 autonomous delivery vehicle (AV) into virus-hit Wuhan. Level 4 certification means that a vehicle operates on the road entirely autonomously, and JD.com's Wuhan van travelled 6,800 km and delivered 13,000 packages over a period of 107 days. It was the first time that such a vehicle had been used in China outside of a controlled environment.

Taking off!

Within intelligent logistics, drones and autonomous vehicles have garnered the most headlines, but development is happening in many other areas with varying degrees of current deployment.

"China is the world leader, I just don't see another country with a higher frequency and intensity of new technological innovations in the logistics space and also where the government is supportive and developing policies to support that change," says Lockstrom.

JD.com is one of the companies already utilizing drones, having started drone development in 2015 and initiated customer trials in 2016. Currently the company has seven different drone types which can carry packages of between 5 and 30 kg over distances ranging from 7 to 100 km. They operate on 100 different routes and have accumulated over 6,600 hours of flight time, largely in the northern province of Shaanxi. Drone deliveries connect villages to nearby distribution hubs that support the government's efforts to relieve rural poverty. Drones land at a fixed point in a village for final delivery by hand or scooter.

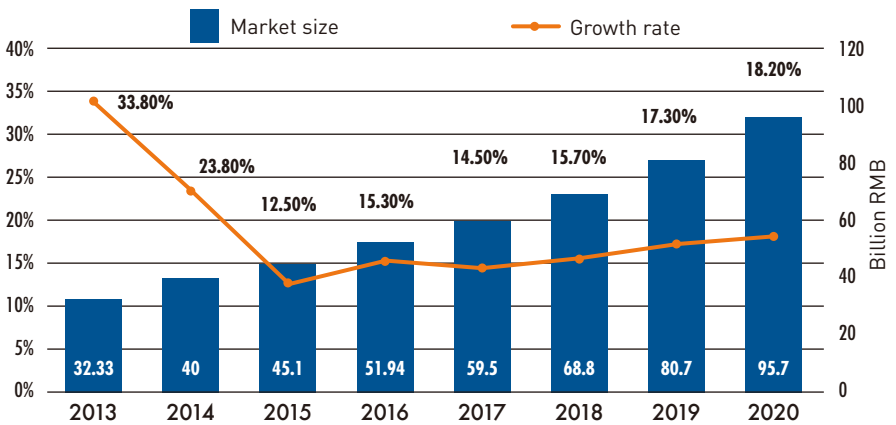
A big limitation on the use of drones for delivery is that the payloads, so far, have to be light. "It's just a concept right now, maybe it can be useful for some emergency situations but for daily business it's not worth it," says Michael Hu, General Manager of Zhongyuan Express, an Anhui-based B2B logistics company.

Following on from Wuhan's utilization of autonomous delivery vehicles, a major manufacturing center in eastern China, Changshu, became the first city to widely use them for regular deliveries, with 100 vehicles already in use. Each vehicle carries a number of swappable configurable boxes, and parcel recipients get a call or a text message with a code to open the box containing their parcel.

"The costs of unmanned delivery vehicles have been coming down but it is still more cost-effective to use manned delivery methods," says Bakhta. "JD.com has said it has reduced the cost of driverless delivery vehicles by 90% over the last few years, from $88,000 to $7,500. This points to more widespread use of wheeled driverless vehicles in the future." Wang Zhenhui, CEO of JD Logistics, has said the company will deploy 100,000 driverless vehicles within the next five years.

The leader in intelligent logistics, however, is Cainiao, certainly in warehousing, says Bakhta. Cainiao now operates more than 30 Cainiao intelligent warehouses covering 1.7 million square meters. Such warehouses undertake almost all functions without human input. "I think

INTELLIGENT STORAGE | The market size and growth rate of smart warehouses in China have both surged



Sources: GGII, Daxue Consulting

that will really be mainstream within a few years from now," says Lockstrom. "It already exists, it's just a matter of getting a wider foothold in the market and replacing existing manual warehouses."

On top of these innovations, and arguably more important, is the revolution in smart supply chains. At its most basic, this involves the hugely expanded use of technology such as QR codes and the IoT. JD Logistics says its AI-driven logistics systems have resulted in a 10% reduction in transportation costs, a 23% reduction in failed-delivery runs and a 37-day reduction in inventory turnover time. Using the system, JD Logistics' customer Nestlé boosted its in-stock service level, the amount of product required to ensure all orders can be met, from 73% to 95% while cutting delivery lead time from 5-8 days to 2-3 days.

"There is this ability to leverage new technologies," says Slade, explaining the Chinese market lead. "China's not just good at automating physical processes, but also automating clerical processes in terms of using data from different websites, platforms to build a dataset around a shipment or a history of shipments or generate reports and analysis."

Cainiao warehouses make heavy use of automated guided vehicles (AGV). There are 700 AGVs working in Cainiao's Wuxi warehouse alone. Guiding them and improving the overall efficiency are IoT components. "The self-charging AGV robots reduce staff walking by an average of approximately 50,000 steps per working day, improving personnel efficiency by 30%," said Xiong.

Coupled with the use of more technology in the warehouses is the roll-out of local collection centers. By the end of 2020, there were more than 80,000 Cainiao Post stations in places such as supermarkets, convenience stores and schools which act as both pick-up and drop-off points.

Not-so-faraway future

As for the three million people, mostly young men, employed in parcel delivery in China today, Hong Kong Polytechnic University's Chan sees the future of their profession as bleak, but precisely how soon humans will be replaced by machines as the primary delivery mechanism is not yet clear given the major limitations of drones—both in terms of range and payload size. JD.com is partnering with Northwestern Polytechnical University in Xi'an to develop a drone with a one-ton payload, but use of drones for delivery is still likely to be largely restricted to the Chinese countryside. "I don't think we will see drones in very dense urban environments," says Lockstrom. "There are so many issues with the range, and very complex three-dimensional routes. There are a lot of obstructions and obstacles, you can't really have a drone flying into an apartment building or landing on someone's balcony."

A 3D rendering of an automated warehouse

He does, however, feel there is more potential with autonomous vehicles (AV). Bakhta notes the relatively high wages (RMB 7,000-10,000/month) for delivery drivers make AVs financially attractive, but a top speed of 16 km/h versus 45 km/h on an electric scooter means humans are still far more flexible.

Lockstrom estimates that the industry is likely to lose 30-50% of its labor force in five years' time. "Automation in warehouses and distribution hubs has greatly sped up sorting and reduced manual laborers," says Chan. "At the same time, a few new positions on logistics management and engineering are being created." However, with certain logistics companies, the manning level may not change significantly—Zhongyuan Express' Hu does not expect to reduce his workforce.

While China is pushing ahead fast on the technology of delivery, it is not alone—there are many self-driving delivery vehicle trials in progress elsewhere. But much of the real-world pioneering work does seem to be in China. "China will probably be the first to replace human beings when it comes to courier services," says Lockstrom, adding that data privacy laws and strong labor unions could slow adoption of such technologies in Western countries.

That would provide China with a huge opportunity in terms of developing and putting into use intelligent logistics technologies both at home, and in time to the world.

"China already drives that innovation because of the massive size of the market—population and vastness of the area to cover—companies that can leverage technologies are the ones that are winning and also able to deliver extremely low price points," says Slade.

Decoupling or Recoupling?

James McGregor, Chairman of APCO Worldwide's Greater China region, delves into the current and future state of US-China relations and the implications of their constantly-changing dynamics

Discussions of the implications of the continuing shifts in Sino-US relations have increasingly involved the likelihood and extent of decoupling between the world's two biggest economies. The change in US Administration in January has had little impact on the state of affairs in the areas of both diplomacy and trade, raising more questions about what this means for the two countries and the world as a whole.

James McGregor has lived in China for over 25 years, first as the founder and CEO of a China-focused consulting and research firm for hedge funds and then as Chairman at APCO Worldwide. He has authored seminal books on China such as *No Ancient Wisdom, No Followers: The Challenges of Chinese Authoritarian Capitalism*, and *One Billion Customers: Lessons from the Front Lines of Doing Business in China*. Over the years, he has developed a nuanced understanding of the constantly evolving US-China dynamic. In this interview, McGregor explores the development and ongoing nature of the relationship between the US and China, covering business, technology and global political trends.

Q. How would you describe the current state of US-China relations?

A. I would describe the current state of US-China relations as agitated, confusing and worrisome. I've been doing this for more than 30 years now, first as a journalist and now as a writer and consultant. I've never seen the relationship like this before. It's part of a geopolitical trend, but it's also a realignment between the two countries. As China rises and as America tries to decide where they are headed in the world, a paradigm shift is occurring. The US-China of the past is not the US-China of the future. What the US-China of the future is, is yet to be seen.

Q. To what extent do you think the Biden administration's approach towards China is a departure from the Trump administration's, and what do you think are the main differences and similarities?

A. The Trump administration had more of an attitude than a strategy: China was seen as the bad guy and the administration wanted to push back against it. There were professionals within the

Prior to joining independent global public affairs and strategic communications consultancy, APCO Worldwide, James McGregor was the founder and CEO of a China-focused consulting and research firm for hedge funds, a reporter for *The Wall Street Journal* and Chief Executive of Dow Jones & Company in China. McGregor is also a former chairman of the American Chamber of Commerce in China, and has long served as a leader of AmCham's US government relations. He is the author of two highly regarded books: *No Ancient Wisdom, No Followers: The Challenges of Chinese Authoritarian Capitalism*, and *One Billion Customers: Lessons from the Front Lines of Doing Business in China*.

administration, like Robert Lighthizer (US Trade Representative between 2017 and 2021), who had a strategy for his area, but it would get blown up regularly by a 5 a.m. tweet from the president. It was hard to have a consistent policy, and there were great battles within the administration between different people—it was a bit of a circus. The result was, however, that it changed the conversation on China, which was a conversation that was ready to change.

Now, Biden has come in with a much more professional team and he has put China experts in various departments. Those experts all worked under Obama and they've known each other for years. Their approach will be more professional, while also remaining very resolute and tough. We don't know exactly what the relationship is going to look like, they've told China that they do not want to get into dialogues with them because discussions in the past have headed to nowhere. They have decided to first step back, study what the Trump administration did, what's going on in the world, what went on with past policies and then form a more comprehensive policy.

So while there is still a lot that is yet to be seen, what is certain is that the time of engagement as a focus is over. The focus is now competition. I think that the US feels a bit betrayed after they put a lot of goodwill into China, whether it was trade or legal associations that came in and helped China build its legal system, helped open up universities and helped markets open up. I think there's a feeling that none of that was returned.

On the Chinese side, I think there is the feeling that they are on the rise and America just wants to keep China down. It was a propaganda narrative that has now taken root as being a reality in the minds of not only the Chinese government, but also a lot of Chinese citizens. There is now a heightened sense of competition. Maybe the US should be thanking China for giving us one bipartisan issue. And that is, we have to compete with China and we better invest in ourselves because China is very smart in investing in all of these things, while we've been very lame for several decades now. We've been rich for too long and it's time to up our game.

Q. What are your thoughts on what many see as the US-China decoupling?

A. I don't think there's really a decoupling going on, rather I think that there is recoupling on both sides. If you look at Xi Jinping and his Dual Circulation Policy, it has two basic elements: to make China less dependent on the world and less vulnerable to world hostility, and to make the world more selectively dependent on China. That's why I see it as a recoupling.

China went out and joined all of these international organizations and did all of this business. Now they're looking back and asking, what works for us? We do not want to be dependent on export earnings and we don't want to be dependent on foreign technology because we believe there's long-term hostility against us from the established democracies and capitalist societies of the West. So we've got to protect ourselves, but at the same time we still want to tap into that world for what's good for us.

China's going to be opening up to industries that are politically powerful in their home countries, such as the American financial industry. They need some help on best practices and wealth management, but they're also building a China lobby. They want the financial industry of America back in Washington saying, "Quit messing with China. You'll mess up my market share." There are all these dynamics going on.

When China gets a ball in that game, like anything, China does it smart, they do it big, and they do it spectacularly. America woke up one day and all the manufacturing that they depend on was coming out of China. And so now, similarly, the US has had to dial back and say, "What's good for our country?" The US gave up all of their supply chains and now they've been left vulnerable. So I think both sides are actually recoupling, rather than decoupling.

Q. From your conversations with multinational companies operating both in the US and China, how would you describe the current sentiment among companies with regard to where US-China relations are heading?

A. The companies are torn. If you look at the most advanced American technology and manufacturing companies, they are very deeply involved in China and often it's their largest and fastest growing market. They cannot not be in China. If they are not in China, they will be replaced by Korean, Japanese and German firms, meaning they will lose out globally because the China market is just that important.

For many years, these companies have told the Chinese government that they are in China, for China. However, that message does not work well in Washington today as there is an implication that companies should be in China, for America. It is understood that they have to be in China to make money, to be part of that market and to be part of the Chinese innovation system–especially in certain industries, such as AI, where you cannot afford to not be a part of the latest developments. But you have to take the money that you make and you've got to invest it back in the US because the Biden administration is all about jobs at home.

Washington doesn't care about investment in banks, sales or who gets more IPO deals. They don't care if a pharma company

sells more medicine in China. What they care about is jobs being created in America through trade with China.

Q. So given all of these challenges, what do you think multinational companies should do when navigating risks that stem from US-China relations?

A. For one thing, the money that they earn in China, should be invested back in America. The Chinese government never forgets about its people and jobs, and American companies have to develop that same mentality. The money they earn in China needs to be taken back to the US to fund things like new research and development, innovation and scientific inquiry. And they should also get involved in lobbying in Washington for better immigration policy, so that the trend we have of pushing talent away stops.

On top of that, they need to stop doing share buybacks with their profits. I am so tired of watching companies make a lot of money and buy back their shares, thereby helping hedge funds and mutual funds make more money when American citizens and American workers get none. I look at that as a shameful exercise these days.

Q. What are the most likely areas of cooperation, if any? What are the most significant obstacles in achieving that sort of cooperation?

A. I think transnational problems are likely to produce cooperation, climate change being a good example of a key issue. John Kerry (US Special Presidential Envoy for Climate) and his Chinese counterpart (Xie Zhenhua, Special Envoy for Climate Change) have known each other for years, and were engaged in the earlier dialogues on the issue. Climate change is an existential threat to the globe where we can hopefully find common ground and a way to talk to each other. I think we have to look for similar opportunities to increase cooperation, whether it is problems with global fisheries and fishing or fixing the WTO. I think there are a lot of issues that fall under this category.

With organizations like the WTO, I think that China wants to rebalance the institutions to more reflect current global power. For China, given the power that it exerts in the world and the size of its economy, it believes it deserves a bigger say. But for that to happen, China has to display that it will follow through with what it promises and that when it makes agreements, it will stick to them. China is very distrusted around the world and therefore has to build trust. America is still trusted way beyond China despite having a four-year presidency that attacked everybody in a very irrational way.

Q. What is your view on developments in the semiconductor field, with many countries seeking to expand their production capability?

A. The comparison people are making—and I think it's an apt comparison—is that chips are now what oil has previously been. This is a national security issue. Countries want to manufacture chips within their own borders because they have seen what has happened due to export controls and sanctions. It is clearly important to have control of your own supply chain and chips are at the core of the entire technology supply chain. Beyond the national security aspect is the need to stay at the leading edge of innovation in the sector. Unfortunately, with the influx of money from various governments, chips may become a bad investment in a few years because it looks like there's going to be too many chips out there and prices will take a nosedive.

> **China's going to be opening up to industries that are politically powerful in their home countries**

Q. You have argued that government funding is key to supporting leadership in the global tech race. How do you think the US-China competition over technology will play out in the coming years?

A. America has to wake up and invest. Years ago, I talked to a banker in the Silicon Valley who said that chip startups in America had to take Chinese money because American venture capital wouldn't invest due to returns not being quick enough, whereas the Chinese venture capital was much more patient. We've got to look at our own system and figure out how to change the incentives to compete in the world. We've been rich and in a dominant position for too long. Many people are just waking up to the real competition that China poses, but some members of Congress are still not quite there yet. To add to that, on the Chinese side, since the global financial crisis, the mentality has been that America is in inexorable decline. This is the end of its reign and now it is China's turn.

It's important to remember that America has a history of getting itself into sticky situations, only to clean itself up, mostly thanks to the flexibility of its system of governance. Whether this is still possible today, with the clear dominance of money in politics and the changes wrought by social media coverage, is under question. But I wouldn't count America out, just like America better not count China out. Counting on the other one failing is a bad strategy for either side.

Interview by Cherry Cheung

LEAP OF WEALTH

Becoming a billionaire in China is eminently possible, but maintaining a top spot is becoming increasingly difficult

By Faye Bradley

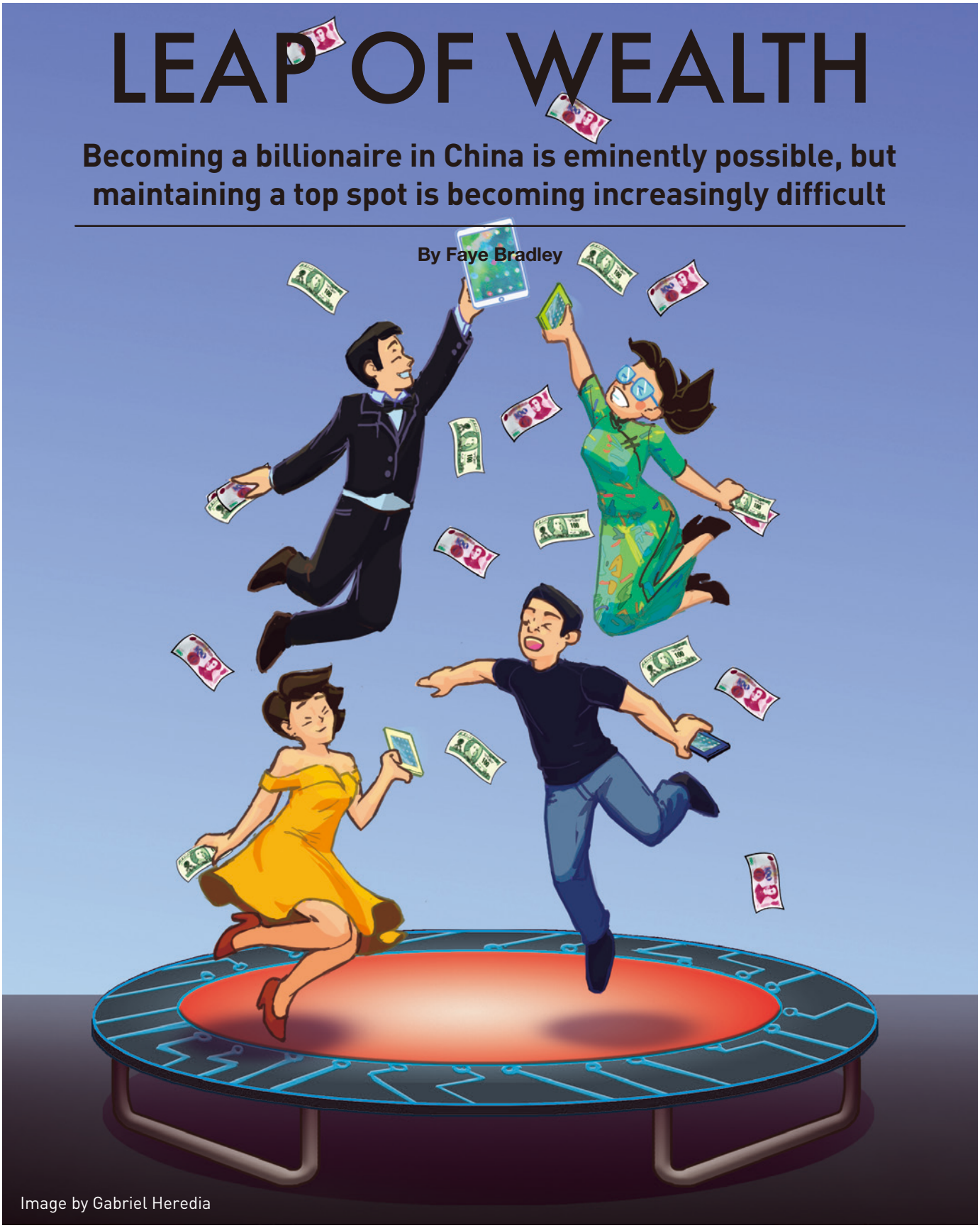


Image by Gabriel Heredia

China has more billionaires than anywhere else in the world, but the wealth list is volatile, with names often rising or falling sharply each year. Why is that so?

Sun Piaoyang, a pharmaceutical executive and former chairman of Jiangsu Hengrui Medicine Company, typifies the ever-changing nature of China's rich list, with a 57-place slide from number 35 in 2020, down to 92nd place in 2021. Sun had not suffered a catastrophic loss of fortune, his net worth had only fallen by $2 billion. His change in ranking was the result of simply being outstripped by the wealth of others, including many new entrants.

The China rich list, published by the Hurun Report, comprised 1,058 billionaires at the end of 2020, compared to 696 billionaires in the United States, and 259 more than one year previously. China's super-rich club is not only growing fast, but it is also very volatile, with many names shooting both up and down the list each year, reflecting both the dynamic nature of China's economy and business environment, and the constraints on the entrepreneurial ecosystem. Sometimes being a billionaire in China can be stressful.

Top of the China billionaire list for most of the past decade has been the former CEO of Alibaba, Jack Ma, with an estimated net worth of $47.5 billion in early 2021. Last November, for a brief moment, he had the chance to beat even global heavyweights like Amazon founder Jeff Bezos and Tesla's Elon Musk due to his fintech firm, Ant Financial, which was planning an IPO at a valuation of around $320 billion. The prospectus indicated Ma controlled just over 50% of the shares, but the Chinese government suddenly canceled the IPO, and Bloomberg reported in April that Ant Financial's valuation could now be as low as $29 billion. So, Ma now sits 24 places below Elon Musk on the global billionaire list on $55 billion, and fourth place on China's Hurun Rich List.

The current Numero Uno on China's billionaire list is Zhong Shanshan, whose bottled water company Nongfu Spring was listed in 2020, giving him a reported net worth of $85 billion. There is no sign of his company's income streams running dry any time soon, but based on the volatility of the list, Zhong cannot rest on his laurels if he wants to stay at the top.

"The fast economic growth and dynamic business environment in the past couple of decades has resulted in this huge wave of wealth," says Rupert Hoogewerf, Chairman of the Hurun Report and a Professor in Practice at Durham University. "Many opportunities have and will continue to come out of the warp speed changes in China's economy and society. And the entrepreneurial spirit and hardworking determination of Chinese people have created a sea change in the balance of wealth around the world."

Deng Xiaoping's reforms helped China open up in the 1980s when there was an urgent need to develop the private sector by encouraging entrepreneurially-minded individuals to give up the "iron bowls" of state-related jobs and venture out to establish their own businesses, says David Thomas, CEO of Think Global Consulting. "This required a total cultural shift in the mindset of new university graduates and some of the younger middle managers in large state-owned enterprises."

Those people—most of them associated with or supported by the state-dominated system—were the first of the corps of super-rich who now play such an important role in China's economy, and also the world's. "This is how China stimulated its economy—by encouraging a group of motivated entrepreneurs to develop and grow the private sector into what it is today," adds Thomas.

New money

According to the Hurun Global Rich List 2021, there were 3,228 billionaires in the world at end-2020, a number that rose by an average of eight billionaires per week during that eventful year, despite the pandemic. Although US billionaires Elon Musk and Jeff Bezos sit atop the list with $197 billion and $189 billion fortunes respectively, Chinese billionaires have started to dominate the list in terms of sheer volume.

China now occupies about one-third of the places on the global billionaires list, largely due to a boom in China's stock markets over the past year, and China's fast economic recovery from the pandemic.

UPS & DOWNS | Maintaining the top spot in China is challenging

Rank	2017	Wealth Estimate	Source of Wealth	Industry	2021	Wealth Estimate	Source of Wealth	Industry
1	Wang Jianlin	$33 billion	Wanda	Real Estate	Zhong Shanshan	$68.9 billion	Nongfu Spring	Beverages
2	**Jack Ma**	$28.2 billion	Alibaba	E-commerce	**Ma Huateng**	$65.8 billion	Tencent	Internet Media
3	**Ma Huateng**	$24.5 billion	Tencent	Internet Media	Colin Zheng Huang	$55.5 billion	Pinduoduo	E-commerce
4	**Wang Wei**	$18.5 billion	SF Express	Package Delivery	**Jack Ma**	$48.4 billion	Alibaba	E-commerce
5	**William Ding**	$15.2 billion	NetEase	Online Games	**Wang Wei**	$39 billion	SF Express	Package Delivery
6	**He Xiangjian**	$11.4 billion	Midea	Home Appliances	**He Xiangjian**	$37.7 bilion	Midea	Home Appliances
7	Wang Wenyin	$13.8 billion	Amer International	Mining	Zhang Yiming	$35.6 billion	ByteDance	Software
8	Robin Li	$12.6 billion	Baidu	Internet Search	Qin Yinglin & family	$33.5 billion	Muyuan Foodstuff	Pig Breeding
9	Hui Ka Yan	$9.8 billion	Evergrande Real Estate	Real Estate	**William Ding**	$33 billion	NetEase	Online Games
10	Yao Zhenhua	$9.5 billion	Baoneng	Conglomerate	Yang Huiyan & family	$29.6 billion	Country Garden Holdings	Real Estate

Source: Forbes

"Chinese entrepreneurs have done much better than expected thanks to the surge in Chinese equity markets, the wave of initial public offerings and the technology sector's strong growth," says Alberto Antinucci, China business strategy specialist and CEO of Antinucci Consulting Services.

Almost all of China's rich people are "nouveau riche," meaning they did not inherit their wealth, but became wealthy through their own connections, determination and hard work. In many other parts of the world, lists of the super-rich are dominated largely by legacy money, exemplified by names such as Koch and Mars. In China, however, it is just the opposite—basically all wealth in China dates from the 1980s and mostly from the last two decades. And much of it is based on debt acquired to accelerate business growth.

"Generally speaking, the rich list is based on total assets, including liabilities that often rely on bank credit and corporate bonds, which are also the main financing channels of the traditional economy—many 'rich heroes' are also 'debt gurus'," says Ming-Jer Chen, Professor of Business Administration at the University of Virginia Darden School of Business. "However, with China's very active capital markets, the new economy increasingly relies on equity financing, and more importantly, fully reflects the value of personal total assets realized through IPOs."

"They [China's entrants on the rich list] predominantly consist of self-made entrepreneurs who have leveraged their business intelligence and dedication to excel across many dimensions," says Marcel Tschanz, Head of Banking Advisory at PwC Switzerland.

It is hard to ignore the astonishing growth of the total number of wealthy people in China. "Beijing is now home to more billionaires than anywhere in the world, overtaking New York City," says Chen. But the range of sectors from which most of these billionaires have emerged is very narrow.

The first wave of modern wealth in China came from light manufacturing for export in the 1980s and early 1990s, but that wealth was later overshadowed by property, and most wealth in China today stems from property ownership and development. In terms of the general population, more than 70% of wealth is tied up in apartments.

But even property has now been overtaken by the high-speed growth of technology and e-commerce. "The property sector has created many billionaires in the last 20 years during China's major nation-building and urbanization program," says Thomas, "but it's shifting towards the technology sector which is creating new opportunities for entrepreneurism, wealth creation and innovation." In that sense, Nongfu Spring's Zhong Shanshan is an outlier.

"With the booming information and communications technology industry, most of the Chinese billionaires are from the tech sector, while the American billionaires are from more diverse industries," adds Ashley Dudarenok, founder of Chinese digital transformation academy ChoZan.

All-in-all, changes in the composition of the China rich list reflect the fundamental socio-economic transformation that has been taking place since the 1980s.

"It's akin to the industrial revolution in the United Kingdom," says Andrew Shirley, Editor of the *Wealth Report*, Knight Frank's global thought-leadership publication which offers a unique perspective on global wealth, prime property and investment. "A new class of consumers is being created rapidly, and they are hungry for new products and technologies."

Wealth in China usually involves some sort of a relationship with the government, and even the top tech companies, now the most valuable in China's private sector, attained their dominance at least partially thanks to centralized support, which

includes blocking some international competitors from operating in the country.

"The government has discretion about which companies get listed and how they are regulated, so entrepreneurs have to maintain good ties with the leadership," says David Dollar, a senior fellow at the China Center at Brookings. "But the leadership is also dependent on these companies which provide jobs, innovation and national pride—so it's mutual dependence."

The technology sector, given its incredible dynamism, has been quickly expanding its dominance of the rich list. Two recent examples of the ability of the tech sector to throw up "rocket" billionaires in record time are Zhang Yiming, the founder of ByteDance (the owner of TikTok), and Huang Zheng of Pinduoduo (an e-commerce company).

Zhang zoomed from 115th place in 2020 to 26th on the 2021 list with a net worth estimated at $43.1 billion. Pinduoduo's Huang, meanwhile, created e-commerce company Pinduoduo from nothing in 2015, and ranked 73rd on the Hurun Global list in 2019 with $15 billion, 60th in 2020 with $18 billion and 19th on the 2021 list with $69 billion. In March 2021, Huang stepped down as Chairman of Pinduoduo, having given up the role of CEO the previous year.

Consistent inconsistency

The entrepreneurs who make it to the top of the list have had to fight their way through the jungle of the ultra-competitive Chinese economy. But they also need to keep an eye on government policies and the requirements of officials that they support to maintain the stability of the system and society. "The government gives clear direction and guidance for development priorities in different periods," says Dudarenok. "Government authorities also provide different incentives and subsidies."

Sometimes the rich fall down the list because of bad business sense, expanding too fast and taking risks that turn out to be unwise. But only a very small number burn out because of problems with the law and the system. "Over the last 22 years we've been putting out the China rich list, we've seen about 1% who have been in trouble with the law, which is surprisingly low," says Hoogewerf.

"There is an unwritten contract between the government and private sector entrepreneurs to 'stay out of politics, leave us to run the country and we'll leave you alone to prosper and get rich'," says Thomas, "Any individual billionaire who breaks this rule and starts criticizing the government in public or using his/her public brand and persona to cause trouble, can expect their privileged position to be under threat."

"Some innovative businesses in China's new economy 'prosper rapidly but die suddenly,'" Chen adds. "Reasons for such failures may include the too-zealous pursuit of scale, size and speed, as well as a macro culture of 'get rich quick'."

The government is concerned, as in other countries, about the efficiency and stability of major private companies in light of the potential consequences of massive corporate failures. But it sometimes seems, in China, as if there is no major company that is not covered by the "too big to fail" rule.

An example is the privately owned Dalian Wanda Group, a company dealing in property development and amusement parks, which hit serious financial trouble in 2018. The government effectively bailed it out, and while Wanda's Chairman Wang Jianlin fell sharply in the rich list rankings, his company has survived.

The wider impact

But while China's super rich are getting richer, this wealth isn't necessarily being reflected in the rest of the population. Bloomberg has reported that 1% of China's top earners now hold a greater share of wealth than the bottom 50%. In addition, China is in the lower half of the world's countries in terms of the GINI coefficient, which measures the size of the wealth-poverty gap within a population.

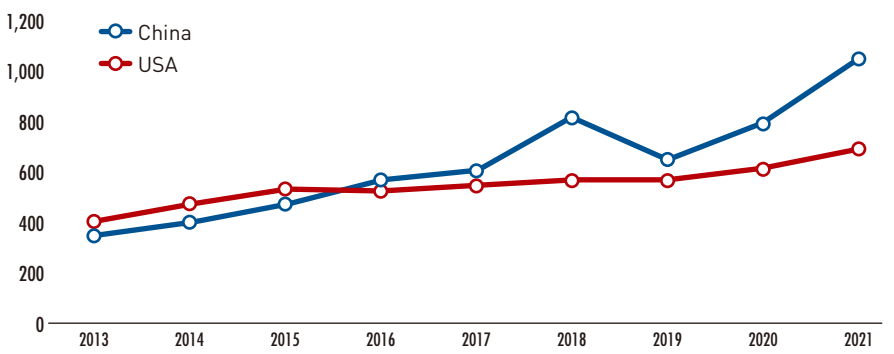
China's billionaire boom looks set to continue, with one factor helping in the minting of new billionaires being the recent Dual Circulation policy, which will mean greater opportunities being given to local companies for expansion.

"The scale and growth of the Chinese domestic market—the result of developmental state policies similar to those followed in Japan, South Korea and Taiwan—is bound to produce a lot more billionaires," says Joe Studwell, author of *How Asia Works*, an explication of economic development across the East Asia region.

One thing that is beyond doubt is that the desire to make money is deeply embedded in Chinese culture, and that there are many more wannabe entrepreneurs out there who want to make it on to the rich list.

"Everybody wants to be rich in China," says Olivier Verot, founder of Gentlemen Marketing Agency, experts in helping foreign companies establish or strengthen their position in China. "They are not afraid of taking risks, and everybody knows that to become your own boss is the only chance to be rich."

BILLIONAIRE BOOM | The number of billionaires in China has surpassed that of the United States

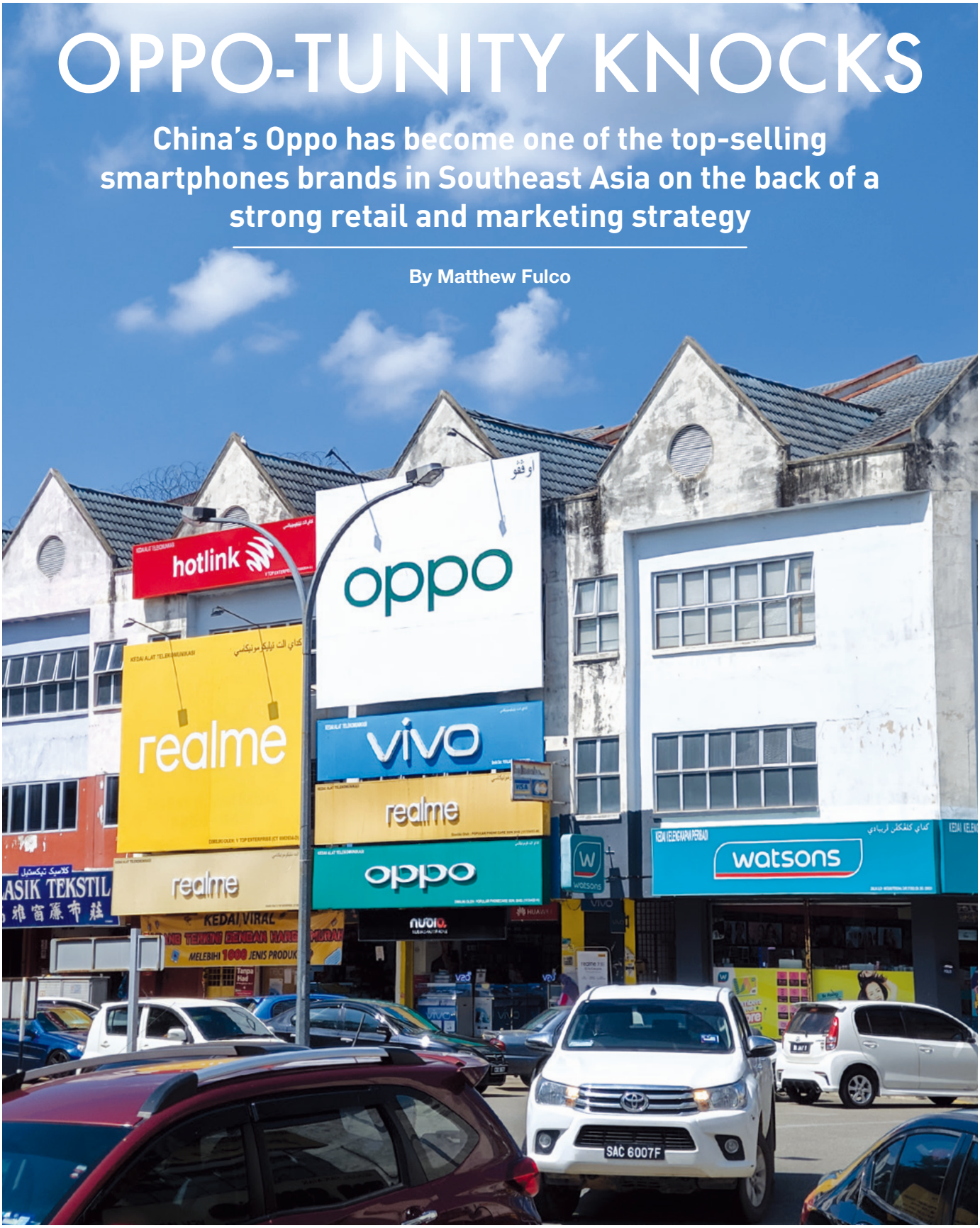


Sources: Hurun Research Institute, Shine

OPPO-TUNITY KNOCKS

China's Oppo has become one of the top-selling smartphones brands in Southeast Asia on the back of a strong retail and marketing strategy

By Matthew Fulco



Oppo has performed better in Southeast Asia than other Chinese smartphone brands and is now competing with South Korea's Samsung for the top spot

Chinese smartphone maker Oppo has long had its eye on Southeast Asia. The Dongguan-based firm's first international market was Thailand, which it entered back in 2008, when the iPhone was but a year old and feature phones were more prominent than smart ones. At the time, Oppo was a blip on the global mobile phone radar and its top products were DVD players.

Since then, it has grown to become the world's No. 4 smartphone maker behind Apple, Samsung and Xiaomi. In the fourth quarter of 2020, Oppo shipped 34 million units, slightly edging out its Chinese counterparts Vivo (33.4 million) and Huawei (33 million), according to Counterpoint Research (Oppo and Vivo share the same parent company, BBK).

Despite the ascendance of e-commerce, Oppo has achieved high sales growth on the back of a heavy focus on brick-and-mortar operations, by incentivizing stores to favor Oppo phones over other brands. "What Oppo is very good at is managing retail channels offline," says C.K. Lu, a senior director analyst at Gartner. "It invests heavily in physical retail and provides a high margin for its retail partners."

China still accounts for the bulk of Oppo's sales, but the domestic market is no longer growing briskly. In fact, China's smartphone market in 2020 declined 11.2% annually to 325.7 million units, according to research firm IDC. Even so, Oppo managed to grow its market share in China during the year to 19.3% from 16.3% a year earlier, mostly due to Huawei buckling under the weight of US sanctions. Apple, Xiaomi and Vivo also gained at Huawei's expense in China.

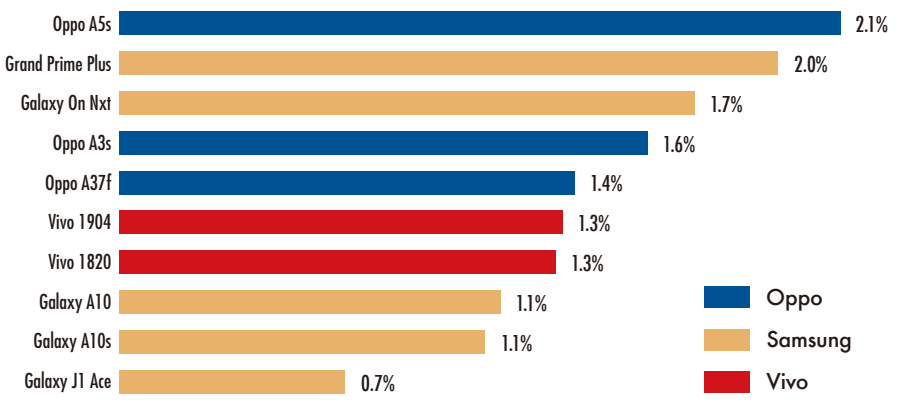
Oppo is betting that Southeast Asia, and in particular Indonesia, the Philippines, Thailand and Vietnam, can drive its future growth. Together, those four countries are home to more than 540 million people, with about half residing in Indonesia. Nearly 45% of Southeast Asia's smartphone users are in Indonesia, 16% in the Philippines, 12% in Thailand and 11% in Vietnam, according to Flurry Analytics.

Oppo is the No. 2 smartphone maker in the region, with an 18% market share behind Samsung's 34%, according to Flurry. The Oppo A5s is the top device model in Southeast Asia and the company has two other models in the top ten. Only Samsung has more smartphone models on the list.

Thanks in part to the strength of its distribution channels, Oppo has held its own in Southeast Asia during the pandemic, notes Glen Cardoza, a Mumbai-based analyst at Counterpoint. Indonesia and the Philippines, its two most important markets in the region, have been hit hard by COVID-19 and have gone into lockdown several times. Still, Oppo's sales grew in both countries last year.

BRAND BATTLE | An Oppo device became the best selling smartphone in Southeast Asia in 2020

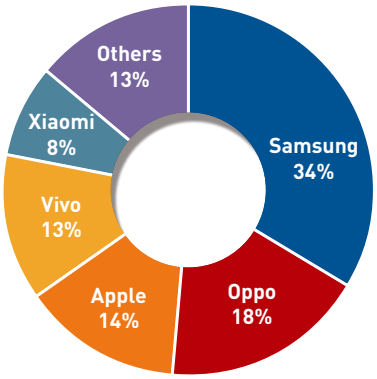
Top smartphone models in Southeast Asia



Source: Flurry Analytics

A BIG BITE

Chinese brands fight for smartphone market share in Southeast Asia



Source: Flurry Analytics

That was an impressive feat, as "the region is not exactly easy. Geographically, there are a lot of challenges," he says, noting that Indonesia and the Philippines are each made up of thousands of islands.

As of the end of 2020, Oppo was the top smartphone vendor in the Philippines, while second behind Vivo in Indonesia and Thailand, and second behind Samsung in Vietnam.

It pays to go local

In each of Southeast Asia's four key smartphone markets, Oppo has developed a successful sales strategy. The approach varies a bit by market, but is largely in line with what has made Oppo successful in China: a strong product line, active online and offline retail channels, effective marketing and superior after-sales service strategies.

For instance, the Premium Service available for Oppo's X3 Pro offers international maintenance service, a one-year screen protection plan and an extended warranty, says Rachel Liao, a senior industry analyst at the Taipei-based Market Intelligence & Consulting Institute (MIC). "Oppo has paid a lot of attention to after-sales service, hoping to increase consumer loyalty."

At the same time, "Oppo has an agile business model" that allows the company to be successful across Southeast Asia, Lu says.

For example, in Indonesia, small brick-and-mortar shops dominate retail sales, and Oppo has built good relationships with them and provided them with solid marketing support, says Will Wong, a Singapore-based IDC analyst.

In Vietnam, where major retail chains such as Mobile World account for a bigger proportion of sales, Oppo has again built strong relationships. As a result, those retailers promote Oppo phones to their customers, Wong says.

In Thailand, the local telecoms companies have a larger share of the market. With that in mind, Oppo has developed close ties with True Corporation, one of the kingdom's largest mobile operators. True owns the 7-Eleven chain in Thailand, and some of those shops sell Oppo smartphones, among other models, Wong says.

Given that the Thai market is relatively mature—with about 75% of the population owning a handset—he sees greater potential for Oppo in Indonesia, the Philippines and Vietnam. "The smartphone penetration [in those countries] is not so high compared to Thailand," and they are all larger markets, he says. Indonesia's smartphone penetration rate is about 65%; the Philippines' is between 65% and 70%, and Vietnam's is much lower at just 45%.

At the same time, Oppo has done a better job than most of its Chinese counterparts in developing its brand image. "It is hard to tell that Oppo is a Chinese brand," says Gartner's Lu. "It doesn't look or feel like a cheap device." In contrast, he says, "people recognize Xiaomi as a budget phone."

Oppo has even made inroads in Singapore, the region's most mature smartphone market. It is the No. 3 smartphone maker in the city-state, with a market share of 8%, according to IDC. From March 21-28, Oppo ran an early bird sale at its store on the popular local e-commerce site Lazada. During that period, anyone who bought the new A94 phone through the platform received a free pair of Oppo Enco W11 earbuds.

"Oppo has gone out of the box on marketing with flash sales and gift boxes," says Counterpoint's Cardoza.

Intense competition

Given Oppo's strong presence in Southeast Asia, it may come as a surprise that the company's overall global shipments contracted 5.8% to 111.8 million units in 2020, according to Gartner data. Among Chinese smartphone vendors, only Huawei experienced a sharper contraction (24.3%) and that was due to rather unique circumstances. Xiaomi, Vivo and Realme—an Oppo offshoot under the same holding group—all increased sales last year.

Oppo's sales fell because it concentrated on growing market share in the mid and high-end smartphone segments, where margins are higher but sales volume lower, says IDC's Wong. Lower-end smartphone models still dominate Southeast Asia outside of Singapore. IDC estimates that 90% of smartphones in the region are models priced below $400.

Vivo and Oppo currently each hold approximately 23% of the Indonesian smartphone market, according to IDC. "Vivo is better represented in inexpensive models, especially in Indonesia," says Counterpoint's Cardoza.

Vivo has also been beefing up after-sales service in Southeast Asia's largest economy, with a positive effect on sales, says MIC's Liao. "Vivo has been fast to adapt to local market needs," she says. In addition to providing one-hour repair service, Vivo has also extended the warranty period on its phones. Further, after flooding struck in Indonesia in early 2020, Vivo offered a 10% discount on component replacement in March and April 2020.

For its part, Xiaomi has a less slick brand image than Oppo, but benefits from the strength of a large product ecosystem. The Beijing-based smartphone maker offers everything from smartphone accessories and smart home devices to electric scooters.

"The large Xiaomi ecosystem helps the overall brand's position in the market," creating the impression that Xiaomi offers a large number of complementary products, Cardoza says.

In contrast, "with Oppo, the price is right, but it hasn't exactly developed a niche." He notes that Oppo has begun

diversifying its product line, notably with a smart watch, but to a much lesser degree than Xiaomi.

Oppo "needs to showcase that they can be good at other things [besides smartphones] as well."

At the same time, Cardoza believes Oppo should strengthen its online sales capabilities, which are less advanced than Xiaomi's or even Realme's. While Oppo to date has been successful relying on offline retail, that may no longer suffice in a region where e-commerce has low penetration—less than 5%—but high potential to grow. Research firm PPRO reckons that e-commerce in Southeast Asia will grow by 5.5% in 2021, led by Singapore, Malaysia, Indonesia, Philippines and Vietnam respectively.

"Amid the pandemic, a lot of customers see the value of buying online. Southeast Asia is looking at a lot of change" in terms of shopping habits, Cardoza says.

Moving upmarket

In the long run, to maintain its edge in the smartphone market, Oppo will likely need to move upmarket. No Chinese smartphone maker has yet managed that feat, although Huawei was on its way prior to the start of the US-China tech war. On the one hand, more premium models offer higher margins. On the other, they create a more enduring brand image that could allow Oppo to expand into a wider range of devices. That could become more important as the smartphone market matures across Southeast Asia.

"If you want to build a high-end [brand] image, it takes time," says IDC's Wong. But it can be done. "Look what Huawei did in segments above $400. It had 0% market share in high-end segments in 2012 and after six years it achieved double-digit market share of 12%."

At the same time, if Oppo wants to compete in the premium segment, it must work on brand building and value positioning. "Through diversified business investment, it should try to build its own ecosystem by connecting to smart home/home appliances and smart applications," says MIC's Liao.

The presence of Realme offers Oppo opportunity and risk. On the one hand, Realme's focus on entry-level handsets ($200 below) frees up Oppo to pursue the middle and premium market segments.

On the other, Oppo has to devote certain resources to Realme that may not directly benefit its own brand. "Oppo uses its profits to subsidize Realme," says MIC's Liao. "Hence, Realme has high bargaining power on the supply chain and can easily connect with local channel operators. This has put Realme at an advantage."

TOP 5

The top three brands in each of Southeast Asia's biggest markets

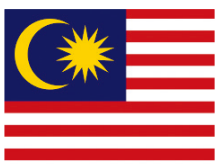
Philippines

Oppo	28%
Samsung	19%
Vivo	17%

Vietnam

Samsung	36%
Oppo	26%
Xiaomi	9%

Malaysia



Samsung	27%
Oppo	20%
Vivo	16%

Thailand

Samsung	30%
Oppo	18%
Vivo	16%

Indonesia

Samsung	26%
Oppo	24%
Xiaomi	19%

Sources: Canalys, Bangkok Post

Gartner's Lu likens Oppo's relationship with Realme to that of Huawei and its Honor brand. Ultimately, Oppo and Realme can likely be complementary. "They are able to support two brands," he says of Oppo.

As Oppo looks to compete more directly in the medium and high-end markets, both Singapore and Taiwan could serve as good test beds. Both markets are mature, dominated by Apple and Samsung, and are receptive to brands that offer high value for the money. Oppo has made inroads in both, but could go much further if it could compete more directly with Samsung.

The Taiwan market has a fairly high demand for 5G smartphones priced NT$20,000 ($700) or less, which has helped Oppo's Reno4 series to sell well there, Liao observes. She expects Oppo to adopt the high-value 5G mobile phone strategy for follow-up models like the Reno 5 series, offering a better cost-performance ratio compared to its counterparts.

Jamie Lu, marketing manager at a large e-commerce company in Taiwan, has been using an Oppo R11s, a mid-range 4G phone, for half a year. She likes the phone's sleek design and camera. "It's really lightweight and takes great pictures. It's a good-looking phone too," she says.

But if Oppo wants to continue to increase its market presence in Taiwan, it will have to cooperate more closely with Taiwanese telecom companies by launching more competitive 5G phones and network bundled packages, Liao says. Taiwanese carriers dominate offline mobile phone sales.

In general, buyers of premium smartphones tend to shop at telecoms stores and large retail chains as well as the brands' own stores. With that in mind, it is important that Oppo build closer relationships with the carriers and their shops. In many markets, that is where many smartphones are sold.

"Oppo needs to work on creating a good word-of-mouth effect. That's something they still lack," says IDC's Wong.

Machine Learning Shows Us the True Value of Data

Sun Baohong, Professor of Marketing at CKGSB, looks at the vital importance of machine learning to brand positioning and understanding consumers

An integral part of the rise of technology over the past two decades has been the increased capability and complexity of machine learning tools. Now ubiquitous in sectors across the digital sphere, machine learning allows companies to harness and use data like never before. Sun Baohong, Professor of Marketing at CKGSB, has approached the machine learning phenomenon as both a researcher and a consultant, helping several major corporations make full use of the range of opportunities it offers.

In this interview, Sun looks at what effective use of machine learning can mean for brands in China and the US in terms of data collection and usage, R&D and brand positioning.

Q. Could you tell us about your recent research and its uses in marketing?

A. My research has been focused on machine learning, particularly on a decision support system. I was trained as an economist and we derive theory-based economic models, so machine learning is a totally new kind of thing for us—machines only look at data and try to understand it without looking at consumers themselves and their decision-making processes. The research tries to take new tools, such as graph theory and deep learning, and apply them to marketing. We take the data generated by consumers and use it to try to understand how consumers are making decisions and how those decisions are related to brands and products.

There are several ways in which the research and applications engage with one another, but one is a consumer's "foot vote"—we now know where consumers are 24/7 and how long they spend at every location.

We call it a foot vote because it's not about what consumers say, but about what consumers actually make an effort to do, where they go and how long they stay there. In this sense, they vote and we can tally that vote. We can now understand consumers' preferences based on what they do with their time because we can see whether you're in a car, on a bus, how much time you spend at the gym and how much time you spend at the office. Through this, we can derive a deeper understanding of consumers' lifestyles and also use the data to study brand retailers and their relationships.

Q. What did those "foot votes" reveal?

A. First, we studied co-visited stores. We grouped together destinations that a person with certain interests will habitually

Baohong Sun is the Dean's Distinguished Chair Professor of Marketing and the Associate Dean for Americas at CKGSB. Her research focuses on rational and strategic consumer choices and dynamic structural models; the dynamic and interactive marketing mix and customer information management; and, most recently, on modelling dynamic and interdependent consumer decisions on e-commerce and social media platforms. Her extensive consulting experience includes work with major corporations including Bosch, Boy Scouts of America, Highmark Insurance, John Deere and IBM.

frequent. For example, after studying someone's movements, we can see that a specific person might enjoy going to bars, only eats healthy food, they never go to McDonald's, and they like doing yoga. With that information, we can see which brands are put together, by them, to satisfy that type of lifestyle.

We find co-visited stores when the data from people with varying lifestyle patterns—and different destination clusters—overlaps. An example of a second person's lifestyle might reveal someone who is quite sedentary in their leisure time, they often frequent the cinema or stay at home, they visit McDonald's regularly and rarely leave the city. However, they also spend a lot of time in bars. Now, presented with these two patterns, you wouldn't be likely to see these as similar people, however they do have a co-visited store, in the form of the bars that they go to.

So basically co-visited businesses are based on where visits took place and we're going to study the complementary relationships among brands. What type of brands are perceived by the consumer as having similar types of brand purpose that serve their lifestyle? Consequently, this kind of data helps businesses with brand positioning.

In addition to this, we have studied the location of stores and the locations of their competitors. We then use graph theory that allows us to derive all the stores in the galaxy into one multidimensional map. The closer two stores are positioned on our map, the more they are competing for the same group of consumers.

Q. With your experiences in the US and China, do you think there are differences in the way we understand consumers? What are some of the trends that you're seeing in terms of consumer behavior?

A. In China, people want to consume and they want to get together and socialize. It is the same in the US, but consumers are a little bit more rational and a little less price sensitive. However, I think the most important thing is that the digital landscape is very different. Consumers are equipped with different types of digital tools which cause differences in consumers' social behavior.

We found that people in the US tend to group themselves and live in areas with people that share a similar lifestyle. But in China it is less so—people are more mixed together. We did a study in Washington DC and found that a majority of diplomats live northwest of the White House. People there generally live a more high-end lifestyle. And then you go to Baltimore, and it's full of families. There is a very clear distinction, which is not the case in China.

The second is because of the network structure we derived. We actually found that there are three brands globally positioned in the center of our brand network, which basically means that they attract all kinds of consumer clusters, whatever their lifestyle. The first is Starbucks. The second, I was surprised to learn, is Dunkin' Donuts and the third is Chipotle.

Basically, the way you position your brand determines how close of a match you can get to your target audience's lifestyle, and increase the likelihood of them building their lives around it as a central locus. It's not a product feature, but how you position yourself among consumers' lifestyles.

Q. How do you think your research and the new technology that we have at our fingertips, and the data that's embedded in it, will change the way marketing is done in the future?

A. Machine learning provides us with several ways to change the way we do marketing. The first is that we can collect more types of data. You can process what people say and when they are saying it, along with all of their social media activity. We get far more customer insights from it.

The second is that because machine learning is part of AI, it's more likely to provide opportunities for real-time decision making. It will become more like reinforcement learning for us, as the machine is going to act as a decision maker.

Machine learning makes it possible to analyze multi-dimensional data on a large-scale very quickly. The future of marketing will be automated and many human decisions will be made by machines, or at least aided by machines.

In the future, competition will not be at the product level, but

> **Information services will have to become increasingly personalized, and that can only be done through the use of AI**

> Chinese brands have to realize that the future is going to be all about data

at the customer level. And whichever business can provide better customization, a better customer experience and better customer engagement will be able to sell more products. Information services will have to become increasingly personalized, and that can only be done through the use of AI and machine learning.

Q. How are different retail technologies used in China and the US similar or dissimilar?

A. Retail technology can be visible or invisible. Visible technologies are those tools, such as cameras, smart mirrors and audio robotics that customers interact with to help guide their journey towards a purchase. The invisible technologies are the tools and software, based on deep learning and AI, that work behind the scenes to create the user experience. The difference between China and the US is that in China, these invisible technologies are created by big private companies like Alibaba and they are very consumer-facing and product-driven.

The whole philosophy behind consumer-facing, product-driven technology is to sell more products to consumers, through things such as product recommendation systems, applying AI to livestreams and customized advertising. Most new innovations in China aim to improve the experience for the consumer, like mobile payment systems and facial-recognition payment systems.

In the US, a lot of investment and a great deal of effort is put into the business side of the equation. So while it is still serving the consumer, the focus is more on how machine learning and AI can help businesses. Platforms are still the innovators, and they try to help both the brands and the consumer equally, but more emphasis is placed on providing enterprise solutions, which means that it's a B2B setting—a big industry helping traditional manufacturing retailers with digital transformation. There's a huge industry for that in the US, bigger than in China.

In China, all manufacturers and retailers rely on these platforms. But in the US, manufacturers and retailers have their own innovation labs. Each of them becomes an innovation center. They are doing their own digital transformation and as a result, it gives them multiple layers of innovation.

Q. Why is there that kind of difference between the two markets?

A. There are several different reasons for it. The first is that Alibaba and Taobao are doing their job extremely well, and that has been the case from the very beginning. They have created an empire and focused on growing horizontally to cover all the services that a consumer needs. They've made it so convenient and high-performing that brands continue to use it. But, after a while, a brand's growth actually depends on it and they cannot survive without it. All retailers push their customers to join that single platform, making it even harder to ever break free and build its own platform. In that process, however, retailers and manufacturers lose out on all of the data they could have harvested from their consumers.

The second reason is that manufacturers and retailers in China don't understand the situation fully and they're just product-driven. They see the platforms that they use as merely channels to sell their products and as collaborators, but that is a very dangerous thought to have, because platforms do not compete with businesses on a channel level. They want your data. Many retailers and businesses are so behind on understanding what's going on, what kind of competition they are facing, and what a big mistake it is.

There's also a third reason. Regulation in the US is more restrictive—they don't want people to share data across brands. In China this is not the case, people are collaborating and sharing data, giving more reasons, especially the added convenience it provides, for the platforms to grow horizontally.

Chinese brands have to realize that the future is going to be all about data. The platform should pay you to get at your customers' data. Instead, they are doing the opposite.

Q. You talk about Chinese brands not understanding the value of data. How does this differ from the US? Does data regulation play a role?

If you have too many restrictions, data is less shareable and then companies are less incentivized to do research, just like what is happening in the US. They don't share data like in China—Facebook data stays with Facebook, Amazon data stays with Amazon. You can see that they are growing vertically, but not horizontally. The type of innovation open to them is more limited than that of Chinese companies, like WeChat.

Because of horizontal growth, companies like Alibaba and WeChat can follow a consumer's decision-making journey from the beginning to the end. But in the US you don't see that. People start on Facebook to find which products people are talking about. Then, they go to Yelp to find which one they should seriously consider. Once they have made that decision, they then go to Amazon to look at the products on offer and to make a purchase. None of this data is shared between these companies. A consumer has to go through several apps in order to finish their decision journey. However, in China, this can all be done on one platform.

Interview by Jessica Wang

CKGSB CASE STUDY

E-Smoke Revolution

E-cigarettes have taken off globally and are widely perceived as healthier than traditional cigarettes. But the future of the industry is still uncertain and subject to regulatory challenges

By Teng Binsheng and Wang Xialong

This case study analyzes the development of the e-cigarette industry through the lenses of economic, cultural, legal and other related aspects, taking into account a preliminary outline of the global e-cigarette industry's prospects. The foundation for the future development of this industry is now in place and this case study offers constructive advice for enterprises in various industries to learn from the dynamic of the e-cigarette growth trend and provides suggestions on useful strategic decisions based on the perspectives and contexts of that industry.

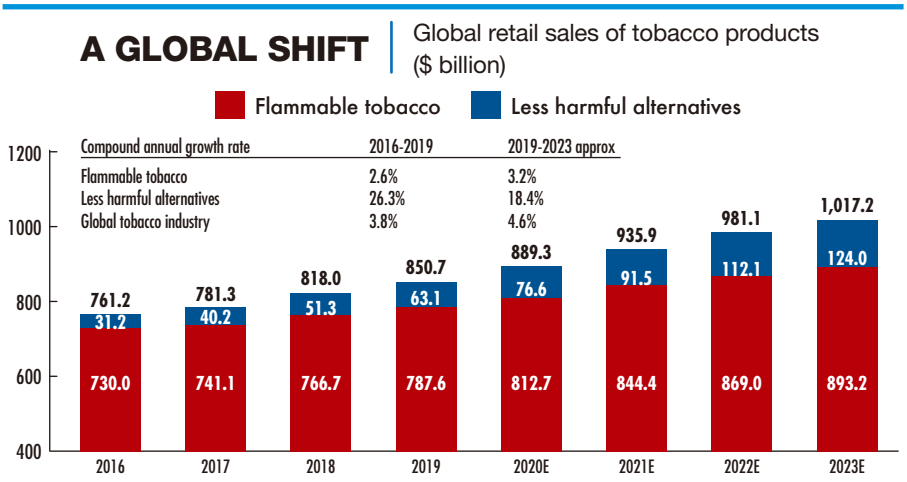
How did e-cigarettes get to center stage?

In February 2008, the World Health Organization released the *WHO Report on the Global Tobacco Epidemic*, which summarized the current status and experience of the 179 member-state signatories of the tobacco control agreement, and proposed a global comprehensive tobacco control policy, known as the MPOWER measure, in response to tobacco consumption trends worldwide.

From the perspective of maximizing profit, in 2017 British American Tobacco ranked second among the world's most profitable listed companies, with a net profit of $48.3 billion, being second only to Apple. In 2020, the Chinese tobacco industry achieved a gross industrial and commercial tax profit of RMB 1.28 trillion ($198 billion), an increase of 6.2% over the previous year. However, the potential for the tobacco industry is considered to be quite limited—it is facing an alarming downturn.

The other smoke

In 2017, major health agencies such as the US Food and Drug Administration (FDA) and the UK Drugs and Health Products



Source: Wuxin Technology Prospectus, Guoyuan Securities

> The industry has gradually grown to recognize the black ceramic atomizing core under the brand "FEELM inside", much like "Intel Inside" in the computer processors industry

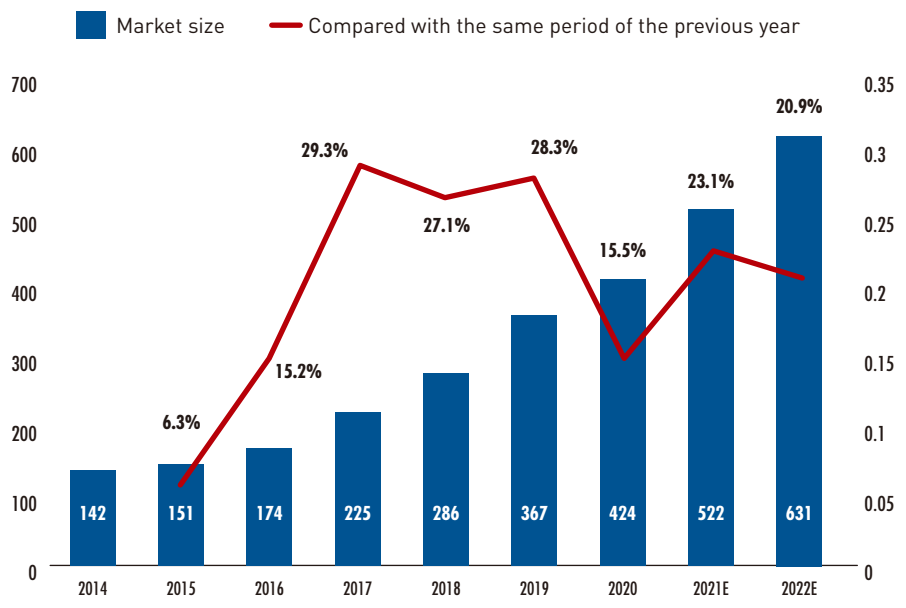
Administration passed new regulations recognizing the reduced harmful effects of alternative mechanisms for smokers in the long term. The concept of "harm reduction" and the consolidation of major health institutions have provided theoretical support for the invention and development of e-cigarettes.

Looking back to the original health-related intentions underlying investment in e-cigarettes, the three major objectives were: To help smokers quit smoking tobacco products, to prevent recidivism and to deter healthy populations from smoking tobacco products.

However, in reality, the biggest obstacle to reducing the harm posed by tobacco products for the entire population actually comes from the third objective, that is, the risk of non-smokers (mostly adolescents) taking e-cigarettes as a new habit. The habit can in fact exacerbate use of traditional tobacco products.

Governments around the world are facing problems in regulating e-cigarette usage, which undoubtedly require a Herculean effort in terms of balancing different pros and cons. The policies will determine the long-term strategic plans for enterprises in related fields. How to maximize the effect of e-cigarettes by helping smokers to reduce and quit smoking (objectives 1 and 2), and minimize the risk for non-smokers, especially teenagers, from exposure to e-cigarettes (objective 3) is not a black and white situation for the government. Take the US as an example. NGOs and research institutions there tend to stress the negative effects of e-cigarettes on young adults, and ask the question, "Are the potential benefits for adults outweighed by the risk to children?" Thus, the US proposed a standard prohibiting flavors that are attractive to children while allowing tastes that are more suited to adults.

SMOKE SALES | A forecast of the global e-cigarette industry market size (in $ million)



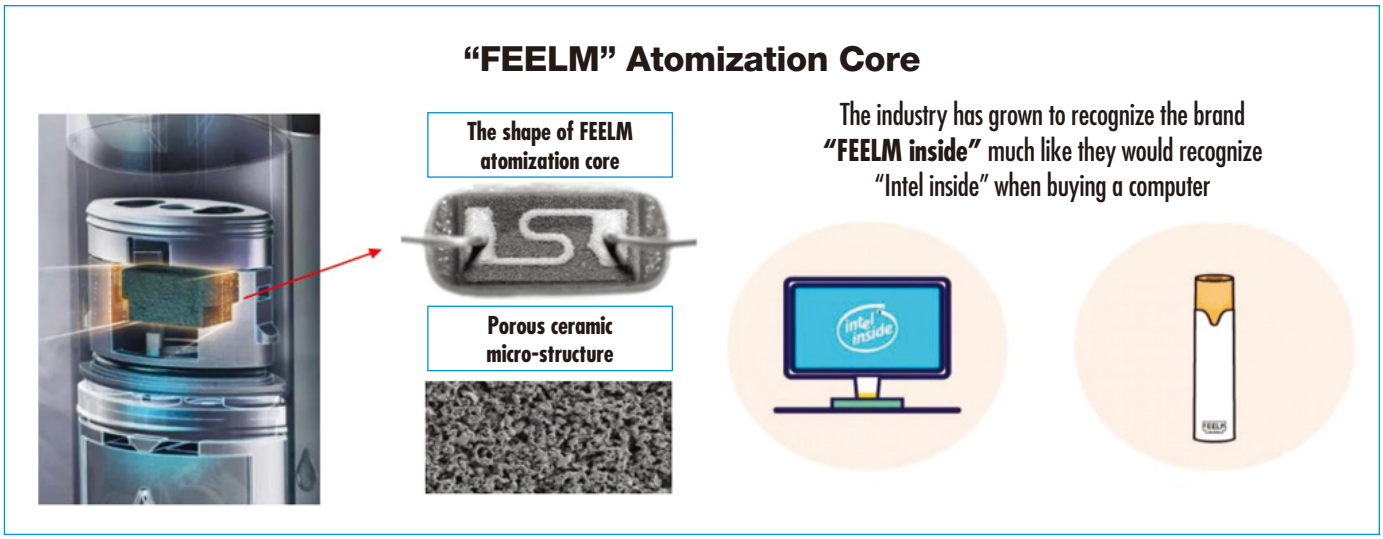
Source: 2021 Q1 China's e-cigarette industry development and market analysis report, iiMedia Consulting

Breakthrough in e-cigarette technology

Electronic cigarette products have been around for decades. But traditional e-cigarettes have major drawbacks in production technology and raw materials. Together with people's misunderstandings and stereotypes, the e-cigarettes market is nowhere near its peak.

In 2016, the American company Juul brought a unique innovation to the field: it made electronic cigarettes taste similar to tobacco. At the same time, it improved the convenience of electronic atomization devices. The e-cigarette market has boomed since then, especially for Juul whose market share increased rapidly. In 2018, its market share exceeded 70%. Meanwhile, the penetration rate of e-cigarettes in the US accelerated to reach 5.3% in 2019.

In 2016, the Chinese company McWell (Small International) improved the process of ceramic atomizing (its core technology) and launched the "black ceramic atomizing core", which surpassed the effectiveness of a cotton core—the mainstream in disposable vapes. With this patented technology, Small International has become the leader of indispensable core products in the e-cigarette supply chain worldwide. The industry has gradually grown to recognize the black ceramic atomizing core under the brand "FEELM inside", much like "Intel Inside" in the computer processors industry. In 2019, the revenues of Small International's



Source: Global impact report of "FEELM inside"

electronic atomization equipment with ceramic heating technology reached RMB 3.59 billion, with a year-on-year increase of 765.9%.

These two technological improvements coupled with the popularization of lithium battery products led to a well-established industrial chain, making a significant difference to the quality of e-cigarettes. The ability to substitute for traditional cigarettes has been further strengthened, and it has become something seen as a necessity for a certain group of people.

Major research institutions have conducted comparative analyses on e-cigarette consumption and cigarette consumption. One of them showed:

From the current demographic structure of smokers, the future of China's e-cigarette market is quite promising considering the number of potential users and the estimated growth trends since cigarette consumption in China makes up for 30% of global sales.

The management and future of e-cigarettes

Since China is the biggest tobacco consumer in the world, the global tobacco industry is paying great attention to all its moves in e-cigarette management.

It is not difficult to see that most countries have already moved beyond the period of minimal restrictions on e-cigarettes, and policies towards e-cigarettes are shifting due to various aspects including the local cultural background and beliefs as well as the rapid advancement of e-cigarette technology.

For leading companies such as Wuxin Technology and Small International, how should they view the prospects of the entire industry in the current international market? What are the lessons learned from the rise and fall of the e-cigarette industry for practitioners in other industries?

"Flash crash" in stock prices across the industry

From March 22 to 24, 2021, e-cigarette concept stocks—a set of stock of companies whose assets or earnings have significant activities in mainland China—"flash crashed" in the global market on three consecutive days. Contradicting the previously booming bull market, representative stock prices not only fell, but also saw few signs of rebounding during this period.

Listed companies have survived the market competition, but the short-term price drop in the stock market was detrimental to companies in the Chinese and international markets. The incident largely reflected the impact of government policies on the future development of the e-cigarette industry and the competitive landscape of different enterprises.

"There is sufficient evidence to prove e-cigarettes are not safe and will cause health hazards … The simultaneous use of cigarettes and e-cigarettes will cause a deterioration in health … Teenagers are more likely to start using cigarettes after using e-cigarettes". On the 26th May 2021, China's National Health Commission issued the "China's Report on the Health Hazards of Smoking 2020", which added a chapter titled "The Health Dangers of Electronic Cigarettes" for the first time. On the day of the release of the report, share prices for e-cigarette companies fell.

Data shows that the rate of using e-cigarettes in China has risen to 0.9%, with the aggregated number of e-cigarettes users now at about 10.35 million. Among them, the proportion of young adults is relatively high (with the age group of 15-24 years old being the highest at 1.5%). Meanwhile, the report argues that the fumes released by e-cigarettes are toxic and have an adverse effect on the human body.

Companies in the tobacco industry continue to operate comparatively effectively and interact strategically in the context of globalization, but attempts to replace tobacco products with less harmful ones such as e-cigarettes are ongoing. In the past few decades, a number of differentiated products have been developed which have had a continual impact on the traditional tobacco market, and this trend looks set to continue.

CKGSB HIGHLIGHT

The Digital Economy and Limitless Supply

Chunsheng Zhou, Professor of Finance at CKGSB, discusses the ideas presented in his new book on the theory of unlimited supply in a modern economy

In 2020, China's digital economy made up nearly 40% of the country's total gross domestic product (GDP). As the world's most rapidly growing digital economy, China is seeing its digital transformation changing the way businesses function in almost every way. The everyday lives of people, their interactions and consumption habits, are all changing as a result of the vast digital ecosystems created by tech giants like Alibaba, Tencent and ByteDance.

To study this phenomenon and to investigate what it means for China's economy in the future, CKGSB Professor of Finance, Chunsheng Zhou conducted research on the supply side of China's digital economy, how businesses and governments should cope with it and how it affects business and economic strategies, culminating in his new book, *Limitless Supply: The New Economy in the Digital Era*.

Unlike the traditional economy, where resources such as land, labor and capital limit production capacity, in the digital economy, production factors like data and technologies are limitless, producing a supply of "goods" that can be replicated over and over again. Zhou coined the term "limitless supply products" to refer to products that can be supplied simultaneously or in a short time, without any limit, at no marginal cost to satisfy any market demand. He argues that the way that digital products are supplied in a digital economy alters the way businesses set their profit models, pricing strategies and growth targets. We sat down with Zhou to learn more.

Q. Could you define "digital economy"?

A. The digital economy is an economic phenomenon in which the rapid rise of Artificial Intelligence (AI), Big Data and the mobile internet bring forth new industries, products, services and business models, to stimulate new consumer demands and disrupt our traditional consumption concepts. It is quite different from the traditional economy. In my theory, I call it the "limitless supply economy", a system composed of limitless supply products, including copyrights, scientific and technological achievements, computer software and digital products. These products and the new economic system fueled by data and technologies will change the way we do business.

Q. How do typical companies operate in the "digital economy"?

A. In today's digital economy, or "limitless supply economy", products are supplied to more consumers with zero marginal cost. Companies don't have to worry about production limits. As long

as demand is there, companies can achieve explosive growth and expand at a staggering speed. Products like WeChat, TikTok and Zoom, operating systems and other software, for example, are typical limitless supply products. Companies like ByteDance and Tencent are very young but are already gaining big revenue and acquiring massive numbers of customers because the nature of their products is limitless.

Q. How would latecomers survive in such an environment where large companies tend to seize most of the market share?

A. Since growth depends on demand for companies with "limitless supply products," those companies with attractive products tend to balloon in size. For example, companies such as Facebook, Zoom and TikTok have become giants and market leaders in a relatively short space of time. Therefore, latecomers have to find niche markets, invent new products, create new business models or at least make better products in order to survive and grow.

Q. How do companies manufacturing limitless supply products choose their profit models?

A. Digital products backed by technologies, such as Microsoft's Windows or Tencent's WeChat, make it possible for their companies to expand by growing their customer base rather than investing in fixed assets. Due to this attribute, companies with digital products, like Alibaba, Tencent and ByteDance in China and Facebook, Google and Amazon in the US, focus on marketing to acquire as many users as possible and to profit from the traffic created. In the New Economy, there are roughly two different business models. One is to directly sell the digital products, like what Microsoft does with its Windows application. The other is to provide products to direct users at a very low price or even for free and, instead, earn derived revenues from people's usage of the service. Take WeChat as an example. Everybody can download the app for free but WeChat makes a huge amount of money from its financial, advertisement, gaming and other commercial services.

Q. If the supply becomes limitless, how do you think that will affect the pricing strategies for businesses under a new supply-and-demand relationship?

A. The marginal cost of limitless supply products is zero, meaning their producers can boost supply without raising costs. But in theory, we can still determine the optimal or best price of a product based on the formula "marginal revenue is equal to marginal cost" or "MR=MC". That's the case when the product has only one function. Physical products such as a smart phone are products driven by data and use a combination of limited supply products and limitless supply products. For example, a smartphone generally consists of a body, installed applications and an operating system, with the latter two being "limitless supply" products. In this case, the price of these applications or the functions the applications provide is determined by the demand or how popular the company expects their products to be.

Digitalization holds the key to future successes for business leaders

Q. Why is China's New Economy booming but its GDP growth slowing?

A. Traditionally people believe that the main function of technology is to increase productivity. But nowadays we see that technologies are mainly used to improve the quality of the product or to provide new products and new services. For example, for most people if they have a smartphone, there is no need to get a camera as the functions are integrated in one product. People also get to enjoy some services and products for free, for example making free videos calls using WeChat. In this sense, it is natural that GDP seems to be slowing down as these traditional businesses are no longer recorded in the GDP statistics. As the economy is now dominated by light-asset companies producing limitless supply products, we are seeing a plummeting growth rate of fixed asset investment to slightly above 5% from 25% some 15 years ago. GDP is not as accurate as before to reflect the economy. The relevant authorities should optimize the way we gauge economic growth to reflect the new digital and technology-powered world.

Q. What are your suggestions for business leaders to adapt to the fast-changing economy in China? What are some of the challenges we face?

A. Everybody needs to keep up with the trend in order to thrive going forward. I believe digitalization holds the key to future successes for business leaders, no matter what industries or sectors they are in. Business leaders also have to embrace innovation to maintain their competitive edge.

Many people call the New Economy a disruption. It is true that new business models can sometimes be bad news for some traditional industries, as they destroy many old models. For instance, e-commerce challenges brick-and-mortar stores and forces them to think outside of the traditional business model. Some old jobs are disappearing but new ones are being created. Technology makes our lives much easier and more convenient and makes many products cheaper. Now that the economic and technological transformation is here to stay, we can only equip ourselves with new skills to seize the advantages they offer.

CKGSB BUSINESS CONDITIONS INDEX

The Result of Rectification

CKGSB's Business Conditions Index, reflecting confidence levels in China business, reveals the fallout from recent government decisions impacting major companies in the private sector

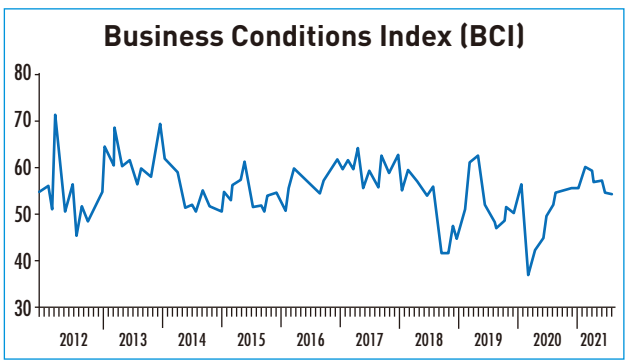
The BCI is directed by Li Wei, Professor of Economics at the Cheung Kong Graduate School of Business

In July, the CKGSB Business Conditions Index (BCI) fell slightly, from 54.9 to 54.6, remaining above the confidence threshold. This change in confidence stems from two main factors, the regulatory scrutiny faced by Didi Chuxing after it went public in the US and the storm of rectification that has hit China's education and tutoring market.

Introduction

Since June 2011, the CKGSB Case Center and the Center for Economic Research have conducted a monthly survey, called the Business Conditions Index (BCI), to gauge the business sentiment of executives regarding the macro-economic environment in China. Under the direction of Professor Li Wei, 116 surveys have now been completed and 111 monthly reports published.

The CKGSB Business Conditions Index is a set of forward-looking diffusion indicators. The index takes 50 as its threshold, so a value above 50 means that the variable that the index measures is expected to increase, while a value below 50 means that the variable is expected to fall. The CKGSB BCI uses the same methodology as the PMI index.



Key Findings

- In July, the CKGSB BCI registered a lower overall score of 54.6, down from 54.9 in June.
- Both investment and recruitment indices have trended downwards, particularly recruitment.
- The confidence level of our sample companies' competitiveness in the marketplace suggests that Chinese industry as a whole will be facing a more difficult business environment in the near future.

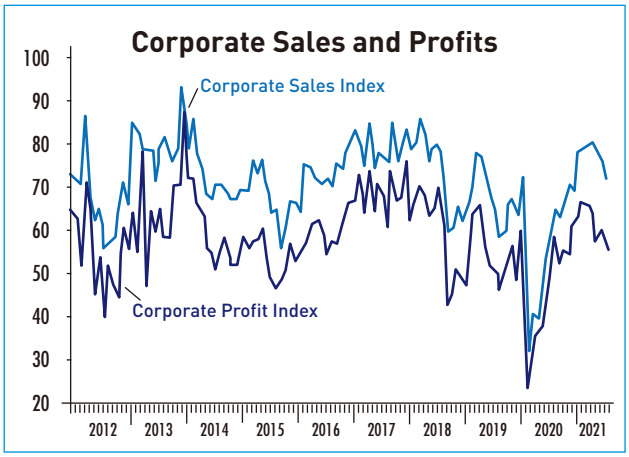
Analysis

The BCI comprises four sub-indices: corporate sales, corporate profits, corporate financing environment and inventory levels. Three measure focus on future prospects and one, the corporate financing index, measures the current climate.

In July, three fell and one rose. The corporate sales index fell from 76.1 to 72.8, and the corporate profit index dropped to 56.1 from 59.9 in June.

Corporate financing prospects fell back somewhat, with the index sliding from 48.5 to 47.9 in July, still below the confidence threshold. The inventory index rose from 35.3 to 40.5. These two indices have been problematic since the start of our survey in 2012, showing persistently negative outlooks.

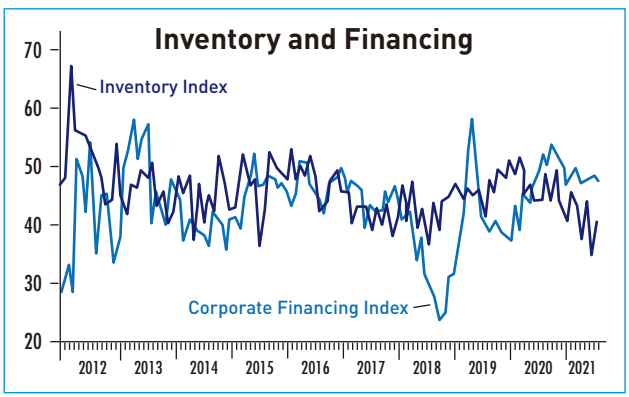
July's labor cost forecast improved, rising from 82.6 to 86.2. Overall cost prospects diminished from 87.6 to 86.3.



The investment and recruitment indices have been consistently at the more confident end of the scale since the BCI began. Recently, both have trended downwards, especially recruitment. In July, one rose and one fell, with investment conditions falling from 73.6 to 69.9, and recruitment prospects remaining at 69.9.

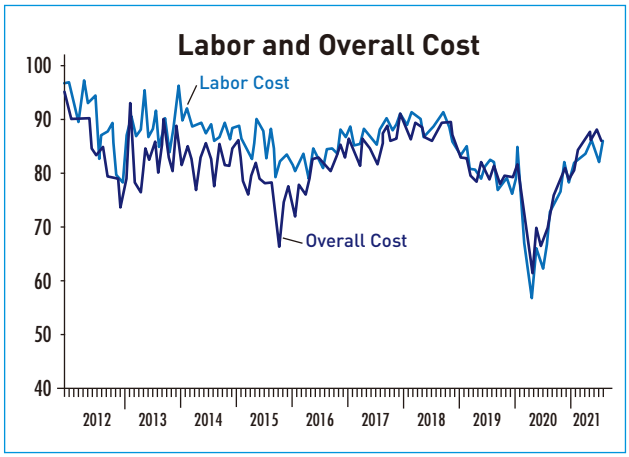
Conclusion

In July's BCI, we would like to focus on the topic of confidence for the two reasons listed at the start of the article, the regulatory pressure felt by Didi, which has had a negative knock-on effect on other Chinese concept stocks and the drastic changes being made to China's education and tutoring market. Both these markets are dominated by private enterprises, so people are naturally asking, what will be rectified next?

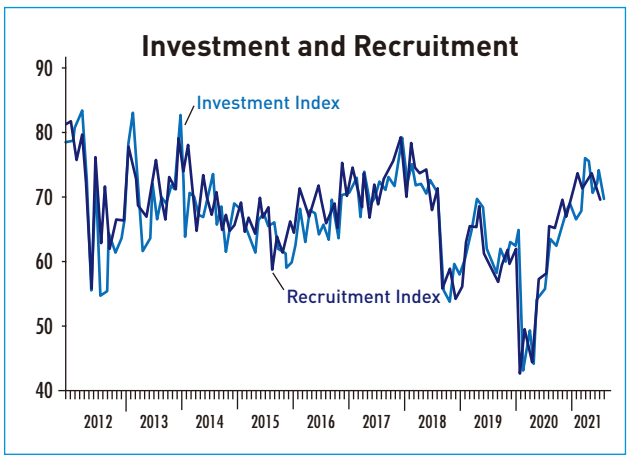


Rectification has increased company uncertainty, and has the potential to undermine future business confidence, and therefore the economy as a whole.

We have nothing against rectification per se, and many measures are welcomed. China's private businesses are efficient and flexible, which makes them good at skirting regulations. Better supervision and a degree of rectification are necessary. Didi Chuxing has a huge amount of customer data from millions of people taking rides daily, and the company's use of this data touches on consumer privacy. If not well supervised, Didi may indeed misuse the data. As for education and tutoring, the market has expanded rapidly in recent years, and regular teaching has been impacted. Here also, rectification is necessary.



But the policies address the symptoms, not the root causes. In the education market, policy makers have the goal of reducing the burden on school students, and in turn the burden on families, thereby encouraging families to have a second or third child. But the current rectification has focused on training institutions, without touching the education system as a whole. If the examination system stays the same, demand for extracurricular exam prep will still exist.



It is 43 years since China entered its reform and opening up period, and the country has experienced earth-shaking changes, but we still lag in some aspects. For example, we still see campaign-style law enforcement, while what enterprises need is a stable operating environment. To achieve that, the government must rely on the rule of law, because only with that can the behavior of all participants be made predictable.

COMING OF AGE

Key Opinion Leaders are becoming the vital link for brands to reach online consumers in China

By Shi Weijun

Marketing in China has developed to become a new form of entertainment, with Key Opinion Leaders playing a growing role

With her infectious personality, strikingly colored hair and flawless makeup, Maggie Fu looks every inch the beauty influencer that she is, adored by hordes of followers on social media in China. The 30-year-old former makeup artist from southern Guangdong Province is the co-founder, lead content producer and public face of beauty and cosmetics brand Melilim Fu.

With 1.33 million followers on Weibo, 512,000 on ByteDance-owned Douyin (as TikTok is branded in China), and another half million spread across other platforms, Fu is a firmly established 'KOL' or key opinion leader—internet personalities who stream videos through an array of social media platforms promoting products, either directly or indirectly. "I love doing this," says Fu. "It's not a challenge because I feel like I was born to do it."

Fu—who has worked with more than 60 brand partners ranging from Chanel and Tom Ford to Alibaba's Tmall platform—says one of her most memorable collaborations was with US broadcaster NBCUniversal, which asked her to produce three short beauty videos to promote a new season of the hit reality TV series *Keeping Up with the Kardashians* in China.

"It was an easy decision for me to participate because I love their style," Fu says. The collaboration was a major success—her beauty videos helped boost viewership of the TV series by 1,700% during the fiercely competitive summer/fall advertising campaign period of 2018.

Even for China—where digital trends move at lightspeed compared with the West—the rise of KOLs and livestreaming in marketing over the past five years has been breathtakingly rapid. Enabled by the power of China's digital ecosystem and the fusion of social media and e-commerce, KOLs have emerged in every imaginable field—not only in fashion and make-up, but also in sports, travel, pets, parks and gardens. With a population as big and as diverse as China's, there is something for everyone.

The problem with the KOL boom is that observers remain divided on how to calculate the scale of the market, revenues and influence of the KOLs. "Up to this point there hasn't been a good method for determining the size of the KOL market, and how to separate revenue," says Cecilia Yau, mainland China and Hong Kong media leader at PwC China.

Kim Leitzes, founder of influencer analytics platform Parklu, agrees that there is no consensus on the size or value of China's KOL industry. One estimate from consultancy Frost & Sullivan puts the market size of the online KOL economy—comprising e-commerce, advertising and marketing services, virtual gifts from fans and knowledge sharing—at RMB 91.6 billion ($14 billion) in 2017, up from just RMB 1.5 billion in 2013.

This aligns with another estimate from Weibo, one of China's largest social media platforms that valued the market at RMB 102 billion ($15.6 billion) in 2018. By way of comparison, the Chinese film industry's box office revenue stood at RMB 64.3 billion in the pre-pandemic year of 2019.

Furthermore, Frost & Sullivan expects China's KOL economy to reach RMB 525.3 billion next year, with advertising and marketing services making up more than half of the total and e-commerce just over one-third.

"The sense is that what KOLs do is actually part of e-commerce so we are starting to see some market players analyze gross merchandise value (GMV), which is how much KOLs sell in the market," says Yau. Going by that metric, KOLs are big business in China; sales generated by online influencers are forecast to reach RMB 179.6 billion in 2022, a more-than-fivefold jump from RMB 32.9 billion in 2017.

The staggering sales numbers mean KOLs have risen near the top of any brand's checklist when operating in China.

The fame game

Most KOLs like Fu ply their trade in specific niches such as cosmetics, and some influencers are now household names—at least in millennial households—and have more influence on consumer behavior and social trends than movie stars and pop singers.

One of her collaborations involved

a tie-up with MAC Cosmetics, a make-up brand owned by Estée Lauder. MAC launched a limited-edition lipstick priced at RMB 1,190 and tapped Fu to front the sales campaign on Alibaba's Tmall shopping platform. Her followers purchased all 50 sets in 30 minutes.

"There is no single path to building influence," says Parklu's Letizes. "On social media, the main elements to KOL development include topical expertise along with a strong focus, consistent content creation, and community building through engagement. This voice essentially attracts and aggregates social media users with niche topics of interest by providing educational and/or entertaining content."

Li Yang, Associate Professor of Marketing at CKGSB, says the rise of KOLs goes hand-in-glove with the "richness and complexity of China's society" as an extension of the internet's ability to uncover and disseminate "lots of interesting stories out there".

"In the mainstream media era, consumers could only see a small part of the bigger picture," says Li. "On the other hand, 'self-media' channels and multimedia platforms have provided new ways for people to explore all the previously hidden corners and interesting aspects of life, and have given people new opportunities to display their hidden talents."

Li Jiaqi, dubbed the 'Lipstick King' and one of China's best-known KOLs, is a case in point—the outspoken native of Hunan province shot to stardom hawking lipstick and is now one of the most successful online personalities in the country. In a promotional event for Singles' Day in 2018, Li famously trounced Alibaba's founder Jack Ma when the two went head-to-head in a livestreamed lipstick-selling contest, outselling the multibillionaire and e-commerce titan by 100 to one. These days, Li sells everything from skincare products to household appliances and snacks, and a brief slot on his online sales shows can cost upwards of RMB 300,000.

Ding Hui, a 33-year-old business analyst in Shanghai for a Japanese apparel brand, is among Li's millions of devotees, having purchased cosmetics and clothes via his livestreams. "Working in fashion, I am already knowledgeable about which styles flatter me and which don't, but I appreciate Li's candor and his enthusiasm," she says. "When I watch his shows, I feel like he is more of a friend than a salesperson."

KOLs are intertwined with livestreaming, a broader sector that has seen massive growth over the past two years with considerable upside going forward. Mobile apps such as Douyin and Kuaishou—which listed on the Hong Kong Stock Exchange in February—had already established livestreaming as a dynamic force in social commerce going into 2020, capturing the imagination of both brands and content consumers.

China's relatively brief first encounter with COVID-19 helped turbocharge livestreaming, encouraging Chinese citizens to seek the intimacy of livestreams that provided at least a partial—if imperfect—substitute for in-person interaction, and China's livestreaming e-commerce market doubled year-on-year to RMB 900 billion in 2020 with a 10% share of total online retail sales. KOLs serve up a unique blend of shopping and entertainment, says Sun Baohong, the Dean's Distinguished Chair Professor of Marketing at CKGSB. "Your shopping becomes 'shop-ertainment' so shopping is no longer boring."

A matter of influence

KOL marketing's primary target audience are millennials and Generation Z—people born mostly in the 1990s. They make up about 15% of China's population and are particularly enticing for brands, as they are regarded as the most free-spending, savvy generation of consumers that China has ever seen. In a November 2020 report, McKinsey said China's Gen Z refer to themselves as "the moonlight clan" in reference to their habit of spending their entire monthly salary over the course of a month—effectively living paycheck to paycheck.

The booming popularity of online influencers means KOL marketing has become a budget line item for nearly every business selling to consumers in China. "It is one of the most pervasive and persuasive marketing tactics in the country," says Leitzes, citing findings from McKinsey that show after word-of-mouth from family and friends, KOLs are the most influential touchpoints in a customer's buying journey.

But like the nebulous size of the KOL market, how much of brands' ad spending is being diverted from traditional formats to individual KOLs is unclear. "This is something we are figuring out," admits Yau from PwC China. "Chief marketing officers might spend along the whole KOL economy—some may spend more on the KOL directly, some may spend on other parts. Each of them will have different strategies."

But Yau is quick to note that advertising dollars always follow eyeballs. "Advertisers all look for viewers, so when we look at the traffic that KOLs can bring to a platform, it's amazing. I would say it's still booming and we'll have more dollars going into this area because they really can generate traffic. And that proves this business model is succeeding."

Both household names and niche brands have embraced the marketing opportunities afforded by KOLs, according to CKGSB's Li. "As traditional media channels are no longer as popular as they were in the past, it is not surprising that large brands have begun to look to new media channels and 'self-media' KOLs to achieve their marketing objectives."

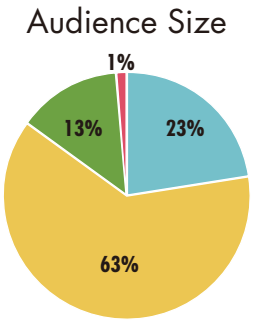
For smaller brands on tight budgets, too, KOLs offer an alternative channel to the expensive mainstream media that allows them to reach their target consumers effectively through more precise marketing.

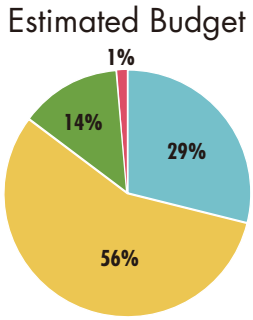
"This would otherwise be incredibly difficult to achieve through mass media. While mainstream media is designed to reach the masses, KOLs are by nature 'niche celebrities' that target specific consumer groups with particular interests. Thus, KOLs may help smaller brands and startups to achieve greater marketing success at an early stage."

KOLs serve as a filter to help China's harried, time-poor consumers quickly sift through the many products available from domestic brands and imported from overseas, according to CKGSB's Sun.

A MARKETING ESSENTIAL

KOL budget calculators, such as the one created by ParkLU below, help marketing teams integrate KOLs into their budgets





Total Budget

RMB 239,429

Several Platform Options Available

Weibo, WeChat, XiaoHongShu, TikTok, BiliBili, KuaiShou, YouKu

KOL Type	No. of Posts	Cost (RMB)	Audience Size
Top-tier They are flat-out famous. Their content truly influences the masses and will make certain that your brand becomes more recognizable.	1	RMB 69,246	1 Million
Mid-tier They are generally well known in their industry. They can have significant impact connecting with core followers and beyond.	5	RMB 134,210	2.8 Million
Micro They commonly serve a niche area of interest with a small but robust following. Great for more targeted campaigns.	3	RMB 32,934	600,000
Long tail They are often just starting out or are content creator hobbyists. Work with enough of them and you can see some decent results.	1	RMB 3,039	50,000

Sources: AsiaLink, ParkLU

"I might feel I'm given too much choice, which one should I choose? If I'm lazy, I want to follow KOLs… because they have a reputation. [Consumers] know that reputation is linked with this KOL, so there must be some credibility behind it, so consumers go with KOL recommendations to reduce their risk."

Watchful regulators circling

The relatively anodyne nature of livestreaming in China—shopping, arts, entertainment and business make up the bulk of content—means the authorities were generally hands-off and supportive in its formulative years. Indeed, as China's economy flagged in the first half of 2020, authorities praised the sector for staving off unemployment and driving growth.

But scrutiny ramped up in early 2021 with a slew of rules and guidelines homing in on what was the last under-regulated corner of China's internet. The State Administration for Market Regulation (SAMR) released guidelines in November 2020 for greater surveillance over the marketing activities of e-commerce platforms. Days later, the Cyberspace Administration of China issued draft regulations banning livestreaming platforms from fabricating or falsifying e-commerce data such as their number of followers, views and likes. Most recently in March 2021, the SAMR introduced new administrative measures for online transactions—including those done via livestreaming campaigns—that require service providers to keep recordings of all videos for three years.

"The integrity of livestreaming is just like that of advertisements," says Yau. "You can see that the government is starting to become aware of the importance of this. They don't want to strangle the industry, but they would like to have some sort of regulation to maintain the quality and the sustainability of the industry."

Complete KOL-lection

The recent regulatory blitz makes two things clear: that Beijing wants the livestreaming industry and by extension KOLs to smarten up; and that it expects both to stick around for the long term, hence the rulemaking.

"The industry will become more regulated either through self-regulation or through the government," says Yau. "Just like with advertising, the government will have some regulation for whether the KOL's representation is genuine or not, and how they are promoting their products."

But the extent to which other parts of the world will embrace the extreme livestreaming KOL culture of China is unclear. India, with its huge mobile internet-savvy younger generation, appears to be a strong candidate. And Leitzes has little doubt that China is blazing a trail with global implications, effectively creating the future of marketing. "KOLs are here to stay and will likely grow in pervasiveness," she says. "The rest of the world will follow China's lead, with influencers becoming an ever more important part of the buyer's journey."

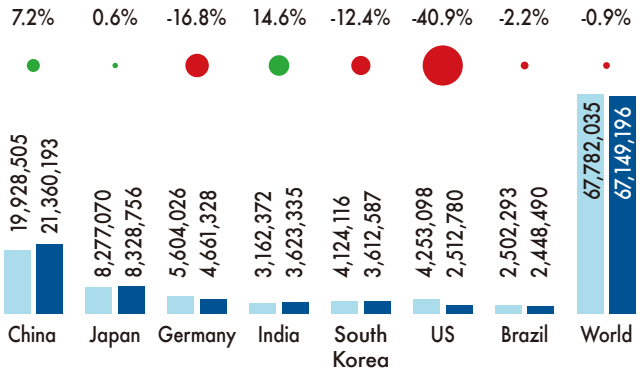
Automobile Ascension

China is easily the world's biggest producer and consumer of automobiles, with almost one in three of the world's cars being produced in the country. What does the landscape of China's car market look like?

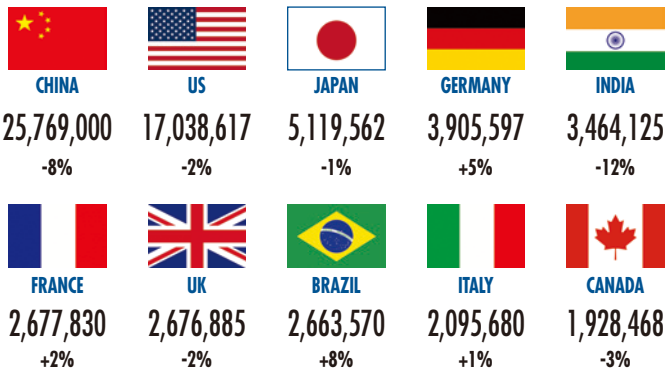
General Overview

China has, over the last five years, produced around one in three of the world's cars, seeing a total increase in production of 7.2% between 2014 and 2019. All the while, traditional auto manufacturing powerhouses like Germany and the United States have seen high percentage decreases, with the latter dropping by over 40% over the same five-year period.

Change in car production numbers by country



Global car sales in 2019

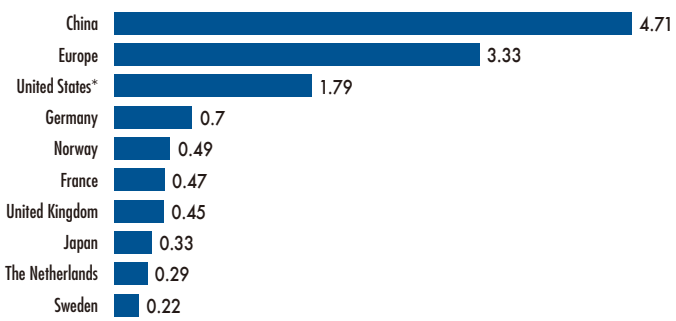


EV Sales

Electric vehicles (EVs) are growing in popularity around the world and China is proving to be a receptive market. The country is buying more individual EV units than any other, however the numbers show that as a share of overall auto sales, China has been lagging behind.

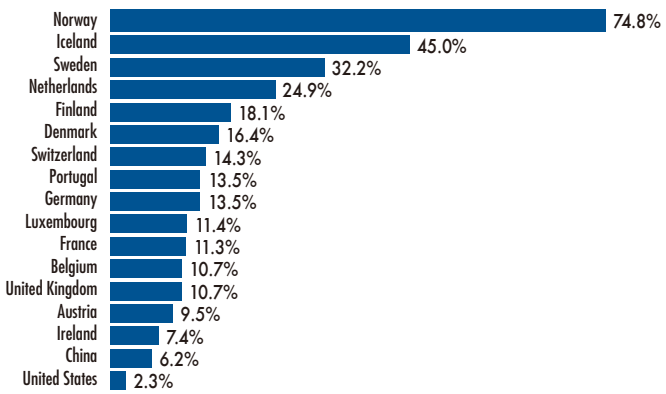
Top-selling EV markets

All-time cumulative sales through December 2020 in millions



*California alone accounts for 0.8 million of total US sales

EVs as a share of auto sales in 2020

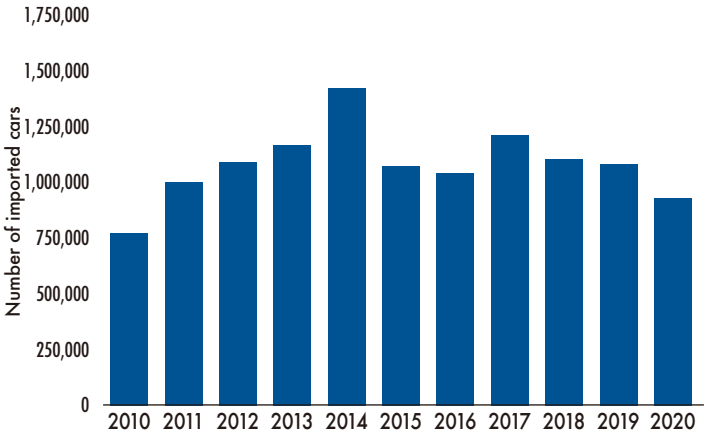


Sources: OICA, Autocar India, ACEA, CAAM, EV Volumes

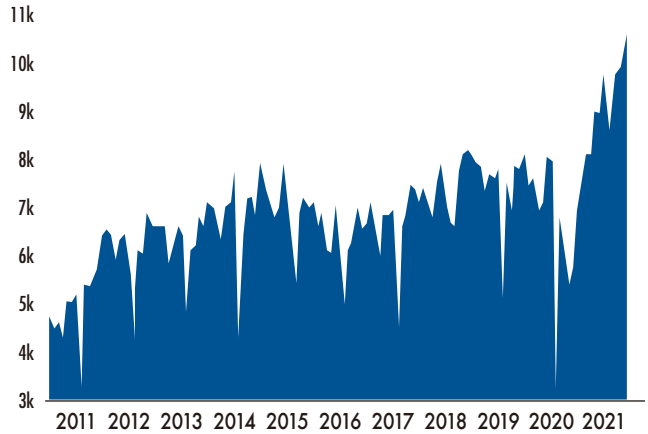
Imports and Exports

After peaking in 2014, the number of cars being imported into China has been steadily decreasing, totaling 0.93 million in 2020. Over the same period, exports also declined overall but experienced an increase thanks to the COVID-19 pandemic, rising to 995,000.

Number of cars imported into China between 2010 and 2020



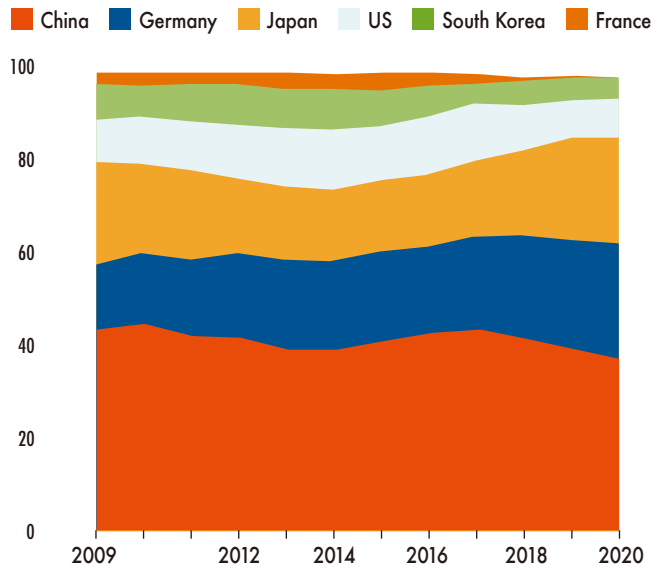
China's auto exports between 2011 and 2021



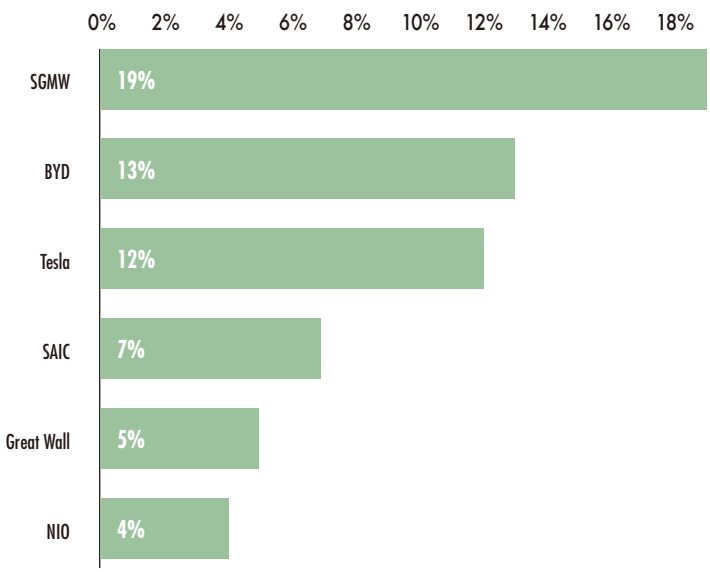
Sales by Brand

The statistics indicate that the market share covered by Chinese auto brands has slowly been decreasing over the last 10 years and now sits at just under 40% of all cars bought in China—a surprising statistic given the country's scale of car production. But there are signs of a shift on the roads with Chinese brands becoming more and more dominant. Certainly in the burgeoning EV market, Chinese brands now completely dominate, with Elon Musk's Tesla being the only non-Chinese or Chinese-owned brand.

Percentage market share of brands by country



Top EV manufacturers in China



Sources: China Association of Automobile Manufactures, National Bureau of Statistics China, CleanTechnica, EV Volumes, Nikkei Asia

data CHINA

The stats you need to know

Macro

From two to three

After a steep decline in births, China has increased its existing two-child limit to **three** per family. Last year, year the nation's fertility rate was **1.3**, well below the **2.1** rate required for population replacement.

Source: *Reuters*

Blown away

China added **52 gigawatts** of new wind power in 2020, double the capacity installed the year before. This record level of wind power installations has secured China's position at the top of the global wind power industry.

Sources: *Financial Times*

WHO approval

China's Sinopharm and Sinovac COVID-19 vaccines have **both** been approved by the World Health Organization. As of June, Sinovac had supplied over **600 million** doses of its vaccine in China and abroad, with over **430 million** doses administered.

Source: *Reuters*

Business

Animal tested

Ordinary cosmetics imported into China will no longer need to be tested on animals, opening the door to the nation's **$65 billion** beauty market for more foreign firms. Many companies had opted out of entering the world's second-largest beauty market over what was deemed unethical and unnecessary testing.

Source: *Caixin*

Growing SOEs

Profit for China's state-owned enterprises rose **240%** to **RMB 1.36 trillion** (**$213.42 billion**) in the four-month period January to April 2021, compared to the same period in 2020.

Source: *Reuters*

Green light

Investment giant BlackRock has been given the go-ahead to initiate a wealth management business in the Chinese mainland market. The company will own **50.1%** of the joint venture with China Construction Bank and Singapore's state fund Temasek.

Source: *Financial Times*

Market Presence

The number of Chinese companies listed on US equity markets has risen by **9.5%** since October 2020, despite delisting concerns. There are now **239** companies listed, compared to the **217** listed last October. In the year ending April, Chinese companies raised a total of **$17.55 billion** in US IPOs, compared to **$4.1 billion** the year before.

Source: South China Morning Post

Technology

Patent pending

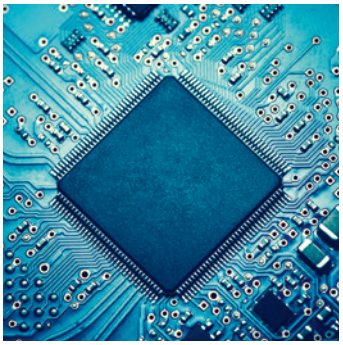
Chinese applicants submitted **68,720** patent requests last year, up **16%** from 2019. This makes 2020 the second consecutive year that the country has been the global **number one** for patent applications. China's Huawei remained the top applicant for the fourth straight year.

Source: *Caixin*

Defunct project

The failed **$18.5 billion** microchip project, Wuhan Hongxin Semiconductor Manufacturing, started to dismiss employees after making clear that "there is no plan for product resumption". The company was a prominent semiconductor startup under China's national effort to increase semiconductor production capacity. The project ground to a halt in early 2020 due to a lack of funds.

Source: *Caixin*



Microchip manufacture

China bought more semiconductor manufacturing equipment than any other single country or region in 2020. With sales of **$18.72 billion**, the Chinese mainland claimed the title as the world's largest market for such equipment for the first time last year.

Source: *Caixin*

System shift

Huawei has ended its reliance on Google Android by releasing its own HarmonyOS 2.0 operating system on smartphones. The company is challenging the **99%** smartphone operating system global market share jointly held by Android and Apple's iOS.

Source: *South China Morning Post*

Consumer

Yuan billion

Alibaba's online grocery service and food delivery units are included in China's digital yuan pilot program, giving the sovereign electronic currency system access to the internet giant's **1 billion** users.

Source: *Caixin*

Living online

The number of online livestreaming service users in China reached **617 million** in 2020. Livestreaming is a growing market, estimated to be worth over **RMB 193 billion** (around **$30 billion**) last year. The country has around 20 leading platforms, nine of which are listed on the stock market.

Source: *China Daily*

Spending stymied

Due to a resurgence of COVID-19 cases in the south of the country, Chinese tourism and box office spending failed to return to pre-pandemic levels during the Dragon Boat Festival holiday in June. Compared with the same period in 2019, domestic tourism sales revenue was **74.8%** and the box office rang up **59%** of equivalent revenue.

Source: *Caixin*

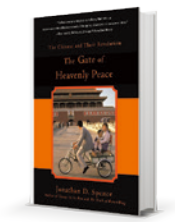
BOOKSHELF

From Then to Now

Frances Wood, well-known author and former curator of Chinese collections at the British Library, recommends books that facilitate a modern-day understanding of China through a historical lens

Frances Wood is a Sinologist and historian known for her writings on Chinese history, including life in the Chinese treaty ports and the First Emperor of China. After studying Chinese at Cambridge, Wood spent a year continuing those studies at Peking University between 1975 and 1976. Upon her return to the United Kingdom, she joined the British Library and served as curator of its Chinese collections for over 40 years. Wood's book *Did Marco Polo go to China?* argues that Polo's famous account was actually a collection of travelers' tales rather than the account of a single person.

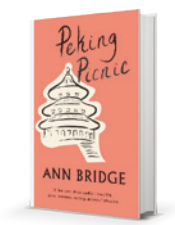
What would be your number one book recommendation for someone looking to learn more about China?



The Gate of Heavenly Peace: the Chinese and their revolution 1895-1980 by Jonathan Spence is a very accessible version of a distinctly chaotic history. He follows events and movements largely through significant and often fascinating characters involved in that history in various ways. All of Spence's characters — exceptional writers, artists and thinkers — struggled to find their way through the warfare and argument of the 20th century, to try and build a new China out of the ashes of the old imperial order and the disdain shown by the West in the Versailles Treaty of 1919.

What book on China have you re-read the most?

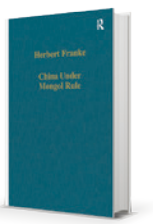
Peking Picnic by Ann Bridge (the pseudonym of Lady O'Malley, wife of a British diplomat posted to Peking in 1925) was first published in 1932. Set around that time, it is a novel about a group of diplomats and their guests going for a weekend picnic to two temples outside the city. While the fictional part of the book is concerned with high-flown discussions of love, what I adore above all in the novel are the descriptions of Peking in mid-summer and the temples in the Western hills. Despite the brevity of her stay, Bridge's ability to capture the feel of summer in the city is striking and her descriptions of the temples and their trees, unsurpassed.



What are you reading currently?

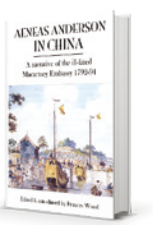
While Shanghai has long been known in the West for its exoticism and raffish character, 20th century Peking is more often considered a staid and serious city, peopled by upright diplomats and government servants. In *Destination Peking*, Paul French concentrates on the period before the Japanese occupation of 1937, a time of considerable upheaval and uncertainty, when Peking, like Shanghai, was home to remittance men and fugitives from overseas justice, as well as aesthetes seeking the tranquility of Chinese courtyards.

What book totally changed your perspective on a certain topic?



Originally an essay, 'Sino-Western contacts under the Mongol empire' is now included in a volume: *China Under Mongol Rule* by Herbert Franke. This is the article which, without actually saying so, first suggested that Marco Polo might not have been to China, and inspired me to write a little book, *Did Marco Polo Go to China?* in 1995. Especially interesting are Franke's discussions of several surprising omissions from Polo's memoirs. There are many treasures to be found in Franke's book, and perhaps it, too, will give you pause to think.

Which China book do you think is the most underappreciated?



The 18th Century saw a proliferation of European books on China, but the account written by Aeneas Anderson, Lord Macartney's valet, is far and away the most lively and immediate. The book, *Aeneas Anderson in China: a narrative of the ill-fated Macartney Embassy 1792-94*, details Britain's first official diplomatic mission to China and its subsequent failure to achieve any of its stated aims. I was very happy to write a preface to Graham Earnshaw's publication of Anderson's diary as I have long admired it and regret that, until now, it remains so little known.

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