

# CHINA PATHFINDER: Annual Scorecard

OCTOBER 2021

# China Pathfinder: ANNUAL SCORECARD

Anticipating China's Economic Future

OCTOBER 2021

A Partnership between Atlantic Council's GeoEconomics  
Center and Rhodium Group

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## About China Pathfinder

### Mission

China Pathfinder is an initiative from the Atlantic Council's GeoEconomics Center and Rhodium Group to measure China's system relative to advanced market economies. Few people, even within the circle of China experts, seem to agree about the country's economic system, where it is headed, or what that means for the world. The goal of this initiative is to shed light on whether the Chinese economic system is converging with, or diverging from, open market economies. Over the course of two short decades, China has risen from the world's sixth-largest economy, with a gross domestic product (GDP) of \$1.2 trillion, to the second largest, boasting a GDP of \$14.7 trillion in 2020. China now intersects with the interests of all nations, businesses, and individuals. With China's past and future systemic choices impacting the world in both positive and negative ways, it is essential to understand its global footprint. The hope is that China Pathfinder's approach and findings can fill in some of the missing puzzle pieces in this ongoing debate—and, in turn, inform policymakers and business leaders seeking to understand China.

### Partners

The **Atlantic Council** is a nonpartisan organization that galvanizes US leadership and engagement in the world, in partnership with allies and partners, to shape solutions to global challenges. The Atlantic Council provides an essential forum for navigating the economic and political changes defining the twenty-first century by informing its network of global leaders. Through the papers it publishes and the ideas it generates, the Atlantic Council shapes policy choices and strategies to create a more free, secure, and prosperous world.

**Rhodium Group** is a leading independent research provider. Rhodium has one of the largest China research teams in the private sector, with a consistent track record of producing insightful and path-breaking analysis. Rhodium China provides research, data, and analytics to the private and public sectors that help clients understand and anticipate changes in China's macroeconomy, politics, financial and investment environment, and international interactions.

### Authors

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The principal contributors from the Atlantic Council's GeoEconomics Center were Josh Lipsky and Niels Graham.

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### Resources and Contact

This report is written and published in accordance with the Atlantic Council Policy on Intellectual Independence. The authors are solely responsible for its analysis and recommendations. The Atlantic Council, Rhodium Group, and its donors do not determine, nor do they necessarily endorse or advocate for, any of this report's conclusions. This report is published in conjunction with an interactive data visualization toolkit, at <http://chinapathfinder.org/>. Future quarterly and annual updates to the China Pathfinder Project will be published on the website listed.



## Foreword

A lack of clarity can lead to devastating consequences. The economic history of the past century is rife with misperceptions that produced hardship on a global scale. Think of the protectionist policies that exacerbated the Great Depression, the oil embargo of the 1970s, and the austerity measures imposed after the Asian Financial Crisis. In each case, decision-makers thought they could see through the fog of financial complexity to what they *knew* was the right answer. The world economy paid a price for their mistakes.

In recent years, economic policies emanating from Washington and Beijing have begun to follow this eerily familiar path. Mutual trust between the world's two largest economies has completely eroded, with neither side able to agree on basic facts. The United States believes it is being taken advantage of, while China remains convinced it is unfairly maligned for doing what it insists any other nation would do as its economy matures.

Unfortunately, many of these arguments have become detached from data-driven reality. Leaders in both government and business need a shared language to describe China's economic system that can be trusted by all sides for its accuracy and objectivity. This is the goal of the China Pathfinder Project.

Over the past eight months, teams from the Atlantic Council and Rhodium Group have undertaken a deep dive into China's economy to try to address a fundamental question: Is China becoming more or less like other open market economies?

A senior Chinese official would say the answer is clear; significant progress has been made in economic liberalization, which is a core tenet of the Communist Party's platform dating back four decades. A senior US government official, however, would confidently claim the opposite; Xi Jinping has abandoned his early commitments to economic reform and embarked on a process of state-led retrenchment that has

gathered momentum in recent months with the crackdown on China's big tech conglomerates. In reaction to these divergent answers, both Washington and Beijing — as well as Brussels, London, and Tokyo — pursue tariffs, industrial subsidies, and intellectual property restrictions designed to solve a problem no party fully understands. These decisions threaten the health of the global economy.

This report recognizes the complexity of the issue and tells a multi-layered story. Inside, you will find new information that will impact the commonly accepted narratives about China's economy. This innovative research draws upon the world-class expertise of Rhodium Group, which has tracked these issues for nearly two decades. Both this report and the data visualization home for this project are part of the Atlantic Council GeoEconomics Center's mission to break down barriers between finance and foreign policy.

This project is an initiative of the Atlantic Council's Global China Hub, which seeks action-oriented solutions to the challenges created by China's rise. It is appropriate that the first major project of this new venture focuses on one of the greatest sources of tension between China and the rest of the world—Beijing's economic model.

Economic history has taught us a painful lesson: incorrect or incomplete information can be costly. It is time for China, Europe, and the United States to begin to find their way back to a shared set of facts and, from those facts, potentially pursue a new path.

Josh Lipsky  
Director, Atlantic Council GeoEconomics Center



## Executive Summary

China Pathfinder compares China's economic system with open market economies. This is crucial in light of questions about Beijing's economic goals, and global policy and business responses to them. This report examines six elements of the market economy model: financial system development; market competition; modern innovation system; trade openness; direct investment openness; and portfolio investment openness. China Pathfinder's annual scorecard (Figure 1) evaluates each area across a range of economies to provide a benchmark and to inform follow-on quarterly reports that review policy and economic changes in China. This foundation makes it possible to objectively and purposefully assess developments such as the recent crackdown on private technology companies, Beijing's "dual circulation" strategy, and the debate over "common prosperity."

### Key Findings

- **Despite making some progress over the past decade, China in 2020 remains remote from the characteristics typical of open market economies.** Movement since 2010 has been modest, and Beijing is well short of expectations set as a condition of World Trade Organization (WTO) accession that it would achieve "market economy" norms. The Xi era pledge to "make the market decisive" remains unfulfilled, seven years after this reform goal was initially announced. China ranks last in five out of China Pathfinder's six clusters when compared to open market economies.
- **China has made demonstrable progress in some areas, but has a long way to go in most.** In openness to trade, China is inside the market-economy range. In most other areas, however, China's distance from advanced economy norms remains striking and problematic. The biggest shortfalls are in structural areas like market competition, which are hard to measure and harder to discipline with established international tools.
- **Within each of the six areas, we observe a mix of reform, stagnation, and backsliding.** China is open in goods trade, but remains closed on digital services trade. Beijing has proceeded to liberalize some inward portfolio flows, while barriers to outbound flows remain high. Within its innovation system, China has progressed on protecting intellectual property, but ramped up industrial policies and distortive subsidy programs.
- **The most recent policy signals are at odds with market orientation.** Since 2016, Beijing has experienced serious reform setbacks and, by 2021, even perennial optimists were shocked by anti-market trends including: resurgent state ownership and extralegal influence; eroding freedom for firms to use capital markets at home and abroad; the overnight shutdown of entire sectors, such as for-profit education; regulations that effectively nationalize the data collected by technology companies; and an overreach by state planners in shaping the market structure of tomorrow.

### Policy Implications

- **Engagement takes two.** Engagement as a global strategy for economic relations with China was predicated on "interoperability," or basic convergence toward market economy norms. The strong track record of marketization after 1978, and China's relatively modest external economic footprint, underpinned a shared commitment to engagement among advanced economies. However, the China Pathfinder results show that marketization progress has been slower than expected in the past decade. Moreover, China has become huge and impactful overseas. These trajectories are driving the reassessment of previous engagement policies in many advanced economies.
- **An objective perspective on systemic differences makes for better policy.** If China is committed to nonmarket norms or unable to reform itself, open market economies will need rules that protect their own systems. Under its 2001 WTO accession agreement, China conceded that others could use special safeguard provisions to guard against unfair outcomes while it made the transition to "market economy status." Those provisions expired in 2013. The China Pathfinder results illustrate that the pace of convergence is clearly not what was envisioned in 2001. To preserve market incentives, advanced economies must reassess whether remedies, beyond those provided for under the WTO, are necessary. An objective view of how China does or does not diverge from market norms is essential, because it directs attention to concerns in some areas while preserving the benefits of engagement elsewhere.
- **Benchmarking can facilitate reengagement.** Benchmarking and tracking of China's economic system is the most promising route to reengagement. Convergence with market economy norms must be independently observed and measurable if policymakers are to campaign for reengagement. The decision on whether to return to a course of closer integration rests primarily with Beijing. That is the signal global businesses will be watching for, as well as an indication of political risk trends and future business opportunities that justify investment.



## FIGURE 1: CHINA PATHFINDER 2020 SCORECARD RESULTS

Composite Indices from 0 (low) to 10 (high) based on annual indicators for each cluster

### Financial System Development ⓘ

A system that efficiently prices credit, allocates capital based on market signals, and provides foreign firms with access to financial services.

[Explore data >](#)

### Market Competition ⓘ

An environment where firms face low entry/exit barriers, market power abuses are disciplined, and distortive interventions are minimized.

[Explore data >](#)

### Modern Innovation System ⓘ

A market-led system that fosters productivity through private-public cooperation and international collaboration.

[Explore data >](#)

### Trade Openness ⓘ

Goods and services trade free from discriminatory measures and restrictions.

[Explore data >](#)

### Direct Investment Openness ⓘ

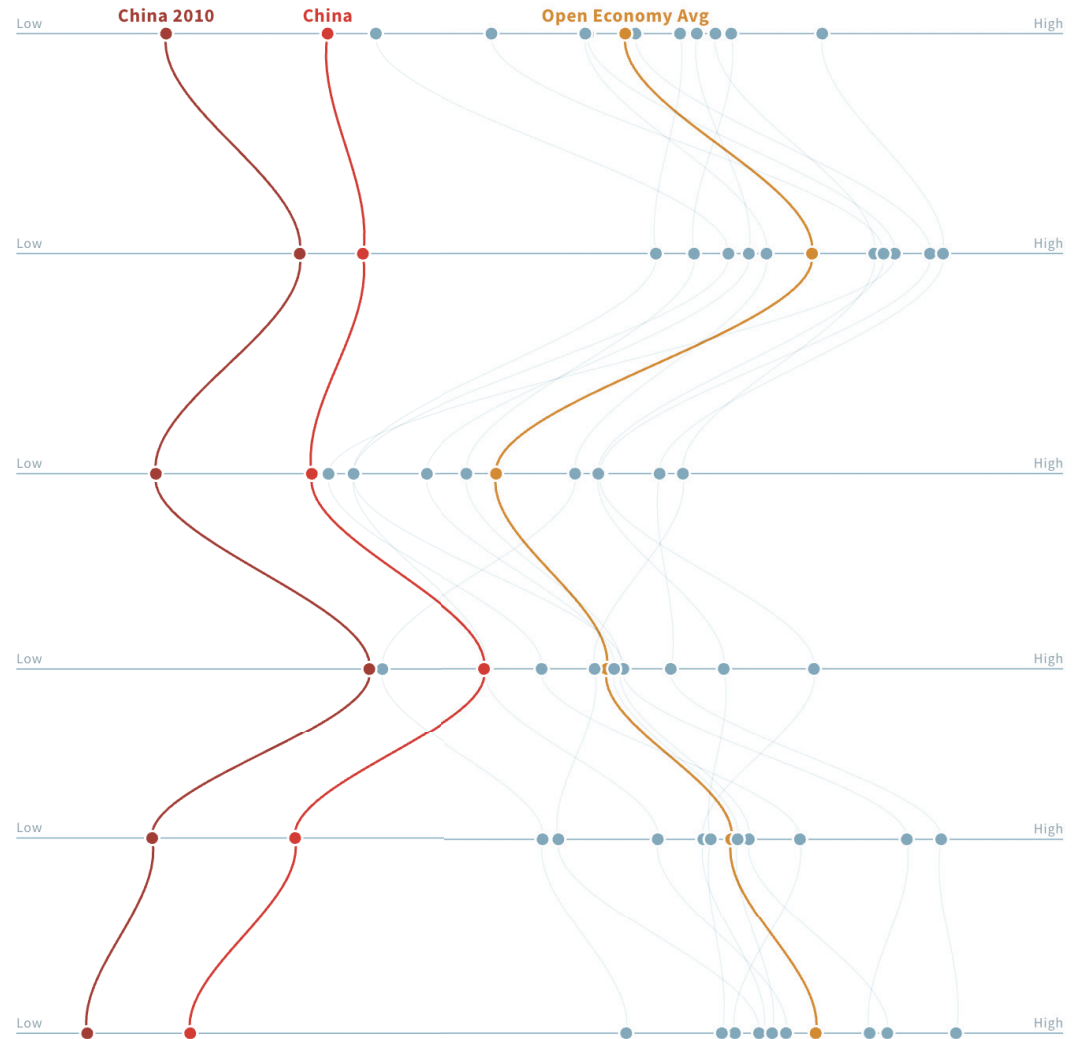
Fair access for foreign firms to domestic markets alongside minimal restrictions on local companies to invest abroad.

[Explore data >](#)

### Portfolio Investment Openness ⓘ

Limited controls on cross-border investment into equities, debt and other financial instruments.

[Explore data >](#)



Source: China Pathfinder. For more information on methodology, please see Appendix or [www.chinapathfinder.org](http://www.chinapathfinder.org).



## Introduction

It is difficult to overstate the importance of understanding China's economy in this day and age. Few decisions in the world of politics or business can be made without considering, and taking a view on, China's trajectory. Yet, experts do not agree on where China's economic system stands or where it is headed. The picture has become even murkier over the past year, as the world grappled with COVID-19 and geopolitical tensions between China and the United States grew more acute. In 2021, authorities in Beijing launched a sweeping crackdown on private firms, which has spread from the technology sector to the education sector, raising the prospect of a new era of tighter state control over the economy. It is unclear whether a nascent debate about "common prosperity" heralds a major shift in how China's state-driven capitalist model will operate in the years to come. After decades of closer economic integration and interdependence, Beijing is pursuing a strategy of "dual circulation" that is aimed at making China less reliant on the outside world.

Take a step back from the recent flurry of policy initiatives, however, and there is no denying China's economic achievements. On the eve of the country's WTO accession twenty years ago, China represented just 4 percent of the global economy. Back then, there was a broad consensus among economists that a more open, market-based approach was the key to growth. Today, China's share of global output has quadrupled to more than 17 percent—and the economic consensus is long gone. China bounced back sooner and stronger from the pandemic than any other major economy, but doubts persist about the accuracy of its macroeconomic data and the sustainability of its growth model. In recent years, China has begun using its economic power in increasingly assertive ways, raising additional questions about its direction and influence.

The goal of China Pathfinder is to provide an objective gauge of China's economic system, and how it compares to open market nations, to enable better decision-making by leaders in business, finance, and government. A fact-based assessment such as this is important in order to prevent escalation of tensions between China and other nations, to avoid economic "decoupling" where it is unnecessary, and to properly evaluate where coordinated and purposeful cooperation among market nations may be justified and needed. By stripping some of the politics out of the debate over economic systems, we hope to maximize the room for cooperation between Organisation for Economic Co-operation and Development (OECD) advanced economies and China on matters of shared concern.

In 2013, China's Communist Party committed to achieving "decisive results" on many market reforms by 2020.<sup>1</sup> In 2015, Chinese Premier Li Keqiang told a Western interviewer: "When...we need to turn in the report card, we shall ask the people and you too...to pass score on how we have performed."<sup>2</sup> With China Pathfinder, our ambition is

to do just that in a transparent way that fosters a better understanding of China's economy and how it is diverging from (or converging with) the world's leading market economies.

Market reform is not a concession to other nations; it is the bedrock of China's own economic growth prospects. China's leaders want to double per capita income levels by 2035, a goal that requires a 6 percent average growth rate over the intervening period. Few economists, including Chinese ones, envision growth that high by the end of the 2020s—but, with a major effort, such performance could be considered the best possible outcome through the middle of this decade. The most frequently cited long-term projection, the International Monetary Fund (IMF) World Economic Outlook (WEO), foresees present Chinese policy conditions delivering growth in the 5-percent range through the medium term, tailing down to 4.9 percent in 2026. Until 2020, the People's Bank of China (PBOC) models of downside scenarios were in that range; its 2021 models suggest growth could fall below 5 percent as early as 2022–2023 and, in a more severe case, fall to around 2 percent. Figure 2 charts these projections, extending the PBOC experiments to 2026 to explore the consequences if major reform remains off the table. This offers a reasonable range of scenarios for China's growth prospects in the coming five years. Under the most severe scenario, in 2026, China's GDP in dollar terms (assuming constant exchange rates) could be \$3.5 trillion lower. In short, the stakes are huge.

Benchmarking China's system relative to open market economies is not a simple exercise. In years past, it was sufficient to gauge China against its own reform plan, because President Xi Jinping had declared that "making the market decisive" was his end goal. The expectation was that this meant something similar in Beijing as it did in Washington or Berlin. More recently, however, China's leaders have been drifting away from that endpoint by prioritizing state-driven, rather than market, solutions. In light of this divergence in policy approaches, we have decided, with China Pathfinder, to compare prevailing norms in China with conditions in advanced open market nations.

Any endeavor as complex as this comes with certain caveats. First, one size does not fit all. There is no perfect liberal market-economy blueprint, and China cannot and should not be expected to align with one.<sup>3</sup> Among advanced open market economies, there are vastly different models; Italy, for example, is very different from South Korea, which is very different from the United States. Second, the template of "market norms" is not static, but evolving. For example, while in the past there was less of a place for industrial policy in market economies, this has been changing as countries reconsider bolstering their strategic, high value-added industries in face of fierce international technology competition and climate change concerns. Third, data are imperfect even with the best of efforts.

1 Third Plenary Session of the 18th Central Committee of the Communist Party of China, "Decision Of The Central Committee Of The Communist Party Of China On Some Major Issues Concerning Comprehensively Deepening The Reform," November 12, 2013. [http://www.china.org.cn/china/third\\_plenary\\_session/2014-01/16/content\\_31212602.htm](http://www.china.org.cn/china/third_plenary_session/2014-01/16/content_31212602.htm)

2 "Transcript: Li Keqiang," *Financial Times*, April 15, 2015, <https://www.ft.com/content/3a42d156-e288-11e4-aa1d-00144feab7de>.

3 For a big-picture perspective on varieties of capitalism, see Peter A. Hall and David W. Soskice, *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (Oxford: Oxford University Press, 2001).





Fourth, there is disagreement among market economies on when it is acceptable (or unacceptable) for the state to intervene, including on where to draw the line on national security matters. Fifth, it can be argued that, given China's lower GDP per capita, the advanced economy playbook is not yet suited to China's problems (though it must be noted that urban China is already in OECD income range).

It would be easy to argue that these realities make a useful comparison of economic systems impossible. But, it is important to push past that view. In normal years, a quarter or more of global growth comes from China alone. For several months during the height of the COVID-19 crisis, China's share approached 100 percent. China represents more than half of global supply and demand in a host of industries. In other areas, such as portfolio investment, China's weight in the world economy has not yet been fully felt.

Under any scenario, China will be a decisive variable in shaping policy and business decisions in the years ahead. A carefully constructed, even if imperfect, gauge of China's economic system can provide essential guidance to investors, corporations, and governments. That is the aim of China Pathfinder.

This is the first edition of our annual stocktaking report. These will be published in the second half of the year to take advantage of data availability cycles. The annual reports are complemented by quarterly updates, in which we will review the most important policy changes and economic developments from China in a global context.

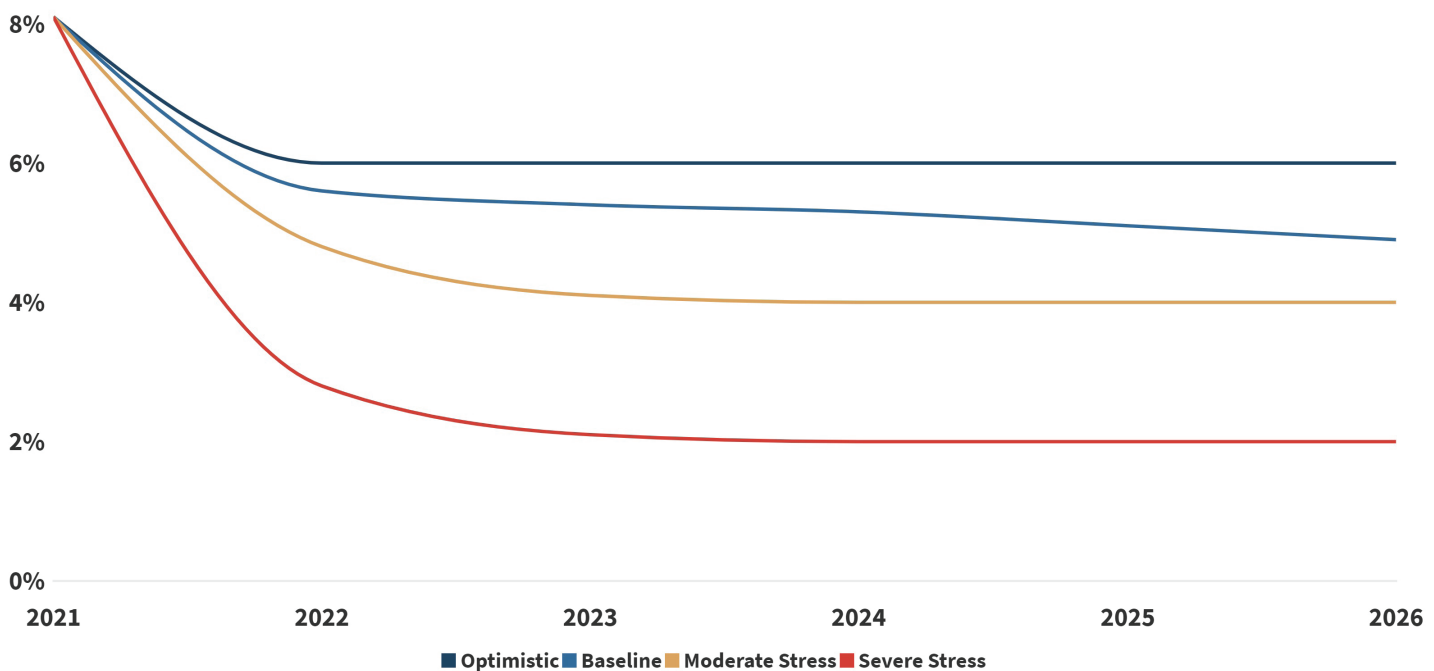
The challenging task of explaining how China is doing and where it stands in relation to the world of market economies is further complicated in this first edition by the economic volatility arising from the COVID-19 pandemic. We will provide context on how the pandemic has distorted the trajectory of various indicators, and what this means for the interpretation of the data.

The outline of the report is as follows: **Chapter 1** will provide essential background on our goal of benchmarking China's economic trajectory, discuss our research design, and put forward caveats for interpreting results. **Chapter 2** takes stock of China's proximity to open market economies in 2020 for each of our six clusters, as well as a historical comparison to 2010. **Chapter 3** summarizes the key findings and discusses implications for policymakers, with a focus on advanced economies.

FIGURE 2

### Chinese Growth Scenarios, 2021–2026

Various scenarios



**Source:** International Monetary Fund, People's Bank of China, and China Pathfinder • The optimistic scenario shows 6-percent real GDP growth from 2022 through 2026; baseline relies on IMF WEO 2021 projections; moderate stress (4.8 percent growth in 2021 before declining to 4 percent by 2026) and severe stress (2.8 percent growth in 2021 before declining to 2 percent in 2026) scenarios are based on 2Q 2021 PBOC Monetary Report.



## CHAPTER 1

# Benchmarking China's Economic Trajectory

In this chapter, we discuss the background behind benchmarking China's economic trajectory, and the design and methodologies we employ to do so. We also look at important caveats that come along with these choices. China's economic system is not transparent. Given its size, growth, and global influence, however, decisions about how to engage with it must be made anyway. Benchmarking the evolution of China's economy using objective data is important to separate evidence of real progress from propaganda and political rhetoric.

### 1.1 BACKGROUND

As recently as 2001, China represented just 4 percent of the world economy. Today it stands at more than 17 percent.<sup>4</sup> That evolution has implications for the core interests of nations, businesses, and individuals around the world because it has not taken place in a vacuum. China's economic journey is inextricably linked to foreign investors, technologies, and markets. The systemic choices that China makes ripple across the globe, in both positive and negative ways. It is necessary, therefore, for the rest of the world to study China's economic system, policies, and global footprint carefully. That is a testament to China's developmental success, but also its opacity.

China's economic system has not evolved organically; its development is the result of the world's most ambitious program of state planning. While that intervention can be credited with helping to alleviate the poverty left by China's leadership prior to 1978, it has also given rise to disruptions and distortions. Underestimates of resource needs in the early 2000s gave rise to unsustainable catch-up growth in commodity demand a few years later. Lax attention to financial efficiency has led to banks disposing of bad debt, which amounted to \$467 billion last year alone.<sup>5</sup> And, political prerogatives have led to huge industrial overcapacities that posed a threat to, or even destroyed, otherwise healthy firms and industries in other nations. These are just a few examples.

Some degree of misallocation is inevitable in the context of a large emerging nation moving at breakneck speed; the benefits of growth can justify bumps along the way. But, the choice to give China the benefit of the developmental doubt is now being questioned, for several reasons. First, China is not just another developing nation. It is the world's second-largest economy at nearly \$15 trillion, and its size affects everyone. Second, until the recent past, China's use of nonmarket levers seemed to be receding, but today its policies explicitly and implicitly suggest otherwise. In 2013, Xi pledged to "make the market decisive"; more recently, China's government has

issued guidelines to "strengthen the Party's leadership over the private economy."<sup>6</sup>

That is not just rhetoric—there is a resurgence of state control in many areas of the economy, from the tightening of controls on outbound capital, to massive government "guidance funds" across the economy, to a growing remit for party committees in corporate governance, to tighter leashes on big tech and restrictions on foreign initial public offerings (IPOs). Third, the consequences of China's systemic economic choices are now not solely commercial, and are driven by national security concerns. By leveraging economic strength in pursuit of geostrategic goals, Beijing triggered alarms.

While the questions about the character of China's system are clear, the answers are not. There are distortions in China's system, but there are exceptions to market ideals in all nations, including in open market democracies. Beijing's talk of stepped-up government control of big tech is mirrored (to a lesser degree) in Washington and Brussels. And, in many sectors, cutthroat competition benefits consumers in China as much as anywhere in the world.

So, the United States and other market economies are defining the China challenge as a systemic competition and rivalry, but without a benchmark for what that means. It is necessary to operationalize this question with objective, market-based benchmarks to distinguish what is real from what is imagined. China Pathfinder has a responsibility to measure systemic differences in a transparent, quantifiable and testable way. This is the only way to reduce the likelihood of either overly restrictive or overly permissive business and policy decisions, especially in an environment of geopolitical rivalry.

While we frame the background for China Pathfinder from the perspective of open market economies, this approach is in China's interest too. At first glance, some officials both in Beijing and abroad will hesitate to adopt the premise of independent researchers making public judgments about their economies based on best available, but still imperfect, data. But, as uncomfortable as that seems, it is better than the other option: untestable notions of system compatibility—or worse still, abandoning the conversation altogether.

### 1.2 RESEARCH DESIGN AND METHODOLOGY

Our research design begins with the function we intend for Pathfinder to play: an objective reference point that fosters consensus about where China stands in relation to advanced market economies. With that goal in mind, our design balances accessibility for nontechnical readers with commitment to robust and transparent methods. We draw on a wide range of quantitative data, including time series collected by governments and international organizations, high-frequency indicators from official and private collectors,

4 Calculations based on International Monetary Fund data.

5 Anjani Trivedi, "China's Bad Loan Season Descends Again and This Time It May Be Really Bad," Bloomberg, February 16, 2021, <https://www.bloomberg.com/opinion/articles/2021-02-16/even-with-recovery-china-s-bad-loan-season-may-be-really-bad-this-time>.

6 "Explanatory Notes for the 'Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Deepening the Reform,'" China.org.cn, January 16, 2014, [https://www.china.org.cn/china/third\\_plenary\\_session/2014-01/16/content\\_31210122.htm](https://www.china.org.cn/china/third_plenary_session/2014-01/16/content_31210122.htm); "The Chinese Communist Party Targets the Private Sector," Center for Strategic and International Studies (csis.org), <https://www.csis.org/analysis/chinese-communist-party-targets-private-sector>.





and our own proprietary research initiatives. In-depth policy analysis and qualitative research are an important part of the evidence base as well, assuming that they are founded on objectivity.

We begin with **six clusters** suitable for evaluating open market economy features, which overlap with the economic policy questions policymakers grapple with today. We chose three clusters that represent the “domestic” dimension (financial system development; market competition; and a modern innovation system) and three clusters that represent the “external” openness dimension (trade openness; direct investment openness; and portfolio investment openness). In selecting policies to track, we focused on those with track records that can be compared across countries and different time periods; policies to mitigate and adapt to climate change—the biggest structural risk of all—is not addressed for that reason.

For each cluster, we select **benchmark indicators** that allow us to measure the performance of China and a wide range of advanced economies in the respective area. These indicators need to meet four criteria. They must correlate with, and be accepted as essential for, openness and market orientation in the cluster. They must be consistently available for both China and comparators. There must be only limited time lag (six months maximum) on their availability, or else we must be able to make a reliable preliminary estimation. And, the indicators must be straightforward enough to be accessible but compelling to non-experts. These indicators are then used to compute an **annual composite index** that allows us to quantify the direction that China and other countries are moving in any given year (for more details on calculation methodology, see Appendix).

In addition to these annual benchmark indicators, we have pulled together a list of **supplemental indicators** that will help to specifically shed light on Chinese developments in each area without necessarily having internationally comparable data. For example, to evaluate China’s financial system, we look at China’s exchange rate fluctuations and currency intervention over time; lending growth trends in terms of bank assets and loans to households and corporates; and a comparison of returns on Yu’e Bao—representing the low-risk end of wealth management products (WMPs) available to Chinese investors—and the household savings deposits rate. Among other supplemental indicators, these are all China specific and add nuance to the areas that our annual benchmark indicators are unable to fully address.

In addition to these data assets, the analytical team also applies a qualitative research strategy to **track new policy developments and signals** that help illustrate China’s trajectory in each of these areas. We start with defining a “laundry list” of major policies that would be required to move China closer to open market economies. We then track policy developments each quarter and gauge whether China is making meaningful progress on paper in any of these areas, and how these steps may translate into progress in the numbers. These assessments are being published in the form of quarterly updates interspersed between annual benchmark updates.

In the spirit of providing a platform for timely data and objective discussion, we are constantly evaluating the timeliness and utility of our indicators and the availability of new data that may support our

goals. Our methodology and data coverage are, therefore, subject to change. The latest methodology and information can be found at <http://chinapathfinder.org/>

### 1.3 INTERPRETATION AND CAVEATS

Given our level of ambition and the importance of our results, it is crucial to acknowledge limitations and offer caveats at the outset. First, China Pathfinder is not a comprehensive assessment of every aspect of China’s economy. Indeed, our design is deliberately narrow, focusing on just enough to create a clear frame of reference for comparability with market economies without burdening readers with technical detail.

We deliberately track China’s system vs. open market economies, and not a broader set of emerging and developing economies. We fully acknowledge that China does not have any intentions to become a democratic open market economy. However, we postulate that OECD policymakers can only maintain open and engaging economic policies with China if there is movement in a similar direction. In doing so, however, we are not attempting to fit China into a “Western” mold or that China’s economic policy approach is inherently less effective than the Western democratic norm.

We choose to focus on economic policies and outcomes, where increased openness is perceived as a positive direction. However, China and the OECD countries we analyze may show signs of convergence in areas where the latter nations have adopted targeted industrial policies. While national security concerns may indirectly impact the data outcomes of China Pathfinder, our data scope primarily focuses on economic policy and outcomes; the primary goal is to evaluate economic effects instead of political or strategic motivations.

Our research design and indicator selection are not perfect, but represent what we believe is the best available solution within existing constraints. Main caveats include the following.

- There are some areas of great importance to market economies that we do not cover. These include the presence of a robust social safety net, comprehensive labor protection laws, environmental protections, and policies to mitigate inequality. We acknowledge that these areas are critical aspects of any market economy, but believe that the indicators we have chosen serve to address the project’s core focus of how OECD nations should choose to view China’s system in the context of future engagement.
- Our composite methodology mixes de jure and de facto variables, which is not necessarily best practice, but we believe both types are important to present a comprehensive view of how China compares to open market economies. De jure indicators describe the institutional setup and formal rules, but sometimes fail to grasp informal dynamics (for example, discrimination against foreign investors in licensing or procurement). De facto indicators measure actual outcomes, but they can be shaped by variables other than formal rules or policy, including business cycles, monetary policy, or external shocks such as the global pandemic in 2020–2021.



- Our selection of annual indicators faces structural limitations. In some areas, we have good coverage; in other areas comprehensive, comparable and timely data are not available and, therefore, we face major gaps in what we would have considered ideal coverage (for example, subsidies).
- Our data approach cannot fully account for the unlimited reach of the state and the role of the Communist Party in influencing prices, competition, and outcomes in the Chinese economy.

While we assess measurable elements such as the proportion of state-owned enterprises (SOEs) in total industrial assets, these measures certainly understate the role of politics in the economy—as recent extralegal changes to the role of private ownership in the education-services sector (one of many examples) demonstrate.



TABLE 1.

Summary of China Pathfinder Clusters and Indicators, 2020

Policy Area	Definition	Annual Indicators
<b>Financial System Development</b>	A system that efficiently prices credit, allocates capital, and provides private and foreign firms access to financial services.	<ul style="list-style-type: none"> <li>• Efficiency of Credit Pricing</li> <li>• Direct Financing Ratio: Debt</li> <li>• Direct Financing Ratio: Equity</li> <li>• Foreign Competition in the Banking Sector</li> <li>• Banking Assets Controlled by Private Firms</li> <li>• Financial Institutions Depth Index</li> <li>• Financial Market Access Index</li> </ul>
<b>Market Competition</b>	An economy where businesses face low entry barriers, market power abuses are disciplined, and distortive interventions are minimized.	<ul style="list-style-type: none"> <li>• Overall Market Concentration Across All Industries</li> <li>• Foreign Competition: FDI Openness Index</li> <li>• State Intervention: Scope of State-Owned Enterprises Index</li> <li>• Unbiased Enforcement of Market Rules: Rule of Law</li> <li>• Direct Control Over Enterprises Index</li> </ul>
<b>Modern Innovation System</b>	A market-led system that fosters productivity through private-public cooperation and international collaboration.	<ul style="list-style-type: none"> <li>• National Spending on Innovation</li> <li>• Venture Capital Attractiveness</li> <li>• Private vs State-Funded Innovation</li> <li>• International Attractiveness of a Nation's Intellectual Property</li> <li>• Quality Innovation Output: Total Triadic Patent Families Filed</li> <li>• Openness to Foreign Innovation Collaboration</li> <li>• Strength of Intellectual Property Protection Measures</li> </ul>
<b>Trade Openness</b>	A cross-border flow of goods and services free from discriminatory measures and restrictions.	<ul style="list-style-type: none"> <li>• Trade Intensity of the Economy: Goods Trade</li> <li>• Trade Intensity of the Economy: Services Trade</li> <li>• Trade Barriers: Tariffs</li> <li>• Trade Barriers: Services Trade</li> <li>• Trade Barriers: Digital Services Trade</li> </ul>
<b>Direct Investment Openness</b>	Fair access for foreign firms to domestic markets alongside minimal restrictions on local companies to invest abroad.	<ul style="list-style-type: none"> <li>• Inward FDI Intensity of the Economy: Percentage share.</li> <li>• Outward FDI Intensity of the Economy: Percentage share.</li> <li>• Inward Direct Investment Restrictiveness</li> <li>• Outward Direct Investment Restrictiveness</li> </ul>
<b>Portfolio Investment Openness</b>	Limited controls on cross-border investment into equities, debt and other financial instruments.	<ul style="list-style-type: none"> <li>• Portfolio Investment Volumes: Debt</li> <li>• Portfolio Investment Volumes: Equity</li> <li>• Inward Portfolio Investment Restrictiveness</li> <li>• Outward Portfolio Investment Restrictiveness</li> </ul>



## CHAPTER 2

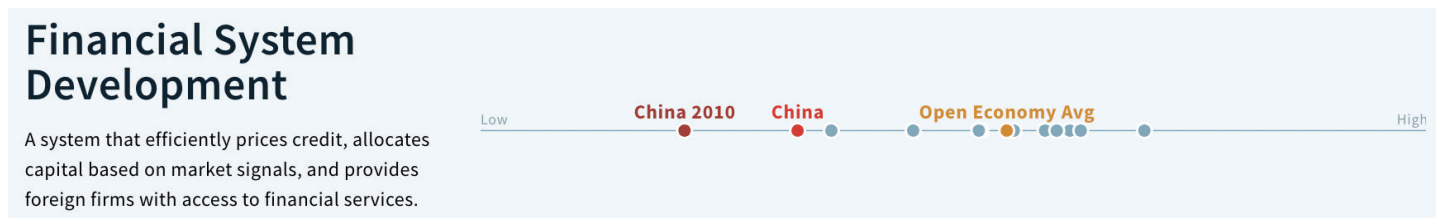
# Historical Baseline and 2021 Stocktaking

In this chapter, we review each of our six clusters in detail. We provide a definition and discuss relevance for open market economies, review the historical context for China, take stock of where China was in 2020, and compile a list of policies that would allow us to say

that China is moving in the right direction. Table 1 provides an overview of the six clusters, their definitions, and the annual indicators we use.

## 2.1 FINANCIAL SYSTEM DEVELOPMENT

FIGURE 3: COMPOSITE INDEX: FINANCIAL SYSTEM DEVELOPMENT, 2020



Measure of financial system development from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Open market economies rely on modern financial systems for the efficient pricing of risk and allocation of capital.<sup>7</sup> Key pillars of modern financial systems are generally market-driven credit pricing, availability of a broad range of financial instruments, the absence of distortive administrative controls on credit price and quantity, and access for foreign firms to financial services and foreign exchange markets.

### China Historical Context and Status Quo

While China has come a long way since 1978, its financial system remains dominated by state-related banks and political considerations.<sup>8</sup> This promoted faster growth in the past, but imposes a heavy toll on efficiency, structural adjustment, and sustainable allocation of capital as the nation reaches higher income levels. Reliance on this system for growth and stability stymies reforms, capital market deepening, non-bank financial institution growth, and openness to foreign competition. Market-determined interest rates—fundamental to market economies—are missing, causing the system, and risks associated with it, to balloon beyond other economies.

These risks are not unrecognized.<sup>9</sup> In the Xi era, Beijing launched a multitude of initiatives to modernize the financial system. These included interbank market disciplines, deposit rate liberalization, currency internationalization, introduction of competition for deposits from non-banks like Ant Financial, and several rounds of debt deleveraging. This extensive effort deserves recognition. However, each of these reforms was halted prematurely due to stability concerns, leaving the problems identified but unresolved.<sup>10</sup>

The resulting status quo of state fingerprints everywhere in the financial system is increasingly seen by other nations as distorting fair trade and competition. By trying too hard to prevent financial stress, the state has created it. And, the challenges of transitioning from the status quo are increasingly unpalatable to leaders, as advancing financial reforms generally requires the Chinese government to relinquish its firm grip on economic levers.

### 2021 Stocktaking: How Does China Stack Up?

We chose the following annual indicators to benchmark China's financial system development against that of open market economies.

- Our first indicator shows the absolute value difference between the average borrowing rates for non-financial corporations and projected GDP growth. We use this indicator as a proxy for the **efficient pricing of credit**. In an efficient financial system, the cost of capital (the average interest rate), should roughly mirror the expected return (for which we use the projected GDP growth rate over a two year horizon). Countries with efficient pricing of credit will be close to zero in our chart. In 2010, China's projected growth rate far exceeded the real interest rate for corporate borrowers, effectively subsidizing producers and punishing savers. By 2020, China's interest rate was closer to the country's expected growth rate due to rising real interest rates and slowing GDP growth. Despite this improvement, the interest rate-growth gap in China remains greater than in any other country in our sample.
- The extent of **direct financing** in an economy reflects the ability of firms to borrow directly from the market instead of going through banks and other intermediaries. We include two measures of

7 William Hynes, Patrick Love, and Angela Stuart, eds., *The Financial System* (Paris: Organisation for Economic Co-operation and Development, 2020), <https://doi.org/10.1787/d45f979e-en>.

8 For a historical perspective, see: Carl Walter and Fraser Howe, *Red Capitalism: The Fragile Financial Foundation of China's Extraordinary Rise* (New York: John Wiley & Sons, 2012).

9 Logan Wright and Daniel Rosen, "Credit and Credibility: Risks to China's Economic Resilience," Center for Strategic and International Studies, October 2018, [https://rhg.com/wp-content/uploads/2018/10/181003\\_CreditandCredibility\\_final.pdf](https://rhg.com/wp-content/uploads/2018/10/181003_CreditandCredibility_final.pdf).

10 Daniel H. Rosen, "China's Economic Reckoning: The Price of Failed Reforms," *Foreign Affairs*, July/August 2021, <https://www.foreignaffairs.com/articles/china/2021-06-22/chinas-economic-reckoning>.



direct financing: the **stock market capitalization as a share of GDP** and **outstanding nongovernment debt securities as a share of GDP**. Both measures show that China has a significantly lower share of direct financing than do other major economies, except for Germany, which also has a very bank-dominated financial system.

- The **share of banking assets controlled by private firms** is an indicator that measures the role of the state in the banking sector. A greater share of private capital generally means higher competition and more efficient allocation of capital.<sup>11</sup> China is a major outlier here, with nearly 70 percent of banking assets under management by state-related financial entities as concerned with political mandates as with return on assets. None of the open market economies we surveyed came even close to that, with Germany's 37 percent by far the highest and an open economy average of 9 percent.
- The **share of banking assets in foreign-controlled banks** is a measure for competition in the banking sector. The share of China's banking system assets that are in foreign-controlled banks has largely remained stagnant for the last decade, at under 2 percent. The role of foreign banks in China is smaller than those of the main OECD economies studied, as the share of banking system assets in foreign banks is an average of 11.7 percent for the top open market economies.
- The **financial institutions depth** indicator captures bank credit to the private sector, the assets of the mutual fund and pension fund industries, and the size of life and non-life insurance premiums. This indicator is a useful proxy for the sophistication of the financial system in terms of financial offerings available beyond the banking system. China has the lowest score in the sample but has improved since 2010, and is close to several continental European market economies.
- The **financial markets access** indicator illustrates the difficulties in accessing the stock market faced by smaller companies, and captures the number of issuers in the bond market. It combines two variables: (1) the percentage of market capitalization outside of top 10 largest companies to proxy access to stock markets; and (2) bond market access, estimated as the number of financial and nonfinancial corporate issuers on the domestic and external debt market in a given year per 100,000 adults. China is far behind the market economy average in this area and has barely improved in the past decade.

Blending our annual indicators, our **Financial System Development Composite Index** puts China at 2.6 in 2020, against an average of 5.8 within our sample of the ten largest open market economies (Figure 3). That represents a significant step forward from 0.85 in 2010, reflecting progress toward more depth and diversity in China's financial system, as well as successful deleveraging efforts. However, heavy government control over lending and other distortions in allocation that weigh against sustainable returns in private activity leave China far from market norms. The extraordinary upward slope in corporate indebtedness over the past decade is *prima facie* evidence of this problem.

Our indicator set has good coverage of the institutional dimensions and other input variables of financial system development. However, our indicator selection cannot correct for certain intrinsic factors that positively impact Anglo-American financial systems' performance. For instance, the United Kingdom's performance across some of our metrics is inevitably impacted by London's status as an international financial center. Moreover, the global pandemic and unconventional global monetary policy have put constraints on the use of certain variables measuring financial system efficiency and other output dimensions in 2020. We include some of these measures in the set of supplemental indicators.

## Looking Forward: Market-Oriented Policy and Data Signals

We will update these benchmark indicators every year to track the pace and direction of change. On a quarterly basis, we are watching for a set of policy reforms that would move China closer to the average of market economies in the development of its financial system, including

- gradual (and ultimately full) interest rate liberalization; abolition of informal guidance via self-discipline committees;
- tolerance for defaults that force inefficient firms to exit the market; disclosures on state firms characterized as "zombies," which require restructuring or plans to exit the market;
- regulatory transparency, including regular and frequent disclosures of contents of meetings between regulators and major financial institutions, regarding macroprudential policy adjustments, and open and meaningful opportunities for market stakeholders to comment and provide input;
- empowerment of independent courts to facilitate liquidation of assets of bankrupted firms, including state firms;
- realization of an independent and credible rating agency industry;
- meaningful reduction of direct and indirect state intervention in foreign exchange markets;
- reduction of capital controls to a minimum needed to accomplish internationally recognized objectives and, ultimately, elimination of capital controls and full currency convertibility;
- foreign access to treasury futures markets for interest-rate hedging; foreign access to foreign exchange (FX) forward markets for currency hedging purposes, particularly for Stock and Bond Connect investors; and
- credible measures or guidance to banks to reduce the share of capital going to state-owned enterprises.

In addition to tracking policy signals in these areas, we are also monitoring several higher-frequency and often China-specific indicators to gauge progress on market-oriented, liberal economic reforms. Figure 3.2 includes a selected number of these supplemental charts, including the pace of credit growth in the Chinese economy; the distribution of credit to consumers, the private sector, and state-owned enterprises; the distribution of Chinese bond ratings; interest rates for savers; and exchange-rate dynamics.

11 Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "Government Ownership of Banks," National Bureau of Economic Research, May 16, 2000, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=228085#](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=228085#).

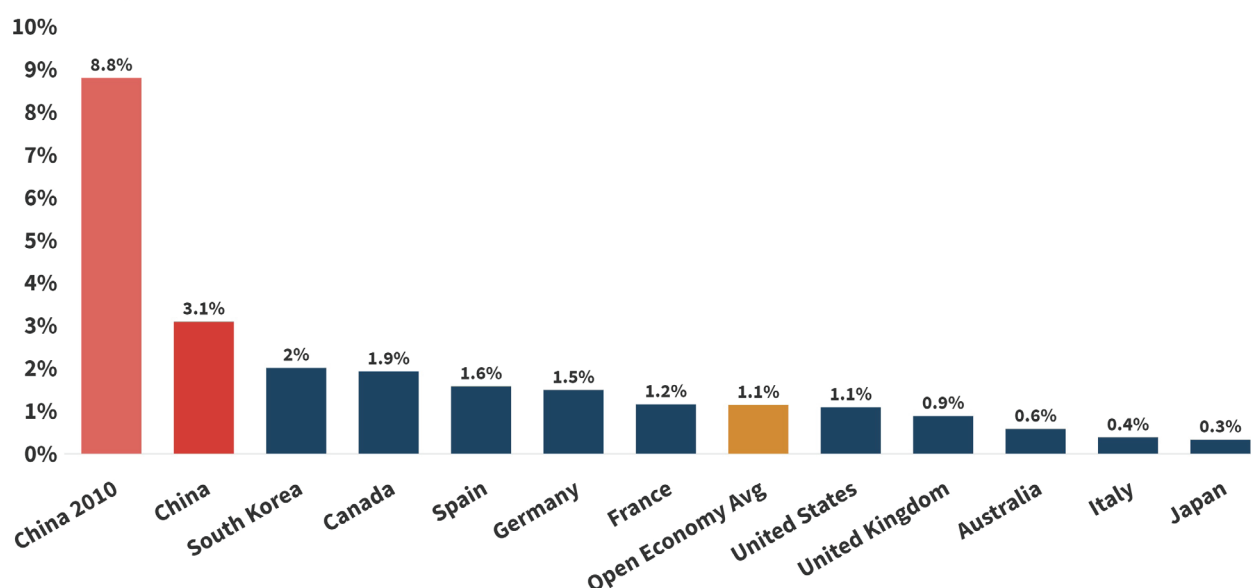




FIGURE 3.1: ANNUAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*)

**Efficient Pricing of Credit**

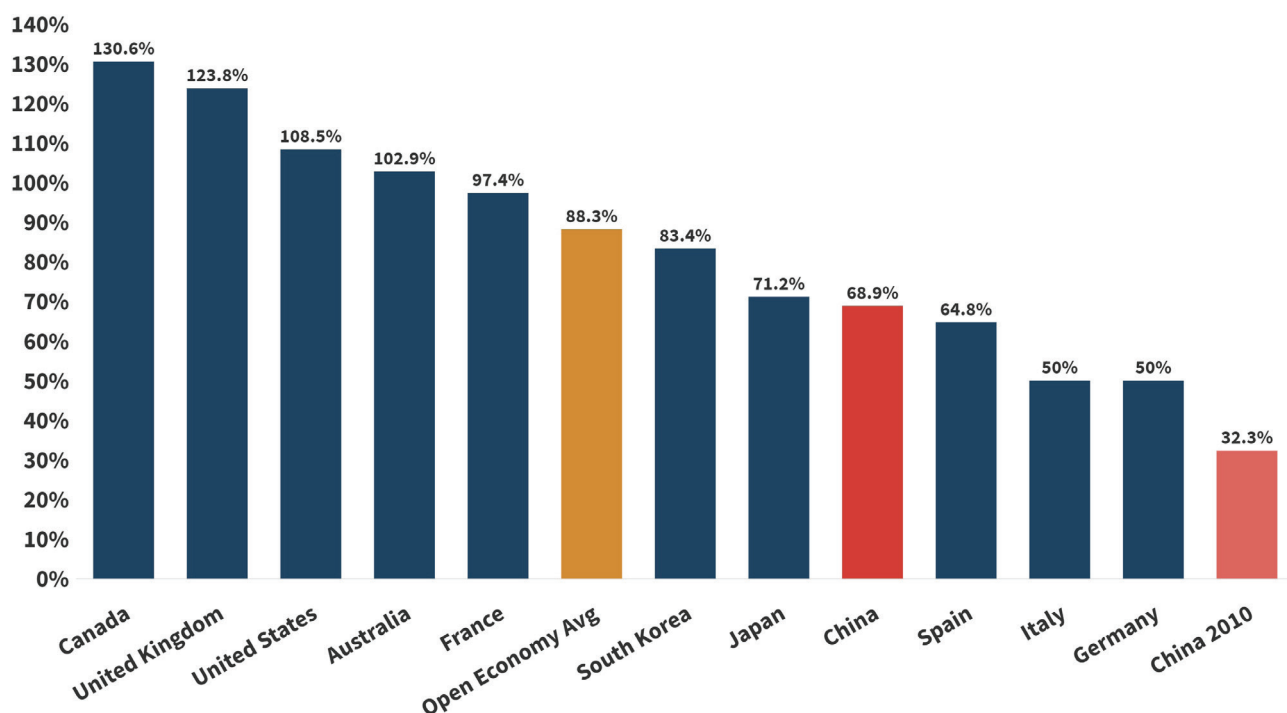
Difference between average interest rate for non-financial corporations and forecasted GDP growth for current and following year\*



**Source:** Average annual corporate borrowing rate from IMF IFS, ECB and BOE; GDP deflator data from World Bank; projected GDP growth rates from the IMF WEO (annual average calculated from quarterly reports). • \*To avoid pandemic impacts we use 2019 data instead of 2020 data for all economies; data for Canada and Japan from 2017; differences shown in absolute value. The calculation used is as follows: Average annual interest rate for loans to non-financial corporations, subtracting the average of the projected GDP growth rate in the current and following year. The indicator serves as a proxy for the efficiency of credit allocation in the financial system.

**Direct Financing Ratio: Debt**

Value of nongovernment outstanding debt securities as a percent share of GDP.



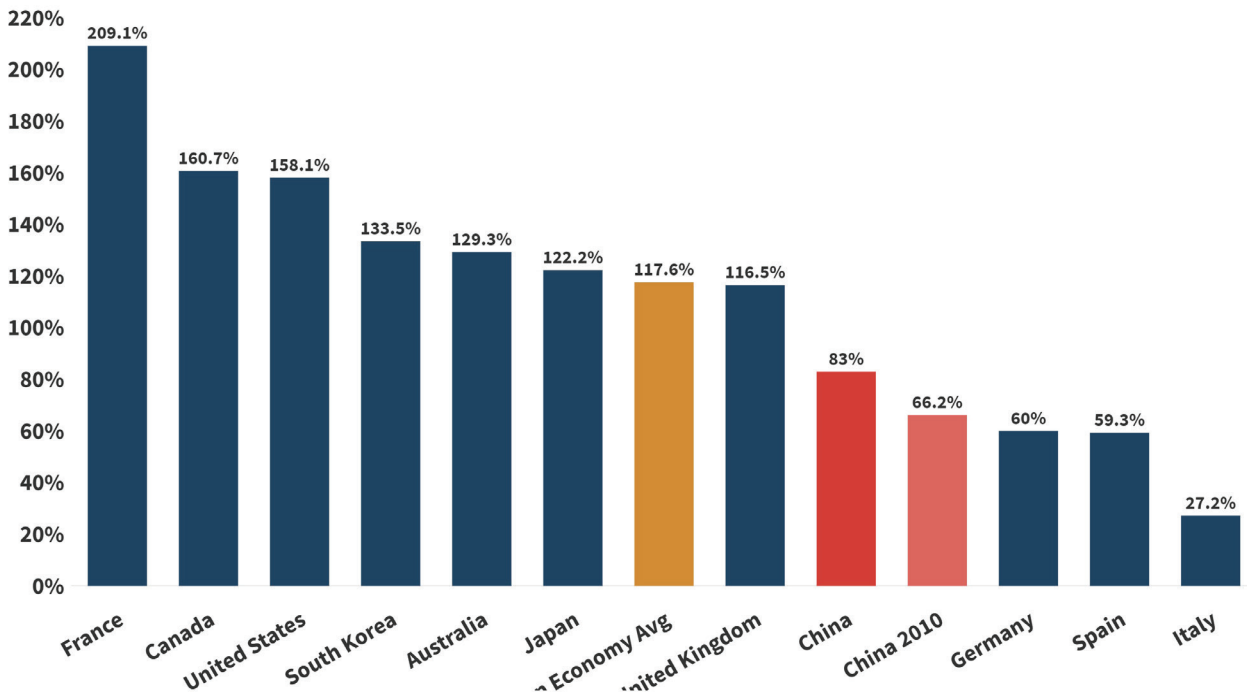
**Source:** World Bank, Global Financial Development collection, Bank of International Settlements (BIS). • Calculated by dividing the value of total outstanding debt securities in the latest year by the country's nominal GDP. South Korea's outstanding debt securities data are the sum of domestic and international securities data, as opposed to aggregated total data, which risk double counting.



FIGURE 3.1: ANNUAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*) cont.

**Direct Financing Ratio: Equity**

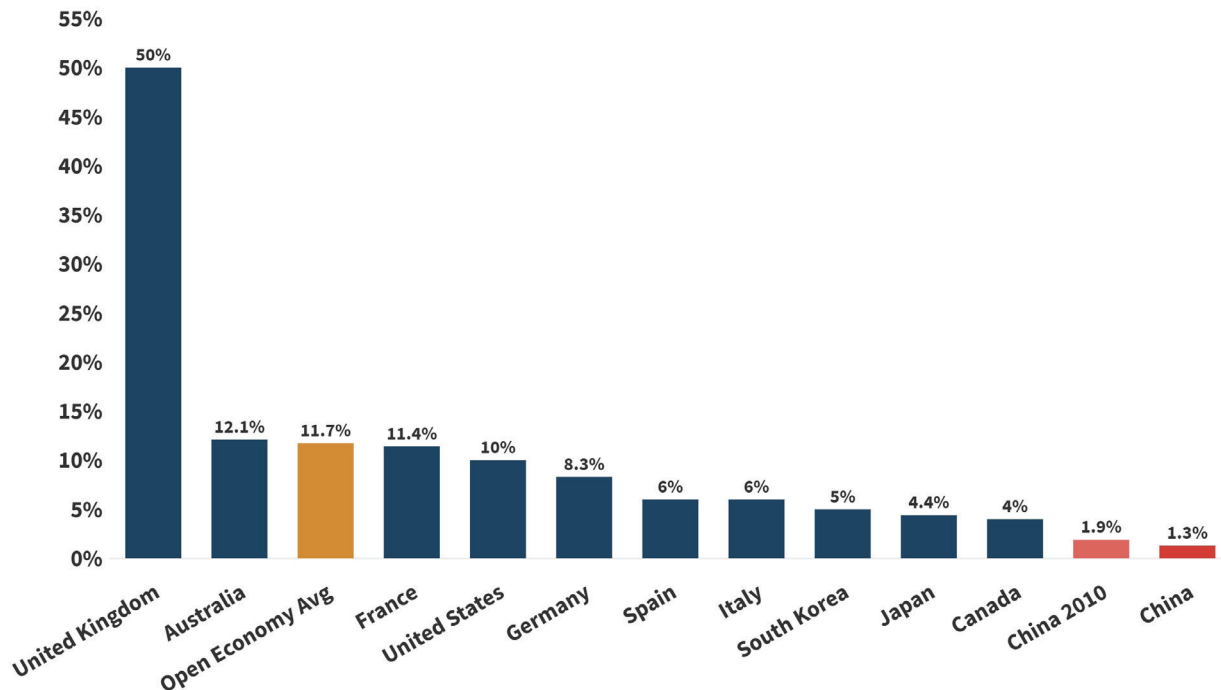
Stock market capitalization as a percent share of GDP.



**Source:** World Federation of Exchanges, World Bank, China Pathfinder estimates. • The ratio was calculated by dividing each country's total market capitalization by its GDP.

**Foreign Competition in the Banking Sector**

Percent share of banking system's assets in foreign-controlled banks.



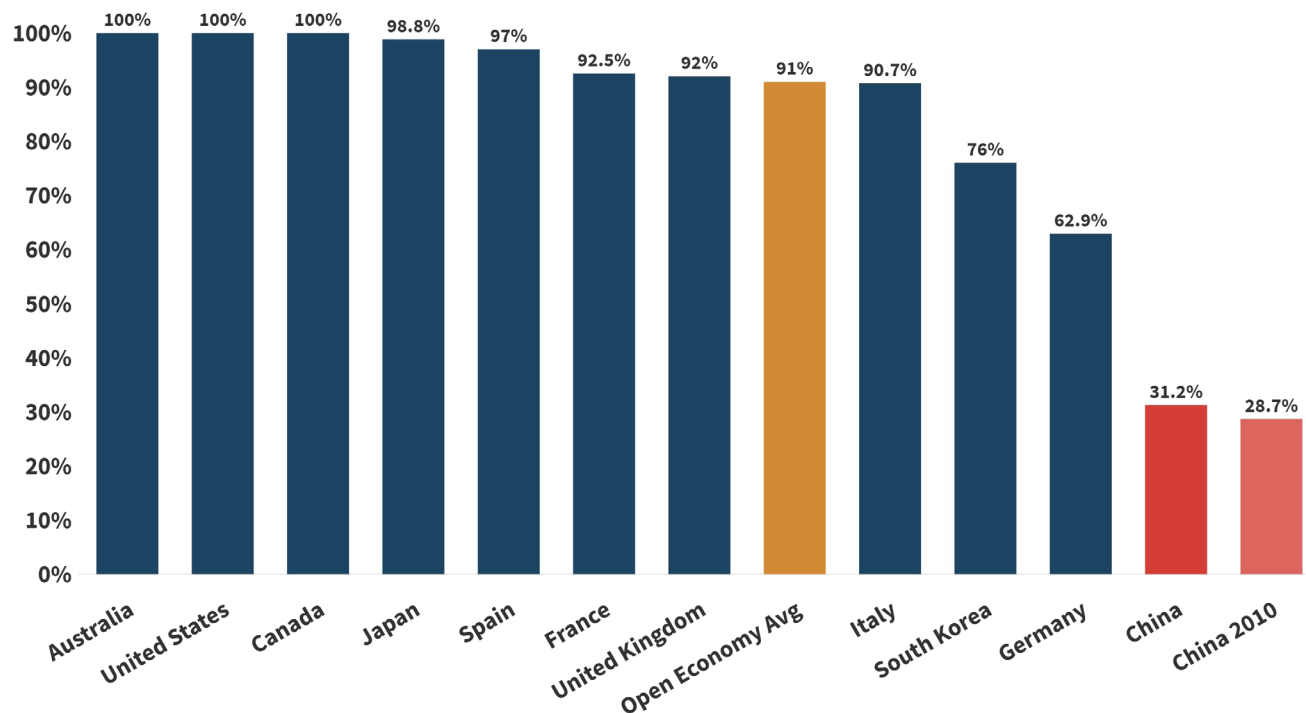
**Source:** World Bank's Bank Regulation and Supervision Survey (BRSS), China Pathfinder estimates. • This indicator is the percent of the banking system's assets in banks that were foreign-controlled (i.e., where foreigners owned 50 percent or more equity) at the end of each year.



FIGURE 3.1: ANNUAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*) cont.

**Banking Assets Controlled by Private Firms**

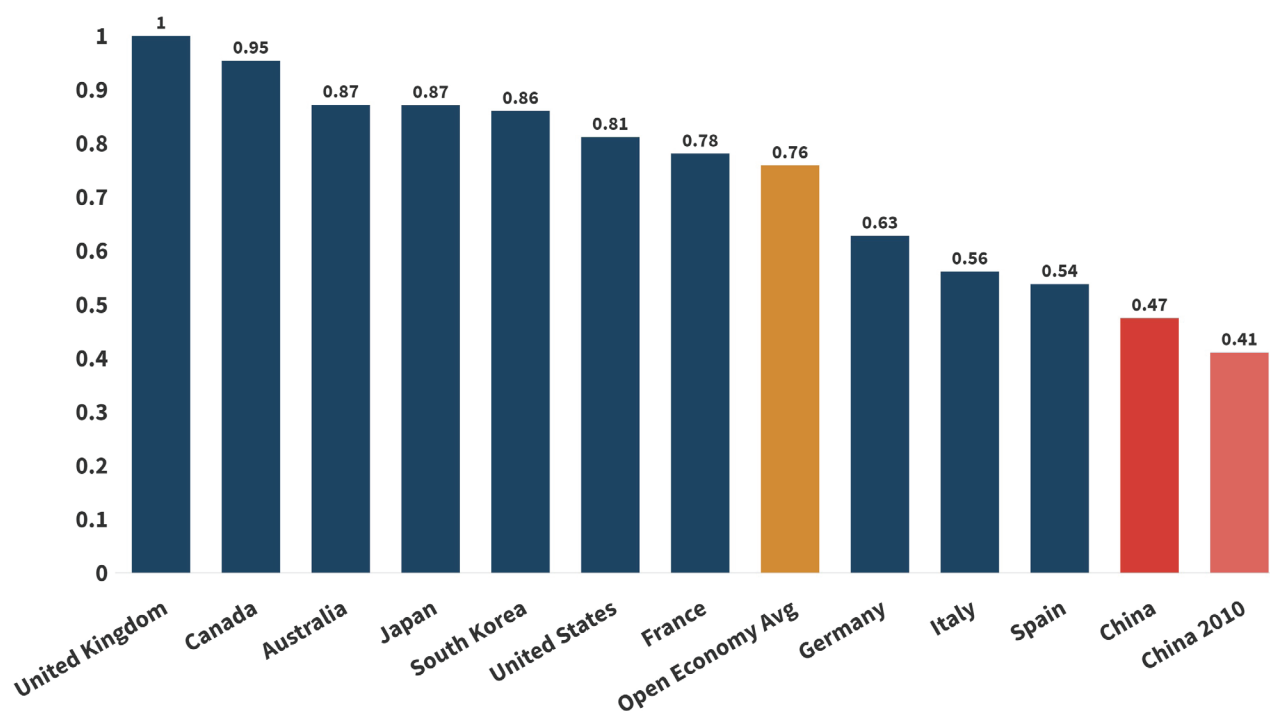
Percent share of banking system's assets in private banks.



**Source:** World Bank's Bank Regulation and Supervision Survey (BRSS), China Pathfinder estimates. • This indicator reflects the degree to which China's financial system is controlled by state-owned banks. (State-owned banks are defined as banks in which the state owns 50 percent or more equity.)

**Financial Institutions Depth Index**

Range of 0-1 (high).



**Source:** IMF, China Pathfinder estimates. • This indicator captures bank credit to the private sector, the assets of the mutual fund and pension fund industries, and the size of life and non-life insurance premiums. This indicator is a useful proxy for the sophistication of the financial system in terms of financial offerings available beyond the banking system.

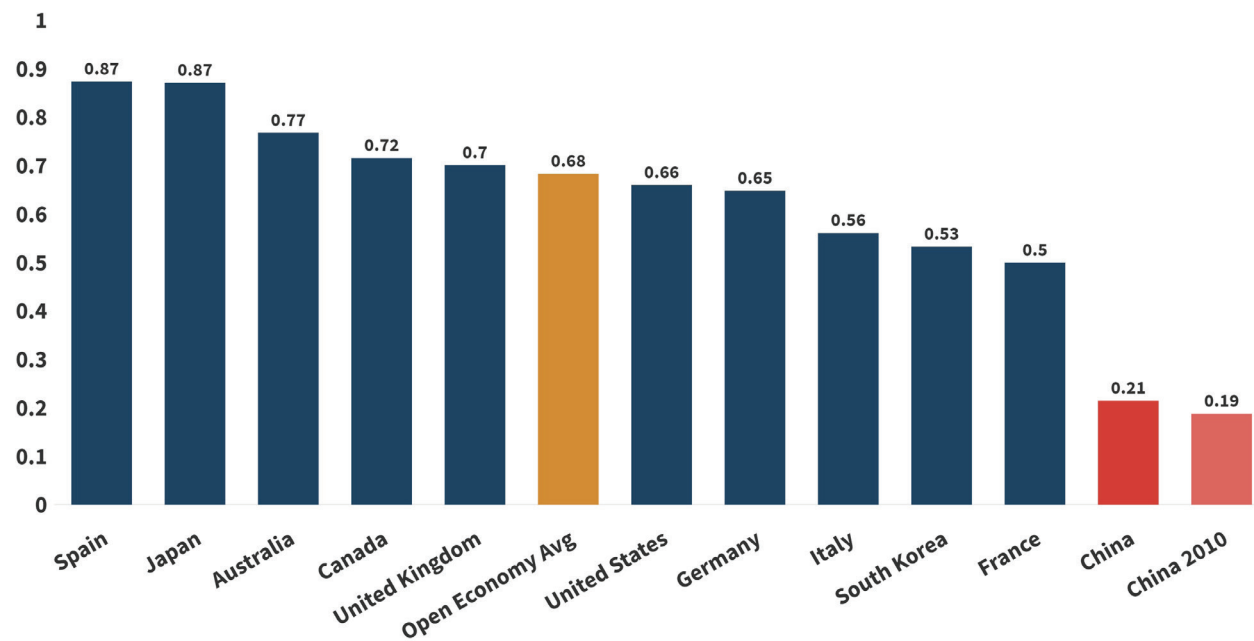




FIGURE 3.1: ANNUAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*) cont.

**Financial Market Access Index**

Range of 0-1 (high).



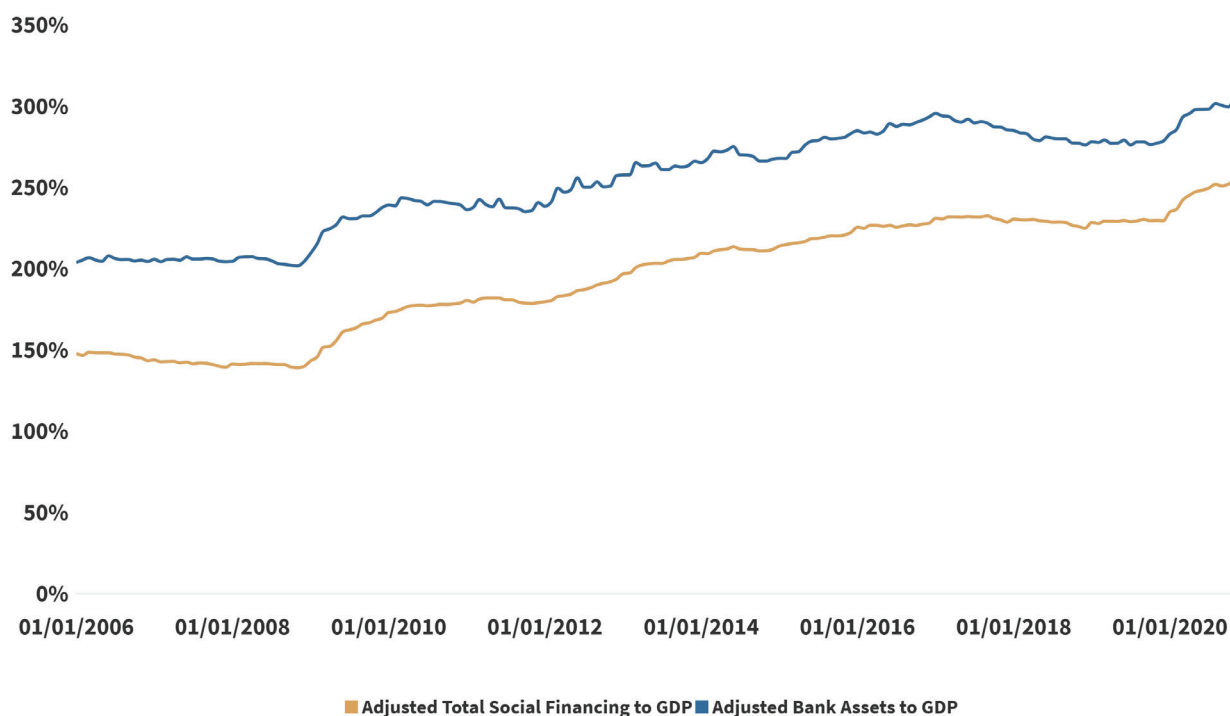
**Source:** IMF, China Pathfinder estimates. • This indicator combines two variables: (1) the percentage of market capitalization outside of top 10 largest companies to proxy access to stock markets; and (2) bond market access, estimated as the number of financial and nonfinancial corporate issuers on the domestic and external debt market in a given year per 100,000 adults. This indicator illustrates the difficulties in accessing the stock market by smaller companies, and also captures the number of issuers in the bond market.



FIGURE 3.2: SELECTED SUPPLEMENTAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*)

**Size of China's Financial System, Various Measures**

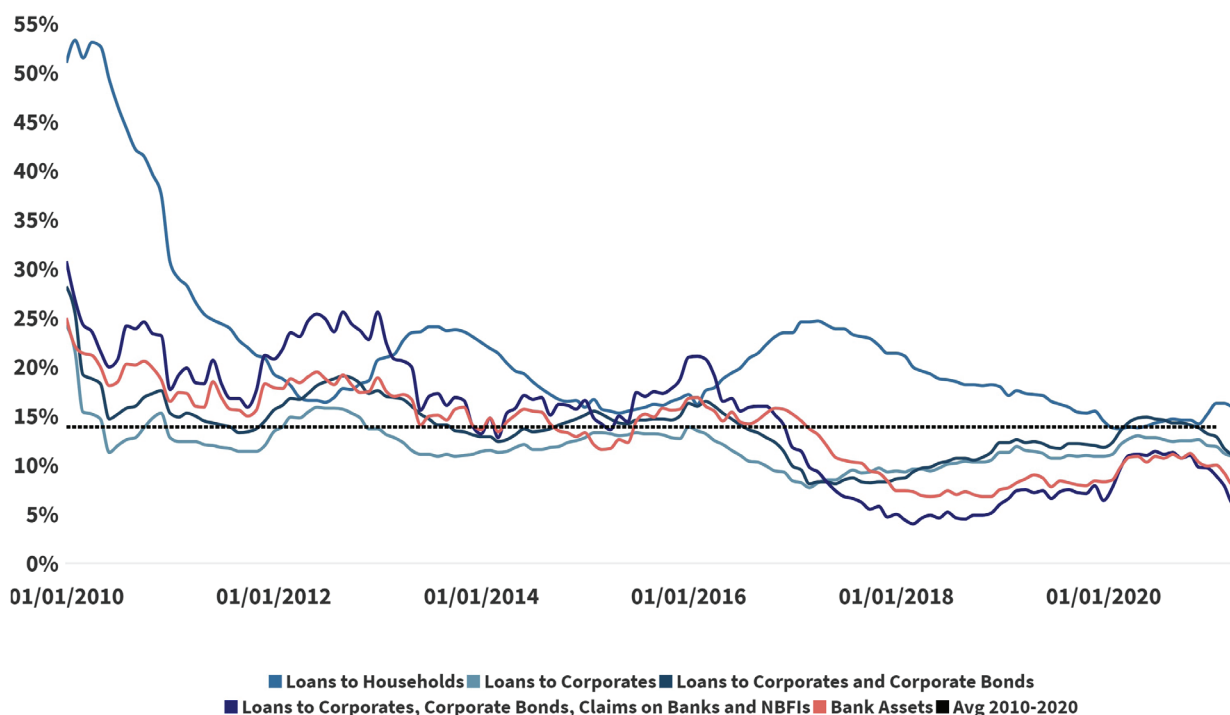
Total social financing and bank assets as a share of GDP.



**Source:** PBOC, ChinaBond. • Total social financing is derived from the Chinese term 社会融资总量, a measure provided by the PBOC that looks at the total funds that the financial system provides to the private sector of the real economy. This supplemental chart shows that social financing has gradually increased relative to GDP. This was slowing down in recent years, but the government response to the pandemic led to a more rapid surge.

**Changes in Lending Growth in China's Financial System, Various Measures**

Stock values, year-over-year percentage change.



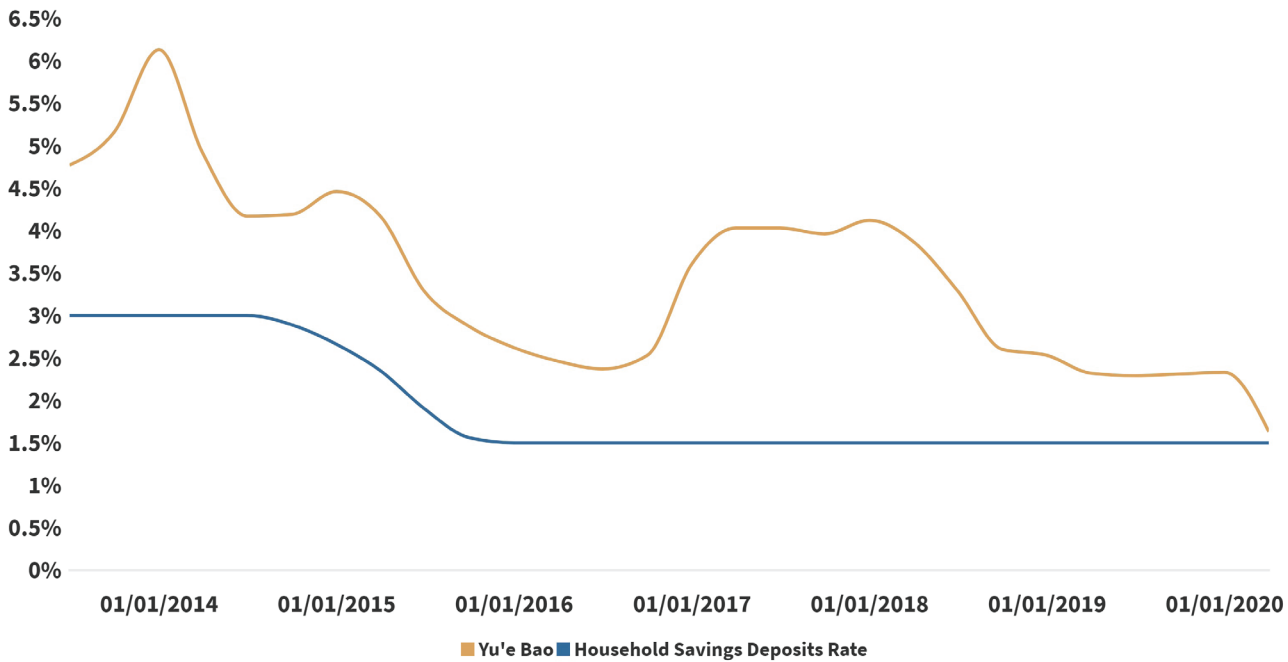
**Source:** PBOC • This chart looks at various lending figures provided by the PBOC on a biannual basis. We see that lending growth decreased in the earlier part of the last decade, particularly for corporates, corporate bonds, and bank assets. Growth had been increasing in the last couple of years for but was disrupted by the pandemic and its associated economic shock. Household lending has maintained the highest growth rate.



FIGURE 3.2: SELECTED SUPPLEMENTAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*) cont.

**Return on Savings: Are Rates Reflecting Risk—and Market Forces?**

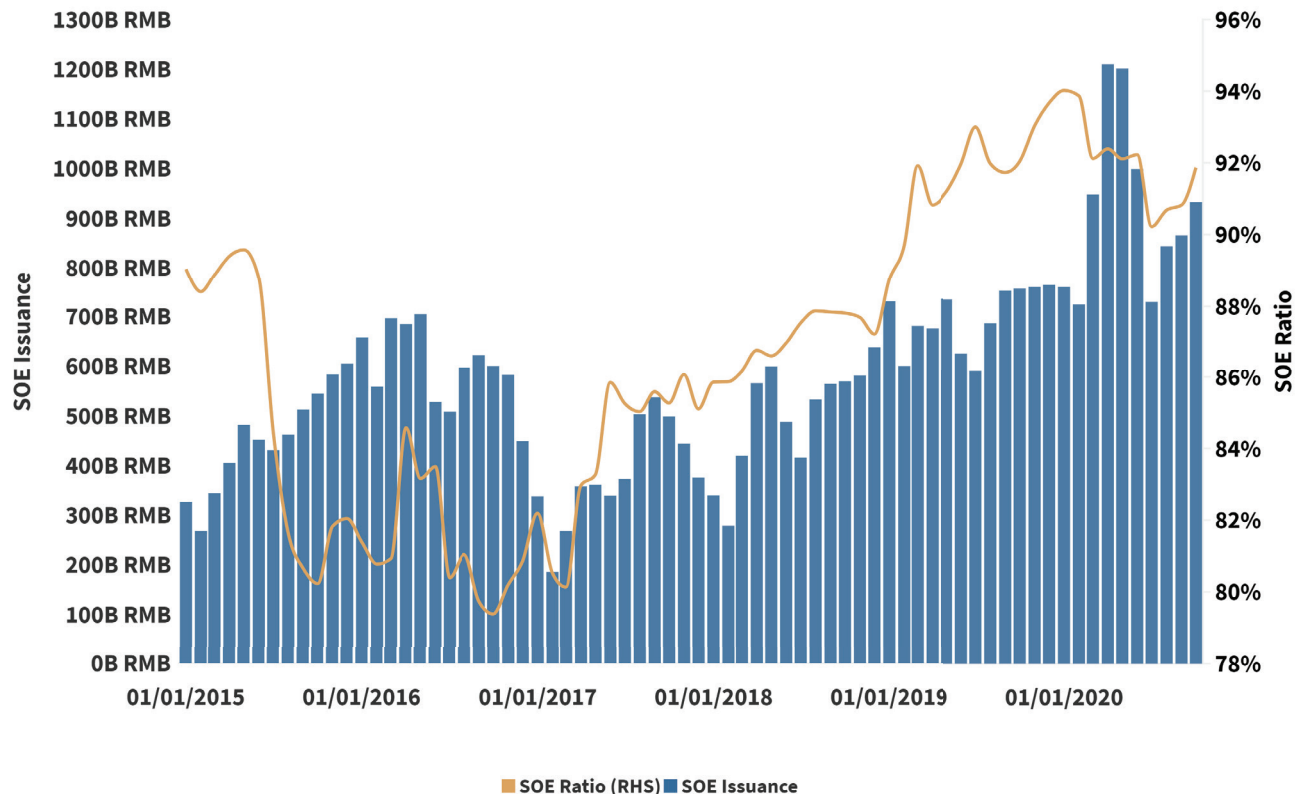
Quarterly average, percent.



**Source:** Alipay and PBOC • Yu'e Bao 余额宝, an investment product of Alibaba's payment affiliate Ant Group released in 2013, is the world's largest money market fund (as of 3Q2017) and represents the low-risk end of WMPs available to Chinese investors. Its yield curve tracks average WMP returns in general. The household savings deposits rate is the interest rate that banks or financial institutions pay on the deposits made by households in China. The comparison is an indication of whether rates are reflecting risk and market forces.

**Share of SOEs in Total China Bond Issuance**

Renminbi (RMB) billions, percent.



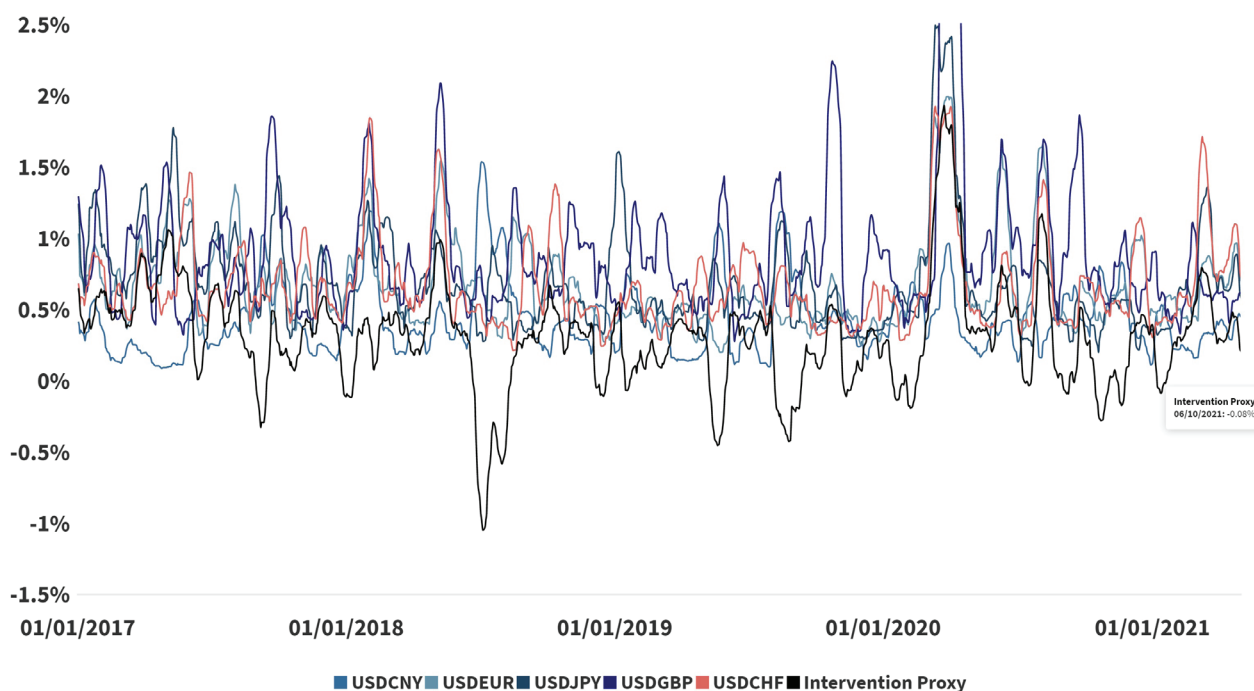
**Source:** WIND, China Pathfinder calculations • This chart shows the share of SOEs in total bond issuance. While recent reforms have made the bond market a



FIGURE 3.2: SELECTED SUPPLEMENTAL INDICATORS: FINANCIAL SYSTEM DEVELOPMENT (2020\*) cont.

**RMB Exchange-Rate Fluctuations and Currency Intervention Proxy**

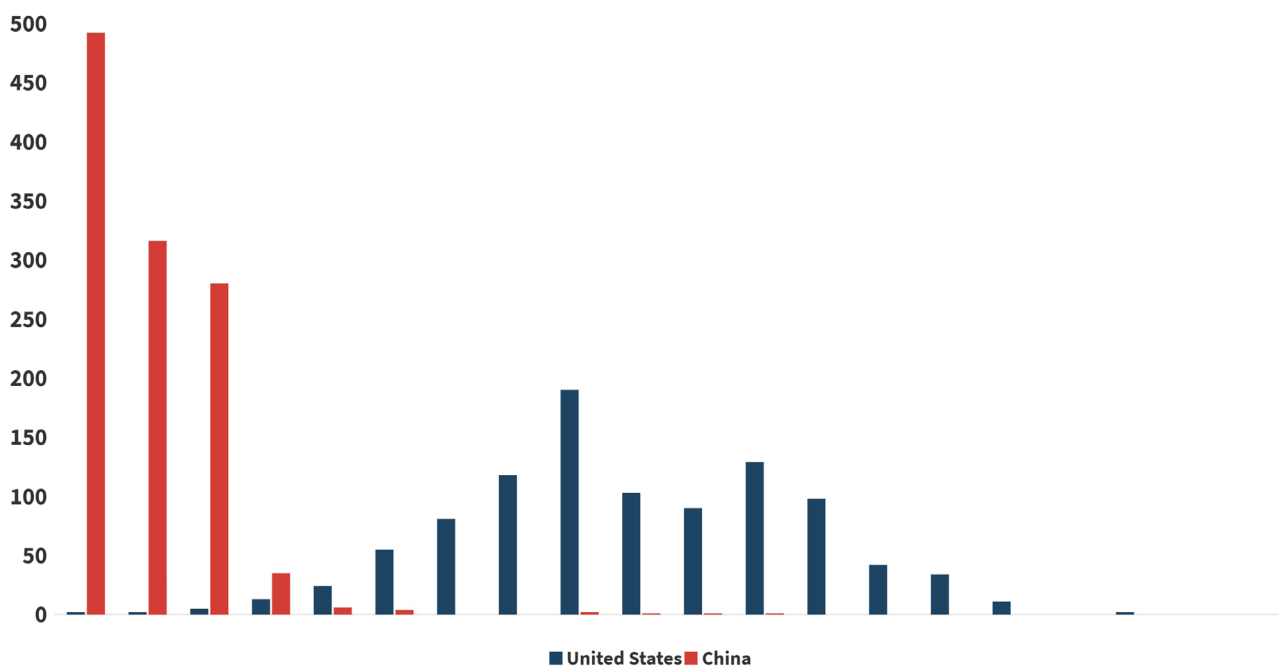
Percent.



**Source:** Bloomberg, China Pathfinder. • The index measures the difference in 20-day rolling measures of the standard deviations of close-to-close movements of USD/CNY compared to an average of the same measures of volatility in other major currency pairs. The premise is that a purely market-driven currency should see measures of that difference trend around zero. The persistence of the intervention proxy above zero over an extended timeframe is likely indicative of intervention in the currency market.

**Bond Rating Distribution in the US and China**

Number of issuers by converted active issuer rating as of June 2020, 90-day lag (20 = AAA or equivalent, 0 = D or equivalent).

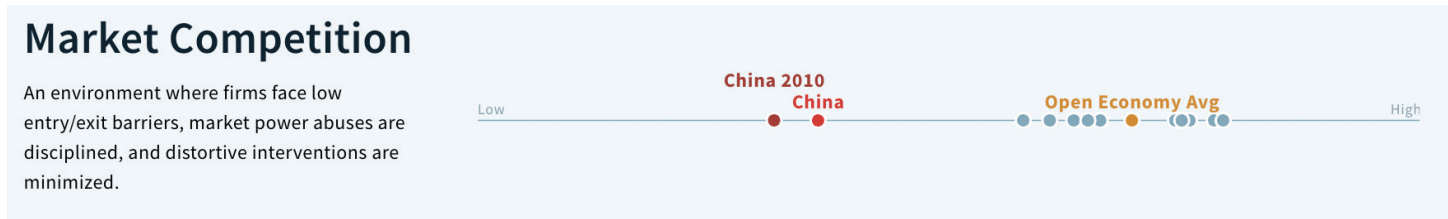


**Source:** Bloomberg, China Pathfinder calculations. • Companies represented have a market cap of over USD 1 billion and are covered by Bloomberg's default risk rating function.



## 2.2 MARKET COMPETITION

FIGURE 4: COMPOSITE INDEX: MARKET COMPETITION (2020)



Measure of market competition from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Market economies rely on a pro-competitive environment where firms face low entry and exit barriers, market power abuses are disciplined, consumer interests are prioritized, and government participation in the marketplace is limited and governed by clear principles.

### China Historical Context and Status Quo

China transitioned since 1978 from a poorly planned economy to a hybrid model that combines state and market elements. Beijing has pledged repeatedly to make further progress toward cementing the “decisive role” of markets in directing the allocation of resources over the past decades (labor, land, and capital), but convergence with economic liberalism has slowed, and reversed in the eyes of many. Competition is robust in some areas, such as consumer staples, while others remain dominated by government direction and influence.<sup>12</sup>

State reach into commerce has generally expanded in recent years. Subsidies, politically directed input costs, discriminatory regulation, and other factors distort market outcomes and make it difficult to situate the boundary between state and market. In 2015, there was ample excitement about corporate governance reforms that would elevate the power of independent boards of directors at shareholding firms; today Communist Party committees are ascendent. At the microeconomic level, this is definitive of the murky line between commercial interests and political forces.<sup>13</sup>

Formal empowerment of competition regulators, including the relatively recent (2018) establishment of the State Administration for Market Regulation, or SAMR, is proceeding. Yet, the signature competition action to date has been the campaign against China’s private technology innovators for their failure to heed government guidance to take nationalistic considerations more seriously.

The predominance of market mechanisms (the profit-motivated interaction of buyers and sellers) is essential for material welfare and

innovation in developed economies. Judging the quality of competition in a nation has always been more art than science, but the general picture in China was—until recently—sufficiently convergent to assuage anxieties in open market nations. Given contrary indications, impressionistic approaches no longer suffice, and there is no universal yardstick for measurement of market competition and disagreements about the status quo are bound to fuel arguments.

### 2021 Stocktaking: How Does China Stack Up?

We chose the following annual indicators to benchmark China’s market competition against open market economies.

- We measure **overall market concentration** across all industries using the Herfindahl Hirschman Index.<sup>14</sup> Using this measure, China’s level of market competition is generally on par with major open economies and scores higher than open economies with certain concentrated sectors (such as Canada). However, this aggregate measure does not provide a good perspective on the discrepancy between highly competitive sectors (mostly in manufacturing) and oligopolistic sectors with heavy state dominance in China (transportation and energy, among others). In some sectors, low market concentration scores indicate *too much* competition, where inadequate capital discipline and other market exit impediments lead to overcapacity that requires firms to cut corners on necessary investments or export aggressively to use idle capital assets.<sup>15</sup>
- One important determinant of market competition is the **role of state-owned enterprises in the economy**. We use the Scope of SOEs Index compiled by the OECD, which measures the pervasiveness of state ownership on a scale of 0 to 6, with higher values representing a greater degree of state presence. The index uses data across 30 business sectors, measuring whether the state controls at least one firm within each sector. China’s score of 5.96 is, unsurprisingly, considerably above the open-economy average score of 2.79 (both for 2018). The index is calculated by assigning high values for the presence of SOEs in a broad array of industries, even if those industries are dominated by private firms. This means that the differential between China and some

12 Daniel H. Rosen, “Avoiding the Blind Alley: China’s Economic Overhaul and Its Global Implications,” Asia Society Policy Institute and Rhodium Group, October 2014, <https://asiasociety.org/policy-institute/avoiding-blind-alley-chinas-economic-overhaul-and-its-global-implications>.

13 Daniel H. Rosen, Wendy Leutert, and Shan Guo, “Missing Link: Corporate Governance in China’s State Sector,” Asia Society, November 2018, [https://asiasociety.org/sites/default/files/inline-files/ASNC\\_Rhodium\\_SOEReport.pdf](https://asiasociety.org/sites/default/files/inline-files/ASNC_Rhodium_SOEReport.pdf).

14 “Methodologies to Measure Market Competition,” Organisation for Economic Co-operation and Development, June 11, 2021, <https://oe.cd/mmmc>.

15 Caroline Freund and Dario Sidhu, “WP 17-3 Global Competition and the Rise of China,” Peterson Institute for International Economics, February 2017, <https://www.piie.com/system/files/documents/wp17-3.pdf>.



OECD economies (Germany, France) is smaller than it should be to reflect the outsized political and policy protection SOEs receive in China. Nor does it capture the massive assets held by Chinese SOEs as compared to their counterparts in OECD economies.

- **Openness to competition from foreign companies** is a characteristic of open market economies. The OECD's FDI (Foreign Direct Investment) Restrictiveness Index is an established indicator to measure the permissiveness of an economy to foreign competition.<sup>16</sup> China scores 0.75 on an inverted scale from 0 (most restrictive) to 1 (least restrictive), which is below the open market-economy average of 0.93. China has improved from its 2010 benchmark score of 0.56, demonstrating significant movement in this area, although this progress is industry by industry and not general; an extensive negative list approach is still maintained.
- Another key ingredient for a competitive marketplace is fair and impartial enforcement of rules. The World Bank's **Rule of Law Index** captures the extent to which agents have confidence in the rules of society, including elements such as the quality of contract enforcement, property rights, and the courts. The index ranges from -2.5 to 2.5, with lower values representing less maturation of rule-of-law-based governance. Here China is significantly behind, with a score of -0.27 compared to the open economy average of 1.36. There has been relatively little improvement since 2010 compared to other indicators.
- We also include the OECD's **Direct Control Over Enterprises** index to measure state interference and its impact on firms' ability to compete. Higher levels of control receive higher scores on the index. China's score on this indicator has increased from 2.45 in 2010 to 2.98 in 2020. In both years, China's direct control over enterprises well exceeded the open economy average of 1.09. This reflects China's increasing emphasis on the role of the state in the economy under Xi Jinping.

Our **Market Competition Composite Index**, which represents a normalized average of these annual indicators, puts China at **2.97** in 2020, against an open-economy average of **7.82** (Figure 4). While the 2020 evaluation of China's market competitiveness shows sizable distance from the other countries in our sample, China has progressed from its 2010 score of **2.29**. China has competitive markets in many industries and oligopoly dominance in others, including via state ownership. Contestability of markets and fairness are diminished through limitations on rule of law. The goal of "competitive neutrality" in regulation of private and public-sector firms competing in the same segments—a crucial outcome at the heart of China's 2001 WTO accession commitments—is still a distant one.

While we include a significant share of relevant variables, our data coverage has some weaknesses. One of the most important deficiencies is that we do not have internationally comparable robust data on the level of subsidies in China and other economies. We also cannot accurately measure informal barriers to market competition—for example, informal discrimination against foreign and private companies, industrial policies, or the presence of Communist Party committees.

## Looking Forward: Market-Oriented Policy and Data Signals

We will update these benchmark indicators annually to track the pace and direction of change. On a more frequent basis, we are watching for policy reforms that would move China closer to the average of market economies in terms of market competition, including

- reduced state weight and influence in commerce, especially in nonstrategic, commercial sectors;
- clear definition of the grounds for state involvement and the industries in which it is appropriate (market failures, public goods, etc.);
- corporate governance reform and improved institutional authorities to discipline anticompetitive behavior by state firms, where necessary;
- decisive market reform of the allocation of finance, including curtailment of subsidies and rationalizing of the credit system;
- limitation of the scope of industrial policy to a decidedly secondary role in the economy, with assurance of national treatment as the norm;
- prioritization of consumer welfare in transparent competition policy (as opposed to producer welfare or the authority of the state—objectives which should be addressed by other means); and
- clear delineation of the role of Communist Party committees as distinct from primary business responsibility of boards of directors and other corporate governance bodies.

In addition to tracking policy developments, we are also watching higher-frequency, and often China-specific, indicators to gauge real-time progress on market-oriented and liberal economic reforms. Those include more granular measures of state ownership in the Chinese economy (such as industrial assets by ownership or the share of SOEs in total revenue by industry group), data on merger reviews for different types of merger and acquisition (M&A) transactions, market entry and exit dynamics, and pricing power for different types of firms (Figure 4.2).<sup>17</sup>

<sup>16</sup> "OECD's FDI Restrictiveness Index," Organisation for Economic Co-operation and Development, 2010, <https://doi.org/10.1787/5km91p02zj7g-en>.

<sup>17</sup> OECD, "Methodologies to Measure Market Competition," <https://www.oecd.org/daf/competition/methodologies-to-measure-market-competition.htm>.

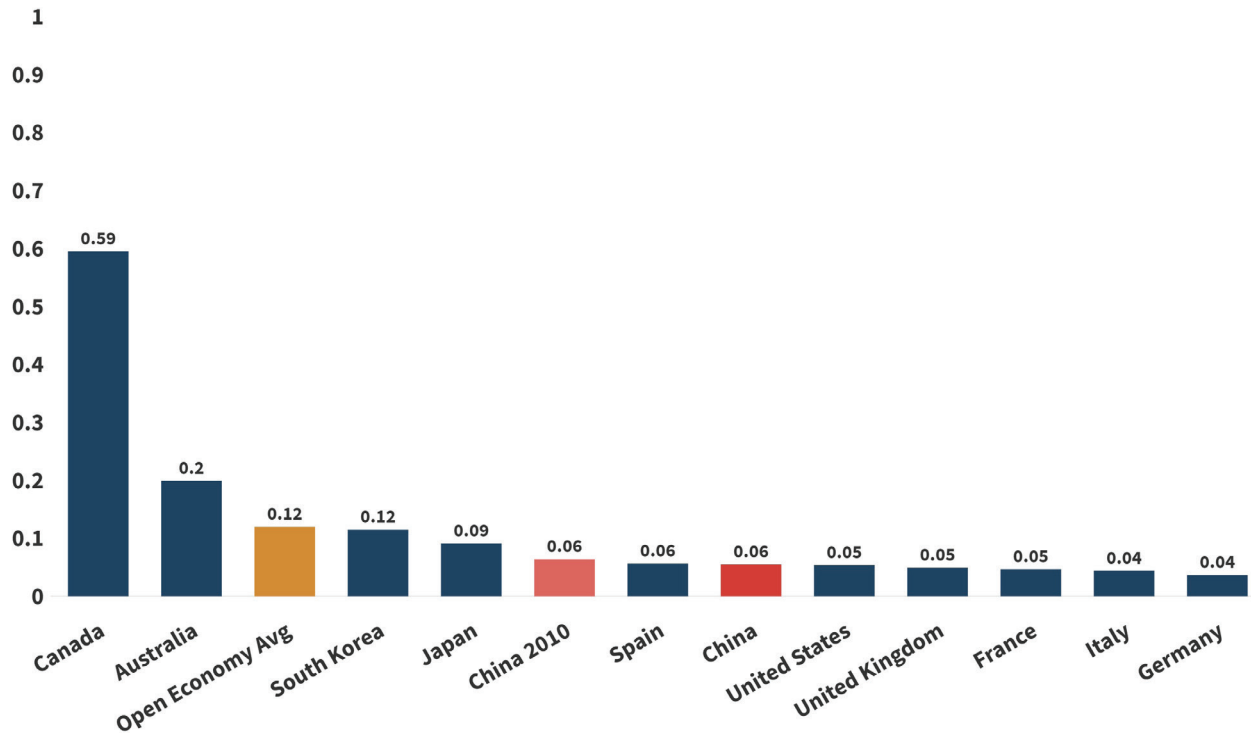




FIGURE 4.1: ANNUAL INDICATORS: MARKET COMPETITION (2020\*)

**Overall Market Concentration Across All Industries, 2020**

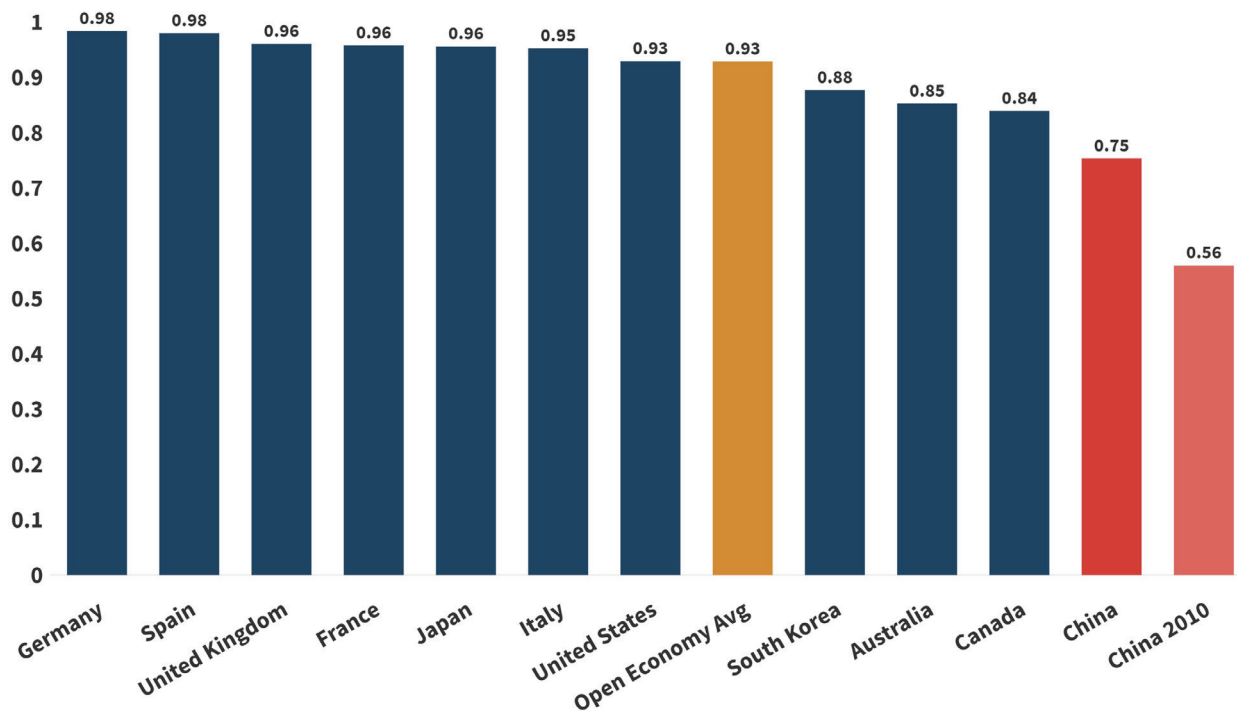
Herfindahl Hirschman Index (HHI); range is 0–1.



**Source:** WITS. • The HHI measures the size of firms in relation to the industry they are in. This index provides context for the competitiveness of a market. Lower values indicate a less concentrated market.

**Foreign Competition: FDI Openness Index**

Range is 0–1, where 0 is least open and 1 is most open.



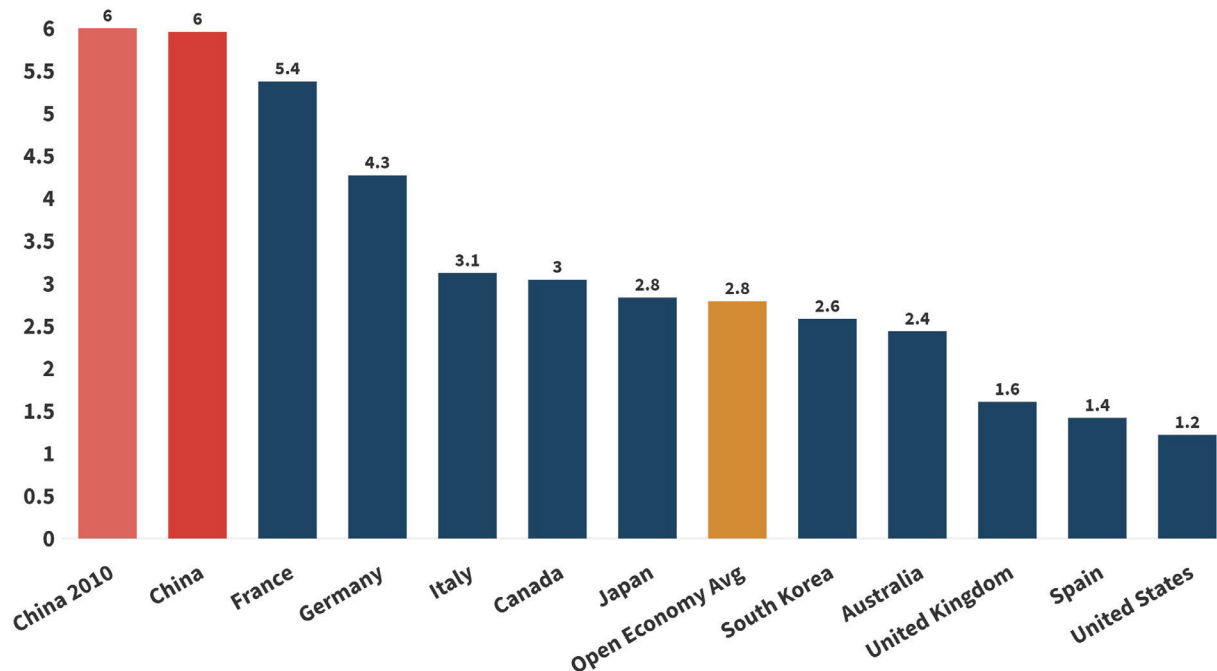
**Source:** OECD. • The FDI Restrictiveness Index measures statutory restrictions on FDI in twenty-two economic sectors. We use an inverse version of the original index.



FIGURE 4.1: ANNUAL INDICATORS: MARKET COMPETITION (2020\*) cont.

**State Intervention: Scope of State-Owned Enterprises Index**

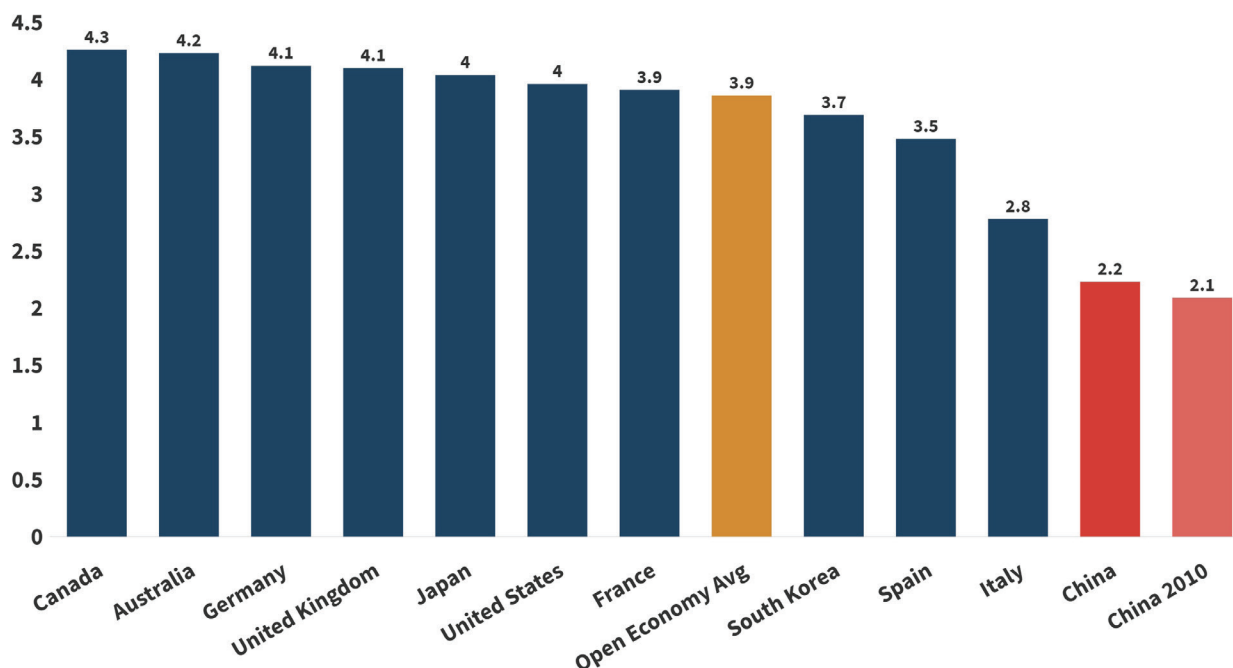
Range is 0–6, where 6 represents greater SOE scope.



**Source:** OECD 2018 PMR Database • We take data directly from the OECD. The Scope of SOEs Index measures the degree to which states maintain SOEs in a broad array of different industries. The index ranges from 0–6, with 0 meaning the state maintains no SOEs in any industry category and 6 meaning the state maintains SOEs in all industry categories included in the calculation.

**Unbiased Enforcement of Market Rules: Rule of Law**

Estimate of governance. (Range is 0–5, where 5 represents strong governance performance).



**Source:** The Worldwide Governance Indicators (WGI), World Bank. • The Rule of Law Index reflects perceptions of the extent to which agents have confidence in and abide by the rules of society—in particular, the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. We adjust the original range of -2.5 to 2.5 to one of 0–5 for legibility reasons.

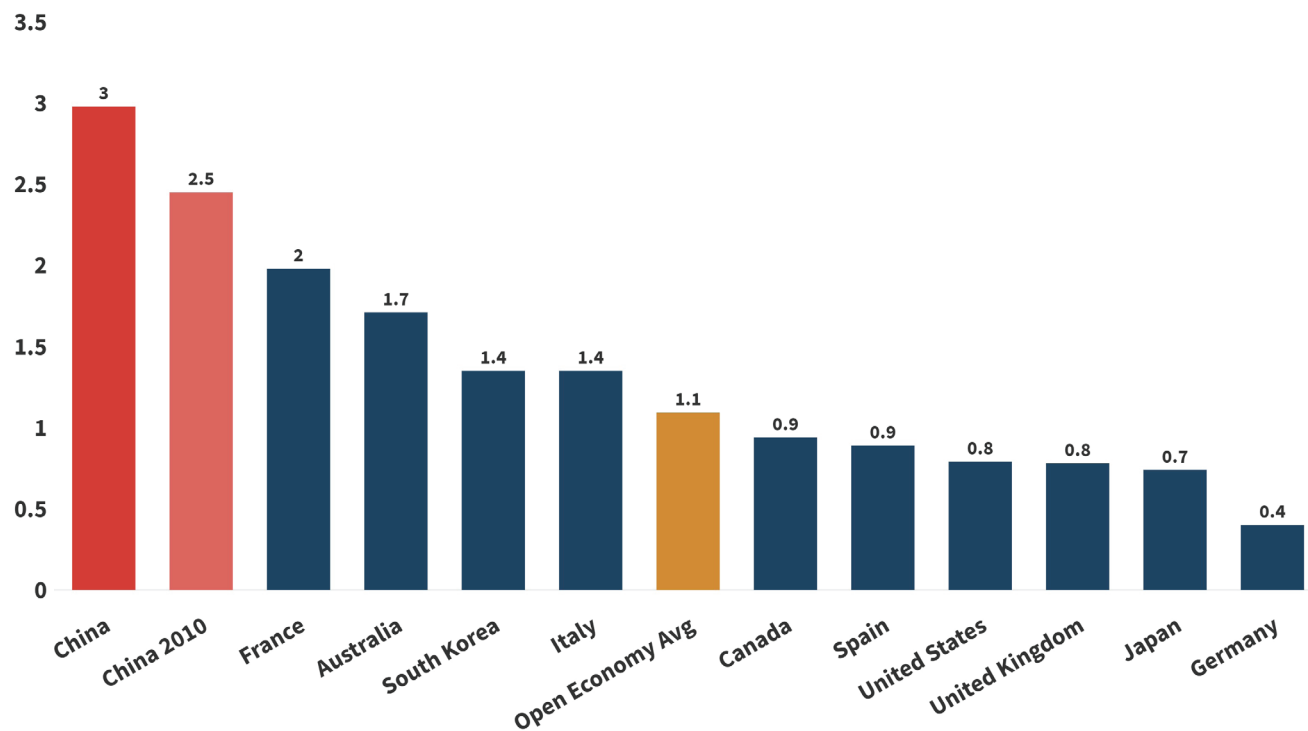




FIGURE 4.1: ANNUAL INDICATORS: MARKET COMPETITION (2020\*) cont.

**Direct Control Over Enterprises Index**

Index range of 0 to 3.5, where 3.5 represents highest level of control.



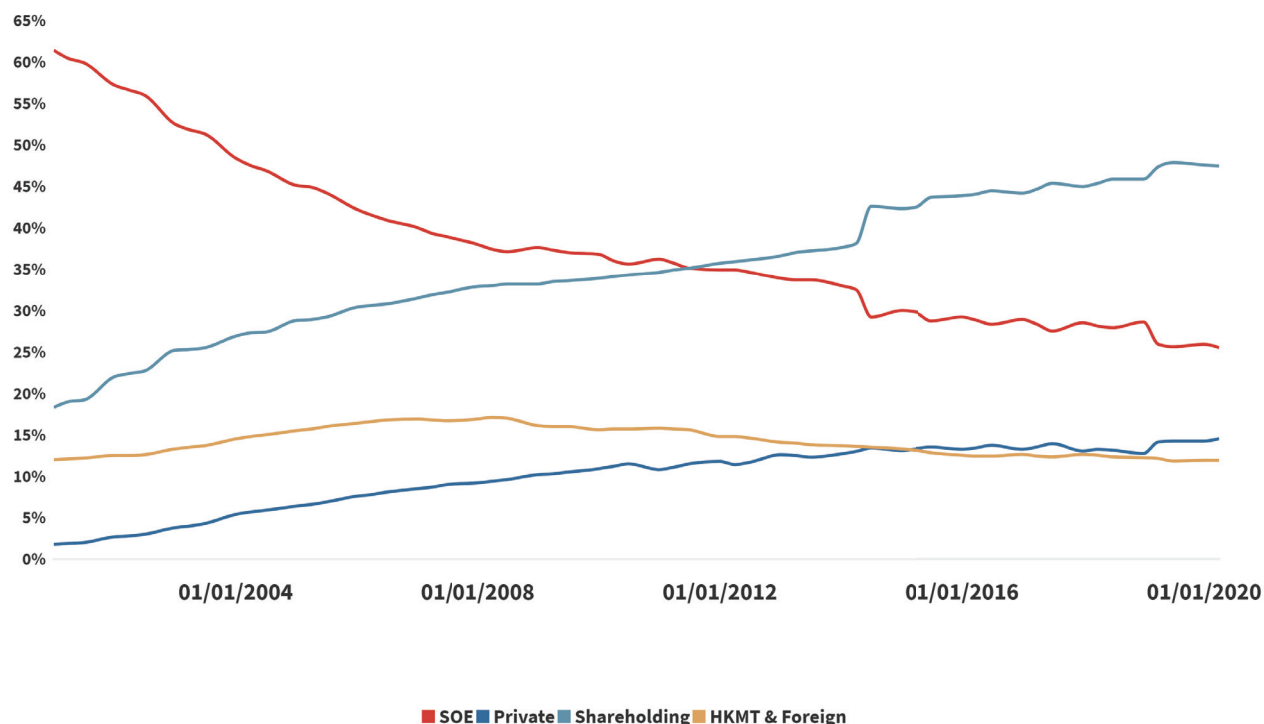
**Source:** OECD 2018 PMR Database, China Pathfinder estimates. • Direct control is defined as the existence of special voting rights by the government in privately-owned firms and constraints to the sale of government stakes in publicly-controlled firms (based on 30 business sectors).



FIGURE 4.2: KEY SUPPLEMENTAL INDICATORS: MARKET COMPETITION (2020\*)

**Chinese Industrial Assets by Ownership**

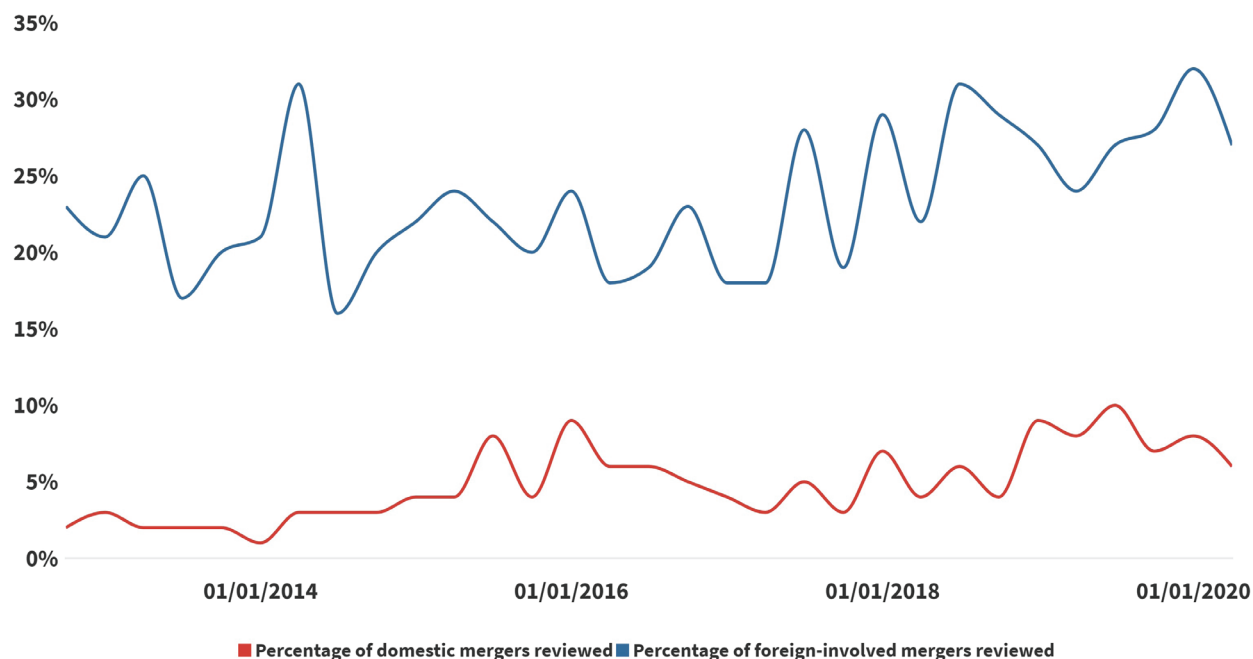
Percentage.



**Source:** National Bureau of Statistics (NBS), China Pathfinder • Based on NBS industrial enterprise data, we measure the SOE share of assets, compared with private, shareholding, and Hong Kong/Macau/Taiwan (HKMT) and foreign enterprises. There are overlaps among ownership types, so the aggregate does not equal reported total industrial assets. Nonetheless, since we are only concerned with comparative shares for SOEs, we add up assets of all ownership types.

**Merger Reviews in China: Propensity of Review for Domestic Vs. Foreign Deals**

Percentage.



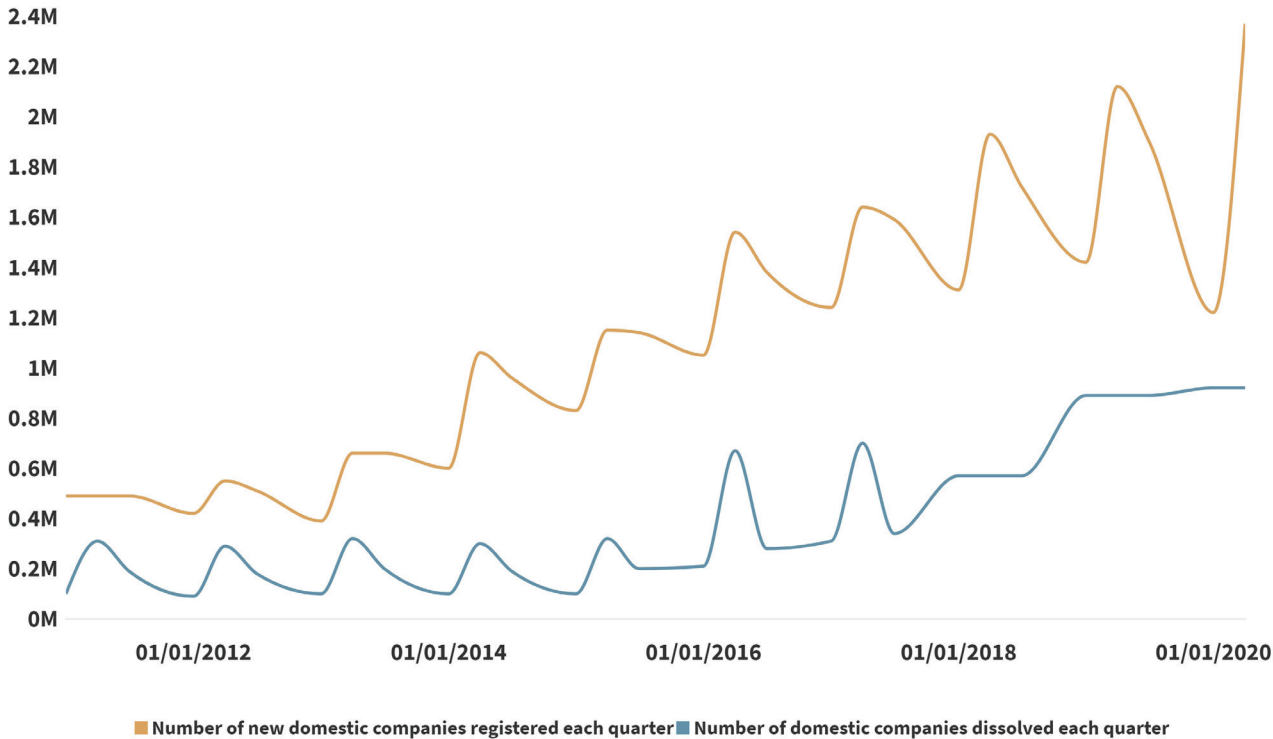
**Source:** China Pathfinder, State Administration for Market Regulation, Bloomberg. • Starting from 4Q2012, China's Ministry of Commerce (MOFCOM) began publishing all mergers reviewed each quarter on its website. This indicator separates merger data into cases involving foreign investors and purely domestic cases. We further compare each category with total mergers recorded by Bloomberg to identify differential treatment, controlling for market conditions. Joint venture formations are required to go through merger review in China as well but are excluded here to be consistent with international definition of mergers and acquisitions.



FIGURE 4.2: KEY SUPPLEMENTAL INDICATORS: MARKET COMPETITION (2020\*) cont.

**Market Entry and Exit of Chinese Firms**

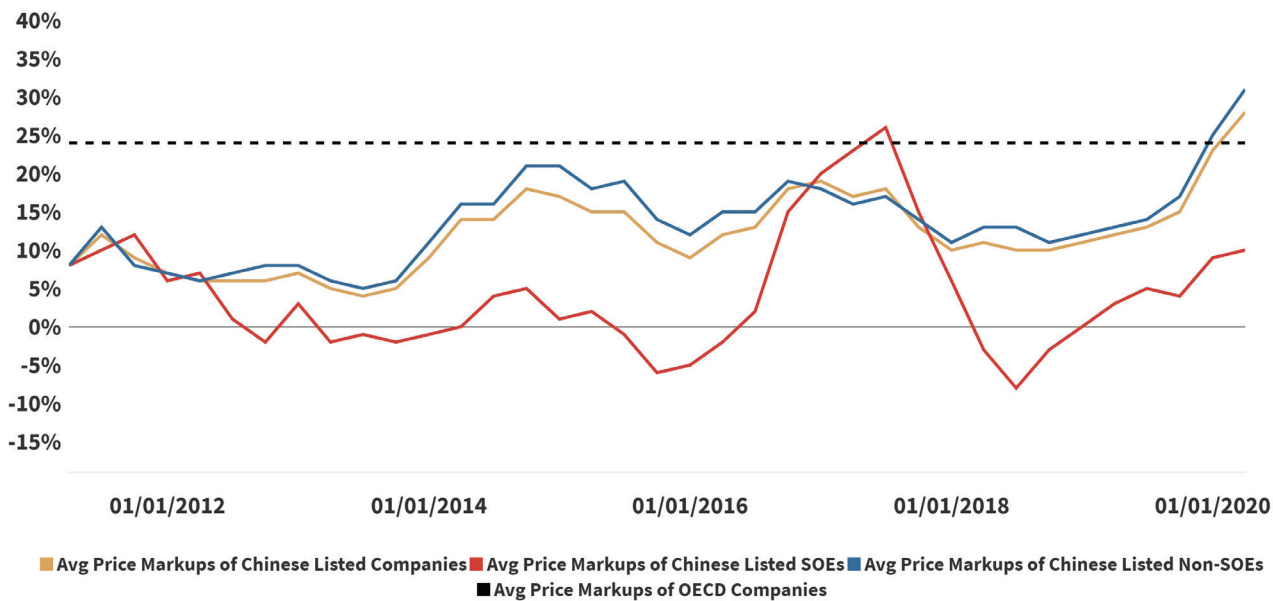
Millions.



**Source:** State Administration for Market Regulation, China Pathfinder. • Since 2011, the State Administration for Industry & Commerce has published quarterly statistics on business registrations and dissolutions. We extrapolate the trend based on annual data and available quarterly data.

**Pricing Power Index, Chinese Companies by Type**

Percentage.



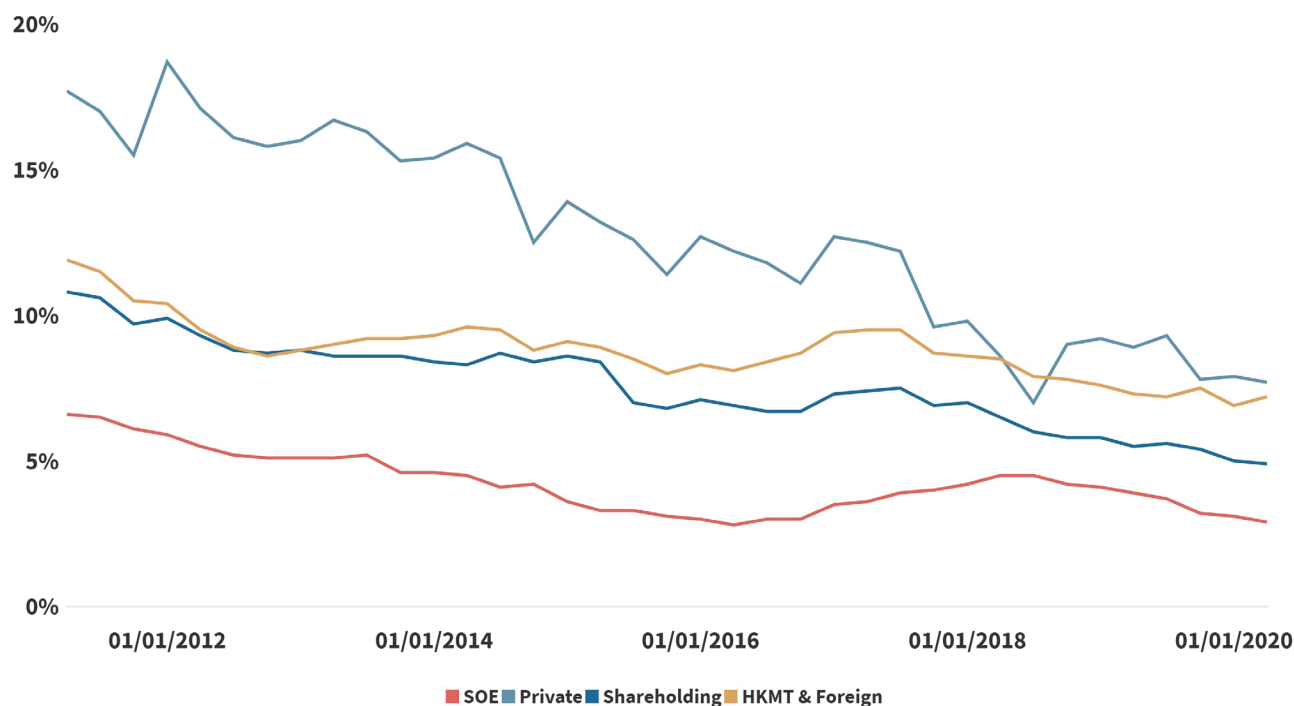
**Source:** Bloomberg, China Pathfinder. • Pricing power indicates whether firms can charge enough for products to recover a reasonable profit, such that it is rational to stay in business rather than deploy capital elsewhere. We measure pricing power in terms of the markup ratio, which is equivalent to a firm's revenue over production costs. For production costs, we include both cost of revenue (i.e. direct cost to generate additional revenue) and cost of capital (i.e. opportunity costs tied up with fixed assets investments). Ideally, a country-wide assessment would be used, but due to data constraints we are only able to track financial reporting by China's listed companies, which tend to perform better than private companies. Literature review suggests that OECD firms average a 24% markup ratio (higher for service industries and lower for manufacturing).



FIGURE 4.2: KEY SUPPLEMENTAL INDICATORS: MARKET COMPETITION (2020\*) cont.

**Returns on Assets by Firm Ownership**

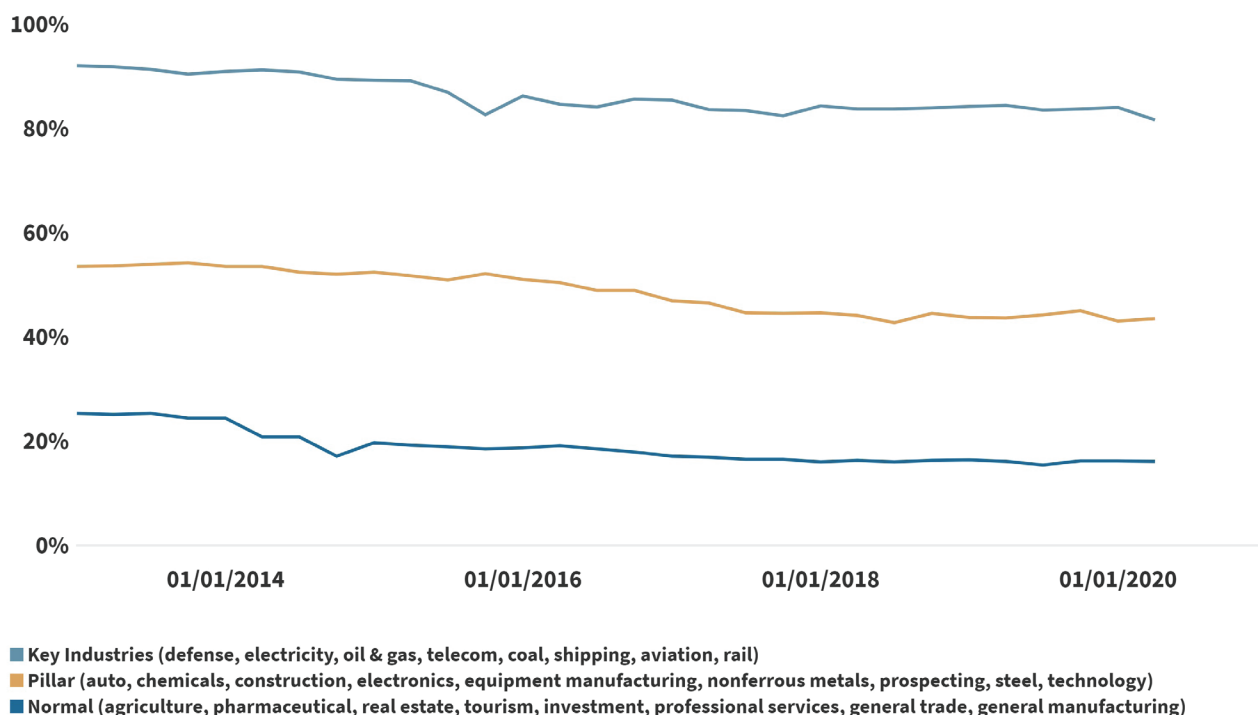
Percentage.



**Source:** National Bureau of Statistics, China Pathfinder. • Based on industrial enterprise data from NBS, we measure SOEs' return on assets (ROA) compared with private, shareholding, and HKMT (Hong Kong/Macau/Taiwan) and foreign enterprises. The ratio is calculated by comparing the 12-month profit and average assets from each ownership category. This chart shows an overall decline in return on assets in China, and shows that SOEs' return on assets remain far lower than ROA in other firm ownership types.

**Share of SOEs in Total Revenue by Industry Groups**

Percentage.



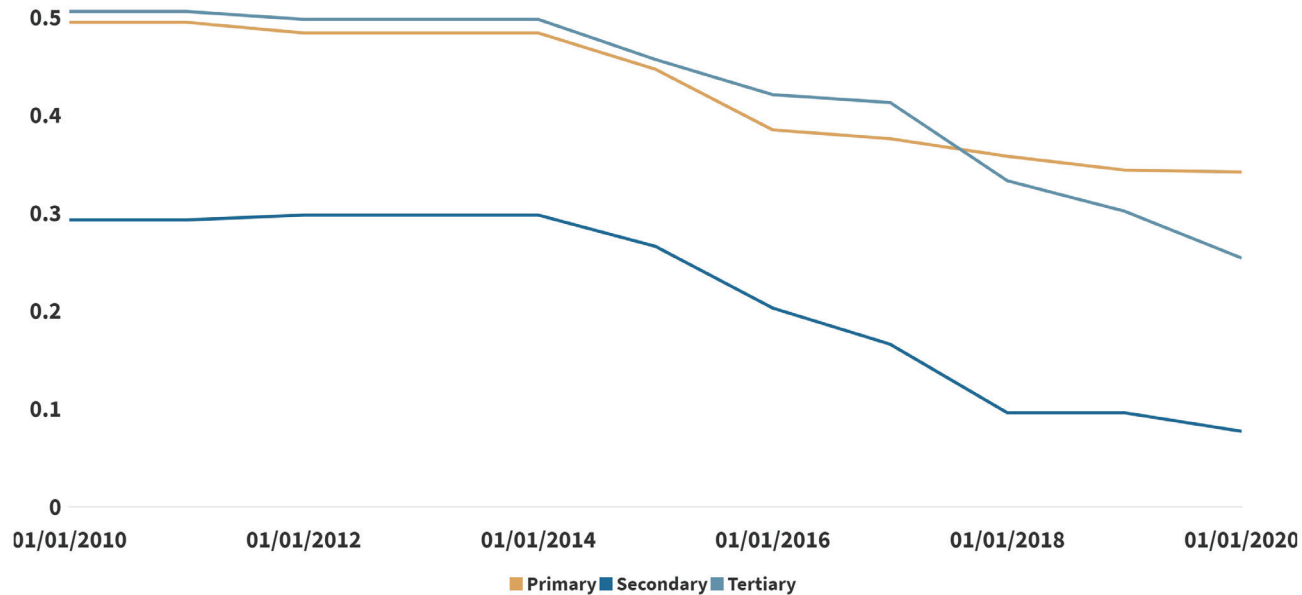
**Source:** China Pathfinder, Bloomberg • Here we see that SOEs still dominate key industries and maintain roughly half of the revenue in “pillar” industries. The chart shows a slight decrease in the SOE share of total revenue for all three industry groupings.



FIGURE 4.2: KEY SUPPLEMENTAL INDICATORS: MARKET COMPETITION (2020\*) cont.

**FDI Regulatory Restrictiveness Index, China**

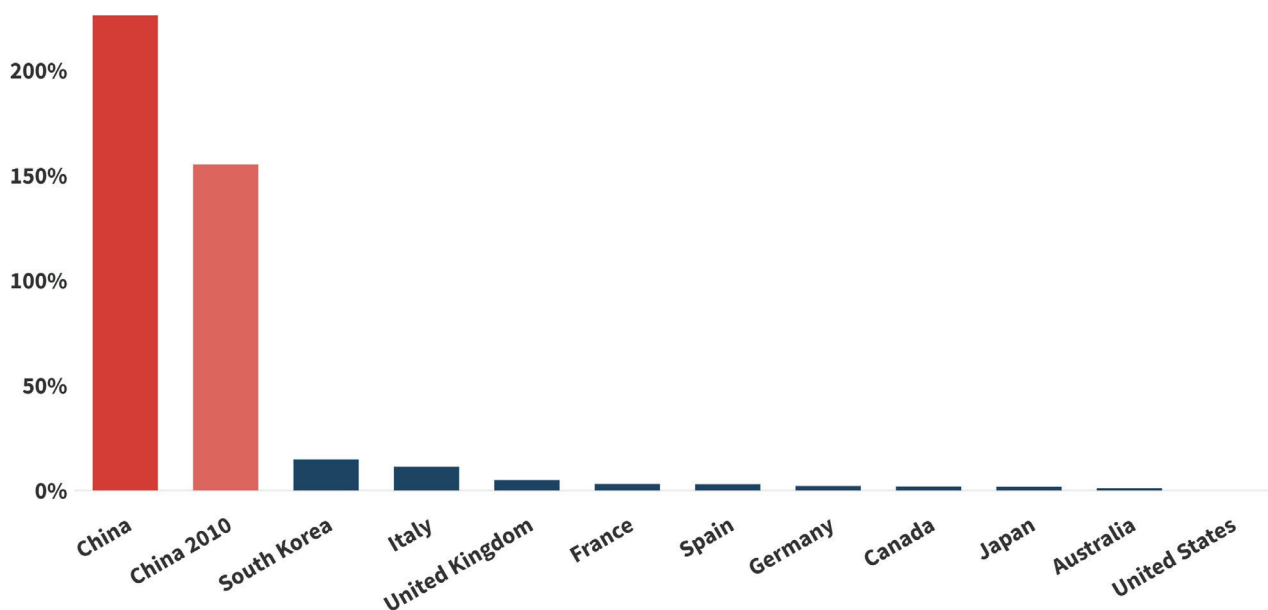
Range of 0–1, where 1 is more restrictive



**Source:** China Pathfinder, OECD • This measure gauges the restrictiveness of a country's FDI rules across four restriction categories: foreign equity restrictions, discriminatory screening or approval mechanisms, restrictions on key foreign personnel, and operational restrictions. Implementation issues are not addressed and factors such as the degree of transparency or discretion in granting approvals are not taken into account. This chart shows significant improvement in China's foreign direct investment restrictions since 2014, particularly in secondary and tertiary sectors.

**Total SOE Assets as a Share of GDP**

Percentage.

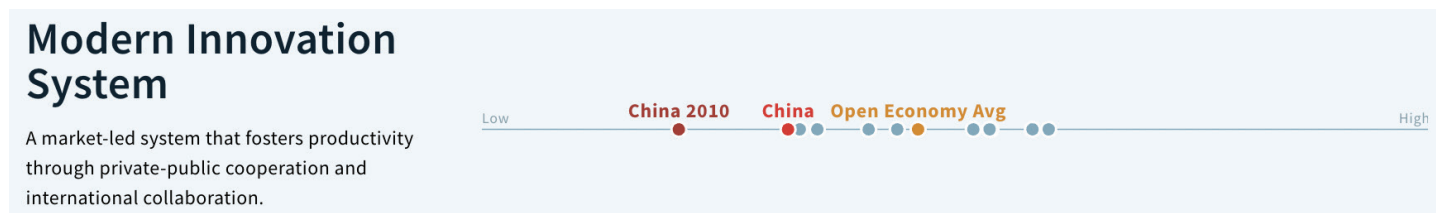


**Source:** OECD, State-owned Assets Supervision and Administration Commission of the State Council (SASAC), China Pathfinder calculations and estimates. • This measure approximates the magnitude of China's SOEs in comparison to top OECD economies' SOEs in their respective economies. We use an informative set of data points from a 2017 OECD report, "The Size and Sectoral Distribution of State-Owned Enterprises," and extrapolate the change in China's SOE assets as a share of GDP over the last decade with SASAC data. We calculate the average growth rate in SOE assets to estimate for China's 2010 data point.



## 2.3 MODERN INNOVATION SYSTEM

FIGURE 5: COMPOSITE INDEX: MODERN INNOVATION SYSTEM, 2020



Measure of Innovation Openness from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Market economies rely on innovation to drive competition, increase productivity, and create wealth. Innovation system designs vary across countries, but market economies generally employ systems that rely on government funding for basic research but emphasize private sector investment; encourage the commercial application of knowledge through the strong protection of intellectual property rights; and encourage collaboration with and participation of foreign firms and researchers, except in defense-relevant technologies.

### China Historical Context and Status Quo

While China has a storied history of invention and produces renowned innovators, its innovation system has diverged from advanced market economies in important ways throughout the modern era. Even as China is reaching middle-income status, its innovation system continues to feature: compulsive technology transfer policies; preponderance of state intervention and industrial policies across a wide range of sectors; strong biases in support of domestic firms and researchers; and tolerance for illicit procurement of foreign proprietary intellectual property. China has doubled down on many of these policies in recent years, rather than develop strategies to eliminate them.

None of these aspects of the Chinese economy are new, and all of them have some analogues in OECD economies. The differentiators are state predominance, China's size and global influence, and marginal direction. While other nations maintain targeted industrial policy interventions, China's state designs cover perhaps half the entire industrial economy as measured by industrial value added. When China represented a single-digit share of the global economy, this picture meant one thing; however, as the country aspires to be the world's single largest economy, its systemic choices are certain to alter global incentives. And, it's not just a constant level of political determination that grows more impactful as the economy grows larger. At the margin, Beijing is widely observed—including by Chinese analysts—to increase state influence in innovation rather than reduce it, as measured by guidance funds, military-civil fusion, regulatory tightening, and planning programs.<sup>18</sup>

These trends have led to global concerns about Chinese innovation mercantilism and possible negative impacts on global innovative capacity in the long run. Another line of concern centers on the stability risks resulting from a Chinese model that is lowering productivity while appealing to produce competitive results—this would have negative repercussions for China's prospects and the prospects of other nations should they emulate the approach Beijing is taking. At the same time, China's investment in people's scientific training, research and development (R&D), and technical infrastructure is world beating. And, if it remedies the present policy challenges, its results—both in terms of competitiveness and in contributions to global innovation and knowledge—could be game changing.

### 2021 Stocktaking: How Does China Stack Up?

We chose the following annual indicators to benchmark China's track record against open market economies in terms of a modern innovation system.

- **R&D expenditures as a percentage share of annual domestic investment** are an indicator to measure R&D spending relative to total investment across the economies in our sample. Our data show that China has modestly increased its relative R&D spending since 2010, but remains below the open-economy average and significantly below high-tech powerhouses such as Germany, South Korea, or Japan. However, high levels of R&D spending alone do not always signal a productive use of capital in generating more innovation. China is a cardinal example of this, with some industries, such as commercial aviation, exhausting extensive resources over twenty years—with little innovative development.
- Acknowledging the caveat in using R&D expenditures to approximate innovation, we also look at **venture capital investment as a share of GDP**. Venture capital plays a key role in innovation-driven entrepreneurship and it shows confidence by private sector investors in an economy's ability to catalyze disruptive new technologies.<sup>19</sup> The United States has long dominated global venture capital but other regions and nations have caught up in the past decade. One of the most important new recipient

18 Robert D. Atkinson, "Innovation Drag: China's Economic Impact on Developed Nations," Information Technology and Innovation Foundation, January 6, 2020, <https://itif.org/publications/2020/01/06/innovation-drag-chinas-economic-impact-developed-nations>; Steven W. Popper, et al., "China's Propensity for Innovation in the 21st Century," RAND, 2020, [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RRA200/RRA208-1/RAND\\_RRA208-1.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RRA200/RRA208-1/RAND_RRA208-1.pdf).

19 Tristan L. Botelho, Daniel Fehder, Yael Hochberg, "Innovation-Driven Entrepreneurship," National Bureau of Economic Research, 2021, [https://www.nber.org/system/files/working\\_papers/w28990/w28990.pdf](https://www.nber.org/system/files/working_papers/w28990/w28990.pdf).





of global venture financing was China, which is evident in the big leap from 2010 to 2020. However, state capital remains a major driver of venture capital in China (through government guidance funds and similar vehicles) and the recent crackdown on technology firms and overseas IPO's may further reduce enthusiasm of private and foreign investors for Chinese technology startups.

- The ratio of business enterprise spending to government spending on domestic R&D captures the **role of private enterprises relative to the state in innovation**. China has improved dramatically since 2010 and scores higher than the open-economy average. However, this indicator only accounts for direct government expenditures for innovation, does not measure subsidies and other financial flows into innovation (such as government guidance funds), and undercounts the level of total government spending on innovation in China.
- One useful addition to this domestic perspective is the **percentage of gross expenditure on R&D financed by international sources**. This indicator reflects both the attractiveness and the openness of a nation's innovation system for foreign firms. For this indicator, China ranks last, falling well below the open-economy average with around 0.6 percent of gross expenditure on R&D financed by foreign entities, as compared to the open-economy average of 6.77 percent. However, China's East Asian neighbors also had low percentages: 0.6 percent and 0.9 percent for Japan and South Korea, respectively.
- As an indicator for the **quality of innovation output**, we use the number of triadic patent families filed, controlled for GDP. Triadic patent families are corresponding patents filed at the European Patent Office, the United States Patent and Trademark Office, and the Japan Patent Office. They are generally considered higher quality patents and, thus, offer a better perspective than purely looking at the number of patents. China has made significant progress since 2010, but remains far below the open-economy average, which contrasts sharply with China's top global position in the count of overall patents filed.
- Another proxy for a country's innovation output quality and global relevance is **payments from abroad for the use of intellectual property**. Controlled for GDP, this indicator offers perspective on the relative attractiveness of national intellectual property (IP) to other nations. China ranks last in this indicator, illustrating that rapid growth of patents in China has, thus far, failed to generate internationally attractive IP. One caveat for this indicator is that some of the input data may be subject to distortions from international tax optimization practices and balance-of-payments data quality problems.
- To measure the **protection of intellectual property**, we use the International Intellectual Property Index provided by the US Chamber of Commerce's Global Innovation Policy Center. The index is composed of fifty individual indicator scores that look at both existing regulations and standards, as well as their enforcement. China has a score of around 55 in 2020, well below the

open-economy average of around 87. However, China has shown considerable improvement from our 2010 baseline, when it had a score of 37. This improvement reflects China's efforts to strengthen de jure protections and establish more reliable legal enforcement mechanisms.

Combining the above indicators, our **Modern Innovation System Composite Index** puts China at **2.4** in 2020, against an average of **4.4** within our sample of the ten largest open market economies (Figure 5). China has made progress toward a modern innovation system since 2010, when it scored **0.74**, but still suffers from substantial institutional shortcomings (from heavy state intervention to lagging IP protection) and shows a substantial gap in innovation quality.

In terms of coverage gaps and caveats, we do not account for some of China's nonmarket features that are relevant for innovation but already covered in other clusters. We also face limits on the availability of national and international data on specific elements of China's innovation system (such as subsidies or government guidance funds).

### Looking Forward: Market-Oriented Policy and Data Signals

We will update these benchmark indicators yearly to track the pace and direction of change. On a more frequent basis, we are watching various policy reforms that would move China closer to the average of market economies in terms of its innovation system, including

- reduction in scope of industrial policy determining innovation and R&D;
- elimination of forced technology transfer policies and other compulsive policies connected to intellectual property;
- national treatment for foreign firms in terms of access to non-distortive R&D and other innovation subsidies;
- reduction in the volume of subsidized credit channeled to industries favored by industrial planners;
- policies that reduce variance in local implementation of laws governing intellectual property rights (IPR);
- approval of foreign takeovers of local technology companies without national security sensitivities;
- elimination of government tolerance of business technology theft and other IPR violations; and
- reduced emphasis on output and industry target-driven innovation in favor of capacity building and basic research.

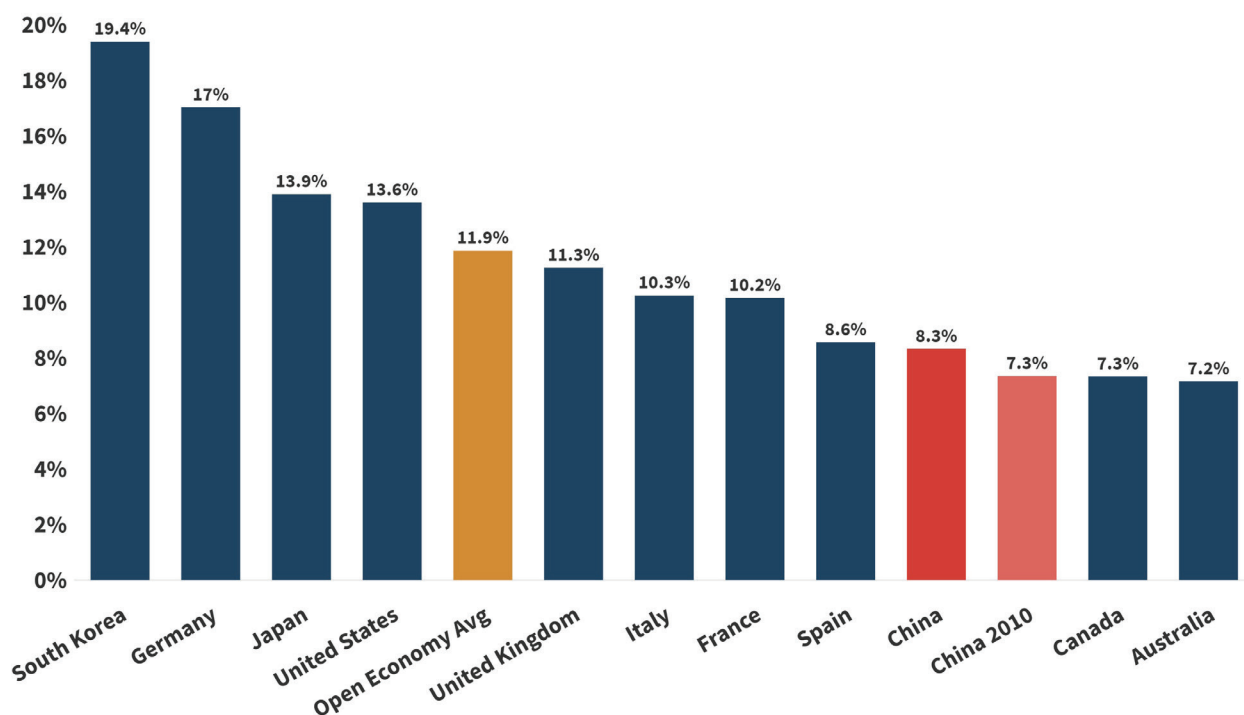
In addition to tracking policy developments, we are also watching several higher-frequency, and often China-specific, indicators to gauge progress on market-oriented and liberal economic reforms. Figure 5.2 shows a selection of these indicators including the number of researchers per one thousand people employed, the share of foreign investors in venture funding rounds for Chinese companies, payments for the use of intellectual property, and the innovative industry share in industrial value added.



FIGURE 5.1: ANNUAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*)

**National Spending on Innovation**

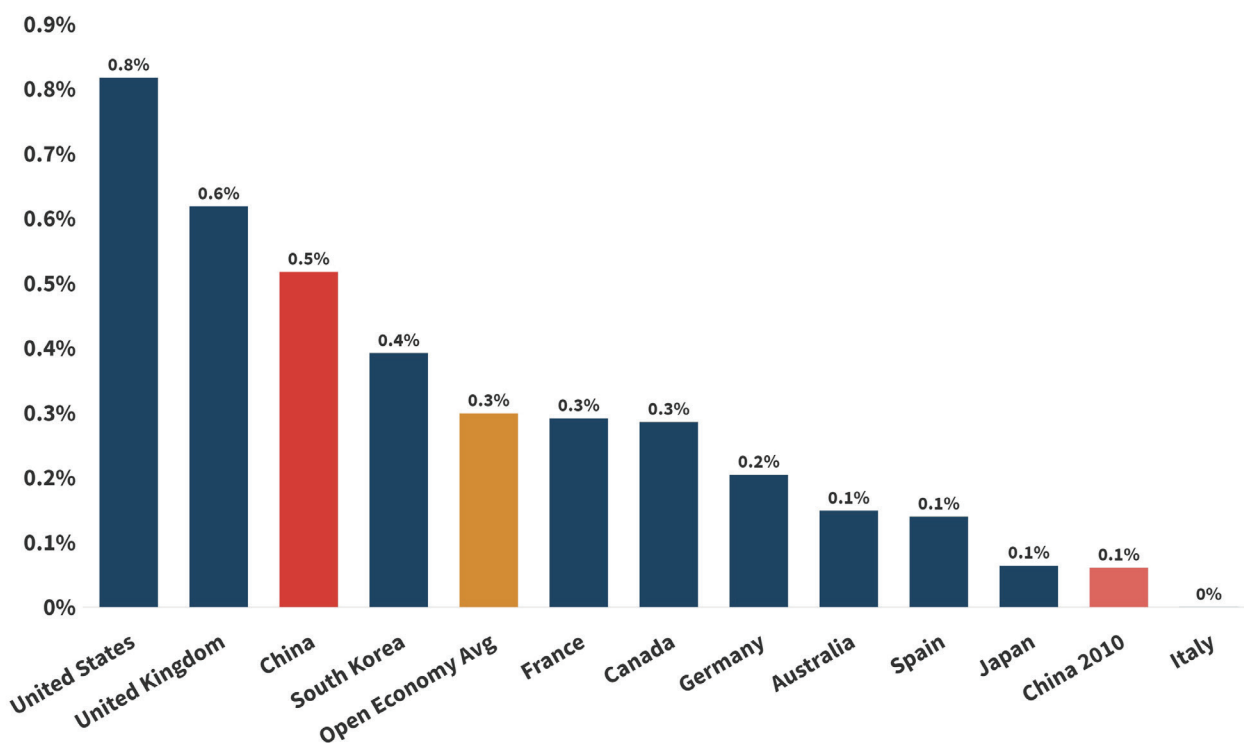
R&amp;D expenditures as a share of annual domestic investment.



**Source:** UNESCO Institute for Statistics. • This indicator looks at total R&D expenditures as a percentage of domestic investment to ensure that those expenditures are roughly comparable regardless of a country's aggregate investment levels.

**Venture Capital Attractiveness**

Venture capital investment as a percent share of GDP.



**Source:** Pitchbook, World Bank. • This indicator expresses total venture funding in an economy as a share of its total Gross Domestic Product.

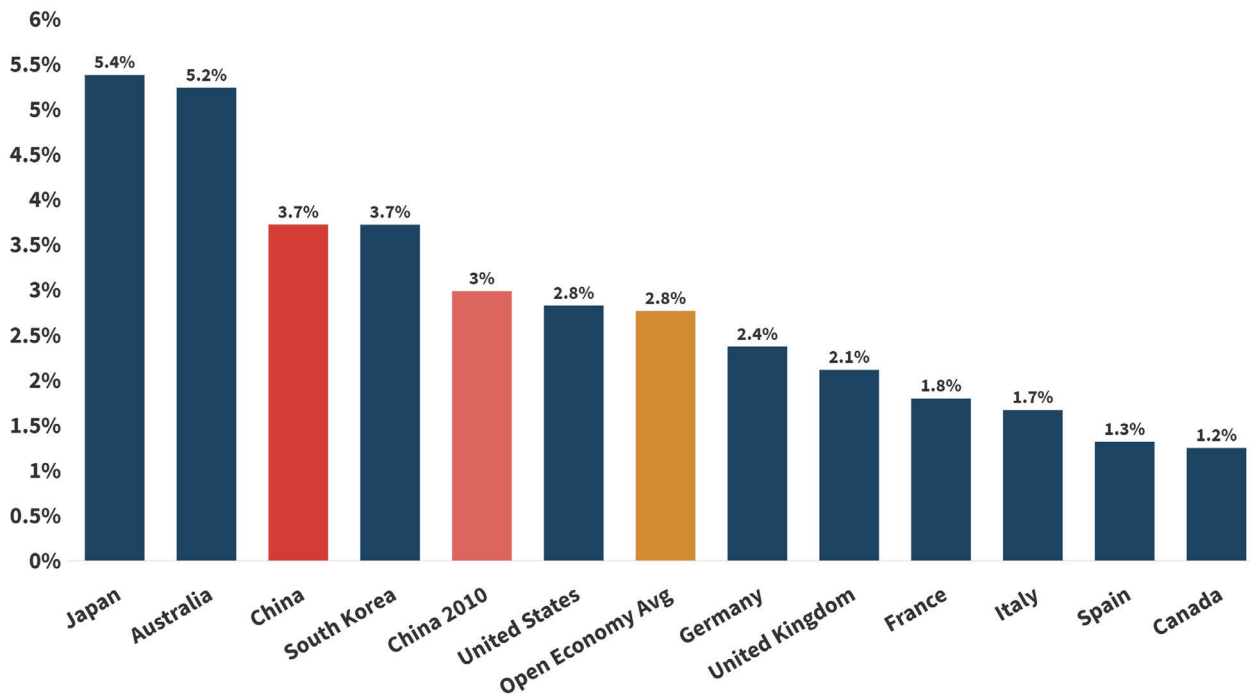




FIGURE 5.1: ANNUAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*) cont.

**Private vs State-Funded Innovation**

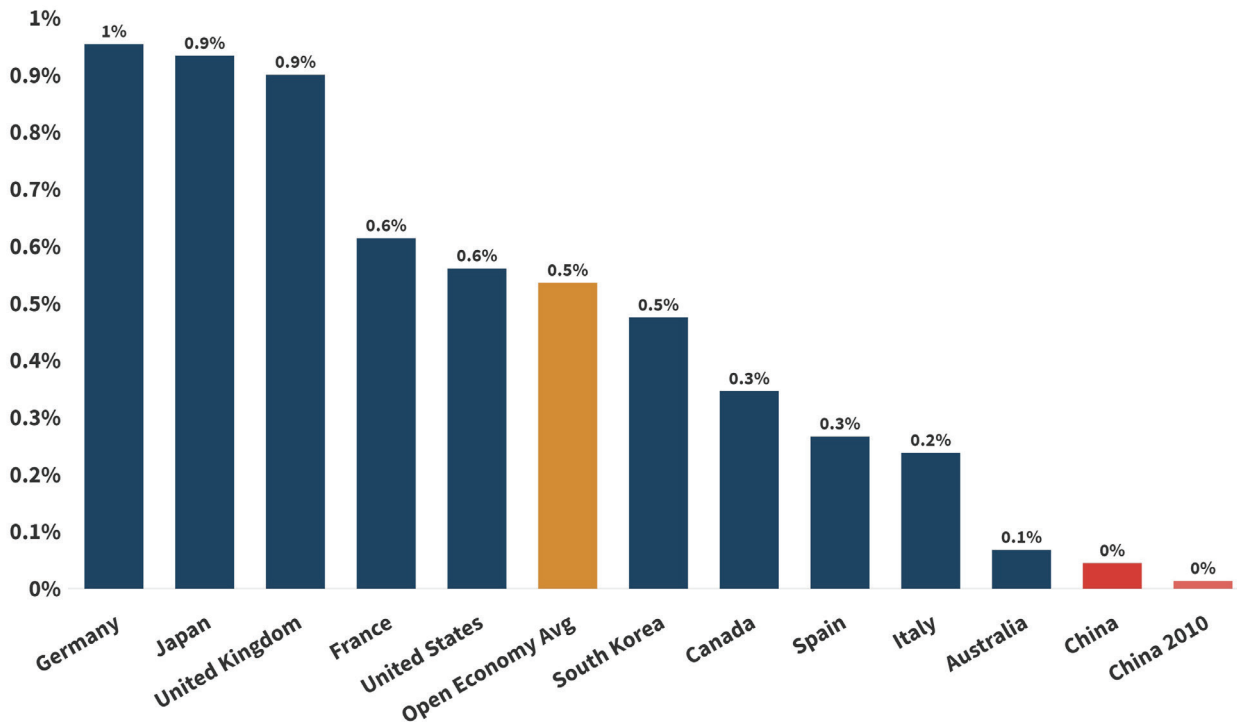
Ratio of business enterprise spending to government spending on domestic R&amp;D.



**Source:** OECD, Australian Bureau of Statistics, China Pathfinder calculations. • This ratio looks at the size of business enterprise spending relative to government spending on domestic R&D. The result is a ratio in which a higher number reflects a greater degree of R&D spending by business enterprises compared to publicly funded R&D.

**International Attractiveness of a Nation's Intellectual Property**

Receipts of payments from abroad for the use of IP, as a percent of country's annual GDP.



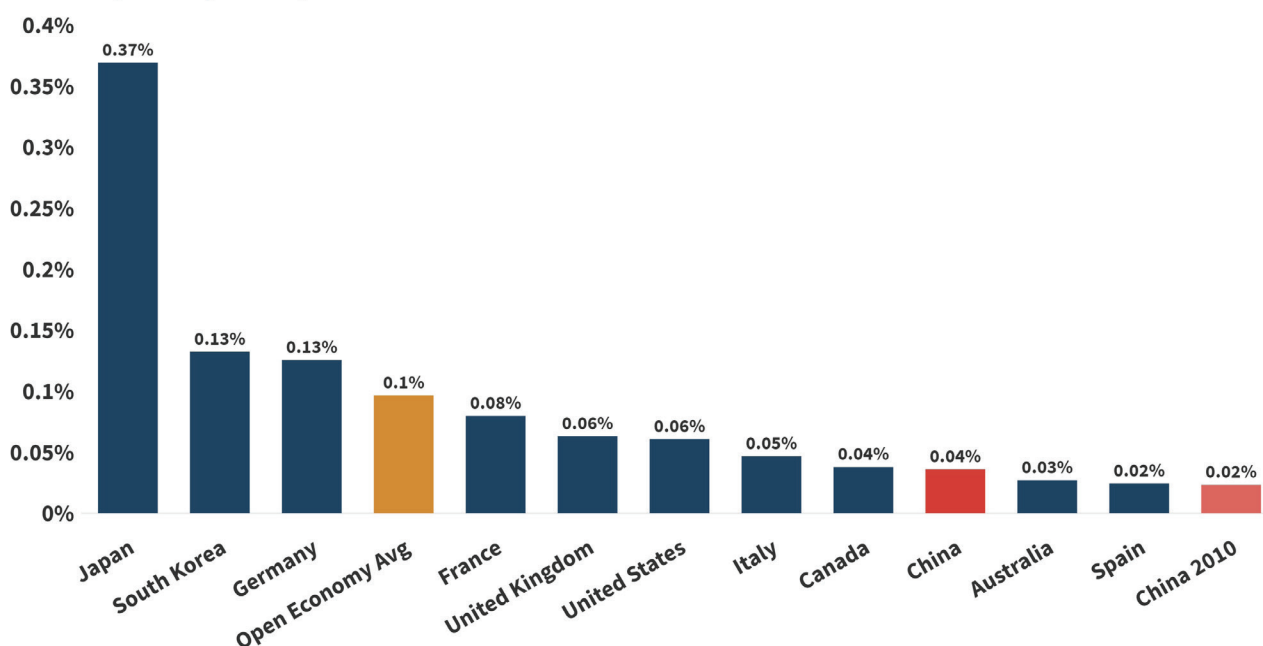
**Source:** International Monetary Fund, Balance of Payments Statistics Yearbook and data files; CEIC for GDP data. • We take the balance of payments data provided by the IMF and divide it by 2020 GDP from CEIC.



FIGURE 5.1: ANNUAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*) cont.

**Quality Innovation Output: Total Triadic Patent Families Filed**

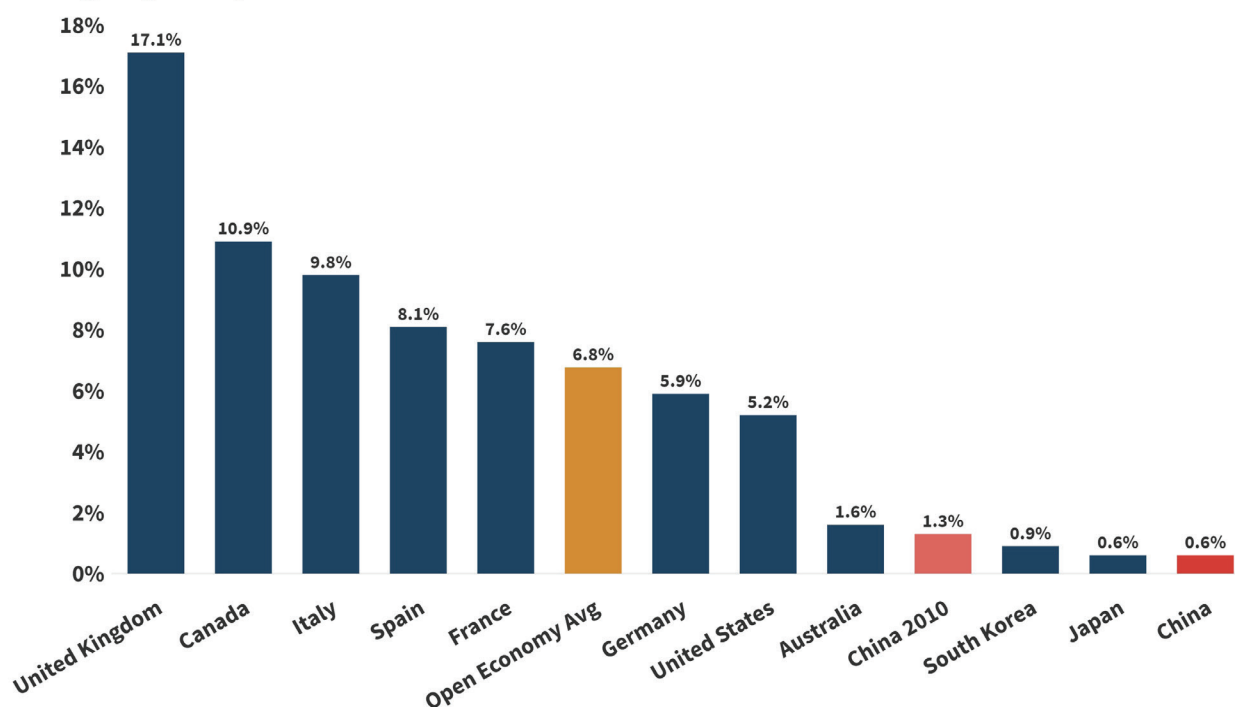
Count adjusted by country's annual GDP.



**Source:** OECD, Patents by main technology and by International Patent Classification (IPC). • A triadic patent family is a defined set of patents registered in various countries to protect the same innovation. Triadic patent families are filed at three of these major patent offices: the European Patent Office (EPO), the Japan Patent Office (JPO), and the United States Patent and Trademark Office (USPTO). We take the simple count of triadic patent families filed by country provided by the OECD and divide it by each country's respective GDP (in millions USD) to adjust the count by the size of that country's economy.

**Openness to Foreign Innovation Collaboration**

Percentage of gross expenditure on R&amp;D financed abroad.



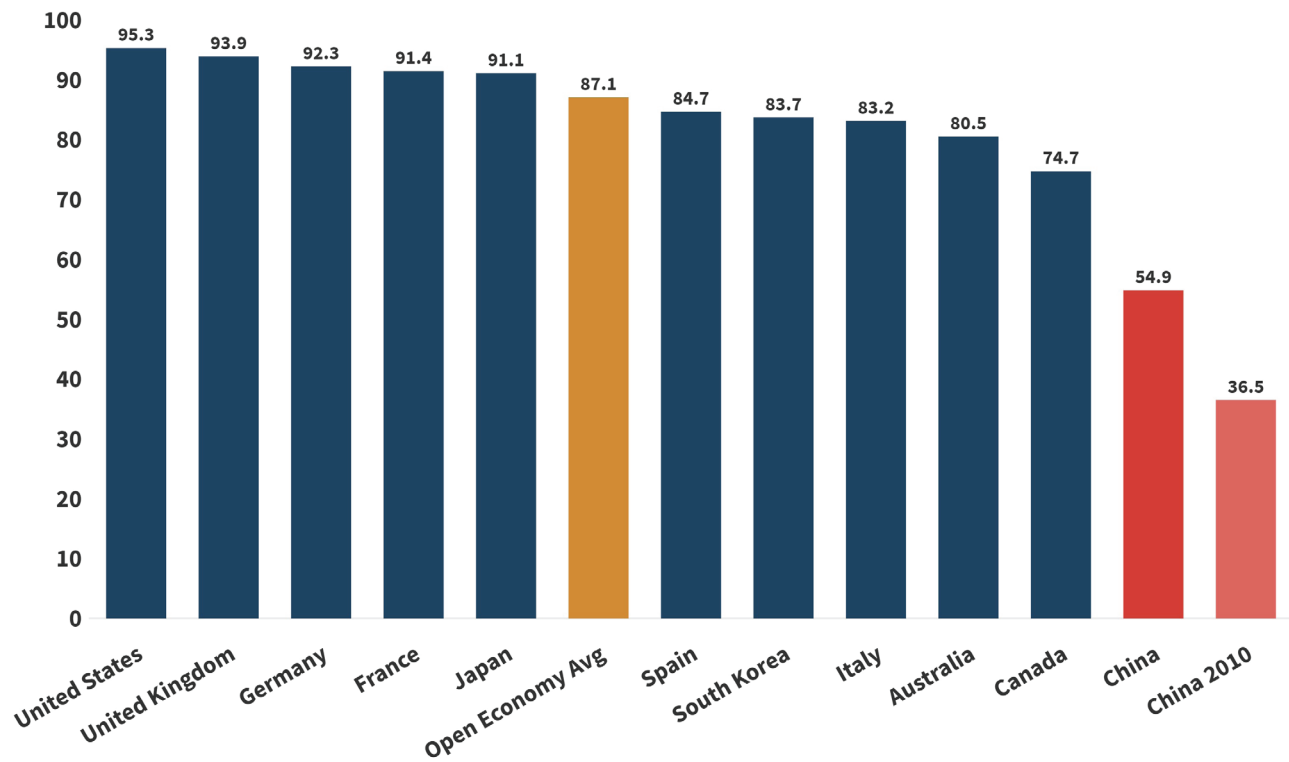
**Source:** World Bank. • This indicator is a proxy for a country's openness to collaborative research development with other countries. Higher percentages can be indicative of a more open innovation system. Here we have chosen to look at 2019 data due to significant distortions that took place in 2020 during the pandemic and its associated economic impact.



FIGURE 5.1: ANNUAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*) cont.

**Strength of Intellectual Property Protection Measures**

Intellectual property protection index: range is 0–100 (high).



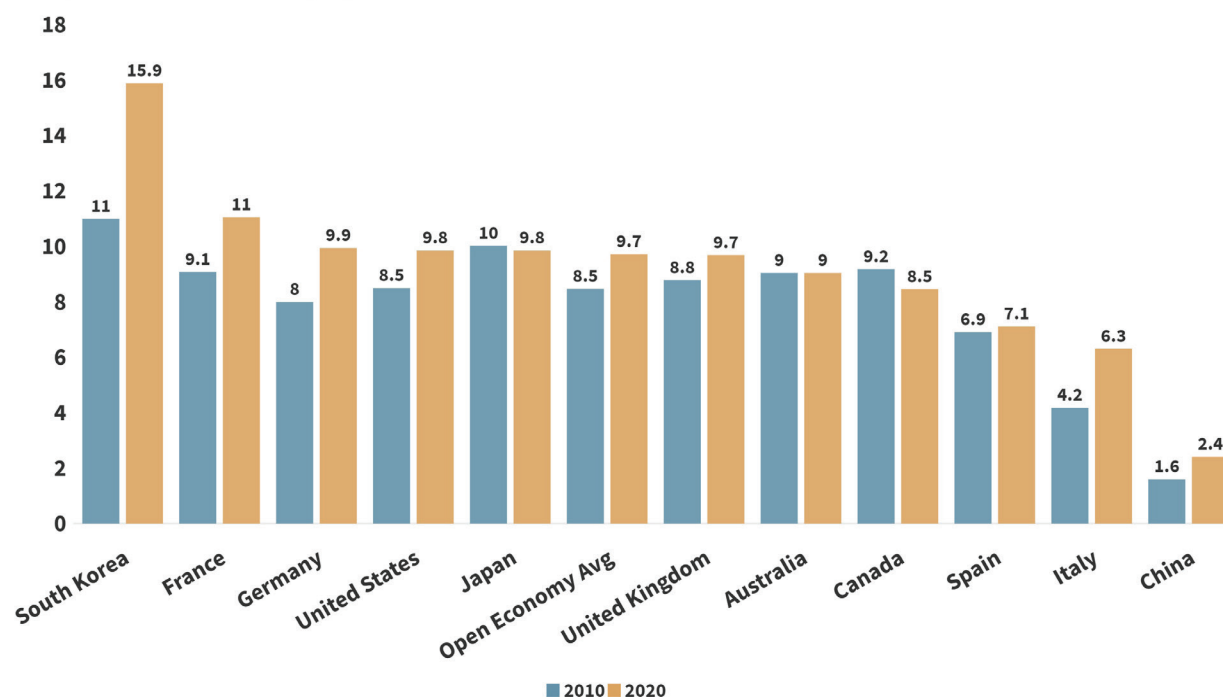
**Source:** US Chamber of Commerce Global Intellectual Property Center. • The index is composed of fifty individual indicator scores that look at both at existing regulations and standards, as well as their enforcement.



FIGURE 5.2: KEY SUPPLEMENTAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*)

**Number of Researchers, 2010 and 2020 Comparison**

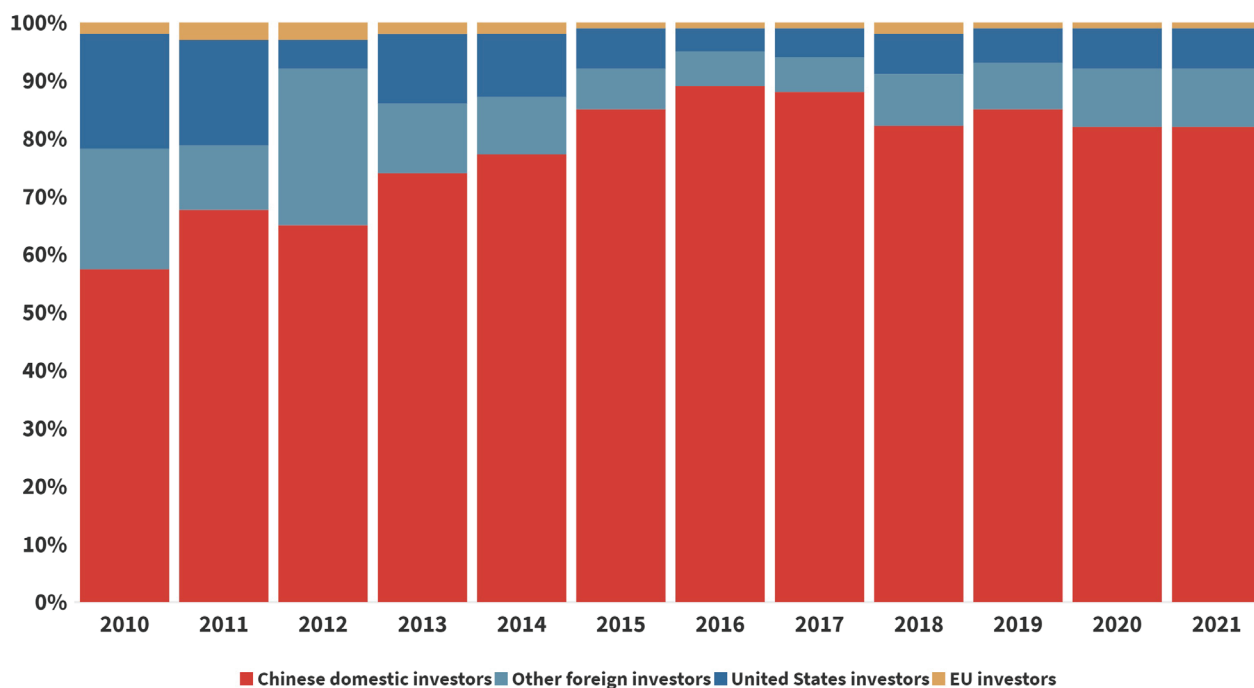
Persons per one thousand employed.



**Source:** OECD Main Science and Technology Indicators. • This is a proxy measure of innovation strength that can be used for cross-country comparisons. While showing improvement since 2010, China still lags in number of researchers per 1,000 employed compared to open market countries.

**Composition of Investors in Venture Funding Rounds for Chinese Companies**

Percentage.



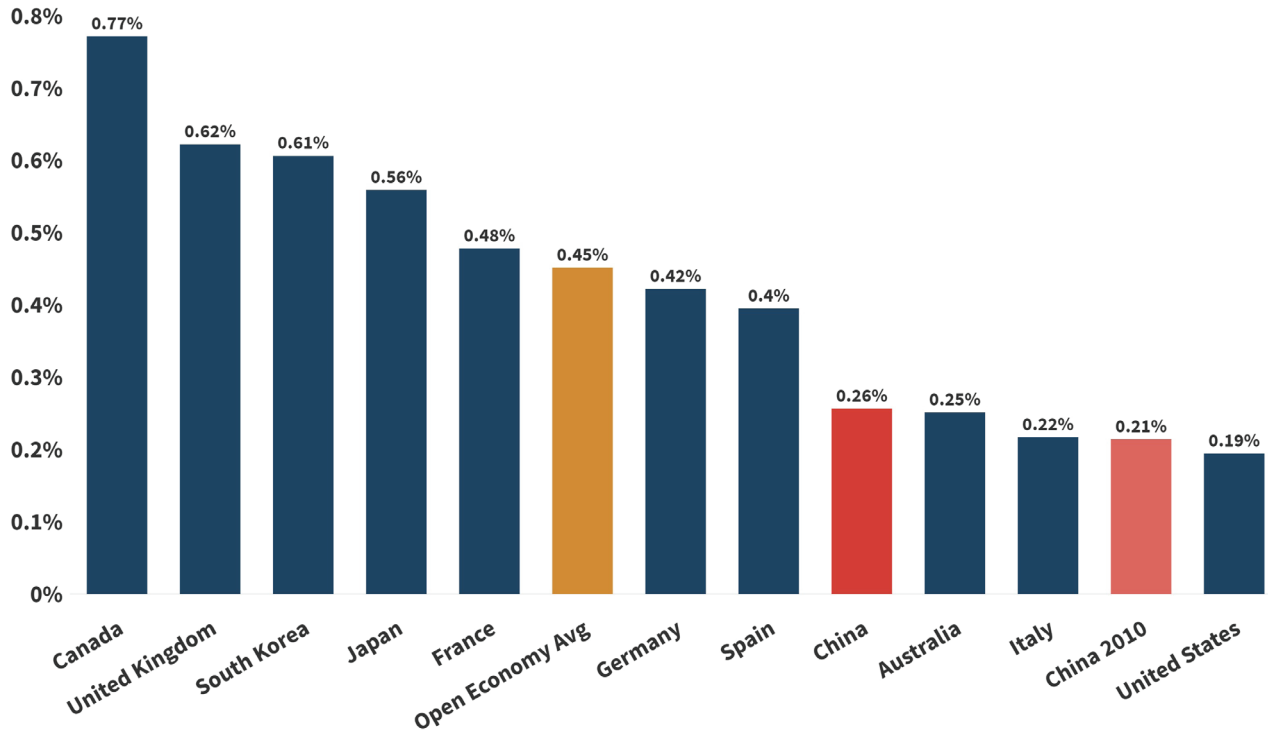
**Source:** Pitchbook, China Pathfinder calculations. • Venture funding rounds in this indicator include completed venture-capital rounds only. “Chinese companies” are defined as companies that have headquarters in China. Hong Kong and Macau companies are not included in this data. To gather data on “foreign” investors, we define this category of investors through association with companies having headquarters in non-China countries. “EU investors” include investors from the UK after 2020.



FIGURE 5.2: KEY SUPPLEMENTAL INDICATORS: MODERN INNOVATION SYSTEM (2020\*) cont.

**Charges for the use of IP, Payments**

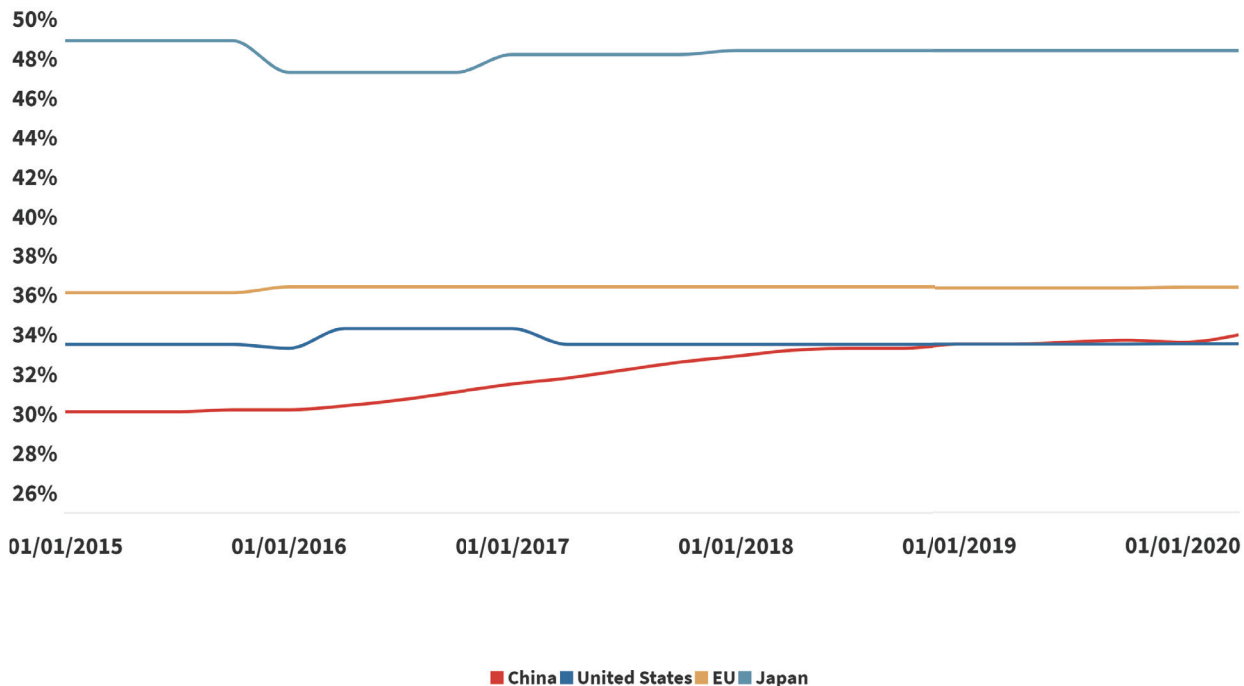
Payments for the use of other nations' IP, as a percent of a country's annual GDP.



**Source:** IMF Balance of Payments Statistics Yearbook, CEIC, China Pathfinder calculations. • Payments for the use of IP are made by the country in question to acquire IP from other countries.

**Innovative Industry Share in Industrial Value Added: How Far Is China from Advanced Economies?**

Percentage of innovation industrial value added in total industrial value added.



**Source:** National Bureau of Statistics, OECD, China Pathfinder. • This indicator describes China's shifting strength in producing innovative industrial products, based on the reported 2007 annual industrial value-added (IVA) data by industries (the last time this series was reported). We combine monthly, year-on-year, and real IVA growth rates from China's National Bureau of Statistics with 2007 IVA values to impute quarterly IVA up to the current quarter. Considerable



## 2.4 TRADE OPENNESS

FIGURE 6: COMPOSITE INDEX: TRADE OPENNESS, 2020



Measure of trade openness from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Free trade is a key feature of open market economies to facilitate specialization based on comparative advantage. We define trade openness as cross-border flow of market-priced goods and services free from discriminatory, excessively burdensome, or restrictive measures.<sup>20</sup>

### China Historical Context and Status Quo

China is the world's biggest trader, and its reform-era success benefited from significant liberalization of tariff barriers at a time when other developing economies still clung to protection. Participation in trade agreements and the WTO locked in China's presumption of market access abroad, and codified its commitments to reciprocal openness and a transition to "market economy" norms to justify that access.

Opening to trade drove China's rising productivity, living standards, and innovation levels. Exposure to competitive international prices made clear to China where it was and was not competitive, and provided an apolitical benchmark for gauging progress. Structural adjustment around comparative advantage—generally toward labor-intensive manufacturing—rapidly lifted national income and per capita earnings. Allowing foreign investors to leverage these advantages, Beijing saw firms from around the world flood in, bringing with them new technologies and managerial knowhow that they were ready to share. While China is often credited with avoiding the "shock therapy" that had mixed results in the transition of the former Soviet Union, the influx of trade—simultaneously beneficial and disruptive to the lives of hundreds of millions of Chinese citizens—was really no less jarring.

However, the level of trade openness has not kept pace with China's growth beyond low-income status, and formal and informal nontariff barriers have swelled. Restrictions on goods—and especially services and digital trade—alongside political intervention, subsidies, huge and persistent current account imbalances, and refusal to permit exchange rate adjustment to correct the balance of payments cloud the earlier record of gradual liberalization. China has run an annual trade surplus for a quarter of a century—twenty-six consecutive years—despite growing services trade deficits in recent years

that likely, in part, are mislabeled and obscure even larger surpluses.<sup>21</sup> This is precipitating trade tensions and the threat of deglobalization, seen most dramatically in the case of the United States, but with clear echoes in Europe, Japan, Australia, and elsewhere in the OECD.

### 2021 Stocktaking: How Does China Stack Up?

We apply the following annual indicators to benchmark China against open market economies in terms of trade openness.

- Our primary de facto trade openness indicators are **gross two-way goods trade as a share of global two-way goods trade** and **gross two-way services trade as a share of global two-way services trade**. This metric is often referred to as the trade openness ratio, although a low ratio doesn't necessarily imply restrictive policies (it can also derive from the size of a country's economy or a non-trade-friendly geographic location). Both indicators show that China is an economy heavily integrated in global trade flows. China has the highest ratio when it comes to goods trade and a ratio somewhat above the open-economy average when it comes to services trade.
- On the de jure side, the standard metric for assessing a country's trade openness is **tariff rates**. We chose the simple mean of most favored nation (MFN) tariff rates across all product categories. We use a simple mean instead of an average that applies weight by the product import shares corresponding to each partner country. The simple mean can diminish the common issue of weighted MFN tariff rates being skewed downward, as goods subjected to steep tariffs would likely see lower quantities imported and, thus, a lower weight in the calculation.<sup>22</sup> For this metric, China is slightly above the open-economy average with a tariff rate of 7.45 percent, as compared to 6.97 percent. It is worth noting that tariff rates have been volatile in recent years due to politics. For example, the United States' average tariff rate has increased from 4.2 percent in 2018 to 10.17 percent in 2020, due to the ongoing trade war with China. Meanwhile, China's tariff rates with regard to non-US partners have fallen.

20 Halit Yanikkaya, "Trade Openness and Economic Growth: A Cross-Country Empirical Investigation," *Journal of Development Economics* 72, 1, 57–89, [https://doi.org/10.1016/s0304-3878\(03\)00068-3](https://doi.org/10.1016/s0304-3878(03)00068-3).

21 "China Balance of Trade," Trading Economics, accessed August 27, 2021, <https://tradingeconomics.com/china/balance-of-trade>.

22 Chad P. Bown and Douglas A. Irvin, "What might a Trump Withdrawal from the World Trade Organization Mean for US Tariffs?" Peterson Institute for International Economics, 2018, <https://www.piie.com/system/files/documents/pb18-23.pdf>.



- For a de jure measure for services trade openness, we rely on the OECD's **Services Trade Restrictiveness Index (STRI)**, which measures policy restrictions on traded services across four major sectoral categories.<sup>23</sup> These are logistics, physical, digital, and professional services. Each sectoral category also contains several specific industry subindices. A lower score on the index indicates a less open policy approach to services trade, with scores ranging from 0 to 1. China's score of 0.58 falls below the open-economy average of 0.78, illustrative of a more restrictive approach to services trade.<sup>24</sup> The score has only marginally improved since 2010.
- China is an even greater outlier in digital services trade, a subcategory of services trade that is increasingly important for the global economy. The OECD's **Digital Services Trade Restrictiveness Index** measures barriers that affect trade in digitally enabled services across fifty countries.<sup>25</sup> This includes policy areas such as infrastructure and connectivity, electronic transactions, payment systems, and IP rights. The index ranges from 0 to 1, with lower scores indicating a greater degree of restrictiveness. With a 2020 score of 0.49, China is by far the most restrictive nation in the sample, compared to the open-economy average of around 0.89. Moreover, its score has actually declined since 2010, indicating additional restrictions over the past decade.

Our **Trade Openness Composite Index**—which reflects a blended average of the above indicators—puts China at **4.3** in 2020, against an open-economy average of **5.6** within our sample of the ten largest open market economies (Figure 6). That is a substantial improvement compared to China's score of **3.04** in 2010 and China's best overall score in all six clusters. China has reduced tariffs to a level comparable with OECD economies (or, in some cases, below that) and has become the world's largest trading nation in goods. However, restrictions on services trade—and especially digital services—remain higher than in open market economies. And, of course, China's goods trade openness score comes with an

asterisk: virtually all observers note that unreported behind-the-border nontariff barriers are giant drivers of China's trade patterns.

Thus, while we have good access to basic trade-related data, our coverage faces several shortcomings. The measures of China's trade intensity are a yardstick for fairness and openness. The services trade data have flaws, including significant distortions through tourism spending and hot money flows. Finally, some of China's most problematic practices—for example, nontariff barriers, informal discrimination, and exchange rate interventions—are difficult to capture through internationally comparable datasets.

### Looking Forward: Market-Oriented Policy and Data Signals

Looking forward, we will update these benchmark indicators every year to evaluate the pace and direction of change. On a more frequent basis, we are watching for policy reforms that would move China closer to the average of market economies in terms of trade openness, including

- recognition that China's persistent and huge trade surpluses represent a structural problem that requires debate and remedy;
- reducing tariff peaks and other barriers to imports of highly protected but non-sensitive goods;
- disciplining technical barriers to trade and the use of idiosyncratic standards as trade advantages;
- meaningful reduction in services trade restrictions; and
- acknowledgement of the role of subsidies and other capital allocation distortions in trade outcomes, including WTO notification.

In addition to tracking policy developments, we are also watching higher-frequency, often China-specific, indicators to gauge real-time progress on market-oriented and liberal economic reforms. Figure 6.2 shows these indicators, including China's current account balance as a share of GDP, RMB exchange rates compared to major currencies, China's trade balances, role in processing trade, and trade policy interventions.

23 "OECD Services Trade Restrictiveness Index: Policy Trends up to 2020," Organisation for Economic Co-operation and Development, February 2021, <https://www.oecd.org/trade/topics/services-trade/documents/oecd-stri-policy-trends-2021.pdf>.

24 "OECD Services Trade Restrictiveness Index Country Note: China," Organisation for Economic Co-operation and Development, 2020, <https://www.oecd.org/trade/topics/services-trade/documents/oecd-stri-country-note-chn.pdf>.

25 Janos Ferencz, *The OECD Digital Services Trade Restrictiveness Index* (Paris: OECD Publishing, 2019), <https://doi.org/10.1787/16ed2d78-en>.

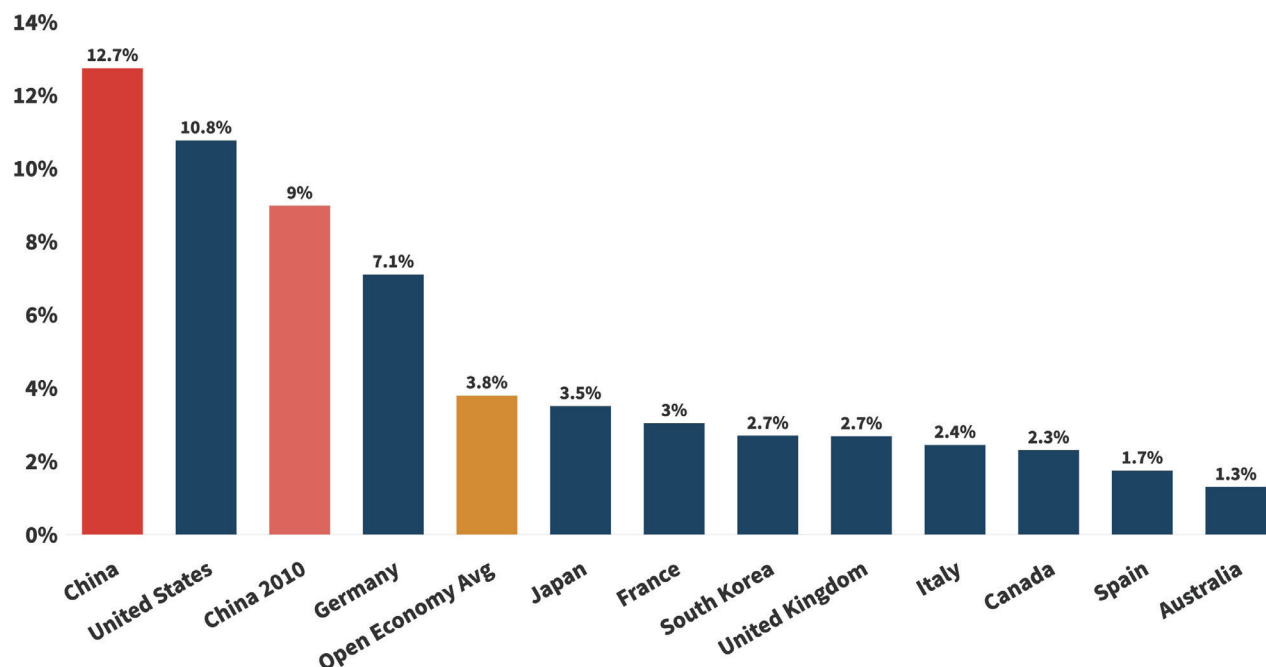




FIGURE 6.1: ANNUAL INDICATORS: TRADE OPENNESS (2020\*)

**Trade Intensity of the Economy: Goods Trade**

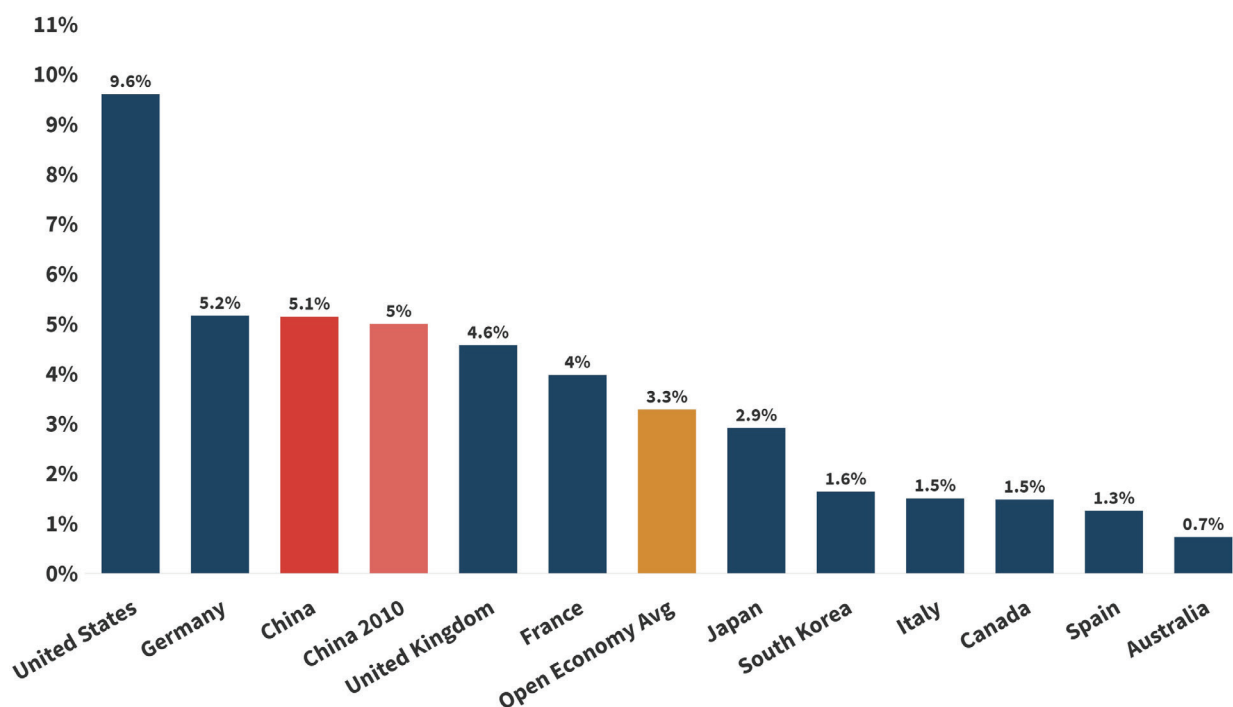
Country two-way goods trade as a share of global two-way goods trade.



**Source:** OECD Balance of Payments Data, China Pathfinder calculations. • We took the sum of goods debits (imports) and goods credits (exports) country data totals for each year to calculate two-way goods trade for our selection of countries. For the global total two-way goods trade, the same process was used, but for global goods imports and exports totals.

**Trade Intensity of the Economy: Services Trade**

Country two-way services trade as a share of global two-way services trade.



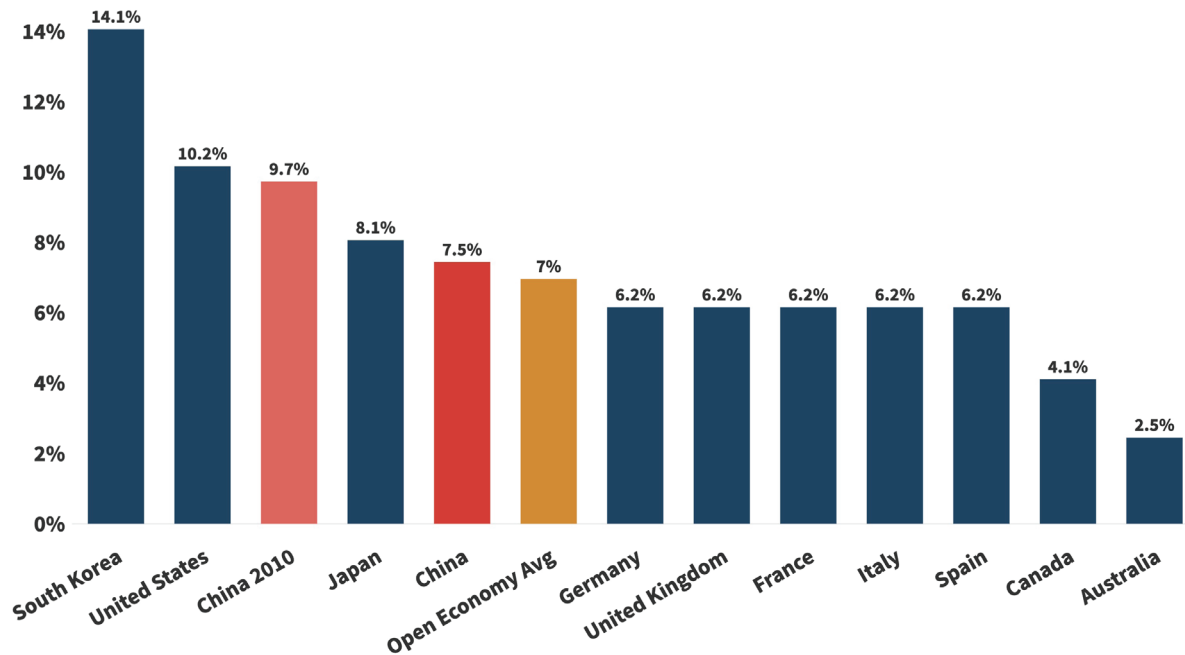
**Source:** OECD Balance of Payments Data, China Pathfinder calculations. • Took the sum of services debits (imports) and services credits (exports) country data totals for each year to calculate two-way services trade for our selection of countries. For the global total two-way services trade, the same process was used, but for global services imports and exports totals.



FIGURE 6.1: ANNUAL INDICATORS: TRADE OPENNESS (2020\*) cont.

**Trade Barriers: Tariffs**

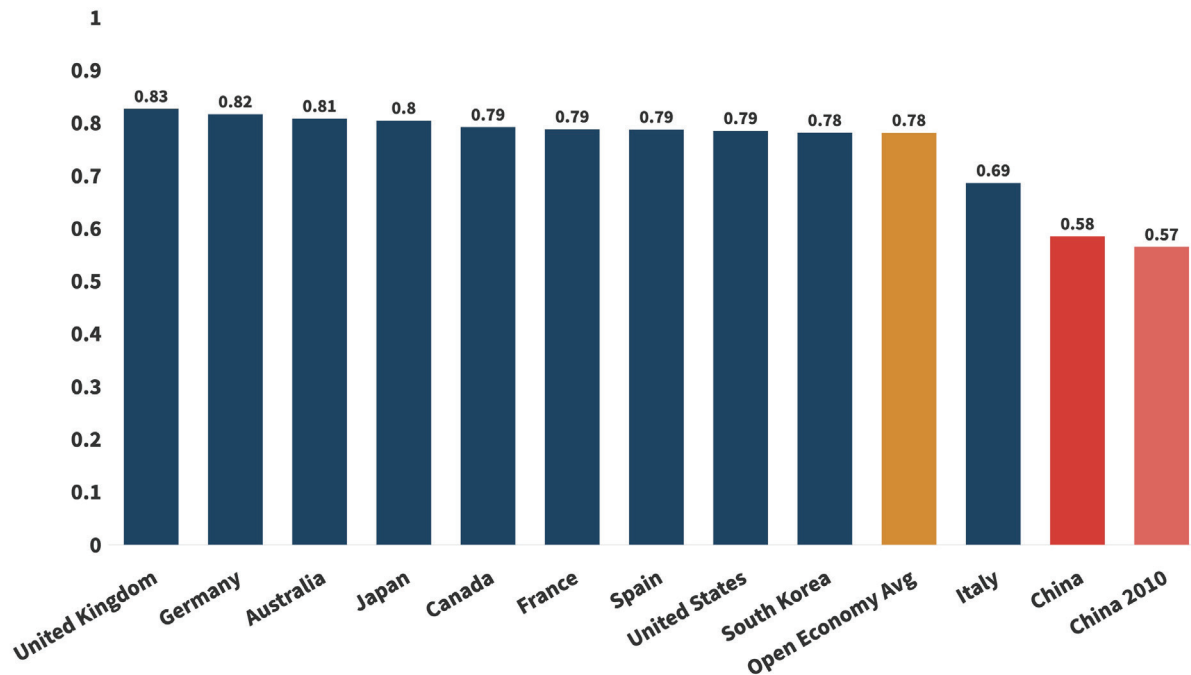
Tariff rate, most favored nation, simple mean, all products, percent.



**Source:** World Bank. • Simple mean MFN tariff rate is the unweighted average of MFN rates for all products subject to tariffs calculated for all traded goods. We use the simple average tariff rate because the weighted average could skew the outcome if certain countries had high product-import shares corresponding to limited partner countries.

**Trade Barriers: Services Trade**

Services Trade Openness Index, range is 0–1 where 1 is most open.



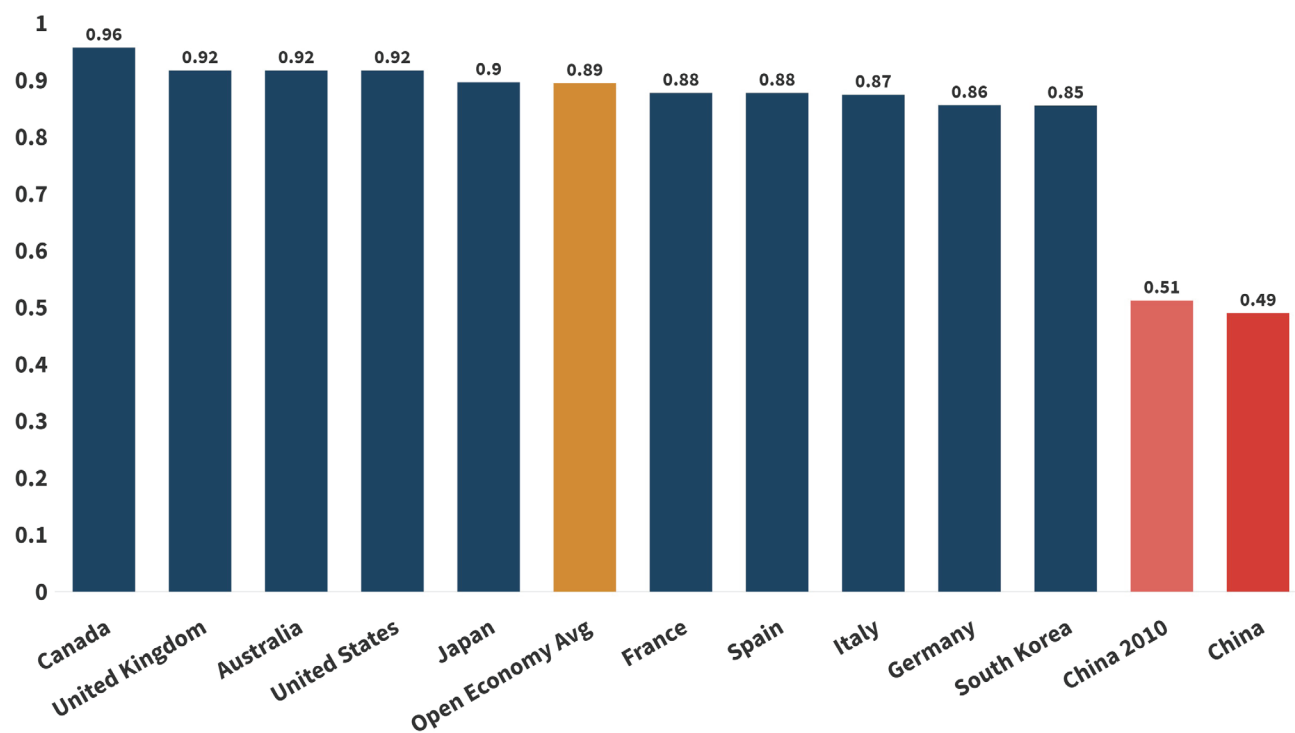
**Source:** OECD. • The STRI measures policy restrictions on traded services across four major sectoral categories. These are logistics, physical, digital, and professional services. Each sectoral category also contains several specific industry subindices. We take the average of all four sectoral category indices to create our combined STRI index. Values are inverted from the original OECD index.



FIGURE 6.1: ANNUAL INDICATORS: TRADE OPENNESS (2020\*) cont.

**Trade Barriers: Digital Services Trade**

Digital Trade Openness Index, range is 0–1 where 1 is most open.



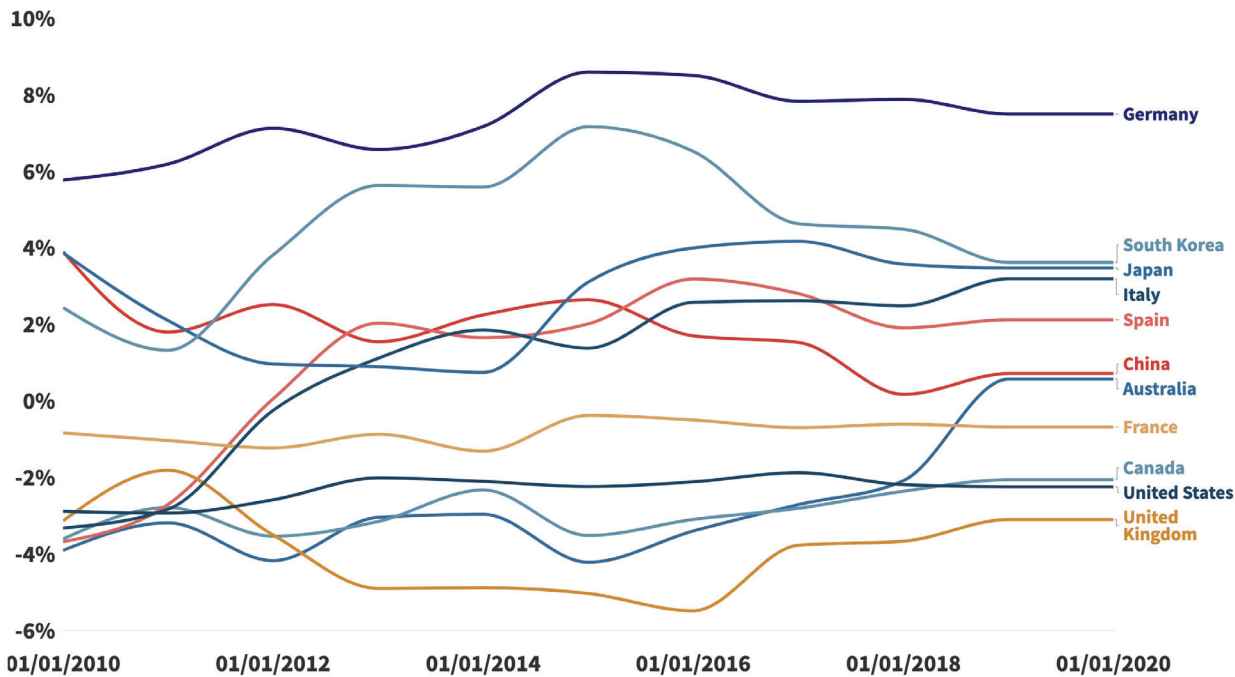
**Source:** OECD. • We inverse the index so that lower values on the index indicate more restrictions to digital trade. The DSTRI measures barriers that affect trade in digitally enabled services across fifty countries. This includes policy areas such as infrastructure and connectivity, electronic transactions, payment systems, and IP rights.



FIGURE 6.2: KEY SUPPLEMENTAL INDICATORS: TRADE OPENNESS (2020\*)

**Current Account Balance**

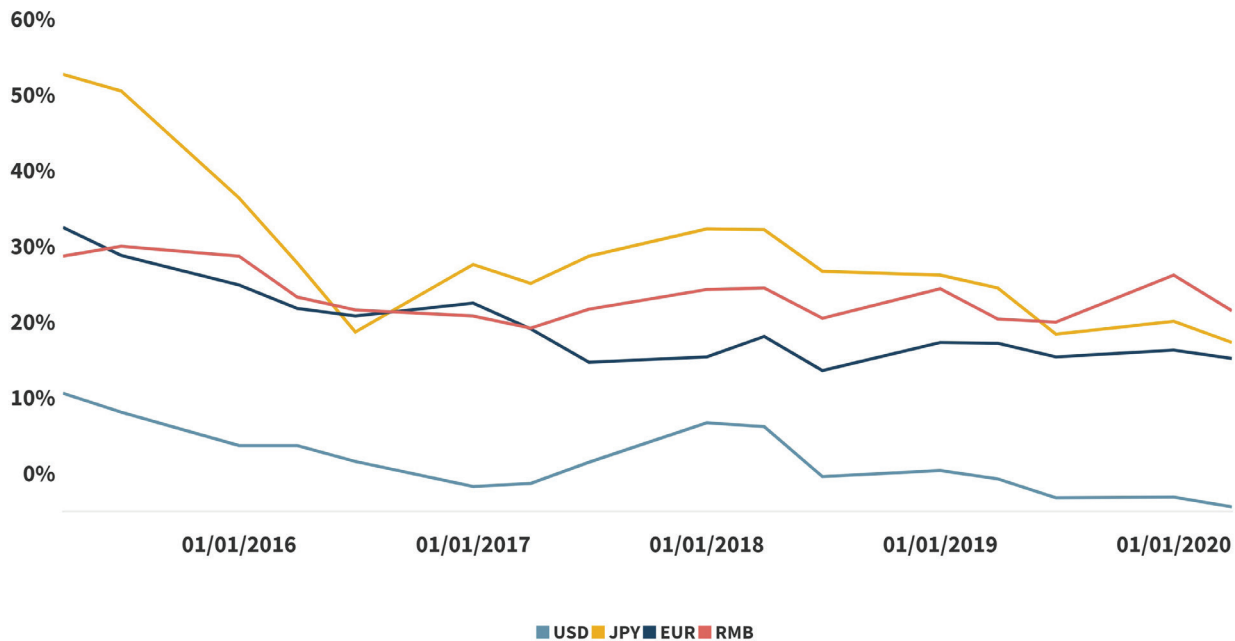
Percentage share of GDP.



**Source:** IMF Balance of Payments (BOP) Statistics Yearbook. • As described by the OECD, the current account balance of payments is a record of a country's international transactions with the rest of the world. The current account includes all the transactions (other than those in financial items) that involve economic values and occur between resident and non-resident entities. Also covered are offsets to current economic values provided or acquired without a quid pro quo.

**Exchange Rate Fluctuation: RMB Exchange Rates vs. Major Currencies, Monthly**

By quarterly average, percentage change.



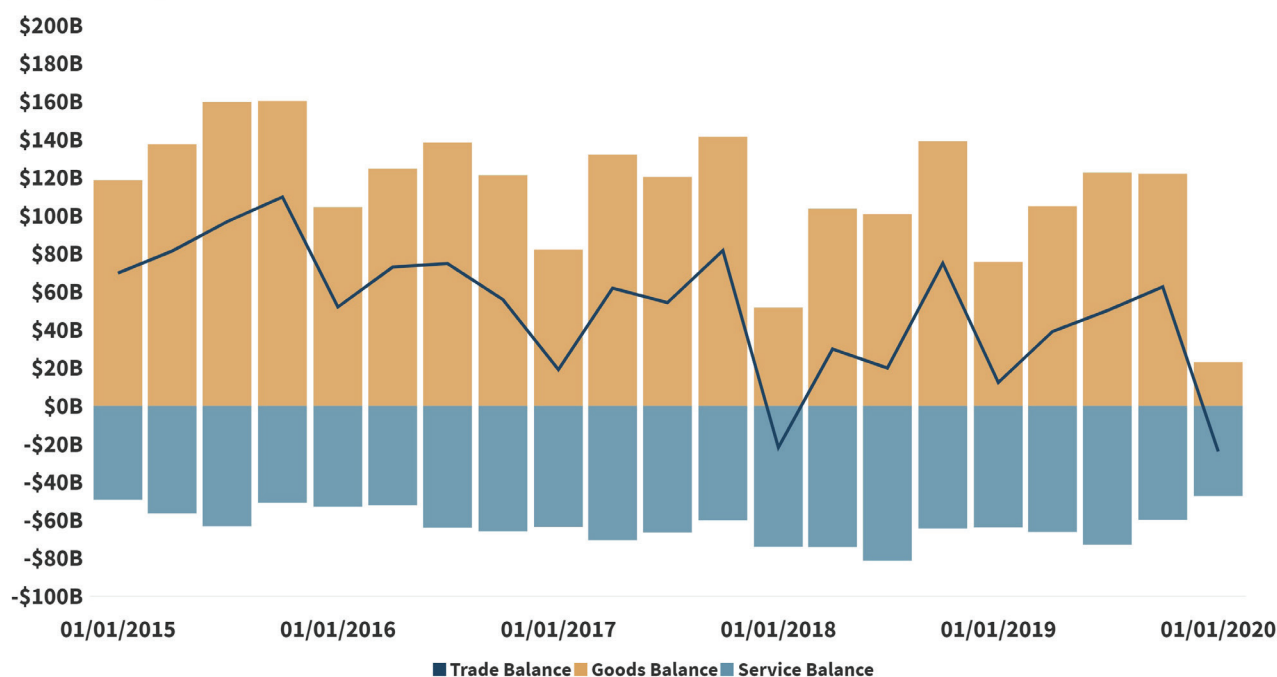
**Source:** BIS, China Foreign Exchange Trading Center. • We show percentage changes in the value of the renminbi since January 2010 relative to three currencies as reported by China's foreign exchange authority, as well as the real effective exchange rate (REER) for renminbi – a weighted average of bilateral real exchange rates with China's trading partners, reported by the BIS. Currency movements against the BIS basket account for differential inflation rates but can also mask bilateral movements; both trends matter for gauging rationalization of China's exchange rate management.



FIGURE 6.2: KEY SUPPLEMENTAL INDICATORS: TRADE OPENNESS (2020\*) cont.

**China's Trade Balance, 1Q 2015 – 1Q 2020**

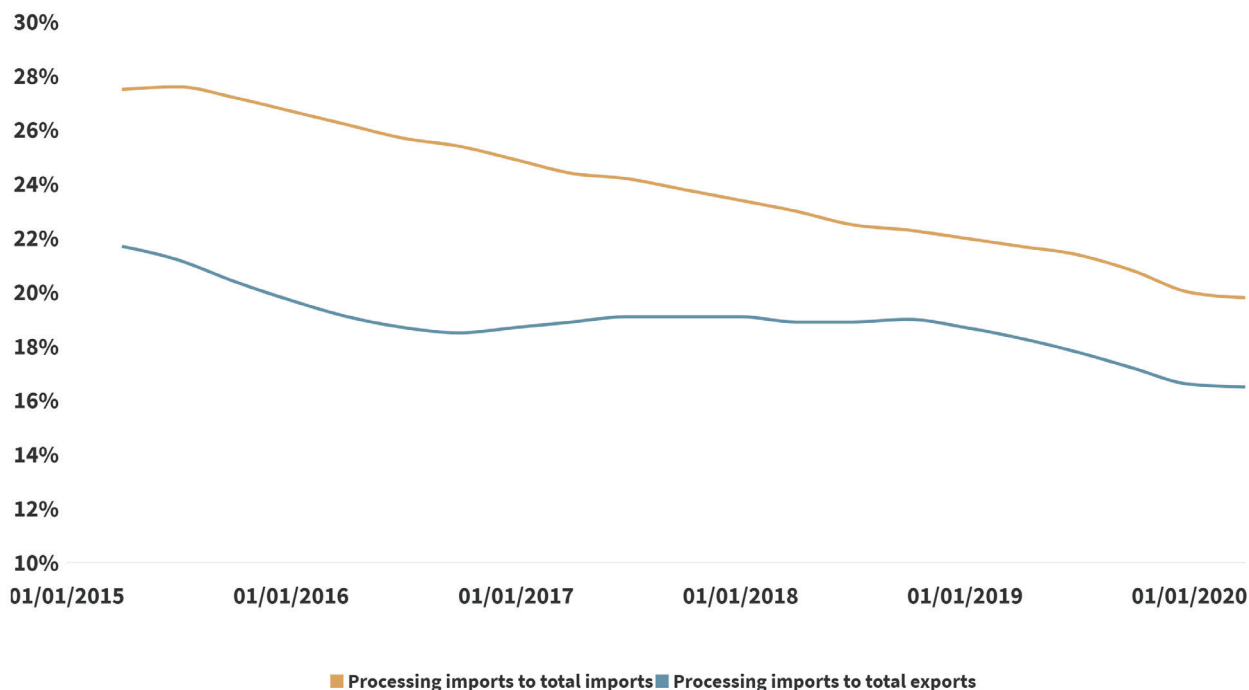
USD (billions).



**Source:** State Administration of Foreign Exchange (SAFE). • A country that imports more goods and services than it exports in terms of value has a trade deficit, or a negative trade balance. A country that exports more goods and services than it imports in terms of value has a trade surplus. While China maintains a goods trade surplus, and an overall trade surplus, the country still maintains a services trade deficit.

**China's Changing Goods Trade Patterns: Role of Processing Trade**

Percentage.



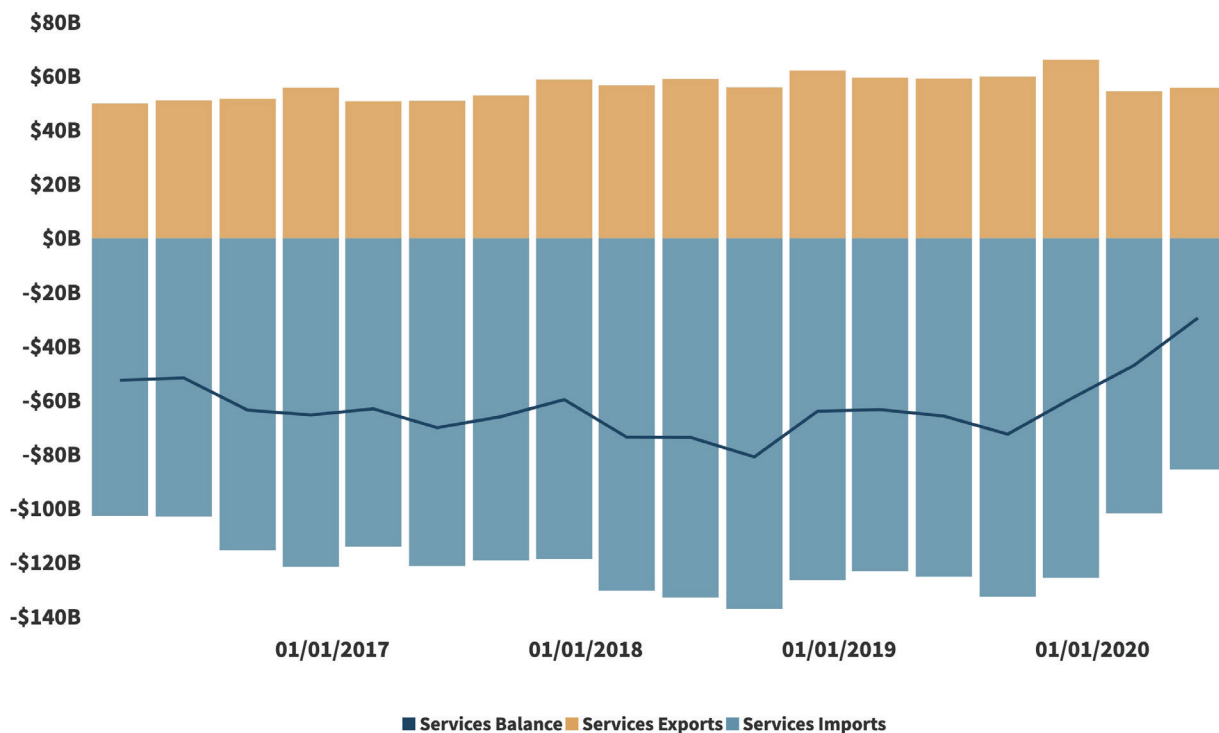
**Source:** General Administration of Customs. • We calculate on a six-month moving average basis. Processing imports refers to inputs that are imported and used to produce a final good that is reexported. A falling ratio of processing imports to total imports suggests that more of what China imports is for consumption at home rather than destined for reshipment abroad, while a falling ratio of processing imports to total exports suggests less reliance on lower value-added processing trade in China's trade patterns, and more upgrading to domestic value added.



FIGURE 6.2: KEY SUPPLEMENTAL INDICATORS: TRADE OPENNESS (2020\*) cont.

**China's Services Trade Balance, 1Q 2016 – 1Q 2021**

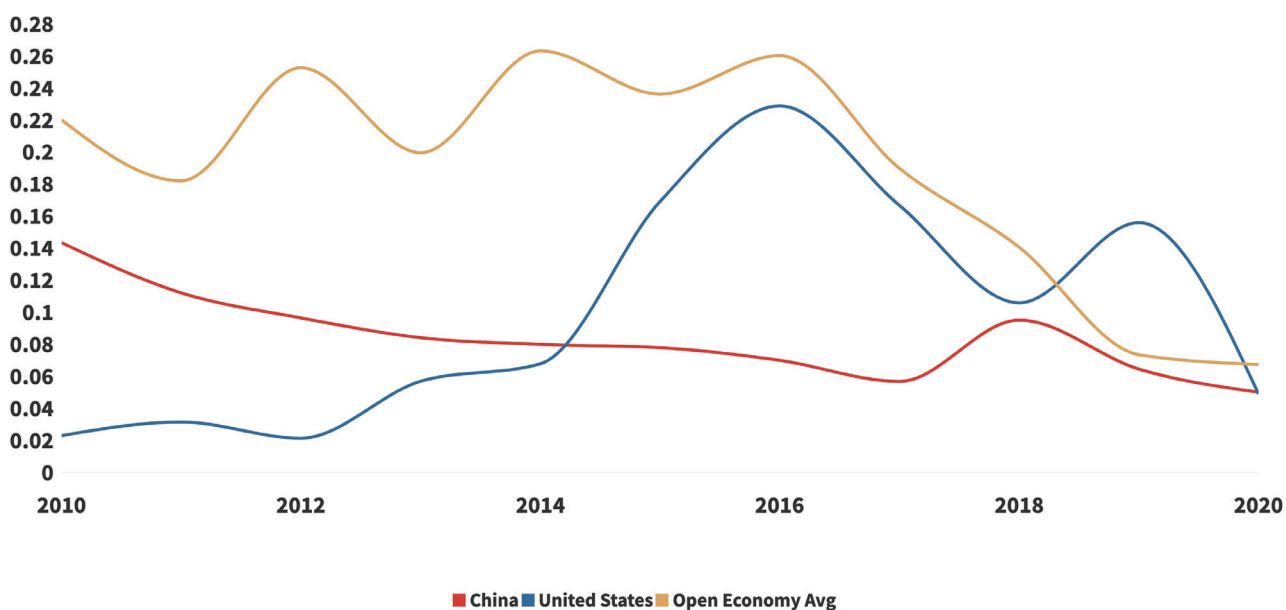
USD (billions).



**Source:** WIND • A country that imports more services than it exports in terms of value has a services trade deficit or a negative services trade balance. This chart shows that China has consistently maintained a services trade deficit, but the deficit size has gradually decreased in the last couple of years.

**Contributions and Barriers to Trade**

Ratio of liberalizing to harmful trade interventions.



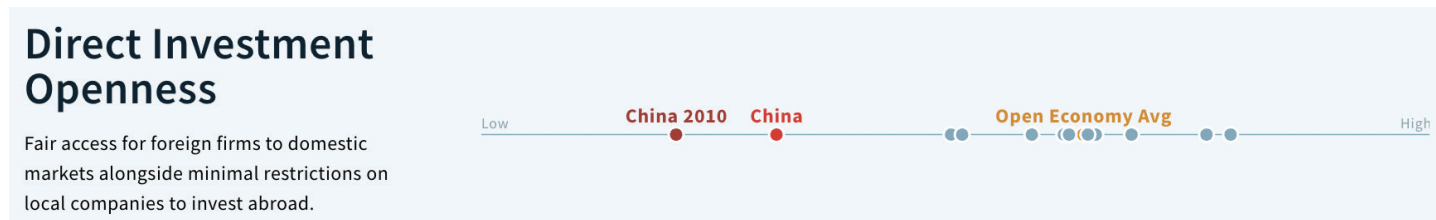
**Source:** Global Trade Alert. • Harmful trade interventions represented in this data include subsidies (excluding export subsidies), export-related measures (including export subsidies), tariff measures, contingent trade-protective measures, and trade-related investment measures. Liberalizing trade interventions include tariff measures, non-automatic licensing and quotas, export-related measures (including export subsidies), FDI measures, subsidies (except for export subsidies), and other relevant interventions. This chart uses a ratio to determine the proportion between liberalizing and harmful trade interventions, where a higher ratio indicates a greater inclination towards trade openness. We see that China has broadly imposed a lower proportion of liberalizing interventions vs. the United States since 2014. Both countries have lower liberalizing-to-harmful ratios compared to the open economy average (the mean of our sample of top 10 open economies).





## 2.5 DIRECT INVESTMENT OPENNESS

FIGURE 7: COMPOSITE INDEX: DIRECT INVESTMENT OPENNESS, 2020



Measure of direct investment openness from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Direct investment openness refers to fair, nondiscriminatory access for foreign firms to domestic markets and freedom for local companies to invest abroad without restrictions or political mandates. Direct investment openness is a key feature of open market economies to encourage competitive markets and facilitate the global division of labor based on comparative advantages.

### China Historical Context and Status Quo

At the start of the reform era, China was in virtual autarky, meaning near-complete separation from the global economy. This included absence of direct investment from foreign firms, especially those from the market-oriented world. The most distinctive feature of China's reform campaign on the external side was to open its doors to foreign investment. Leaders created "special economic zones" where these multinational firms were accorded more commercial terms and conditions even while China as a whole was still transitioning away from the command economy model. This created a virtuous cycle of prosperity and technical transfers that created a competition to expand these special zone terms.

As the nation grew, Beijing gradually liberalized the formal border limits on this inbound FDI, moving from an approval-based system to a negative list-based system and reducing restricted sectors. But, behind the border, foreign and domestic investments are not treated equally in many sectors.

Until the 2010s, the Chinese government's preoccupation with conserving capital meant Chinese companies continued to face major restrictions and political interventions on outbound direct investment. Those restrictions were loosened in the 2014–2016 period, but subsequent balance-of-payments anxieties resulted in their reimposition.

China retains a large base of inward investment, and a meaningful initial outbound FDI position, but levels are slipping relative to China's GDP growth and income level. Informal challenges are on the rise for foreign investors in both directions. The potential for further FDI is tremendous, but it is contingent on a turnaround in current trends.

### 2021 Stocktaking: How Does China Stack Up?

We use the following annual indicators to benchmark China's against open market economies in terms of direct investment openness.

- Our main de facto indicator for inbound direct investment is **the FDI intensity of the economy**, which is calculated by dividing the total FDI stock of an economy by its GDP. While China's FDI intensity is high (liberal) relative to most developing countries, it remains relatively low compared to developing economies. However, other East Asian economies also rank low, and China already surpasses South Korea and Japan. Importantly, despite China's FDI powerhouse reputation, inbound FDI intensity declined from 2010 to 2020.
- For outflows, we measure **outbound FDI intensity**, which is calculated by dividing FDI stock by GDP. China's outbound FDI intensity has risen from a very low base in 2010 but remains lower than any other country in our sample. And, while FDI intensity increased since 2010, it peaked in 2017 and has declined since.
- To measure de jure restrictiveness for FDI, we built our own indicator for **direct investment restrictiveness**. While there is a solid body of academic work on the topic of cross-border capital controls, we found existing research not suitable for our purposes due to lack of a magnitude metric<sup>26</sup>, coverage gaps, and significant time lags.<sup>27</sup> Our indicator is compiled for outflows and inflows and covers three types of restrictions: national security reviews, sectoral and operational restrictions, and repatriation requirements and other foreign exchange restrictions. The scoring is based on a proprietary framework derived from information contained in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) as well as proprietary research on national security review mechanisms and sectoral restrictions.<sup>28</sup>
- Regarding **inward FDI restrictiveness**, China already had a relatively low score in 2010 and has successfully implemented reforms to further reduce these barriers by 2020. However, China maintains not just national security reviews, but a negative

<sup>26</sup> Andres Fernandez et al., "Capital Control Measures: A New Dataset," IMF Economic Review 64, 2016, 548-574.

<sup>27</sup> Chinn, Menzie D. and Hiro Ito. 2006. "What Matters for Financial Development? Capital Controls, Institutions, and Interactions," *Journal of Development Economics*, Volume 81, Issue 1, Pages 163-192 (October).

<sup>28</sup> "Annual Report on Exchange Arrangements and Exchange Restrictions 2019," International Monetary Fund, 2019, [https://www.elibrary-areaer.imf.org/Documents/YearlyReport/AREAER\\_2019.pdf](https://www.elibrary-areaer.imf.org/Documents/YearlyReport/AREAER_2019.pdf).



list of restricted sectors as well as foreign exchange restrictions for foreign companies.

- With regard to **outward FDI restrictiveness**, China had a very high score in 2010 reflecting a regime with approval requirement for every single outbound investment. Beijing made a significant push over the following decade to give firms more autonomy to invest abroad, especially in 2014 when China moved to a system that required firms to register their investments instead of obtaining approval. However, Beijing retracted these liberal policies in 2017 in light of large capital outflows. In 2020, China's outbound FDI restrictiveness score was only slightly better than in 2010 and well short of open market economies'.

On aggregate, our **Direct Investment Openness Composite Index** puts China at around **2.24** in 2020, against an open-economy average of **6.94** within our sample of the ten largest open market economies (Figure 7). Based on the same criteria, China scored approximately **0.7** in 2010, signaling significant progress over the last decade. China has substantially reduced equity restrictions for foreign investors. These changes have propelled China to become one of the largest FDI recipients in the world. However, the FDI intensity of the economy has still declined in the past decade as formal and informal discrimination persists. Beijing also continued to tightly control outbound FDI by Chinese companies, after a short episode of liberalism from 2014 to 2016.

As with other indicators, our de facto measures for direct investment openness are imperfect because they are influenced by a host of non-policy variables, such as market size, economic growth, and business cycles. Our measures for de jure restrictiveness reflect scoring judgments that are subject to a certain degree of subjectivity.

### Looking Forward: Market-Oriented Policy and Data Signals

Looking forward, we will update these benchmark indicators annually to track the pace and direction of change. On a more frequent basis, we are watching for policy moves that would draw China closer to the average of market economies in terms of direct investment openness, including

- further eliminating formal inward FDI restrictions; ultimately creating pre-establishment rights for all but a limited number of sectors justified by essential security interests and public-order reasons;
- leveling the playing field for foreign companies beyond border barriers, addressing discrimination based on nationality/foreign ownership;
- giving foreign firms equal access to government procurement markets;
- joining the WTO's Government Procurement Agreement (GPA);
- reducing regulatory barriers on outbound FDI by Chinese companies;
- eliminating preferential treatment for state-owned entities in outbound investment approvals and foreign-exchange conversion;
- demonstrable elimination of requirements for foreign companies to transfer technology to China in order to secure market access, approvals, or other advantages;
- eliminating political intervention in outbound FDI decisions by Chinese companies; and
- allowing repatriation of profits or intracompany flows between FDI parent and subsidiaries both ways, without foreign exchange restrictions.

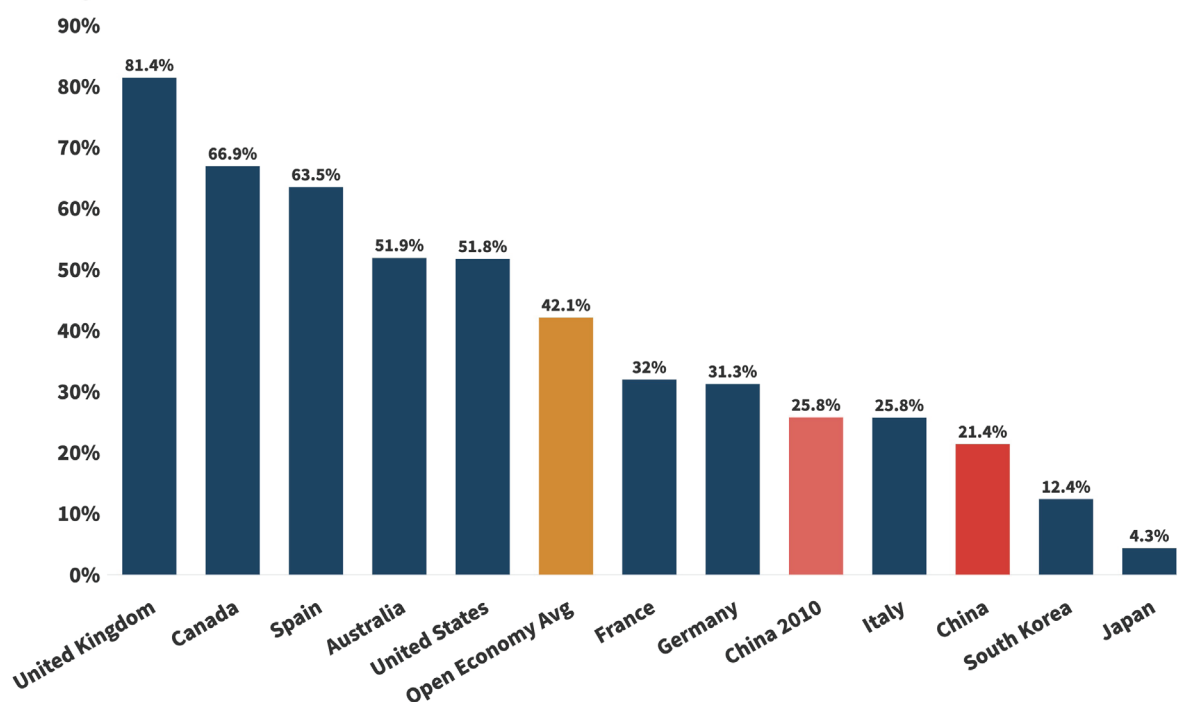
In addition to tracking policy developments, we are also watching higher-frequency, often China-specific, indicators to gauge progress. Figure 7.2 presents these indicators, including measures of China's outbound and inbound FDI flows; the inward and outward FDI stock for top-ten economies; and China's role in global M&A transactions.



FIGURE 71: ANNUAL INDICATORS: DIRECT INVESTMENT OPENNESS (2020\*)

**Inward FDI Intensity of the Economy**

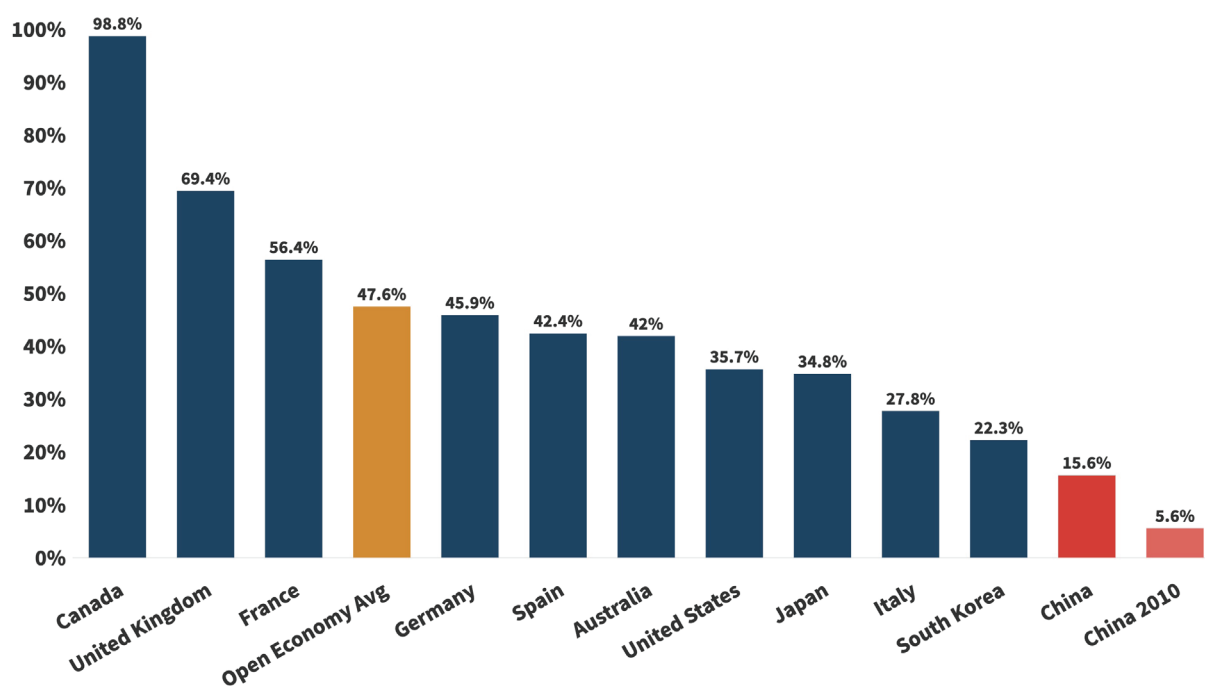
Percentage share.



Source: IMF. • We look at inbound FDI stock data from the IMF and divide it by 2020 annual GDP for each sample country to create this indicator. The result demonstrates the relative size of inward FDI flows.

**Outward FDI Intensity of the Economy**

Percentage share.



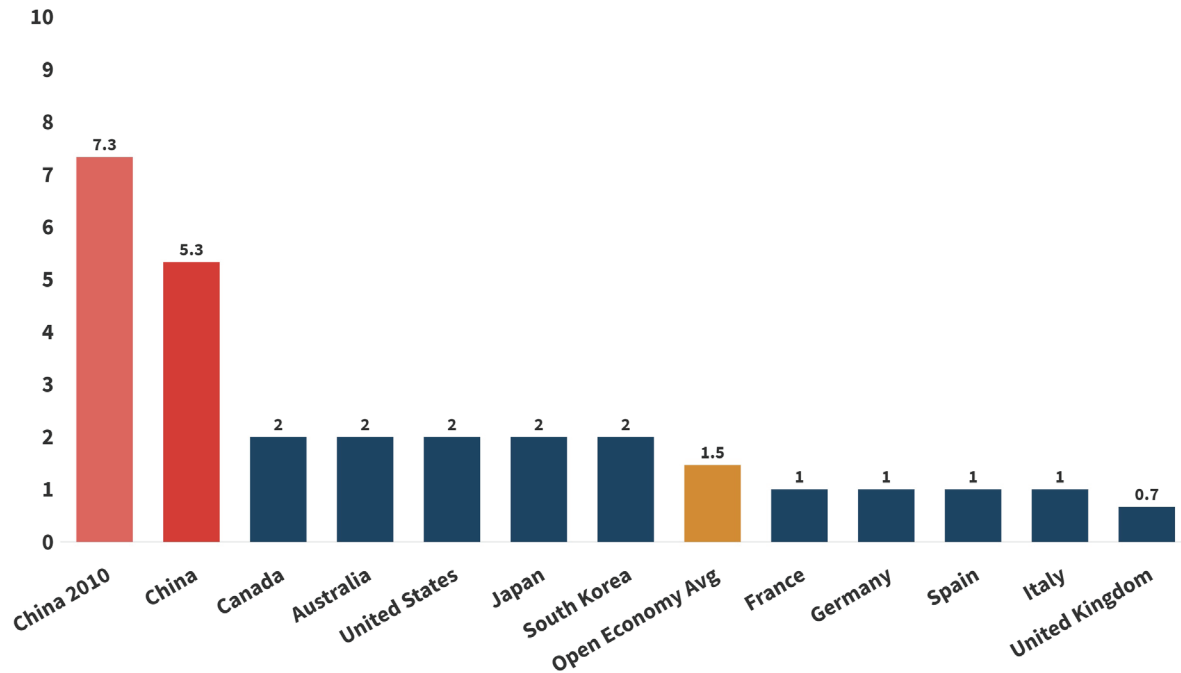
Source: IMF. • We look at outbound FDI stock data from the IMF and divide it by 2020 annual GDP for each sample country to create this indicator. The result demonstrates the relative size of outward FDI flows.



FIGURE 7.1: ANNUAL INDICATORS: DIRECT INVESTMENT OPENNESS (2020\*) cont.

**Inward Direct Investment Restrictiveness**

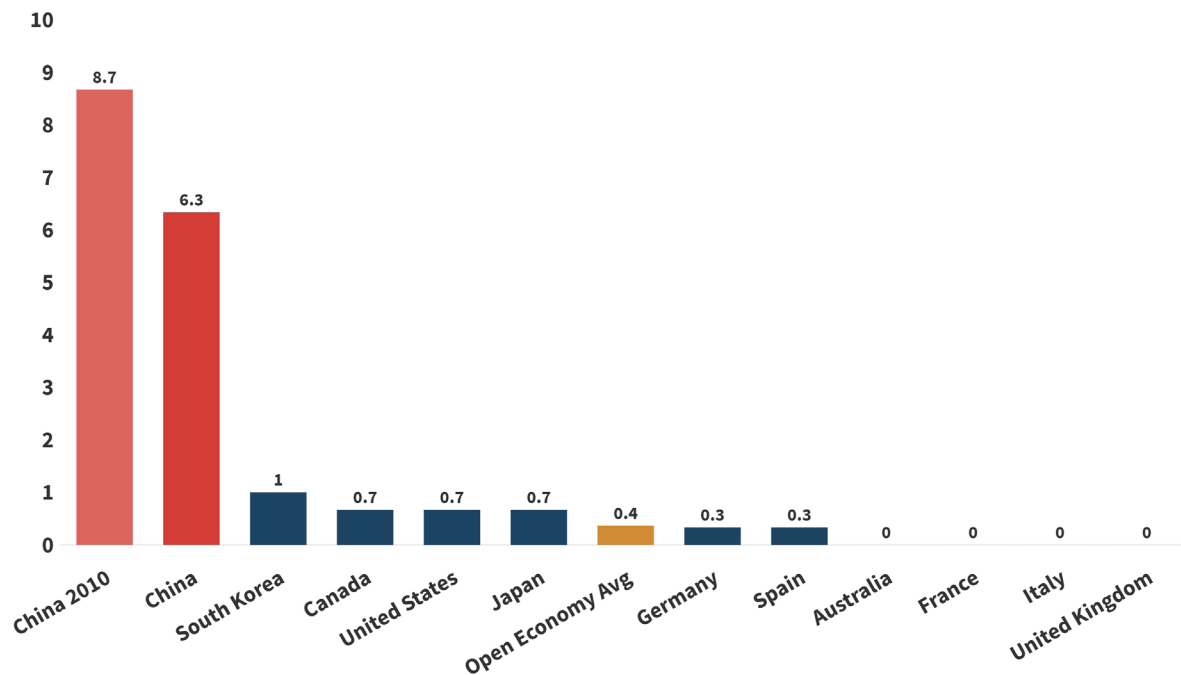
Index of 0-10 (high restrictions).



**Source:** China Pathfinder, Rhodium Group, IMF Annual Reports on Exchange Arrangements and Exchange Restrictions • This indicator captures: (1) foreign investment reviews; (2) sectoral and operational restrictions; (3) repatriation requirements and other foreign exchange restrictions.

**Outward Direct Investment Restrictiveness**

Index of 0-10 (high restrictions).



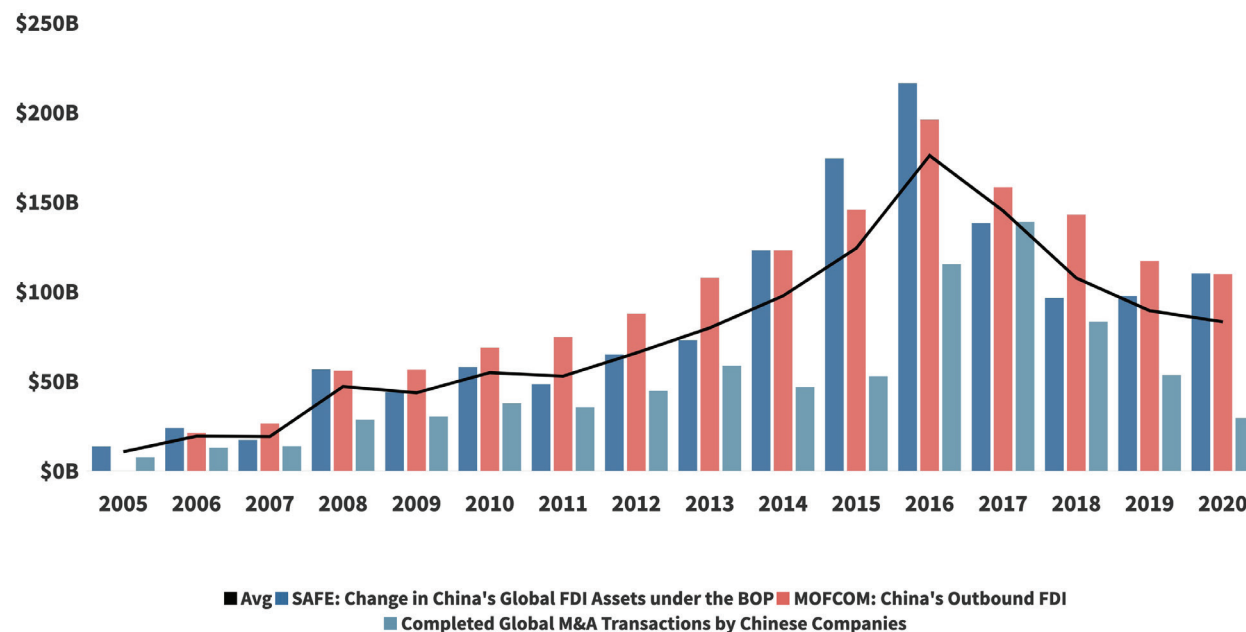
**Source:** China Pathfinder, Rhodium Group, IMF Annual Reports on Exchange Arrangements and Exchange Restrictions • This indicator captures: (1) foreign investment reviews; (2) sectoral and operational restrictions; (3) repatriation requirements and other foreign exchange restrictions.



FIGURE 7.2: KEY SUPPLEMENTAL INDICATORS: DIRECT INVESTMENT OPENNESS (2020\*)

**China's Outbound FDI Flows: Various Indicators**

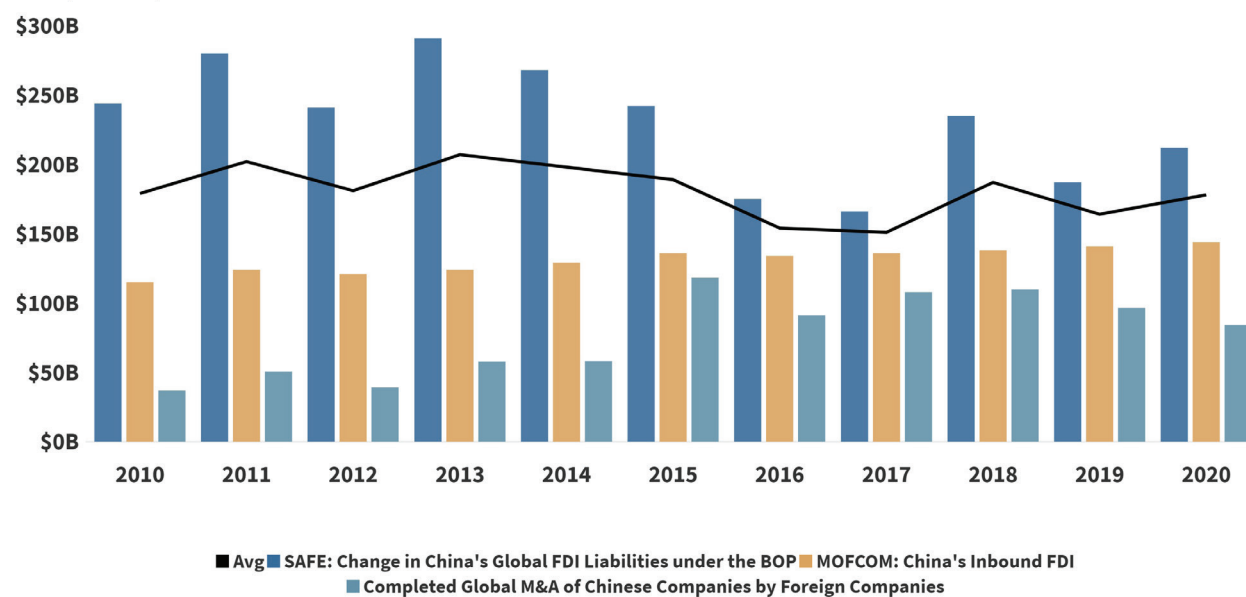
USD (billions).



**Source:** PRC Ministry of Commerce, PRC SAFE, Bloomberg, China Pathfinder. • For measuring China's foreign direct investment, the most commonly used official measure is "utilized FDI" by MOFCOM. This data is compiled based on MOFCOM's approval and registration system for inbound and outbound FDI projects. One alternative perspective is the Balance of Payments (BOP) dataset compiled by SAFE. These numbers are based on bank reporting, and record financial flows related to FDI companies. Another alternative perspective is using data for specific transactions on completed mergers and acquisitions, which does not rely on official statistics but instead sums the total value of publicly announced deal values. This offers only a partial picture of all FDI flows but avoids some of the problems in using Chinese official statistics.

**China's Inbound FDI Flows: Various Indicators**

USD (billions).



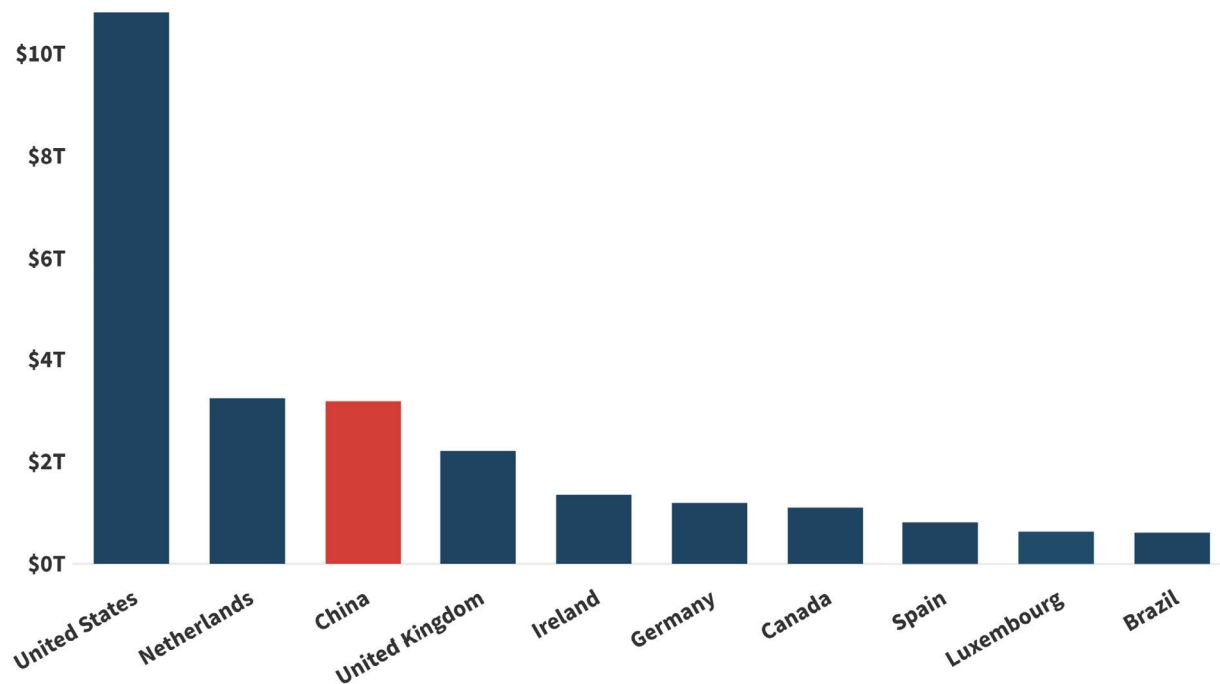
**Source:** PRC Ministry of Commerce, PRC SAFE, Bloomberg, China Pathfinder. • For measuring China's foreign direct investment, the most commonly used official measure is "utilized FDI" by China's Ministry of Commerce (MOFCOM). This data is compiled based on MOFCOM's approval and registration system for inbound and outbound FDI projects. One alternative perspective is the Balance of Payments (BOP) dataset compiled by China's State Administration of Foreign Exchange (SAFE). These numbers are based on bank reporting, and record financial flows related to FDI companies. Another alternative perspective is using data for specific transactions on completed mergers and acquisitions, which does not rely on official statistics but instead sums the total value of publicly announced deal values. This offers only a partial picture of all FDI flows but avoids some of the problems in using Chinese official statistics.



FIGURE 7.2: KEY SUPPLEMENTAL INDICATORS: DIRECT INVESTMENT OPENNESS (2020\*) cont.

**Inward FDI Stock, Top 10 Economies, 2020**

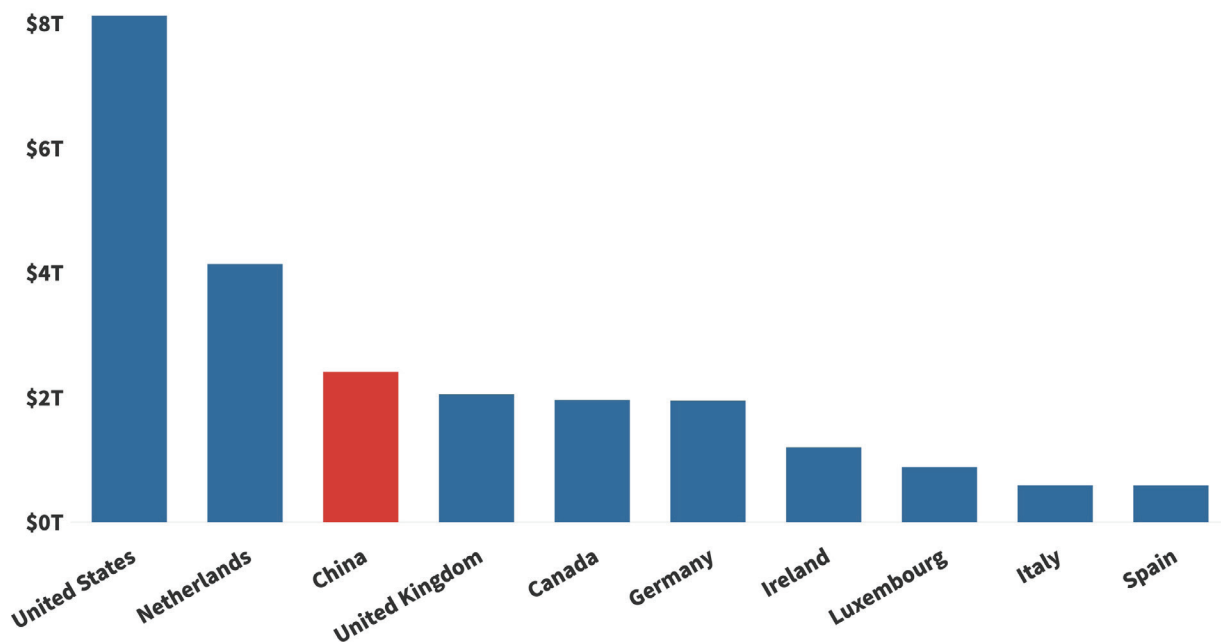
USD (trillions).



**Source:** OECD. • As described by the OECD, this Foreign Direct Investment (FDI) stock measure looks at the total level of direct investment at the end of each year. The inward FDI stock is the value of foreign investors' equity in and net loans to enterprises resident in the reporting economy.

**Outward FDI Stock, Top 10 Economies, 2020**

USD (trillions).



**Source:** OECD. • As described by the OECD, this Foreign Direct Investment (FDI) stock measure looks at the total level of direct investment at the end of each year. The outward FDI stock is the value of the resident investors' equity in and net loans to enterprises in foreign economies.

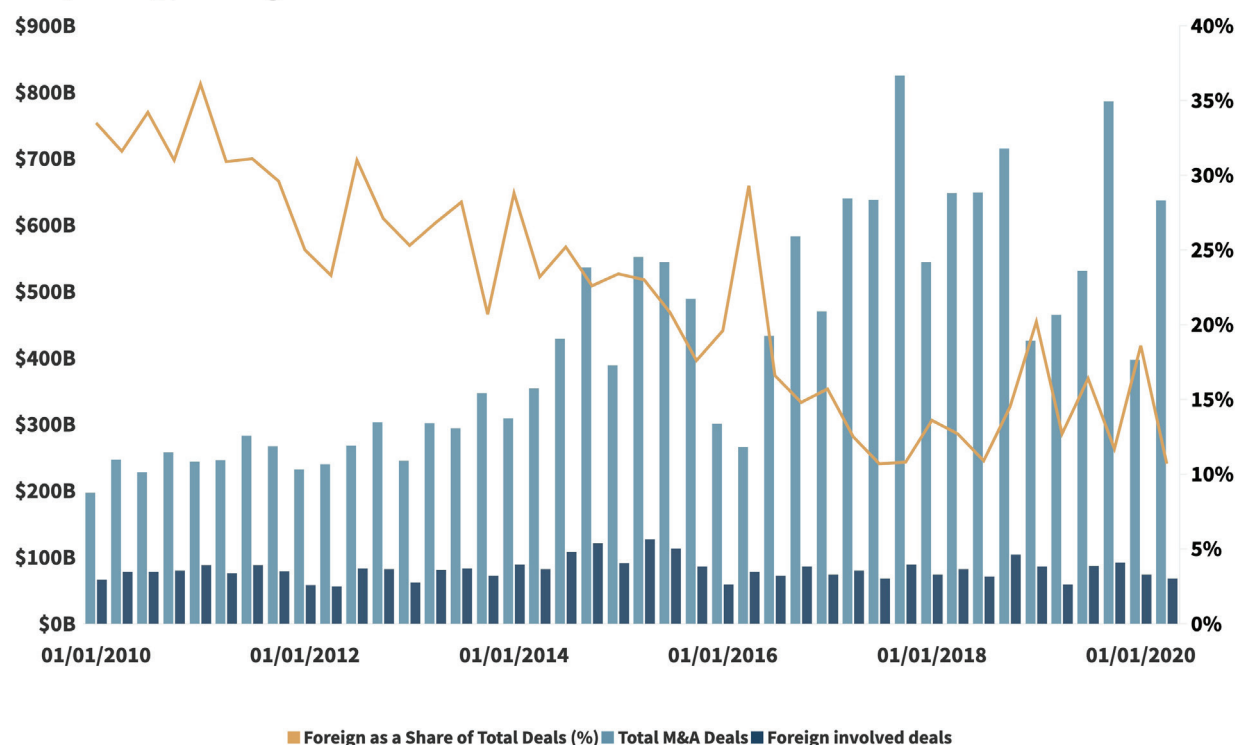




FIGURE 7.2: KEY SUPPLEMENTAL INDICATORS: DIRECT INVESTMENT OPENNESS (2020\*) cont.

**Share of Foreign Buyers in All M&A Activity Targeting Chinese Assets**

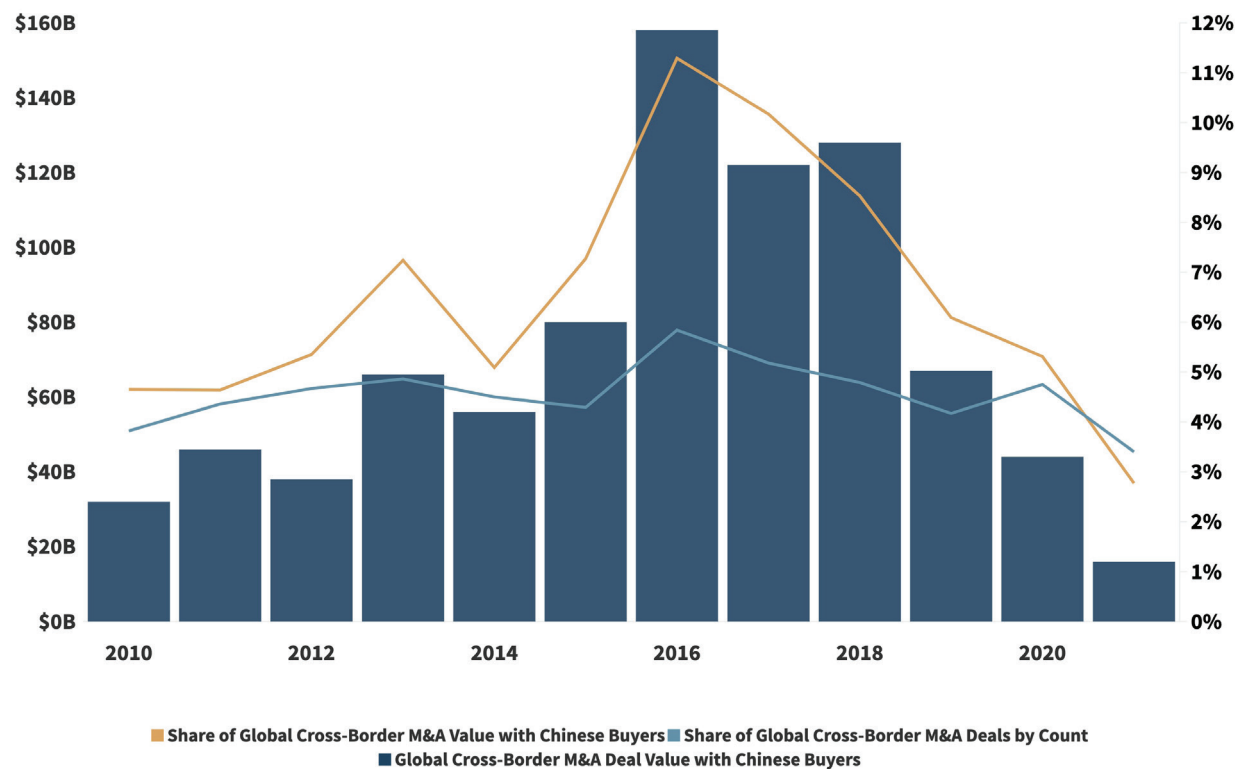
USD (billions), percentage.



Source: Bloomberg. • Indicator captures the total value of M&A transactions targeting Mainland China-based assets and the share of foreign buyers in total transaction value.

**China's Role in Global M&A Transactions**

USD (billions), percentage share of total global cross-border activity.



Source: Bloomberg. • Indicator captures the share of Mainland China-based companies in total cross-border M&A transactions.



## 2.6 PORTFOLIO INVESTMENT OPENNESS

FIGURE 8. COMPOSITE INDEX: PORTFOLIO INVESTMENT OPENNESS, 2020



Measure of portfolio investment openness, from 0 (low) to 10 (high). Source: China Pathfinder.

### Definition and Relevance

Portfolio investment openness refers to limited controls on two-way cross-border investment into equities, debt, and other financial instruments. Portfolio investment openness is a key ingredient for financial market efficiency and market-driven exchange rate adjustments in open market economies.

### China Historical Context and Status Quo

Portfolio investment flows fuel economic growth and support fixed investment, but emerging economies are vulnerable to speculative reversals and cyclical pressures beyond their control.<sup>29</sup> Cognizant of these challenges, China has historically tightly controlled portfolio investment flows. Keeping investment at home was essential to Beijing's control over exchange rates and interest rates, and its insistence on maximizing domestic capital deepening. This strategy paid off, as foreign exchange reserve building insulated the nation from the vagaries of speculation or imposition of foreign economic policy models, while ensuring abundant capital for domestic investment in the post-1978 reform period. China enjoyed relative stability amidst the Asian Financial Crisis of 1997–2000 and avoided the currency fluctuations that buffeted other parts of emerging Asia.

As China attained a higher income and development stage, the logic of controlling cross-border portfolio flows changed. Behind the protective wall of capital controls, domestic financial firms failed to converge with the productivity gains their cousins in the tradable goods sector saw, since they were not exposed to global competition. Investment capital was no longer scarce; in fact, it was extraordinarily abundant, as indicated by overcapacity investment in many sectors. The surplus of foreign exchange amassed inside China was absorbed by the central bank to “sterilize” its effect on exchange rates and had to be reinvested in low-paying foreign government bonds. China's savers were limited to investing in China-only options, which—given still underdeveloped domestic capital markets (stocks and bonds)—meant a disproportionate allocation to real estate.

Arguably no area has seen more effort to proceed with policy liberalization than portfolio investment since 2013. China has eliminated barriers to some categories of portfolio inflows. Yet, faced

with setbacks such as equity market volatility, authorities have intervened to limit market dynamics. Since 2015, Beijing has worked to further reduce some restrictions on portfolio flows. It scrapped its long-standing inbound quota system (QFII) and established “connect” schemes for foreigners to access stock and bond markets within predefined quotas. It has also made regulatory changes to satisfy conditions for inclusion of onshore securities in global indices like the MSCI.

The status quo today presents a mixed picture. Outbound flows remain tightly restricted and mostly driven by state-related entities. Foreign investors have more access to onshore securities, but still lack full access, as well as some of the hedging tools to manage their positions in the onshore markets. Regulatory risk also remains high, as Beijing has offered unmistakable signals that the state will not hesitate to rewrite rules at will when necessary to maintain political control over the economy.

### 2021 Stocktaking: How Does China Stack Up?

We apply the following annual indicators to benchmark China against open market economies in terms of portfolio investment openness.

- To measure the **de facto openness to portfolio investment**, we calculate the sum of cross-border debt assets and liabilities relative to the size of the economy. Assets are holdings of foreign securities by residents, and liabilities represent foreign holdings of securities issued by residents. China falls well below the open-economy average for both debt securities (government and corporate bonds) and equity securities (stocks). Cross-border debt assets and liabilities as shares of GDP are around 6.8 percent, vastly below the open-economy average of 129 percent. Cross-border equity assets and liabilities are only 12.6 percent of China's GDP, which pales in comparison to the open-economy average of 105 percent. Despite recent liberalization efforts, China continues to have a low degree of financial globalization.
- For a *de jure* perspective, we calculate our own **Portfolio Investment Restrictiveness Indicator** that captures regulatory restrictions on portfolio investment flows based on the IMF's AREAER database and our own research. We calculate separate indices for portfolio outflow and inflow restrictiveness. The

29 “Emerging and Frontier Markets: Managing Volatile Portfolio Flows,” International Monetary Fund, April 2020, chapter 3.



inward portfolio restrictiveness indicator captures restrictions on the purchase of bonds and equity securities locally by nonresidents as well as on the sale and issuance of bonds and equity securities abroad by residents. The outward portfolio restrictiveness indicator captures restrictions on the purchase of foreign securities by residents as well as restrictions on the sale and issuance of bonds and equity securities locally by nonresidents.

- On **inward portfolio restrictiveness**, China has historically kept tight controls on the inflow of foreign short-term capital, with the exception of narrow programs such as the Qualified Foreign Institutional Investor (QFII) Scheme. Over the past decade China's score has improved as Beijing has expanded access to the onshore securities through stock and bond connect schemes. However foreign investors remain constrained by quotas and the lack of infrastructure for sophisticated cross-border settlements, which keeps China's score far below open market economies in 2020.
- With regard to **outward portfolio restrictiveness**, China's score was similarly low in 2010 and Beijing has remained even more cautious to liberalize outbound portfolio channels due to concerns about large-scale capital outflows and implications for financial system and exchange rate stability. Households remain generally unable to invest in overseas securities and institutional investors remain constrained to special programs and quotas, leaving China's 2020 score far below the advanced economy average.
- Because most open market economies maintain little, if any, significant restrictions on portfolio investment, China is a significant outlier with very low scores. There has been progress since 2010, especially on inflows. Restrictiveness remains higher for outflows than inflows, reflecting Beijing's efforts to liberalize foreign access to bond and equity markets, but also continued anxiety about capital outflows by firms and households.

Our **Portfolio Investment Openness Composite Index** puts China at **1.1** in 2020, against an open-economy average of **7.86** within our sample of the ten largest open market economies (Figure 8). Persistent formal restrictions put China a great distance from the market economy norm. Based on the same criteria, China scored approximately **0** in 2010, signaling minor progress over the last decade. Coming into 2021, the dominant policy message was intentions to deepen global financial integration, but a series of new restrictions (ostensibly security and data privacy oriented) have raised major questions about Beijing's appetite for that. China would not be alone in rethinking the pros and cons of portfolio openness. But, given the volume of current account surpluses and the imbalanced nature of the Chinese savings portfolio, capital outflows are virtually hardwired and coherent policy to manage flows is urgent.

In terms of data validity, it is important to recognize that portfolio investment is highly mobile and volatile, so our de facto measures are susceptible to fluctuations caused by market sentiment, macroeconomic dynamics, and other factors. Portfolio investment data are also heavily impacted by tax optimization and financial system designs. Finally, our measures for de jure restrictiveness are based on human judgment and, thus, reflect a certain degree of subjectivity.

## Looking Forward: Market-Oriented Policy and Data Signals

Looking forward, we will update these benchmark indicators yearly to track the pace and direction of change. On a more frequent basis, we are watching policy reforms that would move China closer to the average of market economies in terms of portfolio investment openness, including

- inflows: further expansion of foreign access to onshore securities, with expansion of quotas as an interim step toward their elimination by a certain date;
- outflows: expanding quotas for households and private companies to invest in offshore securities, removing window guidance for banks on foreign exchange supply for portfolio investment, commitment to eventual elimination of quotas on outbound portfolio flows;
- reduced currency interventions and management: measurable liberalization of the exchange-rate regimes in the direction of full currency convertibility and elimination of capital controls;
- removal of formal and informal restrictions on financial services market access for foreign firms;
- allowing use of currency and interest rate hedging instruments; and
- changing to T+1 settlement infrastructure in domestic equity markets from T+0 for foreign investors.<sup>30</sup>

In addition to tracking policy developments, we are also watching higher-frequency, often China-specific, indicators to gauge progress. Figure 8.2 presents these indicators, including the change in foreign holdings of Chinese bonds and equities; foreign holdings of Chinese portfolio securities by investor country; total foreign holdings of RMB assets; the share of China's currency in international payments; and net movement through the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connects.

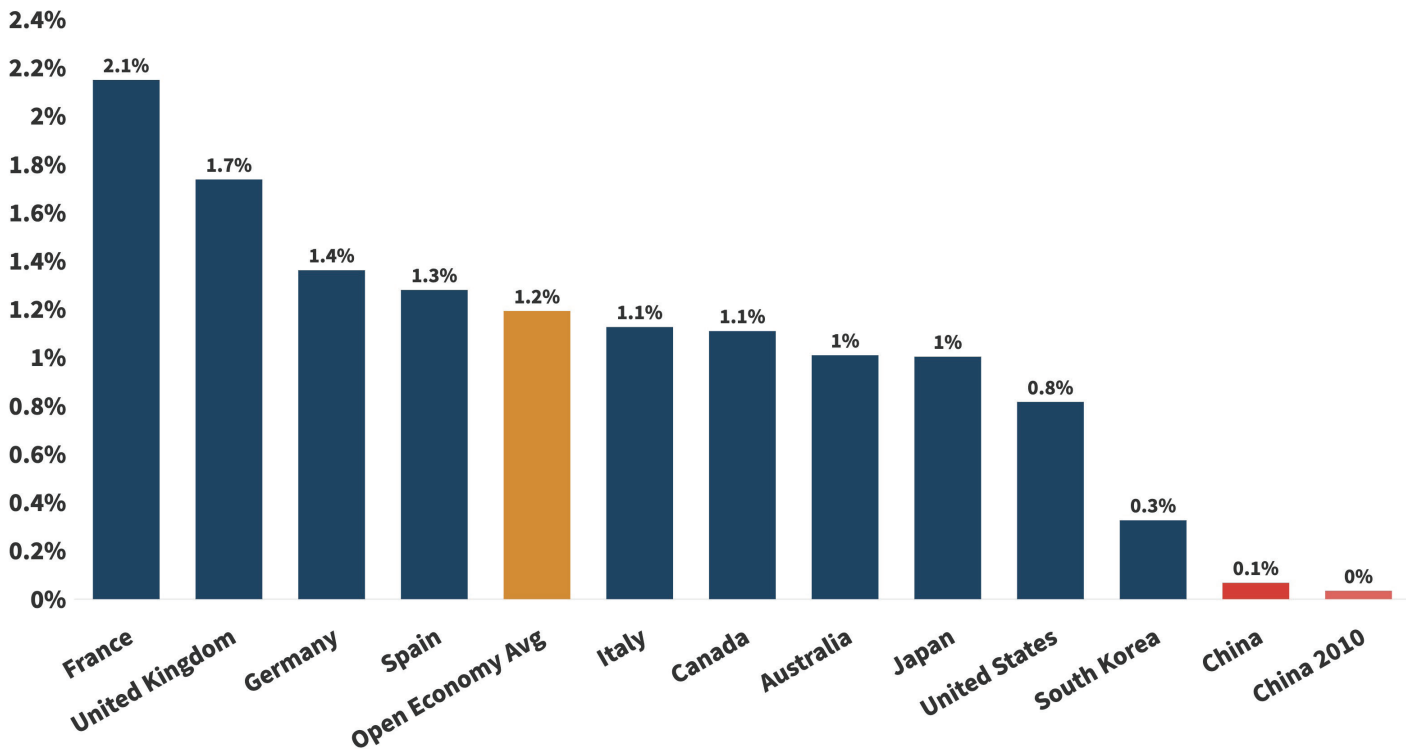
30 T+0 forces foreign investors to transfer money for trades in advance to trade on domestic markets in China. T+1 would provide foreign investors with more flexibility. T+2 is the global standard, and the ultimate goal from the perspective of FIIs.



FIGURE 8.1: ANNUAL INDICATORS: PORTFOLIO INVESTMENT OPENNESS (2020\*)

**Portfolio Investment Volumes: Debt**

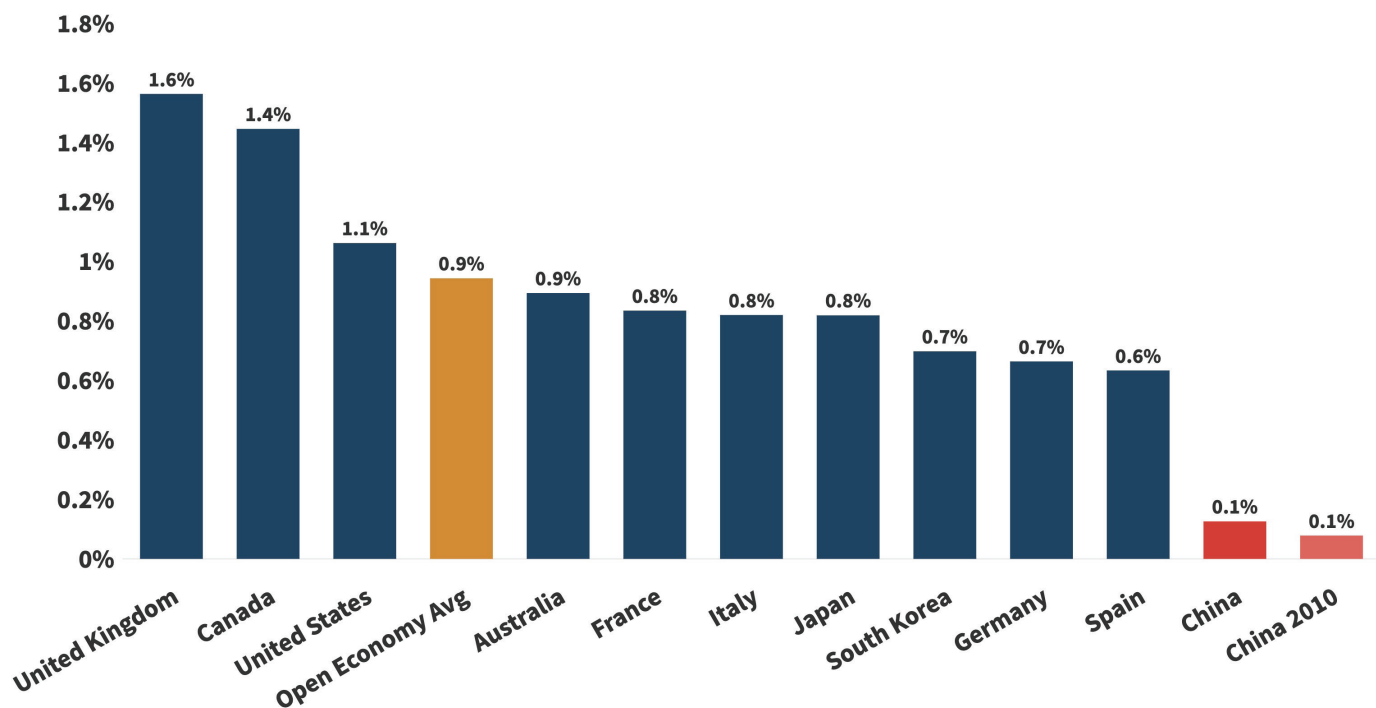
Cross-border debt assets and liabilities as a share of GDP.



Source: IMF International Financial Statistics. • This indicator shows the internationalization of bond markets.

**Portfolio Investment Volumes: Equity**

Cross-border equity assets and liabilities as a share of GDP.



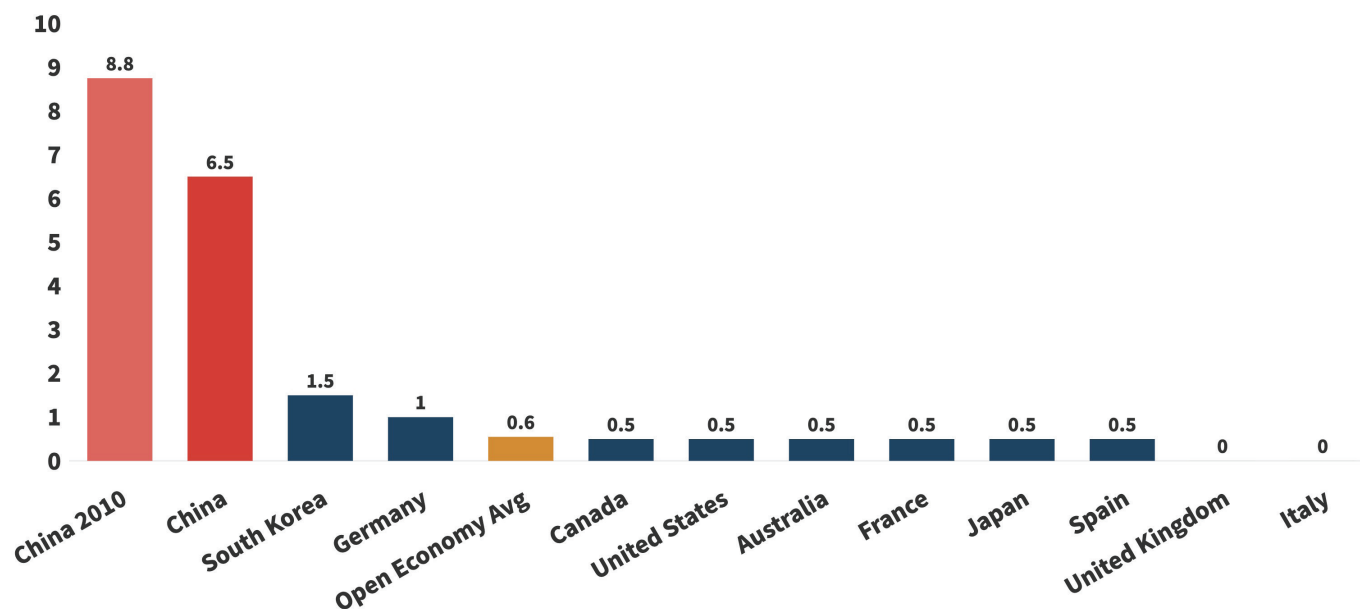
Source: IMF International Financial Statistics. • This indicator shows the internationalization of equity markets.



FIGURE 8.1: ANNUAL INDICATORS: PORTFOLIO INVESTMENT OPENNESS (2020\*) cont.

**Inward Portfolio Investment Restrictiveness Index**

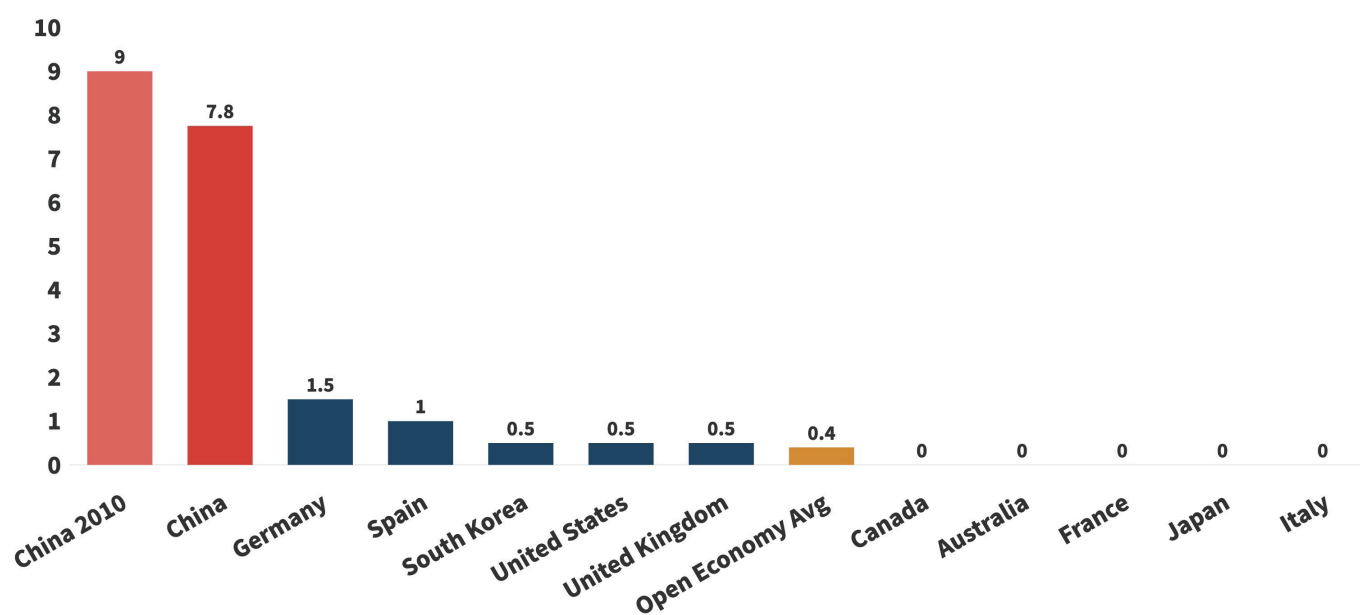
Index of 0-10 (high restrictions).



**Source:** IMF AREAER annual reports, China Pathfinder. • This is a proprietary indicator that measures de jure restrictions on cross-border purchase and issuance of debt and equity securities based on information presented in the IMF's annual AREAER reports. It covers the purchase of local securities by non-residents and the issuance of overseas securities by residents. It does not cover repatriation or surrender requirements.

**Outward Portfolio Investment Restrictiveness Index**

Index of 0-10 (high restrictions).



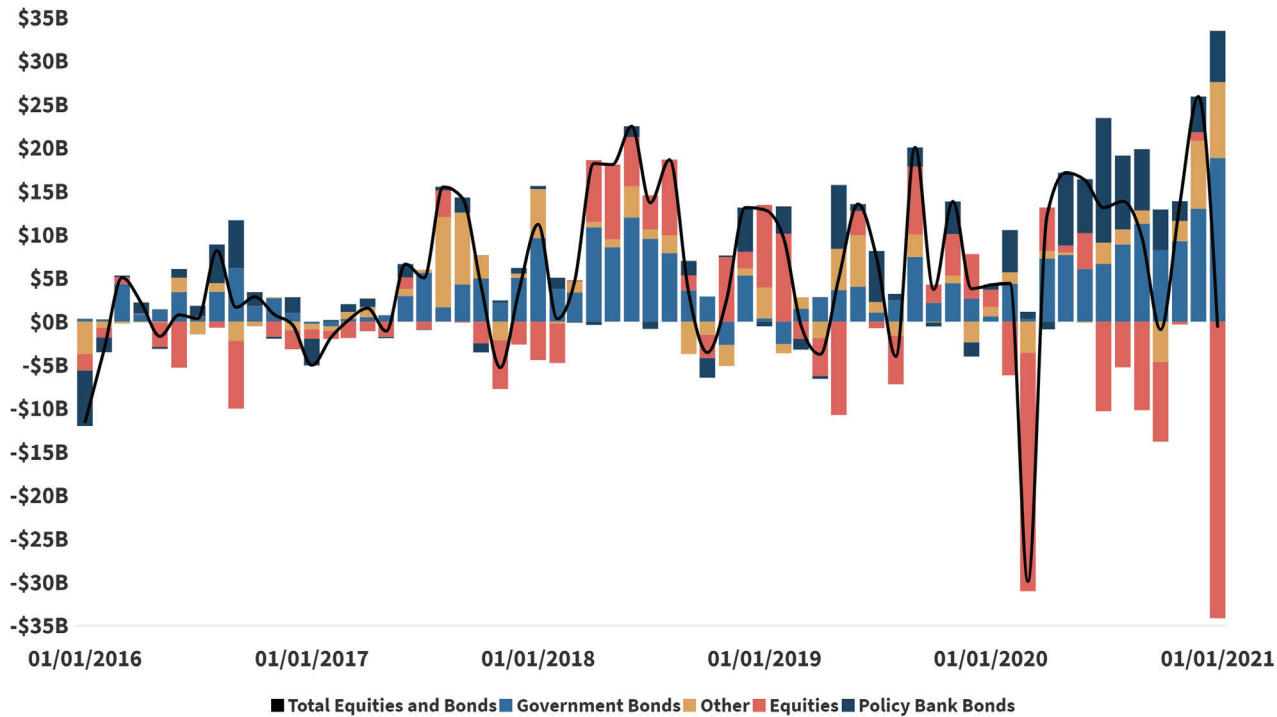
**Source:** IMF AREAER annual reports, China Pathfinder. • This is a proprietary indicator that measures de jure restrictions on cross-border purchase and issuance of debt and equity securities based on information presented in the IMF's annual AREAER reports. Covers the purchase of overseas securities by residents and the issuance of local securities by non-residents. Does not cover repatriation or surrender requirements.



FIGURE 8.2: KEY SUPPLEMENTAL INDICATORS: PORTFOLIO INVESTMENT OPENNESS (2020\*).

### Are Foreign Investors Putting Money In or Taking Money Out? Change in Foreign Holdings of Chinese Bonds and Equities

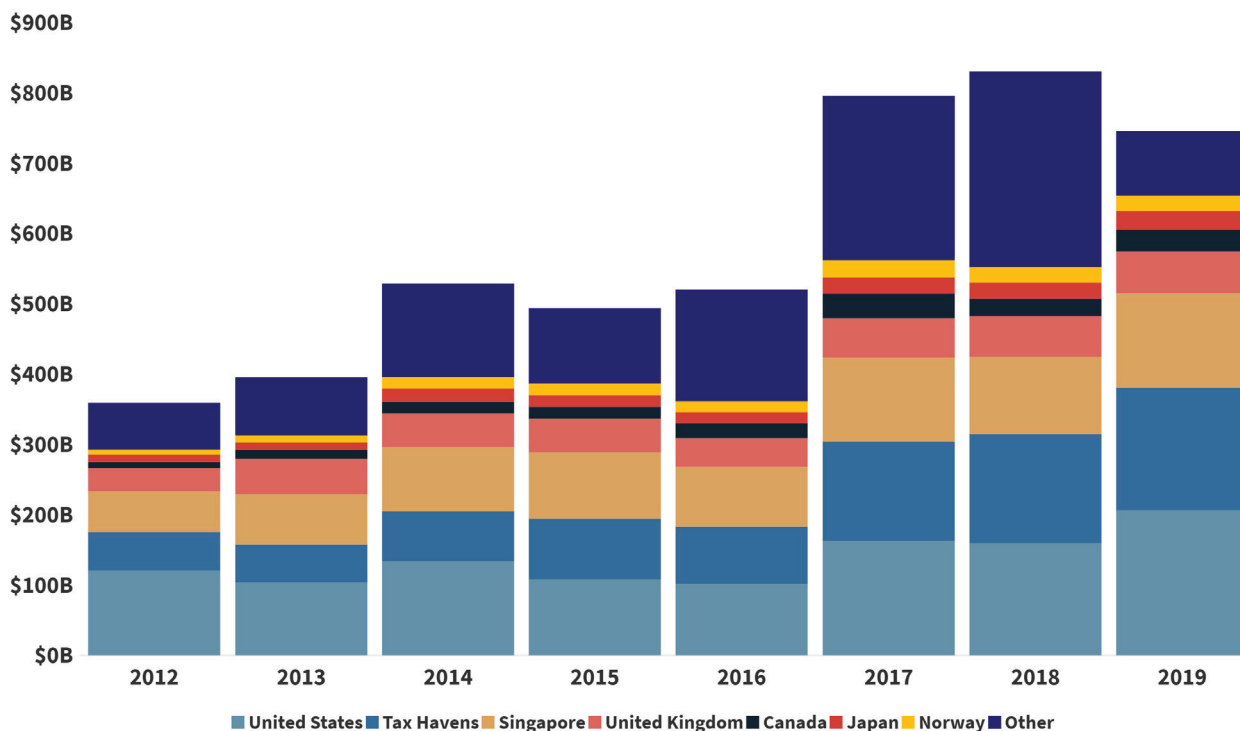
Quarterly net change in BOP, USD billion.



Source: SAFE • This chart shows quarterly changes in foreign holdings of Chinese equity and debt securities from SAFE data.

### Foreign Holdings of Chinese Portfolio Securities by Investor Country

USD (billions).



Source: IMF CPIS. • This chart features a breakdown of CPIS data on foreign holdings of Chinese securities. The US was the largest investor country followed by tax havens and Singapore.

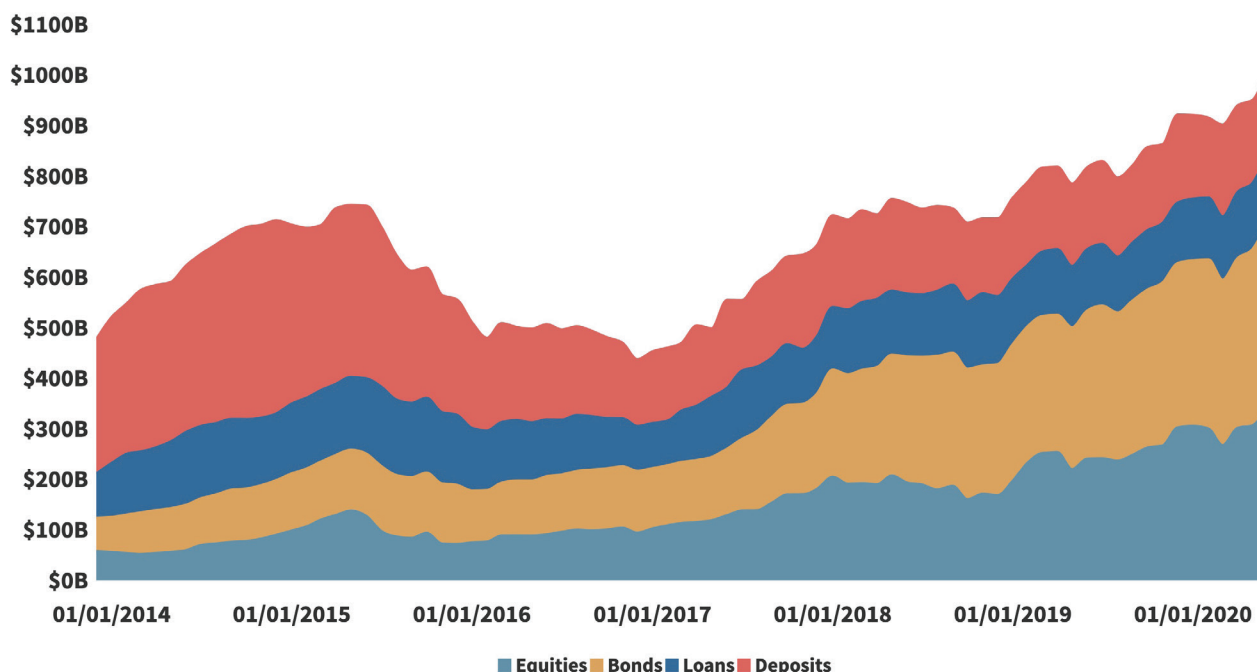




FIGURE 8.2: KEY SUPPLEMENTAL INDICATORS: PORTFOLIO INVESTMENT OPENNESS (2020\*). cont.

**Foreign Appetite for Chinese Financial Assets: Total Foreign Holdings of RMB Assets**

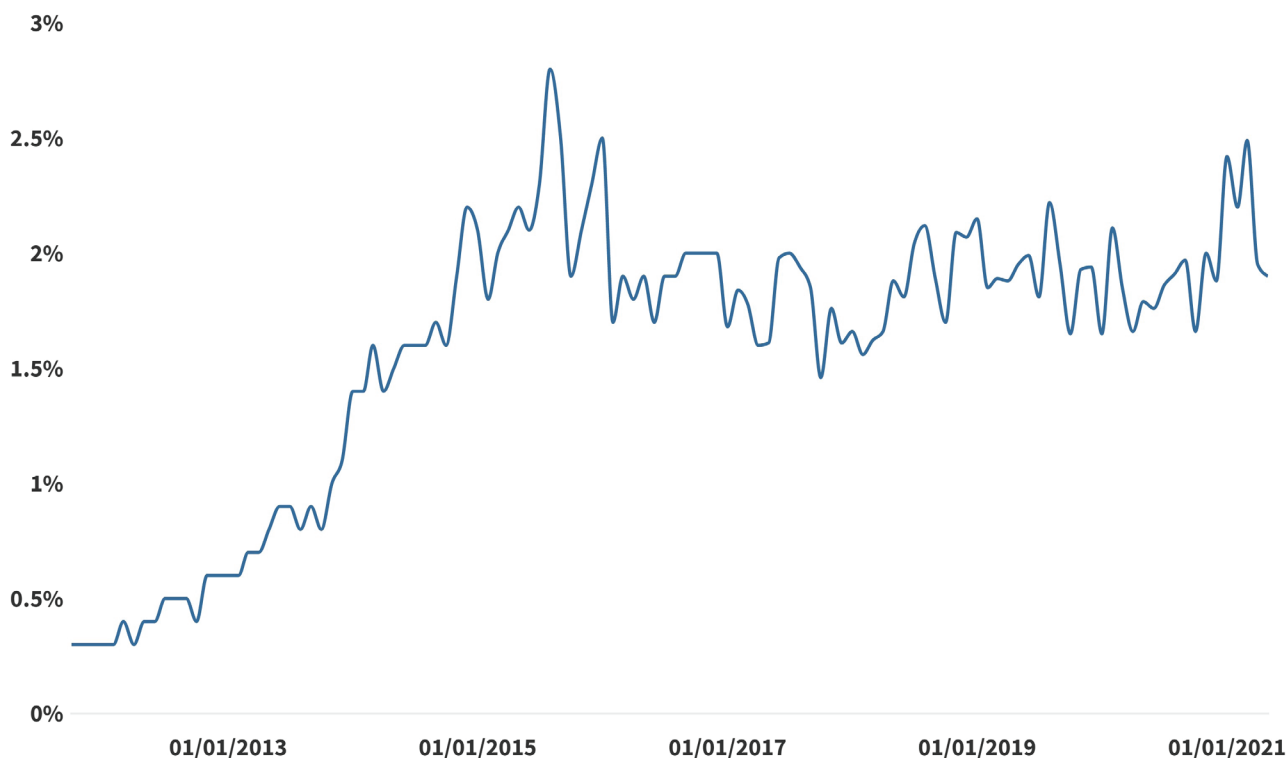
USD (billions).



**Source:** PBOC. • This chart describes total foreign holdings of RMB assets, including by central banks and investors. Stocks and bonds accounted for 68% of the total in the first half of 2020, compared to 25% in 2014.

**Percent of International Payments Using RMB**

Percentage.



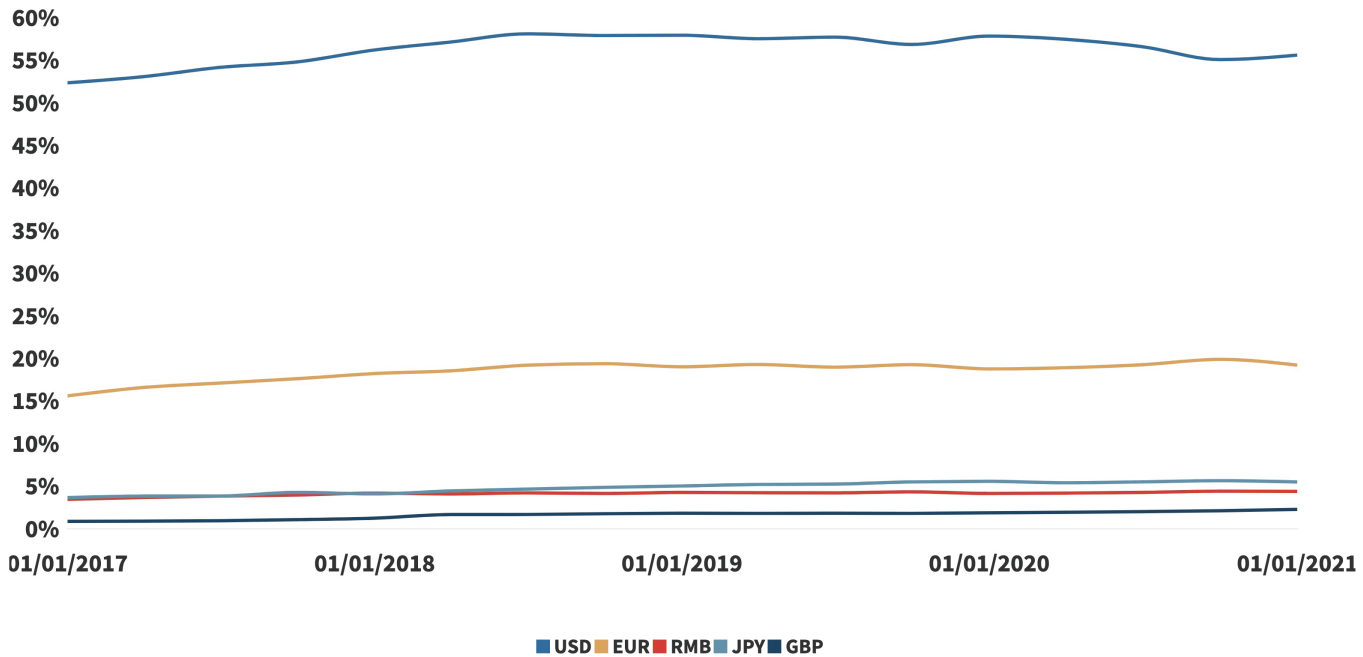
**Source:** Swift RMB Tracker. • The RMB's share of international payments increased rapidly in the early part of the decade but has come to settle around 2% despite rhetoric from Chinese authorities to internationalize the currency.



FIGURE 8.2: KEY SUPPLEMENTAL INDICATORS: PORTFOLIO INVESTMENT OPENNESS (2020\*). cont.

**Share of Global Foreign Exchange Reserves Held in Select Currencies**

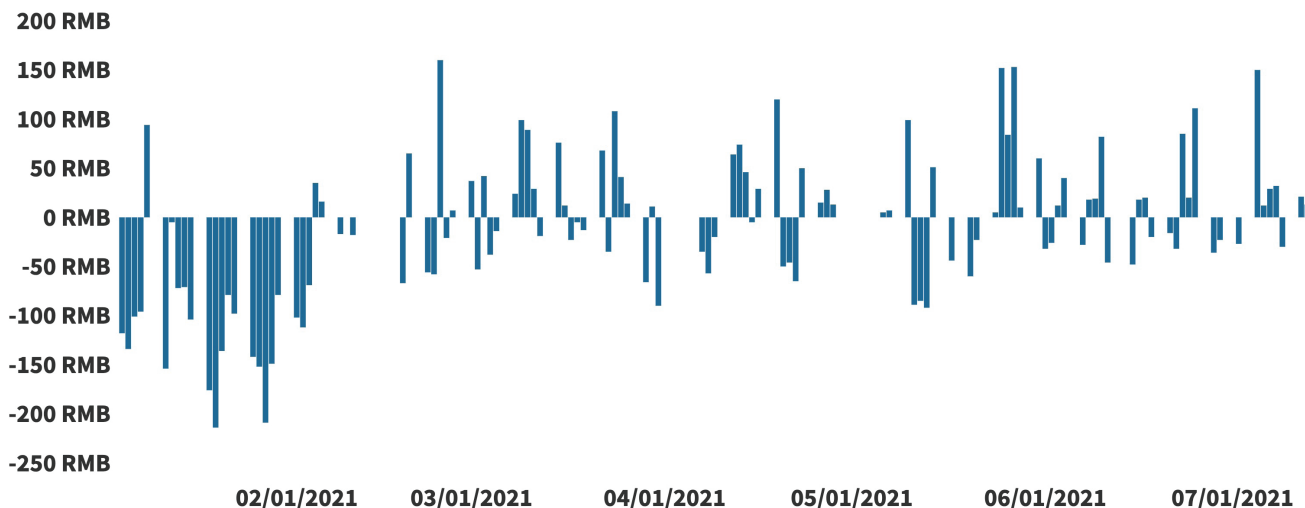
Percentage.



**Source:** Currency Composition of Official Foreign Exchange Reserves (COFER), International Financial Statistics (IFS). • The US Dollar is still far and away the world's most important reserve currency, making up more than 50% of total reserves. While the RMB's share of global reserves has increased marginally in the last few years to just below the level of the third largest reserve currency (4.4%), the Japanese Yen (5.5%), it is still well behind the Euro (19.2%).

**Net Stock Exchange Movement through Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect, 2021 Q1 and Q2**

In RMB, 100 million.



**Source:** East Money Choice Data, China Pathfinder calculations. • In this chart, net northern flows represent net trading movement from the Hong Kong Stock Exchange to the Shanghai and Shenzhen Stock Exchanges. Net southern flows show net trading movement from the Shanghai and Shenzhen Stock Exchanges to the Hong Kong Stock Exchange. In the early part of 2021, net flows were exiting mainland China towards Hong Kong. This slowed later in the year, with flows moving back to mainland stock exchanges.



## Conclusions and Implications

Pulling together the findings from our detailed benchmark assessment of six clusters, we make the following observations.

- **China has generally moved toward market-economy norms over the past decade.** The current fashion in China analysis is to downplay any serious effort by Beijing to reform, and emphasize an enduring Chinese strategy of state control. Both Chinese officials and US strategists repeat this ahistorical view. Our annual benchmark indicators show that China has made some degree of progress in all six dimensions we measure since 2010.
- **Despite the correct *direction* over a decade, China in 2020 remains remote from the characteristics typical of open market economies:** Movement since 2010 has been modest, and Beijing is well short of expectations made as a condition of WTO accession that it would achieve market-economy norms. The Xi era pledge to “make the market decisive” remains unfulfilled, seven years after this reform goal was initially announced. China ranks last in five out of China Pathfinder’s six clusters when compared to open market economies. China ranks in last place in five out of our six clusters when compared to open market economies.
- **China has made demonstrable progress in some areas, but has a long way to go in most.** In some areas of commercial interaction—for example, trade openness—China does not stand miles apart from the world’s leading market economies. In most other areas, China’s distance from advanced economy norms remains striking and problematic. The biggest shortfalls are in structural areas, like market competition, that are hard to measure and harder to discipline with agreed international tools. They also tend to be hard to disentangle from questions of political interference. How can observers be convinced that China fulfilled its WTO promises to prevent government influencing how SOE commercial decisions when Communist Party committees have an expanding role in running state firms?
- **Within each of the six areas, we observe a mix of reform, stagnation, and backsliding.** China is open in goods trade, but remains closed on digital services trade. Beijing has proceeded to liberalize some inward portfolio flows, while barriers to outbound flows remain high. Within its innovation system, China has progressed on protecting intellectual property, but has ramped up industrial policies and distortive subsidy programs.
- **The most recent signals are at odds with previous market credibility.** China rewrote the developing-country playbook after 1978 by seeking out marketization advice and implementing it aggressively—first in special zones, then nationally. Private investors—domestic and foreign—bet heavily on China’s future thanks to that track record. But, after 2016, reform setbacks led to muddled policy signals, and in 2021 even perennial optimists were shocked by anti-market trends. While sometimes difficult to disentangle from emergency pandemic measures, patterns

in 2020 and 2021 show resurgent state ownership and extralegal influence, eroding freedom for firms to use capital markets at home and abroad, the overnight shutdown of entire sectors such as for-profit education, regulations that effectively nationalize the data collected by technology companies, and an overreach of state planners in shaping the market structure of tomorrow.

## Implications

These observations have broad implications for policymakers.

- **Engagement takes two.** Engagement as a global strategy for economic relations with China was predicated on “interoperability” or basic convergence toward market economy norms. The strong track record of marketization after 1978 and China’s relatively modest external economic footprint underpinned a shared commitment among high-income economies to engage. However, the China Pathfinder results show that marketization progress has been slower than expected in the past decade. Moreover, China has become huge and impactful overseas, which makes the marketization track record even more important. These trajectories are driving the reassessment of previous engagement policies in many advanced economies.
- **Safeguards and defensive instruments need reassessment.** Under its 2001 WTO accession agreement, China conceded that others could use generous special safeguard provisions to guard against unfair outcomes while it made the transition to “market economy status.” Those provisions expired in 2013. Since then, market economies have debated with Beijing over their recourse options and the adequacy of China’s marketization. The China Pathfinder results illustrate that the pace of convergence is clearly not what was envisioned in 2001. To preserve market incentives, advanced economies must reassess whether the remedies prescribed for use under the WTO are sufficient.
- **An objective perspective on systemic differences makes for better policy.** If China is committed to non-market norms or unable to reform itself, open market economies will need rules that protect their own systems. Because the restrictions they employ will impact economic welfare in serious ways, an objective view of how China does or does not diverge from market norms is essential. Factual analysis permits attention to concerns in some areas while preserving the benefits of engagement elsewhere.
- **Benchmarking can facilitate reengagement.** Benchmarking and tracking of China’s economic system is the most promising route to reengagement. Convergence with market-economy norms must be independently observed and measurable if policymakers are to campaign for reengagement. The decision on whether to return to a course of closer integration rests primarily with Beijing. That is the signal for which global businesses will be watching, as well as an indication of political risk trends and future business opportunities that justify investment.



## An Evolving Endeavor

Policy evaluation is a changing discipline, especially when it comes to a \$15 trillion economy comprising 1.4 billion people in transition. Technology provides new methods of estimation and analysis. Just in the past decade, real-time algorithmic scraping of data on transactions and low-cost satellite evaluation have joined the researchers' toolbox in exciting new applications. Just as new approaches become available, existing tools can improve, or lose their relevance due to government withholding of information or underinvestment in statistical collection. These are just a few of the factors that make assessment of international policy designs and market outcomes a moving target. Analysts and readers must be prepared to adapt to changing conditions, and to evolving questions that require altered focus.

Today, analysis of China's interaction with the global economy has to start with an acknowledgement that for too long policymakers and businesses stayed attached to prior assumptions about where China was headed, and ignored mounting evidence that Beijing was turning away from market-oriented reform. China Pathfinder goes a long way toward providing a framework for more timely debate of changes when they happen, and can sound an early warning when

the pace of reform slows. But, by their nature, frameworks are rigid and cannot substitute for an open-eyed, multidisciplinary appraisal of the real world. This program of work is an important contribution to the broader discussion of what China's economy is becoming as it grows up. The purpose of our project is not to replace that comprehensive analysis, but to contribute to it.

In addition to our online data portal and annually updated benchmark reports, the China Pathfinder partnership produces quarterly reports discussing the most salient policy developments even when hard metrics may not be available. These discussions will demonstrate how the foundational perspective on China's economic system relates to current policy topics, and consider whether new policy directions signaled by Beijing change expectations about China market economic policy convergence. For those firms and observers who stand by the conviction that marketization is essential to sustainable economic growth, this analysis will be relevant to long-term forecasting. It is also important for more near-term discussion of changes to the market economy policy mix in response to a systematically different China. We look forward to engaging with readers, interested parties from outside and inside China, and fellow analysts in this undertaking.



## Appendix: Methodology Overview

### Mission

The China Pathfinder Project is a collaboration between the Atlantic Council and Rhodium Group to track China's convergence or divergence from open market economy norms. This project is nonpartisan, and seeks to foster consensus about where China stands in relation to advanced market economies. With that goal in mind, our design balances accessibility for nontechnical readers with commitment to robust, transparent, data-grounded methods.

### Research Framework

The China Pathfinder Project evaluates the economic system of China and ten open market economies in six categories: financial system development, modern innovation system, market competition, trade openness, direct investment openness, and portfolio investment openness. The first three clusters represent the “domestic” dimension, and the latter three clusters represent the “external” openness dimension.

We rely on annual indicators that are formed into a composite score each year. Each of the six categories outlined above possesses a set of annual indicators and a final composite index. In addition, we select nuanced supplemental indicators and conduct quarterly policy tracking to keep up with fast-moving economic and policy developments in China.

This year's China Pathfinder measures the 2020 performance of eleven countries—and China's 2010 performance—using the same standardized metrics. The selected country list is as follows: Australia, Canada, China, France, Germany, Italy, Japan, South Korea, Spain, the United Kingdom, and the United States. Aside from China, all other countries are members of the OECD and are considered market economies. These specific countries were chosen according to being in the top-ten country list for highest gross domestic product (GDP).

China Pathfinder added China's 2010 performance as a datapoint to benchmark China's present-day progress since the last decade. That also provides data prior to the start of President Xi Jinping's administration and can provide an objective picture of how China's economy has developed since.

### Annual Indicators

Our criteria for selecting annual indicators has two main components: data timeliness and ability to make international comparisons. These criteria inherently limit each other, as timely data often do not have extensive country coverage. This created obstacles in our data collection process, and the path we chose with our annual indicators reflects the ideal solution to these data availability problems.

The annual China Pathfinder report has a foundation of quantitative methods and sources. It mixes source types for data analysis. We make use of existing credible databases and literature, such as the OECD, International Monetary Fund (IMF), and World Bank datasets and indices; platforms such as CEIC and Bloomberg for China-specific statistics and company financial data; and expert buy-in for our in-house production of proprietary datasets.

Along with compiling research from these data sources, China Pathfinder also incorporates indicators that were informed by study groups and expert interviews. Our team conducted review sessions with various outside experts on China and OECD economies, index creation, and construction of cross-country economic evaluations. We have implemented feedback and new ideas gathered from these conversations to improve our annual-indicator selection.

### Composite Scoring

A composite indicator employs a defined model for selecting a group of individual indicators and transforming them into a single index. Composite indicators are common tools in policy analysis, particularly for maintaining objectivity in comparing country performance. China Pathfinder takes guidance from the OECD Handbook on Constructing Composite Indicators: Methodology and User Guide, which compiles various statistically sound methodologies for economists and policymakers to build composite indicators.

To calculate composite scores, we use the Min-Max methodology. This is necessary to normalize countries' scores from the individual indicators, which have different units and scales. The Min-Max normalization method was selected because it preserves country clustering and countries' relative performance distance. Min-Max uses each dataset's minimum and maximum datapoints to establish a “lower bound” and “upper bound.” Each country value  $X$  within a given indicator is taken in relation to these bounds. China Pathfinder subtracts the lower bound from the country value and then divides the outcome by the difference in the upper and lower bounds. This normalizes every indicator from zero to one. We use a scale of 0 to 10 for the composite scores, so the datapoints are multiplied by ten after completing the Min-Max process.

Some indicators have opposite implications for large values and small values. For our purposes, we set the following standard for all indicators and composite score readings: smaller values (i.e., those closer to zero) indicate “low” and larger values (i.e., those closer to ten) indicate “high” openness or development. Some indices that we adopt measure restrictiveness levels on foreign direct investment (FDI) or capital flows, and larger values represent *greater* restrictions on openness. For indicators that follow this pattern, we reversed the values before initiating the Min-Max method for the composite. Value reversal involved setting the maximum bound for these indicators and using it to subtract each country datapoint.

China Pathfinder's composite indices blend *de jure* and *de facto* indicators. *De jure* indicators measure a country's institutions or legal framework characteristics, while *de facto* indicators are



outcome oriented and seek to measure the actual effects of said institutions. While there is an argument to be made for using one or the other, we chose to integrate both into a blended composite score for each cluster. Selecting only de jure indicators opens the possibility that policies or institutions in place do not necessarily evenly result in the same expected outcomes, or reflect the true situation for some countries. Using de facto indicators solely is particularly challenging with external factors, such as the COVID-19 pandemic, that greatly skew real outcomes temporarily. This approach also fails to afford credit to countries that have implemented institutional reforms when resulting progress has a lag.

We assign equal weighting to de jure and de facto indicators in the composite index calculation when the indicators have comparable importance to defining our cluster evaluation. Otherwise, each individual indicator receives the same weight regardless of de jure or de facto designation.

### Supplemental Indicators

Chosen indicators within each area are intended to proxy for the broader picture, but do not encompass all aspects of an economy. Therefore, narrower factors that affect China's performance evaluation are featured as "supplemental indicators." Supplemental indicator data outcomes receive their own chart visualizations, but the data generally cannot be applied to all countries in our sample. For example, some poignant indicators lack data coverage for many countries in our sample, besides China. This complicates our process for comparing China with the top open market economies on the *same* standards. For this reason, supplemental indicator data do *not* contribute to a country's final composite score.

Numerous data compilation methods are used in building our supplemental indicators. Some indicators are reflections of standard metrics, and others are modified in house to illuminate certain aspects of metrics that already exist. Finally, China Pathfinder applies a handful of existing proprietary indicators developed by Rhodium Group.

### Policy Tracking

China Pathfinder supplements its yearly quantitative assessment with quarterly policy tracking. After compiling all relevant major policy developments in China during a specific quarter for each of our six clusters, we systematically evaluate each development. The evaluation process contains four possible signals for China's policy momentum: movement toward, movement away, mixed movement, or no change in relation to open-economy standards. After aggregating all positive, negative, mixed, and stagnant developments in China's policy atmosphere, China Pathfinder presents a heatmap within its quarterly report that shows the outcome.

In examining policy changes, our team specifically looks for policies that connect back to the benchmark signals that we outlined in Chapter 2's "Looking Forward: Market-Oriented Policy and Data Signals." This provides continuity between our annual report's quantitative-driven outcomes and the policy considerations elaborated upon in quarterly reports.

### Applications and Caveats

While China Pathfinder is intended to be a quantitative resource for policymakers, economists, and business leaders to benchmark the Chinese economy and stay informed about China's policy developments, it is not a comprehensive assessment of every aspect of China's economy. Our research design is deliberately narrow, focusing on just enough to permit a clear picture of China's compatibility with market economies without hindering reader accessibility.

The choice to track China's system vs. open market economies, rather than a broader set of emerging and developing economies, was a deliberate one. We fully acknowledge that China does not have any intention to become a democratic open market economy. However, we postulate that OECD policymakers can only maintain open and engaging economic policies with China if there is movement in a similar direction.

Our project concept opens the question of whether China should be expected to converge with advanced OECD nations, instead of the opposite. Aiming for fairness in the China Pathfinder evaluation, we compare China *not* on areas in which our sample of market economies are already structurally perfect, but on agreed-upon norms integral to an open economic system.

### Research Dissemination and Data Visualization

The China Pathfinder Project provides visualizations for indicators in six areas that will be updated with new data annually. It preserves 2010 as a benchmark year for China's performance, a data point that will live through future iterations of composite scoring and individual indicator analysis.

To add nuance and include higher frequency data on the Chinese economy, supplemental indicators are refreshed on a quarterly basis. In the face of unexpected large-scale developments, the supplemental indicator list will expand or be modified to ensure maximum utility for the user.

Data visualizations are created by Seven Mile Media, and range from interactive data features on the website and graphical representations throughout annual and quarterly reports. More details on China Pathfinder's interactive data visualizations, publication archive, and structure behind this project are available on the China Pathfinder website <http://chinapathfinder.org/>







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