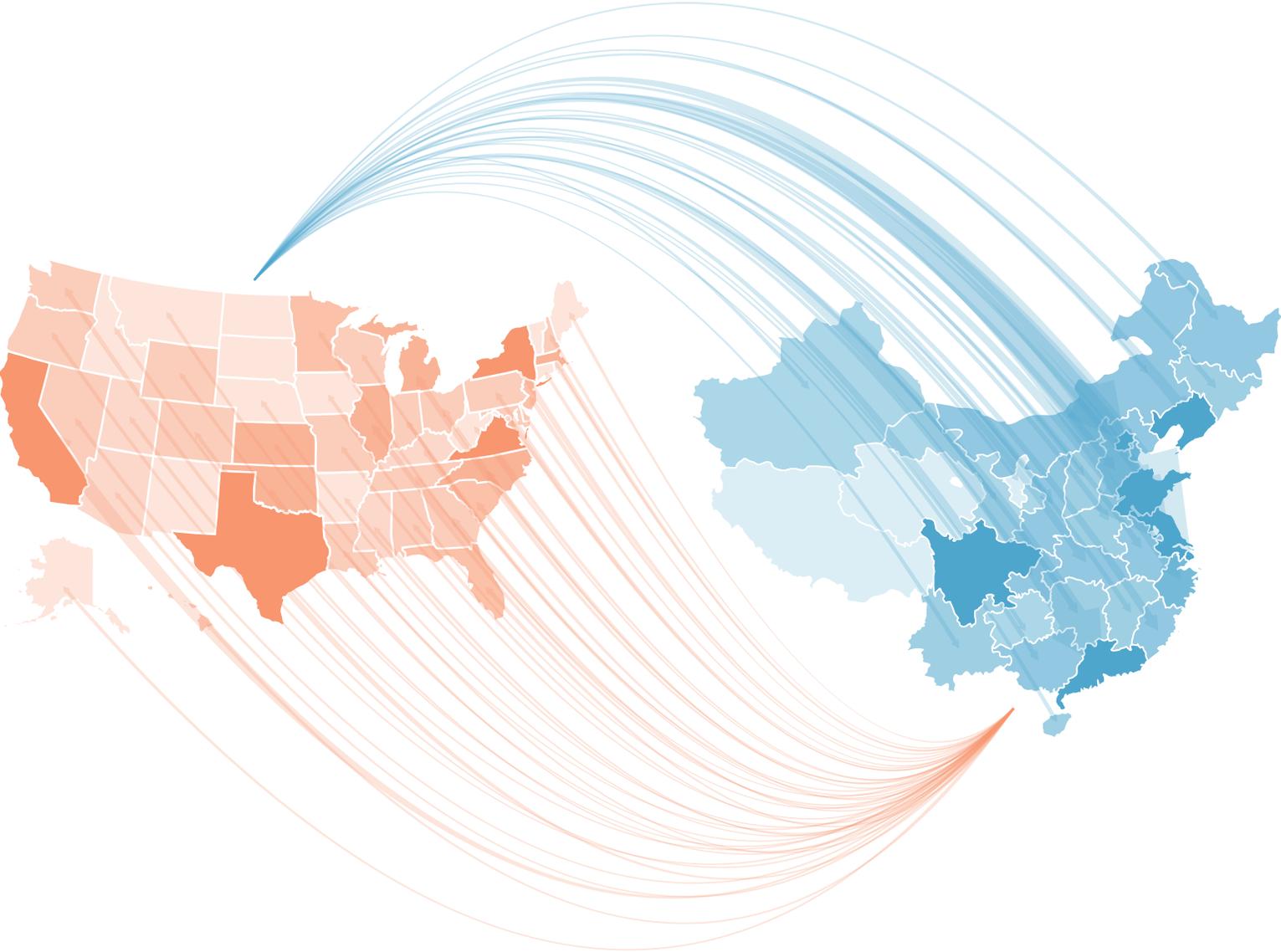


Two-Way Street

25 Years of US-China Direct Investment

Thilo Hanemann, Daniel H. Rosen, and Cassie Gao



A report by Rhodium Group and the National Committee on U.S.-China Relations

In partnership with



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NOVEMBER 2016

More background the US-China FDI Project and interactive visuals are available at:
www.us-china-fdi.com

ABOUT THIS REPORT

This report is the first deliverable of the US-China FDI Project, a multi-year research initiative to provide greater transparency on FDI flows between China and the United States. The US-China FDI Project is led by Rhodium Group and the National Committee on U.S.-China Relations, in partnership with the American Chamber of Commerce in Shanghai and the China General Chamber of Commerce USA.

LEAD ORGANIZATIONS



National Committee on U.S.-China Relations

The National Committee on United States-China Relations is an American nonprofit, nonpartisan educational organization that encourages understanding and cooperation between the United States and Greater China in the belief that constructive Sino-American relations serve the interests of both countries and the global community. Since 1966, the National Committee has conducted programs on politics and security, governance and civil society, economics and finance, education, and transnational issues such as energy and environment. It carries out its mission via conferences and forums, public education programs, professional exchanges, and collaborative projects. The National Committee's membership of more than 800 Americans and 100 corporations and professional firms represent many viewpoints, but share the belief that productive U.S.-China relations require public education, face-to-face contact, and the forthright exchange of ideas.

Rhodium Group

Rhodium Group (RHG) is an economic research firm that combines policy experience, quantitative economic tools and on-the-ground research to analyze disruptive global trends. It supports the investment management, strategic planning and policy needs of clients in the financial, corporate, non-profit, and government sectors. RHG has offices in New York, California, and Hong Kong, and associates in Washington and New Delhi. RHG's cross-border investment practice analyzes the rise of China and other emerging markets as trans-national investors. RHG senior staff publish frequently on the growth and impact of Chinese outbound FDI in the United States, Europe, and other economies.



ABOUT THE AUTHORS

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IN PARTNERSHIP WITH

American Chamber of Commerce in Shanghai

The American Chamber of Commerce in Shanghai, known as the “Voice of American Business” in China, is the largest American Chamber in the Asia Pacific region. Founded in 1915, AmCham Shanghai was the third American Chamber established outside the United States. As a non-profit, non-partisan business organization, AmCham Shanghai is committed to the principles of free trade, open markets, private enterprise and the unrestricted flow of information.



China General Chamber of Commerce USA and CGCC Foundation

Founded in 2005, the China General Chamber of Commerce – U.S.A. (CGCC) is the largest nonprofit organization representing Chinese enterprises in the United States. Its mission is to promote Chinese investment in the U.S., support the legal rights and interests of our members, and enhance cooperation between Chinese and U.S. business communities.



The CGCC Foundation is an IRS 501(c)(3) charitable organization affiliated with the China General Chamber of Commerce – U.S.A. It is dedicated to fulfilling social responsibilities by giving back to local communities and enhancing mutual understanding between the people of China and the United States.



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FOREWORD

As the National Committee on U.S.-China Relations celebrates its fiftieth anniversary, we are proud to collaborate with Rhodium Group and a set of outstanding sponsors on a path-breaking new study of two-way direct investment between the United States and China.

Over our history, the National Committee has held numerous discussions on bilateral US-China investment, but they nearly always focused on US FDI in China—because there was essentially no Chinese FDI in the U.S. As trends began changing, so have these discussions. Beginning in 2015, we added an important new chapter to this discussion: our *New Neighbors* series, also conducted in partnership with Rhodium, marks China's arrival as an exporter of FDI to advanced economies, not just a recipient, and provides a detailed assessment of Chinese direct investment in local American communities. With the present volume, *Two-Way Street: 25 Years of US-China Direct Investment*, we are excited to extend the conversation once again, offering an accurate and fully comparable account of deal flows in each direction.

In doing so, *Two-Way Street* resolves many of the basic questions about flows and balances between the US and China over the last 25 years and, we hope, helps minimize misunderstanding of this rapidly growing channel of interaction. The study provides a much-needed reference for policymakers, communities, and businesses to better identify opportunities for growth, and to respond to questions and concerns about a new dimension of Sino-American economic activity.

This report also hints at the tremendous tangible and intangible benefits that bilateral investment has already brought both our countries—a subject with which I have a great deal of personal knowledge. From 1979, when I began work in Beijing as a young lawyer, I saw the first examples of US investment creating better jobs in China, but hardly the last. Shortly after becoming president of the National Committee in 2005, for instance, I visited a new Ford manufacturing facility in Chongqing. It was designed to sell its output in China. Today that plant employs nearly 5,000 Chinese workers, managers, and engineers, who earn significantly higher wages than they would in other manufacturing sectors. Through its investments, Ford has brought a middle-class lifestyle to thousands of Chinese, revolutionizing society just as it did decades earlier in the United States. And just last month, I saw a tremendous example of the inverse: at its ribbon-cutting ceremony in Moraine, Ohio, on the site of a shuttered General Motors plant, Fuyao Glass America opened the world's largest automotive glass facility, now employing 2,000 Americans. The significance of Fuyao's investment should not be overlooked. It represents a rebirth for the region, stemming years of growing unemployment that accompanied the closure of factories of American companies such as NCR, Johnson Controls, and General Motors.

Gains from reciprocal investment go well beyond solid paychecks. Fundamentally different from trade, investment builds people-to-people relationships. When you trade, you show up, you sell your goods or services, and you go home, returning only when it is time to sell again. Investment is like marriage; it requires sustained communication and commitment from both partners in order to thrive. Your partners become like family, supporting and learning from one another. I always felt I was an unofficial ambassador for my country, and tried to teach my Chinese partners all I could about America. In turn, they taught me about China's history, culture, and system.

I can no longer count the number of unofficial ambassadors who, through investment, bridge our two nations. As this report reveals, both countries have been more welcoming to one another's investments than much official data would have us believe. To ensure that our citizens continue to gain the benefits of investment, the policy and business communities in both countries would be wise to seek responsible ways that promote rather than hinder these flows.

In 1972, when the National Committee hosted the Chinese ping-pong team, we became the first bridge for people-to-people contact, helping move the relationship in an entirely new direction. Today, contacts proliferating through investment projects, along with tourism and educational exchanges, are once again helping steady a relationship as it moves through uncharted waters. As two-way FDI continues to accelerate, the National Committee on U.S.-China Relations is confident that this report will help both American and Chinese thought leaders better understand its impact and potential.

Stephen A. Orlins

President, National Committee on U.S.-China Relations

JOINT LETTER BY AMCHAM SHANGHAI AND CGCC USA

The American Chamber of Commerce in Shanghai and the China General Chamber of Commerce – USA are pleased to support this important project on two-way foreign direct investment flows between the United States and China undertaken by the National Committee on U.S.-China Relations and Rhodium Group.

Business activities between the United States and China—the two largest economies in the world—influence trade patterns and economic activity across the globe and constitute a major component of global activity. Trade and investment between our two countries are also critical aspects of US-China bilateral ties and have improved living standards of citizens on both sides and beyond. Moreover, the extensive interaction of our business communities is a major element of the people-to-people ties that serves as the foundation for healthy US-China relations.

In recent years, there has been considerable attention to a new wave of Chinese direct investment entering the United States. The volume of investment has grown dramatically and is going to a wide range of industries and geographic locations. This new development is a positive one for US-China relations. Chinese investment in the United States already accounts for over 100,000 jobs and the number is growing.

Less new, but equally positive, is direct US investment into China. This report shows that we knew less about the importance of these flows than we thought we did: the amount of cumulative US investment in China is substantially higher than what the most commonly used official figures show. This underscores the significant role that US investment has played in China's economic development. That investment has created good jobs and accelerated China's integration into the global trading system in addition to introducing advanced technology and modern management methods.

This study provides a statistical foundation to two-way investment flows and a descriptive analysis of the data that can guide policymakers by providing an objective, dispassionate assessment of the bilateral investment relationship. The numbers show that investment ties are deeper than thought and that the benefits of this investment, both in terms of economic activity and providing a kind of “ballast” for US-China relations overall, are underappreciated. Thus, particularly at a time when investment protectionism is on the rise, policymakers should double their efforts to sustain and improve openness. Specifically:

- In the US: resist calls to limit openness as attacks on globalization and free trade intensify; minimize the politicization of transactions and reject calls for an expansion of US investment screening to include a net benefit test.

- In China: accelerate the announced transition to a new foreign direct investment regime that stops guiding foreign investment decisions and levels the playing field between domestic and foreign companies.
- Both governments should work to conclude a bilateral investment treaty as an important signal for commitment to openness and as a way to move toward a more common standard of investment openness.

Our two chambers, representing business communities on different sides of the Pacific, are pleased to be associated with this study. The American Chamber of Commerce in Shanghai was founded in 1915 and is the largest American Chamber in the Asia-Pacific region. China General Chamber of Commerce – USA was founded in 2005 and is the largest nonprofit organization representing Chinese enterprises in the United States. We are two different chambers but share identical missions, namely, to support the business success of our members and strengthen US-China commercial ties. We firmly believe that strong economic relations foster healthy bilateral relations overall and that an openness to trade and investment will result in stronger economic relations. The benefits to both countries are significant and deserve great attention by leaders on both sides. That is the message of this study and we hope that readers reach this same conclusion.

Sincerely,

Ker Gibbs

*Chairman, American Chamber of
Commerce Shanghai
Advisor, ChinaBio Group*

Chen Xu

*Chairman, China General Chamber of
Commerce – USA
President & CEO of Bank of China USA*

AUTHORS' ACKNOWLEDGEMENTS

We have relied on the hard work, thoughtful initial reactions, and generous financial support of a great many people to make this study possible.

First, in terms of research and drafting, thanks go to our extraordinary team of Rhodium Group colleagues for their superb contributions. Ben Eckersley, Chao Liu, Liang Zhao, Luisa Kinzius, and Yingxin Chen were critical to the data compilation and qualification, which—as the reader will see—was truly a whale of a task. Andrew Coflan and Rebecca Wertz also contributed to the editorial process.

As in previous collaborations, the National Committee on U.S.-China Relations has been a strong and supportive partner in realizing this undertaking. Foremost, Steve Orlins had the vision to collaborate on the study, and in addition to his institutional support he lent his perspective from more than three decades as a participant in US-China direct investment flows. His colleagues Jonathan Lowet, Virgilio Bisio, Jaime Earl, Diana Roggemann, and Joseph Weed have worked hard behind the scenes to maximize the impact of our research.

A very special acknowledgement of thanks and gratitude goes to a man who encouraged and supported our prior studies on Chinese foreign direct investment—experiences key to making the current project possible—and then challenged us to find a way to do this two-way, comprehensive assessment: Jack Wadsworth. Jack has been in the mid-stream of US-China investment flows from the early days, and is a major force in supporting policy research to enable a future generation of Chinese and Americans to benefit from the bilateral commercial opportunities he embraced. Jack's generosity and his substantive advice have been invaluable to us in equal measure.

The anchor supporters for this endeavor present a unique pair: the American Chamber of Commerce in Shanghai and the Chinese General Chamber of Commerce – USA. By agreeing to work together to support this study these leading business associations have done more than just help bring objective data to what is at risk of becoming a politicized debate—they have demonstrated that enterprises from the world's two largest economies have a common agenda and still serve as the ballast in the bilateral relationship. American Chamber of Commerce Shanghai Chairman Ker Gibbs and President Ken Jarrett, and China General Chamber of Commerce Chairman Chen Xu and Director Candice Niu have been steadfast supporters and we look forward to continued collaboration with them over the life of this project and beyond.

Support for this project comes from other firms and organizations as well, including the Starr Foundation, East West Bank, and FleishmanHillard. We are grateful for their support. We also thank our partners in the production process, including Christian Marc Schmidt and his team at Schema Design for their work on visualizations, report layout, and the online interactive; Judy Zhou and her team at Cantos

Translations in Hong Kong for the translation into Chinese; and Sharon Kleinberg at Symmetry for the printing.

We have relied on the generous, and mostly gentle, insights and critiques of many executives, intermediaries, and other professionals to get our numbers right. We cannot possibly credit all of them, but each and every one of them has helped us to produce a unique set of data on two-way foreign direct investment flows between the US and China. Discussions with many statisticians and others at the US Bureau of Economic Analysis, China's Ministry of Commerce, the State Administration of Foreign Exchange, and other government agencies on both sides have also been important.

We are convinced that constructive, diligent, and independent quantitative research can play a meaningful role in finding the path to a peaceful and prosperous future by informing policymakers and public discourse. We thank the community of fellow researchers who share that belief and from whom we have learned, and the policy professionals who have encouraged us and made use of our work. While these colleagues too have helped to improve this study, imperfections surely remain, which are solely the responsibility of the authors.

Finally and most importantly, we thank our families for their patience and support of our research endeavors.

Daniel H. Rosen, Thilo Hanemann, and Cassie Gao

New York, October 2016

EXECUTIVE SUMMARY

This report illuminates the volume, patterns and industry details of foreign direct investment (FDI) flows between the United States and China—in both directions—from 1990 to 2015. American companies have been active in the Chinese economy throughout the post-1979 reform period, investing hundreds of billions of dollars. In the past decade, Chinese investors have begun to expand their US presence as well, turning the FDI relationship into a two-way street with multi-billion dollar flows every year. This change has important economic and political implications, and has turned FDI into a first-order priority in the bilateral relationship.

Debate about the benefits and risks related to foreign investment is long-standing, and a copious body of literature exists on this subject. Many of those arguments are now resurfacing in the context of US-China FDI relations, including potential national security risks from foreign ownership, the role of reciprocity in investment market access, and the impact of FDI on innovation and long-term competitiveness. Much of the debate at the moment is predicated on claims about the pattern of investment that turn out to be untethered to any data.

It is essential that our discourse about FDI—to the greatest extent possible—be data-driven. However, current FDI statistics of both the US and Chinese governments are compiled with the primary goal of analyzing balance of payments-related questions; they are subject to significant distortions due to tax

optimization and other shorter-term considerations; they have long delays and many gaps; and they do not offer the granularity necessary to analyze many policy-relevant questions. This study sets out to create greater transparency on US-China direct investment flows to facilitate a fact-based and more productive policy debate.

US FDI IN CHINA

American firms have been leaders in overseas investment in Asia for the past century and a half, and China has been an important part of that story. Since the 1970s, US multinationals were key proponents of normalizing the relationship with China, and their operations in China have been central to ties between the two countries. Over the past quarter century these firms have transferred technology, created jobs and helped reshape the Chinese economy. In Chapter 1 of our study we review available official statistics on US FDI in China and introduce a new dataset that augments those data points.

The most commonly used official estimates of the US FDI stock in China suggest a modest value, reflecting the methodological shortcomings of balance of payments statistics. The U.S. Bureau of Economic Analysis puts the stock of American FDI in China at \$75 billion as of 2015. China's Ministry of Commerce counts \$70 billion of cumulative utilized FDI from the US to that date. Both datasets have limited utility for analyzing two-way FDI flows. We offer an alternative perspective on the scope and patterns of US FDI in

China, by introducing a new transactions-based dataset created by identifying, qualifying, and counting every single FDI transaction over \$1 million since 1990. We count nearly 6,700 American investments in China with a combined value of \$228 billion. Our dataset includes more than 1,300 US companies that have built significant operations in China, 430 of them investing more than \$50 million and 56 with billion-dollar bets.

We also provide details on a variety of other policy-relevant metrics not available in official statistics. For instance, we can discern that more than 71% of total US FDI by value went into greenfield projects, the majority of them small- and medium-sized. We describe investment patterns across industries over time, illustrating how the focus has shifted from exploiting comparative advantage in light manufacturing to serving local consumers and customers. Finally, our data indicates that American investment in China peaked in 2008 and has been largely flat since, with a declining trend since 2012.

CHINESE FDI IN THE US

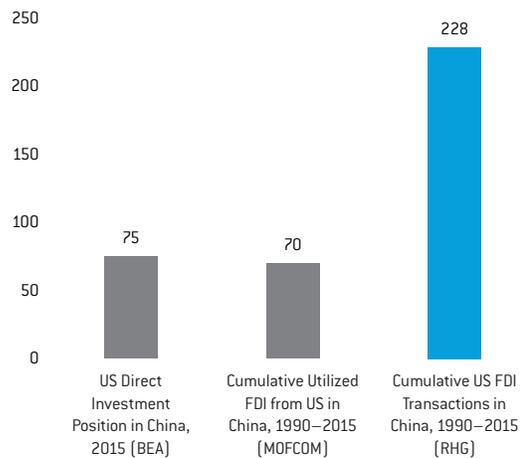
Chinese companies traditionally were not physically present in the US, but have expanded their footprint

rapidly over the past decade. While these flows are nascent, they have grown to significant levels in a brief span of time. The structure of China’s economy is evolving quickly—far faster than other major economies have in the past—and the nature of outbound Chinese FDI is changing quickly as a result, reflecting new motives, interests and aspirations. In Chapter 2 we review how this new trend shows up in official statistics and then take a more granular look using our transactions dataset.

Official statistics are similarly problematic for describing the scale and patterns of Chinese FDI in the US. Official US estimates for the stock of Chinese FDI range from \$15 billion to \$21 billion. Official Chinese numbers put the figure at \$41 billion, more than twice the US estimates. Rhodium Group has maintained a transactional dataset on Chinese FDI in the US since 2011. For this study, we have updated this catalogue to include investments back to 1990, to provide a fully comparable count of Chinese FDI in the US for the past 25 years. For the entire period of 1990 to 2015, we count more than 1,200 individual transactions with a combined value of \$64 billion.

FIG ES-1: US FDI Stock in China, Various Measures

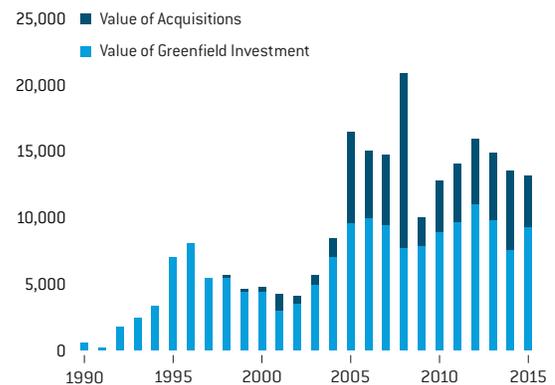
USD billion



Sources: Bureau of Economic Analysis, Ministry of Commerce, and Rhodium Group.

FIG ES-2: Value of US FDI Transactions in China, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

Our transactions data also clarifies details on the structure and patterns of this Chinese investment. We show that Chinese market entry in the US was dominated by acquisitions rather than greenfield FDI, and that Chinese companies have expanded their presence from urban coastal economies to a great number of US states. Another important finding is that Chinese investment in the US is now increasingly driven by private sector activity (an average of 77% in the past three years), and that the investor mix has lately evolved from large multinational corporations to include private equity firms, venture capitalists and other financial investors.

A COMPARATIVE PERSPECTIVE ON US-CHINA FDI

In Chapter 3, we put the two halves together and offer a comparative picture of the bilateral FDI relationship. Not surprisingly, a comparison of the aggregate cumulative transaction values shows that the American FDI footprint in China is still about four times larger than Chinese FDI presence in the US. For annual flows however, the tide has turned in recent years and Chinese FDI to the US has outweighed American FDI in China since 2015. Our comparative perspective also presents a unique picture of FDI ties between US states and Chinese provinces, and

it highlights important differences in deal flow both ways in terms of entry mode, transaction size, and investor mix.

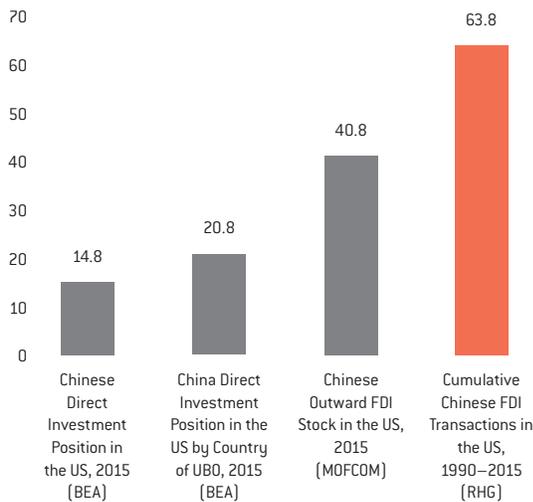
In addition to the comparison of aggregate metrics, our granular data allows us to offer snapshots of two-way FDI patterns for 14 broad industries and an even greater number of sub-sectors. These snapshots include cumulative investment totals, annual investment patterns, the breakdown between acquisitions and greenfield projects, the mix of private and state-owned investors, and the share of majority versus minority investment stakes. Each of these industries has its own cycles, and in many cases its own policy dynamics injected from one or both governments, which we briefly describe in each industry profile. This compendium of bilateral investment summaries by industry will be helpful for Beijing and Washington as they consider investment opening agreements that reach down to sector-by-sector concerns.

CONCLUSIONS

The review of official statistics and our novel dataset on two-way FDI transactions yields a range of findings about US-China FDI relations.

FIG ES-3: Chinese FDI Stock in US, Various Measures

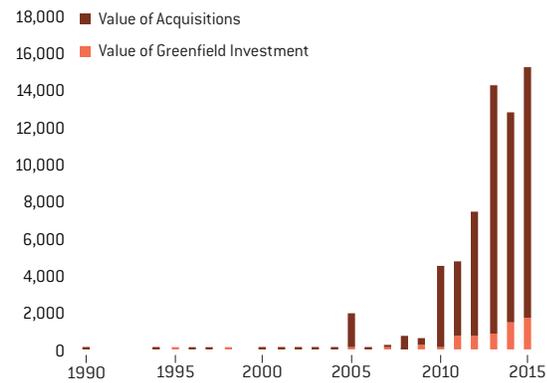
USD billion



Sources: Bureau of Economic Analysis, Ministry of Commerce, and Rhodium Group.

FIG ES-4: Value of Chinese FDI Transactions in the US, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

The first set of conclusions center on assumptions about the degree of FDI integration between the world's two largest economies. We have demonstrated that the commercial stakes on both sides are two to four times higher than commonly used statistics suggest. Our data show that while some Americans are eager to talk about imposing reciprocity requirements for inward Chinese FDI, the cumulative value of US FDI transactions permitted in China to date is four times that of China in the US. Similarly, while many Chinese complain about the lack of American openness, our data show that the US is open and welcoming to Chinese investment, and that Chinese companies are now investing more in the US annually than American companies in China. These observations emphasize that both sides need to reconsider the data before staking out new policy positions.

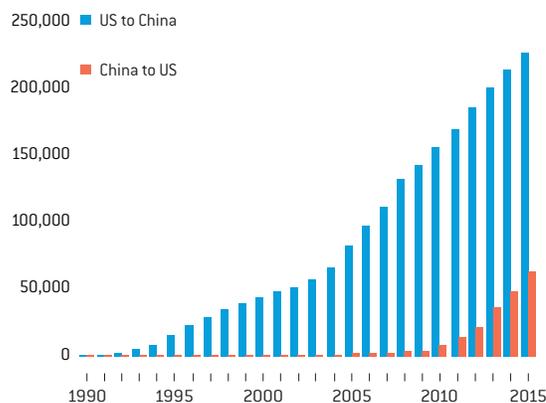
The data presented in this study also highlights the evolving nuances of two-way FDI flows beneath the aggregate picture, confirming that the new pattern of US-China FDI differs from the previous two decades in terms of industry patterns, motives, investor composition, and other dimensions. For example, the investor base on both sides is growing bigger and more diverse—with greater activity by small- and medium-sized companies and greater participation

of financial investors. The changing industry patterns illustrate fundamental adjustments taking place on both sides. For instance, early US FDI in China often sought out lower manufacturing costs, but investment activity today has shifted toward consumer-oriented objectives. Chinese FDI in the US was initially driven by companies seeking strategic assets, including technology, brands, and talent. That has expanded in recent years to include pursuit of financial returns and realization that manufacturers need to be closer to American consumers to defend market share in times of rising labor costs in China.

In addition to commercial factors, our chronology of 25 years of US-China FDI patterns also shows that policy and politics matter for those patterns. The US FDI trajectory in China closely mirrors China's FDI opening policy and continues to be defined by Chinese industrial policies today. The late start of Chinese outflows was principally a function of Chinese policy to keep foreign exchange at home, and outward FDI patterns even now remain under the shadow of potential re-imposition of capital controls. On both sides some sectors are subject to regulatory action—some reasonable and some less so—for example in banking and insurance, high-tech products with dual-use applications, and infrastructure.

FIG ES-5: Cumulative Value of FDI Transactions between the US and China, 1990-2015

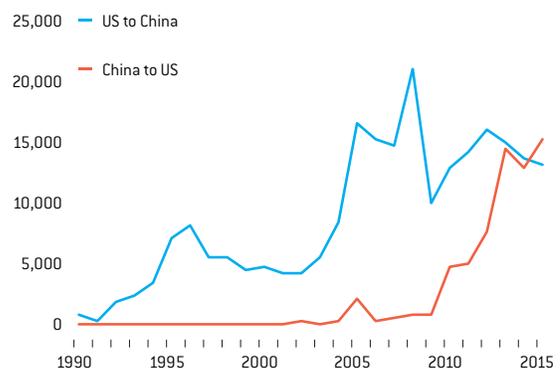
USD million



Source: Rhodium Group.

FIG ES-6: Annual Value of FDI Transactions between the US and China, 1990-2015

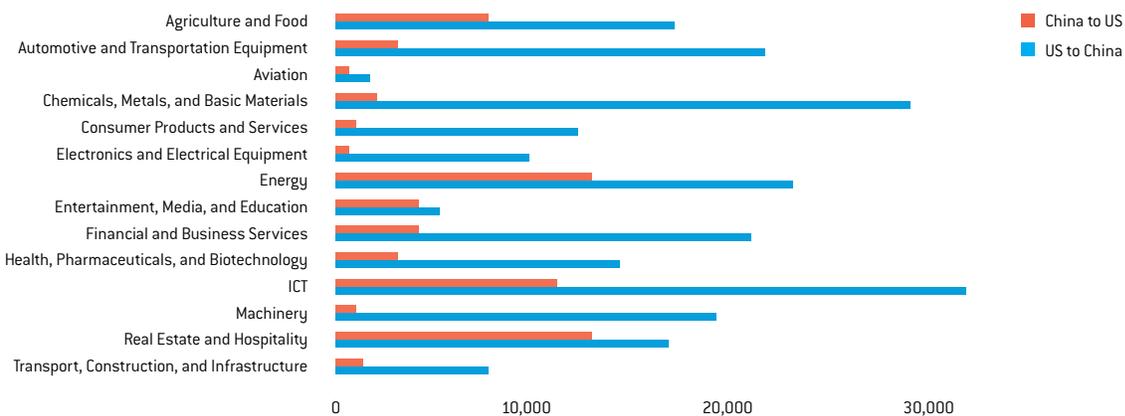
USD million



Source: Rhodium Group.

FIG ES-7: Cumulative Investment by Industry in China and the US, 1990-2015

USD million



Source: Rhodium Group.

Our numbers also further advance the understanding of the benefits from FDI, which is an important element of the policy debate. Benefits from FDI mostly occur locally, and that is where proponents of these inflows have been and will be most vocal. FDI was key to China's past economic success, and was central to the global model that so many US businesses embraced, generating benefits for Chinese and US consumers and competitiveness. The local benefits have been enormous, with US companies today employing more than 1.6 million workers in China. At an earlier stage, the benefits of Chinese presence in the US are showing up too, attracting much needed capital to the US while permitting Chinese companies to tap into US advantages and already provide more than 100,000 jobs today. These links also facilitate people-to-people relationships to a greater extent than trade and tourism. The benefits today are spread across more than 90% of US states and Chinese provinces. Our data allows mapping FDI ties between individual states and provinces, showing links between hundreds of pairs of communities.

Finally, a better count of how far along our investment relationship is also allows us to see how much more room it has to grow. US-China bilateral investment is nowhere near saturation. Chinese

companies have just started to operate overseas, and will invest hundreds of billions of dollars globally in the coming decades to catch up and adjust their business models, driven foremost by economic realities at home. US companies are more than ready to increase investment in China, especially to engage the Chinese consumer and compete in growth sectors such as healthcare, research and development and modern services. The assumption that FDI flows to China have peaked because it is wealthier today is mistaken.

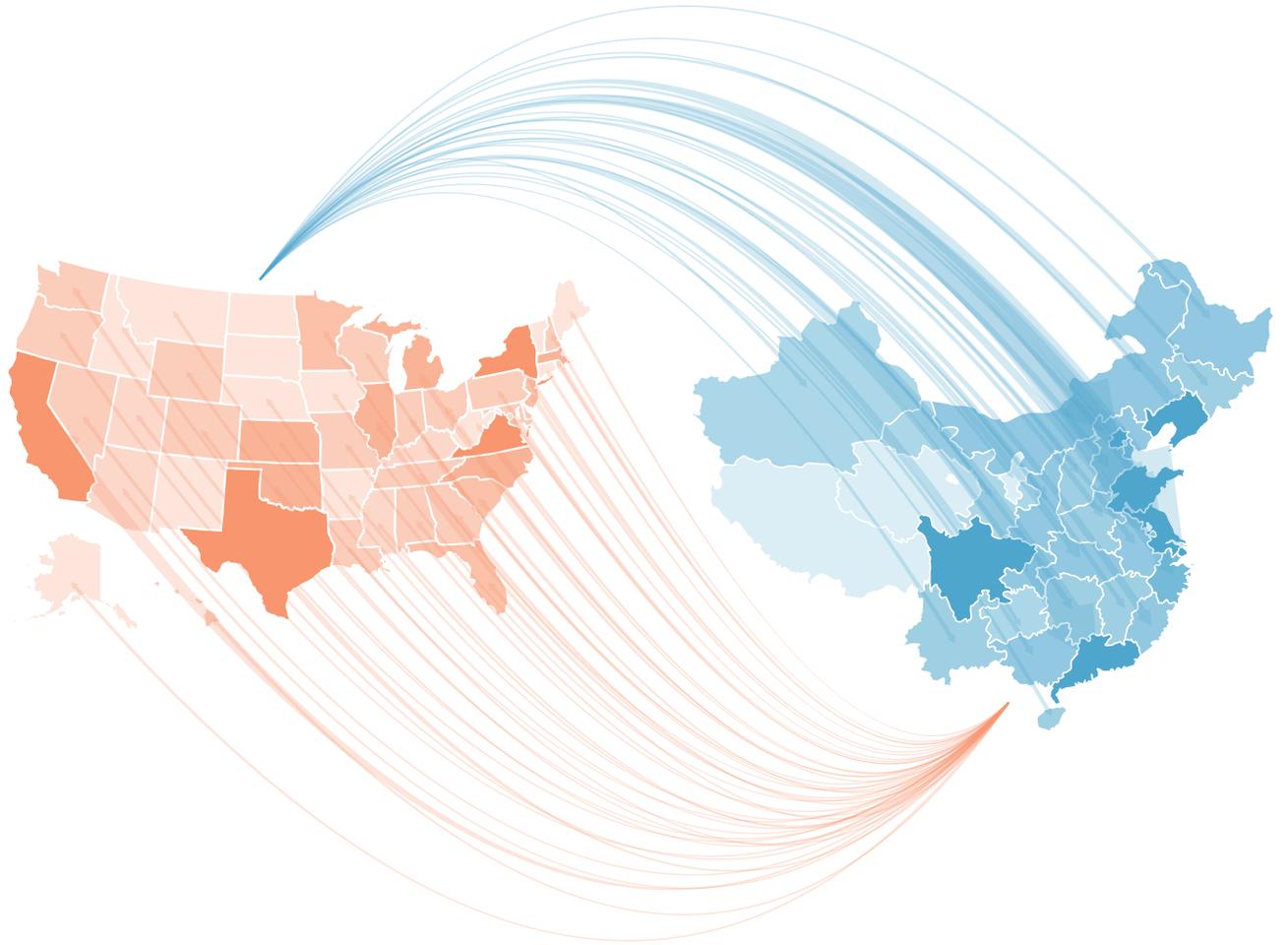
POLICY AGENDA

This study is intended to be of equal utility to both sides of the US-China relationship, and therefore we stay away from making normative recommendations. However, our research supports a number of general recommendations in light of the current US-China policy agenda.

First, policymakers are well advised to consider how much further along the relationship is than official data suggests. Doing so argues for upgrading the policy framework presently used to manage related opportunities and concerns. Upgrading US-China FDI policy is not just a noble long-term goal but a present necessity. US and Chinese officials are

FIG ES-8: FDI between China and the US: Geographic Patterns, 1990-2015

number of transactions (lines) and cumulative value (shading)



Source: Rhodium Group. For more detailed information on these two-way patterns, refer to www.us-china-fdi.com.

not negotiating a bilateral investment treaty out of sheer enthusiasm for liberalization (this has been discussed since the Reagan Administration), but because commercial interests on both sides make new frameworks necessary.

Second, in setting the bilateral agenda policy makers must be mindful of one another's internal timing. Current policy expectations have not only been set without a proper understanding of the data, but also without sufficient attention to domestic political processes and timing on each side. American politics can make it challenging to handle negotiations in a traditional, down-to-the-wire manner in which both sides hold their best offer back until late in a discussion. While China traditionally could stick to an official timetable, nowadays major policy reforms have been delayed due to domestic politics—some of them as much as three or four years. Based on our findings, there is less time for policy planning than both sides thought, and it may thus require high-level attention to get back on track.

Third, the data shows that the industry mix of two-way FDI flows has been evolving quickly, which naturally leads to worry about whether policy can keep up with national security issues. High-tech acquisitions will attract greater security scrutiny, and they are simply a bigger part of the mix nowadays, as the data show. While accepting that this trend will drive deliberations on both sides, our policy concern is that fundamental national security questions cannot be resolved by FDI screeners trained to quickly clear transactions based on a pre-determined set of criteria, who do not have the ability to make path-breaking judgments about the evolving nature of national security.

Fourth, our comparative perspective on two-way FDI flows show that questions of symmetry and reciprocity in US-China bilateral investment are complicated. China has traditionally hosted more investment from the US than vice versa; but this had mostly to do with its stage of development and Chinese firms' readiness to venture abroad. On an annual basis, Chinese firms are now investing more in the United States than the other way around, which naturally invites new questions. However, this is not (yet) true for

most industries. Furthermore, the annual balance is not just a result of policy restrictions (which are far more limited on the US side) but also due to changing propensity of businesses to invest in light of growth concerns, and many other factors. When framing the policy agenda, these complexities must be considered before either side embraces fashionable but vague notions such as reciprocity.

Fifth and finally, we encourage Beijing and Washington to think beyond the bilateral. The US-China FDI policy agenda does not exist in a vacuum. American and Chinese interests in maximizing the benefits of FDI cannot be guaranteed solely on a bilateral basis: the investment environment is inherently multilateral, and many of the policy issues extend beyond the bilateral US-China dimension. It is therefore in the interest of the world's two largest economies to propose renewed discussion of direct investment arrangements in the multilateral context, and to convene an initial scoping meeting for such dialogue in the near future. China's emergence as a principal player in global investment flows presents an opportunity to revive the prospect of a multilateral agreement on investment that was dashed two decades ago because some believed these flows were a one-way street.

INTRODUCTION

Over the past century and especially in recent decades, a renaissance of global economic integration has made the world flatter. This process of globalization was driven by transport, advances in communications and manufacturing technology, reduced taxes on trade, and greatly lowered barriers to cross-border capital flows. The deepest and arguably most impactful form of capital flow has been the expansion of foreign direct investment (FDI) by commercial enterprises around the world. Distinct from often short-term portfolio capital flows that can slosh in and out of securities markets with alarming speed, FDI typically consists of a longer-term controlling interest in a company, acquired or built from scratch.

While trade and portfolio flows can dry up in short order, these long-term direct investments demand time and dedication to succeed. There are nearly \$25 trillion of such ventures across borders today, ranging from assets worth tens of billions and requiring decades to pay off to small-scale offices and operations (Figure 1).¹ FDI played a part in the very founding of the United States, the creation of Hong Kong, Singapore, and Shanghai as they exist today, and countless other nodes of the global economy through history. However, the near-universal

globalization of the world economy driven by these direct investment flows has occurred over just the past three decades. Yet, even after this extraordinary growth in flows, there remains a long way to go. The preponderance of global FDI to date has flown between advanced economies, or from advanced economies such as the United States to emerging economies such as China. There remains tremendous room for this cross border economic activity to expand. Growth is already happening, to an extent and in ways that are still underappreciated and poorly understood.

CONCERNS AND BENEFITS ASSOCIATED WITH FDI

The benefits from and concerns about FDI are well documented.² Economists and politicians have long debated anxieties that FDI can entail domestic companies “offshoring”, or shifting jobs and operations abroad in pursuit of lower operating costs and thus higher profits. Conversely, in the case of a home company acquired by foreign purchasers, worries have arisen that higher value activities could be shifted to the buyer’s home country. Another concern is that lower labor or environmental standards might be the cost-saving attraction that lures enterprises away from home, thus efforts to converge such standards have been a perennial issue in the wake of the global direct investment boom. Since global corporations often have deeper pockets and great influence in

1 While direct investment statistics provided by the United Nations Conference on Trade and Development (UNCTAD) are problematic due to the use of government data based on different concepts and methodologies, it is the best available dataset for a historical perspective of global direct investment flows.

2 Dunning, John H. and Sarianna M. Lundan. *Multinational Enterprises and the Global Economy*. 2nd ed. (Northampton: Edward Elgar, 2008).

less developed host economies, corruption issues and corporate social responsibility have also been important topics in the context of FDI, as has the “Dutch disease”, or a tendency for large investments in extractive sectors to absorb such a large share of available labor in a smaller economy that other industries find it impossible to grow.

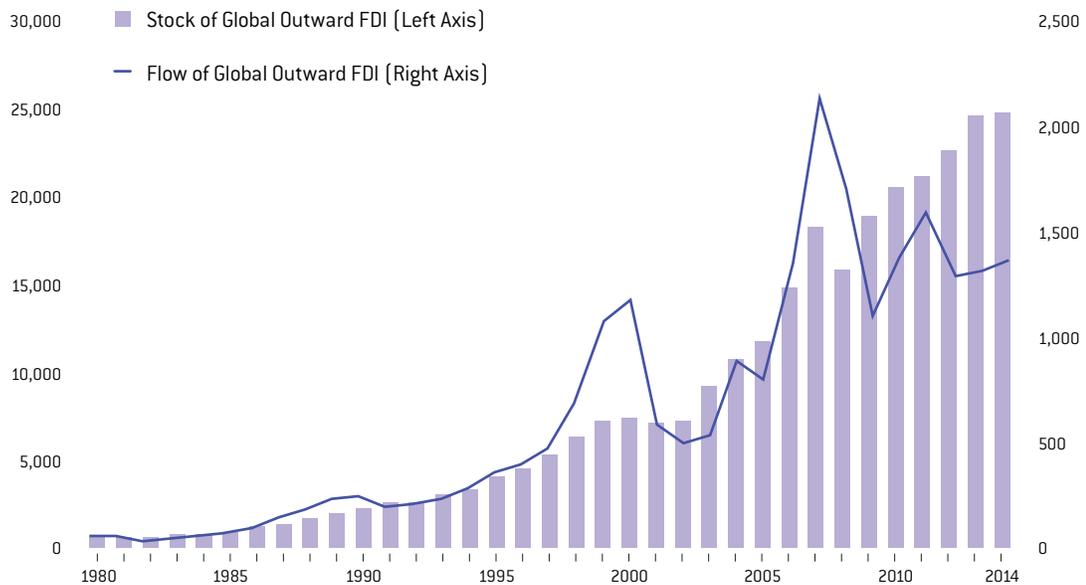
Another aspect of concern about FDI is not entirely remediable however: national security considerations. For nearly as long as firms from one nation have set up in another’s territory, host authorities have contemplated a variety of potential associated risks. The commercial operations of a foreign entity could conceivably do double duty as a platform for espionage or—in case of acute hostilities—serve to conduct sabotage. An acquisition could convey a militarily useful capability to a potential adversary, which they could not otherwise attain at home or elsewhere. Or an investment could deprive a nation’s defense sector of a reliable supplier upon which it depends for a critical input. These and other ostensible national security issues are of concern to many

governments, and nations attempt to address some or all of them in various ways.

These issues are all complex and important, and when not addressed can lead to real risks and a loss of political willingness to embrace inflows or outflows. But by and large, strategies to manage these risks have been successful, and the proliferation of direct investment shows that the benefits related to FDI outweigh the concerns. From the perspective of developed economies, FDI is a way to facilitate economic integration with high-income peers as well as emerging markets and developing countries. FDI fosters competition, innovation and efficiency, thus increasing variety and welfare for consumers. From the perspective of emerging and developing countries, FDI can accelerate growth and foster economic development by providing capital, technology transfer, know-how, management skills, and marketing methods. Competition for FDI among national governments also has helped to promote political reforms important to attract foreign investors, including legal system and macroeconomic policies.

FIG 1: Global FDI Outward Flows and Stock, 1980-2014 (UNCTAD)

USD billion, current prices



Source: UNCTAD.

Aside from material economic benefits, FDI can also bring positive social and political impacts for bilateral and international relations. Unlike the mere transfer of billions in stocks and bonds through electronic accounts, FDI generally entails people-to-people relations. Operating a going concern abroad usually means a local presence involving expatriate staffing and adaptation of brands and business models to an alien marketplace, enhancing mutual awareness, if not always perfect understanding, and putting a face to the national flag that comes with trade but does not tell a story. The presence of foreign brands and businesses is no guarantee of better bilateral relations, but it certainly contributes to different perceptions. In fact, a body of “capitalist peace theory” grew up in the second half of the twentieth century, based on the observation that economies with higher levels of capital openness are less likely to go to war with each other. Greater openness to foreign capital leads to higher national dependence on international investors, making the cost of risking peace higher.³ It is important to consider the contribution that two-way FDI flows can add to the ballast in bilateral relationships.

FDI AND US-CHINA RELATIONS: BALLAST OR SOURCE OF TENSIONS?

FDI was an important component of US-China economic and political relations in the past three decades, although until lately in a lopsided way. Receptivity to FDI was a signature element of China’s reform and opening policy, and a prerequisite for building out its manufacturing capabilities, upgrading technology and integrating the country into the global trading system. US multinationals played an active role in this buildout of capabilities, initially to serve consumer demand in the US and other overseas markets.⁴ In latter decades, US FDI has shifted to more market-seeking types of investment, as China’s consumer spending grew rapidly and US firms sought to build local facilities to serve that demand.

3 Gartzke, Erik. “The Capitalist Peace.” *American Journal of Political Science* 51, no. 1 (2007): 166–91.

4 See Daniel Rosen’s *Behind the Open Door: Foreign Enterprises in the Chinese Marketplace* (Washington: Institute for International Economics, 1999), an early study that anticipated the critical role that American FDI played in China’s economic development and maturation and in US-China relations broadly.

American FDI interests in China were critical to shaping the larger relationship for a number of reasons. First, the shift of US manufacturing and final assembly operations to China to take advantage of labor cost and other production advantages drove challenging internal debates about the American interest, and forced structural change on the US economy which generated economic gains for consumers but painful adjustment costs for workers in labor-intensive, tradable sectors such as apparel and other light manufacturing. To this day the net welfare effects and income distribution impacts of the rearrangement of production chains are hotly debated in the US and elsewhere, testing the limits of tolerance for globalization.⁵ Second, the vested interests of American companies in China, rather than simply traditional trade policy interests, shaped the US negotiating strategy with China on World Trade Organization (WTO) accession through the 1990s and into the 2000s. This forced both sides to engage one another on much deeper issues related to the functioning of the internal Chinese economy than had previously been the case. Third, China’s receptivity to US direct investment was an important validation to US officials and business leaders that China was committed to an interdependent, internationalist model of economic development that was different and far more laudable than the mercantilist and other protectionist strategies that had prevailed in Japan, South Korea, and elsewhere. That distinction sustained a consensus in Washington that constructive engagement with China should be the touchstone for the relationship, and confidence that the nation was inexorably, if incrementally and slowly, evolving in a manner compatible with US interests.

As we approach two decades since the finalization of China’s WTO entry negotiations, key dimensions of this narrative are being reassessed. First, is China still receptive to FDI from the US, and if not then does that indicate the converse of the “China is open to FDI so they are liberalizing” thesis? And second, over the past five years FDI has evolved from a one-way street to a two-way highway, as tens of billions of

5 David H. Autor, David Dorn, and Gordon H. Hanson, “The China Syndrome: Local Labor Market Effects of Import Competition in the United States,” *American Economic Review* 103, no. 6 (2013).

dollars of Chinese investment are now directed at the United States each year, testing whether the US is ready not just to permit outflows but to host corresponding inflows. The answers to these questions are critical to forecasting the outlook for the larger US-China relationship, given the central role played by direct investment today, and this study illuminates the answers with objective data.

THE IMPORTANCE OF TRANSPARENT DATA

The tension between excitement over the opportunities borne by two-way FDI flows and the anxieties about globalization in general and China in particular are not unexpected. The past paucity of Chinese outbound investment, rather than the current uptick, was the exception to the norm. This is especially true in light of China's significant weight in other elements of economic globalization, particularly trade flows. Interventions by Beijing to restrain companies' impulse to invest abroad contributed to external imbalances that were unhealthy for both China and the US, and their abolition should be applauded, not bemoaned. That said, remaining restrictions on foreign investment in China take on a new significance in this era of two-way flows, presenting concerns that were less acute when Chinese firms were not availing themselves of opportunities in the United States. The room for further flows in both directions is in fact still quite vast, and the potential benefits to both economies enormous.

The greatest challenge to realizing the benefits of FDI is mistrust arising from the lack of information and data on two-way flows. There are widely known problems with traditional FDI statistics. The lack of information allows vested interests to politicize investments in the US, block progress on reforms in China and otherwise stymie commerce. Since our first publication on the changing nature of China direct investment dynamics in 2009⁶ we have contributed to a better understanding of Chinese FDI in the United States by compiling data on Chinese investment flows, allowing Americans and Chinese to assess the patterns, drivers and impacts of these

new flows.⁷ Our motivating idea has been that policy dependent on objective data would be better than policy based on assumptions and opinions.

In the past, the bilateral balance in the FDI relationship was hardly an issue, given the American head start. However, bilateral dynamics have evolved more quickly than most people expected. In 2011, we wrote that "if China follows the typical pattern of an emerging economy, it will ship \$1 trillion to \$2 trillion in direct investment abroad by 2020". Most people thought we were exaggerating, since China's external position was a little more than \$400 billion back then. By 2015, China's OFDI stock had reached \$1.1 trillion, which now makes our projections look too conservative. Moreover, the nature of US FDI to China has also changed significantly over the past decade, underscoring the importance of having a reliable measure of two-way flows. As China's economy has evolved, US firms are now looking to expand into serving consumers, conducting R&D and other advanced service activities more than ramping up manufacturing. China is instituting the biggest change to its inward FDI regime in two decades to prepare grounds for a more level playing field for foreign firms in China. Finally, the US and China are engaging in negotiations to conclude a Bilateral Investment Treaty (BIT) provide a new set of rules for two-way investment and ensure openness.

Given all these transitions, now more than ever there is a need for detailed and accurate tracking of two-way US-China FDI data that clarify patterns, gauge the progress of reform and guide international negotiations. With official data still falling short, we have launched a research initiative that aims to provide detailed information on FDI flows and patterns between the United States and China. The goal of the *US-China FDI Project* is to facilitate a facts-based debate about the right policies to permit the benefits

6 Rosen, Daniel H. and Thilo Hanemann. *China's Changing Outbound Foreign Direct Investment Profile: Drivers and Policy Implications*. (Washington: Peterson Institute for International Economics, 2009).

7 Rosen, Daniel H. and Thilo Hanemann. *An American Open Door? Maximizing the Benefits of Chinese Foreign Direct Investment*. (New York: Asia Society, Center on U.S.-China Relations, 2011); Hanemann, Thilo and Daniel H. Rosen. *High Tech: The Next Wave of Chinese Investment in America*. New York: Asia Society Policy Institute, 2014; National Committee on U.S.-China Relations and Rhodium Group. *New Neighbors: Chinese Investment in the United States by Congressional District*. 2015.

of deeper ties while at the same time safeguarding security interests and other legitimate goals. At the center of the project is a new transactions dataset capturing FDI flows between both economies going back to 1990, to be updated on an annual basis going forward.⁸

This first report is the anchor publication of this initiative and consists of four chapters. The first chapter reviews the past 25 years of US FDI into China, utilizing official statistics as well as a novel transactions database. The second chapter reviews patterns and trends of Chinese FDI in the US, utilizing the same data sources. The third chapter provides detailed snapshots of FDI patterns between China and the US for 14 key industries, to get a clearer perspective on sectoral trends. The report ends by drawing conclusions from the data and offering a discussion of their relevance for the bilateral policy agenda.

8 A detailed review of the dataset compiled for this project is available in the Appendix of this report.

1 US FDI IN CHINA

American firms have been leaders in overseas investment throughout the past century and a half, and China was—for the majority of that period—an important part of this history. In the 1890s during the Qing Dynasty, Standard Oil's largest investment outside the United States was its operation selling kerosene lamp oil ("Meifoo" brand—美孚) in China. American firms played a huge role in China's Republican-era globalization, and several extant US firms trace their birth to operations in China in those years, including American International Group (AIG) in Shanghai (1919). The American Chamber of Commerce in Shanghai celebrated its 100th anniversary in 2015. Among its founding members were Standard Oil, US Steel, and Singer Sewing Machine, along with long-since dissolved trading companies such as Mustard and Company. Within a few years, other still-common names including National City Bank (today's Citibank), Du Pont, General Electric, Ford, and Westinghouse were major direct investors in China.

In the aftermath of the Second World War, the US and China went in opposite directions in terms of global economic links. From the start of the Communist era in 1949, China chose to close down most of what remained of foreign investment that had not already been destroyed or withdrawn in the face of foreign occupation and civil war, leaving only links with Russia and others in the Communist bloc. The US meanwhile was the driver of a huge post-WWII

globalization wave, with FDI playing a main role.⁹ On the eve of China's decision to re-engage with the international economy in the late 1970s, the US accounted for over 40% of annual global outbound FDI (OFDI) flows, before Europe and high-income Asian economies caught up. Today the US still accounts for roughly a quarter of annual outbound FDI flow. As of 2015, the official US outward FDI stock stood at \$6 trillion, by far the largest of a single nation in the world, with 24% of the global total—roughly four times greater than second place United Kingdom at \$1.5 trillion (Figure 2).

While the majority of today's US FDI stock is in Canada and Europe, American companies have also built a significant presence in Asia. Thus with a significant presence in the region already, a history of operation in the mainland, and a leading role in global FDI, the question was not whether American investors would take an interest in China but when the Middle Kingdom would re-open its door. As the policy of "Reform and Opening up" took shape in the 1980s, FDI and special economic zones were important cornerstones of economic development, attracting much needed foreign capital and expertise.¹⁰

⁹ For a historical perspective on US OFDI, see Lipsey, Robert E. (2003). "Foreign direct investment and the operations of multinational firms: Concepts, history, and data." *Handbook of international trade 1* (2003): 287-319; Jackson, James K. U.S. Direct Investment Abroad: Trends and Current Issues. Washington: Congressional Research Service, 2013.

¹⁰ New approaches to calculating the impact of FDI in China

Firms from Taiwan, Hong Kong, Singapore, and other Asian neighbors made up most of the early wave, and US multinationals soon followed. These links grew slowly at first, with just a handful of investments by 1980s pioneers such as American Motors (Jeep), Armand Hammer's Occidental Petroleum, and Motorola. As the decades progressed, buoyed by Deng Xiaoping's endorsement of investment market access for foreign enterprises in the early 1990s and the leadership's pursuit of WTO accession later in the decade, American investment in China accelerated.

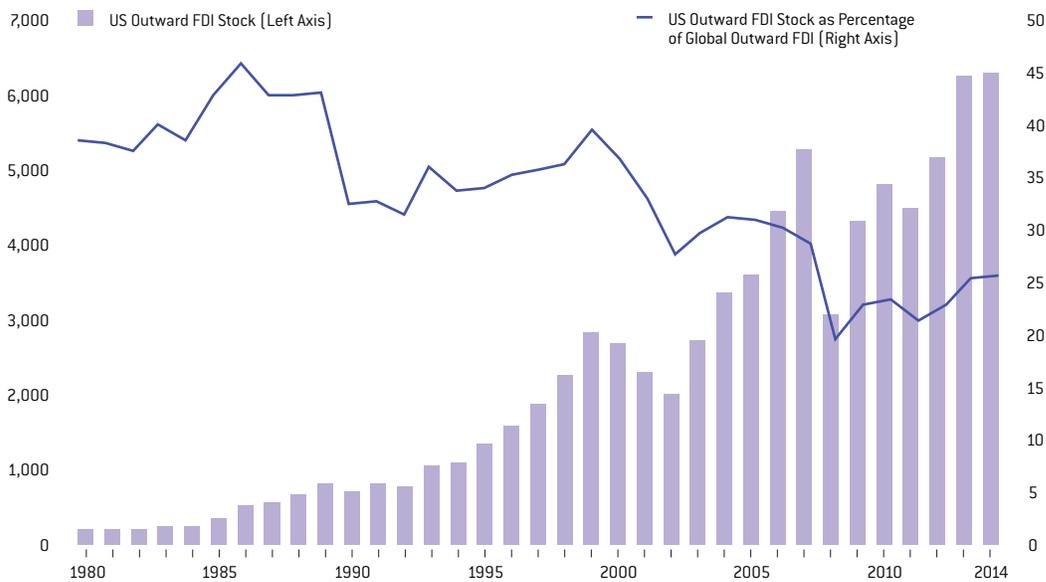
Over the decades, much has been written on US investment in China by academics, consultants, policy advisors, and others—including us.¹¹ And yet old questions remain and new ones arise with the advent, finally, of volumes of Chinese outbound FDI as large as the inflows. In this part, we review the existing official statistics used to describe US FDI in China, then introduce a new calculation of all US investments since 1990 in order to explore those questions.

suggest that the contributions of foreign investment to Chinese economic development were even greater than generally assumed. Michael J. Enright, *Developing China. The Remarkable Impact of Foreign Direct Investment* (Abingdon-on-Thames: Routledge, 2016).

11. Daniel H. Rosen, *Behind the Open Door: Foreign Enterprises in the Chinese Marketplace* (Washington: Institute for International Economics, 1999).

FIG 2: US Outbound FDI Stock and US Share of Global FDI, 1980-2014 (UNCTAD)

USD billion, current US dollars, percent share



Source: UNCTAD.

1.1 FLOWS AND STOCK

After a complete absence from 1941 to 1979, US companies recommenced investment in China in the 1980s. As explored in detail below, annual flows grew modestly in the 1980s, were then briefly interrupted by the political situation in 1989, and accelerated following Beijing's re-embrace of reform in 1992. Since then, US FDI in China has been marked by significant annual flows adding to a growing stock value over time. There have been distinct periods in the trend, but methodological issues in FDI measurement have imposed a degree of uncertainty about patterns and total values throughout the decades. Investments cannot always be attributed to the ultimate country of origin using official methodologies. Flows and stock values can be distorted by intra-company transfers. These and other factors discussed in this chapter have made it difficult to accurately measure the value of US FDI in China. We review official US and Chinese efforts to gauge the value of American FDI in China before turning to our own bottom-up count of investment activity, deal by deal, since 1990.

US GOVERNMENT STATISTICS

In the United States the Bureau of Economic Analysis (BEA), an agency under the Department of Commerce, is responsible for compiling statistics on foreign direct investment abroad and the overseas operations of US multinational enterprises. The BEA utilizes a system of mandatory company surveys to compile FDI data for Balance of Payments (BOP) statistics, the most comprehensive being a five-year general survey, with additional surveys on annual and quarterly bases depending on the size of the investment. The BEA's "international transactions" dataset captures annual financial flows and estimates the total stock of US FDI in China based on the BOP and international investment position (IIP) methodologies for annual flow and total stock numbers respectively.¹² The BEA's dataset covers the

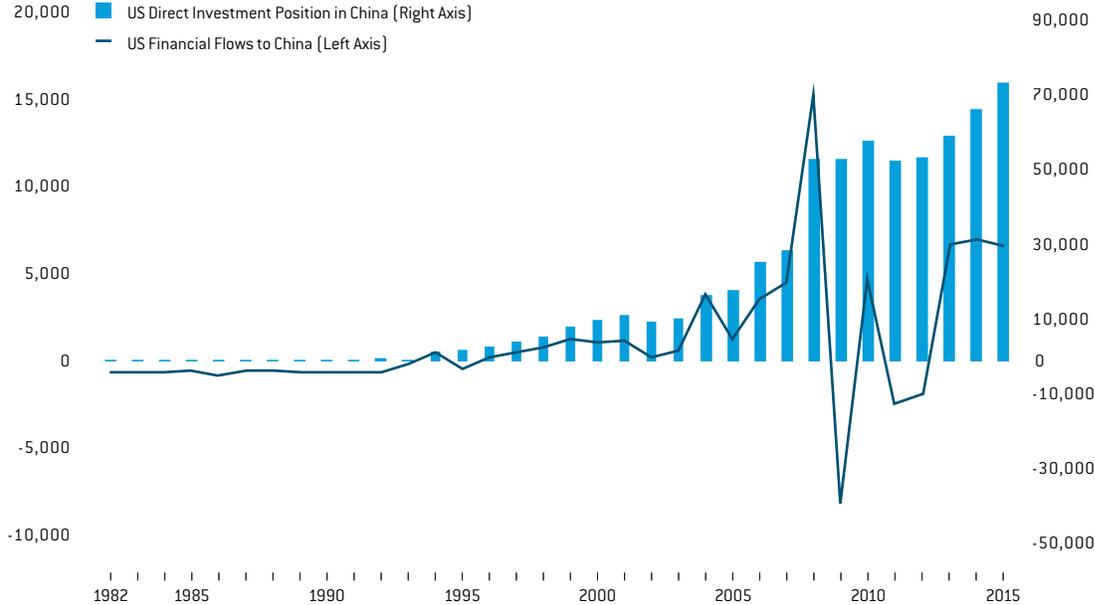
years 1982 to 2015 and data points are available for annual periods. Flows are recorded on a net basis, which means that divestitures and reverse flows such as intra-company lending are subtracted from gross flows. BEA's IIP statistics present data on direct investment positions, meaning the stock of FDI from the world or a specific country at the end of a quarterly or annual period. The BEA has figures on the aggregate FDI stock in the United States under different valuation methods, but detailed data by source country are only available at historical cost, meaning assets are not adjusted for inflation or changes in market values.

As shown in Figure 3, BEA puts the stock of US FDI in China at \$75 billion at the end of 2015. In the first decade of China's reform period annual US FDI flows were minor, below \$100 million per year on average. In the 1990s, annual investment flows climbed, reaching \$2 billion per year by 2000, as China reduced restrictions and requirements for foreign investors and anticipation of China's WTO accession bolstered foreign investment in manufacturing operations. This 20-fold increase in US flows was in line with the overall take-off in investment headed to China in those years, which was supported by many factors. Foreign investment laws were passed, permitting wholly foreign owned companies and increasing joint venture shares; tariffs and other trade taxes were cut, making it more economical to produce in China for foreign markets as well as domestic consumers; infrastructure was built out and labor mobility improved to make scaling up in China practical. After a brief dip following the triple-shock of the late-90s Asian financial crisis, the dot-com bubble burst, and the geo-political impact of 9/11, after 2001 the promise of WTO implementation efficiencies and resilient Chinese expansion drove annual FDI flows up to new heights. This American investment inflow growth as seen in BEA statistics continued through until 2008, peaking around \$16 billion. During the global financial crisis, annual flows turned negative (-\$7.5 billion in 2009), most likely reflecting a pullback of capital from China through

¹² Bureau of Economic Analysis, *U.S. International Economic Accounts: Concepts and Methods*, (Washington: U.S. Department of Commerce, 2014), 11-3-11-10. Presently the BEA adheres to the Balance of Payments Manual, 6th edition (BPM6) standards, after transitioning like most statistical agencies from the 5th edition (BPM5) standards, *ibid*, 2-2.

FIG 3: US FDI Flows and Stock in China, 1982-2015 (BEA)

USD million; flows without current-cost adjustment, stock on historical cost basis



Source: Bureau of Economic Analysis.

intra-company channels.¹³ In the period of 2009-2015, annual flows show great volatility, with three years of negative flows and three years of positive flows.

While these are the most commonly used figures used to describe US FDI in China, they come with several caveats owing to the principles of BOP data compilation. BOP FDI data only captures direct US investment into China, neglecting flows routed through third party locations or legal structures. For example, investments made by a US firm investing in China through a Hong Kong subsidiary count as US outward FDI to Hong Kong. Neither do BOP data capture investments by a US multinational made with reinvested earnings if those earnings are on

the books of a holding company in Ireland or another low-tax jurisdiction. Since the use of such international tax strategies has increased greatly over the past two decades it is reasonable to assume that the official US measure of FDI stock in China—\$75 billion—greatly underestimates the actual value.¹⁴ Another characteristic of BOP data is that it does not only record new equity investments but also includes activities such as reinvested earnings and financing flows between parent company and subsidiaries. As shown in Figure 3, annual flows can appear volatile due to financial restructurings or other intra-company movements: these movements are not necessarily measuring new investment activity so much as decisions by corporate treasurers to allocate capital among international subsidiaries for any number of financial reasons.

13 For a background paper on FDI flows during the financial crisis of 2008/2009, see: Lauge Skovgaard Poulsen and Gary Clyde Hufbauer, *Foreign Direct Investment in Times of Crisis*, (Washington: Peterson Institute for International Economics, 2011).

14 Sola, Pierre. "Distortions in Direct Investment Related to Special Purpose Entities." *Nineteenth Meeting of the IMF Committee on Balance of Payments Statistics*. (Frankfurt: IMF, 2006).

One indicator for how much the BOP and IIP numbers undercount the presence of US multinationals in China is another BEA dataset that captures operational data of overseas subsidiaries of US corporations. Among other metrics, this dataset compiles statistics on the total assets of the subsidiaries of US companies in China. Those are presented as a gross figure, which means that loan liabilities to the US parent company and other reverse flows are not subtracted. While there are some gaps and interruptions, this data series shows a massive expansion of the asset base of US companies in China over the past two decades, surpassing \$400 billion in 2013 (Figure 4). This is more than six times the official FDI stock figure presented in the BEA data. Also, the asset base shows continuous expansion in the past five years, as opposed to the FDI stock figures, which show stagnation since 2009. At the same time, the BEA asset figure may be inflating US FDI presence in China. For one, it counts all assets of joint ventures,

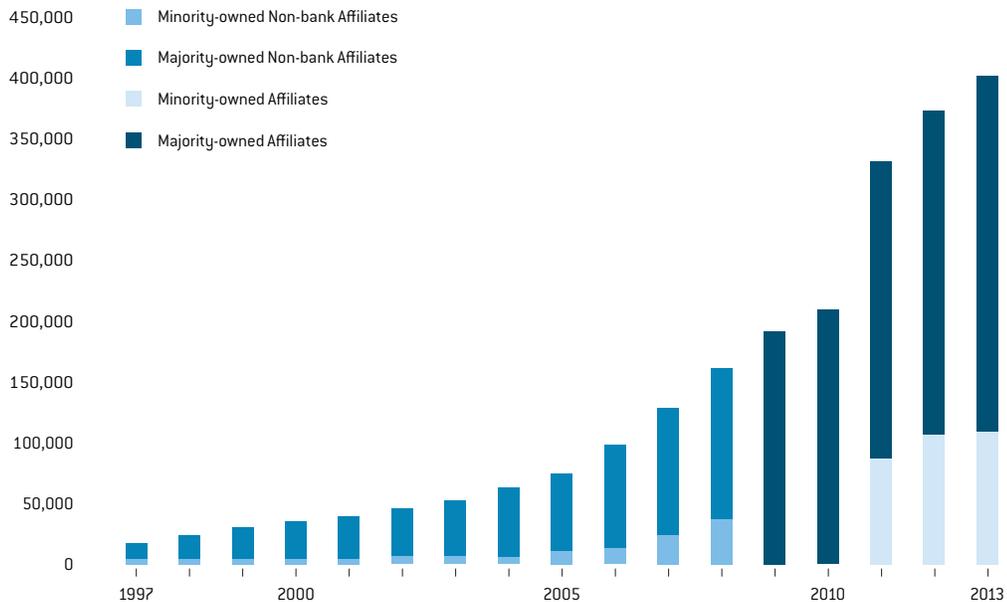
not just the US share, which inflates the numbers given the (often mandated) joint venture structures in many industries that US companies are invested in. Second, in recent years the data also include assets on the books of banks and financial institutions at full value, which is not counted the same way in the BOP/IIP figures. In short, while operational data are not a perfect substitute and has a tendency to over-count the assets of US companies in China, it provides an upper range for estimates compared to the BOP and IIP figures.

CHINESE GOVERNMENT STATISTICS

Official Chinese government statistics offer another perspective on US FDI in China. The Ministry of Commerce (MOFCOM), which is responsible for attracting and promoting inward FDI, is the primary agency compiling FDI statistics. MOFCOM offers a number of FDI data series, but the most widely used are its statistics on utilized foreign direct

FIG 4: Total Assets of US Foreign Affiliates in China, 1997-2013 (BEA)

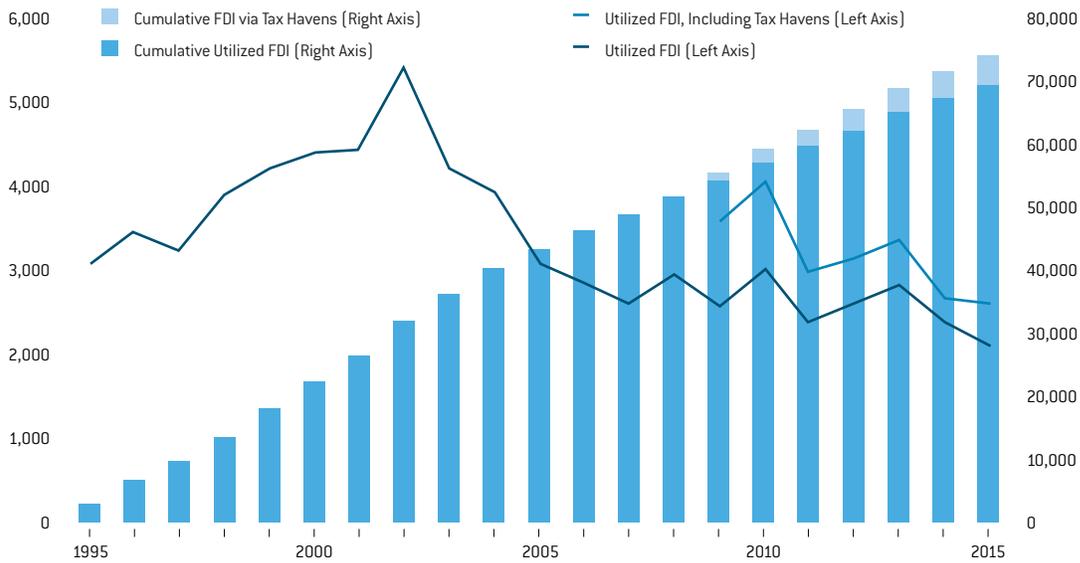
USD million



Source: Bureau of Economic Analysis. After 2008, the BEA included data for all affiliates, not just non-bank ones.

FIG 5: Utilized FDI from the US to China, 1995-2015 (MOFCOM)

USD million, annual aggregate value



Source: Ministry of Commerce.

investment.¹⁵ MOFCOM figures on utilized FDI capture actual foreign funds put into FDI projects during a given time period and have coverage for the years since 1983. As such, they are not comparable to the official FDI statistics of most other economies, which are based on BOP methodologies. They are compiled using a system of administrative records at the time of approval or recordal for foreign-invested enterprise (FIE) establishment and surveys in subsequent years. MOFCOM publishes an official methodology on this process every year in conjunction with the National Bureau of Statistics.¹⁶ However, detailed calculation method for statistics like utilized FDI and their relationship to BOP statistics are not covered in this manual.

MOFCOM's breakdown of utilized FDI by source economy offers a view on US FDI in China that is very different from the BEA's figures (Figure 5). According to MOFCOM, utilized FDI by US companies in China grew steadily in the 1990s but then dropped to \$3 billion in 2005 and has since hovered around an annual average of \$2.5 billion. Annual flows reached a 20-year low in 2015 with only \$2 billion. Since 2009, MOFCOM also offers a dataset that tries to take into account flows through tax havens. This separate dataset puts US FDI slightly higher in recent years. MOFCOM does not provide any data points on the total FDI stock of US companies in China. As a proxy, one can calculate the sum of all annual flows since 1995, which puts cumulative FDI of US companies in China at around \$70 billion by 2015 (\$75 billion if we include flows through tax havens)—a stock number comparable to the official US estimate.

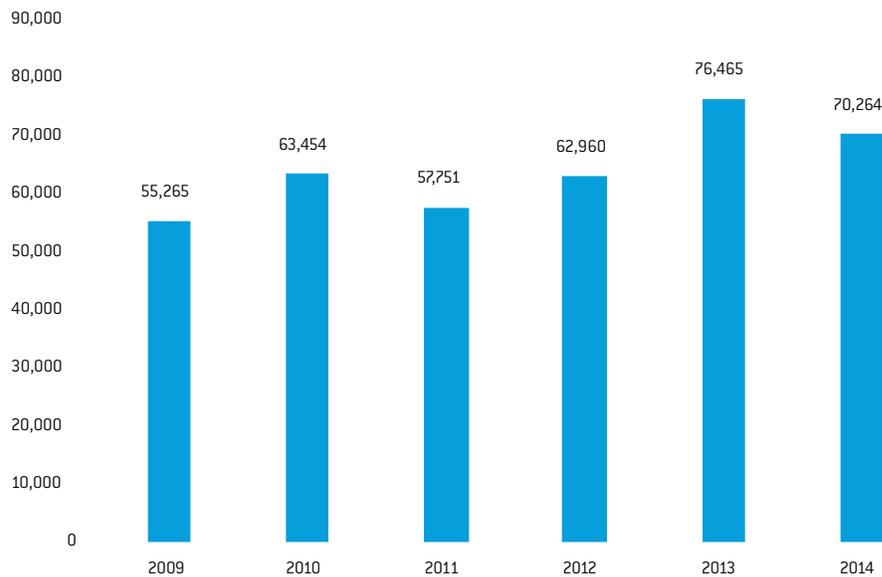
15 Others include number of newly established foreign-invested enterprises (FIE), number of FDI cooperation contracts and contracted value of FDI projects (discontinued), and various operational metrics such as export by FIEs and tax revenue from FIEs.

16 For 2016, Ministry of Commerce, “商务部关于印发“外商投资统计制度(2016年)”的通知 [Ministry of Commerce on the Issuance of the ‘2016 Foreign Investment Statistical Methodology’], May 26, 2016.

The second Chinese set of inward FDI numbers is from Beijing's BOP statistics, which are compiled by the State Administration of Foreign Exchange

FIG 6: US FDI Stock in China, 2009-2014 (IMF)

USD million



Source: International Monetary Fund. Data provided to CDIS by SAFE.

(SAFE), an agency under the People's Bank of China (PBOC). SAFE adheres to BOP principles and thus uses the same ways of data compilation as most other economies, making these statistics better for international comparisons. However, SAFE only provides aggregate data on FDI flows under its BOP, not a breakdown by geography or any other characteristic. Thus we do not have details on flows and stock from the US. However SAFE does report inward FDI stocks in China by country to the International Monetary Fund (IMF) under the auspices of the Coordinated Direct Investment Survey (CDIS).¹⁷ These data have pegged the value of US FDI stock in China between \$55 and \$70 billion for the past six years (Figure 6). The numbers are likely subject to the same caveats as BOP and IIP data compiled by the US government, in that they only capture flows that enter China straight from the US and not investments through Hong Kong or other third countries.

¹⁷ Aside from the IMF, other international organizations also compile global FDI statistics, including UNCTAD and World Bank. However, neither of those institutions collects its own statistics but rely on input from government agencies. As such, those datasets do not offer any additional insights on the patterns or stock of US FDI in China.

RHG TRANSACTIONS DATA

As shown, official statistics from both sides have known shortcomings which limit their utility for analyzing two-way FDI flows. The BOP statistics are useful for analyzing some macroeconomic questions but no other policy-relevant questions such as the recent pace of US corporate expansion in China. In order to fill this gap, Rhodium Group (RHG) has constructed an entirely new set of data that computes US direct investment in China by identifying and valuing each individual FDI transaction in the country since 1990. The dataset is compiled using a bottom-up approach, where relevant transactions are identified, coded and then aggregated into headlines figures. The dataset covers subsidiaries, factories, research and development (R&D) centers, and offices that US companies establish in China (greenfield investments), as well as any local operations they acquire (mergers and acquisitions). We record the publicly announced investment value for each project and any major expansions. We record or estimate investment value for each project and any major expansions. This approach allows us to screen out activity which does not meet the equity and control definition of direct investment, while at the

same time screening in investments that are essentially American but would be excluded for a variety of purely technical reasons as discussed above. A detailed explanation of our methodologies and the database is available in the appendix.

For the period of 1990 to 2015, our dataset identifies more than 6,700 individual FDI transactions with a total value of \$228 billion (Figure 7). Greenfield projects account for \$163 billion (71%) and acquisitions of existing assets for the remaining \$64 billion (29%). This overall stock figure (strictly speaking, an accumulation of individual deal values rather than a current marked-to-market stock) is an important headline finding, since it is three times larger than the official estimates. Just as interesting is the six-phase story of US investment activity over this 25-year period which the year-by-year annual flows tell, in some respects familiar but in critical ways different from the official data narrative.

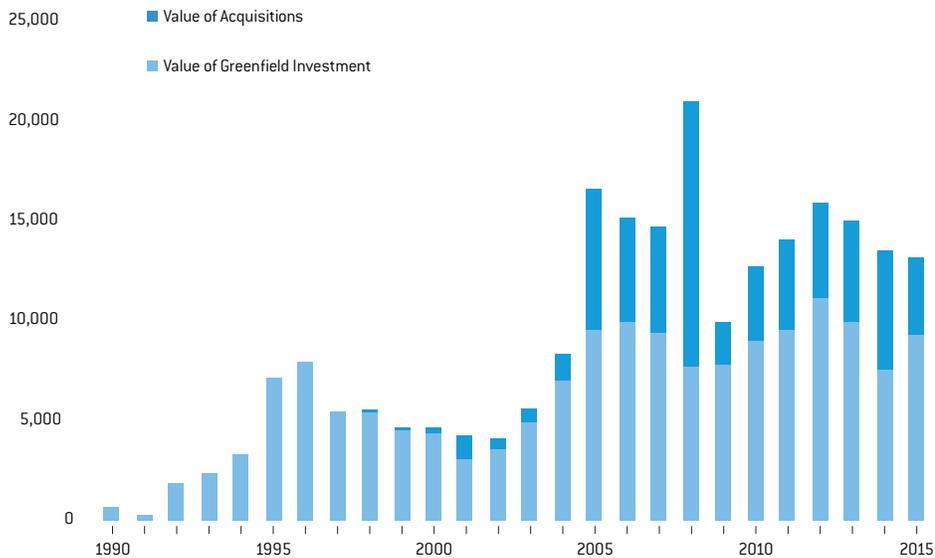
As seen in other data, not much money flowed in the early 1990s, as American firms—like virtually all others—suspended investment plans pending

clarification of China’s internal political situation. After this first phase of uncertainty ended, a second phase of inflows from the US began in 1992, which can be clearly seen in the data running through 1996. It is reasonable to mark the start of this phase with Deng Xiaoping’s early 1992 “Southern Tour” during which he decisively recommitted to the economic reform program. In addition to the broad political mandate this trip provided for central ministries and local authorities to embrace American (and other) investment without fear of political reprisals, a bevy of important laws and regulations favorable to foreign investors were enacted in these years, covering tax breaks, the use of wholly-foreign owned firms, duty abatements for processing trade, and other matters.

The 1992-1996 boom in FDI looks modest in light of today’s much larger investment volumes but at the time was of huge importance to China’s industrialization and development. The ratio of FDI to gross fixed capital formation peaked in 1993 at 14.6%, illustrating the huge significance of FDI in China’s economy. This take-off in cross-border investment building out trans-national production chains was happening

FIG 7: Value of US FDI Transactions in China, 1990–2015 (RHG)

USD million, annual aggregate value



Source: Rhodium Group.

across Asia, not just in China, as a wave of globalization followed in the wake of the end of the Cold War and the technological breakthroughs in information technology. The financial excesses of this period led to two crises—the Asian financial crisis that started in Thailand in 1997 and reverberated across the region until 2000, and the dot-com bubble correction that began in 2000 and harshly consolidated the ICT industry. These were the main factors behind the third phase of US FDI in China from 1997 to 2002, characterized by a stall in the growth trend over these five years. Through 1999, US global FDI was continuing to rise rapidly. The fall in flows to China was an exception, reflecting regional problems. After 2000, American flows globally and to China were back in sync, both of them flat as the end of the dot-com boom combined with the shock of 9/11.

In December 2001 China acceded to the WTO. Coming out of the Asian crisis, China labored under doubts about its outlook. Wrestling with challenging domestic conditions and uncertain about China, many Americans were on the fence about the country's prospects. However the tariff reductions, industry opening, and myriad regulatory reforms implemented by Beijing in the initial phase of WTO implementation soon won over US investors. This triggered the start of a US FDI boom in 2003 that far surpassed anything seen to date. As China expanded infrastructure and urban space for industrialization at an unprecedented rate, the production cost savings of manufacturing in China became a game changer, and American firms were drawn both to that and by an expected consumer demand revolution that would follow. The fourth phase of US investment in China (2003-2008) was also driven by both capital-intensive greenfield projects in sectors such as materials and chemicals and consumer-oriented investments at a wholly new scale, for instance in the automotive sector. Merger and acquisition (M&A) activity also took off from 2005, as WTO terms expanded the equity share permitted to foreign joint venture partners, long-time partnerships matured, and Beijing permitted some restructuring in the state sector.

The level of annual US FDI flow to China fell by more than half in 2009 as the global financial crisis took

hold, a trend in line with the overall picture for the back-footed US at that time. In addition to depleted US coffers and cash-hoarding by firms to insure against liabilities at home, there was debate as to whether the epic hiccup in western capitalism had diminished Chinese appetite to partner with Western investors within China. However, based on our data, 2009 was the exception, and US firms upped their outlays in China for the four years through 2013. The FDI of US multinationals in China recovered faster than their global investment, which can likely be attributed to China's relatively strong, stimulus-bolstered growth in these years. US firms were not alone in this, as European FDI ramped up even faster in these years, though the US activity was more directed to serving Chinese consumers.

Finally, the data show a downturn of US FDI in China in 2014 and 2015, and our partial view of 2016 confirms that that downward trend is ongoing. In this case too, US activity is in line with overall FDI in China, which shows flat or negative change in reaction to slowing Chinese economic growth and abundant overcapacity and thin profit margins in many sectors.

Our cumulative count of 1990-2015 US FDI in China is \$228 billion. It is important to note that this represents the cumulative value of gross flows, without netting out reverse flows or divestitures. It also represents flows at historical cost, which means that it is not adjusted for asset appreciation or depreciation, or exchange rate changes.¹⁸ While it goes beyond the scope of this study to provide detailed estimates for current cost or market value of the US FDI stock in China, Figure 8 presents basic estimates of what our number would look like if we were to take into account exchange rate changes and asset price inflation. The first important factor affecting the valuation of assets purchased in the past is the exchange rate. In 1990, one Chinese yuan (CNY)

18 In addition to historical cost, FDI stock data can also be presented at current cost (adjusted for asset inflation) and market value (which accounts for the market value in the equity portion of FDI using stock market indexes). For more background, see: Department of Commerce, *U.S. International Economic Accounts: Concepts and Methods* (2014); Punatar, Priya and Youngsuk Yook. "Measuring Direct Investment in the Financial Accounts of the United States." FEDS Notes, October 2014.

was worth 0.12 US dollars (USD). By 2015, one CNY was worth 0.16 USD. If we adjust the value of FDI transactions for exchange rate changes over time, the combined value of our FDI transactions would increase to \$263 billion. Second, asset price levels in China have increased significantly over the past 25 years, meaning that physical assets such as land are worth more today than they were at the point they were purchased. Precise asset inflation adjustments would require specific deflators for each industry and type of asset, which are not available. One simple proxy for inflation is the gross domestic product (GDP) deflator, which is an aggregate indicator measuring inflation across all industries.¹⁹ Applying the

exchange rate changes and the GDP deflator to our data (using the CNY value in the respective year), the combined value of our FDI transactions today would increase to \$ 383 billion. That would be the price tag if US companies were to make the same investments they made since 1990 today at current prices.

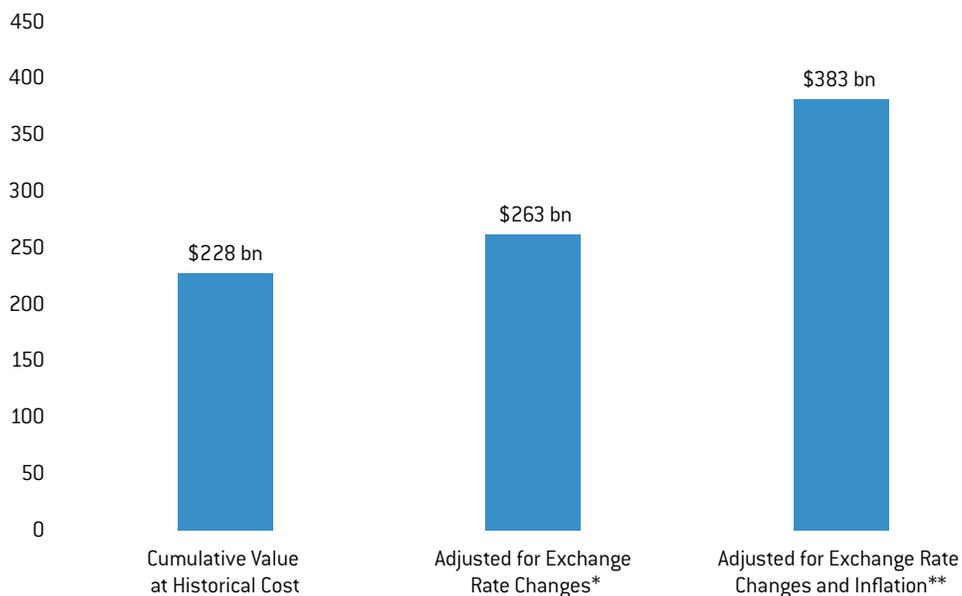
Figure 9 compares RHG transaction flow data with the official US and Chinese statistics. MOFCOM's utilized FDI data shows a peak in 2002 followed by a gradual decline over the past decade at low but stable levels. The BEA's BOP data shows low levels of investment throughout the 1990s, then a first

19 Compared to other common inflation measures like the Consumer Price Index (CPI), which takes into account changes in prices of goods and services purchased by consumers, the GDP deflator takes into account all goods

and services purchased by consumers, firms, government and foreign consumers (through exports), but not resident importers. For broad-based measures of inflation for the entire economy, the GDP deflator is typically more suitable.

FIG 8: Cumulative Value of US FDI Transactions in China with Price and Exchange Rate Adjustments, 1990-2015 (RHG)

USD billion

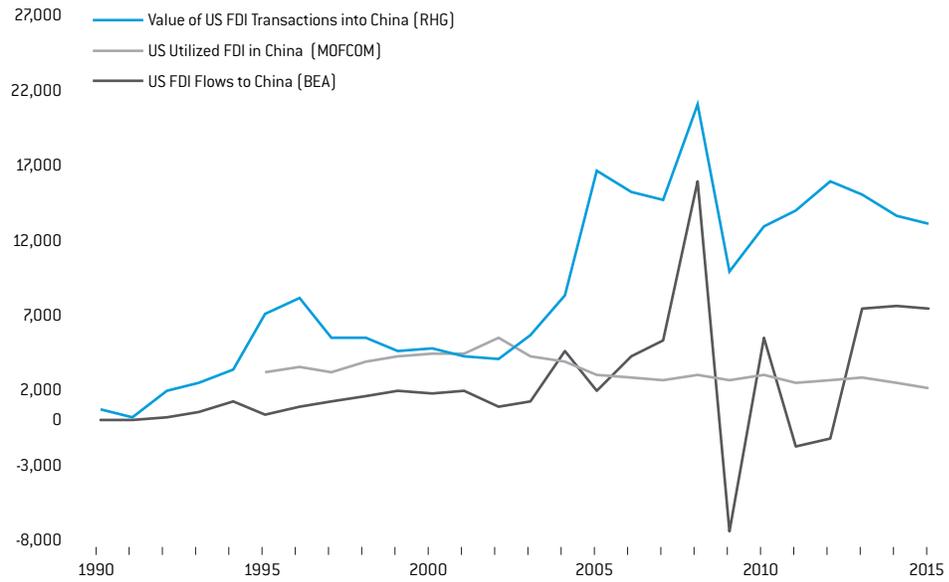


*Cumulative transaction value is adjusted using the 2015 average USD/CNY exchange rate.

**Price levels are adjusted using the historical GDP deflators in CNY and then converted to 2015 USD.

FIG 9: Various Measures of FDI Flows, 1990-2015

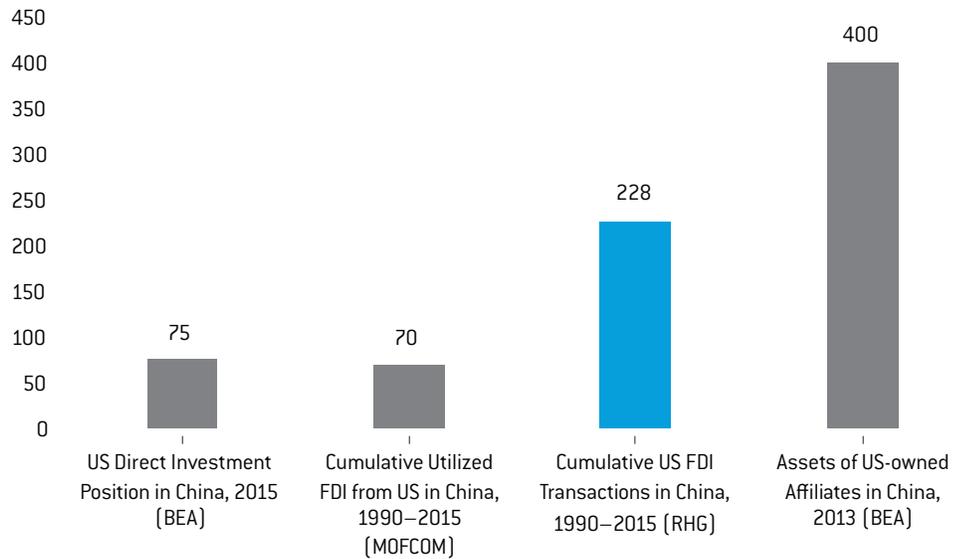
USD million



Sources: Bureau of Economic Analysis, MOFCOM, Rhodium Group.

FIG 10: US FDI Stock in China, Various Metrics, 2015

USD billion



Sources: Bureau of Economic Analysis, MOFCOM, Rhodium Group.

spike in the years after China's WTO accession and a sudden jump in 2007-2008 to a record \$16 billion in 2008, before collapsing into negative territory in 2009 and ever since it has been rising and falling. RHG's transactions data shows a first increase in the mid-1990s, then a pause following the Asian financial crisis in 1997, a constant increase to a peak of \$21 billion in 2008, then a dip in 2009 and around \$14 billion in the following years, before dropping modestly in 2014 and 2015.

In figure 10 we compare the aggregate 25-year value of RHG transactions with official FDI stock data. The combined utilized inward FDI collected by MOFCOM represents the lowest measure of the US FDI stock (\$70 billion). BEA's FDI stock of \$75 billion is similar. The cumulative value of RHG's FDI transaction is significantly higher (\$228 billion), because it includes FDI by US companies through offshore entities and

other means, but it does not net out reverse flows or divestitures, and it does apply a slightly different definition of FDI that expands its coverage of certain industry categories (see Chapter 1.2). At the same time, the RHG stock figure is lower than total assets of Chinese subsidiaries of US companies reported by the BEA (\$400 billion). The reasons that this number is so much higher is that it includes joint venture shares owned by Chinese partners and includes assets not counted by the BOP or RHG data (such as banking assets).

1.2 INDUSTRY TRENDS

The variety of rationales for US investors to invest in China are well known, including lower production cost, access to Chinese consumers and proximity to production chain partners. However given the huge discrepancies in aggregate statistics on US FDI in China it has been even less clear what the industry distribution of US FDI looks like historically or in terms of recent trends. In this section we use our database to illuminate these patterns.

US GOVERNMENT STATISTICS

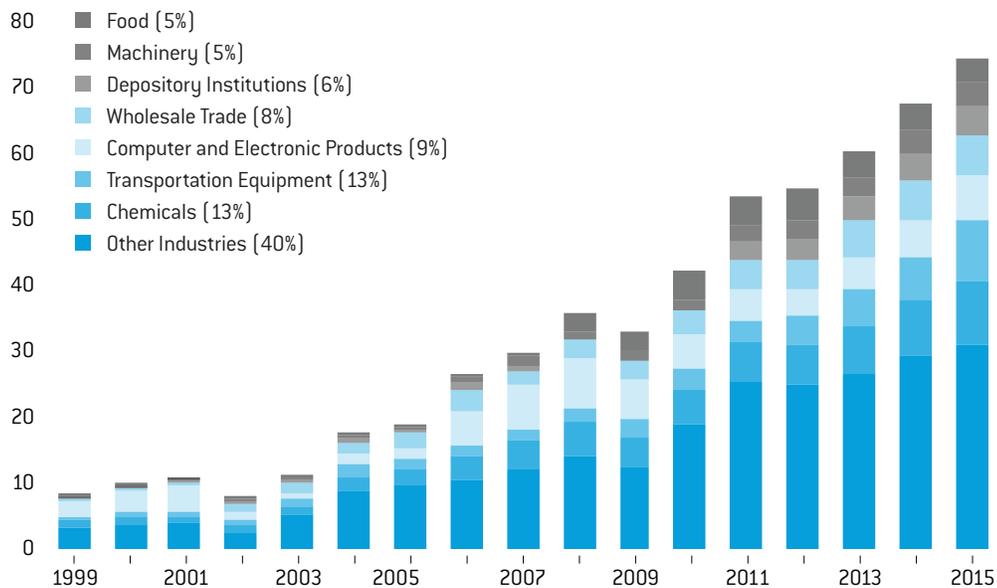
The BEA provides a breakdown of FDI stock by industry. The BEA time series of FDI stock by industry (Figure 11) offers a look at changes over time. Several categories that accounted for a large share of FDI in earlier years, for example computers and electronics, have shrunk in importance. Other industries,

for example transportation equipment, food and financial services, rose in importance over time. The industry breakdown of the 2015 FDI stock, also presented in Figure 11, suggests that US FDI in China is spread fairly evenly across industries. Chemicals and Transportation Equipment are the largest categories, each accounting for 13% of total stock. Computer and Electronic Products and Other Manufacturing also account for a high share. Finance, education, and other modern services account for a smaller share of the total.

Figure 12 shows the assets of US companies in China by industry for 2013, the most recent year available. Many sectors' assets are undisclosed. Altogether undisclosed manufacturing and other industries account for fully 60% of the breakdown.

FIG 11: US Outbound FDI Stock in China by Industry, 1999-2015 (BEA)

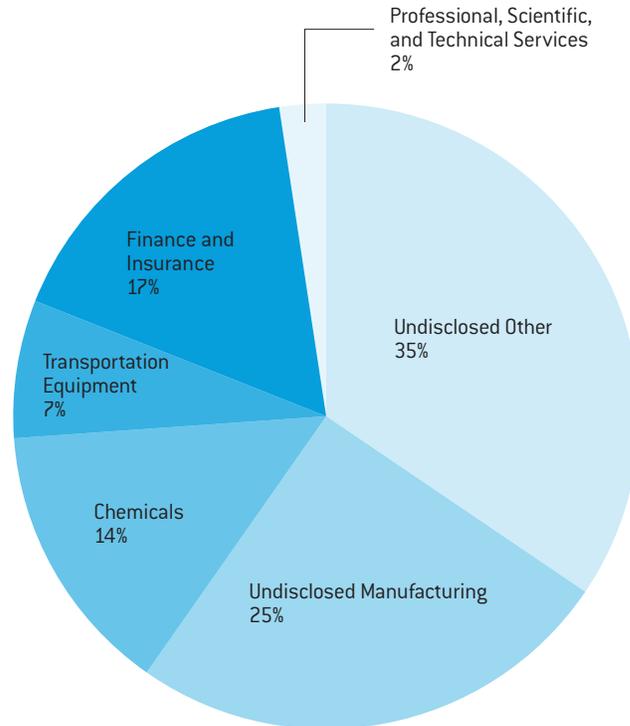
USD billion, historical cost basis



Source: Bureau of Economic Analysis. Value in parentheses represents each category's share in the 2015 stock.

FIG 12: Assets of US Affiliates in China by Industry, 2013 (BEA)

percent share of total [\$400 billion]



Source: Bureau of Economic Analysis.

The leading single sector is finance and insurance, which accounts for 17%, followed by chemicals at 14%, and transportation equipment at 7%. In short, this perspective does not add much value to better understand the industry distribution of US FDI in China.

CHINESE GOVERNMENT STATISTICS

MOFCOM publishes a breakdown of utilized inward FDI by industry. In addition to the 18 broader industries, the annual report also provides a detailed breakdown of multiple sub-sectors consistent with industry categories in China's national accounting system. However MOFCOM does not publish regular data for the breakdown of utilized inward FDI by industry and country. Thus, for details on US FDI in China, we must rely on occasional data points that MOFCOM releases in reports and through press conferences. The latest breakdown of utilized US FDI in China from MOFCOM that is available to the public dates back to 2012 (Figure 13). It shows that half of

all utilized FDI in that year went into manufacturing sectors, followed by business services (20%), retail and wholesale (8%), and professional services (7%).

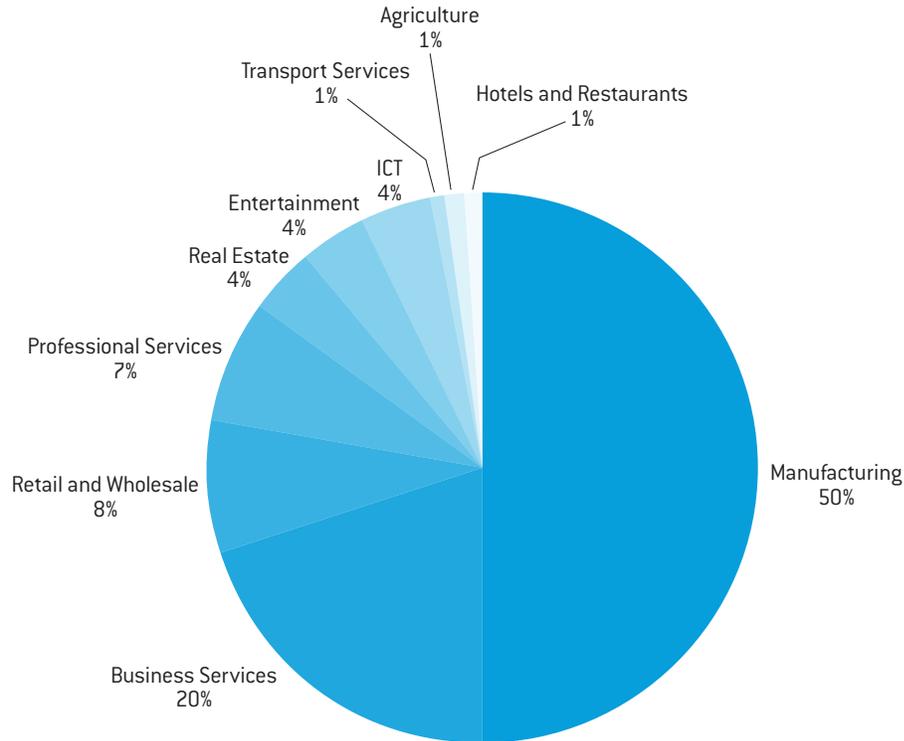
RHG TRANSACTIONS DATA

One of the advantages of our transactions dataset is that it provides a detailed perspective on evolution by industry over time. We code every deal in our database into one of 14 industries, according to the principal business of the Chinese subsidiary. A detailed table of those industries and the corresponding Standard Industrial Classification (SIC) codes can be found in the Appendix. Chapter 3 of this report offers details on industry, further broken down by sub categories, in side-by-side comparison with Chinese investment in the US in the same industry.

Figure 14 shows the industry breakdown of all cumulative FDI that we record from 1990 to 2015. The annual flows in each of the 14 industries are shown

FIG 13: Utilized US FDI Flows to China by Industry, 2012 (MOFCOM)

percent share of total [\$2.6 billion]



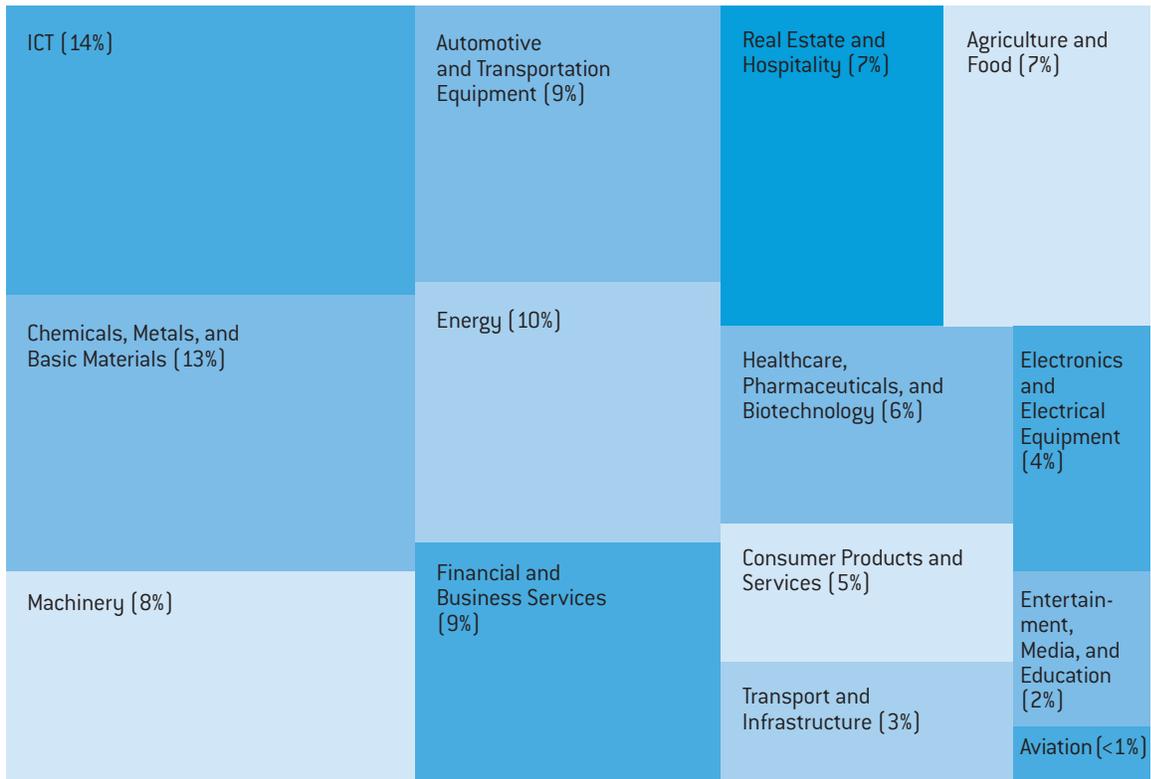
Source: Ministry of Commerce.

in Figure 15. Several observations can be made: First, US FDI in China is distributed broadly across the entire spectrum of industries; all but one of 14 industries have received more than \$5 billion of US FDI over time. The top industries with over \$20 billion in US FDI are ICT, chemicals, and energy. Second, some industries have shown stable patterns of expansion over time, while others closely follow economic cycles. Investment levels are most stable in sectors that serve Chinese consumers, for example food and autos. They are the most volatile in sectors such as basic materials, which are driven by infrastructure and real estate cycles. Third, policy changes affect the flow patterns; one example is financial services, where we observe a boom in 2005-2008, when the government encouraged foreign investors to take strategic stakes in Chinese banks, and a slowdown in recent years as tight equity and operational limits

for foreign financial institutions remained in place. Finally, we see a slowdown of US FDI activity across the board in the past two years, with only a few exceptions. In our view this reflects commercial factors such as a slowdown in Chinese GDP and severe overcapacity problems, but also little progress in opening up promising service and high-tech sectors to foreign investment. A more detailed description of trends in developments in each industry can be found in Chapter 3 of this report.

FIG 14: Cumulative Value of US FDI Transactions in China by Industry, 1990-2015 (RHG)

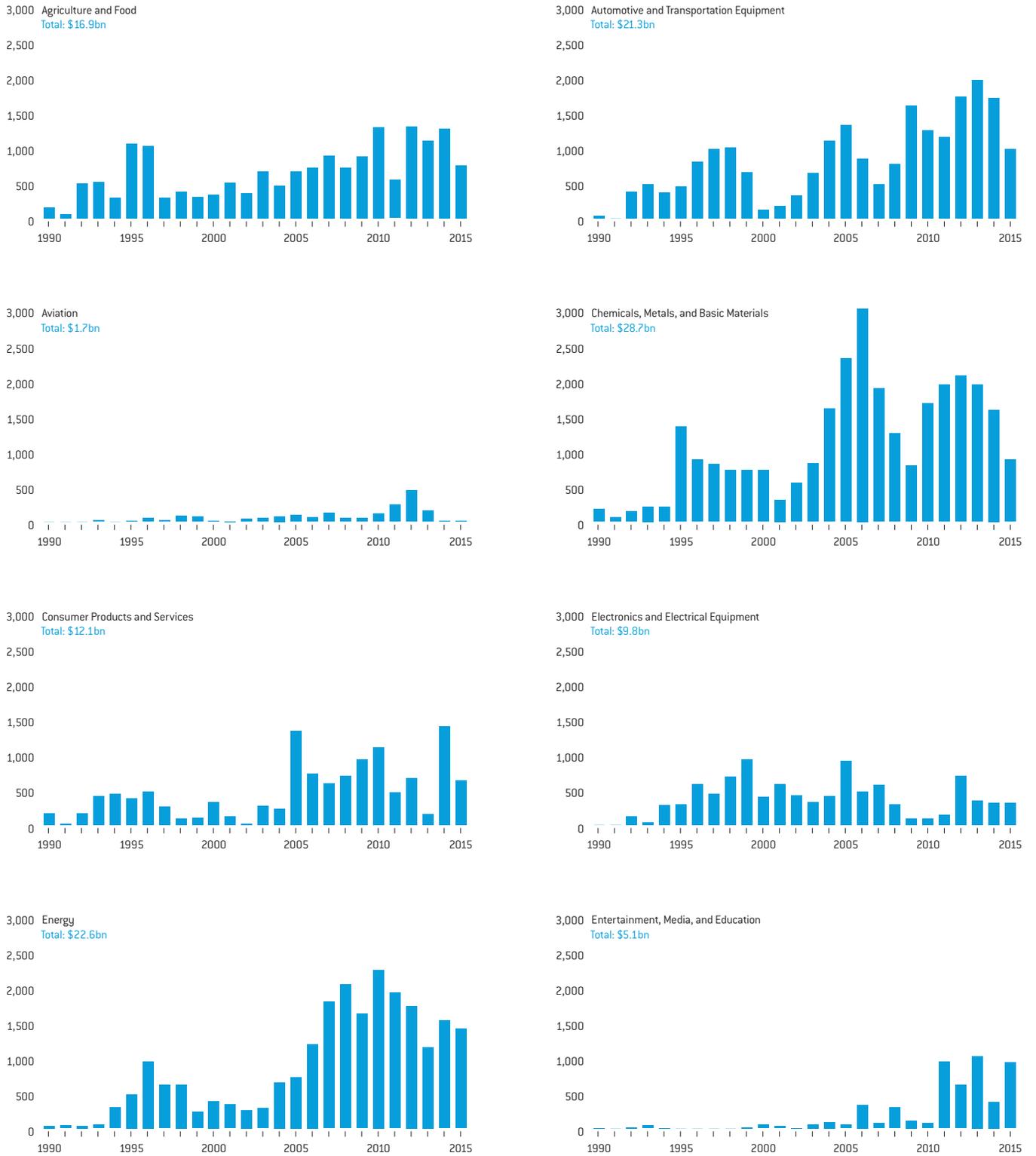
percent share of total [\$228 billion]



Source: Rhodium Group.

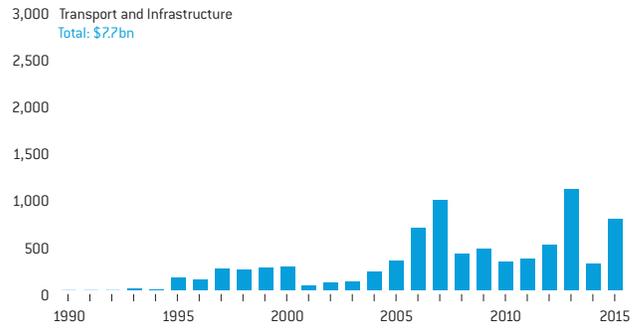
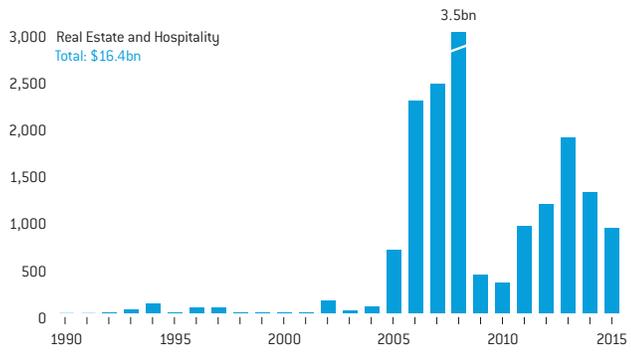
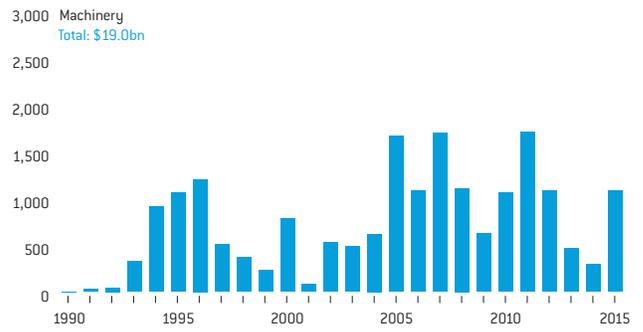
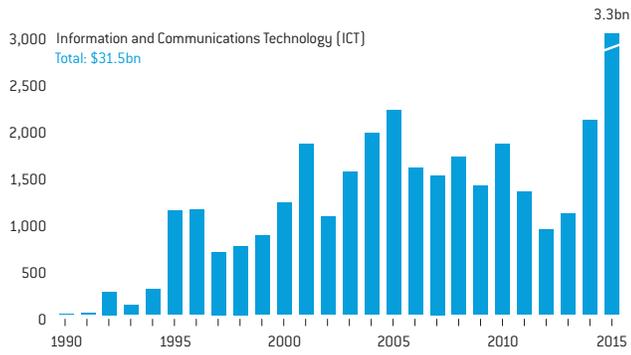
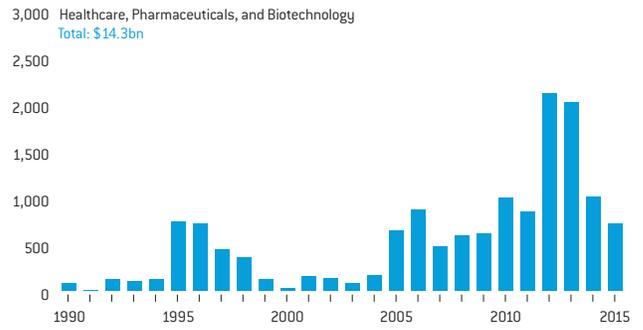
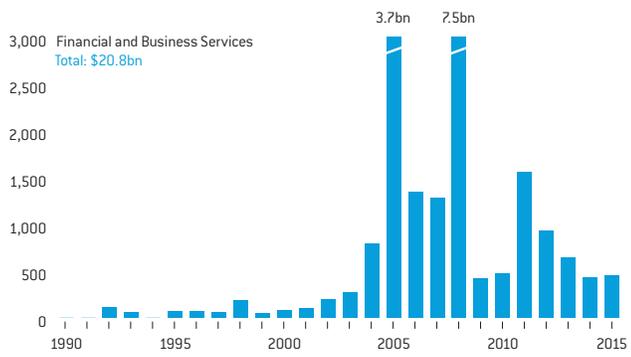
FIG 15: US FDI Transactions in China by Industry, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

US FDI IN CHINA



1.3 GEOGRAPHY

The geographic presence of US and other foreign companies in China has shifted in the past three decades, from the manufacturing hubs on the east coast to the rust belt in the north and second tier cities in the west. However, neither US nor Chinese official statistics allow an analysis of the geographic distribution of FDI between the US and China and related linkages between US states and Chinese provinces.²⁰ We have coded each of the several thousand individual US FDI transactions in our database to present such a geography of US FDI in China for the first time. Transactions are coded based on the headquarters location of the acquired company or the location of the newly established subsidiary. Table 1 shows a ranking of aggregate US FDI in China from 1990 to 2015 by province. Figure 16 shows the geographic distribution of US FDI in China for three different periods of time.

Not surprisingly, in the first decade from 1990 to 2000, most US companies invested in coastal areas that were designated for foreign-invested

enterprises as free trade zones and manufacturing hubs including Guangdong and Shandong. In the second period, from 2001 to 2007, US companies deepened their foothold in higher-income coastal economies, and expanded into second tier cities such as those in Zhejiang and Sichuan. By 2015, 29 out of 31 provinces were recipients of substantial US FDI. Shanghai is in the lead in terms of hosting US FDI, by a large margin (\$52.6 billion). Beijing comes in second place, due to its prominence as a headquarters location, its services sector cluster and its links with the northern industrial hubs (\$35.8 billion). Jiangsu comes in third, with more than \$33.1 billion of US FDI. This is not surprising, given its role in light manufacturing, chemicals, and basic materials investment, and its proximity to Shanghai. Guangdong comes in next (\$21.2 billion), owing to its prominent southern manufacturing and technology hubs and proximity to Hong Kong. Other coastal provinces and industrial bases were also important recipients of US FDI, including Shandong, Sichuan, Liaoning, Tianjin, and Zhejiang. Provinces such as Xinjiang, Ningxia, Qinghai, and Tibet received comparatively little FDI from the US.

20 Both the US BEA and China's MOFCOM provide a geographic breakdown, but only for aggregate FDI and not for individual partner economies.

Table 1: Ranking of US FDI in China by Province, Cumulative FDI, 1990-2015 (RHG)

PROVINCE	USD BILLION	PROVINCE	USD BILLION	PROVINCE	USD BILLION
Shanghai	52.6	Hebei	3.4	Jilin	1.2
Beijing	35.8	Shaanxi	3.1	Hunan	1.1
Jiangsu	33.1	Hubei	2.4	Yunnan	0.8
Guangdong	21.2	Anhui	2.7	Gansu	0.3
Shandong	10.4	Guangxi	2.1	Guizhou	0.3
Liaoning	10.3	Heilongjiang	1.9	Xinjiang	0.1
Sichuan	10.3	Inner Mongolia	1.6	Ningxia	<50 million
Tianjin	9.3	Henan	1.5	Qinghai	<50 million
Zhejiang	7.1	Shanxi	1.4	Tibet	<50 million
Fujian	4.7	Jiangxi	1.3		
Chongqing	4.4	Hainan	1.3		

Source: Rhodium Group.

FIG 16: Development of the Geographic Distribution of US FDI in China over Time (RHG)

color shading represents total investment in each period

1990–2000



2001–2007



2008–2015



Source: Rhodium Group.



1.4 INVESTOR CHARACTERISTICS

Over the last 25 years, the presence of US companies in China has not only increased, but the investor mix has also evolved tremendously. In early years China was mostly a magnet for trading firms and firms with manufacturing interests. Nowadays, the sample of US investors in China includes not just every single large multinational but also private equity firms and other financial investors, and increasingly medium-sized companies tapping into China’s market potential. Official government statistics on both sides also do not offer any information on the types of US companies investing in China and the evolution of the investor mix over time.²¹ Our new transactions dataset allows a detailed dissection of relevant trends.

First, the group of US investors in China is diverse, large and broad. Our sample covers more than 6,700 individual transactions large enough to be included in our sample.²² Those transactions originated from a group of more than 1,300 individual US companies. Of those, 430 had invested more than \$50 million each in the Chinese market. More than 300 had investments of more than \$100 million. Of those, 56 had investments exceeding \$1 billion.

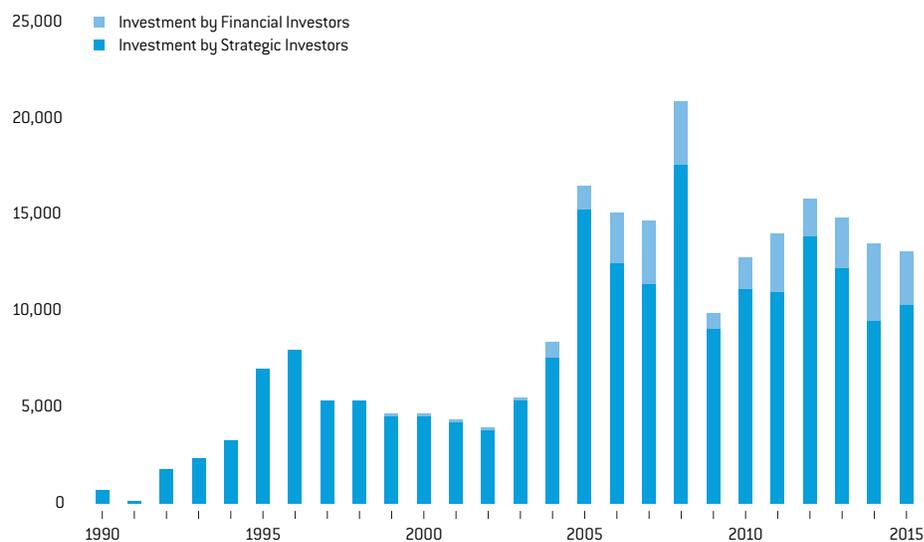
Second, virtually all US investment into China is conducted by private enterprises, owing to the fact that the government plays next to no ownership role in the US economy. Where there are exceptions (such as postal services), outbound investment is not involved. Exceptions in the period 1990-2015 included the handful of companies in which the government temporarily took equity positions

21 The US BEA does provide more detailed data on investor characteristics in its data on operations of US multinationals abroad. However, these variables are only available for global outward FDI, they are not broken down by individual partner country. MOFCOM also does provide more details on foreign-invested enterprises but similarly there is no breakdown available for just US companies.

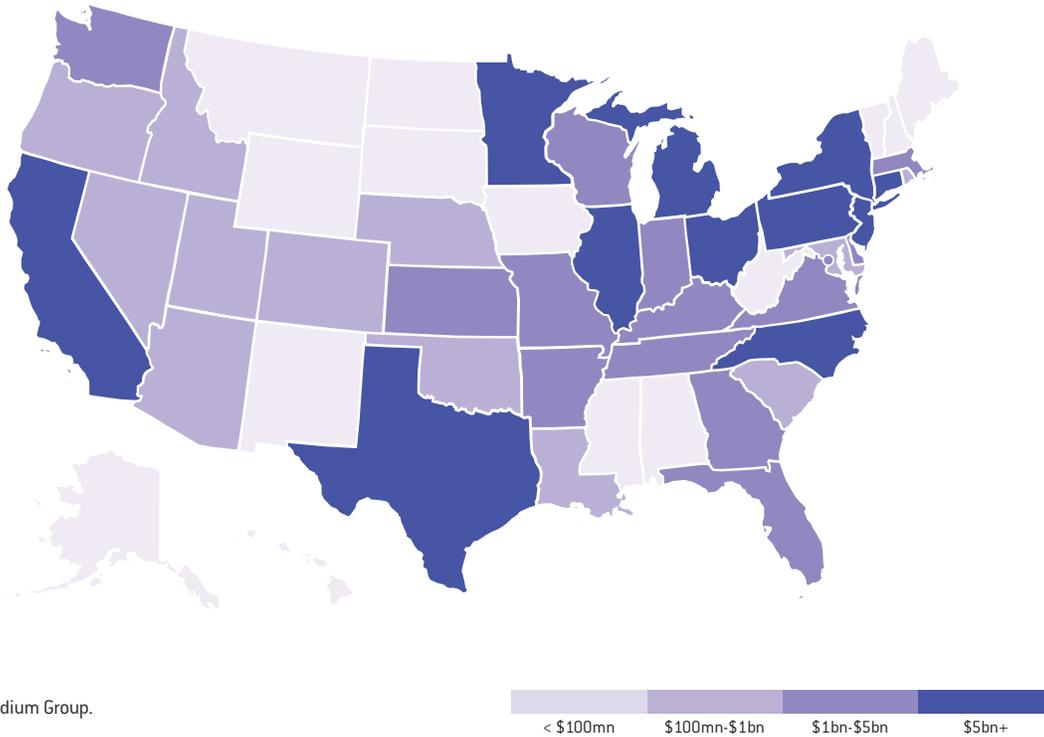
22 The threshold to be included is \$1 million. See Appendix for more details.

FIG 17: US FDI in China by Company Type, 1990–2015 (RHG)

USD million



Source: Rhodium Group.

FIG 18: Geographic Origin of US FDI in China, 1990-2015 (RHG)

Source: Rhodium Group.

following the 2008 financial crisis, among them General Motors and Chrysler as well as financial services firms with positions in China including Citibank and AIG. However, state ownership in those companies was of temporary nature following emergency measures (mostly through the Troubled Asset Relief Program), and beneficiaries have reverted back to fully private status by now.

Third, most companies venturing into the Chinese market were strategic investors, meaning companies that were investing in their primary area of business. However, in the early 2000s, financial investors such as private equity companies started to discover China as an attractive market for both early stage as well as distressed investments. Over the past five years, the annual investment by those investors has averaged \$2 billion, accounting for around 20% of annual US FDI in China in that period (Figure 17).

Fourth, our transactions database allows us to draw an accurate picture of the location of US companies that have invested in China. Figure 18 shows that investment originates from a great variety of states. California, New York, Michigan, Texas, Illinois, and North Carolina are the states with the strongest FDI ties to China. Not many US companies with large investments in China are headquartered in the US heartland.

1.5 OPERATIONS AND LOCAL IMPACTS

Another set of metrics relevant for describing US FDI into China is data on the operations of US multinationals in China and the local impacts in terms of jobs, research and development spending and other areas. For this dimension we mostly have to rely on data by the BEA, which provides a dataset on the Activities of Multinational Enterprises, with a subcomponent on the activities of US multinationals abroad. China's MOFCOM does provide operational details such as industrial value-added by foreign invested enterprises by industry, or their share in total exports. However, there is no data available for individual investor countries, so we do not have alternative data to describe US enterprises in China specifically. We have not yet utilized our transactions data to add employment and other estimates, but may do so in the future.

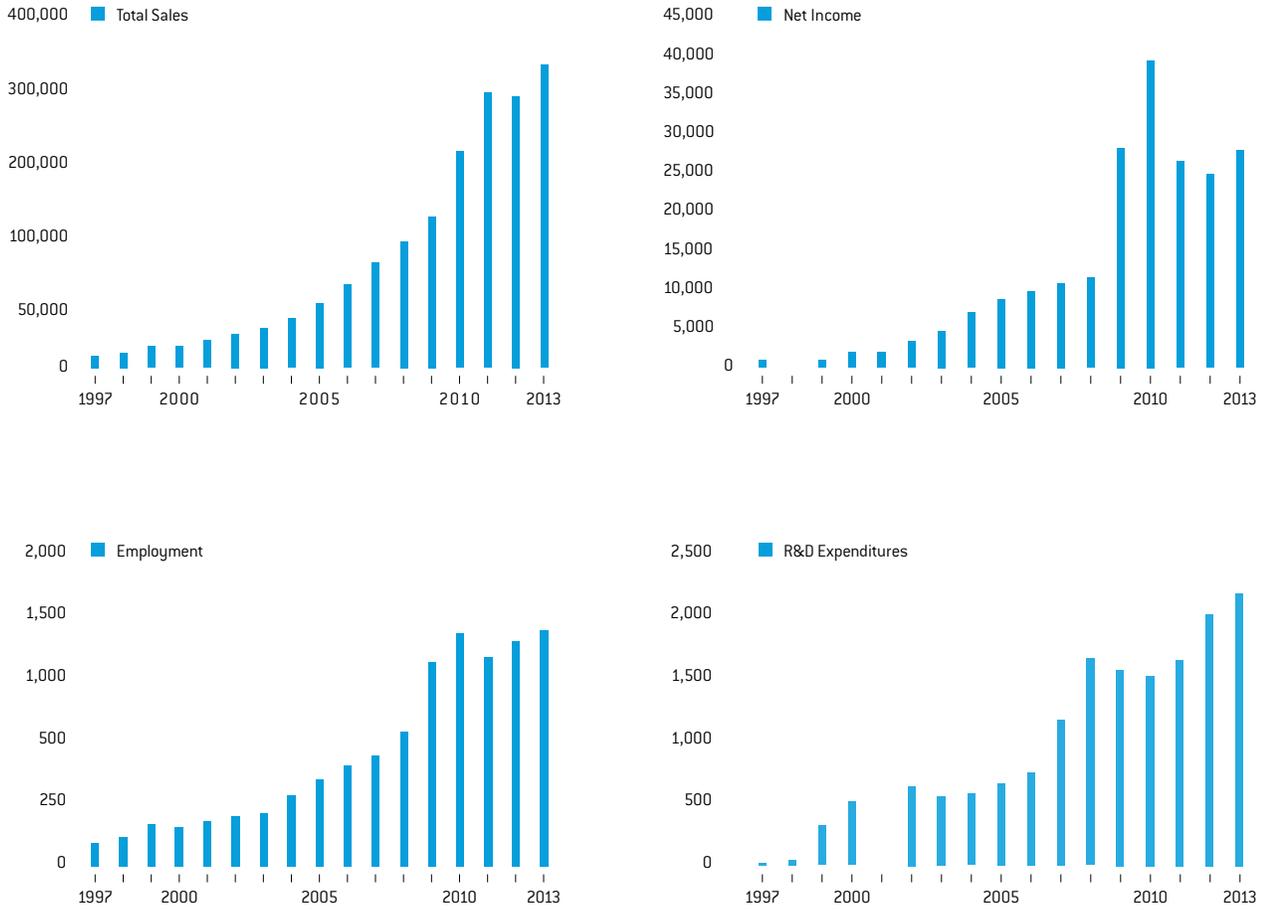
Figure 19 provides an overview of the data points available in the BEA dataset on US affiliated companies in China.²³ Most data are available from 1997 to 2013, but only includes information on the activities of non-bank affiliates prior to 2009. All figures support the story of continued growth and expansion of US companies in China over the past decade, which is in line with our data on FDI transactions. Sales of US-owned companies in China increased from \$15.2 billion in 1997 to nearly \$364 billion in 2013. Their net

income was \$28 billion in 2013, up from \$1.8 billion in 2000 but down from a peak of \$39.5 billion in 2010. Employment provided by Chinese affiliates of US companies expanded from fewer than 200,000 jobs in the late 1990s to more than 1.6 million in 2013. These are only direct jobs, not including indirect or induced employment. The combined annual salary payments exceeded \$24 billion in 2013. Finally, the BEA dataset confirms the expansion of innovation-related activities by US companies in China. It shows that their R&D expenses have increased from virtually zero in the 1990s to an average of \$500 million per year in the early 2000s and more than \$2 billion annually in recent years.

²³ Additional data are available for majority-owned foreign affiliates, including capital expenditures, R&D expenditures, value added and value of property, plant and equipment.

FIG 19: Operational Data for Affiliates of US Multinational Enterprises in China, 1997-2013* (BEA)

USD million; thousands of employees



Source: Bureau of Economic Analysis. *From 1997-2008, data are provided for Nonbank Foreign Affiliates. From 2009 onward, it is provided for all Foreign Affiliates. In case of joint ventures, the numbers refer to the full value for the entire Chinese entity, not just the US share. R&D Expenditures include majority-owned affiliates only.

2 CHINESE FDI IN THE UNITED STATES

Like the European fleets of past ages, armadas set forth from imperial China to explore the world; unlike those western polities, the Middle Kingdom chose not to engage directly with what it found. For a variety of reasons China was not a pioneer in sending direct investors abroad, right up until very recently. Chinese traders, merchants and migrants were dispersed worldwide by the mid-1800s, but the dominant mode of Chinese engagement was to expect the world to come to its shores, and then have rulers and scholars pass judgment on what utility it offered. That parochialism impaired China's strength and gave rise, at the turn of the twentieth century, to a reform movement focused—among other things—on the need to go abroad to learn, compete and build links. Through the doors that these reformers opened, China imported two of the great organizing systems developed in the West over the past century: political Communism, with which the Chinese state is run today; and modern market capitalism, which provides the template for China's economy. The foundations of the “socialist market economy” Beijing employs are compelling evidence of how far China has come from assuming there was nothing of value beyond the Great Wall.

But the legacy of domestic preoccupation—driven by culture, war, nation building, and then economic development and reform—cast a long shadow, and as a result Chinese companies were not significant players on the global stage until just a decade ago. China's labor force was shaking world markets, but

through exports not investment, and mostly under foreign management. While becoming the world's second largest economy and the single largest trading nation, China's share in financial globalization remained small. Its total stock of OFDI in 2005 was \$57 billion, ranking 26th²⁴ in the world on par with Mexico.

Over little more than ten years this picture has changed completely, and outbound foreign direct investment from China has soared. Since 2005, Chinese OFDI has grown on average 40% per year, up to \$121 billion in 2015, making China one of the top 5 exporters of OFDI globally in terms of flows. 2016 is on track to be another record year, with flows up 54% year-on-year for the period of January to September.²⁵ From that meager beginning a decade ago Chinese direct investments around the world have surpassed \$1 trillion, making China one of the top ten global investors in terms of OFDI stock.

The United States was not the first landing point for this pulse of Chinese money, although it has been the world's largest recipient of FDI for a century.²⁶

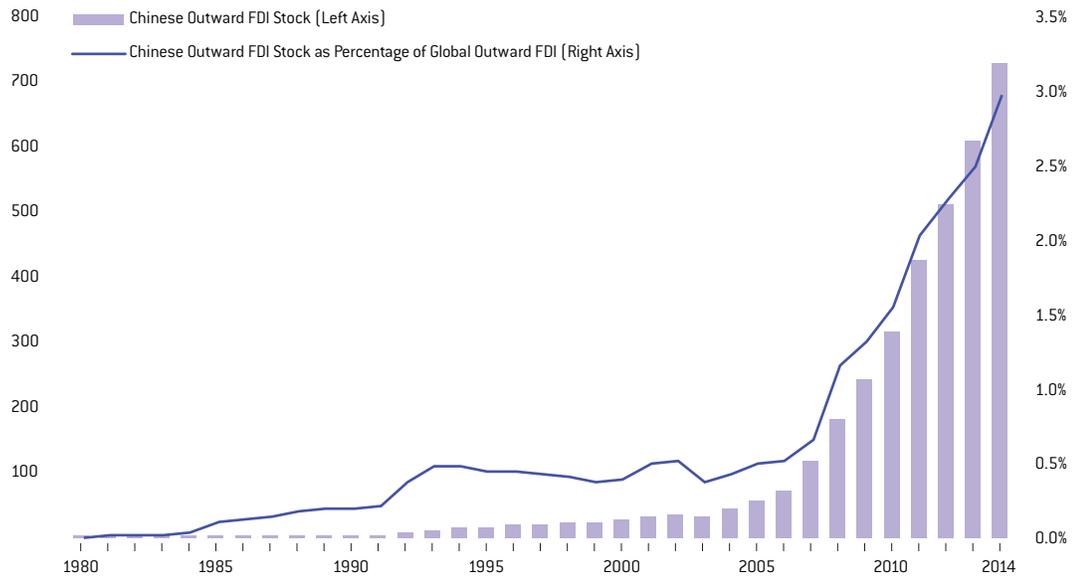
24 Data from UNCTAD's global FDI database.

25 Ministry of Commerce, “商务部合作司负责人谈1-9月我国对外投资合作情况 [Ministry of Commerce on January through September Foreign Investment Cooperation]”, October 18, 2016.

26 Wilkins, Mira. *The History of Foreign Investment in the United States to 1914*. [Cambridge, MA: Harvard University Press, 1989]; Wilkins, Mira. *The History of Foreign Investment in the United States, 1914-1945*. [Cambridge,

FIG 21: Chinese Outbound FDI Stock and Chinese Share of Global OFDI Stock, 1980-2014 (UNCTAD)

USD billion



Source: UNCTAD.

Chinese companies were barely to be found in the US economy before the 2000s, with the exception of a few state-owned companies operating in trade facilitating services such as shipping and banking. And the initial wave of Chinese OFDI, once it did start to evolve, was directed at extractive sector operations in developing countries. But the mid-2000s saw Chinese appetite for the US swell, and the first sizeable—and attention-grabbing—transactions, including Lenovo’s acquisition of International Business Machines (IBM)’s personal computer unit and the aborted bid by China National Overseas Oil Corporation (CNOOC) for California oil producer Unocal in 2005. This was just a hint at the volume of interest that showed up after the Global Financial Crisis, driven by a triple push from Beijing’s

liberalization of OFDI policy, domestic saturation, and rising costs for Chinese firms forcing them to look abroad, and attractive valuation of American assets due to the financial crisis.

While the uptick in inflows from China is obvious enough, Washington’s and Beijing’s official data on this activity tell very different stories of scope and trajectory. And, as with the US flows to China discussed in the previous chapter, by compiling our own, independent dataset from the ground up we arrive at results that are different from the official measures. In this chapter we review the existing official numbers and then present our own figures on the annual flow and deal-stock to date of Chinese FDI in the US, on an apples-to-apples basis with the transactions data in the preceding chapter, to put us in position to combine the two-way stories.

MA: Harvard University Press, 2004); Robert E. Lipsey, “Foreign Direct Investment in the United States: Changes over Three Decades,” in *Foreign Direct Investment*, ed. Kenneth A. Froot (Chicago: University of Chicago Press, 1993).

2.1 FLOWS AND STOCK

Similar to the arrival of Japanese investors in the 1980s, the sudden increase of Chinese outward FDI has whetted the appetite for better information on its scale and pace. We know that there was not much Chinese investment in the United States economy prior the Global Financial Crisis. We also know that acquisitions and investment in greenfield facilities has increased rapidly in recent years. However, the statistical agencies and other observers offer different perspectives on the total stock of Chinese FDI in the US and the recent increase in annual flows. We review official US and Chinese number for both those metrics and then offer an alternative perspective based on our bottom-up count of FDI transactions since 1990.

US GOVERNMENT STATISTICS

The BEA offers comprehensive and detailed statistics on inward FDI flows and stocks in the US economy, following international BOP and IIP standards (see section 1.1 for details). For inward FDI, the BEA also compiles FDI stock data based on the country of ultimate beneficial owner (UBO) principle, attributing investments to the country of the ultimate foreign investor instead of immediate source country. For global inward FDI, data are available from 1980 to 2015. For inward FDI from China, data are available from 2002 to 2015.

The BEA's figures show growth in both annual flows and total stock of Chinese FDI in the United States (Figure 22). Annual flows hovered at an average of less than \$100 million before 2007, then climbed to \$1 billion in 2010 and 2011. In 2012, annual flows for the first time exceeded \$3 billion, before jumping to more than \$5 billion in 2015. The stock of Chinese FDI grew from less than \$500 million in 2002 to \$1 billion in 2008 and then jumped more than tenfold to almost \$15 billion by 2015. Not surprisingly, the figures for Chinese FDI stock in the US based on the UBO principle are higher than stock data compiled based on country of immediate foreign investors. By the UBO measure, Chinese FDI stock was \$20.8 billion in 2015—an increase of almost 20 times since 2008. This confirms that Chinese investors are following

other multinationals in relying on entities in Hong Kong and other financial centers for their investments in the US and elsewhere.

Compared with the BEA data on US FDI in China, there is much less volatility in annual flows. This may reflect a lower degree of intra-company lending and other flows between US subsidiary and Chinese parent. One possible explanation is that the lower degree of internationalization and existing capital controls in China make Chinese companies less prone to use such channels for foreign exchange and global treasury management.

In addition to the UBO stock data, BEA provides another dataset that is only available for inward FDI: a special dataset that records gross investment outlays by foreign companies to acquire, establish, and expand US businesses.²⁷ Similar to our transitions approach, it tracks new investments by foreign companies on a gross basis irrespective of the source of funds and financing structures. However, there are significant gaps in coverage. Data are available from 1980 to 2008 (under “New Foreign Direct Investment” survey) and then again from 2014 to date (under the Survey of New Foreign Direct Investment in the United States). Both datasets are similar but not compiled with the same methodology and thus not directly comparable.

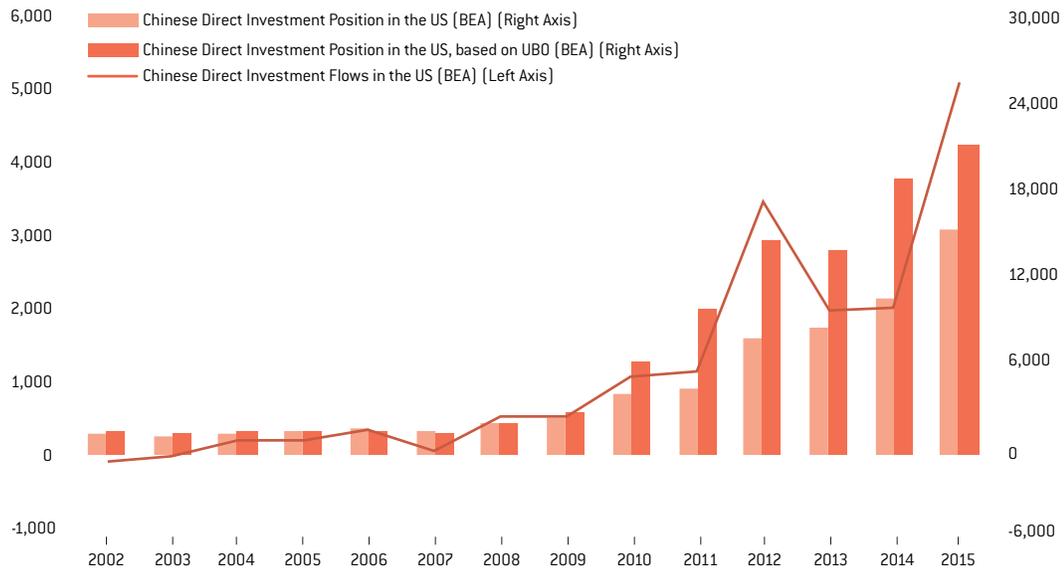
The dataset provides a breakdown of new FDI expenditures by nationality of investor based on the UBO principle. However, as the bulk of Chinese US expansion happened after 2008, the dataset does not provide much insight into the historical patterns of Chinese investment in the US economy. Before 2008, Chinese investments were so small that they were not even broken out separately.²⁸ For the

²⁷ Bureau of Economic Analysis, *U.S. International Economic Accounts: Concepts and Methods*, (Washington: U.S. Department of Commerce, 2014), 11-3-11-10; Bureau of Economic Analysis, “Expenditures by Foreign Direct Investors for New Investments in the United States, 2014,” Bureau of Economic Analysis, November 30, 2015.

²⁸ Thomas Anderson, “Foreign Direct Investment in the United States: New Investment in 2008,” *Survey of Current Business*, June 2009.

FIG 22: Chinese FDI Flows and Stock in the US, 2002-2015 (BEA)

USD million; flows without current-cost adjustment, stock on historical cost basis



Source: Bureau of Economic Analysis.

period of 2009 to 2013 we do not have data. The data we have for 2014 and 2015 are slightly higher than the BOP figures, and we have more details on entry modes and industry distribution. In 2014, Chinese companies invested \$3.5 billion. For 2015, total outlays by Chinese companies in the US are recorded at \$7.0 billion, \$5.9 billion of which are attributed to acquisitions and the remainder to greenfield projects and expansions.

Finally, the BEA's dataset on the Activities of Multinational Enterprises offers a third perspective on Chinese FDI in the US. Figure 23 shows that the assets of Chinese companies in the US have soared from less than \$10 billion before 2009 to more than \$150 billion in 2014. As explained previously, the asset figures are not directly comparable to the FDI stock figures and have an upside bias because they count the full value of joint venture assets. Moreover, they also count assets on bank balance sheet at full value, which partially explains the sharp increase of Chinese company assets in the US.²⁹ One interesting

²⁹ For example, the US assets of Bank of China increased from \$15.9 billion in 2011 to \$63.6 billion in 2016. See

observation is how small the role of minority-owned affiliates is in the total asset base. It suggests that Chinese companies have so far had very little appetite for minority stakes and instead prefer to invest in transactions that give them control. This is similar to the trajectory of US companies in China in the 1990s and suggests a lot of room to expand minority investments.

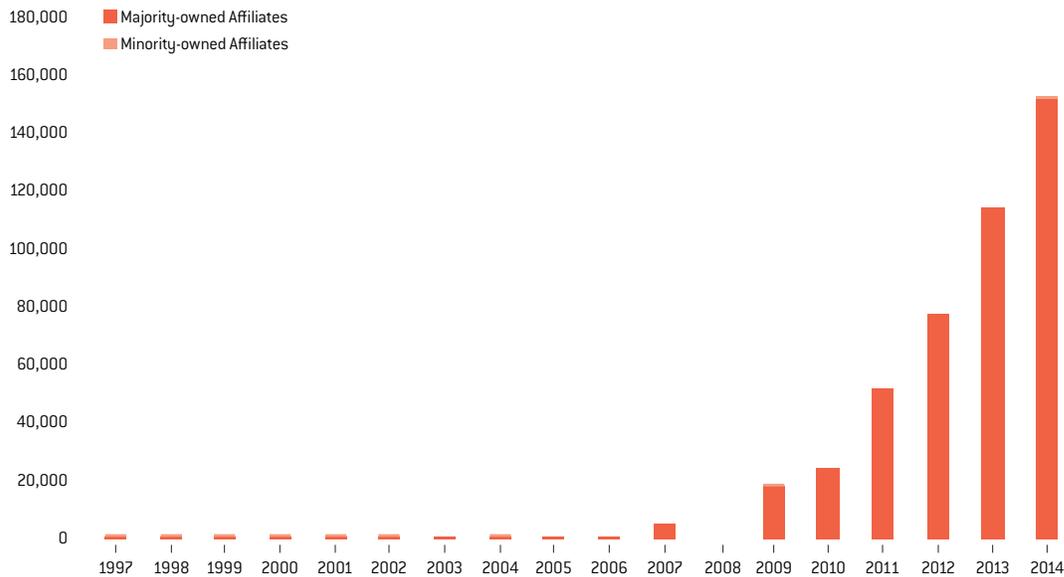
CHINESE GOVERNMENT STATISTICS

Official Chinese statistics show a similarly rapid increase of Chinese FDI in the US, but at a greater scale. As with inbound FDI data, the Ministry of Commerce is the agency that is primarily in charge of collecting and disseminating statistics on outbound FDI. However, outbound FDI data are compiled by a different unit than the one charged with inward FDI

Federal Financial Institutions Examination Council, *Report of Assets and Liabilities of U.S. Branches and Agencies of Foreign Banks-Bank of China*, [Board of Governors of the Federal Reserve System, 2011] and Federal Financial Institutions Examination Council, *Report of Assets and Liabilities of U.S. Branches and Agencies of Foreign Banks-Bank of China*, [Board of Governors of the Federal Reserve System, 2016].

FIG 23: Total Assets of Chinese Affiliates in the United States, 1997-2014 (BEA)

USD million



Source: Bureau of Economic Analysis. Years with no values are undisclosed by BEA. Data on minority-owned affiliates is available only for 1997-2002, 2004, 2009 and 2014.

data, and the concepts and definitions used for the outbound side are not consistent with the ones used for the inbound data.

For the outbound direction, MOFCOM's Department of Outward Investment and Economic Cooperation bureau collects flows and stock data for "non-financial" outbound FDI, which it disseminates on a monthly basis. The primary sources of these data are company surveys and administrative records. In each following year, the annual data are enriched with data on outward FDI by financial institutions collected by SAFE. The full annual data including a detailed breakdown by industry and destination country is published in an annual statistical bulletin, which is usually available in the fall of the following year.³⁰

30 For 2014 data: Ministry of Commerce. 2014 年度中国对外直接投资统计公报 [2014 Chinese Outward Direct Investment Statistical Yearbook]. (Beijing: China Statistics Press, 2015). An updated 2016 version has also been released for public comment: <http://bit.ly/2epZ4oh>.

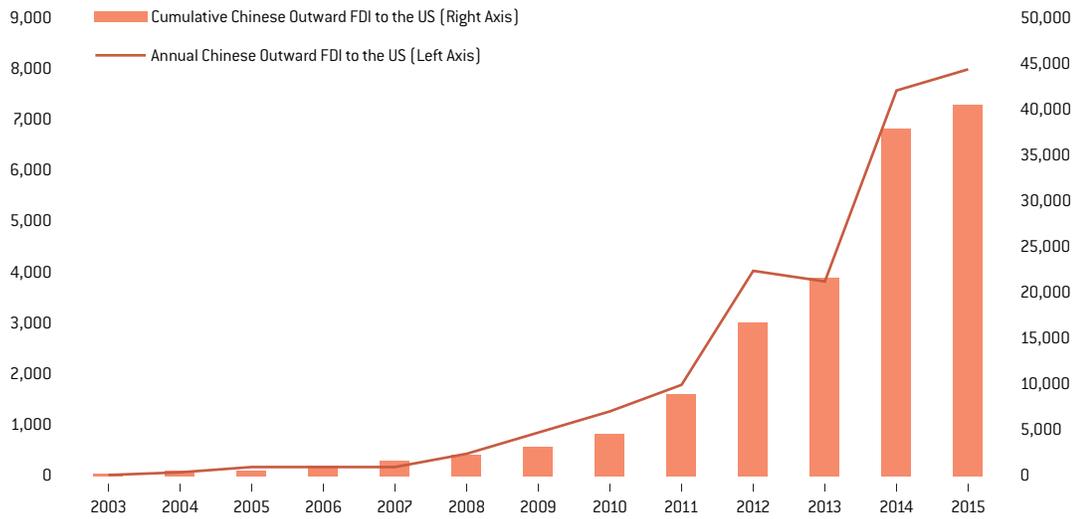
Figure 24 shows MOFCOM's annual figures on Chinese FDI flows and stock in the US. The trajectory is very similar to the overall trend in BEA data, but the scale is much larger. In 2015, MOFCOM records an outward FDI stock in the US of more than \$41 billion, which is twice the BEA's UBO inward FDI stock figure. One possible reason for this discrepancy is that MOFCOM does not strictly adhere to the international BOP standards for compiling FDI data. SAFE, which compiles BOP and IIP statistics and follows those principles only disseminates aggregate data on Chinese outbound FDI and does not provide breakdowns of Chinese outbound FDI by destination country.

RHG TRANSACTIONS DATA

The previous pages have demonstrated that official statistics from both sides confirm the rapid expansion of Chinese investment in the US, but that they disagree on the scope of that expansion and the annual patterns. Moreover, the statistical agencies on both sides were forced to revise their data on Chinese FDI in the US several times in recent years

FIG 24: Chinese Outward FDI Flows and Stock to the US, 2003–2015 (MOFCOM)

USD million; not on a UBO basis



Source: Ministry of Commerce.

to show greater flows than initially measured. RHG's transaction dataset, which was available to the public since 2011 and which we expanded all the way back to 1990 for this report, provides an alternative measure of Chinese FDI in the US economy.

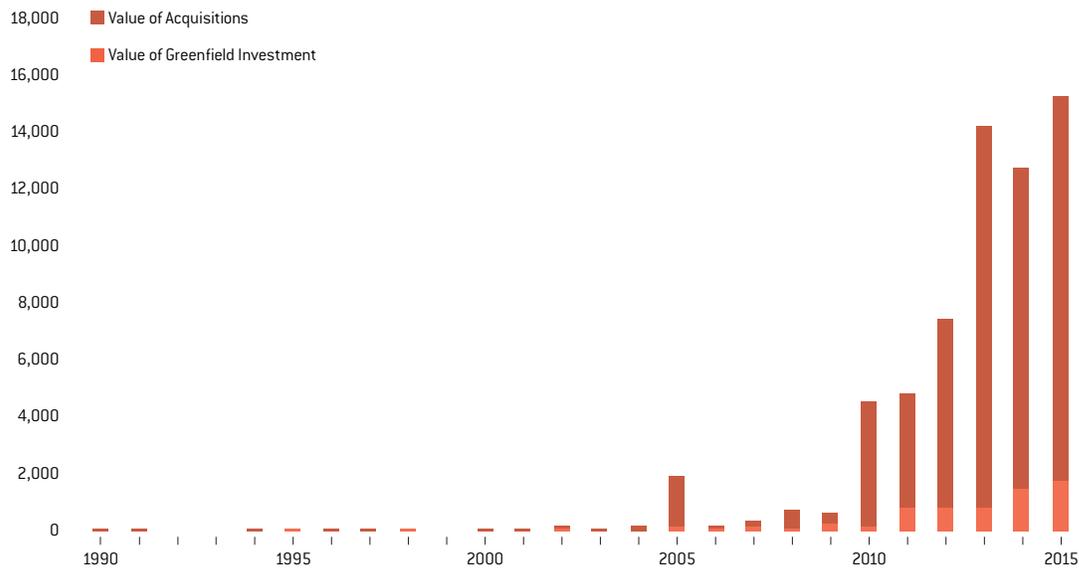
Figure 25 shows the trajectory of Chinese FDI in the US from 1990 to 2015, broken down by entry mode. Our dataset covers more than 1,200 individual transactions. From 1990 to 2005, Chinese investment in the US remained negligible. Investments were few and those that happened were small in scale. That changed in 2005, when Lenovo successfully completed a bid to purchase IBM's personal computer division for \$1.75 billion. Between 2005 and 2009, investment activity increased but the combined value of transactions remained below \$1 billion per year. In 2010 and 2011, average annual investment increased to \$5 billion. The aggregate value of Chinese FDI grew to \$7 billion in 2012 and then doubled to more than \$14 billion in 2013, partially reflecting Shuanghui's record acquisition of Smithfield Foods for \$7.1 billion. Investment levels

dipped to \$12.8 billion in 2014, but subsequently reached a new record in 2015 with \$15.3 billion of completed investments.

One glaring difference to US FDI patterns in China is the dominance of M&A as mode of entry. Acquisitions of existing companies and assets (mergers and acquisitions, or M&A) have been the preferred mode for Chinese investors to enter the US market because they allow quicker market access than organic growth. For the period of 2000 to 2015, M&A accounts for nearly 90% of total investment. Greenfield projects (investments in new companies and operations as well as the expansion of current operations) account for the majority of transactions but remained small in scale and account for only 11% of total investment value. However, greenfield projects have become more important in recent years, as Chinese companies feel more confident in organic growth and have moved from smaller-scale investments to large and capital-intensive projects including manufacturing plants, R&D centers, and real estate developments.

FIG 25: Value of Chinese FDI Transactions in the US, 1990–2015 (RHG)

USD million; annual aggregate value



Source: Rhodium Group.

For the entire period of 1990 to 2015, the cumulative value of FDI transactions is \$64 billion. Similar to our figures on US FDI in China, this number is not adjusted for divestitures or other reverse flows. It is also at historical cost, which means that it does not account for exchange rate or asset valuation changes. As more than 85% of the total cumulative FDI entered the US in the past five years, it does not make much sense to calculate a stock number that takes into account those adjustments.

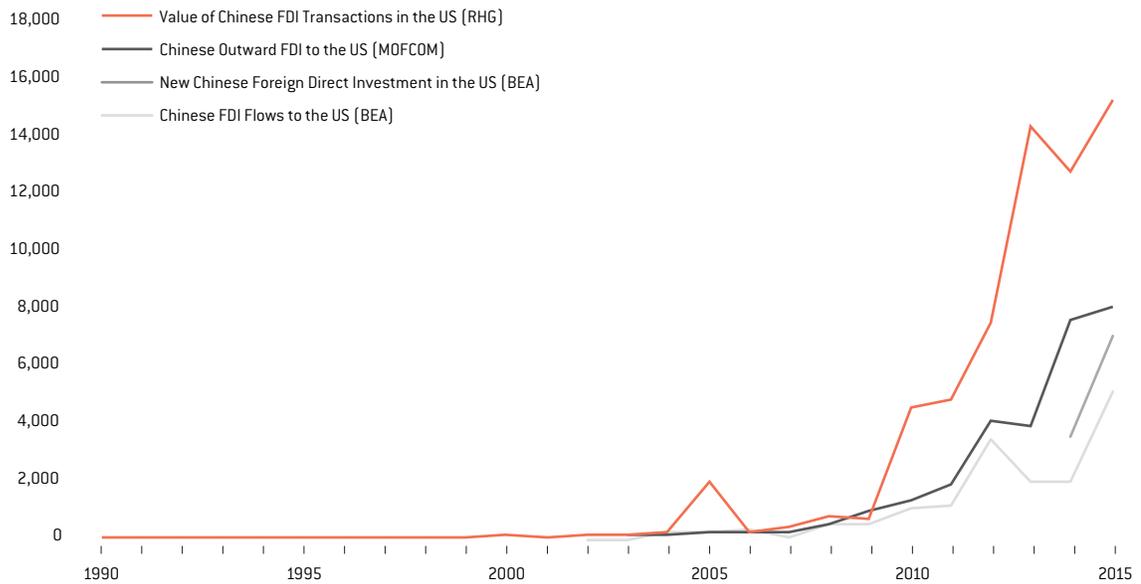
Figure 26 compares the annual value of FDI transactions with official measures of Chinese FDI in the US. For 2015, our transaction data counts the largest number (\$15.3 billion). BEA's BOP data records the lowest amount (\$5.1 billion), as it doesn't capture the inflow of Chinese capital through third countries and it is a net number that reflects reverse flows as well. Data on flows from China by UBO principles are not available, but would presumably be higher. BEA's data series on new establishments records more than \$7 billion of flows, as it records gross spending on acquisitions and new greenfield investments.

Data on outbound FDI by Chinese companies to the US provided by China's MOFCOM are very similar to BEA's BOP figures until 2013, but then diverge and show a much higher number in recent years (\$8 billion in 2015).

Figure 27 compares the aggregate value of Chinese FDI transactions since 1990 with available official metrics for Chinese FDI stock in the US. Again, the BEA's figures come in the lowest, at an FDI stock of \$14.8 billion and an UBO FDI stock of \$20.8 billion. Both BEA metrics are net of divestitures and reverse flows and reflect historical value. MOFCOM's number for China's FDI stock in the US comes in at more than twice the BEA's UBO figure (\$41 billion). The cumulative value of FDI transactions captured by RHG's transaction data is \$64 billion, reflecting greater coverage and a few definitional differences (see Appendix). BEA's figure on total assets of Chinese affiliates in the US is the highest because it is a gross figure that includes the full assets of Chinese joint ventures in the US as well as the assets of US subsidiaries of Chinese financial institutions.

FIG 26: Various Measures of Annual Chinese FDI in the US, 1990-2015

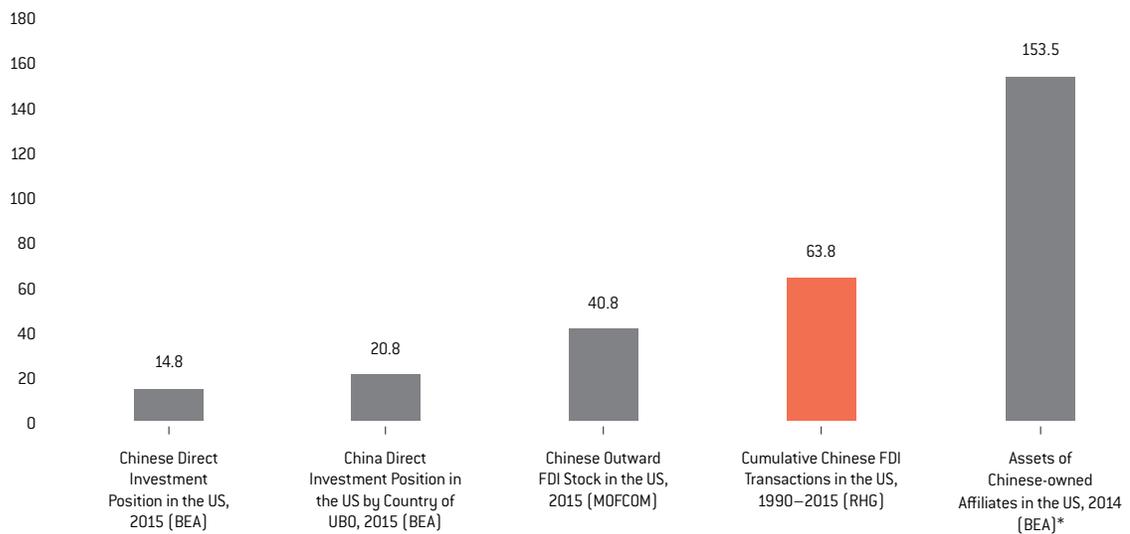
USD million



Sources: Bureau of Economic Analysis, Ministry of Commerce, Rhodium Group.

FIG 27: Chinese FDI Stock in the US, Various Metrics, 2015

USD billion



Sources: Bureau of Economic Analysis, Ministry of Commerce, Rhodium Group. * Most recent year available.

2.2 INDUSTRY TRENDS

The motives for Chinese investors to invest in the US are less clear to most observers, given only a short track record of those companies in the US and overseas markets in general. Much of the initial suspicion and kneejerk reaction to early Chinese investments can be explained by the lack of understanding of what is driving these firms to venture abroad, after so many years of inward orientation. The big gaps and disparity in official statistics regarding the industry mix of Chinese investment in the US have contributed to this confusion. In this section we first review what government data say about the industry composition of China's US investments and then utilize our database to further illuminate the distribution of Chinese capital across US industries.

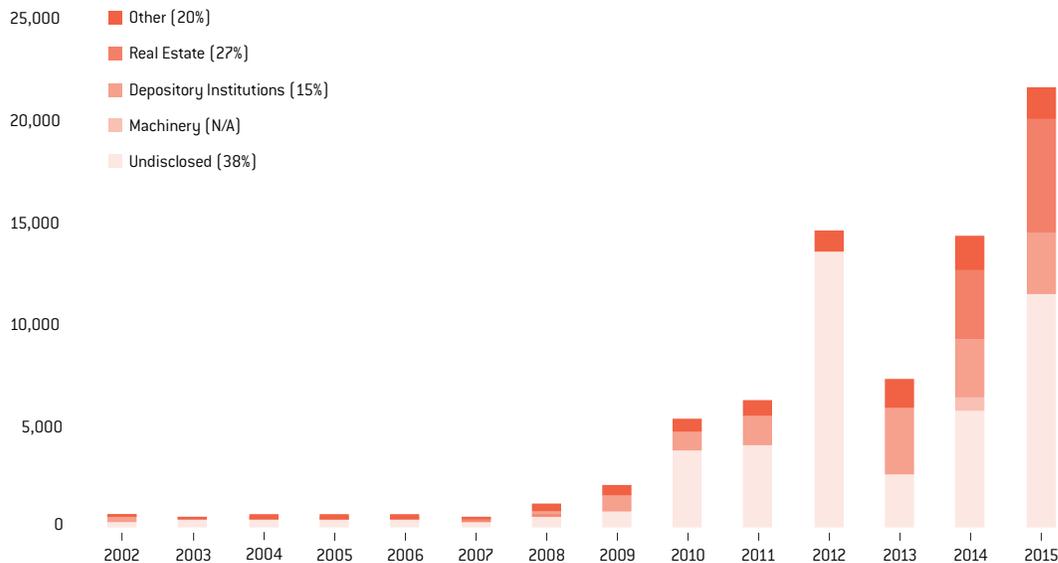
US GOVERNMENT STATISTICS

The BEA provides an industry breakdown for its regular Chinese FDI stock figure as well the stock figure compiled by UBO principle. The available time series

data for the latter is shown in Figure 28. Nearly half (38%) of the 2015 stock composition remains undisclosed. The two largest disclosed sectors are real estate with 27% and depository institutions at 15%. No other disclosed sector accounts for more than 10%, with the next largest being primary and fabricated metals at 8% and all other sectors accounting for small shares. However, data points for many years are missing and a significant share of total stock is undisclosed for confidentiality reasons. Moreover, the general caveats for BOP and IIP data undercounting the presence of Chinese firms in the US (as explained in 2.1) apply. This makes it difficult to draw a reliable picture of the trajectory of Chinese FDI in the US from this dataset. The dataset on Activities of Multinational Enterprises which provides statistics on the assets of Chinese enterprises in the US, does not provide an industry-level breakdown for Chinese assets.

FIG 28: Chinese FDI Stock in the US by Industry, 2002-2015 (BEA)

USD million; historical cost, UBO basis



Source: Bureau of Economic Analysis. Values in parentheses represent each category's share in the 2015 stock.

CHINESE GOVERNMENT STATISTICS

MOFCOM's outward FDI yearbook does include a breakdown of Chinese outward FDI in the US by industry. The latest data we have is from 2014 and shown in Figure 29. The only commonality with the BEA breakdown is that a significant share of China's US FDI stock is attributed to financial services (39%). Other than that, it is difficult to establish common patterns, partially because MOFCOM uses a different industry classification system than the BEA.

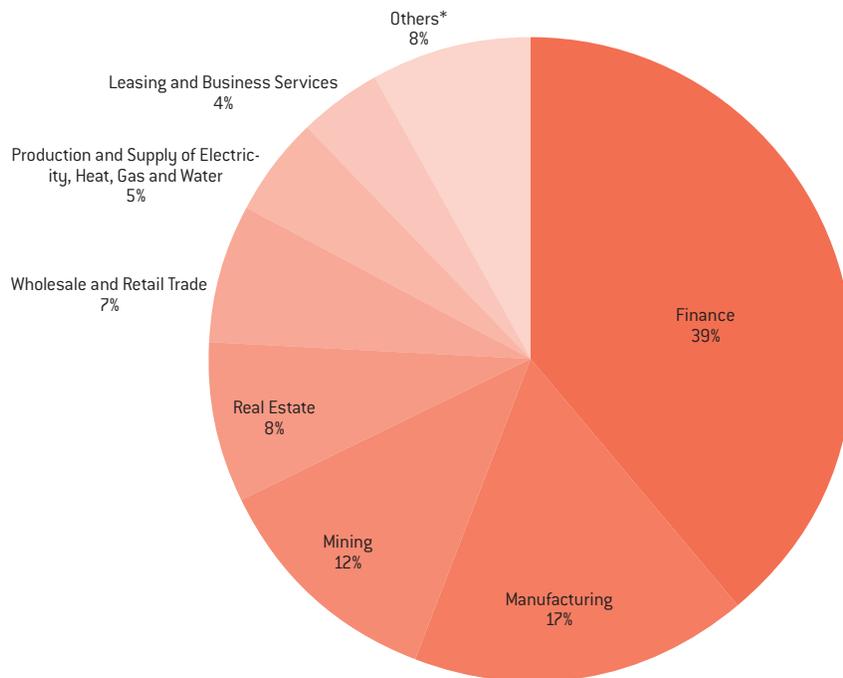
RHG TRANSACTIONS DATA

Figure 30 captures the industry breakdown of the \$64 billion of Chinese FDI in the US from 1990 to 2015. Figure 31 shows patterns in those 14 different industries over time. First, we see that investment is also spread widely across the entire spectrum of industries, suggesting that Chinese investors are interested in a diverse set of assets. However, the industry distribution is more concentrated than for

US FDI in China. The four largest sectors—real estate and hospitality, information and communications technology, energy and agriculture and food—together account for more than two thirds of total aggregate investment. Second, there are still several industries with very little investment, including consumer goods and services, electronics, aviation, and industrial equipment. Third, in all industries that received significant investment, capital only started flowing in the past five years. Finally, patterns are more volatile and show a number of one-off spikes, resulting from large-scale M&A transactions, which are rare in the other direction. Examples are food, entertainment, and financial services. A more detailed description of trends in developments in each industry can be found in Chapter 3 of this report.

FIG 29: Chinese FDI Stock in the US by Industry, 2014 (MOFCOM)

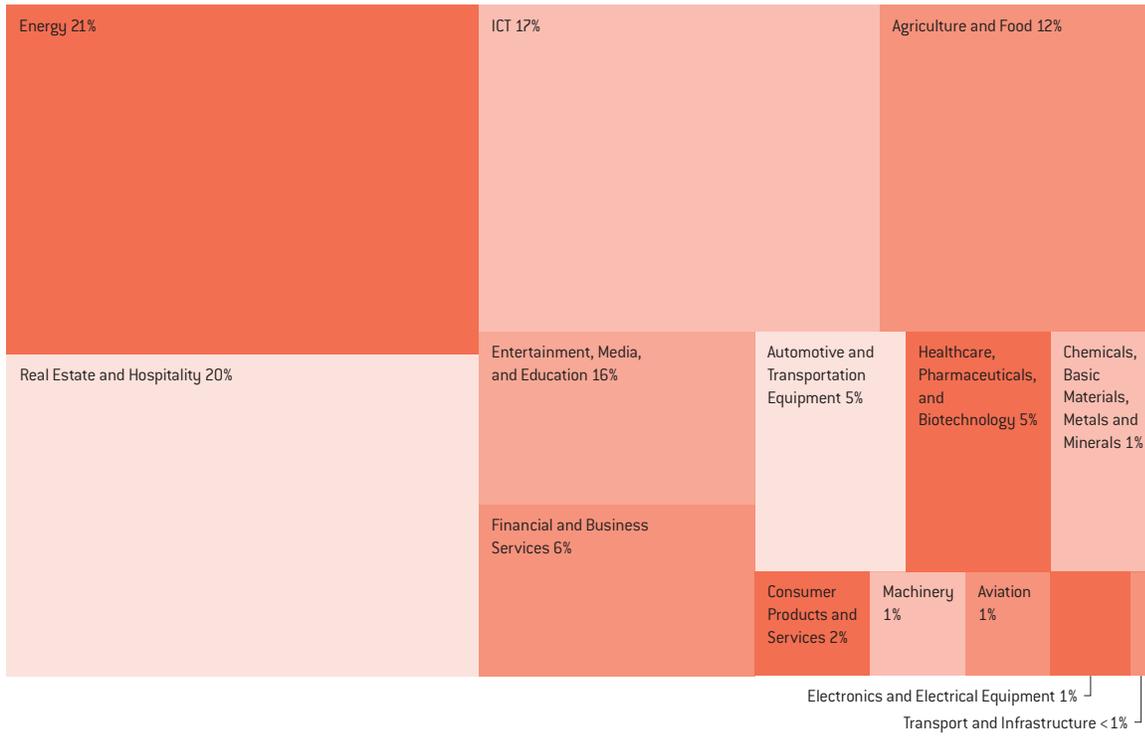
percent share of total (\$38 billion)



Source: "China's Outward Direct Foreign Investment", Ministry of Commerce. *Others includes industries specified by MOFCOM that have small shares of total stock.

FIG 30: Cumulative Value of Chinese FDI Transactions in the US by Industry, 1990-2015 (RHG)

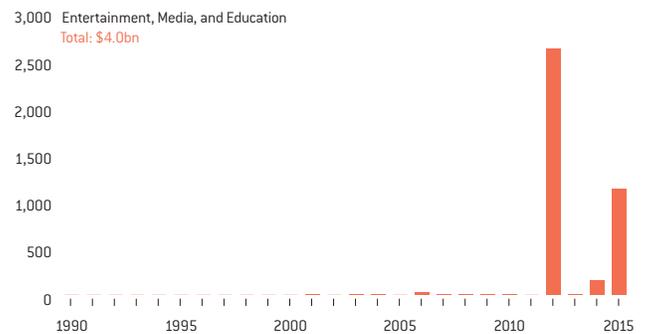
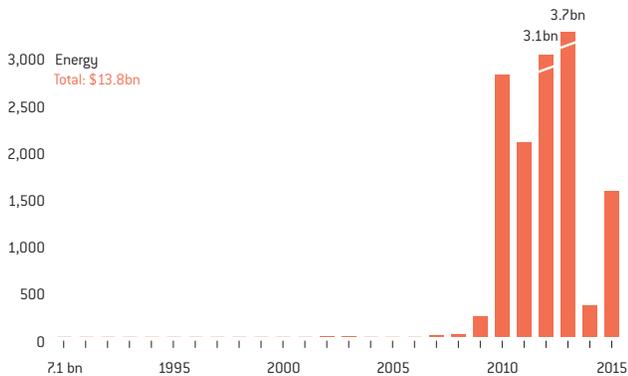
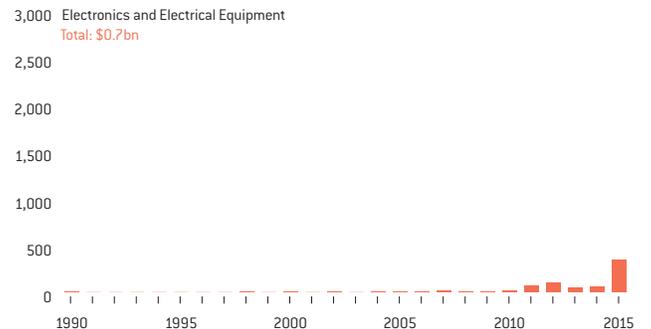
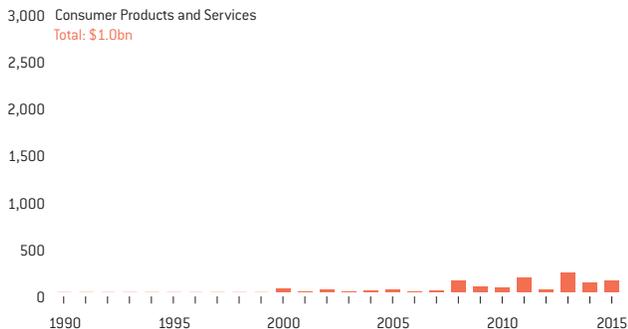
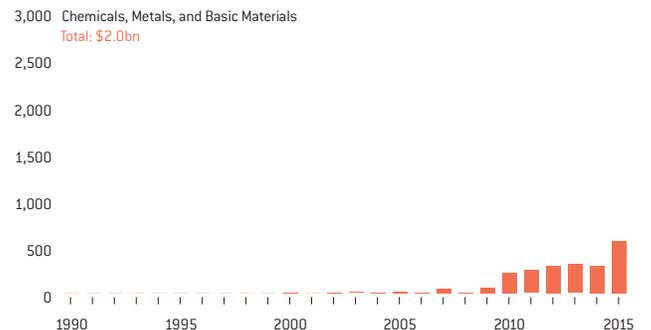
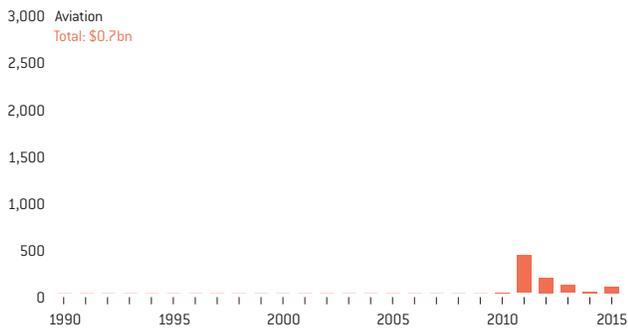
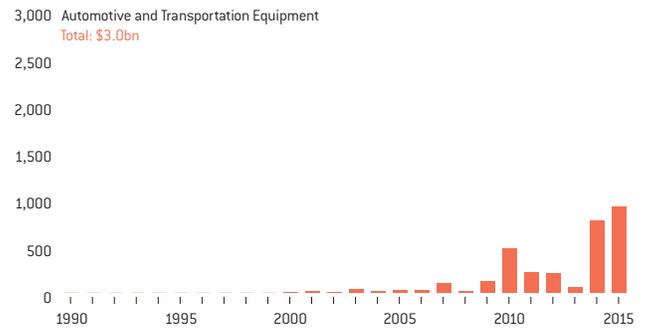
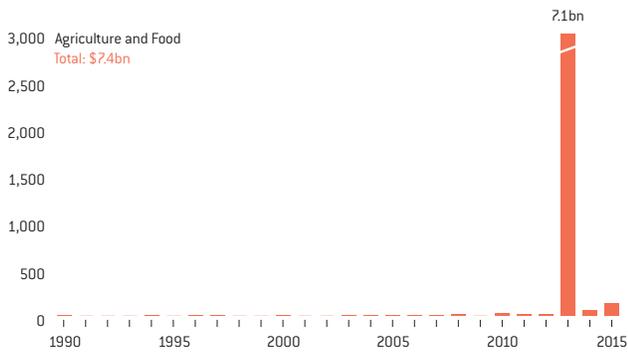
Percent share of a total [\$64 billion]



Source: Rhodium Group.

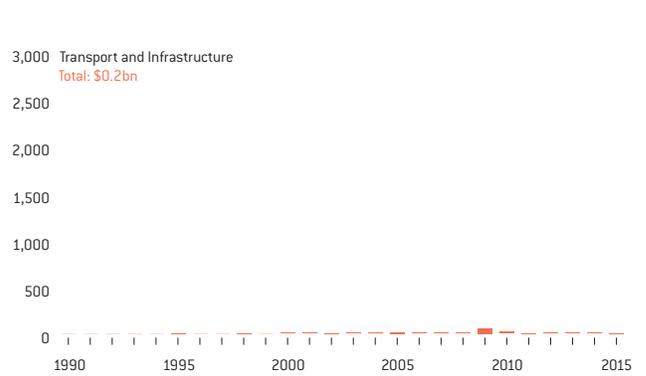
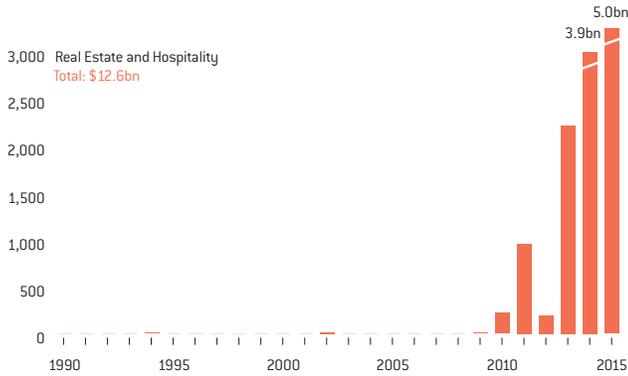
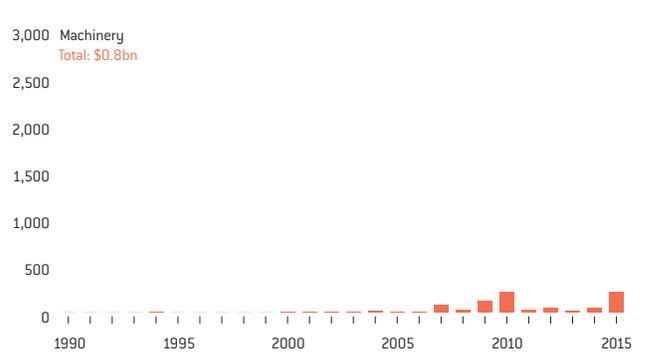
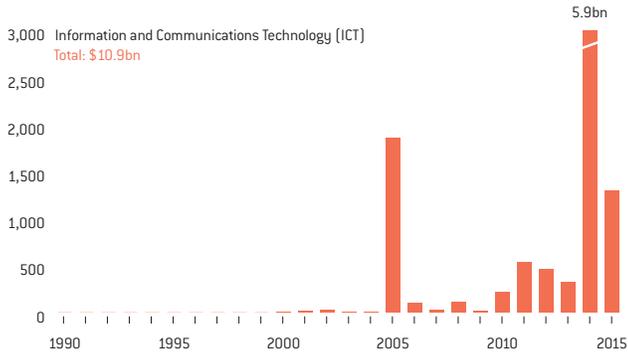
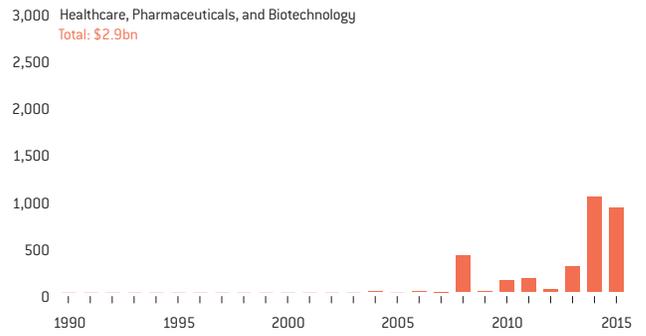
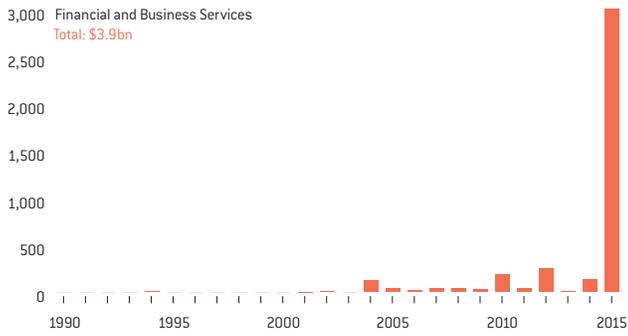
FIG 31: Chinese FDI Transactions in the US by Industry, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

CHINESE FDI IN THE UNITED STATES



2.3 GEOGRAPHY

The geographic distribution of Chinese FDI across the US is another metric of interest to the public, but none of the official datasets include details on locational patterns. Our transactions dataset allows us to draw a detailed picture of Chinese companies' presence in the US.

Table 2 presents a ranking of US states by amount of Chinese direct investment they received in the period of 1990 to 2015. Transactions are coded based on the headquarters location of the acquired company or the location of the newly established subsidiary. As of the end of 2015, 46 of 50 states were hosting Chinese companies. The top five recipients of Chinese capital were New York, California, Virginia, Texas, and North Carolina. Figure 32 displays

the expansion of Chinese FDI over time, across three different periods. Prior to 2008, most Chinese investment was concentrated on the coasts in California and New York, as well as a few other states hosting large companies or investments, including North Carolina (ICT), Michigan (automotive), and Texas (energy). After 2008, Chinese companies deepened their foothold in other major urban areas, especially along the Northeast Corridor and the Midwest. Chinese energy companies also expanded to the resource-rich parts of the country, such as Wyoming, Colorado, Oklahoma, and Texas. Over the past three years, the expansion of Chinese companies has broadened further, including to the Pacific Northwest, the South, and parts of the Midwest.

Table 2: Ranking of States by Total Investment received from China, 1990-2015 (RHG)

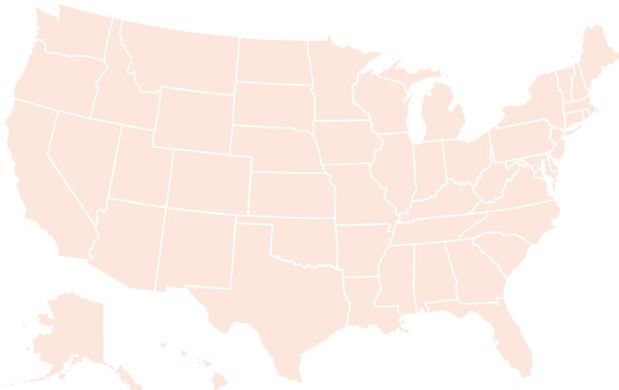
STATE	USD BILLION	STATE	USD BILLION	STATE	USD BILLION
New York	9.9	Wisconsin	0.4	Delaware	0.1
California	9.1	Colorado	0.3	Arizona	<50 million
Virginia	8.9	Alabama	0.3	Montana	<50 million
Texas	7	Louisiana	0.3	Iowa	<50 million
North Carolina	4.7	Missouri	0.3	Maine	<50 million
Illinois	3.9	Wyoming	0.3	Connecticut	<50 million
Oklahoma	3.7	Ohio	0.3	Arkansas	<50 million
Michigan	3	Pennsylvania	0.2	Idaho	<50 million
Kansas	2.7	Georgia	0.2	Nebraska	<50 million
Massachusetts	2.6	New Hampshire	0.2	Alaska	<50 million
Florida	0.8	Oregon	0.2	West Virginia	<50 million
New Jersey	0.7	Nevada	0.2	Rhode Island	<50 million
South Carolina	0.6	Indiana	0.2	New Mexico	<50 million
Minnesota	0.5	Maryland	0.1	North Dakota	<50 million
Hawaii	0.5	Utah	0.1	South Dakota	<50 million
Tennessee	0.5	Kentucky	0.1	Vermont	<50 million
Washington	0.5	Mississippi	0.1		

Source: Rhodium Group.

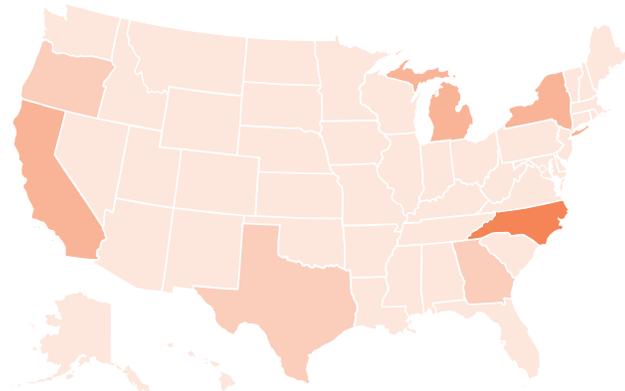
FIG 32: Geographic Distribution of Chinese FDI in the US over time (RHG)

color shading represents total investment in each period

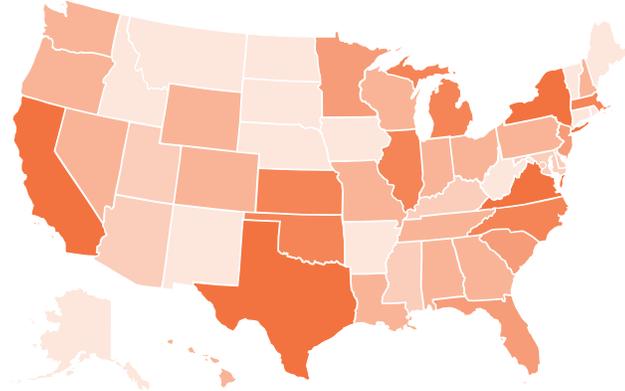
1990–2000



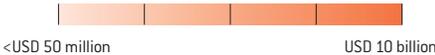
2001–2007



2008–2015



Source: Rhodium Group.



2.4 INVESTOR CHARACTERISTICS

The landscape of corporate entities in China is diverse and quickly evolving, and Chinese investors are new to the world stage. It is therefore not surprising that there is a strong demand for better understanding the group of investors from China that are expanding in the US economy. Official government statistics offer little information on the characteristics of Chinese companies investing in the US and changes over time. Our new transactions dataset provides some starting points to better understand those new corporate citizens.

First, the group of Chinese investors in the US is still far from the size and maturity of US investors in China. From 1990 to 2015, we record more than 1,200 transactions done by more than 800 companies.³¹ Only 115 of those had invested more than \$50

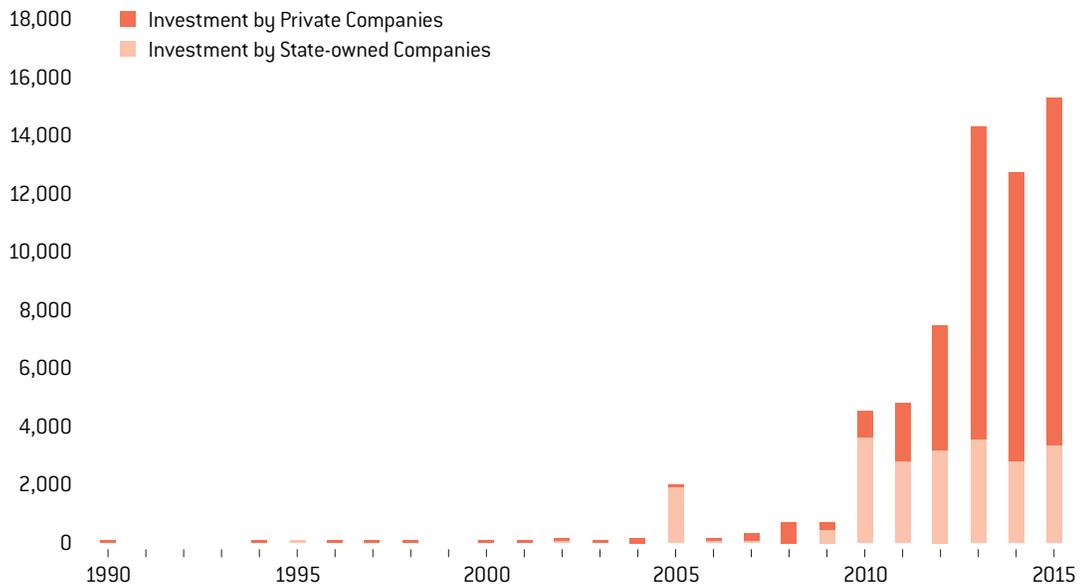
million in the US market. Only 74 companies exceed a combined investment value of \$100 million and 12 companies had invested in excess of \$1 billion.

While US FDI to China is originating entirely from private enterprises, government-owned and affiliated companies historically play a significant role in China's US FDI. Figure 33 shows annual Chinese FDI in the US by ownership of the investor. Private investors refer to Chinese companies that are ultimately 80% or more owned by private individuals and entities and state-owned investors refer to central and local state-owned enterprises (SOEs), their subsidiaries, as well as Chinese sovereign wealth funds and a handful of other government entities. Before 2005, investment was small and came from both large state-owned investors as well as small privately-owned trading and manufacturing companies. In 2005, then state-owned firm Lenovo made the first

31 The threshold to be included is \$1 million. See Appendix for more details.

FIG 33: Chinese FDI in the US by Private and State-owned Investors, 1990-2015 (RHG)

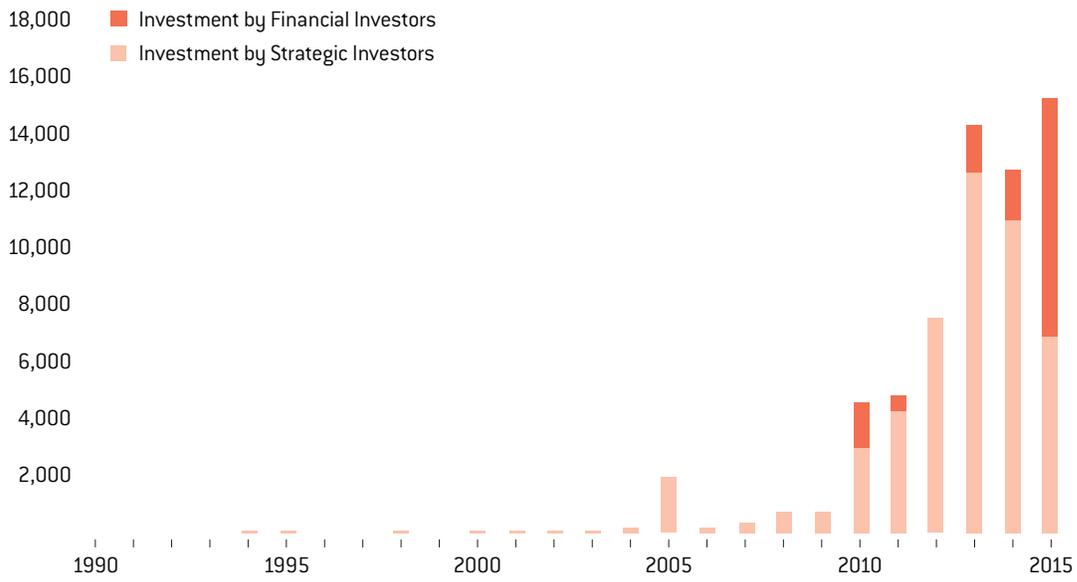
USD million



Source: Rhodium Group.

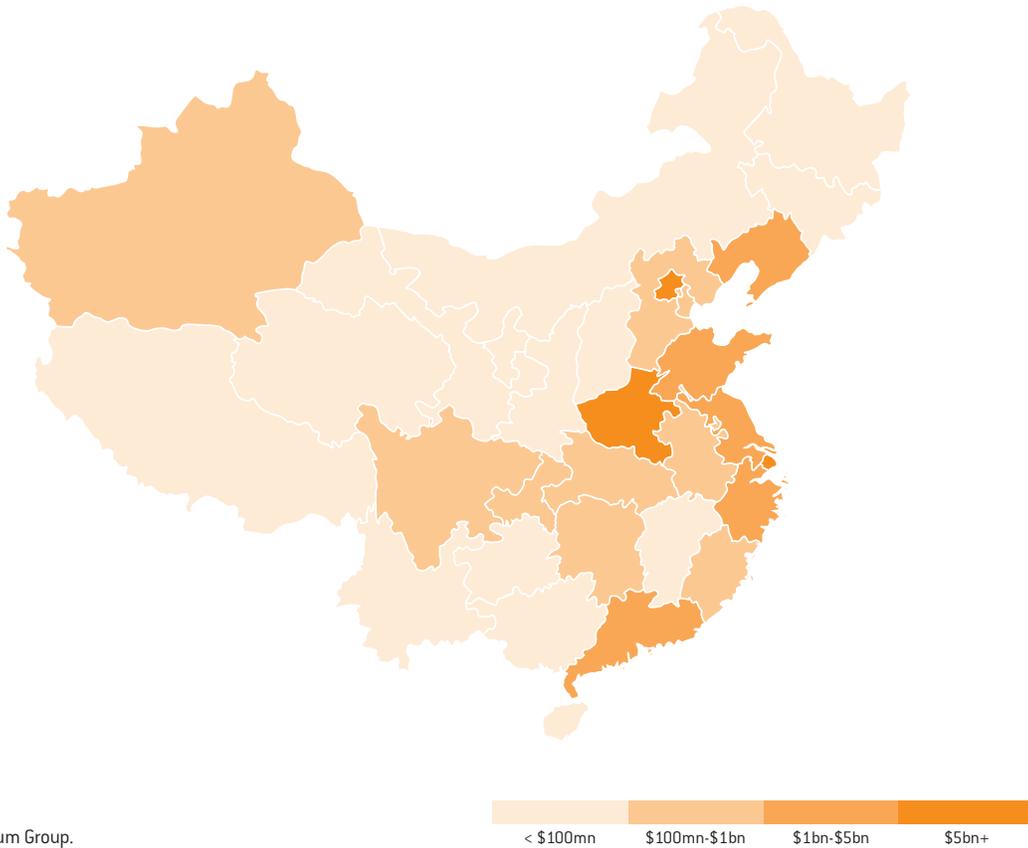
FIG 34: Chinese FDI in the US by Company Type, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

FIG 35: Geographic Origin of Chinese FDI in the US, 1990-2015 (RHG)



Source: Rhodium Group.

sizable investment in the United States. From 2009 to 2013, Chinese capital inflows were driven by state-owned investors, as SOEs in energy and a handful of other sectors quickly expanded their US assets. In 2011, SOEs accounted for more than 50% of cumulative Chinese OFDI in the US since 1990. Since then SOE investment has continued, but growth has been largely driven by the private sector. By the end of 2015 the share of SOEs in cumulative investment had fallen to 32%. In terms of annual flows, the share of private companies has jumped to an average of 77% from 2013-2015.

Another important trend is the growing role of financial investors (Figure 34). This group includes private equity firms, financial conglomerates, insurance companies and other entities that invest for financial returns and not for strategic corporate motives. Similar to the trends seen within the group of US investors in China, the importance of those players has increased over time, but more suddenly and in a more pronounced fashion. In 2015, this group of investors accounted for half of all Chinese FDI flows in the US.

The map shown in Figure 35 shows the province of origin for all Chinese FDI in the US since 1990. Not surprisingly, companies that invest in the US are located in the most advanced Chinese provinces on the east coast. More than 50% of all investment originates in Beijing, attesting to its importance as headquarters for SOEs and private companies. Other important economic centers on the east coast and in the south, Shanghai and Guangdong, account for significant investment, at 11% and 6.5% respectively. The other provinces with significant investments in the US are all among the wealthiest administrative areas with a bustling private sector (Tianjin, Jiangsu, and Zhejiang). The sole outlier is Henan, which accounts for 11.5% of total investment. Henan is a traditional center of pork production in China and home to Shuanghui, which acquired Smithfield in 2013.

2.5 OPERATIONS AND LOCAL IMPACTS

For describing the operations of Chinese multinationals in the US and their local impacts, we have to mostly rely on the BEA's dataset on the foreign direct investment in the United States component of the Activities of Multinational Enterprises, which is complementary to the data on Activities of US Multinational Enterprises used to describe US multinationals in China in Chapter 1.5. Similar to the inbound FDI dimension, China's MOFCOM only provides operational data for aggregate outward FDI, not for individual investor countries.

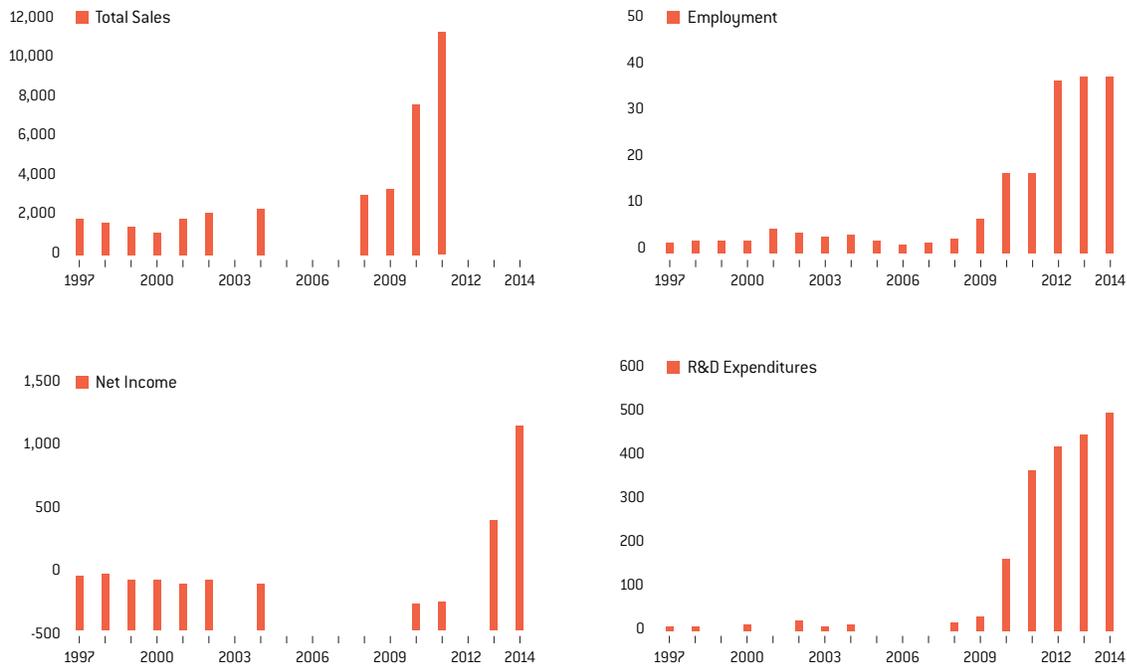
The BEA dataset on the operations of Chinese-affiliated companies in the US includes metrics such as assets, sales, employment, compensation of

employees and trade related to affiliates' business.³² Data are available from 1997 to 2014, but there are several missing values and other gaps. Figure 36 displays sales, net income, employment, and R&D spending by Chinese affiliate companies in the US. While sales data are incomplete, it does support the story of rapid expansion of Chinese FDI in the US after 2009, with an increase of total sales from less than \$4 billion for all years prior to 2009 to more than \$11 billion in 2011. The net income of all Chinese affiliates in the US was negative or near zero for most

³² Additional data are available for majority-owned foreign affiliates, including capital expenditures, R&D expenditures, value added, expenditures for property, plant and equipment, and goods and services supplied.

FIG 36: Operational Data for Affiliates of Chinese Multinational Enterprises in the US, 1997-2014 (BEA)

USD million; thousands of employees



Source: Bureau of Economic Analysis. From 1997-2006, data are provided for Nonbank US Affiliates. From 2007 onward, it is provided for all US Affiliates. In case of joint ventures, the numbers refer to the full value for the entire Chinese entity, not just the US share. Blanks indicate withheld years. For 2008 to 2012, BEA does not disclose employment numbers directly; figures here are estimated from the ranges disclosed. R&D Expenditures include majority-owned affiliates only.

years available and then shot up to \$1.2 billion in 2014. Direct employment provided by US affiliates of Chinese companies in the BEA sample has expanded from an average of fewer than 3,000 jobs from 1997 to 2008 to nearly 40,000 in 2014. Finally, the dataset also confirms that Chinese companies have ramped up their FDI in innovation-related areas in recent years. It shows that R&D spending by Chinese multinationals in the US has grown from virtually zero in the late 1990s to nearly \$500 million in recent years. This is testament to companies such as Lenovo, Baidu, and Haier, which now actively support innovative capacity in the US, benefitting local workers and local communities.

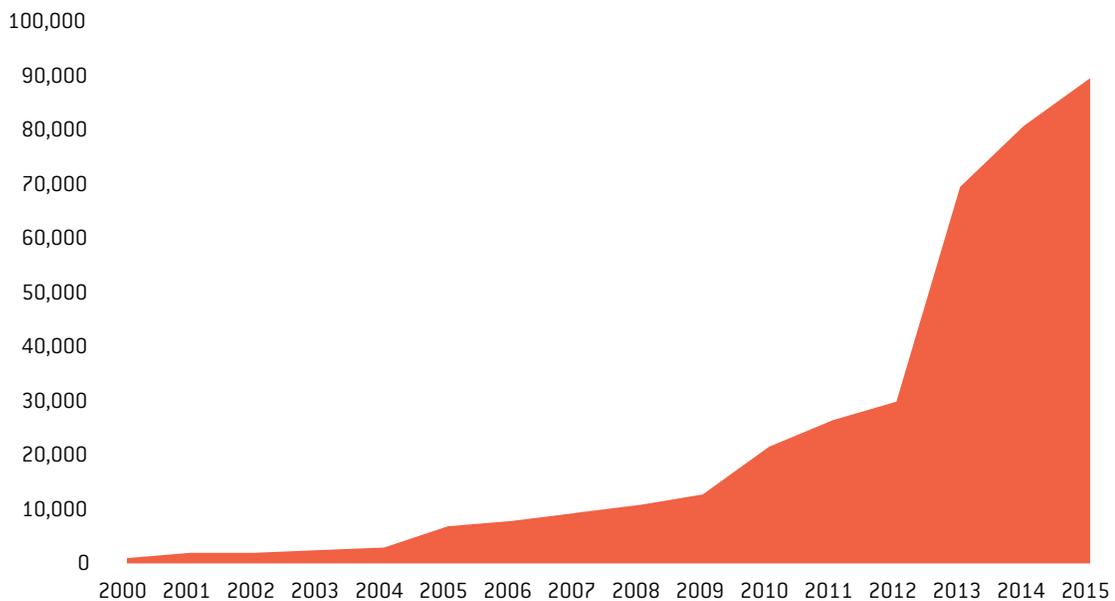
Our transactions dataset also does not yet provide the same operational metrics. However, we have been able to come up with alternative estimates for jobs provided by Chinese-owned entities in the US,

which is shown in Figure 37. According to our count, Chinese companies provided more than 90,000 jobs at the end of 2015, up from fewer than 20,000 five years ago.³³ The discrepancy between our numbers and those provided by the BEA can be attributed to different coverage (we include certain companies not covered by BEA), a different timeframe (we include 2015) and greater independence for estimating figures.

33 For a separate project, we have broken down those employment figures by state and congressional district: National Committee on U.S.-China Relations and Rhodium Group. *New Neighbors: Chinese Investment in the United States by Congressional District*. 2015.

FIG 37: Employment at Chinese-affiliated Companies in the US, 2000-2015 (RHG)

number of full-time and direct jobs provided by US subsidiaries of Chinese companies



Source: Rhodium Group.

3 A COMPARATIVE PERSPECTIVE ON US-CHINA FDI

With comparable databases of two-way US-China direct investment deal flow covering the past quarter century, we are now in a position to offer a comparative picture of the bilateral FDI relationship. The previous two chapters have thoroughly reviewed the patterns of US FDI to China and Chinese FDI in the US in the past 25 years. Existing official datasets are critical for many purposes, including calculation of balance of payments positions. But they are insufficient for gauging the true state of affairs in the two-way context, since they count here and there in different ways and for the most part show what firms want their balance sheets to look like for tax purposes not what deals they are actually doing. By combining our independently-built transactions-based datasets we can supplement the foundations BEA and MOFCOM provide, in terms of two-way trends. This is true for the most important aggregate metrics, where this chapter begins. But we can also produce in-depth pictures of two-way flows in each of the 14 industries our data tracks, permitting a granular look at important differences in how the relationship is evolving, industry by industry, beneath the homogenized picture of the aggregates.

CUMULATIVE FDI OR STOCK

The broadest dimension on the US-China investment relationship over time is stock of all FDI transaction values that have taken place since 1990. Our numbers confirm that the stock of US FDI deals done in China still greatly exceeds Chinese transactions in the US—in fact, by a multiple. We are not surprised by

these results. As discussed, US firms were decades ahead of their Chinese counterparts in readiness to cross the bilateral divide, and China's government only recently rescinded rules effectively blocking the majority of Chinese companies from investing overseas. By our count cumulative deal value by US firms in China since 1990 is nearly \$230 billion, which is about four times the corresponding sum of Chinese deals of \$64 billion in the US (Figure 38).³⁴

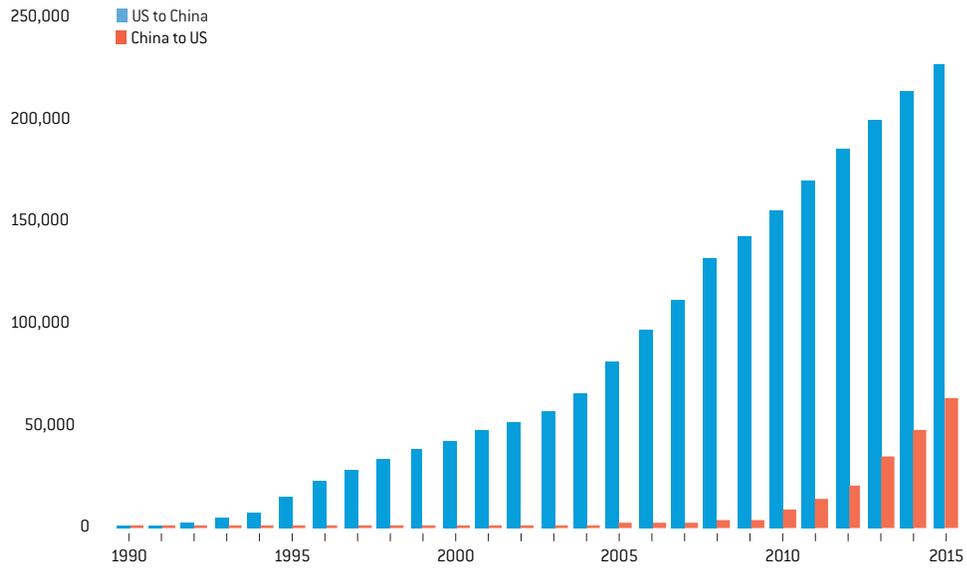
This gap in cumulative FDI value that our research reveals is biased to the conservative side; that is, the reality is more likely greater, not smaller. For one thing, if we were to take into account valuation and exchange rate changes over time, the US FDI stock in China would be greater (see calculations in Chapter 1.1). In addition, the more recent vintage of outbound Chinese investment means that less is obscured by the passage of time, whereas in the case of American outbound investment there are a greater number of meaningful transactions dating back 20 years, which made it more difficult to track those down and assign correct values to them.

The stock figures are a testament to how open China was to inward investment in its early development, and how critical that was to the Chinese miracle.

³⁴ It is important to remember that our numbers represent the cumulative value of FDI transactions since 1990, which is not the same as traditional FDI stock or a current claim on assets. We are measuring the value of deals that succeeded over the years, not its current marked-to-market value.

FIG 38: Cumulative Value of FDI Transactions between the United States and China, 1990-2015 (RHG)

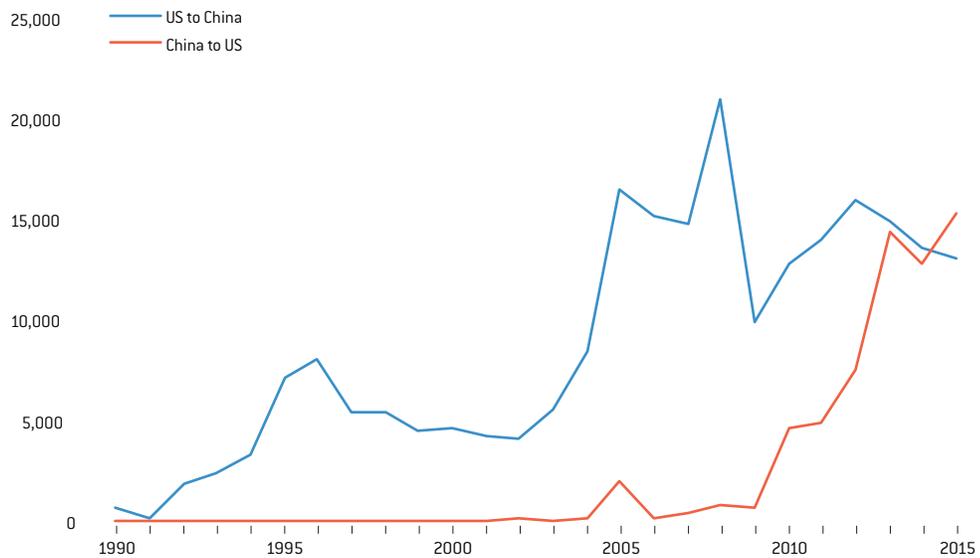
USD million



Source: Rhodium Group.

FIG 39: Annual Value of FDI Transactions between the United States and China, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

The cumulative value of Chinese deals in the US over such a short period of time is remarkable as well, reaching a level in six years which required almost a decade and a half for American companies in China. Seen in a global context, and in light of their respective GDP sizes, Washington and Beijing should each expect both of these stocks to continue growing. Given that the cumulative value of American investments in China is so much greater than Chinese investment in the US, we are uneasy with talk about "reciprocity"—if that term is taken to mean openness in one direction should be conditioned by the value of flows in the other.

ANNUAL FLOWS

While the cumulative transaction value tells an important story, our data also confirms that the tide has turned in terms of annual flows. All industries taken together, Chinese firms are today investing more in the US than vice versa, a result of both rising Chinese values and falling US numbers.

American FDI in China peaked in 2008 at \$21 billion, but has moved sideways since, averaging \$13 billion per year since the peak and further slumping in the past two years. The pattern suggests structural changes at work, not just short-term dynamics. Commercial factors including slowing Chinese GDP growth, saturation and overcapacity in some industries, and greater risk aversion likely play a part in explaining this stagnation. But restrictions on foreign investment in advanced services and other growth industries are an important factor,

as acknowledged by authorities on both sides.³⁵ Chinese FDI in the US on the other hand grew an average of 30% per year from 2011 to 2015—remarkably similar to the trajectory of US FDI to China from 2003 to 2008. Annual Chinese FDI flows to the US flows soared from less than \$1 billion in 2008 to more than \$15 billion in 2015 (and an expected \$25-30 billion in 2016). Our numbers indicate that China's OFDI to the US exceeded US flows into China for the first time in 2015, and this margin will further widen in 2016 (Figure 39).

These patterns confirm what some of the official data points have already suggested: Chinese FDI in the US now exceeds US FDI to China in annual terms, and the gap will widen further. These patterns underline that the recent surge in talk about investment openness symmetry is not coming out of thin air but rather reflects a significant change in the volume of two-way flows. If China and the US fail to further converge toward FDI openness and flows continue growing just in one direction, we see a high chance of more severe political discomfort soon in a short time span.

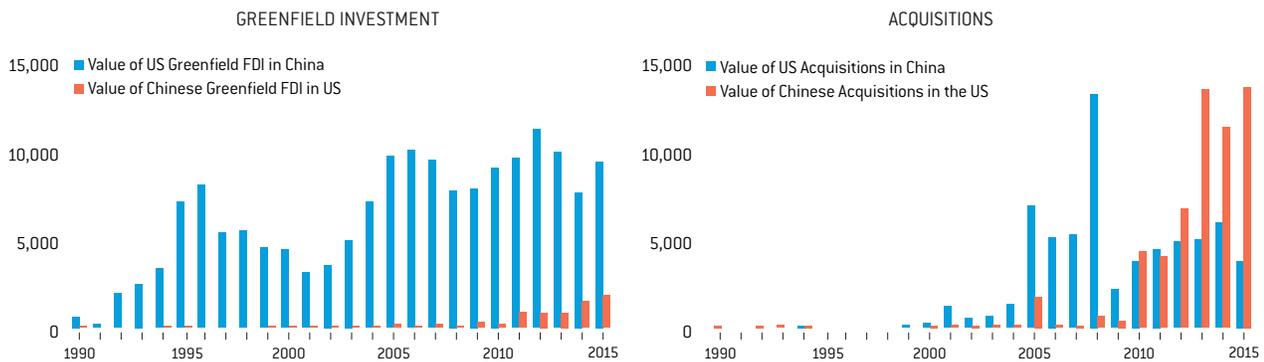
ENTRY MODE AND TRANSACTION SIZE

Our transactions dataset allows a detailed comparison of two-way FDI flows by entry mode. Figure 40 shows that greenfield projects dominated American FDI into China, while Chinese capital entered the US largely through acquisitions. Of the \$228 billion of

³⁵ Gao Hucheng. "外资依然看好中国 [Foreign Investors Still Optimistic About China]". Sina. March 22, 2015.

FIG 40: US-China FDI by Entry Mode, 1990-2015 (RHG)

USD million



Source: Rhodium Group.

US FDI in China since 1990, more than \$160 billion (71%) can be attributed to greenfield investments. Out of \$64 billion of Chinese FDI in the US, \$56.6 billion (75%) was acquisitions. There are a number of explanations for this distinction, including investor sector focus, different knowhow and capacity (in many ways it is easier to buy than build), and different time pressure on the pace of overseas expansion

Another related difference is the average size of FDI transactions. US FDI in China was largely driven by small- and medium-scale transactions (Figure 41). The majority of the almost \$230 billion invested since 1990 can be attributed to medium-sized transactions between \$50 million and \$1 billion (64%). Another \$49 billion (23% of total) were small-scale investments of less than \$50 million. We only count 14 large-scale deals above \$1 billion, which together account for only 13% of total investment. The distribution looks very different for Chinese FDI in the US. Nearly half of the \$64 billion invested since 1990 can be attributed to billion dollar transactions, the majority of which were acquisitions. Small- and medium-scale transactions only account for 10% and 42% of total FDI, respectively.

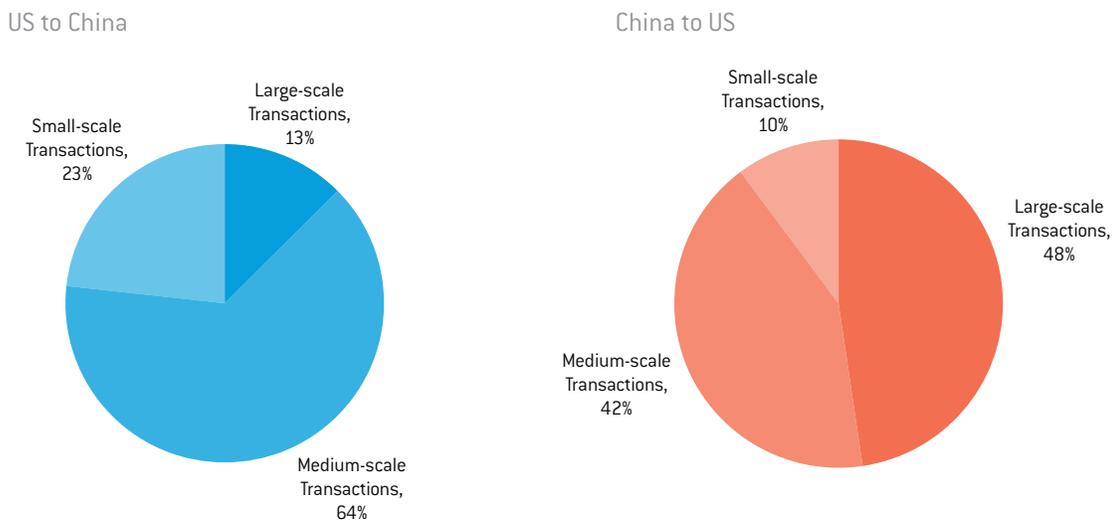
As the bilateral US-China investment relationship matures we expect these mirror-image patterns to recede. US companies will have greater interest in acquiring existing companies and assets in China —starting with the tens of billions of dollars in joint venture shares they were prohibited from owning in the first place. Chinese FDI in the US will be less driven by large-scale M&A, as private companies have more freedom and greater capacity to expand overseas. Chinese companies can also be expected to put greater focus on organic growth through greenfield projects, as have other US market entrants in the past. We see both of those trends already unfolding in recent years, with rapid growth of Chinese greenfield investment and a greater number of medium-sized acquisitions by private sector companies.

A NEW US-CHINA FDI GEOGRAPHY

Our dataset presents a unique picture of geographic patterns in two-way FDI flows, showing how important FDI has become to cement economic relationships between US states and Chinese provinces. By 2015, more than 90% of Chinese provinces and US states had received FDI from the other side (Figure

FIG 41: Breakdown of US-China FDI Transactions by Size, 1990-2015 (RHG)

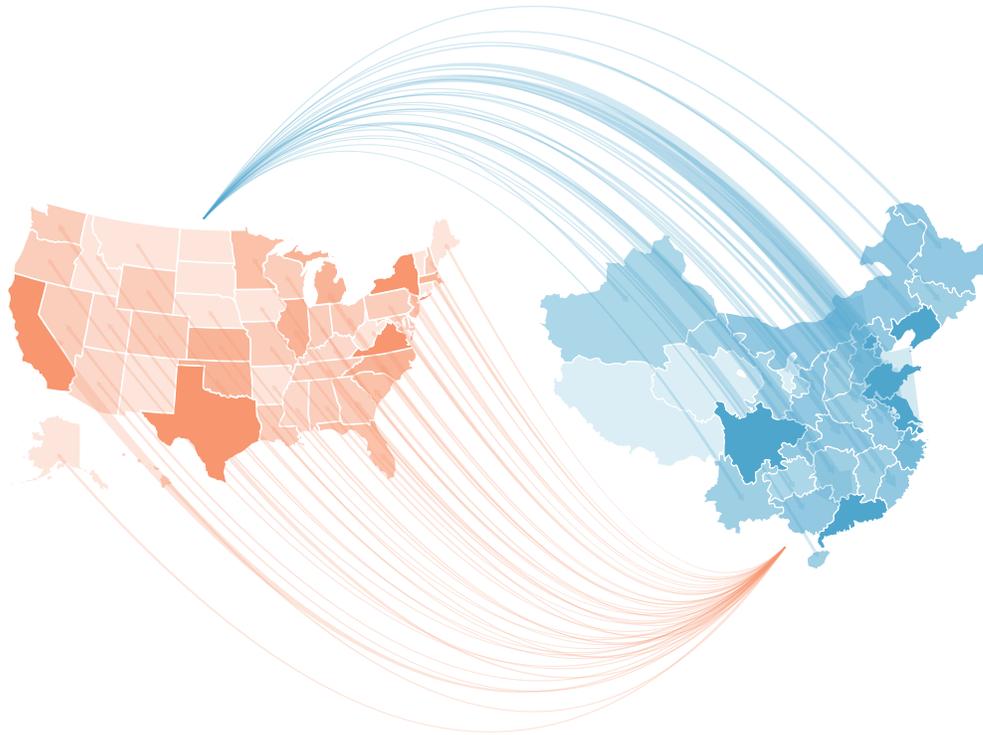
percent share of cumulative value of FDI transactions



Source: Rhodium Group. Large-scale transactions refers to transactions over \$1 billion, medium-scale transactions between \$50 million and \$1 billion and small-scale transactions below \$50 million.

FIG 42: FDI between China and the US: Geographic Patterns, 1990-2015 (RHG)

number of transactions (lines) and cumulative value (shading)



Source: Rhodium Group. For more detailed information on these two-way patterns, refer to www.us-china-fdi.com.

42).³⁶ Both in China and the US, the frontrunners are large coastal economies that host multinational corporations and small and medium-sized firms with exposure to global trade, production and finance. The main recipients of FDI are California, New York and Virginia on the US side, and Shanghai, Beijing, Jiangsu, and Guangdong on the Chinese side. The strongest FDI ties have built up between Beijing and New York, Beijing and North Carolina, and Shanghai and California. However, our data also illustrates that FDI is no longer concentrated in just these hubs. Companies are moving inward in both countries, and FDI is today spread widely across both countries.

INVESTOR CHARACTERISTICS

The dataset illuminates the evolution of the investor mix on both sides, in a variety of ways. To begin with, we have shown that the group of US investors

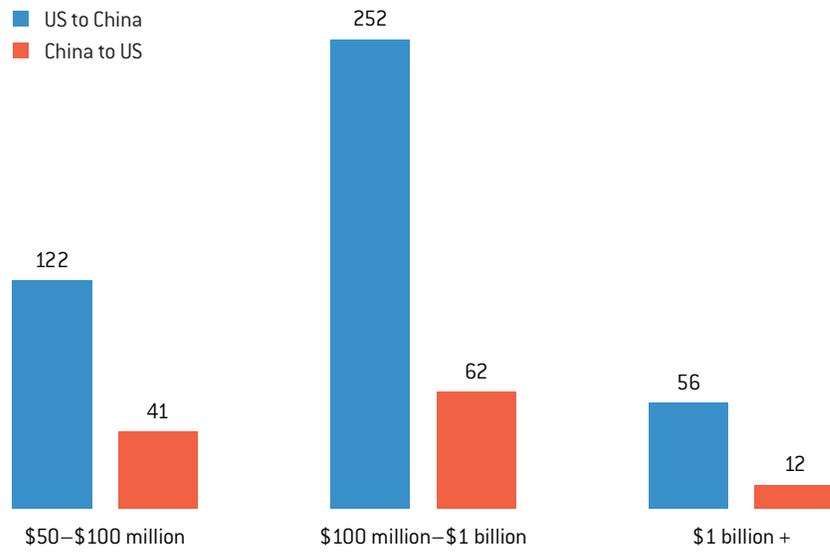
in China is much larger and more mature than the group of Chinese investors in the US (Figure 43). We count more than 400 US companies that have invested at least \$50 million in China. More than 300 of those have invested more than \$100 million, and 56 are in the billion dollar-plus investment club. The group of Chinese companies with at least \$50 million of investments in the US is much smaller, only 115 companies in total. Only 74 have invested more than \$100 million, and only 12 have a billion dollar or more portfolio of direct investments in the US.

There are also stark differences in the ownership characteristics of investing entities, which can largely be attributed to the different historical legacies of the state's role in both economies. US FDI in China is nearly entirely done by private companies, as the government plays next to no ownership role in the US economy.³⁷ Chinese FDI in the US on the other

³⁶ We refer to FDI transactions that are large enough to meet the threshold to be counted in our database.

³⁷ As mentioned in Chapter 1.4, a small number of US compa-

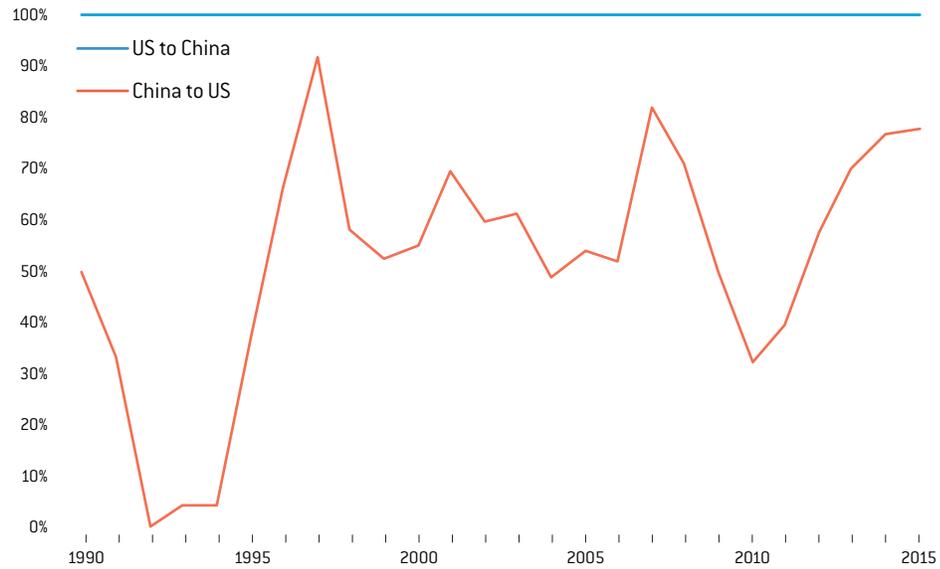
FIG 43: Number of Companies with Cumulative FDI of more than \$50 Million, 1990-2015 (RHG)



Source: Rhodium Group.

FIG 44: Share of Private Investors in Total Value of FDI Transactions, 1990-2015 (RHG)

percent share, 3 year moving average



Source: Rhodium Group.

hand does involve state-owned and state-affiliated investors. However since the advent of meaningful deal flow in the 2000s the fairly high share of flow to the US involving private investment is what stands out. The average has been about 60% private in value terms, and today the private share is near 80%. The private weight declined during the wave of capital-intensive natural resource investment by China's state-owned oil companies in the mid-2000s, and again briefly as state players made a few large transactions after the financial crisis. But by and large private players are the lion's share in dollar terms and in number today (Figure 44). This will continue to be a distinction between US and Chinese FDI footprints, although a less extreme one than most people think.

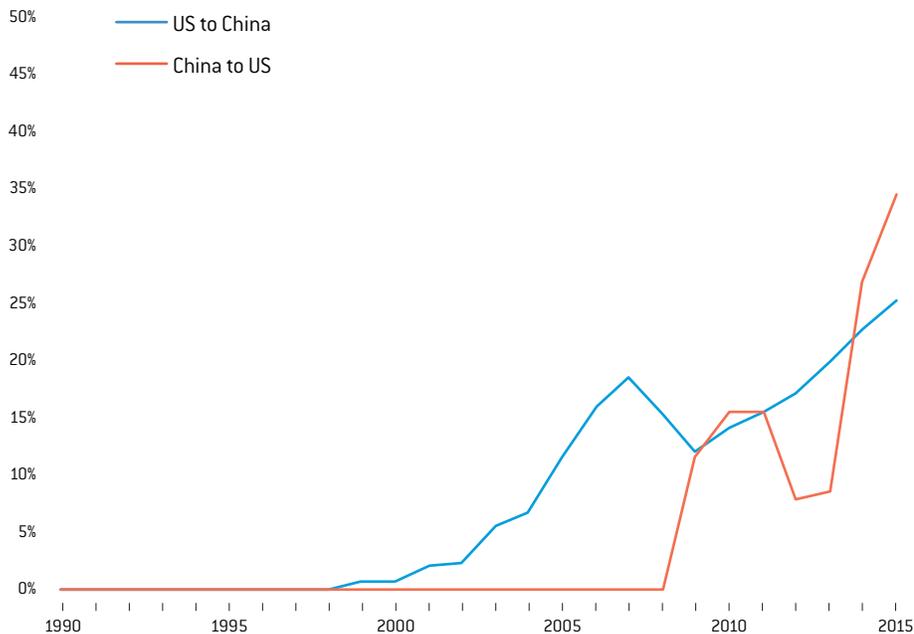
One important trend that is visible in flows between China and the US in both directions is the growing role of financial investors in global FDI. The majority of 1990-2015 flows in both directions—almost 90% in fact—originated from real economy firms making strategic investments in their primary areas of business. However financial investors such as private equity firms, financial conglomerates and insurance companies have become an important part of the mix in the past decade. Such firms have long been a meaningful component of US FDI in China, reflecting the global reach of US private equity investors, with a slow but steady rising trend. Far more dramatic is the sudden uptick in financial investor share in Chinese flows to the US in 2014 and 2015—up to almost half of total investment in 2015 (Figure 45).

panies were wholly or partially owned by the US government in the period of 1990-2015, among them General Motors, Chrysler, Citibank, or AIG. We decided to not code those companies as SOEs for those years as those measures were of temporary nature and companies have reverted back to fully private status.

Greater outbound investment by financial investors in China is natural and to be expected at this juncture, as these institutions seek to professionalize portfolio risk diversification. However, such a stark shift in so short a time is exceptional and has drawn attention from Chinese regulators concerned

FIG 45: Share of Financial Investors in Total Value of FDI Transactions, 1990-2015 (RHG)

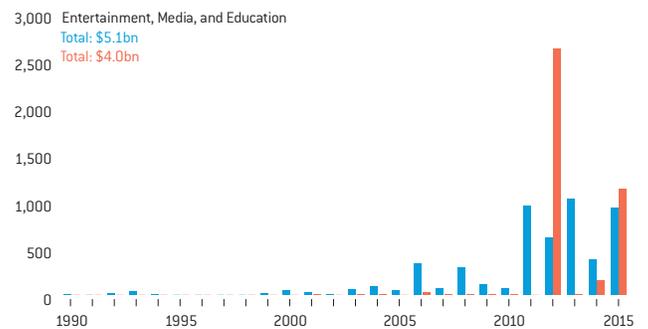
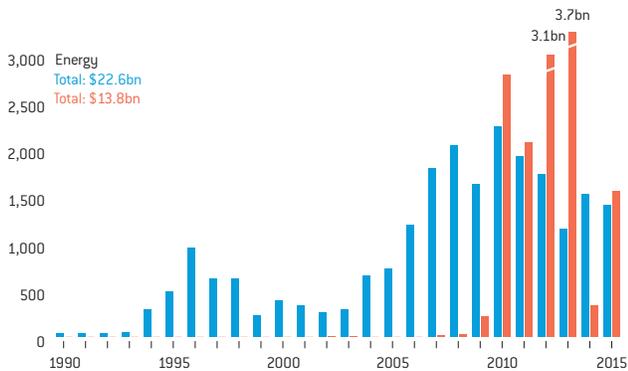
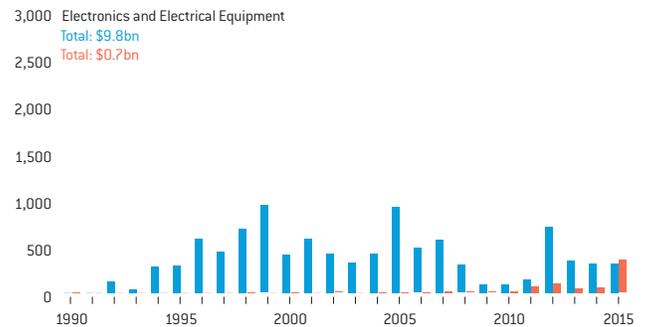
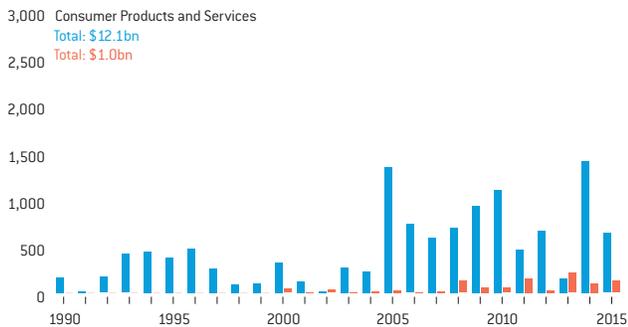
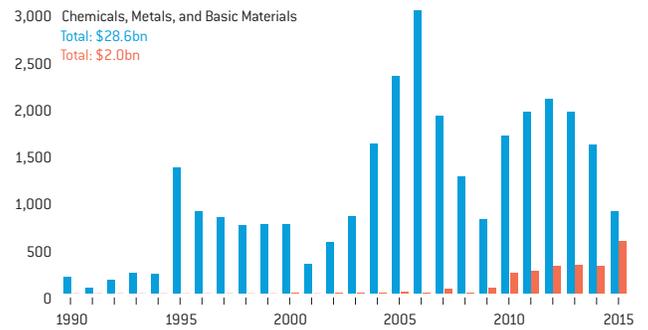
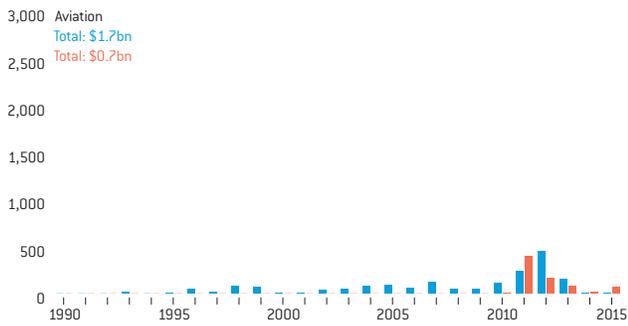
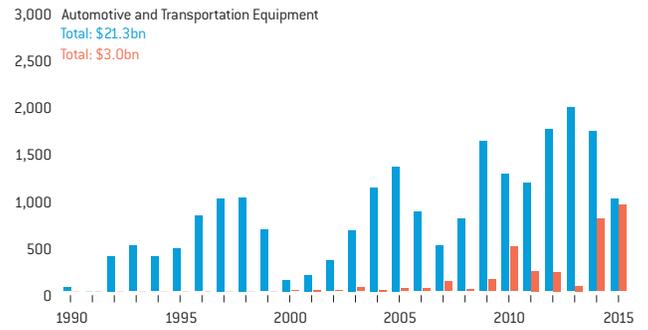
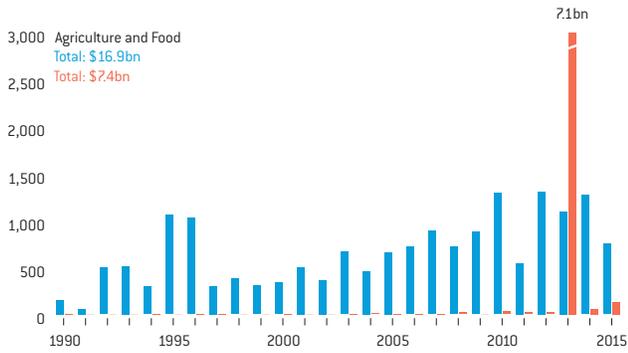
percent share, 3 year moving average



Source: Rhodium Group.

FIG 46: FDI Flows between the US and China by Industry, 1990-2015 (RHG)

red=China to US; blue=US to China; USD million



Source: Rhodium Group.

A COMPARATIVE PERSPECTIVE ON US-CHINA FDI

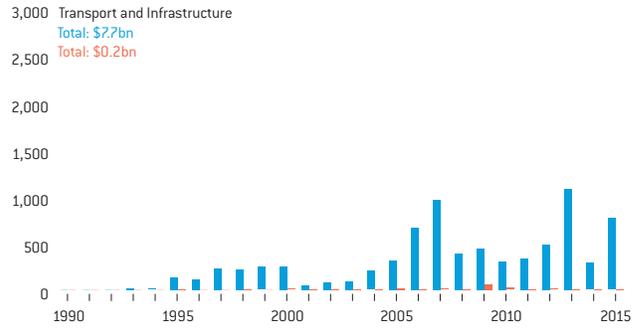
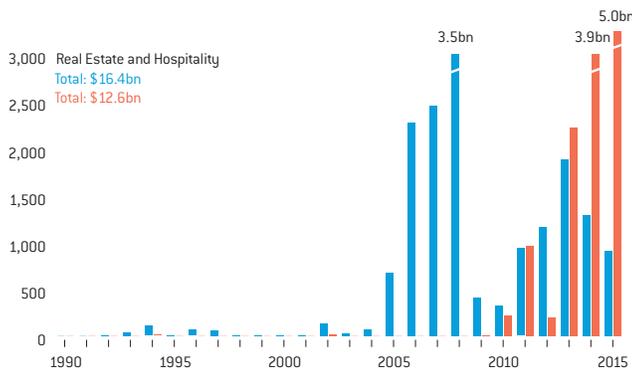
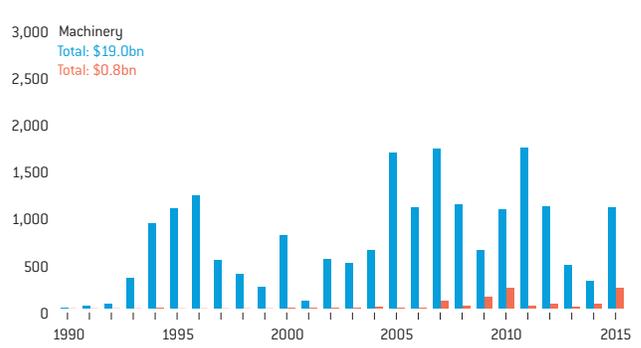
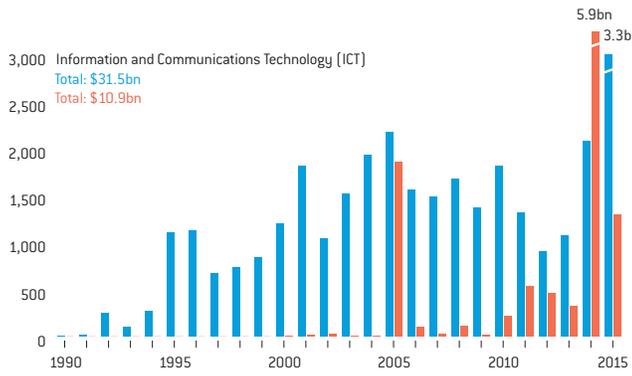
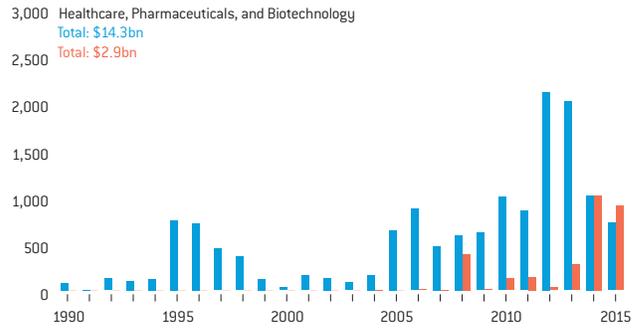
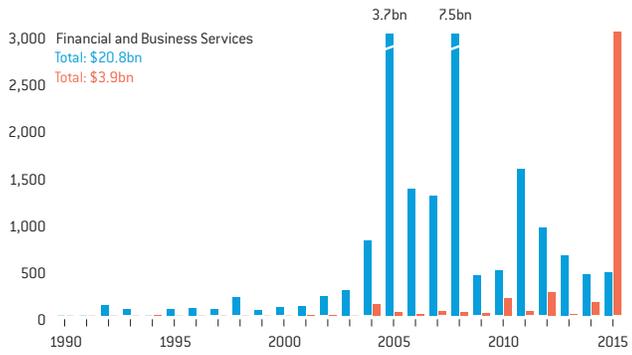
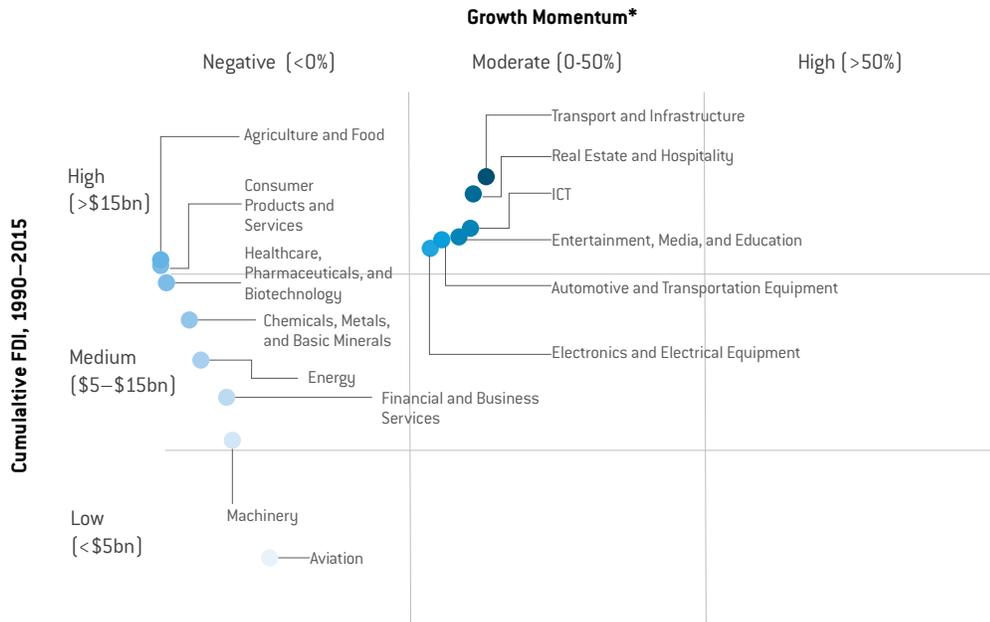
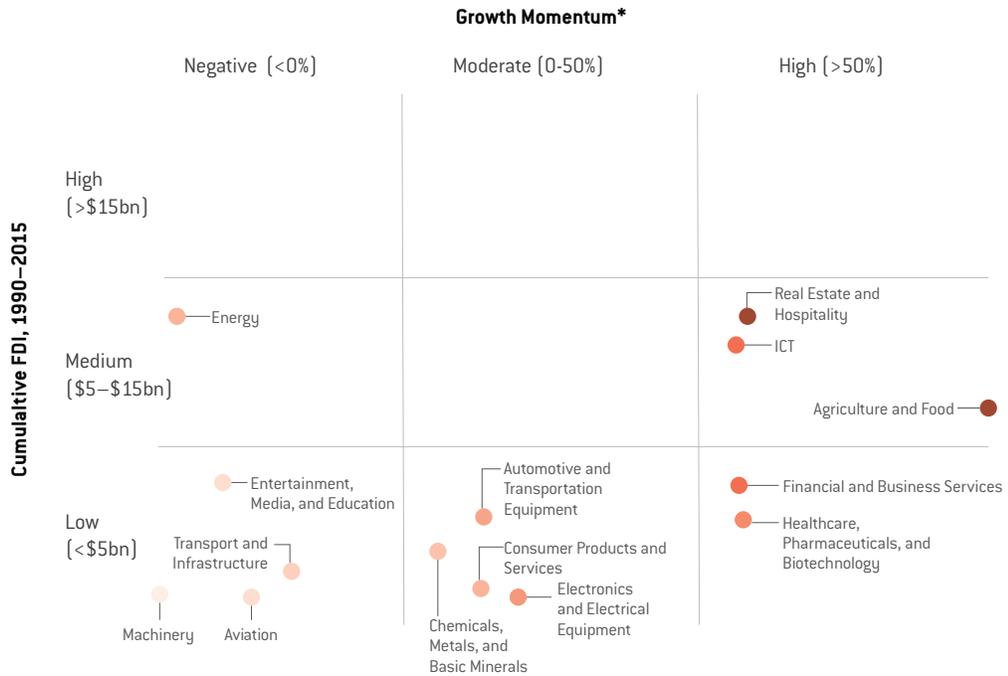


FIG 47: Stock and Growth Momentum of FDI by Industry in Both Directions, 2010-2015 (RHG)

US to China



China to US



Source: Rhodium Group. *Growth momentum is the growth rate between the annual average values of FDI transactions in the period 2010-2012 compared to 2013-2015.

about capital flight. As such, that financial portion of FDI flows will perhaps be more prone to short-term fluctuations than strategic investments. Production, service provision and other key links in the value chain are hard to start-up or shut-down but financial assets can be traded more quickly.

INDUSTRY TRENDS

Given debates about investment reciprocity and the role of negative list negotiations within the BIT process, it is important for both US and Chinese leaders to have a reliable comparison of two-way FDI flows by industry. Gaps, suppressed values, and different classification methodologies used by BEA and MOFCOM make such analysis based on official statistics hard. Our transactions database resolves this, making a detailed comparison of 1990-2015 two-way FDI flows possible.

The two-way picture for each of the 14 industry groupings we have defined is laid out in Figure 46. For each grouping, we present the flows from the US to China and from China to the US, each year, over the past quarter century. This apples-to-apples comparisons make several important observations possible. First, US investments in China go back much farther across all sectors. Prior to 2010 US FDI to China exceeded flows the other way in every single industry for every single year. Second, while in recent years Chinese flows to the US now exceed flows to China in certain industries, the cumulative stock of US deal making in China remains in the lead in every industry. Third, Chinese activity has risen quickly over the past five years across most industries, and in ten of 14 Chinese flows have surpassed annual US flows in at least one recent year. That said, in many of those cases that cross-over was a one-off situation attributable to a single large-scale transaction. Fourth and finally, the cross-over in terms of annual aggregate FDI flows since 2013 is driven by a surge of investment in just three clusters: real estate, ICT, and financials.

Figure 47 further sharpens the contrast between historical trends and developments in recent years by plotting cumulative FDI in each industry in the period of 1990-2015 against the growth of annual average investment in the period of 2013-2015 compared to 2010-2012.

This perspective confirms that US FDI in China is more mature than the other way round. Cumulative US FDI in China exceeds \$5 billion across all sectors, with only one outlier (aviation). Five of the 14 industries show between \$5 and \$15 billion of investment. The majority of industries (eight) attracted more than \$15 billion. For Chinese FDI in the US, ten of the 14 industries have received less than \$5 billion of investment, and only four industries fall into the medium category of \$5 to \$15 billion. No industry recorded more than \$15 billion by the end of 2015.

The picture of growth momentum is the reverse. Chinese FDI in the US has been growing at high pace in five sectors and in another five at a moderate pace. In five industries investments are growing at rates above 50% (real estate, ICT, health and biotechnology, and financial and business services, as well as agriculture).³⁸ Only four sectors show a decline in annual investment levels in 2013-2015, which can in most cases be explained by base effects due to large one-off deals.³⁹ US FDI into China on the other hand shows a decline in annual investment levels in the most recent two-year period for the majority of sectors (eight of 14). Only six industries register positive growth and no industries record high growth rates such as those seen in the mid-2000s.

Generalizing about these patterns would be ill-advised. There is not a universal explanation for the changes taking place, either the slowing of US outflows or the acceleration of Chinese outflows. While the temptation is strong to point to cross-cutting factors such as macroeconomic conditions or geo-strategic tensions the reality is that the complex mix of factors is different in each industry. In the pages ahead we provide a more detailed descriptive look at two-way FDI flows in these sectors, with discussion of the major sub-sectors, largest investors, entry mode, ownership, and investor types.

38 Agriculture and food investment has an abnormally large growth rate, due to practically no other investment apart from one of the largest single Chinese transactions in the US, Shuanghui's acquisition of Smithfield.

39 Large-scale M&A transactions account for a significant share of Chinese investments, thus the growth calculations are subject to greater volatility depending on the closing of those transactions.

3.1

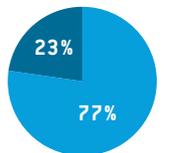
AGRICULTURE AND FOOD

TOTAL
\$16.9bn

TOP 5 INVESTORS

- 1 Cargill
- 2 PepsiCo
- 3 Anheuser-Busch
- 4 Yum! Brands
- 5 OSI Group

ENTRY MODE



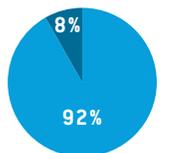
Greenfield: **13.1bn**
 Acquisition: **3.8bn**

INVESTOR OWNERSHIP



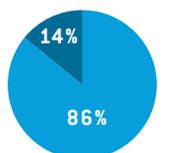
Private: **16.9bn**
 State-owned: **0**

TYPE



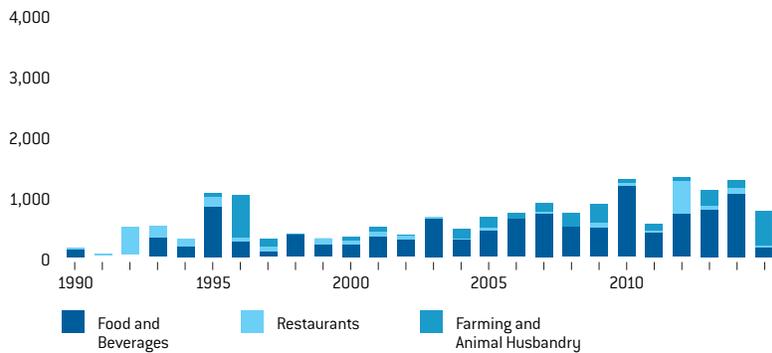
Strategic: **15.5bn**
 Financial: **1.4bn**

STAKE



Controlling: **14.5bn**
 Minority: **2.4bn**

US FDI IN CHINA



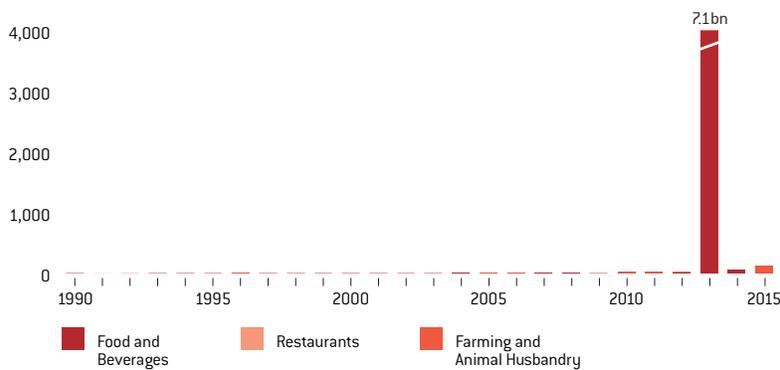
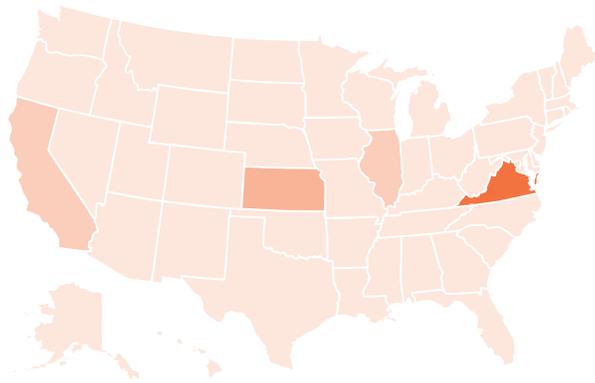
Meeting the growing appetite of China's population for food was a primary attraction for US companies over the past two decades. Since 1990, US companies have invested \$17 billion in China's agriculture and food sectors, accounting for over 7% of total US FDI over the period. Investments took off from the mid-1990s and remained relatively stable over time, reflecting the sustained, secular trend growth in this sector.

Investments in farming and animal husbandry started in the late 1990s and were concentrated on greenfield facilities to produce feedstock and animal products, driven by Cargill, Monsanto, Pioneer, and Mosaic. The food and beverage sub-sector accounts for the lion's share (65%) of total FDI in the sector, mostly consisting of greenfield investments by large US multinationals including Anheuser-Busch, OSI, Coca-Cola, Kraft, General Mills, and Heinz. Restaurants and other food retail businesses are the third category with notable US investment activity. Many US household brands have expanded rapidly in China over the past decade: China now hosts 2,200 McDonald's restaurants, 2,100 Starbucks coffee shops, and 5,000 Kentucky Fried Chicken (KFC) restaurants. However, most of those

companies use franchising models with small capital expenditures, so they account for only a small share of total investment. The exceptions are big acquisitions such as Yum's 2012 purchase of Little Sheep Mongolia Hotpot for \$550 million. Most US investors active in China's agriculture and food industry are big multinational corporations, but private equity firms and other financial investors have also been an important part of the mix on the acquisition side.

The growth and changing diet of China's middle class continues to offer opportunities for foreign food companies, especially in lower-tier cities and rural areas. However, the market is highly competitive and a number of US investors have recently announced plans to reduce their China exposure. Restrictions on foreign ownership in the sector have gradually fallen since the 1990s, and most areas have relatively low barriers. However, certain sectors are also still subject to restrictions and joint venture requirements, for example seeds. There have also been instances of political interference with foreign acquisitions, for example Coca Cola's failed attempt to acquire Chinese fruit juice company Huiyuan in 2009.

CHINESE FDI IN THE US



In contrast to the steady expansion of US food companies in China, the presence of Chinese agriculture and food companies in the US remains marginal, with just one big exception: WH Group's ownership of Smithfield Foods, the largest pork producer in the United States. The company was acquired for \$7.1 billion in 2013, representing the largest Chinese acquisition in the US to date.

Before 2013, we only record a few small-scale investments in agricultural land and greenfield operations related to the trading of food products and agricultural commodities. The acquisition of Smithfield Foods gave WH Group a significant position in the US agriculture and food industry. Smithfield Foods currently operates nearly 100 subsidiaries in 23 states, including hog raising, slaughtering, processing, and packing. The company currently employs more than 35,000 Americans. In the two years since the initial acquisition, WH Group further invested in the expansion of several Smithfield facilities. The only other significant Chinese investment since 2013 is a joint venture between Dairy Farmers of America and Yili Group to build a \$235 million milk powder drying facility in Kansas, which is

scheduled to start production in 2017.

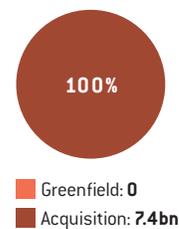
Chinese investment patterns in Australia, Europe, Asia, and other parts of the world suggest that there should be plenty of interest in China to expand investments in US agriculture and food assets. The reduction of trade barriers, such as China's recent decision to lift the 13-year ban on the import of US beef, could further bolster that interest. One potential barrier is the structure of the US food and beverage industry. After years of upstream and downstream consolidation, most US companies are large and therefore complicated to buy. Moreover, the acquisitions of Smithfield and Swiss agribusiness company Syngenta (which has significant operations in the US) have illustrated that those large-scale transactions can also trigger political opposition outside of the regulatory review process.

TOTAL
\$7.4bn

TOP 5 INVESTORS

- 1 WH Group
- 2 Yili
- 3 Fosun
- 4 Qinghai Huzhu
- 5 Kingdomway Group

ENTRY MODE



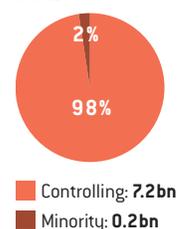
INVESTOR OWNERSHIP



TYPE



STAKE



3.2

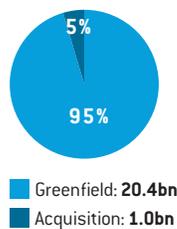
AUTOMOTIVE AND TRANSPORTATION EQUIPMENT

TOTAL
\$21.3bn

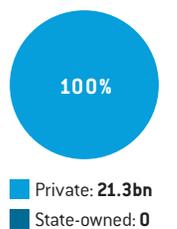
TOP 5 INVESTORS

- 1 General Motors
- 2 Ford
- 3 Johnson Controls
- 4 Goodyear Tires
- 5 TRW

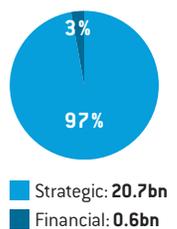
ENTRY MODE



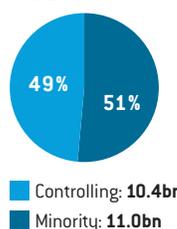
INVESTOR OWNERSHIP



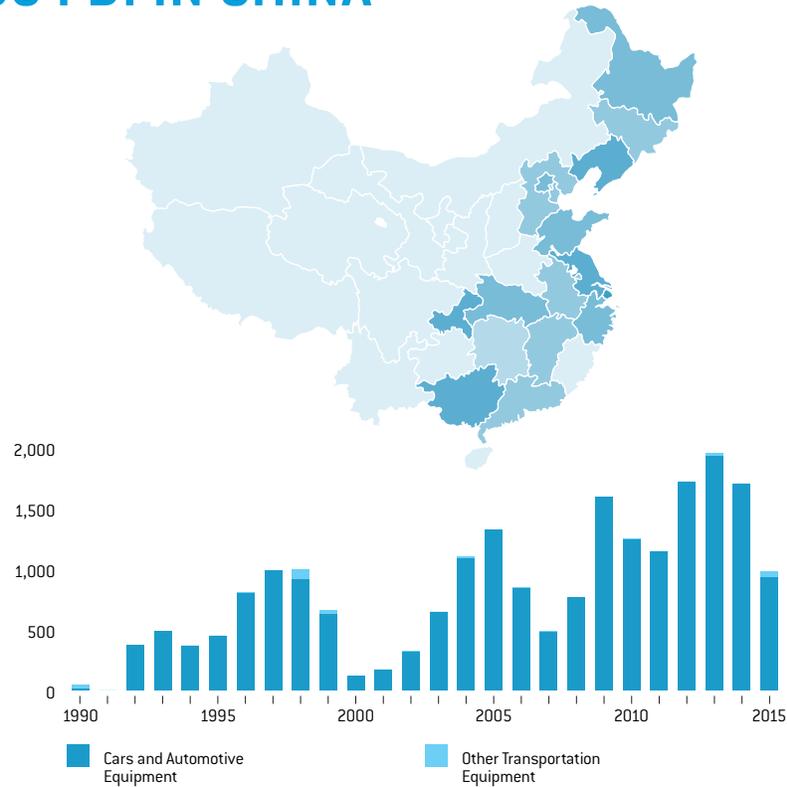
TYPE



STAKE



US FDI IN CHINA



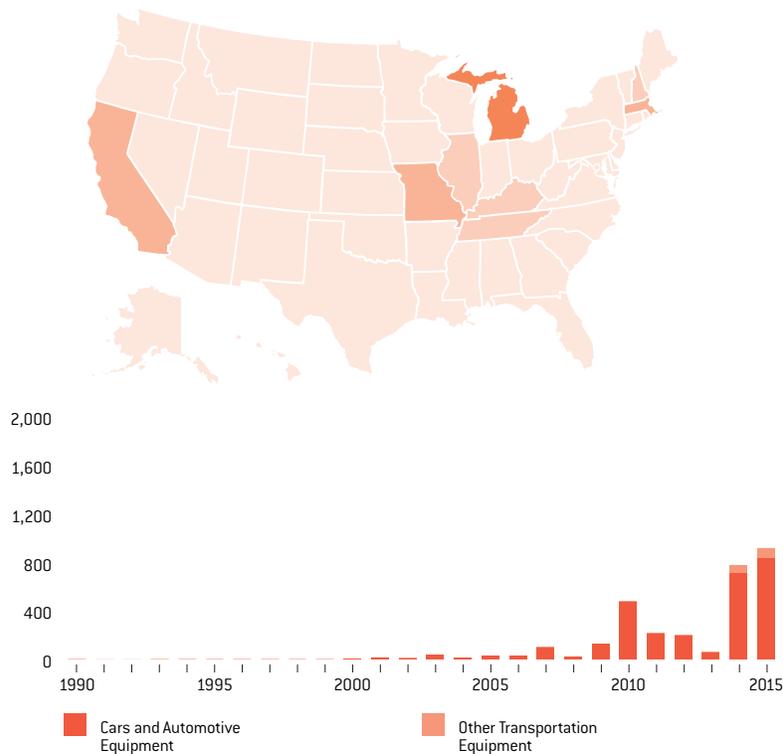
American auto companies were among the largest foreign investors in China in the past quarter of a century. Together they spent \$21 billion on plants and other operations in China, making the automotive and transportation equipment sector the fourth largest industry category (more than 9% of all US FDI since 1990). Compared to other industries, investment patterns were relatively stable though also reflected global macroeconomic shocks, as well as industry-specific cycles such as the introduction of new models in reaction to changing consumer preferences.

The vast majority of investments involved auto manufacturers and component suppliers, while FDI in other transportation equipment was modest. Auto firms primarily invested in local production to serve the fast growing demand for cars in China in the context of high taxes for imported autos. This included one of the top three investors in our sample, General Motors with \$8 billion in combined investments. Suppliers followed those companies into the Chinese market. The majority of investments (95%) were greenfield projects. All major US auto producers in China were required to enter joint ventures with local firms rather than operate independently,

to encourage technology transfer and profit-sharing. This explains the significant share of minority stakes in total investment (51%).

Though China's car market remains important and attractive to US firms, the situation has become more complex in recent years. The industry has matured but remains fragmented as consolidation efforts have failed. There is rampant overcapacity in many segments and new investments are mostly focused on specific areas that show above trend demand (SUVs, luxury cars) or are promoted by the government (electrification). Going forward, automotive is one of the industries that could benefit significantly from inward FDI liberalization. Ending joint venture requirements would spur competition and facilitate additional FDI. Half of the more than 400 transactions we identified in this sector were based on a joint venture, and \$14 billion of the equity in these firms is not held by the American investors. The next round of US investment into China is most likely to come from restructuring existing operators, rather than attracting first-time entrants.

CHINESE FDI IN THE US



Automotive was also one of the first industries to attract significant Chinese investment to the US. We record \$3 billion worth of transactions from 1990 to 2015 deals. Investments started in the early 2000s on a small scale. The first significant investments followed the global financial crisis in 2008 and 2009, which put the US auto industry in an embattled position. While the US auto majors received government bailouts, many component manufacturers and other suppliers looked for lifelines abroad, creating opportunities for Chinese investors including private companies (Wanxiang) and state-owned investors (Aviation Industry Corporation of China (AVIC)).

As with US transport sector FDI in China, most Chinese investment in the US is focused on the automotive supply chain. FDI in rail and other transportation equipment only started to show up in 2014 and remains at a comparatively small scale. But beyond that, there are many differences. US companies in China include final vehicle production in their mix, while Chinese investment focuses almost exclusively on automotive components. With the exception of two significant acquisitions (Nexteer and Henniges), all Chinese transactions remained below \$250 million each,

which is a stark contrast to the large and capital-intensive US factories in China. Further, the majority of auto sector FDI from China is from state-owned companies (often local SOEs). And finally, Chinese investors mostly have controlling stakes in the US companies they set up or buy, whereas US investors are still required to share control in order to get permission to invest in China.

Two trends are important to gauge the trajectory of Chinese auto investments in the US going forward. First, recent investments have gravitated toward auto supply chain-related technology, particular electrification. And second, we record a significant increase in the extent of greenfield FDI, including automotive suppliers localizing their production (Fuyao Glass in Ohio) and the first Chinese forays to build cars in the US market (Volvo's new factory in South Carolina).

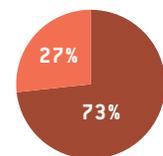
TOTAL

\$3.0bn

TOP 5 INVESTORS

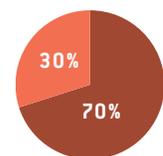
- 1 AVIC
- 2 Wanxiang
- 3 Fuyao
- 4 Zhejiang Geely
- 5 SAIC

ENTRY MODE



- Greenfield: **0.8bn**
- Acquisition: **2.2bn**

INVESTOR OWNERSHIP



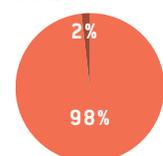
- Private: **0.9bn**
- State-owned: **2.1bn**

TYPE



- Strategic: **3.01bn**
- Financial: **0**

STAKE



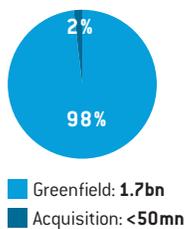
- Controlling: **3.0bn**
- Minority: **0.1bn**

TOTAL
\$1.7 bn

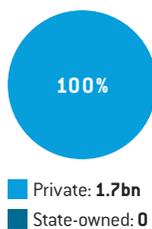
TOP 5 INVESTORS

- 1 Boeing
- 2 Honeywell
- 3 United Technologies
- 4 General Electric
- 5 Textron

ENTRY MODE



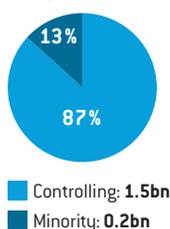
INVESTOR OWNERSHIP



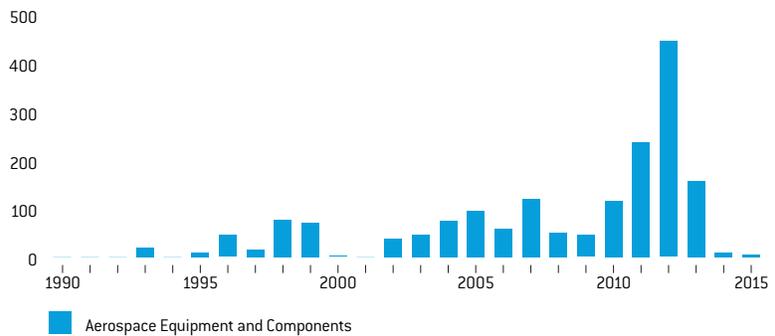
TYPE



STAKE



US FDI IN CHINA



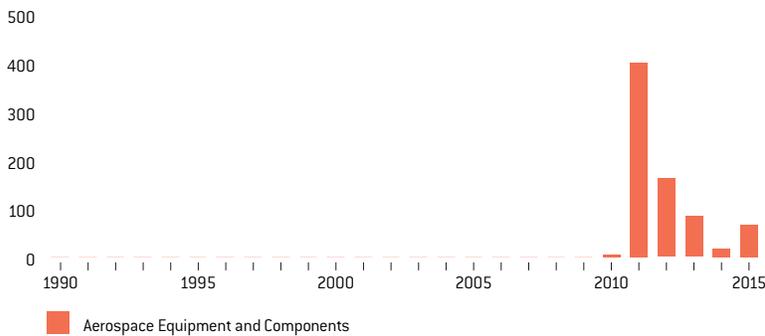
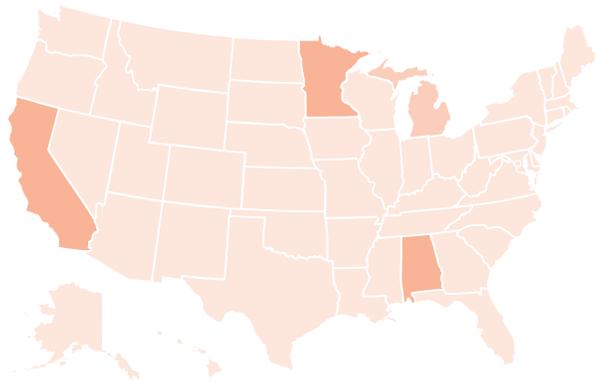
China is the largest export market for US aircraft, yet direct investment by American aviation companies in China remains modest. Since 1990, we only count \$1.7 billion of FDI, which is less than 1% of total US FDI in China in that period. China's aviation sector is dominated by state-owned AVIC and Commercial Aircraft Corporation of China (COMAC) and foreign investment is heavily restricted and tied to joint ventures with those entities that include the transfer of technology. American and other foreign manufacturers have been reluctant to share proprietary technology with those entities, both for fear of running afoul of US export controls, and out of awareness that potential Chinese partners and their government have the aspiration to build large passenger planes on their own.

As a result, US FDI in China has to date largely been limited to aerospace equipment such as engines, wheels, and navigation systems, and aircraft maintenance and servicing. US aerospace giants Boeing and United Technologies account for close to half of total investment. In the past five years, US companies have also set up research and development operations in China, including Rockwell Collins, UTC, and Boeing. Investments

by US companies in the general aviation sector (private aircraft) have also increased in the past five years, as the gradual opening of China's airspace to civilian use is projected to boost demand in those segments.

Going forward, China remains a critical market for US aircraft manufacturers. Following in the footsteps of its European competitor Airbus, Boeing in 2015 announced plans to build an assembly line in China (the company's first overseas manufacturing operation). However this facility will be limited to assembling 737 aircraft interiors before delivery to local clients. Chinese industrial policy and US concerns about intellectual property transfer make it unlikely that US companies will move a greater share of their value chains to China in the near future.

CHINESE FDI IN THE US



US investment by Chinese aviation companies is smaller than American FDI in China. We register \$700 million in Chinese transactions from 1990 to 2015, all of it in the past five years. The majority of investment originated from state-owned companies. The dominant player is aviation conglomerate AVIC, which is looking to the US market to upgrade its technology and other capabilities. The financial crisis and subsequent drop in demand for private planes offered opportunities for Chinese investors in the general aviation sector. The two largest transactions are AVIC's acquisition of light aircraft maker Cirrus in 2011 (\$210 million) and aircraft engine manufacturer Continental Motors in 2010 (\$186 million). AVIC was also in negotiations to purchase bankrupt jet maker Hawker Beechcraft in 2012, but negotiations were not successfully completed. There is also a small amount of private investment, despite the limited size of the private Chinese aviation industry. The largest investment is Meijing's \$34 million acquisition of Mooney, a light aircraft manufacturer in 2013.

National security concerns on the US side related to the potential transfer of dual use aviation technology are a barrier for greater

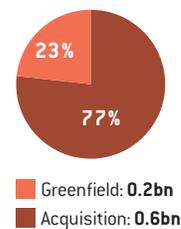
Chinese investment in the US aviation sector. The first foreign acquisition ever blocked by Presidential order based on negative CFUIUS recommendation was the purchase of Seattle-based aviation supplier Mamco Manufacturing in 1989 by China National Aero-Technology Import and Export Corporation (CATIC), one of AVIC's predecessors. While Cirrus and other successful transactions illustrate that Chinese investment in aviation technology is possible if there are no national security concerns, many larger US companies do possess technology that is relevant for both civil and military purposes, which makes a significant expansion of Chinese participation in the US aviation sector complicated. Greenfield investments focused on technology development would be an alternative to acquisitions for increasing the footprint of Chinese aviation companies in the US but US export control laws would complicate the outsourcing of research and development activities to the US, especially in areas of both civil and military relevance.

TOTAL
\$0.7 bn

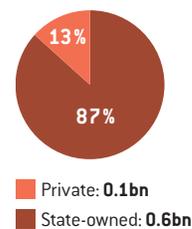
TOP 5 INVESTORS

- 1 AVIC
- 2 Chongqing Helicopter
- 3 Meijing Group
- 4 Zhuhai Hanxing
- 5 Jinggong Group

ENTRY MODE



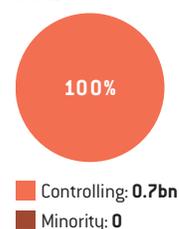
INVESTOR OWNERSHIP



TYPE



STAKE



3.4

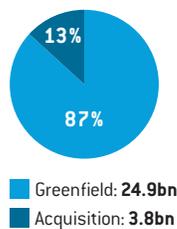
CHEMICALS, METALS, AND BASIC MATERIALS

TOTAL
\$28.7bn

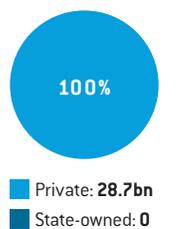
TOP 5 INVESTORS

- 1 Air Products
- 2 Dow Chemical
- 3 Alcoa
- 4 DuPont
- 5 Owens Corning

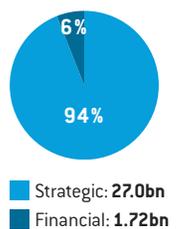
ENTRY MODE



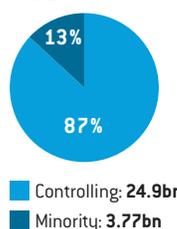
INVESTOR OWNERSHIP



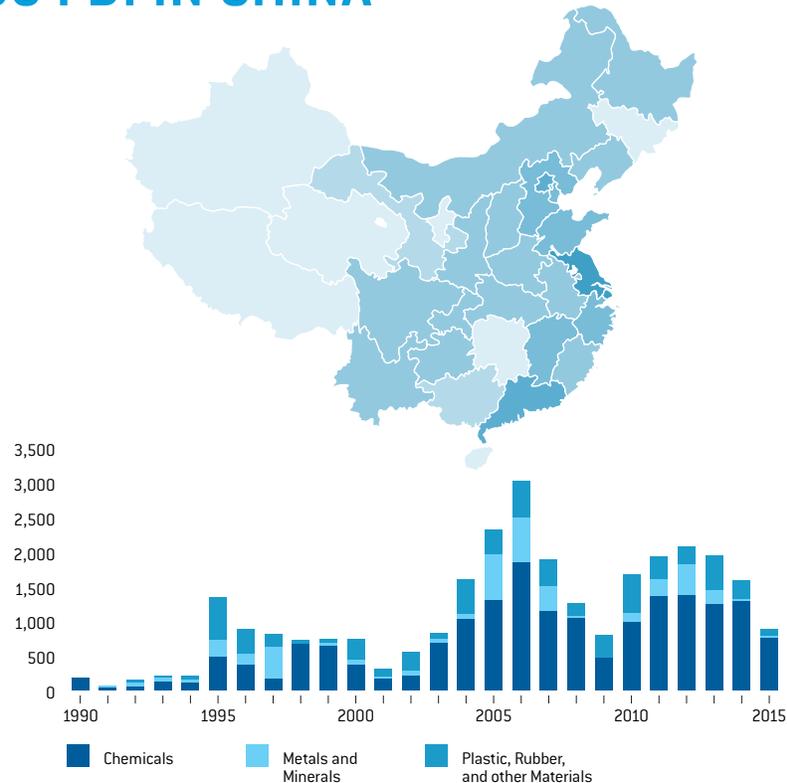
TYPE



STAKE



US FDI IN CHINA



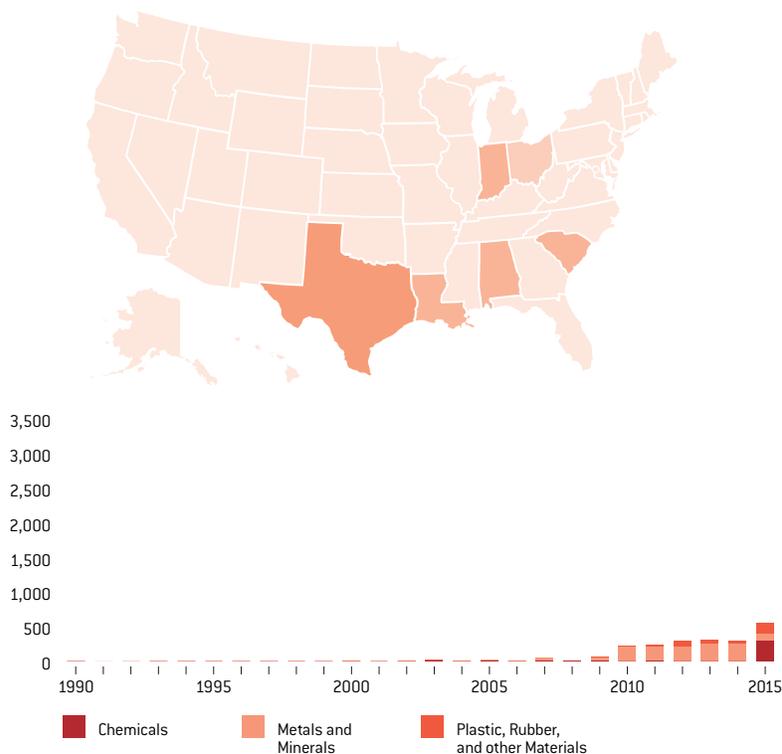
FDI by US companies in chemicals, metals, and basic materials sectors totaled \$29 billion for the period 1990 to 2015. In those years, this group of capital intensive sub-industries account for almost 13% of total US FDI, making it the second biggest sector behind ICT. The rapid industrialization and the massive build out of urban infrastructure over the past three decades fueled demand for chemicals, gases, cement, metals, glass, and other basic materials on an unprecedented scale. Domestic and foreign investors rushed to increase the domestic production capacity to serve this demand. After peaking in 2006 and declining through the financial crisis, investment accelerated again in 2010 in response to government stimulus programs. In 2015, that long run of expansions finally slowed as overcapacity in many materials industries and doubts emerged about political support for resource-intensive demand growth.

Major US firms including Dow, DuPont, Air Products, and others run an array of production facilities across China for both chemicals and plastics. Investment in metals and minerals remains smaller, with a few exceptions such as Alcoa's aluminum mill set up in 2005 in Hebei. Notable investments in plastic,

rubber, and other materials include paper mills (International Paper), plants for packaging materials (Coca-Cola's bottle making plants), and in recent years advanced materials production (such as Invista's nylon plant in Shanghai). Most investments are located in the industrialized provinces on the eastern coast, but there is a good deal of investment in northern and western China, some in anticipation of new inland development initiatives. Dow Chemical for example invested in operations in rural Xinjiang in 2015.

The ongoing transition to a less resource-intensive growth model and the digestion of massive overcapacity in many sectors may dampen investment in coming years, especially compared to past trends. In 2015, investment dropped to the lowest level in more than a decade, led by a sharp fall in metals and chemicals investment. However a reform scenario involving industry consolidation without prejudice to national champions, and aggressive environmental protection targets, would bring additional investment opportunities for foreign companies.

CHINESE FDI IN THE US



Chinese investment in the US chemical, basic materials, and metals industries remains small in scale. Since 1990, we only record about \$2 billion worth of investment, almost all of it entering the US in the past six years.

Contrary to US FDI in China, metals and minerals accounts for the bulk of that investment (\$1.3 billion), as Chinese companies have begun to localize production to manage trade barriers. One example of tariff-jumping greenfield investments is an \$1 billion venture by Tianjin Pipe Corporation in Texas to produce steel pipes for shale gas extraction and other applications. Golden Dragon, a manufacturer of copper tubes, has built a new manufacturing plant in Alabama that started operation in 2014. Aluminum is another focus as Chinese companies try to diversify from sole reliance on the increasingly saturated Chinese market, and seek external opportunities to grow and move up the value chain. Nanshan Aluminum has built a \$100 million aluminum extrusions facility in Indiana. In 2016, Chinese aluminum giant Zhongwang announced the acquisition of Aleris, a producer of aluminum rolled products for multiple industries. Rampant overcapacity in metals output and growing trade frictions between China and major trading partners

suggest that Chinese firms will have growing incentives to localize their production and move up the value chain. Trade frictions however also increase the risk of politicization of Chinese FDI, especially for acquisitions.

Investment in the chemical sector has been limited to date. Cheap US prices for natural gas triggered great interest among Chinese investors over the past five years, translating into several greenfield investments. In 2015, Yuhuang Chemical broke ground on a \$1.85 billion chemical complex in Louisiana, which will produce methanol for the Chinese market. Other planned investments include two methanol plants in Washington and Oregon with a capital expenditure of \$1.8 billion by a consortium of Chinese investors, but recent changes in global energy and commodity prices may impact the realization of these projects. Chinese investment in plastics, rubber, fiber, and other materials has only occurred on a negligible scale. One notable exception is a \$2 billion paper products plant by Shandong Tranlin Paper in Virginia, which broke ground in 2015.

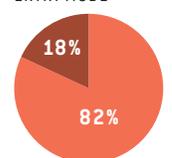
TOTAL

\$2.0bn

TOP 5 INVESTORS

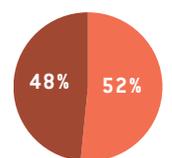
- 1 Tianjin Pipe Group
- 2 Yuhuang Chemical
- 3 Tranlin Paper
- 4 Golden Dragon Copper
- 5 Nanshan Aluminum

ENTRY MODE



Greenfield: **1.7bn**
Acquisition: **0.4bn**

INVESTOR OWNERSHIP



Private: **1.0bn**
State-owned: **1.0bn**

TYPE



Strategic: **2.0bn**
Financial: **0**

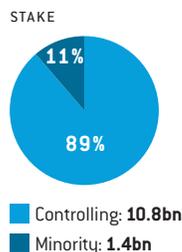
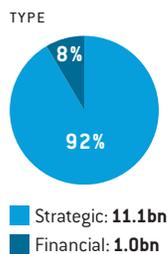
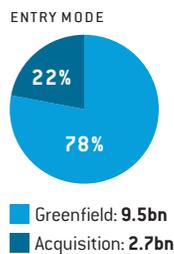
STAKE



Controlling: **2.0bn**
Minority: **0**

TOTAL
\$12.2bn

- TOP 5 INVESTORS**
- 1 Walmart
 - 2 Whirlpool
 - 3 Procter & Gamble
 - 4 Best Buy
 - 5 KKR



US FDI IN CHINA



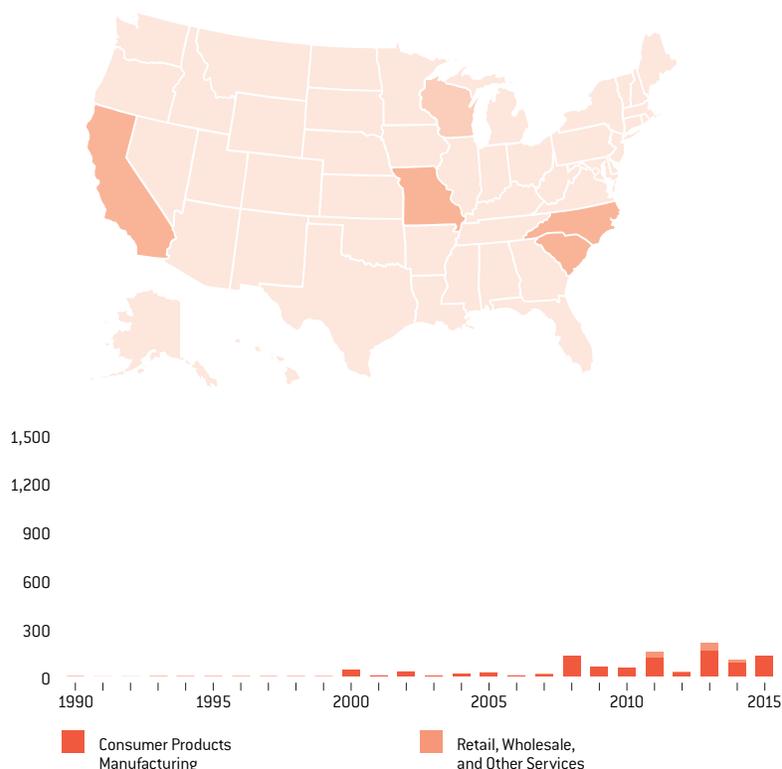
US FDI in consumer products and services amounted to \$12.2 billion between 1990 and 2015 and was driven by two separate motives. In the 1990s, US consumer goods companies began utilizing Chinese capabilities in labor-intensive manufacturing, producing goods for export to the US and global markets. Over time, US companies further increased their sourcing of consumer goods from China, reflecting the country's comparative advantage in labor-intensive light manufacturing. However, while most US companies produce their products in China, they often have no physical presence there. Instead, they rely on local or other foreign-owned contract manufacturers and usually only maintain very lean sourcing and quality control operations.

Over time the focus of US FDI shifted from sourcing for US consumers toward building local operations to serve the Chinese consumer. A significant share of the investment in the last decade represents attempts by large US consumer goods players such as Procter and Gamble to expand local manufacturing facilities to produce consumer staples. Several US firms have moved to acquire local consumer brands to expand market share, for example Whirlpool's \$551 million stake

in appliance maker Hefei Rongshida Sanyo Electric in 2014. US private equity and venture capital firms also have poured hundreds of millions of dollars into efforts to develop local Chinese consumer companies and promote their brands.

After restrictions on foreign investment in retail and wholesale were relaxed in the early 2000s, US companies also expanded their retail presence, for example Walmart, Home Depot, and Best Buy. In recent years a number of high-end US consumer brands targeting wealthy middle class shoppers also have expanded their retail network in China, for example Apple, Ralph Lauren, Nike, and Callaway Golf. However, most of these use a franchise model, so the investment is relatively low. In recent years, higher rents and e-commerce have fundamentally transformed the Chinese consumer market, adding to challenges for traditional retailers in China. While several US companies have made significant investments (Amazon), the e-commerce market is highly competitive and dominated by local players. Walmart's recent decision to sell Yihaodian and instead acquire a minority stake in China's second-largest e-commerce company, JD.com, highlights these realities.

CHINESE FDI IN THE US



Chinese investment in US consumer products and services remains small. Over the past 25 years, Chinese companies have only put \$1 billion to work in this segment of the US market, accounting for 1.5% of total Chinese FDI in that period.

Investments are largely driven by Chinese manufacturers seeking to defend and expand their US market share by moving closer to US consumers and building local brands. The pioneer was Chinese home appliance manufacturer Haier, which opened the first significant Chinese greenfield manufacturing facility in the United States as early as 2000 in South Carolina. Investment levels remained low for most of the first two decades, but since 2008 we record greater activity by companies trying to localize production and build “Made in America” products for the US, Chinese and global markets. Thus far the scale of investment is modest, but Haier’s acquisition of GE Appliances for \$5.4 billion in 2016 demonstrates that much larger transactions lie ahead.

In recent years, private equity firms and other financial investors from China have entered the mix in the US, just as their American counterparts have in China. These investors have purchased struggling US

brands in clothing, home appliances, and other areas with the goal of turning them around and leveraging their brands back in the Chinese consumer market, and eventually—on a global scale. One example is Fosun’s acquisition of a stake in clothing retailer St. John Knits in 2013. However, Chinese retail presence in the US is still rare. In some cases Chinese manufacturers have sought shares in their former retail partners in the US to escape the razor thin manufacturing margins, for example, Haining Mengnu (a furniture producer from Zhejiang) in Jennifer Convertibles. Alibaba also has dipped its feet into the US e-commerce market with the launch of its 11 Main subsidiary, but it dropped out again after just one year of operations.

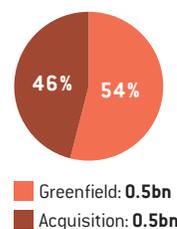
TOTAL

\$1.0bn

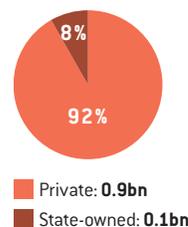
TOP 5 INVESTORS

- 1 Haier Group
- 2 Fosun International
- 3 Alibaba Group
- 4 Youngor Group
- 5 Markor Furniture

ENTRY MODE



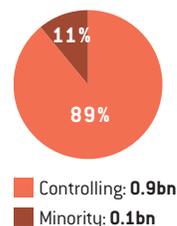
INVESTOR OWNERSHIP



TYPE



STAKE

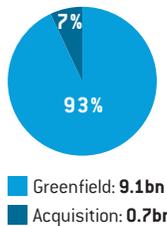


TOTAL
\$9.8bn

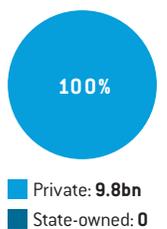
TOP 5 INVESTORS

- 1 Flextronics
- 2 Jabil Circuit
- 3 Eastman Kodak
- 4 TE Connectivity
- 5 Ingram Micro

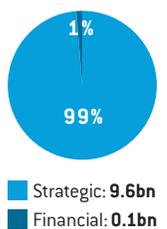
ENTRY MODE



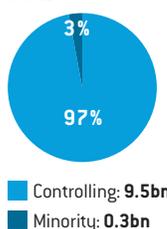
INVESTOR OWNERSHIP



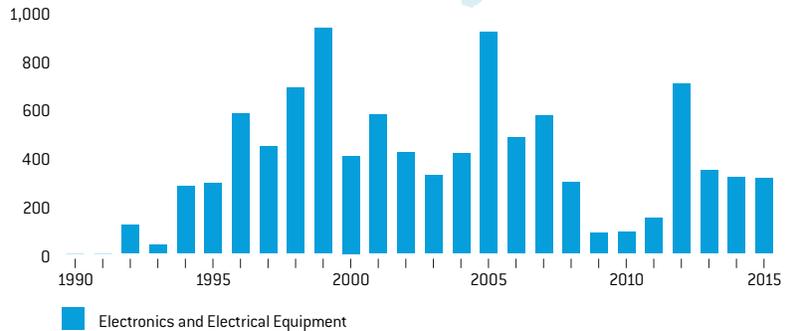
TYPE



STAKE



US FDI IN CHINA



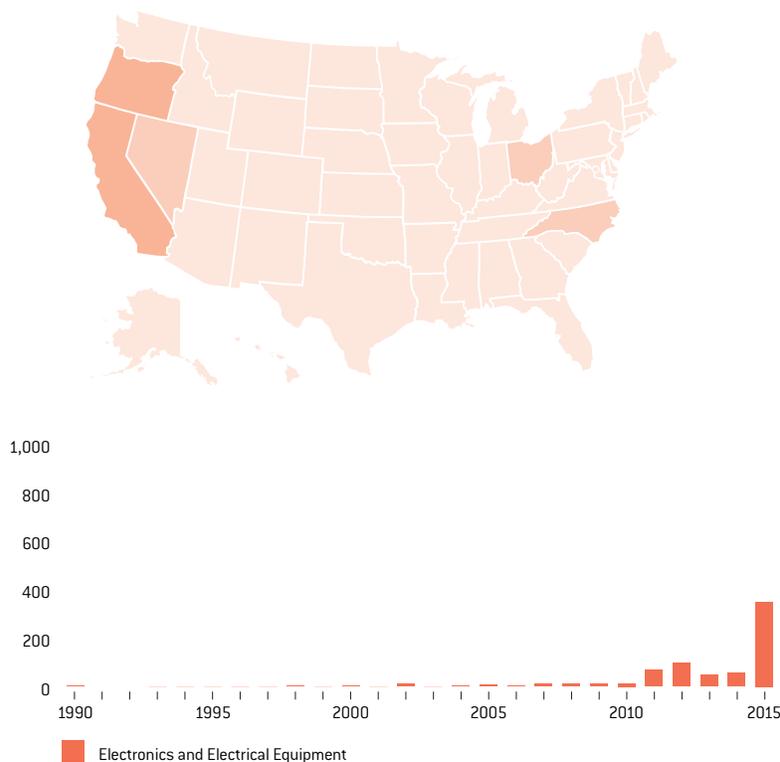
US companies have invested over \$9 billion in the Chinese electronics and electrical equipment sector since 1990. Greenfield projects account for more than 90% of total investment, and the majority of deals were small in size. The bulk of investments occurred from the late 1990s to the mid-2000s, a period when China's importance as a manufacturing location in global electronics supply chains grew due to the abundance of cheap labor and reduction of trade barriers.

Electronics manufacturing is both labor intensive and dependent on economies of scale, which made China an attractive location for US and other foreign electronics producers. One reason for the decline in direct investment by US companies since the mid-2000s is the emergence of contract manufacturers, which offer a leaner solution for multinational enterprises to produce in China. One example is Apple, which only runs small operations focused on quality control and other niche segments, such as tools. However, through companies such as Pegatron and Foxconn, Apple alone indirectly employs more than 1.5 million people in China. The US companies in our database that still maintain significant directly owned manufacturing operations in

China are mostly suppliers of electrical equipment with proprietary technology or valuable brands, which incentivizes them to fully control their manufacturing process.

The major investments in our database also illustrate the evolution of technology from traditional consumer electronics such as cameras and photocopiers (Kodak's facility in Xiamen in 1998), to electrical components (Jabil Circuit's Jiangsu plant and Molex's Chengdu plant, both in 2005) and later connectivity and advanced electronics (TE Connectivity's Kunshan plant expansion in 2012). Another important pattern is the geographic shift of electronics investments: early investments were largely concentrated in electronics clusters on the coast in provinces such as Guangdong, Fujian, and Jiangsu; however, as labor costs began to rise, companies, especially in labor-intensive segments, increasingly moved manufacturing operations inland to places such as Sichuan.

CHINESE FDI IN THE US



By contrast, Chinese companies have invested little in the US electronics and electrical equipment sector: the combined value of investments since 1990 only amounts to \$700 million. While there are a great number of transactions with an electronics component captured in other industries, including automotive (electric auto parts), energy (advanced batteries), ICT (computers and other hardware), or consumer products (white goods), investment in core electronics assets remains small.

Notable investors in this industry category include Chinese TV producers Hisense and TCL, both of which have built out their market presence in the US through greenfield operations in the past five years. Another focus of Chinese investors is advanced lighting technology. In 2015, China Electronics Corporation acquired Bridgelux, a startup developing cutting-edge LED technology. In the same year, Leyard Optoelectronics acquired digital signage manufacturer Planar Systems, which operates multiple facilities in Oregon.

More than half of total investment that we recorded in this industry occurred in 2015, and there is strong growth momentum going

forward. In July 2016, Suzhou Dongshan Precision Manufacturing acquired Multi-Fineline Electronix, a California printed circuit boards maker, for \$610 million, the largest transaction in this industry so far. The pipeline of pending deals suggests a bigger take-off for this sector to come: in July 2016, Chinese technology conglomerate LeEco announced a \$2 billion acquisition of California-based TV company Vizio. LeEco also bought a major greenfield facility in San Jose that will function as headquarters for the entering the US consumer electronics market with products including TVs, headphones, and other consumer electronics. Other pending investments include Loyal Valley Innovation Capital's acquisition of Knowles Corporation's mobile consumer electronics unit; and Apex Technology's \$3.6 billion acquisition of printer producer Lexmark. This latest wave of activity suggests that Chinese investors are drawn to the US electronics and electrical equipment sector for building their brands, expanding their sales and distribution channels, and upgrading their innovative capacity and technology portfolios.

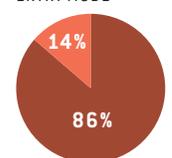
TOTAL

\$0.7 bn

TOP 5 INVESTORS

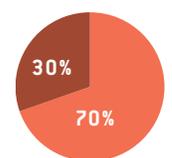
- 1 Leyard Optoelectronic
- 2 China Electronics Corporation
- 3 Sanan Optoelectronics
- 4 Apex Microelectronics
- 5 Hisense

ENTRY MODE



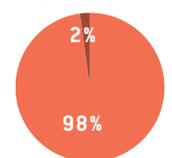
Greenfield: **0.1bn**
Acquisition: **0.6bn**

INVESTOR OWNERSHIP



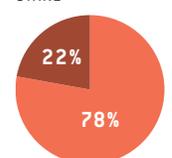
Private: **0.5bn**
State-owned: **0.2bn**

TYPE



Strategic: **0.7bn**
Financial: **<50mn**

STAKE



Controlling: **0.5bn**
Minority: **0.2bn**

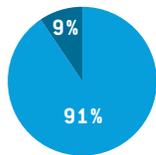
TOTAL

\$22.6bn

TOP 5 INVESTORS

- 1 Chevron
- 2 ConocoPhillips
- 3 AES
- 4 ExxonMobil
- 5 Devon Energy

ENTRY MODE



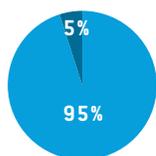
Greenfield: 20.5bn
Acquisition: 2.1bn

INVESTOR OWNERSHIP



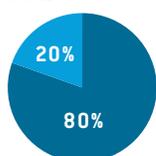
Private: 22.6bn
State-owned: 0

TYPE



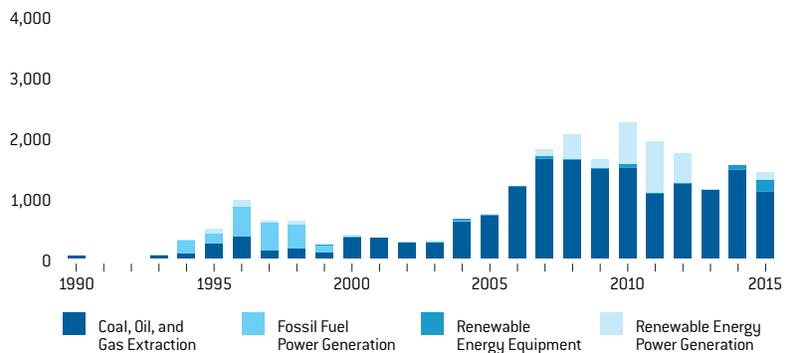
Strategic: 21.5bn
Financial: 1.1bn

STAKE



Controlling: 4.4bn
Minority: 18.2bn

US FDI IN CHINA



Energy does not show up as a major industry for US investment in official statistics, but by our count it is in fact one of the largest Chinese recipients of American FDI. We record investments worth more than \$22 billion since 1990, accounting for nearly 10% of total US FDI in China. The majority of capital went into joint ventures to explore and develop oil and natural gas reserves, an area in which US multinationals had cutting edge expertise and lots of experience. Indeed, Beijing's realization that it needed foreign participation in order to exploit its own energy potential was one of the main triggers for the reform and opening policy to start in the first place in the late 1970s.

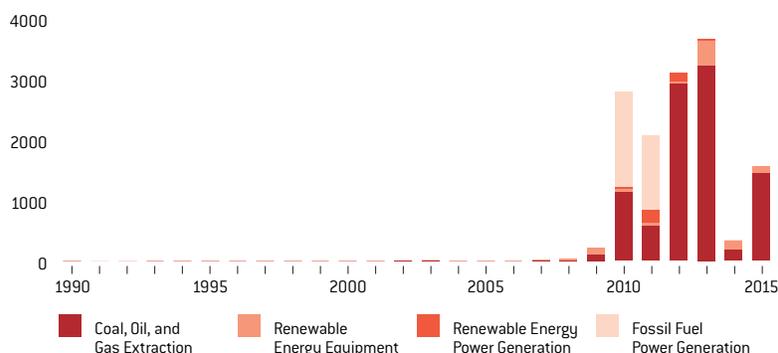
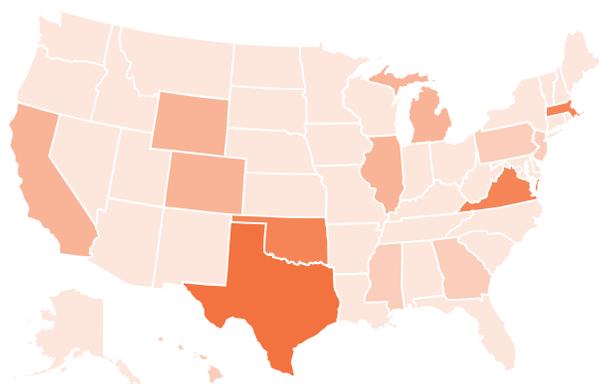
After a number of oil and gas exploration investments in the 1980s, such as an offshore joint venture between CNOOC and Atlantic Richfield Company (ARCO), investment remained low in the first half of the 1990s. Activity picked up again in the mid-1990s, when US oil companies participated in several major oil and gas projects, including ConocoPhillips and Devon Energy. As per Chinese rules, US companies were only allowed a minority stake in the joint ventures but were then responsible for exploration, development, and financing costs in exchange for profit sharing. In the first

half of the 2000s, new projects broke ground with investment extending over the following decade, with the participation of major US oil companies including ConocoPhillips, Exxon Mobil and Chevron. Oilfield service providers such as Baker Hughes and Schlumberger also expanded their footprint in China. After the financial crisis, US companies made new bets on natural gas, but investments levels have moderated and the current low oil price environment makes new ventures unlikely in the near term.

US investments in fossil fuel power generation assets remained limited, reflecting the oligopolistic market structure and restrictions on foreign ownership. Significant exceptions were AES' joint venture in a coal-fired power plant in Shanxi and General Electric's joint venture in a power plant in Shanghai. American FDI in Chinese renewable energy generation and equipment also remained modest compared to fossil fuels, though activity increased 2008-2011, driven by incentives to invest in wind power generation, and several ventures in the rapidly growing solar equipment industry.

Includes coal, oil, and gas extraction and processing, as well as fossil fuel power generation. Also includes both manufacturing and development of renewable energy equipment as well renewable energy generation. Does not include pipelines and other energy distribution infrastructure.

CHINESE FDI IN THE US



Chinese FDI in the US energy sector is only a recent phenomenon, but total investment amounts to \$13.8 billion over a period of just six years. This makes energy the largest category for Chinese FDI in the US, accounting for 22% of total investment. The bulk of this can be attributed to large scale investments by state-owned oil companies in unconventional oil and gas assets from 2010 to 2013.

As China's dependency on energy imports increased in the 2000s, national oil companies ventured abroad to increase their presence in overseas upstream oil and gas production. Much of the early outbound investment activity was focused on developing countries in Africa and South America, but political instability in those regions made investments in resource-rich advanced economies more attractive. The first major attempt by a Chinese investor to gain a foothold in the US energy industry was China National Offshore Oil Corporation's (CNOOC) \$18.5 billion takeover bid for California oil company Unocal in 2005, which was ultimately withdrawn due to political opposition. The unconventional oil and gas boom brought new opportunities for Chinese investors in North America, as many independent oil producers were looking for partners to

finance the capital-intensive drilling. The largest investments were Sinopec's \$2.4 billion investment in Devon Energy's shale assets in Ohio, Michigan, and other states in 2012 and CNOOC's \$1.5 billion acquisition of Nexen's Gulf of Mexico assets in 2013. After 2013, Chinese fossil fuel investment in the US and elsewhere fell sharply in line with demand growth expectations and global oil prices. We do register a 2015 uptick, which largely reflect the purchase of a Texas oilfield by a private Chinese investor for over \$1 billion.

Chinese FDI in the US renewable energy sector amounts to \$1.4 billion, driven by investments in advanced solar and wind power technology (Hanergy's acquisition of solar cell manufacturer MiaSole), downstream solar developments (Zongyi Solar's solar farm), batteries (Wanxiang's purchase of A123 Systems), and wind farms (Xinjiang Goldwind's wind farms) to showcase deployment of wind turbines and other imported Chinese equipment. Chinese financial investors were also active in fossil fuel generation, most importantly CIC's \$1.6 billion stake in utility AES in 2010 and Huaneng's \$1.2 billion stake in InterGen in 2011.

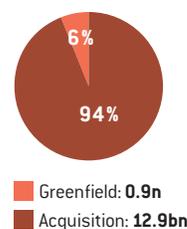
TOTAL

\$13.8bn

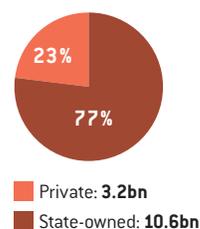
TOP 5 INVESTORS

- 1 Sinopec
- 2 CNOOC
- 3 China Investment Corporation
- 4 Yantai Xinchao
- 5 China Huaneng Group

ENTRY MODE



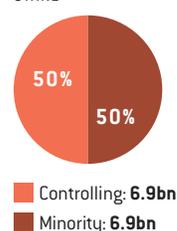
INVESTOR OWNERSHIP



TYPE



STAKE

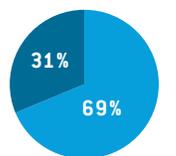


TOTAL
\$5.1bn

TOP 5 INVESTORS

- 1 Walt Disney
- 2 Carlyle Group
- 3 Time Warner
- 4 New York University
- 5 DreamWorks Pictures

ENTRY MODE



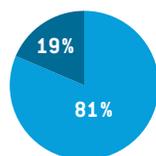
Greenfield: **3.5bn**
 Acquisition: **1.6bn**

INVESTOR OWNERSHIP



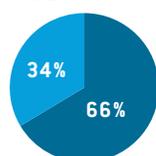
Private: **5.1bn**
 State-owned: **0**

TYPE



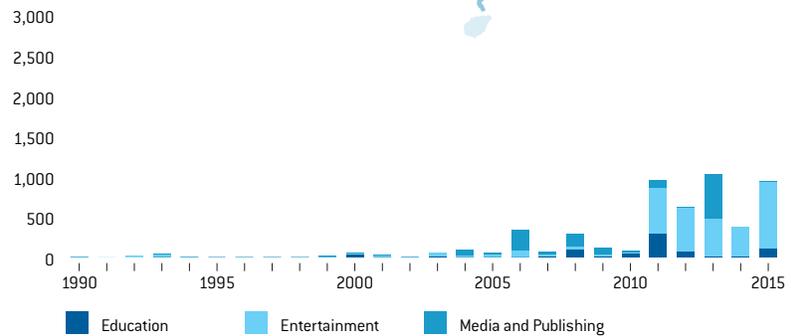
Strategic: **4.2bn**
 Financial: **0.9bn**

STAKE



Controlling: **1.7bn**
 Minority: **3.4bn**

US FDI IN CHINA



China's market for entertainment, media, and education services has grown rapidly in the past two decades, driven by an increasingly affluent middle class. Yet US FDI in these sectors has remained relatively small, as China proved challenging for foreign companies. Foreign investment in television and radio broadcast, print and online publishing, and film distribution is outright prohibited, and related activities are heavily restricted. FDI in education, film production, and cinema operation requires a Chinese partner holding a majority stake. Political restrictions on content provision and problems with intellectual property rights protection represent additional challenges for global media companies.

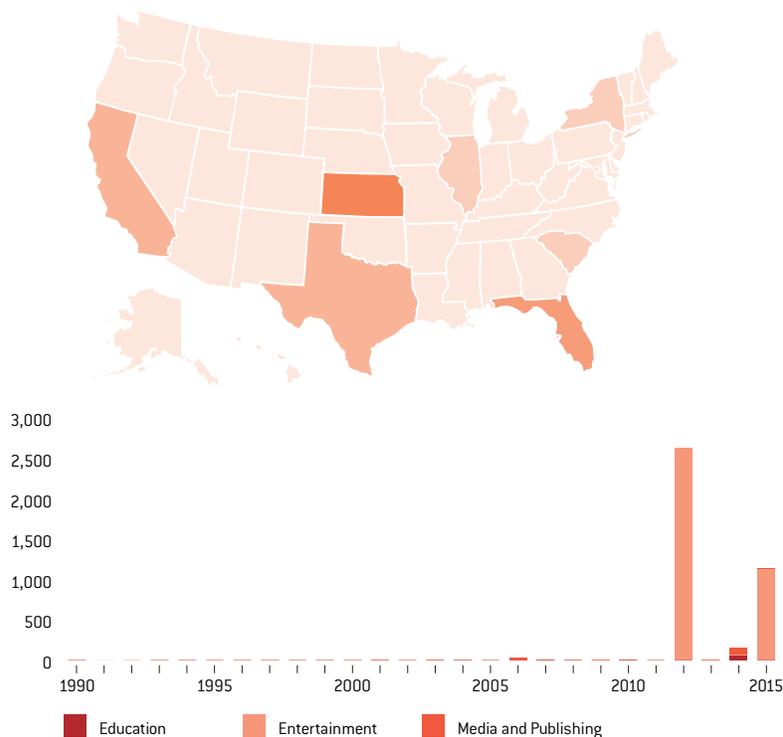
The bulk of the \$5.1 billion that US companies invested in China went into the entertainment sub-sector. The single largest investor is Walt Disney, which owns a minority stake in a \$5.5 billion theme park in Shanghai that opened in 2016. Universal Studios and Six Flags recently announced that they will start building theme parks in China as well. Another significant investor is American film producer DreamWorks, which operates a joint venture in Shanghai to produce movies primarily for the Chinese market. Time Warner, through its

subsidiary Warner Bros. also entered into a partnership with China Media Capital to produce Chinese-language films through their joint venture Flagship Entertainment.

Media and publishing only accounts for a small share of total FDI. In light of the existing ownership restrictions and content controls, most US media and entertainment companies largely serve the Chinese market through licensing agreements with local partners, and maintain only a small physical presence in the country.

Investment in education also remained comparably small, but has picked up in recent years. One driver was private equity investors betting on growth in demand for education services, for example Kohlberg, Kravis, & Roberts (KKR)'s investment in Tarena International. Another group of emerging investors is US universities, which have begun to set up overseas campuses and joint programs with local universities in China. One example is New York University's new Shanghai campus, which is now hosting over 1,000 students.

CHINESE FDI IN THE US



Chinese FDI in the US entertainment, media, and education sectors was nearly absent prior to 2012, but jumped to more than \$4.0 billion since then. More than 95% of total investment can be attributed to entertainment, and most of it was driven by a single company, Chinese real estate and entertainment conglomerate Dalian Wanda.

Wanda's US expansion began in 2012, when it purchased the US movie theater chain AMC for \$2.6 billion. Wanda's second large acquisition in the US followed in 2015, targeting the Florida-based "Ironman" operator World Triathlon Corporation (\$650 million). In the same year, Wanda also further expanded its share of the US movie theater market through AMC's acquisition of Starplex Cinemas. Other Chinese investors also have gradually moved into movie production (for example CITIC Guoan's investment in Dick Cook Studios) or through slate financing of Hollywood films (which is not counted as FDI).

Investment in media and publishing was mostly limited to the expansion of state-owned news outlets. News agency Xinhua and state-run newspaper China Daily expanded their English coverage and presence in the US. In 2012, China Central Television launched

its new channel CCTV America, with offices in Washington, DC. However, those expansions did not include significant capital expenditures. Investment in US education services also was limited and mostly related to services for Chinese overseas students in the US.

Going forward, Chinese investment in entertainment is poised to increase further. In the first three quarters of 2016, Chinese investors have already announced investments together worth nearly \$7 billion, including Wanda's acquisitions of film studio Legendary Pictures for \$3.5 billion and theater chain Carmike for \$1.1 billion, as well as Alibaba's minority stake in film Amblin Partners and Tencent's investment in STX Entertainment. Entertainment will soon become one of the few sectors in which Chinese FDI in the US exceed investments by US companies in China. In light of investment restrictions for foreign companies in China and the role of the Chinese government in content control, the sharp increase of Chinese investment activity in the US entertainment has elicited a debate about the potential risks these investments may pose.

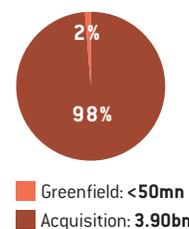
TOTAL

\$4.0bn

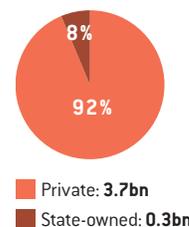
TOP 5 INVESTORS

- 1 Wanda Group
- 2 Fosun
- 3 CITIC Group
- 4 Jiangsu Phoenix Publishing
- 5 TAL Education Group

ENTRY MODE



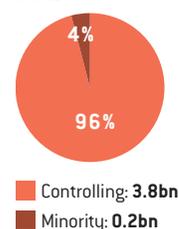
INVESTOR OWNERSHIP



TYPE



STAKE

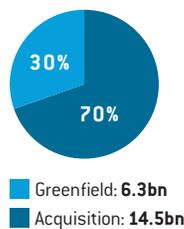


TOTAL
\$20.8bn

TOP 5 INVESTORS

- 1 Bank of America
- 2 Citigroup
- 3 J.P. Morgan
- 4 Goldman Sachs
- 5 Carlyle Group

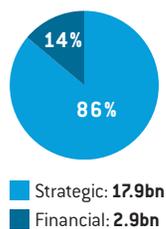
ENTRY MODE



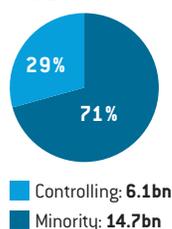
INVESTOR OWNERSHIP



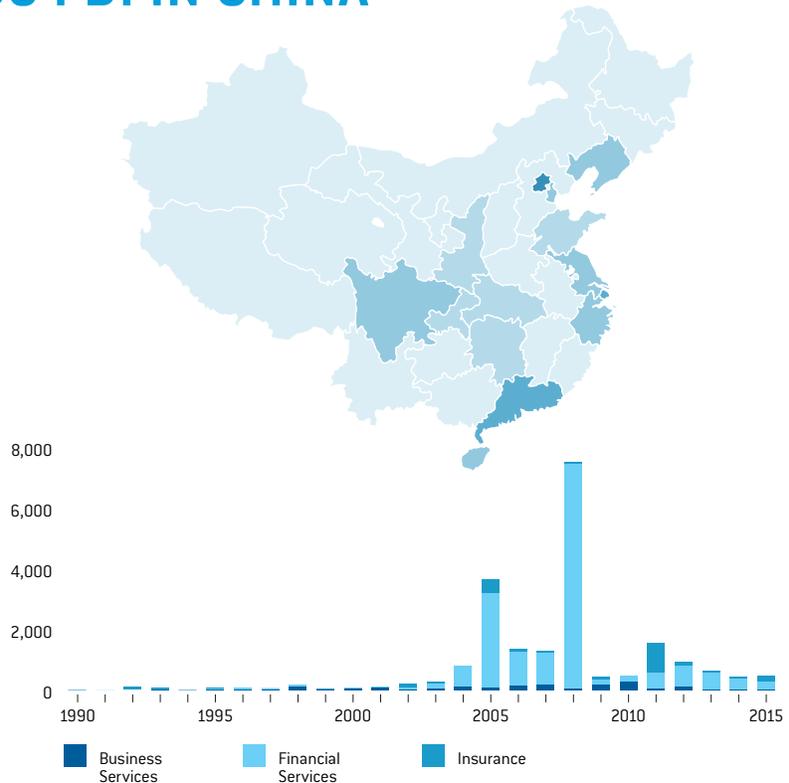
TYPE



STAKE



US FDI IN CHINA



US FDI in China's financial and business services sectors adds up to \$20.8 billion from 1990 to 2015. This number only includes investments resulting in an equity stake of 10% or more, so it somewhat understates US investment in Chinese financial sector assets over this period. At the same time, it is a gross figure that does not account for divestitures, which means that it overstates the actual presence of US companies in this space.

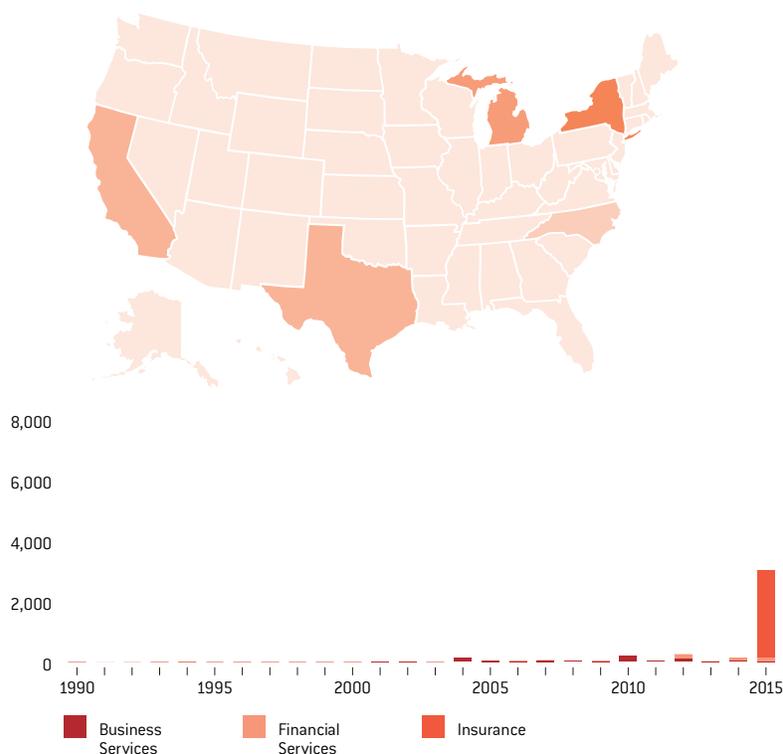
The bulk of investment can be attributed to billion-dollar stakes by US financial companies in Chinese banks in the early 2000s, when the Chinese government invited foreign banks to become strategic shareholders in troubled state-owned lenders to accelerate their modernization and public listing. From 2002 to 2008, US banks invested more than \$15 billion in such stakes, the biggest among them was Bank of America's 20% ownership of China Construction Bank. However, the majority of these investments were later divested (at significant profit) as US banks had to raise capital after the financial crisis and as they realized that a further increase in ownership was unlikely. Several US banks have set up banking branches (for example Citibank and Wells Fargo) or joint ventures in securities trading and investment banking (including J.P. Morgan and Goldman Sachs). However,

significant ownership and operational restrictions continue to curb the ambitions of US financial companies in China.

US FDI in the insurance sector is limited by similar factors. A number of US players including AIG, Cigna, and Metlife have made significant direct investments. US insurers—most notably AIG—also have placed many billions of dollars into China through stakes just shy of the 10% FDI threshold. Starr Companies managed to consolidate near-complete ownership of Dazhong Insurance in 2014. Other firms, such as ACE, have worked patiently to find a way forward through limitations. However, China's insurance market remains dominated by large domestic players and formal and informal restrictions stand in the way of foreign insurance companies expanding their market share.

China also has seen a tremendous influx of US providers of business services, including legal services, consulting, advertising, quality control, testing, engineering, and design. There are a great many of them, but their operations are generally capital-light and thus do not account for a significant share of total capital invested. However, these firms punch greatly above their weight in terms of value added to the work of other foreign invested enterprises and to the Chinese economy.

CHINESE FDI IN THE US



Chinese FDI in the US financial and business services sector was modest until recently but jumped to nearly \$4 billion in 2015. From 1990 to 2014, we count more than 60 smaller deals, together worth a little less than \$1 billion. This mostly reflects the organic expansion of Bank of China and the other big state-owned lenders. Their operations are mostly located in New York and other areas with large Chinese population such as parts of California. These banks have grown their asset bases rapidly in the last 5 years, but outstanding loans are not counted as FDI under our methodology. One significant event was ICBC's acquisition of the Bank of East Asia's US assets in 2012, the first successful Chinese banking M&A in the United States.

In the past two years, the dynamics of investment have changed noticeably, with strong Chinese outbound M&A activity in the insurance sector, which is mostly driven by privately-owned financial investors. In 2015, conglomerate Fosun acquired the US property and casualty insurer Ironshore and the Meadowbrook Insurance Group for \$2.3 billion and \$433 million, respectively. Those two transactions alone quadrupled the cumulative value of Chinese FDI transactions in this sector. More transactions were announced in

2016, including Anbang Insurance's acquisition of Fidelity & Guaranty Life for \$1.6 billion. The different trajectories of financial services FDI between the US and China in recent years represent an example of growing investment asymmetries related in part to dissimilar policy and regulatory restrictions.

Outside of banking and insurance, Chinese investment in other business services has been limited. Several Chinese service providers including law firms and investment banks such as Dacheng and China International Capital Corp (CICC) have followed their customers abroad, but in most cases their international experience is still limited and thus they are not yet competing head-to-head with US institutions for local clients.

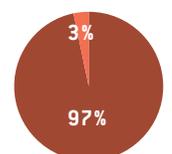
TOTAL

\$3.9bn

TOP 5 INVESTORS

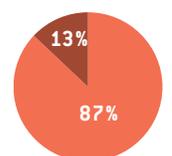
- 1 Fosun
- 2 Bank of China
- 3 CITIC Group
- 4 Renren
- 5 ICBC

ENTRY MODE



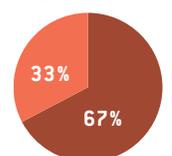
Greenfield: **128mn**
Acquisition: **3.8bn**

INVESTOR OWNERSHIP



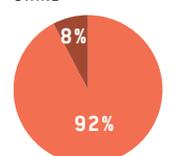
Private: **3.4bn**
State-owned: **0.5bn**

TYPE



Strategic: **1.2bn**
Financial: **2.6bn**

STAKE



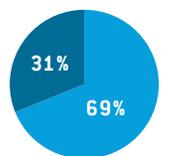
Controlling: **3.6bn**
Minority: **0.3bn**

TOTAL
\$14.2bn

TOP 5 INVESTORS

- 1 Eli Lilly
- 2 Johnson & Johnson
- 3 Medtronic
- 4 Merck
- 5 Cardinal Health

ENTRY MODE



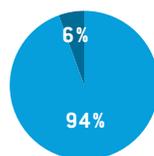
Greenfield: **9.8bn**
 Acquisition: **4.4bn**

INVESTOR OWNERSHIP



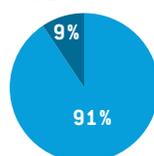
Private: **14.2bn**
 State-owned: **0**

TYPE



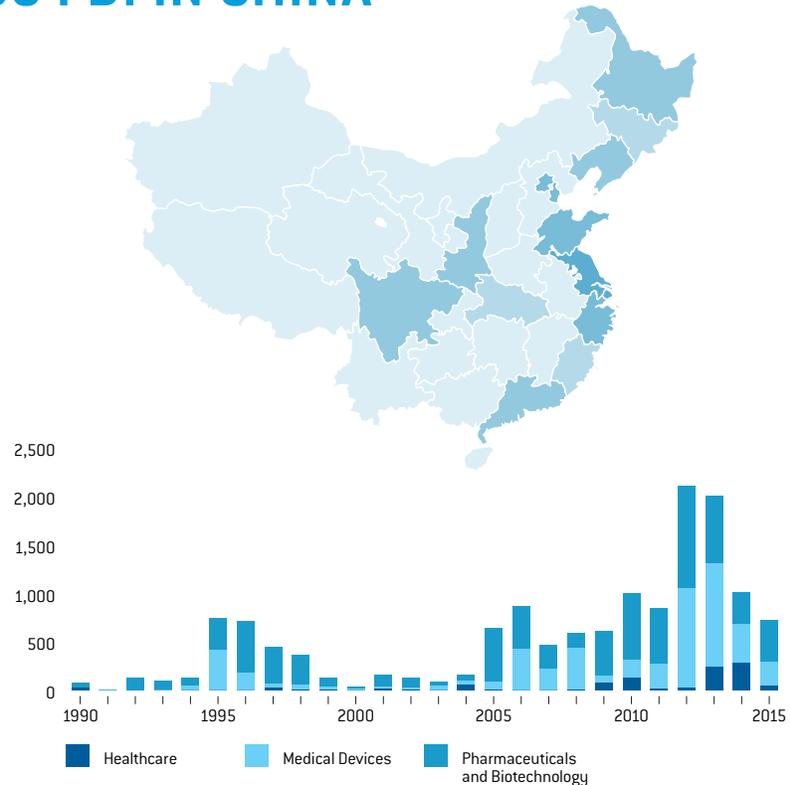
Strategic: **13.5bn**
 Financial: **0.8bn**

STAKE



Controlling: **12.9bn**
 Minority: **1.3bn**

US FDI IN CHINA



Health and Biotechnology has evolved as an important sector for US investment in China, particularly in the past decade. The modernization of China's healthcare system, the gradual broadening of government expenditures and the improvement of health insurance coverage for an ageing population offer tremendous opportunities for foreign investors. Cumulative US FDI from 1990 to 2015 amounts to \$14.2 billion, 6% of total US investment in that period.

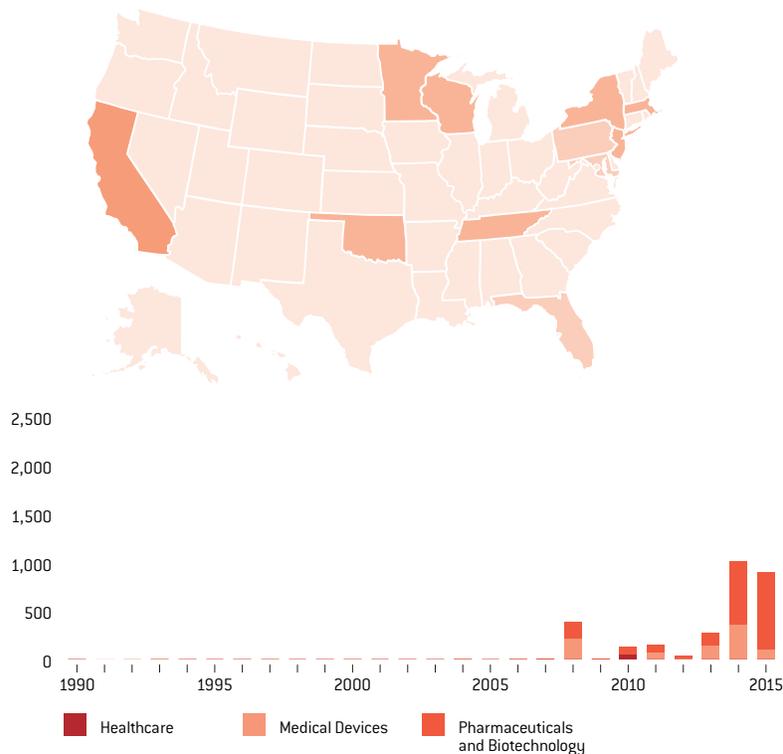
Direct investment in the medical devices sub-sector has been a significant component of this investment (37%). US companies have invested to both take advantage of lower production costs in China as well as to expand their market share in China. While the majority of inflows in this industry were greenfield (for example Becton Dickinson and Johnson's plants in Suzhou), American players have been willing to acquire local companies as well: Medtronic purchased orthopedic implant maker China Kanghui in 2012 for \$816 million and Stryker acquired device manufacturer Trauson for \$764 million in 2013.

Investment in pharmaceuticals and biotechnology amounts to \$8 billion or 56% of total investment since 1990. Cost advantages in the production of certain drugs, as well as

starting and intermediate materials but more importantly the prospects of a fast-growing Chinese market has impelled many US companies to set up manufacturing operations in China. Distribution and other downstream activities also have emerged as areas of interest. In 2010, Cardinal Health acquired Yongyu Pharma for \$470 million in order to enter the pharmaceutical distribution market. While continued issues involving uneven enforcement of regulations have made business in China difficult for foreign companies, the potential of the Chinese market remains critical to most globally operating pharmaceutical companies.

Investment in healthcare services is picking up but still lags behind (7% of total investment since 1990). The potential size of the Chinese market and its demand for better medical infrastructure make it an important prospective market for US and other foreign firms. Major formal and informal restrictions still remain in specific sub-sectors, including the operation of hospitals, senior care facilities, and other healthcare services.

CHINESE FDI IN THE US



Chinese investment in the US healthcare, pharma, and biotech sectors is small (\$2.9 billion), but activity has expanded quickly in the past two years. Recent growth was partially driven by Chinese companies upgrading technology and other assets to position themselves for growth opportunities in the Chinese market. To date, investment in this sector is still primarily composed of small- and medium-sized transactions by private sector companies.

Mirroring US FDI to China, the majority of investment can be attributed to the pharmaceuticals and biotechnology sub-sector. Investments in this area are often driven by upgrading technology (such as Wuxi's acquisition of AppTec, a laboratory services firm), building out supply chains (Hepalink's acquisition of Scientific Protein Laboratories), and tapping the US talent base for research and development activities (Tasly Pharmaceutical's R&D center in Maryland). Another recent trend is the growing investment by Chinese companies in early-stage venture capital rounds. Wuxi PharmaTech, for example, has invested in a number of US biotech companies, for example, Althea Dx.

In medical devices, Chinese companies are mostly looking for acquisitions to grow their technology and customer base. Examples are Mindray Medical's acquisition of Datascope's patient monitoring products business for \$209 million, and MicroPort Scientific's purchase of Wright Medical Group for \$290 million. The acquisition of established US companies with existing customer bases and sales networks allows quicker market entry than organic growth.

We have not yet recorded any significant investments in healthcare services. However, growing demand for hospital services and senior care could increase Chinese interest in US assets going forward, as it is an area in which Chinese companies have very little experience. Several Chinese companies are already investing in healthcare-related software providers, for example Ping An and Tencent's recent investment in CliniCloud, a provider of basic digital diagnostic tools such as stethoscopes and thermometers.

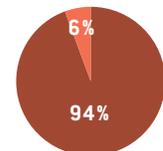
TOTAL

\$2.9bn

TOP 5 INVESTORS

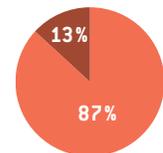
- 1 Shenzhen Hepalink
- 2 WuXi AppTec
- 3 Mindray Medical
- 4 Fosun
- 5 MicroPort Scientific

ENTRY MODE



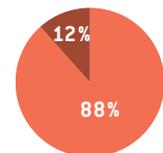
Greenfield: **0.2bn**
Acquisition: **2.7bn**

INVESTOR OWNERSHIP



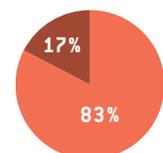
Private: **2.5bn**
State-owned: **0.4bn**

TYPE



Strategic: **2.6bn**
Financial: **0.3bn**

STAKE



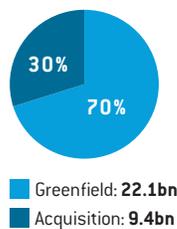
Controlling: **2.4bn**
Minority: **0.5bn**

TOTAL
\$31.4bn

TOP 5 INVESTORS

- 1 Intel
- 2 Motorola
- 3 Seagate
- 4 Microsoft
- 5 Yahoo

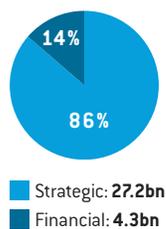
ENTRY MODE



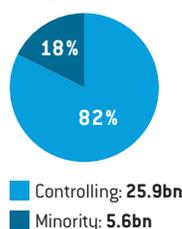
INVESTOR OWNERSHIP



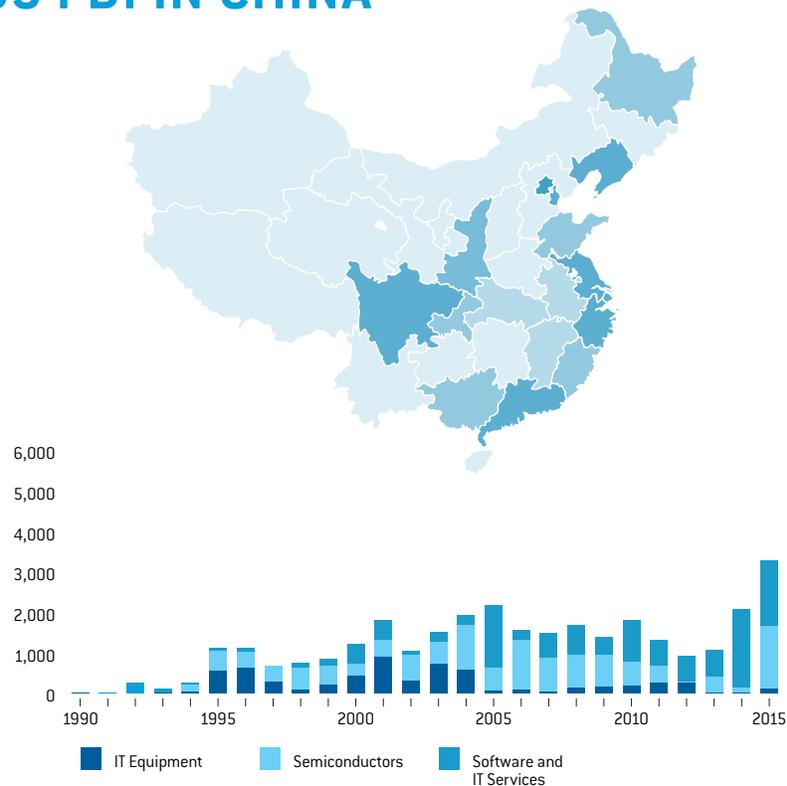
TYPE



STAKE



US FDI IN CHINA



ICT has attracted the highest level of US investment into China of all sectors, garnering a total \$31.4 billion since 1990, accounting for 14% of total US FDI in the country. American investors initially focused on IT equipment assembly, capitalizing on China's advantage in manufacturing owing to cheap land and labor. Major investments in greenfield assembly from the mid-90s include ventures by Motorola, Lucent, and Seagate. China's accession to the WTO in 2001 facilitated both an increase and diversification of ICT investment. Semiconductor investment expanded in the mid-2000s, again focusing on cost advantages in assembly. The global growth of PC ownership and the rise of smartphones propelled investment in large-scale semiconductor plants: Freescale's \$600 million Tianjin plant, Micron's \$550 million facility in Shaanxi, and Intel's \$2.5 billion factory in Dalian.

After 2005, software and IT services have become increasingly prominent drivers of US investment. US companies have invested about \$12.4 billion in this sub-sector to date. Yahoo's 2005 acquisition of a 40% strategic stake in Alibaba worth \$1 billion marked the beginning of this expansion. The global recession dampened US appetite for overseas ICT

investment, which has remained below 2008 levels every year through 2013. 2014 and 2015 witnessed a steep jump in investment, driven by American investments in the rapidly-changing market for consumer-oriented digital services and strategic investments by Intel, Qualcomm, and others in local technology firms and joint ventures. The shift toward software in recent years represents a desire to tap into the burgeoning demand possibilities from an expanding Chinese middle-class. The rapid changes at the intersection of smartphones and software mean China has the possibility to leapfrog US consumer technology, making it significant for American investors to remain involved in the market.

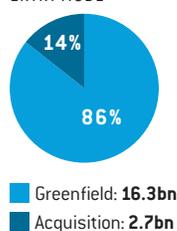
Investment patterns in ICT are also heavily impacted by both regulatory constraints and the political climate. China's recent draft cybersecurity, national security, industrial policy, and counter-terrorism laws all stipulate a number of conditions that favor domestic ICT firms. It remains unclear whether this trend of "de-globalization" will lead to lower investment as new regulations push US companies out, or an uptick in joint venture investment as US firms partner with Chinese players to offset political pressure.

TOTAL
\$19.0bn

TOP 5 INVESTORS

- 1 Caterpillar
- 2 Emerson Electric
- 3 Joy Global
- 4 Cummins
- 5 General Electric

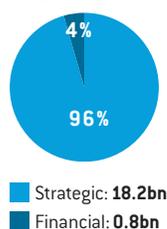
ENTRY MODE



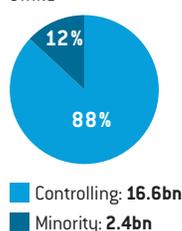
INVESTOR OWNERSHIP



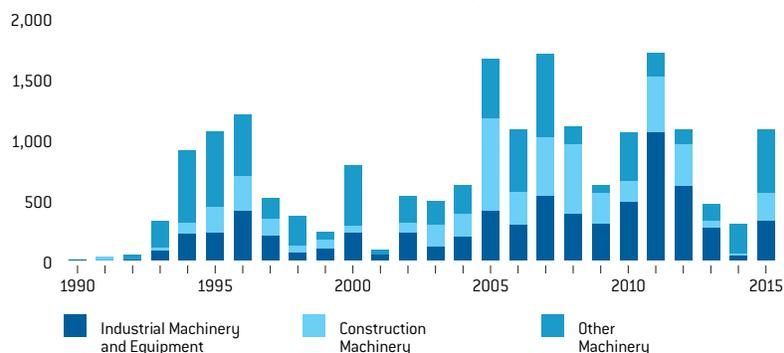
TYPE



STAKE



US FDI IN CHINA



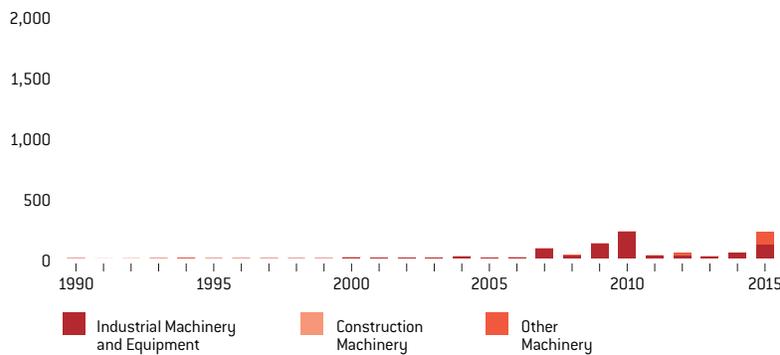
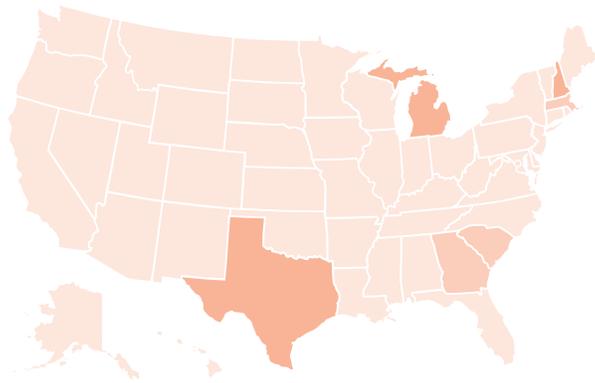
Machinery has been a major attraction for American FDI into China. Since 1990, US investors have put \$19 billion into the Chinese market, accounting for 8% of overall investment. Firms in the machinery industry have seized opportunities from the construction boom and the mechanization of production across a range of Chinese industries. The predominance of greenfield investments, many of them large manufacturing assets, underscores the critical role of industrial machinery in China's economic growth over the past 20 years. As these were key industries for China's growth model, investment was mostly welcomed with few restrictions.

Investment took off in the mid-1990s, pulling in major investments from firms such as Caterpillar in construction machinery and Cummins in industrial machinery and equipment. From 2005 to 2012, annual investment averaged more than \$1 billion per year. The huge buildout of Chinese industrial capacity and the growth of heavy manufacturing drove the need for American firms to move closer to new Chinese customers. The growth of other foreign-invested clusters, such as in the automotive industry, meant that machinery makers also were following upstream foreign

firms expanding their presence in China. Flows to the machinery sector remained relatively strong in the aftermath of the global recession. Reduced activity in advanced economy markets pushed US firms to commit more to China, where stimulus sustained activity, buoying demand for the capital goods developed by industrial machinery firms. As the Chinese industrial machinery sector has matured, the post-2008 investment profile began to include acquisitions as well.

Investment has dropped in recent years, although the lagging nature of greenfield investment means that a few years are not necessarily indicative. Investment-led growth, particularly in real estate and infrastructure, cannot play the same role in the future of the Chinese economy, suggesting an uncertain outlook for some machinery sectors. China's commitment to upgrading its manufacturing base with more advanced techniques and equipment points to strong continued growth in robotics and other advanced manufacturing equipment.

CHINESE FDI IN THE US



In contrast to American investment in China, Chinese investment in US industrial machinery stands at a mere \$800 million total, accounting for only a little over 1% of total investment, reflecting the market realities from both the Chinese and US sides. Chinese forays into the US market started in 2007, but inflows have been volatile.

Transactions have been scattered across different sub-sectors but industrial machinery accounted for the majority of incoming Chinese FDI. One of the largest investments was Shanghai Electric's 2009 acquisition of Goss International, a New Hampshire-based manufacturer of newspaper printing presses. Greenfield investments have played an important role, accounting for over 40% of investment. The most notable greenfield project is a 400,000 square-foot facility in Georgia by Sany, an emerging global player in construction equipment, which the company uses for assembly, research and development, and sales. Investments run the gamut of products, from companies like Dearborn Mid-West, a developer of conveyor systems for automotive manufacturing, to Kennametal, a drill manufacturer.

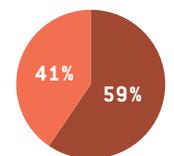
As Chinese industrial machinery manufacturers move up the value chain, they have strong incentives to acquire overseas firms with superior technology, talent, and existing sales networks. Investment patterns in 2016 illustrate that US companies are attractive targets for Chinese buyers. For example, Chinese construction company Zoomlion (one of Sany's main competitors) launched a \$3.4 billion takeover bid for US crane maker Terex, which would have dwarfed any previous Chinese investment in this space (but ultimately did not succeed). Europe will likely attract more Chinese investment in the machinery industry, given the availability of many small- and medium-sized global champions with cutting-edge technology. The US machinery industry is most consolidated and in areas where the US is highly competitive, such as construction and agriculture-industrial equipment, firms are so large as to make takeovers complicated and rare. Companies in robotics and other advanced machinery also often possess technology or products with military application, which adds another complication.

TOTAL
\$0.8bn

TOP 5 INVESTORS

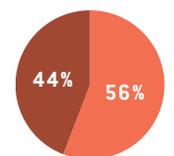
- 1 Shanghai Electric Group
- 2 Sany Heavy Industry
- 3 Top Eastern Group
- 4 China Everbright
- 5 Anhui Zhongding

ENTRY MODE



Greenfield: **0.3bn**
Acquisition: **0.5bn**

INVESTOR OWNERSHIP



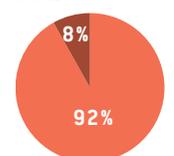
Private: **0.5bn**
State-owned: **0.4bn**

TYPE



Strategic: **0.8bn**
Financial: **0**

STAKE



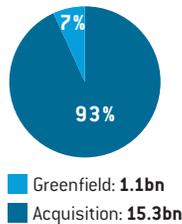
Controlling: **0.8bn**
Minority: **0.1bn**

TOTAL
\$16.3bn

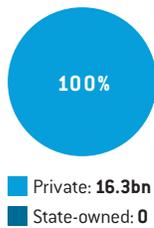
TOP 5 INVESTORS

- 1 Morgan Stanley
- 2 Blackstone Group
- 3 Carlyle Group
- 4 Tishman Speyer
- 5 Hines

ENTRY MODE



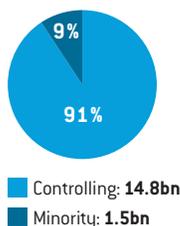
INVESTOR OWNERSHIP



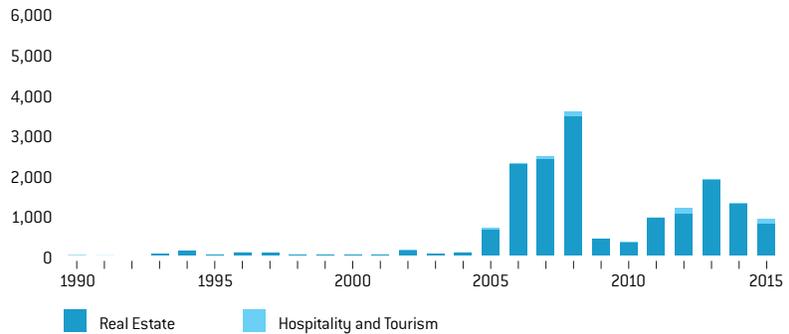
TYPE



STAKE



US FDI IN CHINA



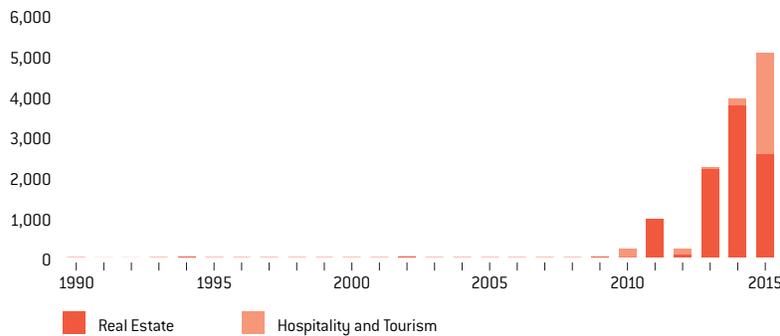
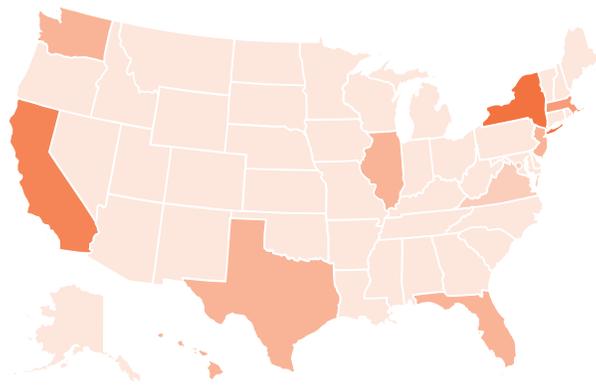
US investors have put over \$16 billion of direct investment into Chinese real estate and hospitality assets, making it one of the largest sectors for American FDI in China, accounting for 7% of total investment since 1990. Real estate accounts for the vast majority of investment, while FDI in hospitality and tourism remained small. The names of US hospitality firms are ubiquitous across Chinese cities, but the business models of nearly all of those companies utilize franchising models involving very little equity investment.

Investors from Hong Kong, Taiwan and other neighboring countries sought exposure to China's property sector from a very early stage. US investment started in the 1990s on a small scale, focused on greenfield developments by companies such as Hines. After China's accession to the WTO, developers, private equity firms, investment banks, and other players moved into Chinese real estate focusing on acquisitions. With relatively few channels for portfolio investment into China, financial firms seeking to capitalize on the Chinese boom could utilize large direct investments as a reasonably liquid bet on China. Investment jumped from less than \$1 billion in 2005 to \$3.5 billion in 2008, with a focus on

major properties in tier 1 cities such as Beijing and Shanghai. Investment also extended beyond these core areas to second-tier cities across the country.

In 2009 and 2010, investment collapsed as Chinese real estate prices were affected by the crisis and US financial firms of all types pulled back from further investment. It began to rebound after two years, reaching an average of over \$1 billion from 2011 to 2015. Investment activity cooled again in 2014 and 2015 as the buildup in prices and the prospect of a major correction made US investors more cautious. One area that saw expansion in recent years is investment in warehousing and logistics-related real estate, driven by the rapid growth of e-commerce. The long-term future for US FDI in the sector looks strong, especially as older real estate stock depreciates across the country. However, due to its quasi-financial nature, FDI in real estate will be especially vulnerable to uncertainty about the short-term financial consequences of China's economic transition.

CHINESE FDI IN THE US



Just as concerns over property price levels and the Chinese financial system have somewhat reduced US interest in Chinese real estate, the relative stability of core US real estate markets has attracted a wave of Chinese capital into the US property sector. Total Chinese direct investment in US real estate and hospitality from China to the US is nearly \$12.6 billion, accounting for nearly 20% of total Chinese investment since 1990. This expansion has taken place almost entirely after 2010 and is concentrated in large urban areas including New York, Los Angeles, and San Francisco.

Chinese investors that have put direct investment into the US real estate market range from dedicated real estate firms to insurance companies and diversified conglomerates. Unlike other capital-intensive sectors such as energy, private Chinese investors dominate real estate OFDI. The largest acquisitions include insurance company Anbang's purchase of the Waldorf Astoria hotel for \$2 billion in 2015, conglomerate Fosun's acquisition of 1 Chase Manhattan Plaza for \$725 million in 2013 and Bank of China's acquisition of 7 Bryant Park for \$600 million in 2015. More recently, real estate investors also have begun to look into greenfield real estate

developments in major US markets. Examples include Oceanwide's Fig Complex development in Los Angeles and Greenland's joint venture in the Pacific Park development in Brooklyn.

Hospitality provides a strong dual outlet for Chinese investors, as both real estate assets and service providers to increasingly affluent Chinese tourists and business travelers. In addition to luxury hotels (Waldorf Astoria, Baccarat), Chinese investors also have purchased properties in lower-price segments (Marriott hotels at Los Angeles Airport), conference centers (HNA's acquisition of the IBM Palisades Conference Center in New York) and golf courses (Reignwood's acquisition of golf courses in Hawaii).

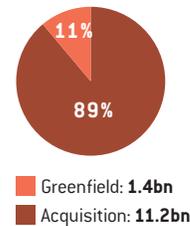
Investors from countries that have experienced rapid increases in wealth need to diversify globally to safeguard against risk, and the Chinese experience is no different. US real estate is a prime global safe-haven asset and it has unsurprisingly attracted Chinese capital. This trend does not appear to be slowing down, with Anbang's \$6.5 billion Strategic Hotels acquisition and other deals that already make 2016 yet another record-breaking year.

TOTAL
\$12.6bn

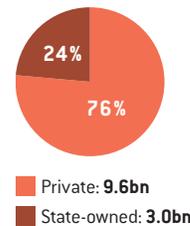
TOP 5 INVESTORS

- 1 Anbang Insurance
- 2 Fosun
- 3 Oceanwide Holdings
- 4 Greenland Group
- 5 Vanke

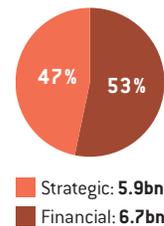
ENTRY MODE



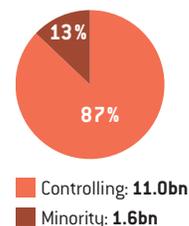
INVESTOR OWNERSHIP



TYPE



STAKE



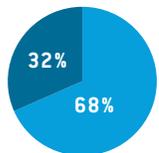
TOTAL

\$7.6bn

TOP 5 INVESTORS

- 1 FedEx
- 2 Prologis
- 3 United Parcel Service
- 4 Fluor Corporation
- 5 General Electric

ENTRY MODE



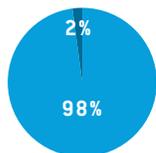
Greenfield: **5.2bn**
Acquisition: **2.4bn**

INVESTOR OWNERSHIP



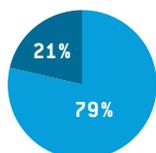
Private: **7.6bn**
State-owned: **0**

TYPE



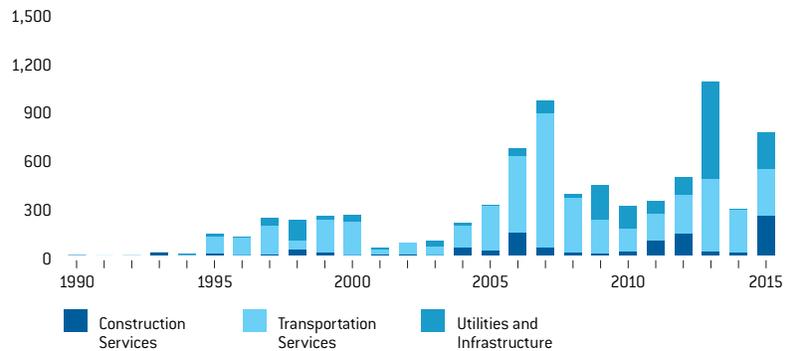
Strategic: **7.5bn**
Financial: **0.2bn**

STAKE



Controlling: **6.0bn**
Minority: **1.6bn**

US FDI IN CHINA



China's transport and infrastructure sector has attracted considerable US investment, concentrated primarily in logistics and transportation services. Annual investment averaged less than \$500 million in the 1990s and early 2000s, but climbed up to more than \$1 billion in 2007. After the crisis, investment levels fell back to lower but steady levels, with the exception of upticks resulting from singular acquisitions. All told, American investors have put \$7.6 billion into the transport and infrastructure sectors from 1990 to 2015, accounting for 3% of total US investment. Greenfield projects accounted for nearly 70% of investment, illustrating the contribution of foreign investors to the development of modern infrastructure in China.

As the Chinese economy grew rapidly in the 1990s, US logistics companies, notably FedEx and UPS, sought to participate, both for the benefit of expanding connectivity in the domestic Chinese economy and the rapid development of the export-oriented economy. We record a high number of investments, but most of those were capital-light greenfield investments. Other transport service subsectors, such as rail, have received comparably little investment, reflecting the dominance of state-owned national champions in the sector.

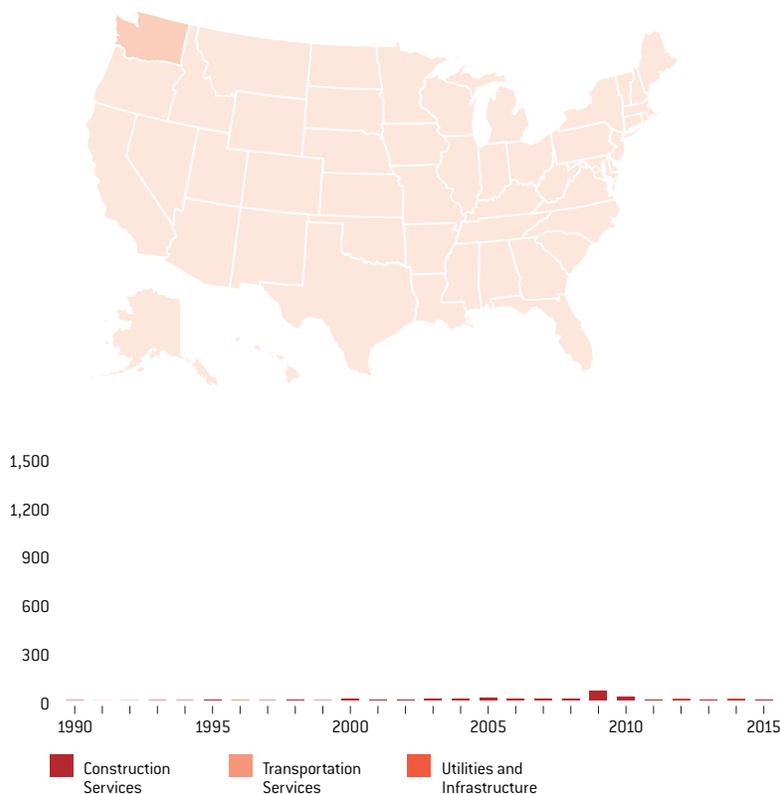
Concurrent with this growth in logistics was

a push to expand offerings in the construction and servicing of large-scale infrastructure. By the early 2000s, US engineering and construction services firms such as Fluor and Bechtel had significant presence in the Chinese market, but primarily on a capital-light, consulting and contracting basis. Growth in these areas continued apace through the 2000s, though investment levels have declined since the global recession in 2008. Recent major transactions include Fluor's Zhuhai Fabrication Yard joint venture, a major site for the construction of large-scale engineering modules.

China's convergence toward advanced-economy standards in transport and infrastructure continues to offer opportunities for American investors. Environmental remediation, e-commerce logistics, and the modernization of transportation infrastructure in rural areas will be additional drivers of growth. Opportunities in rail remain limited, due to the oligopolistic market structure and the lack of American competitive advantage in this industry. Restrictions in utilities or telecommunications networks due to their status as critical infrastructure are another stumbling block, but a reality in many advanced economy markets as well.

Construction services includes construction of buildings and infrastructure, such as highways. Transportation services includes passenger transportation services, logistics and delivery services, and pipelines. Utilities includes electric and gas distribution, water supply, sewage and steam, but does not include power generation, storage infrastructure such as warehouses.

CHINESE FDI IN THE US



Chinese direct investment in the US transport and infrastructure sector totals a little less than \$200 million since 1990, which represents only 0.3% of total FDI over the period.

State-owned Chinese shipping companies including China Ocean Shipping Group Company (COSCO) and China Shipping Container Lines (CSCL) were among the earliest Chinese investors in the US economy, establishing and deepening trade links between China and the US. However, their direct investment remained small in scale as they did not acquire ownership of port facilities or other physical assets, with a few exceptions (China Shipping's stake in a container terminal in the Port of Seattle). Chinese firms in construction services, including China State Construction Engineering Corporation (CSCEC), also have entered the US market, growing both organically and through the acquisition of Plaza Construction, a construction management firm.

The US is in need of extensive infrastructure upgrading, but the limited Chinese investment in transport and infrastructure reflects hurdles to participating in that. In many areas of transportation as well as construction services, existing US players have been too strong for

Chinese companies to compete with directly. However, the rapid evolution of e-commerce logistics in China and the competitiveness of Chinese firms in this sector may offer some new selling points to enter the US market in the long run. Similarly, Chinese engineering and construction companies have become more competitive by working on hundreds of rail and other infrastructure-related projects in China. This expertise and availability of state financing already has allowed them to win construction and engineering contracts in many markets, and it may lead them to increase their presence in the US and other advanced economies sometime in the future.

The stability and maturity of the US economy mean that infrastructure projects in the US are attractive to Chinese financial investors seeking stable long-term returns as well. However Chinese participation in these projects does generate notably political grumbling, over both reciprocity questions and security concerns, and these issues will require mitigation both in terms of national security and public perceptions if the potential for growth is to be realized.

TOTAL
\$0.2bn

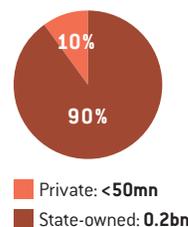
TOP 5 INVESTORS

- 1 China State Construction
- 2 China Shipping
- 3 COSCO
- 4 Air China
- 5 China Eastern Airlines

ENTRY MODE



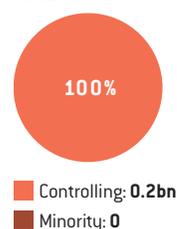
INVESTOR OWNERSHIP



TYPE



STAKE



4 CONCLUSIONS AND POLICY AGENDA

In this report we have reviewed traditional metrics on FDI between the United States and China and supplemented them with a detailed and more inclusive new dataset built by counting and analyzing transactions one-by-one. We have emphasized accuracy, transparency and objectivity in this assessment. Building on this foundation we can draw a number of conclusions from the empirical evidence, and then offer recommendations for the US-China policy agenda.

CONCLUSIONS

First, **FDI ties between the United States and China are much deeper than commonly thought.** Both the United States and China have been more welcoming to one another's firms than commonly used government statistics suggest. We count nearly \$230 billion of American investments in Chinese operations since 1990, compared to official FDI stock figures of \$70 to 75 billion. Our cumulative value for Chinese transactions in the US over that period is \$64 billion, significantly above official estimates ranging from \$15 to \$41 billion. This under-counting is not because of hidden transactions but due to the manner in which government agencies are mandated to count flows, and the limited resources they have for doing so.

Second, **the US had a head start in the bilateral FDI relationship.** American corporations have invested in China for more than three decades, and as a result the cumulative value of US deals there since 1990

exceeds the corresponding Chinese deal sum in the US by a factor of four. Taking into account valuation and exchange rate changes, the gap would be even greater. In each of the 14 industries we analyze cumulative US FDI in China exceeds Chinese investment in the US. This is a testament to China's extraordinary openness to inward investment during its early development period, and the critical role that foreign investment—not least from the US—played in China's economic miracle. China deserves credit for rewriting the emerging market playbook through FDI openness.

Third, **the tide has turned in recent years in terms of annual FDI flows.** American FDI flows to China peaked in 2008 and have been largely flat since, showing a declining trend since 2012. Structural forces are at work, not just short-term cycles. Commercial factors including slowing Chinese GDP growth, saturation in some industries, and greater risk aversion play some part in explaining this slack. But Chinese restrictions on foreign investors in most industries, including growth industries and services where American businesses would like to expand, are important factors as well. Chinese FDI in the US has moved in the opposite direction during this period, growing on average more than 30% annually from 2011 to 2015. Yearly flows soared from less than \$5 billion in 2011 to more than \$15 billion in 2015—and are on track to double from that level in 2016. In 2015, Chinese FDI in the US exceeded US flows into China for the first time.

Fourth, **the investor base is big and has diversified over the past decade.** Only a small number of US companies ventured to China in the early reform era. By 2015, we count more than 1,300 US companies that had made the journey, 430 of them investing more than \$50 million and 56 with billion-dollar bets. More than 70% of US investment from 1990 to 2015 by value came in the form of greenfield projects, the majority small- and medium-sized. Chinese FDI in the US on the other hand was dominated by acquisitions of existing businesses (including some that might have folded otherwise). Of the \$64 billion in Chinese FDI that we count, nearly 90% entered by buying rather than building. Not surprisingly, almost half of total investment can be attributed to large-scale transactions of \$1 billion and more, and only 10% involved small-sized projects. One important change in recent patterns is that Chinese private sector investors are now investing more than state-owned firms by a wide margin, making up nearly 80% of flows since 2013. Adding to the diversity in both directions is the growing importance of private equity firms, venture capitalists, and other financial investors.

Fifth, **the mix of both investor motives and industry composition has changed profoundly.** Early US FDI in China was typically searching for lower manufacturing costs including labor, environmental compliance, land acquisition, and construction. In more recent decades, investment activity has shifted toward consumer-oriented endeavors that were less common in earlier years. Other investors had been drawn to China to seize financial opportunities in a double-digit GDP growth emerging market with an appreciating currency: those days are behind us now as well. Chinese FDI in the US was initially driven by companies seeking strategic assets, including technology, brands, and talent. That has expanded in recent years to include pursuit of financial returns and realization that manufacturers need to be closer to American consumers if they want to defend their US market share, now that China does not boast the lowest cost of production.

Sixth, **data patterns reflect the roles of policy and politics in FDI flows both ways.** In its early decades, the US FDI trajectory closely mirrored China's initial

FDI opening policy. Even today, the US footprint in China is to some extent defined by industrial policies. China's recent outward investment take-off is as much a function of capital controls being lifted as anything else, and today's Chinese outlook remains under the shadow of potential re-imposition of those broader financial policies. On both sides some sectors are subject to stricter regulations—some reasonable and some less so—for example in banking and insurance, high-tech products with dual-use applications, and infrastructure. Good policy is critical to managing concerns about FDI, and thereby keeping the politics constructive; bad policies, or asymmetric openness in the relationship caused by policies, can just as easily poison this promising new dimension of the US-China relationship.

Seventh, **the benefits from FDI are tangible and mostly felt locally.** FDI was important in China's reform-era success, and central to the distributed global production-chain model that many US businesses embraced, generating benefits for Chinese and US consumers and competitiveness for industries which flourished in an open international economy. The local benefits have been enormous, with US companies today employing more than 1.6 million workers in China. Though at an earlier stage, the benefits from Chinese presence in the US are showing up too, attracting needed capital to the US while permitting Chinese companies to tap into US advantages. Chinese FDI already supports more than 100,000 direct US jobs today. These links facilitate people-to-people relationships to a greater extent than trade and short-term tourism. These benefits are today spread across more than 90% of US states and Chinese provinces. Our data allows mapping FDI ties between individual states and provinces, showing links between hundreds of pairs of communities.

Finally, **there is still huge room to grow two-way FDI flows.** US-China bilateral FDI is nowhere near saturation. Chinese companies have just started to operate overseas, and will invest hundreds of billions of dollars in the coming decades to catch up and adjust their business models to cope with new economic realities at home. US companies are more than ready to increase their investment in many sectors of a

growing China, to engage the Chinese consumer and compete in growth sectors including technology, healthcare, research and development and many more. The assumption that FDI flows to China have peaked because China is wealthier today than it used to be is badly mistaken: the world's wealthiest nations have a much greater propensity for FDI than China today.

POLICY AGENDA

This report seeks to provide decision-makers and the broader public with a shared statistical foundation, so it emphasizes descriptive data analysis, not advocacy for particular policy responses to opportunities or challenges. That said, our results do point to a handful of general conclusions for the US-China policy agenda that can serve as a starting point for a broader and deeper discussion of the data presented in this study:

First, **policymakers are well-advised to consider how much further along the relationship is than official data suggests.** Doing so argues for attaching a higher priority to upgrading the policy framework presently used to manage these opportunities and concerns. Many leaders and legislators still think of FDI as only a one-way flow from an advanced United States by firms seeking cost savings to a less-developed China hungry for investment. Many firms continue to see things in this fashion as well, but we have shown that the reality is quite different. The two-way volume of investment is far more advanced than it was just a few years ago, and so leaders—both in business and government—need to manage this interaction differently. Even within the last three years some US officials treated inward Chinese investment as though it were trivial, and as though they had a mandate either to embrace it or reject it ad hoc. Some officials in Beijing, just as mistakenly, argued that the United States was not open to Chinese FDI. The data demonstrate that each of these notions is antiquated. The policy implication is that upgrading US-China FDI policy is not just a nice long-term goal but a present necessity. US and Chinese officials are not negotiating a bilateral investment treaty out of sheer enthusiasm for liberalization, but because

our commercial interests are already outgrowing their cage.

Second, **in setting the bilateral agenda policy makers must be mindful of one another's internal timing.** Current policy expectations have not only been set without a proper understanding of the data, but also without sufficient attention to the domestic political processes and timing on each side. The bureaucratic time and processes required to get things done are changing, sometimes faster than officials can absorb. American politics has been muddled by partisanship in recent years, making international agreements more time-consuming to ratify at home. Populist distaste for globalization broadly speaking means that the reopening of legislation managing investment screening could lead to more protectionist outcomes than intended. In China the next stage of opening to foreign investment will be difficult, requiring consolidation of multiple inward investment laws, abolishing a decades-old system of “guiding” foreign investment even in highly competitive industries, and disentangling anxieties about capital flows from the need to let companies make global investment decisions. While China traditionally could stick to its official timetables, nowadays major policy reforms have been delayed as much as four years due to internal political discord. This is a new situation for both sides, and leaders must be careful about the clock. Based on our findings, there is less time for policy planning than either side thinks and it may require high-level attention to get back on track.

Third, **our research shows how quickly the two-way sectoral flow mix has been evolving, which naturally leads to worry about whether policy can keep up with national security issues.** Higher-tech acquisitions will attract security scrutiny, and, as the data show, they are simply a bigger part of the mix nowadays, as the data show. Our policy concern is that fundamental national security questions cannot be resolved by FDI screeners trained to quickly clear transactions based on a pre-determined set of criteria, who do not have the ability to make path breaking judgments about the evolving nature of national security. Foreign investment review boards are not the right place to debate what is security sensitive

and what is not, or how to balance economic welfare against marginal vulnerabilities: these are questions for leaders to answer. The data make clear that FDI screening is getting more challenging for both sides, and if security and welfare are both to be protected then countries must do their best to take politics out of the process.

Fourth, **our comparative data on two-way flows show that questions of symmetry and reciprocity are complicated.** China has traditionally hosted more investment from the US than vice versa, but this had mostly to do with its stage of development, the readiness of Chinese firms to venture abroad and restrictions on access to foreign exchange. In the aggregate, Chinese firms are now investing more in the United States than the other way around, which naturally invites new questions. However, in the aggregate this is not (yet) true for most industries. Furthermore the annual balance is not just a result of policy restrictions (which are far more limited on the US side) but also with changing business appetite to invest due to concerns about slowing economic growth, rising political risks from domestic politics, and many other factors. These complexities should be considered in framing the policy agenda before either side embraces fashionable but vague notions such as reciprocity. China's current FDI screening system, meanwhile, includes numerous non-security criteria, and asymmetries between that regime and the US approach certainly will grow more nettlesome as bilateral flows expand further. While perfect and immediate symmetry should not be expected in any two-way investment relationship, much depends on whether both sides intend to make convergence toward a common standard of investment openness the goal.

Finally, **it is important to remind ourselves that the US-China FDI policy agenda does not exist in a vacuum, and we encourage Beijing and Washington to think beyond the bilateral.** American and Chinese interests in maximizing the benefits of FDI cannot be guaranteed solely on a US-China basis: the investment environment is inherently multilateral. Many nations are currently competing with one another to host investors, and to win preferred contracts that

will require their FDI, with a mishmash of screening regimes and practices at work across myriad jurisdictions. National security concerns do not fit neatly along bilateral lines. It is therefore in the interest of the world's two largest economies to propose renewed discussion of direct investment arrangements in the multilateral context, and to convene an initial scoping meeting for such dialogue in the near future. China's emergence as a principal player in global investment flows presents an opportunity to revive the prospect of a multilateral agreement on investment that was dashed two decades ago because many believed at that time that FDI was a one-way street. China has proven that is not the case.

These conclusions and observations for the policy agenda are just a few of the insights that can be derived from this study and its underlying new dataset on US-China investment. As the topic of two-way investment has gained greater prominence in US-China relations, strongly held views have emerged, and it has become harder to separate issues based on facts from those based on emotions. We hope that this report and future updates will help to facilitate a more productive, data-driven debate about the important policy issues that arise and the mutual benefits that are possible.

REFERENCES

- American Chamber of Commerce in Shanghai. *American Business in China White Paper 2016*. [American Chamber of Commerce in Shanghai, 2016]. <http://bit.ly/2eUn6op>.
- Anderson, Thomas. "Foreign Direct Investment in the United States: New Investment in 2008." *Survey of Current Business*, June 2009, 54–61.
- Autor, David H., David Dorn, and Gordon H. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," *American Economic Review* 103, no. 6 (2013).
- Bureau of Economic Analysis. "Establishment Data for 1997, Methodology", (Washington: U.S. Department of Commerce, 1998). <http://bit.ly/2dPsf4u>.
- Bureau of Economic Analysis. *A Guide to BEA's Direct Investment Surveys*. (Washington: U.S. Department of Commerce, n.d.). <http://bit.ly/2aGjKEk>.
- Bureau of Economic Analysis. *U.S. International Economic Accounts: Concepts and Methods*. (Washington: U.S. Department of Commerce, 2014). <http://bit.ly/2aVr9yU>.
- Bureau of Economic Analysis. "Expenditures by Foreign Direct Investors for New Investments in the United States, 2014." *Bureau of Economic Analysis*. November 30, 2015. <http://bit.ly/2b0RPRE>.
- Bureau of Economic Analysis. *Concepts and Methods of the U.S. National Income and Product Accounts*. (Washington: U.S. Department of Commerce, 2015). <http://www.bea.gov/national/pdf/all-chapters.pdf>.
- Bureau of Economic Analysis. *New Foreign Direct Investment in the United States, 2014 and 2015*. [Bureau of Economic Analysis, 2016]. <http://bit.ly/2b0RmyR>.
- China General Chamber of Commerce-USA. *China General Chamber of Commerce-USA 2015 White Paper*. [CGCC Foundation, 2016]. <http://bit.ly/2b0TbeY>.
- Dunning, John H. and Sarianna M. Lundan. *Multinational Enterprises and the Global Economy*. 2nd ed. (Northampton: Edward Elgar, 2008).
- Dunning, John H., Changsu Kim, and Donghyun Park. "Old wine in new bottles: A comparison of emerging-market TNCs today and developed-country TNCs thirty years ago." *The rise of transnational corporations from emerging markets: Threat or opportunity* (2008), 158-180.
- Enright, Michael J. *Developing China. The Remarkable Impact of Foreign Direct Investment* (Abingdon-on-Thames: Routledge, 2016).
- Fujita, Masataka. *A Critical Assessment of FDI Data and Policy Implications*. UNCTAD, 2008. <http://bit.ly/2dHSu8Y>.
- Gartzke, Erik. "The Capitalist Peace." *American Journal of Political Science* 51, no. 1 (2007): 166–91.
- Gloudeaman, Lauren and Nargiza Salidjanova. *Policy Considerations for Negotiating a U.S.-China Bilateral Investment Treaty*. (Washington: U.S.-China Economic and Security Review Commission, 2016). <http://bit.ly/2acmtYN>.
- Graham, Edward M. and Paul R. Krugman. *Foreign Direct Investment in the United States*. 3rd ed. (Washington, D.C.: Peterson Institute for International Economics, 1995).
- Hanemann, Thilo. "Trends and Implications of Chinese Investment in the United States," [Testimony before the U.S.–China Economic and Security Review Commission, 2013]. <http://bit.ly/2aGCfd3>.
- Hanemann, Thilo. "Made by China—in America?" *Rhodium Group*. July 1, 2014. <http://bit.ly/2aP2GuE>.
- Hanemann, Thilo, and Cassie Gao. "China's Global Outbound M&A in 2015," *Rhodium Group*. January 4, 2016. <http://bit.ly/2aFpufu>.
- Hanemann, Thilo and Cassie Gao. "Chinese FDI in the US: Tripling Down on America." *Rhodium Group*. July 22, 2016. <http://bit.ly/2b7S4fz>.
- Hanemann, Thilo, and Daniel H. Rosen. "China Invests in Europe: Patterns, Impacts and Policy Implications." *Rhodium Group*. June 2012. <http://bit.ly/1aISBeN>.
- Hanemann, Thilo and Daniel H. Rosen. *High Tech: The*

- Next Wave of Chinese Investment in America*. New York: Asia Society Policy Institute, 2014. <http://bit.ly/2aVtrOz>.
- International Monetary Fund. *Balance of Payments Manual, 5th Edition*. (Washington: International Monetary Fund, 1993). <http://bit.ly/1rh6EBX>.
- International Monetary Fund. *Foreign Direct Investment Statistics: How Countries Measure FDI*. (Washington: International Monetary Fund, 2001). <http://bit.ly/1i3S32w>.
- International Monetary Fund. *Foreign Direct Investment Trends and Statistics: A Summary*. (Washington: International Monetary Fund, 2003). <http://bit.ly/2d1o2bw>.
- International Monetary Fund. *Foreign Direct Investment: Trends, Data Availability, Concepts, and Recording Practices*. (Washington: International Monetary Fund, 2004). <http://bit.ly/2dl2io5>.
- International Monetary Fund. *Eighteenth Meeting of the IMF Committee on Balance of Payments Statistics, Ultimate Beneficial Owner/Ultimate Destination*. (Washington: International Monetary Fund, 2005). <http://bit.ly/2dCCyl4>.
- International Monetary Fund. *Balance of Payments and International Investment Position Manual, 6th Edition*. (Washington: International Monetary Fund, 2009). <http://bit.ly/2dZEWJl>.
- Jackson, James K. *U.S. Direct Investment Abroad: Trends and Current Issues*. Washington: Congressional Research Service, 2013. <http://bit.ly/2drkqjQ>.
- Jackson, James K. *The Committee on Foreign Investment in the United States (CFIUS)*. (Washington: Congressional Research Service, 2016). <http://bit.ly/2aFqf8i>.
- Kozlow, Ralph. *Valuing the Direct Investment Positions in U.S. Economic Accounts*. Bureau of Economic Analysis, 2002. <http://bit.ly/2dZFRJJ>.
- Lipsey, Robert E., "Foreign Direct Investment in the United States: Changes over Three Decades," in *Foreign Direct Investment*, ed. Kenneth A. Froot (Chicago: University of Chicago Press, 1993).
- Lipsey, Robert E. (2003). "Foreign direct investment and the operations of multinational firms: Concepts, history, and data." *Handbook of international trade* 1 (2003): 287-319.
- Milhaupt, Curtis J. "Is the U.S. Ready for FDI from China? Lessons from Japan's Experience in the 1980s" *U.S. China Services Group*, Vol. 1, 2008. <http://bit.ly/2aGlcGM>.
- Ministry of Commerce of the People's Republic of China, National Bureau of Statistics of the People's Republic of China, State Administration of Foreign Exchange, "对外直接投资统计制度 [Outward Foreign Direct Investment Statistical Procedure]", *Ministry of Commerce of the People's Republic of China*. December 31, 2012, <http://bit.ly/2dHWrdP>.
- Ministry of Commerce. *2014 年度中国对外直接投资统计公报 [2014 Chinese Outward Direct Investment Statistical Yearbook]*. (Beijing: China Statistics Press, 2015).
- Moran, Theodore H., and Lindsay Oldenski. *Foreign Direct Investment in the United States: Benefits, Suspicions, and Risks with Special Attention to FDI from China*. (Washington: Peterson Institute for International Economics, 2013).
- National Committee on U.S.-China Relations and Rhodium Group. *New Neighbors: Chinese Investment in the United States by Congressional District*. 2015. <http://bit.ly/2b0SG4P>.
- National Committee on U.S.-China Relations and Rhodium Group. *New Neighbors: 2016 Update*. 2016. <http://bit.ly/2auE51W>.
- Naughton, Barry. *The Chinese Economy: Transitions and Growth*. (Cambridge: MIT Press, 2007).
- Organisation for Economic Cooperation and Development. *Benchmark Definition of Foreign Direct Investment, 4th Edition*. (Paris: Organisation for Economic Cooperation and Development, 2008). <http://bit.ly/2dQvGnY>.
- Poulsen, Lauge Skovgaard and Gary Clyde Hufbauer, *Foreign Direct Investment in Times of Crisis*, (Washington: Peterson Institute for International Economics, 2011).
- Punatar, Priya and Youngsuk Yook. "Measuring Direct Investment in the Financial Accounts of the United States." *FEDS Notes*, October 2014.
- Rosen, Daniel H. *Behind the Open Door: Foreign Enterprises in the Chinese Marketplace*. (Washington: Institute for International Economics, 1999).
- Rosen, Daniel H. *Avoiding the Blind Alley: China's Economic Overhaul and Its Global Implications*. (New York: Asia Society Policy Institute, 2014). <http://bit.ly/2behT9A>.

- Rosen, Daniel H. and Thilo Hanemann. *China's Changing Outbound Foreign Direct Investment Profile: Drivers and Policy Implications*. (Washington: Peterson Institute for International Economics, 2009). <http://bit.ly/2b8wWEw>.
- Rosen, Daniel H. and Thilo Hanemann. *An American Open Door? Maximizing the Benefits of Chinese Foreign Direct Investment*. (New York: Asia Society, Center on U.S.–China Relations, 2011). <http://bit.ly/2aGoFsR>.
- Rosen, Daniel H. and Thilo Hanemann. *Chinese Direct Investment in California*. (San Francisco: Asia Society, 2012). <http://bit.ly/1CUONGI>.
- Salidjanova, Nargiza. *Going Out: An Overview of China's Outward Foreign Direct Investment*. (Washington: U.S.-China Economic and Security Review Commission, 2011). <http://bit.ly/1EI3JYI>.
- Servan-Schrieber, Jean-Jacques. *The American Challenge*. (New York: Scribner, 1968).
- Sola, Pierre. "Distortions in Direct Investment Related to Special Purpose Entities." *Nineteenth Meeting of the IMF Committee on Balance of Payments Statistics*. (Frankfurt: IMF, 2006).
- State Administration of Foreign Exchange. "中国国际收支平衡表 [China's Balance of Payments]." 2015. <http://www.safe.gov.cn/>.
- State Council, "国务院至于投资体制改革的决定 [Decisions Regarding Reform of the Investment Regime]". *State Council*. July 16, 2004. <http://bit.ly/2b81cNU>.
- State Council, "国务院关于鼓励支持和引导个体私营等非公有制经济发展的若干意见 [Several Opinions about Encouraging, Supporting, and Guiding Individual, Private, and Other Non-Public Ownership Economic Entities Development]". *State Council*. August 12, 2005. <http://bit.ly/2b81BTy>.
- State Council Information Office, "国新办就“2014年度中国对外直接投资统计公报”有关情况举行发布会 [State Council Information Office Holds Press Conference about the 2014 China Outbound Direct Investment Statistical Bulletin]". *State Council Information Office*. September 17, 2015. <http://bit.ly/2aVAFIA>.
- Stratford, Timothy P. *Measures and Practices Restraining Foreign Investment in China*. (Washington: Covington, 2014). <http://bit.ly/2aGneGT>.
- United Nations Conference on Trade and Development. *Report of the Expert Meeting on Capacity Building in the Area of FDI: Data Compilation and Policy Formulation in Developing Countries*. (Geneva: United Nations Conference on Trade and Development, 2005) <http://bit.ly/2dtCUyX>.
- United Nations Conference on Trade and Development. *Expert Meeting on Capacity Building in the Area of FDI: Data Compilation and Policy Formulation in Developing Countries—Introduction to Major FDI Issues*. (Geneva: United Nations Conference on Trade and Development, 2005). <http://bit.ly/2dl4ko2>.
- United Nations Conference on Trade and Development. *UNCTAD Training Manual on Statistics for FDI and the Operations of TNCs*. (Geneva: United Nations Conference on Trade and Development, 2009). <http://bit.ly/2d1p3kc>.
- United Nations Conference on Trade and Development. *World Investment Report 2014 Methodological Note*. (Geneva: United Nations Conference on Trade and Development, 2015). <http://bit.ly/2dqSmxa>.
- U.S. Chamber of Commerce. *China's Approval Process for Inbound Foreign Direct Investment: Impact on Market Access, National Treatment and Transparency*. (Washington: U.S. Chamber of Commerce, 2012). <http://uscham.com/2b7ZGet>.
- Wilkins, Mira. *The History of Foreign Investment in the United States to 1914*. (Cambridge, MA: Harvard University Press, 1989).
- Wilkins, Mira. *The History of Foreign Investment in the United States, 1914-1945*. (Cambridge, MA: Harvard University Press, 2004).

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- American Enterprise Institute. *China Investment Tracker*. (Washington, 2016). <http://bit.ly/1LfXVbJ>.
- Bloomberg. *Bloomberg Mergers and Acquisitions Deal List*. (New York, 2016). <http://bloom.bg/2aAvyGj>.
- Bureau of Economic Analysis. *Balance of Payments and Direct Investment Position Data*. (Washington, 1999-2016). <http://bit.ly/2aPKtgs>.
- Bureau of Economic Analysis. *Activities of Multinational Enterprises*. (Washington, 2007-2014). <http://bit.ly/2aPKtgs>.
- Bureau of Economic Analysis. *Foreign Direct Investment in the United States*. (Washington, 2015-2016). <http://bit.ly/2aPKtgs>.
- China Banking Regulatory Commission. 政府信息公开 [Government Information Releases]. (Beijing, 2011-2016). <http://bit.ly/2dJPOCd>.
- China Insurance Regulatory Commission. 行政许可事项目录 [Catalogue of Administrative License]. (Beijing, 2011-2016). <http://bit.ly/2dsFvup>.
- Cninfo. *CNINFO*. (Beijing, 2016). <http://bit.ly/2dviG8c>.
- CrunchBase. *CrunchBase*. (San Francisco, 2007-2016). <http://bit.ly/2b8Nydo>.
- Emage Company. *2016重庆外资企业名录 [2016 Chongqing Foreign Business Directory]*. (Shenzhen, 2000-2016). <http://bit.ly/2dJMzqn>.
- Farm Service Agency. *Agricultural Foreign Investment Disclosure Act Data*. (Washington, 2004-2014). <http://bit.ly/2didTVG>.
- Federal Financial Institutions Examination Council. *Report of Assets and Liabilities of U.S. Branches and Agencies of Foreign Banks*. (Washington, 1996-2016). <http://bit.ly/2dtzDA1>.
- International Monetary Fund. *Coordinated Direct Investment Survey*. (Washington, 2009-2015). <http://bit.ly/2aAwtqb>.
- Ministry of Commerce. *2014年度中国对外直接投资统计公报 [2014 Chinese Outward Direct Investment Statistical Yearbook]*. (Beijing: China Statistics Press, 2015).
- Ministry of Commerce. 中华人民共和国商务部外国投资管理局 [Ministry of Commerce of the People's Republic of China, Department of Foreign Investment Administration]. (Beijing, 2016). <http://bit.ly/2cT9ojm>.
- Organisation for Economic Cooperation and Development International. *OECD Direct Investment Statistics*. (Paris, 2014-2016). <http://bit.ly/2dsDRc3>.
- Rhodium Group. *China Investment Monitor*. (New York, 2011-2016). <http://bit.ly/2dJNBe0>.
- Rystad. *Rystad Energy*. (Oslo, 2016). <http://bit.ly/2dJM5JU>.
- State Administration of Foreign Exchange. *China's Balance of Payment Statistics*. (Beijing, 2016). <http://bit.ly/2dJSIC2>.
- Tianyancha. 天眼查 [Tianyancha]. (Beijing, 2016). <http://bit.ly/2dvl8KA>.
- Thomson Reuters. *Thomson Reuters Mergers and Acquisitions*. (New York, 2016). <http://tmsnrts/2aHgGsD>.
- United Nations Conference on Trade and Development. *Bilateral FDI Statistics*. (Geneva, 2014). <http://bit.ly/1iRAEdQ>.
- United Nations Conference on Trade and Development. *Foreign Direct Investment*. (Geneva, 2014). <http://bit.ly/2avd1zD>.
- US-China Business Council. *The China Business Review-China Business Directory*. (Washington, 1990-2009).

APPENDIX: DATA METHODOLOGY

This section elaborates on the nature and definition of Foreign Direct Investment (FDI), existing problems with traditional FDI statistics, and the utility of transactions data to overcome some of these problems. It then describes in detail the concept, compilation, and utility of Rhodium Group's (RHG) dataset on FDI transactions between the US and China.⁴⁰

DEFINITION OF FDI AND DATA SOURCES

FDI is a specific category of cross-border capital flows within the system of National Accounts, which is an internationally agreed upon standard set of principles for measuring economic activity used by the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), and other international organizations.⁴¹ By definition, FDI entails cross-border capital flows that achieve significant influence over the management of an invested entity and a long-term investment relationship. The common threshold for a direct investment is 10% of equity or voting shares.⁴² The other four categories of cross-border investment flows are portfolio investment, derivatives, other investments, and reserves.

Under international principles, FDI generally includes three components: equity investment, reinvested earnings, and other capital flows between a parent company and its foreign subsidiary. A direct investment relationship usually starts with an equity injection into an overseas company, either for the establishment of a new overseas subsidiary (*greenfield investments*) or to acquire a significant stake

(greater than 10%) in an existing company (*mergers and acquisitions*). All subsequent capital flows between the parent company and foreign subsidiary are counted as direct investment, including profits that are reinvested in the subsidiary (*reinvested earnings*) and other capital flows between the two firms (such as *intercompany debt*).⁴³

Most countries maintain official statistics on both FDI flows (the value of cross-border investments made during a specific period) and stocks (the total value of aggregate direct investment at a given time adjusted for valuation effects).⁴⁴ The central bank or national statistics agency is generally in charge of collecting and disseminating the two statistics. The primary data source is typically exchange rate records (the International Transactions Reporting System run by central banks) and in some cases, supplemental company surveys.⁴⁵

Several international organizations also compile FDI data from national agencies. These include the IMF, United Nations Conference on Trade and Development (UNCTAD), and the OECD. All three organizations compile data on countries' aggregate FDI flows and stocks, which are collected from national statistics agencies. The IMF does this for more than 100 countries under its Balance of Payments (BOP) statistics;⁴⁶ UNCTAD also does this globally, supplementing the data with its own estimates when necessary;⁴⁷ the OECD only compiles FDI flows

40 Certain paragraphs and text fragments in the following pages may have been used in previous reports to describe RHG's transactions dataset.

41 International Monetary Fund. *Balance of Payments Manual*, 5th Edition. (Washington: International Monetary Fund, 1993). The IMF definitions also are used by other international organizations such as the OECD and UNCTAD.

42 International Monetary Fund. *Balance of Payments and International Investment Position Manual*, 6th Edition. (Washington: International Monetary Fund, 2009); Organisation for Economic Cooperation and Development. *Benchmark Definition of Foreign Direct Investment*, 4th Edition. (Paris: Organisation for Economic Cooperation and Development, 2008).

43 Detailed information on the nature of direct investment and its measurement can be found in the IMF (2009) and OECD (2008) materials cited above.

44 For complete definitions, see IMF (2009) and OECD (2008).

45 For an overview of national practices, International Monetary Fund. *Foreign Direct Investment Statistics: How Countries Measure FDI*. (Washington: International Monetary Fund, 2001); International Monetary Fund. *Foreign Direct Investment: Trends, Data Availability, Concepts, and Recording Practices*. (Washington: International Monetary Fund, 2004).

46 International Monetary Fund. *Balance of Payments and International Investment Position Manual*, 6th Edition. (Washington: International Monetary Fund, 2009).

47 See UNCTAD Statistics in Data Resources appendix.

and stock data for its member countries and a few major economies in the world.⁴⁸ In addition, IMF runs a survey of national statistics agencies called the Coordinated Direct Investment Survey (CDIS), which gathers more detailed data on FDI stock by source and destination (as reported by investing countries and host countries).⁴⁹ UNCTAD also maintains a database on Bilateral FDI Statistics, which provides figures on flows and stock between two partner economies as reported by those countries. FDI data compiled by international organizations are generally consistent with national data as those are provided by the respective national agencies.

SHORTCOMINGS OF TRADITIONAL FDI STATISTICS

Problems with timeliness, accuracy and international comparability of available official statistics for FDI are widely known and have intensified in recent years.⁵⁰

One major problem is discrepancy in the quality of underlying data. Statistical authorities have different capacities in collecting information and processing data. For example, some countries rely only on the International Transaction Recording System for source data, and do not have inputs on reinvested earnings or the necessary elements to calculate FDI stock. Many countries lack the capacity to make relevant adjustments from historical to market value. The overall pace of data processing differs greatly as well, resulting in significant time lags, particularly for data used for international comparisons.

Similarly, countries also work with different definitions of FDI, which makes it difficult to compare their data. The majority of countries have not yet transitioned to the new IMF Balance of Payments Manual, 6th Edition (BPM6), which is the most recent

international standard for compiling, calculating and presenting FDI flows and other BOP statistics. There is also great variation in the definition FDI that countries apply. For example, while most countries stick to the 10% threshold, some countries do apply a higher threshold for equity stakes to be counted as FDI. Countries also do not strictly adhere to the same classification systems when publishing more detailed FDI data, including industries and partner countries.⁵¹

The most significant problem that weighs on the quality of global FDI data is the growing complexity of global deal structures. The use of holding companies and offshore vehicles has increased tremendously in recent years, and the extent of “round-tripping” (where companies route funds to themselves through countries or regions with generous tax policies and other incentives) and “trans-shipping” (where companies channel funds into a country to take advantage of favorable tax policies only to re-invest it in a third country) make it increasingly difficult to track flows accurately. Those practices and complicated deal structures with “indirect” holdings also make it difficult for statistical agencies to correctly separate FDI from portfolio investment stakes. One way to circumvent some of those problems is to compile data based on the ultimate beneficial owner (UBO) principle, which records FDI flows and stocks according to the country of the ultimate foreign investor as opposed to the country of the immediate foreign investor. This kind of data can bypass some of the distortions caused by the use of holding companies and offshore vehicles. However, many national statistical agencies do not have the capacity to compile FDI data based on the UBO principle. It is currently mostly available in a handful of OECD economies, including the United States and the European Union.⁵²

48 See OECD International Direct Investment Statistics in Data Resources appendix.

49 See CDIS in Data Resources appendix.

50 United Nations Conference on Trade and Development. *Expert Meeting on Capacity Building in the Area of FDI: Data Compilation and Policy Formulation in Developing Countries – Introduction to Major FDI Issues*. (Geneva: United Nations Conference on Trade and Development, 2005); United Nations Conference on Trade and Development. *UNCTAD Training Manual on Statistics for FDI and the Operations of TNCs*. (Geneva: United Nations Conference on Trade and Development, 2009).

51 See UNCTAD summary at <http://unctad.org/en/Pages/DIAE/Definitions-of-FDI.aspx>.

52 International Monetary Fund. *Foreign Direct Investment Statistics: How Countries Measure FDI*. (Washington: International Monetary Fund, 2001); International Monetary Fund. *Eighteenth Meeting of the IMF Committee on Balance of Payments Statistics, Ultimate Beneficial Owner/Ultimate Destination*. (Washington: International Monetary Fund, 2005).

ALTERNATIVE APPROACHES

This problematic situation has encouraged economists and other analysts to find ways of working around existing gaps and distortions. One way for doing so is to compile alternative datasets that are based on tracking FDI transactions for specific countries or industries.

A range of commercial databases offers readily available data points for the number, value and distribution of global M&A transactions (for example Bloomberg or Thomson). Reliable data on greenfield FDI projects are more difficult to find, but there are a few commercial providers that offer such data (for example the *Financial Times'* fDi Markets). Data on global FDI transactions can also be sourced independently through regulatory documents, company registrations, investment promotion agencies, news searches and other channels.

There are also industry-specific databases that monitor transactions in particular sectors, for example Real Capital Analytics (real estate), Rystad (oil and gas), or Jones Lang Lasalle (hospitality industry).

Researchers have also compiled country-specific FDI databases, such as the American Enterprise Institute's database on China's global outbound investment, the University of Alberta's database on Chinese investment in Canada, and the University of Sydney's database on Chinese investment in Australia.⁵³

Such alternative datasets are generally not comparable to FDI data compiled using the traditional BOP method because they largely neglect non-equity components of FDI such as intercompany lending or reinvested earnings. However, they can provide real-time tracking, and accurate geographical and industry breakdowns. Scholars and analysts are increasingly using these to explore real-time trends.

53 For more details on such data resources used, refer to the Data Resources appendix. The University of Alberta and University of Sydney's respective databases, not consulted directly for this study, are available at: <http://bit.ly/2dwgiPN> and <http://bit.ly/25TYT6V>.

RHODIUM GROUP DATASET ON US-CHINA FDI TRANSACTIONS

RHG has developed and publicized a proprietary dataset on Chinese FDI in the US since 2011, the China Investment Monitor (CIM). The CIM was built with the goal of creating more transparency on growing Chinese investment in the US economy. The CIM data are updated on a quarterly basis and made available to the public in aggregate form through an online interactive.⁵⁴ The data has also served as the basis for a number of public reports, which contain additional commentary on patterns and specific transactions.

In 2016, RHG initiated the US-China FDI Project, under which we expanded the CIM into a two-way database on US-China bilateral FDI investments, applying the same methodologies and principles to provide an apples-to-apples comparison of FDI activity between the world's two largest economies.

CONCEPT AND COVERAGE

The US-China FDI Project database captures individual FDI transactions between the United States and China. It includes transactions that leads to significant ownership of assets with long-term nature by ultimate-US companies in Mainland China, and vice versa. The dataset covers transactions in the past 25 years, from 1990 to 2015.

Specifically, the dataset captures three types of transactions: (1) acquisitions of existing assets that results in at least 10% ownership stakes;⁵⁵ (2) greenfield projects with at least 10% ownership stake (newly built facilities such as factories, warehouses, offices and R&D centers); (3) the expansion of existing FDI operations. The general threshold for transactions to be included in the two-way databases is \$1 million, which is lower than the threshold used by the BEA for its annual and quarterly surveys.⁵⁶ As opposed to other transactions dataset, the US-China FDI Project data only counts completed

54 This is available at <http://bit.ly/1BwvocF>.

55 With the exception of assets that are already owned by US or Chinese investors, respectively.

56 If investments below the \$1 million threshold are found in the process of research and satisfy other criteria for inclusion, they are typically included.

acquisitions and greenfield projects and expansions that have broken ground. Announced, rumored or pending transactions are not included. Similarly, we do not include portfolio investment transactions (debt or equity stakes of less than 10%). Reverse merger transactions, flows related to Chinese firms listing their assets in US securities markets, cooperation agreements and procurement contracts are not recorded.

The coverage of our database is generally in line with the commonly accepted definition of FDI, but there are a few important exceptions and nuances compared to global BOP standard of FDI data compilation:

First, we count the value of all transactions that can be attributed to a Mainland Chinese or US company, regardless of the where the funds originate. For example, we do count US investments by an ultimately Chinese-owned company even if the money is routed through Cayman Islands, or if the capital is raised in Hong Kong or locally from a US bank. This is different from BOP data compilation but similar to the approach that the BEA follows for its dataset on New Foreign Direct Investment in the United States.⁵⁷ This approach helps to avoid distortions caused by the use of offshore locations.

Second, we follow our own approach for determining nationality of investors. We define US companies as firms that are headquartered or have the majority of their operations in the US, except for those that are wholly foreign-owned. Similarly, we define Chinese companies as firms that are headquartered or have the majority of their operations in Mainland China, except for those that are wholly foreign-owned. If a company changes ownership, i.e. it is acquired or otherwise becomes wholly foreign-owned, we stop counting any future investments even if the companies' primary operations are still in the US.⁵⁸

Third, we record investment amount on a gross basis, and do not take out divestitures or subtract reverse intra-company flows. This is also in line with BEA's

figure on assets from its Activities of Multinational Enterprises dataset. This approach helps to avoid distortions through intra-company flows following exchange rate movements and other corporate treasurer decisions, but it does not provide an accurate measure of net flows from a BOP perspective. For joint venture projects, we only count the respective US or Chinese investor's share in the total investment.⁵⁹ For acquisitions, we count full transaction value, even if the target company has assets located outside of the US/China.⁶⁰ Total deal values for M&A transactions include both equity investment and assumption of debt.

Fourth, in a few special cases we may have a slightly more liberal definition of FDI than laid out in the BPM6 manual and similar documents. For example, we do include upstream energy investments that result in equity stakes over 10%, but which do not confer voting rights.⁶¹ Our database also covers investments in physical assets in aviation and other transportation services, which under BPM6 principles would be counted as services exports.⁶² We also do include investment in commercial real estate in China, which technically result in long-term leases instead of full ownership.⁶³ Finally, commercial banking is a special case. We do include equity investments but we do not include the creation of new "assets" on banks' balance sheet through loans (as opposed to the BEA's dataset on assets of foreign affiliates, which includes those assets).

DATA COMPILATION

The initial compilation of raw data on individual FDI transactions relies on a proprietary research

⁵⁷ The BEA does not have an equivalent dataset with this methodology on the outbound side.

⁵⁸ Notable examples of this include Anheuser-Busch and Chrysler.

⁵⁹ For example, only half of the total investments in GM and SAIC's 50%-50% joint venture in Shanghai would be counted as GM investment in China.

⁶⁰ An example of this is Huaneng's investment in InterGen, a power generation company with significant assets around the world outside the US.

⁶¹ One example of this is Sinopec's 2013 acquisition of 50% non-operational stake in Chesapeake Energy's Mississippi Lime oil and gas properties.

⁶² These include airline offices at airports and shipping company offices and operations in ports.

⁶³ Under Chinese property law, all land is technically owned by the state, though leases are conferred and tradable in a manner similar to property deeds with varying duration dependent on usage.

methodology that is based on a wide range of different channels and strategies.

First, commercial databases provide a starting point for certain information. In particular, there is good coverage of M&A transactions both ways. Commercial providers that offer data on companies operating in China and the US and their financial metrics are another source that we utilize to compile raw data.

Second, mandatory and voluntary company disclosures are another source for raw data. Many large Chinese and US companies release detailed information on their overseas footprints and assets, offering a good starting point. Public companies in China need to disclose if they decide to engage in joint ventures or other major foreign investment activities. These disclosures are searchable on the official Shanghai and Shenzhen stock exchange by name and date.⁶⁴ Publicly listed companies in the US are subject to similar disclosures, and filings are searchable as well.⁶⁵ Business associations such as the American Chamber of Commerce, the US-China Business Council, the China General Chamber of Commerce USA and others are useful resources to retrieve information about Chinese companies in the US and US companies in China.⁶⁶

Third, there is plenty of data from government agencies at various levels that helps to improve understanding of the footprint of relevant firms. In China, foreign-invested enterprises (FIE) information is publicly available through an online database maintained by the Ministry of Commerce, Ministry of Finance, State Administration of Foreign Exchange, National Bureau of Statistics, and State Administration of Taxation. Other Chinese ministries publish lists of approved foreign and US investors in specific sectors, for example, real estate or information technology.⁶⁷ In the US, BEA does not

release individual company information, but local government agencies keenly keep track of foreign investments and often provide lists of Chinese companies in their localities. Other government agencies offer industry specific information, for example the Agricultural Foreign Investment Disclosure Act (AFIDA) reports for foreign farmland ownership in the US.⁶⁸

Fourth, screening newspapers and online resources is necessary to complement the other resources, most importantly for up to date information and newly announced transactions. We have built customized search algorithms and use a number of professional news aggregators to systematically screen for such news flow.

Finally, we rely on a wide network of sources and informants to collect and retrieve information on prospective transactions and private transactions that may have never been publicized.

DATA CODING

After compilation of raw data, each transaction is thoroughly reviewed and coded with relevant variables.

Importantly, we do not simply aggregate reported transactions but we review each investment to confirm its existence and characteristics. Many investments are announced but never implemented, or implemented in a different form than initially announced. We verify each project's current status and whether or not it meets our criteria for foreign direct investment. For the sample of remaining investments, each transaction is coded for relevant variables including investment value, geographic location, industry, stake, business activity, and investor characteristics. All information is either collected from official company sources or is estimated by us.

First, we determine the correct value of each transaction and the proper way of logging it over time. For the value, we rely on official company reporting and regulatory documents wherever possible. For

64 For the Shanghai Stock Exchange, see <http://bit.ly/2dikRdm>.

65 This is available at the Securities and Exchange Commission's EDGAR database, <http://bit.ly/1qKEj06>.

66 For example, the "China Business Directory" published in the US-China Business Council's *China Business Review*.

67 A list of approved real estate investors can be found at <http://bit.ly/2cXsBR9> and for information technology at

<http://bit.ly/2dC6To6>.

68 The AFIDA database is available at <http://bit.ly/2didTVG>.

Table A-1: Industry Classification for RHG's US-China FDI Database

INDUSTRY	SUB-SECTORS	CORRESPONDING SIC CODES/ ACTIVITIES	NOTES
Agriculture and Food	Farming and Animal Husbandry	01 Agricultural Production - Crops 02 Agricultural Production - Livestock and Animal Specialties 07 Agricultural Services 08 Forestry 09 Fishing, Hunting, and Trapping	Includes seed production and animal feed production.
	Food and Beverage	20 Food and Kindred Products 21 Tobacco Products	Includes beverage production and sales.
	Restaurants	58 Eating and Drinking Places	
Automotive and Transportation Equipment	Cars and Automotive Equipment	371 Motor Vehicles and Motor Vehicle Equipment	Includes tires, auto glass, and other major automotive parts Includes car dealerships
	Other Transportation Equipment	37 (except for 371 and 372) Transportation Equipment	Includes ships and boats, railroad equipment, motorcycles, etc.
Aviation	Aerospace Equipment and Components	372 Aircraft and Parts	Includes related services such as training and aircraft repair
Chemicals, Metals, and Basic Materials	Chemicals	28 Chemicals and Allied Products (except for drugs)	
	Plastic, Rubber, and Other Materials	26 Paper and Allied Products 30 Rubber and Miscellaneous Plastic Products 32 Stone, Clay, Glass and Concrete Products 24 Lumber and Wood Products, Except Furniture	
	Metals and Minerals	10 Metal Mining 14 Mining and Quarrying of Nonmetallic Minerals, Except Fuels 33 Primary Metal Industries (foundries, smelting, etc.) 34 Fabricated Metal Products, Except Machinery and Transportation Equipment	
Consumer Products and Services	Consumer Products – Manufacturing	22 Textile Mill Products 23 Apparel 25 Furniture and Fixtures 31 Leather and Leather Products 38 (except for 382, 384) Measuring, Analyzing and Controlling Instruments 39 Miscellaneous Manufacturing Industries	Includes household appliances such as refrigerators
	Retail, Wholesale, and Other Services	53 General Merchandise Stores 56 Apparel and Accessory Stores 72 Personal Services 83 Social Services	
Electronics and Electrical Equipment	Electronics	36 (except for 363) Electronic and Other Electrical Equipment and Component, Except Computer	

INDUSTRY	SUB-SECTORS	CORRESPONDING SIC CODES/ ACTIVITIES	NOTES
Energy	Coal, Oil, and Gas Extraction	12 Coal Mining 13 Oil and Gas Extraction 29 Petroleum Refining and Related Industries	
	Fossil Fuel Power Generation	4931 Electric and Other Services Combined	Specifically, this includes fossil fuel (coal, oil, and gas) electric power generation
	Renewable Energy Equipment	3511 Steam, Gas, and Hydraulic Turbines, and Turbine Generator 343305 Solar Energy Equipment Manufacturers	Includes wind turbines, solar panels, and other renewable energy equipment production
	Renewable Energy Power Generation	4931 Electric and Other Services Combined	Specifically, this includes wind farms, solar farms, biofuel, nuclear, and hydro electric power generation
Entertainment, Media, and Education	Entertainment	78 Motion Pictures 79 Amusement and Recreation Services 84 Museums, Art Galleries, Botanical and Zoological Gardens	Includes movies, music, theatrical productions and other shows, bands, sports, fitness and dance studios, and amusement parks
	Media and Publishing	27 Printing, Publishing, and Allied Industries 48 Communications	
	Education	82 Educational Services	Includes schools, libraries, and training courses such as English classes
Financial and Business Services	Financial Services	60 Depository Institutions 61 Non-Depository Credit Institutions 62 Security and Commodity Brokers, Dealers, Exchanges, and Services 67 Holding and Other Investment Offices	
	Insurance	63 Insurance Carriers 64 Insurance Agents, Brokers, and Service	
	Business Services	73 (except for 737) Business Services 81 Legal Services 86 Membership Organizations 87 Engineering, Accounting, Research, Management, and Related Services	Includes consulting firms, law firms, accounting firms, advertising firms, public relations firms, equipment rental, HR firms, membership associations, testing and inspection firms, etc.
Health, Pharmaceuticals, and Biotechnology	Healthcare	80 Health Services	
	Medical Devices	382 Laboratory Apparatus 384 Surgical, Medical and Dental Instruments	
	Pharmaceuticals and Biotechnology	283 Drugs	Includes biotechnology and R&D firms
Information and Communications Technology (ICT)	IT Equipment	357 Computer and Office Equipment	
	Semiconductors	3674 Semiconductors and Related Devices	
	Software and IT Services	737 Computer Programming, Data Processing, and Other Computer Related	Includes video games

INDUSTRY	SUB-SECTORS	CORRESPONDING SIC CODES/ ACTIVITIES	NOTES
Machinery	Industrial Machinery and Equipment	356 General Industrial machinery and Equipment	
	Construction Machinery	353 Construction, Mining, and Materials Handling Machinery and Equipment	
	Environmental and Safety Machinery	50840707 Pollution Control Equipment, Water (Environmental) 50840706 Pollution Control Equipment, Air (Environmental)	
	Other Machinery	35 (except for 353, 356, 357) Industrial and Commercial Machinery	
Real Estate and Hospitality	Real Estate	65 Real Estate	Includes operators and lessors, agents and managers, and developers
	Hospitality and Tourism	70 Hotels, Rooming Houses, Camps, and Other Lodging Places	Includes travel agencies and other tourism-related services
Transport, Construction, and Infrastructure	Construction Services	15 Building Construction 16 Heavy Construction 17 Special Trade Contractors	
	Transportation Services	40 Railroad Transportation 41 Local and Suburban Transit And Interurban Highway Passenger Transportation 42 Motor Freight Transportation and Warehousing 43 Postal Service 44 Water Transportation 45 Transportation by Air 47 Transportation Services 46 Pipelines, Except Natural Gas	
	Utilities	49 Electric, Gas and Sanitary Services (except for electric power generation)	Includes electric and gas distribution, Water supply, sewage and steam.

Source: Rhodium Group.

transactions without disclosed value, we rely on analysts or other public estimates. For the remainder of investments without value, we estimate the value based on a proprietary methodology that takes into account the industry, type of operation, location, number of employees, revenue, and other metrics. We also try to get access to companies directly, if possible. Acquisitions and smaller greenfield projects that take less than a year to set up will be recorded at time of completion or groundbreaking. Large greenfield projects that take more than one year to build (multi-year greenfield projects) are not logged at full value at groundbreaking, but instead recorded incrementally over time. We split each multi-year investment into increments and log them every quarter over the entire duration of the construction phase.

Second, we code each transaction with relevant variables. One of those is the ownership of the investing entity, where we distinguish between government-owned or -affiliated and private companies. We apply a conservative threshold that requires 80% or more private ownership in order to qualify as private enterprise. A 100% threshold is unfeasible given the prevalence of state capital across the Chinese economy, including small passive stakes from state investment vehicles or banks at exchange-listed companies that operate essentially as private entities. To calculate percentage of non-private/state ownership, we apply a broad definition of “state” which includes government (central and provincial State-owned Assets Supervision and Administration Commissions), Huijin, as well as state-owned enterprise stakes. Another important dimension is the

geographic location of the investor and target company. For the investor location, we record the state or province where the headquarters or the main operations of investor are located. For the target company, we also record the headquarters or, in exceptional cases also the location of main operations.

Finally, each transaction is assigned an industry category, based on the target's or subsidiary's main business activity. For this process, we use our own industry category system, which is derived from the Standard Industrial Classification (SIC). We code on a transaction and not company level, so two subsidiaries or one company can be classified in different categories if they operate in different industries.⁶⁹ However, for subsidiaries that are engaged in two or multiple industries, we do not split investment values between those but instead allocate the full investment amount to the primary business activity, product or service. An overview of our industry categories, sub-categories and the corresponding SIC codes can be found in Table A-1.

DATA MAINTENANCE AND UPDATES

The US-China FDI Project database is constantly updated, even for previous time periods. We run updates each quarter, which aim at identifying new transactions but also reviewing past transactions, pending deals and existing operations.

Often times, new public information (regulatory filings, annual reports, additional disclosures, etc.) becomes available, which allows us to adjust earlier estimates. In particular pending deals and multi-year greenfield projects under constructions are screened regularly to ensure that changes in investment amount, status, and other relevant metrics are reflected in the newest version of the database. In many cases, project timelines or capital expenditures change over time, and we adjust our numbers accordingly. We also regularly engage with intermediaries, executives and business groups to stress test and fine tune our data, and will reflect new information that arises through revisions. In short, our numbers

are subject to constant revision, particularly for more recent periods.

Quarterly updates for our data on Chinese FDI transactions in the US have been available for more than five years on the China Investment Monitor website, along with short notes summarizing the most important trends (<http://rhg.com/interactive/china-investment-monitor>). The data and any updates for two-way FDI will be made available on the website of the US-China FDI Project (www.us-china-fdi.com).

LIMITATIONS AND CAVEATS

Despite this careful research process and methodology that have evolved over a period of almost a decade, users need to be aware of certain caveats that are important to understand before using our data.

First and importantly, the data resulting from this transaction-based approach are not directly comparable to FDI statistics compiled according to BOP principles. The transactions data capture the total value of FDI projects, but do not distinguish between financing from foreign, domestic or third party sources. The data also only capture investment related to a new investment or expansion, and not take into account intra-company loans or other flows not attributed to investment activity. Cumulative figures based on transaction data reflect the aggregate gross value of those transactions, without taking into account divestitures and other reverse flows. Cumulative figures also reflect historical cost and are not adjusted for asset price inflation, depreciation or exchange rate changes. In sum, the data captures gross investment for new projects, but it cannot be used to analyze BOP-related problems and other issues that require a national accounting perspective.

Second, while we are confident that our dataset is the most comprehensive and detailed account of transactions both ways, there may be certain gaps and biases. For one, our data compilation largely depends on publicly available information, which means that we may miss certain private transactions of smaller scale that were never made public. We also may miss investments if active efforts were made to conceal their nature or ownership (as is certainly the case in

⁶⁹ For example, while Apple through its investments in China develops both software and IT equipment, its primary business in IT equipment means it is classified within that microindustry.

a number of investments, both ways]. Considering the entire two-way FDI dataset for the past 25 years, our coverage of Chinese FDI in the US is likely slightly better than US FDI to China, because American FDI in China goes back longer and happened at a time where digital information and record-keeping was not as good as it was in the past decade.

Third, in order to come up with a comprehensive dataset, we had to estimate metrics such as investment amounts or employees in a significant number of cases. We generally did err on the conservative side and followed a thorough quality control process, but there is a certain margin of error for those estimates.

APPLICATIONS

Acknowledging those caveats, the data presented through the US-China FDI Project is a valuable complement to existing official and private statistics on two-way FDI flows between the US and China. As this report has demonstrated, the transactions approach avoids many of the distortions in the BOP data and offers a clear perspective on the scale and patterns of corporate direct investment between China and the US. It also avoids the significant time lags and gaps in official data, supporting the public debate

with real-time information on aggregate investment patterns, as well as the distribution of those investments by industry, modes of entry, geographical spread, and ownership.

As such we hope that the numbers will help the broader public in the US and China to understand FDI dynamics between both countries and their importance; it will help businesses and investors on both sides and globally to assess newest trends in capital movement and investment allocation; it will help inform governments and lawmakers on both sides about patterns and directions that are relevant for policy initiatives, including ongoing negotiations about a bilateral investment treaty between both nations; and that future updates can help to assess the impacts and implementation of new FDI-related policies on both sides. Finally, we hope that this initiative can inspire other researchers and serve as a foundation for a new generation of research on US-China FDI.

WWW.US-CHINA-FDI.COM