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A NEW KIND OF CONGLOMERATE: BIGTECH IN CHINA



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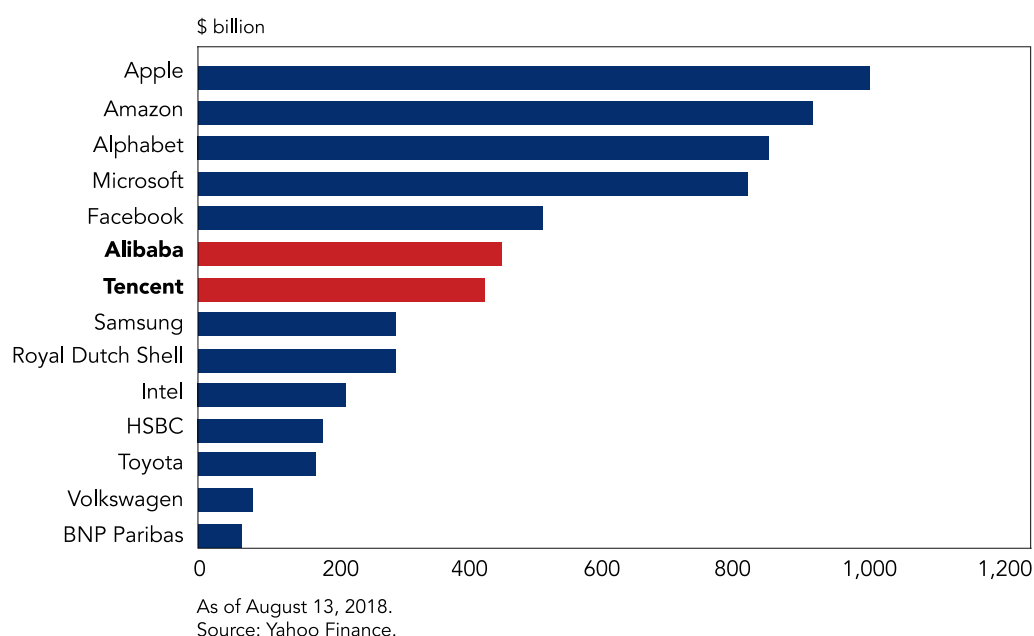
INTRODUCTION

China is seeing the rise of a new kind of conglomerate, companies that occupy unprecedented roles in the world's second largest economy. With business models built around advanced technology and data, and with the advantages of an immense domestic market, a supportive policy environment, and ample capital, these companies are constructing a new corporate model—one with reach into virtually every sector of the economy and state.

Indeed, the two largest of these Chinese “bigtechs,” Alibaba and Tencent, both among the world's largest companies by market capitalization (see Figure 1), are best understood as Google, Facebook, Twitter, Amazon, PayPal, Charles Schwab, Orbitz, Uber, and Spotify rolled into one, with numerous other functions on the side. But, unlike many of those firms, Alibaba and Tencent also operate with a tight link to state objectives, particularly on issues related to urbanization, financial inclusion, the social credit system, domestic intelligence, the Belt and Road Initiative, advanced healthcare, autonomous vehicles, and facial recognition.

This paper examines the role and reach of Chinese bigtech, with a view toward understanding implications of this new model for China and other markets.

FIGURE 1
MARKET CAPITALIZATION OF SELECT GLOBAL GIANTS



TOTAL DIGITAL LIFE

It's 7:00 am in Hangzhou. Sue, a young professional, wakes up and glances over Weibo (a microblogging app) for friends' posts and social celebrity news. Seeing a photo of her friend wearing a cute dress, she saves the photo and uses item recognition on Tmall (a business-to-consumer e-commerce platform) to find the product, and orders one for herself paying with Alipay (a mobile payment app). On Alipay, Sue sends money to her sister, who paid for last night's dinner, checks returns on mutual funds she recently purchased, transfers a portion of her last paycheck to Yu'e Bao (a money market fund integrated with Alipay), pays some utility bills, looks up the shipping status of an online order (a service provided by Cainiao, a logistics company), buys two movie tickets for Friday night, and orders a car through Didi (a peer-to-peer ride-hailing app) to go to work. On her way, she listens to the latest release from Kris Wu on Xiami (a music app) while browsing Fliggy (an online travel booking platform) for ideas for her next vacation. Moments before her ride ends, Sue comes across a small customized loan offer from Ant Financial (a fintech company). Within minutes of applying, she gets approved and has the funds in her account.

Upon arriving at her office building, she opens DingTalk (an enterprise communication and collaboration platform) to check in and receives a conference call invitation and background documents for the phone discussion. Fifteen minutes before lunchtime, Sue orders a sushi box and bubble tea from nearby restaurants through Ele.me (a food delivery app). Feeling the early stages of a head cold in the afternoon, she opens AliHealth (a pharmaceutical e-commerce platform with online medical services) to ask an online doctor for some advice and orders the medicine recommended by the physician, which arrives 30 minutes later.

After work, Sue uses Alipay to unlock and pay for an Ofo (a bike-sharing brand) bicycle, with no deposit required given her good score on Sesame Credit (a credit scoring system provided by Ant Financial). She rides the Ofo bike to a metro station, where facial recognition technology identifies her and automatically deducts money from her bank account to pay for her fare. On her train ride to meet up with friends in Shuguang Lu, a trendy neighborhood, she browses restaurant reviews and reserves a table on Koubei (a crowdsourced review forum). Sue pays for some beer and registers a membership with the restaurant for a discount on Alipay. When Sue returns home, she has a video call with her parents using Laiwang (an instant messaging app). Before going to bed, Sue takes some time to watch her favorite TV series on Youku Tudou (a video streaming app).

It's 9:00 pm, and all of Sue's activities happened on digital platforms owned by, or affiliated with, Alibaba.

Chinese Bigtech

For many Chinese, it is all but impossible to get through a day in the country without interacting with the bigtechs, especially Tencent and Alibaba, whose platforms (see Figure 2, pp. 4-6) generate powerful insights on the activities of their vast user base. These firms have grown rapidly, driven by China's swift economic and social transformation, including a historically unprecedented spike in income, a sharp rise in the Chinese middle class, and an unmet demand for consumer and financial services.

The proliferation of the internet and mobile devices also played a key role in the rise of Chinese bigtech. In 1999, there were only two million internet users in China¹. Last year, there were more than three-quarters of a billion (see Figure 3, p. 6). Similar rates of adoption occurred with mobile phones, engendering significant innovations in mobile commerce. Alibaba, for example, co-opted "Single's Day," an unofficial holiday that encourages gift-giving to unattached friends and family. In 2017, total sales on Single's Day reached \$25.3 billion, nearly \$6 billion more than what Americans purchased online during the five-day Thanksgiving weekend period. In 2014, Tencent launched "red envelope"—a mobile application that mimics the centuries-old Chinese tradition of giving monetary gifts on holidays and special occasions—on WeChat, the conglomerate's mobile messaging platform. The feature took off and by the end of 2017, approximately 800 million users had connected their bank accounts to WeChat².

Moreover, these firms were early adopters of cloud technology, which allowed them to dramatically reduce costs associated with storing, managing, and processing data. Early adoption of the cloud created a virtuous cycle; as data storage costs went down, the firms were able to build out larger data sets, which allowed them to more rapidly test new artificial intelligenceⁱ (AI) applications, which allowed them to acquire even more customer data. At the same time, Alibaba and Tencent were also becoming leading cloud providers, so were growing revenues off other cloud adopters, as we discuss later in the paper.

ⁱ Artificial intelligence enables software to exhibit human-like intelligence, including learning, planning, reasoning, problem-solving, and decision-making. For more information on AI, please see our [Digitizing Intelligence](#) report.

FIGURE 2
ALIBABA AND TENCENT ECOSYSTEMS

Alibaba	Category	Tencent
	B2B E-COMMERCE Similar To: 	
	BIG DATA MARKETING Similar To: 	
	BIKE SHARING Similar To: 	
	CLOUD SERVICE Similar To: 	
	EDUCATION PLATFORM Similar To: 	
	FINANCIAL MEDIA Similar To: 	
	FINANCIAL SERVICES Similar To: 	
	FOOD DELIVERY Similar To: 	
	GROCERY CHAIN Similar To: 	
	HOME APPLIANCE MANUFACTURER Similar To: 	
	HOME APPLIANCE SHOPPING PLATFORM Similar To: 	
	INSURANCE Similar To: 	
	LIFE SERVICE INFORMATION Similar To: 	

Finally, the growth of tech firms in China was also fueled, at least in the early years, by favorable regulationⁱⁱ and helpful government policies. Relaxed domestic regulations allowed them to move into sectors like internet finance without heavy regulatory burdens, while protectionist policies limited, and oftentimes eliminated, competition from foreign entities such as Facebook, Google, and Netflix. As we discuss in the “National Champions” section below, subsidies, government-backed investments, and close relationships with the Chinese government helped facilitate these tech firms’ rapid rise.

Investors have taken note of the enormous opportunity presented by the rise of Chinese tech companies. According to *Bloomberg*, private equity and venture capital investment skyrocketed from \$14 billion in 2012 to \$120 billion just five years later, and in 2017, 34 new Chinese companies became “unicorns,” startups valued at over \$1 billion.³

Background on Chinese Bigtechs

At the front of this remarkable transformation are five key bigtech players—Alibaba, Tencent, Baidu, Ping An, and JD.com.

Alibaba, the largest Chinese bigtech by market capitalization, was founded in 1999 by Jack Ma to connect Chinese manufacturers with overseas firms online.

Today, in China, Alibaba’s e-commerce platforms host approximately 10 million vendors whose businesses account for an estimated 30 million jobs,⁴ and the corporate group has expanded to encompass a constellation of both digital service and brick-and-mortar companies stretching across a vast array of industries—retail, financial services, media, entertainment, transportation, and technology. The Hangzhou-based company, which makes most of its revenue from sales-related fees and ads, operates in over 200 countries and has more than half a billion people using its shopping apps monthly.⁵

ⁱⁱ China’s Personal Information Security Specification, which came into effect earlier this year, calls for more limitations on the use of personal data. The rules are not mandatory, however, and contain broad exemptions, so there is substantial uncertainty whether they will materially impact the business practices of the country’s bigtechs. Please see our forthcoming edition of *Sticky Notes by the IIF* for further discussion.

The conglomerate is built on data, enormous amounts of data. According to a 2017 report by Goldman Sachs, the volume of data processed daily at the firm is comparable to the size of 20 million high-definition films.

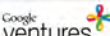














The company's network covers approximately 80% of Chinese internet users, who tend to use its platforms frequently. For example, the average active user of the mobile app for Taobao, Alibaba's consumer-to-consumer e-commerce store, opens the app 7.2 times per day and spends 20 minutes on the platform. This allows Alibaba to collect "500 million+ real demographic information and differentiate users with 8,000+ purchase intentions and location-based attributes," per the Goldman Sachs report.⁶

Shenzhen-based Tencent was launched a year before Alibaba and its first product, QQ, was a messaging platform for personal computers. In 2011, after the arrival of smartphones, Tencent launched WeChat, a mobile messaging app which now has over one billion active users (see Figure 4, p. 7). It has developed into the country's principal channel for personal, business, and institutional communication.⁷ According to the company, the platform is accessed more than 10 times daily by 60% of users and more than 50 times per day by 21% of users. The app facilitates the exchange of approximately 38 billion daily messages.⁸ In 2013, the company launched WeChat Pay, a mobile payments platform. In 2017, WeChat introduced the "mini app," highly popular lightweight applications within the WeChat platform that allow users to perform a whole host of functions without having to leave the WeChat ecosystem. Commonly referred to as a "super app" or "China's app for everything," WeChat has become a kind of digital operating system for the Chinese economy. It allows mobile users to stream music, game, chat, post on social media and online dating apps, hail a ride, search for restaurants, detect congested areas, pay bills, schedule doctor appointments, file police reports, invest, even give beggars change (see Figure 5, p. 8)—all without leaving the platform. And while the company does not own all of the products within its ecosystem, the platform provides seamless integration between the majority of the popular apps in the country and gives Tencent priceless insights into the habits of over one billion people. In addition to its core business, the company has made big moves across a variety of industries, including financial services (WeBank) and healthcare (Miying)—more on this below.

FIGURE 2
ALIBABA AND TENCENT ECOSYSTEMS, CONT.

Alibaba	Category	Tencent
	LOCAL SERVICE PROVIDER Similar To:	
	LOGISTICS Similar To: 	
	MAPS AND NAVIGATION Similar To: 	
	MEDICAL HEALTH SERVICES PROVIDER Similar To:	
	MOBILE APPLICATION STORE Similar To: 	
	MOBILE CHAT Similar To: 	
	MOBILE SECURITY SOFTWARE Similar To: 	
	MUSIC STREAMING Similar To: 	
	NEW TECHNOLOGY MEDIA Similar To: 	
	ONLINE DISCOUNT Similar To: 	
	ONLINE SHOPPING Similar To: 	
	ORIGINAL VIDEO CONTENT Similar To: 	
	PAYMENT Similar To: 	

FIGURE 2
ALIBABA AND TENCENT ECOSYSTEMS , CONT.

Alibaba	Category	Tencent
	PRIVATE EQUITY Similar To: 	
	RIDE HAILING Similar To: 	
	SEARCH ENGINE Similar To: 	
	SOCIAL MEDIA Similar To: 	
	TRAVEL BOOKING ENGINE Similar To: 	
	TRAVEL INFORMATION AND SERVICES Similar To: 	
	TV NETWORK Similar To: 	
	VIDEO GAMING Similar To: 	
	VIDEO STREAMING Similar To: 	
	WEATHER REPORT PROVIDER Similar To: 	

The third largest bigtech player in the country is Baidu, a Chinese multinational technology company specializing in internet search and AI. The company, which was founded in 2000 and is headquartered in Beijing, controls approximately 70% of China's online search market and is one of the largest AI and internet companies in the world. In 2007, it became the first Chinese company to join the Nasdaq 100 index.⁹ Like its national champion peers, Alibaba and Tencent, it has grown quickly and expanded into numerous unique areas, including autonomous vehicles and financial services.

While Alibaba, Tencent, and Baidu (commonly known as BAT) are the largest technology companies in the country based on market capitalization, there are a number of other important platform players, including Ping An, and JD.com. Ping An, a traditional insurer founded in 1988 in Shenzhen, has rapidly transformed itself over the past decade by going digital and offering a variety of new services outside of its core business, including cloud computing,ⁱⁱⁱ peer-to-peer lending, and mobile payment solutions. With a market capitalization of approximately \$180 billion, the company is the country's largest insurer and second only to Berkshire Hathaway globally.¹⁰ Its increasing focus on, and proficiency in, underlying technologies such as AI, cloud, and blockchain is enabling Ping An to help improve the efficiency of cities, healthcare, insurance claims, and other financial services and products. This has contributed to impressive growth—in 2018, the company experienced year-over-year growth of 31.9% in net profit and 25.2% in its retail customer base¹¹—and has helped land it at number 10 on the latest edition of the *Forbes*

Global 2000 list, a ranking of the world's largest public companies based on assets, sales, profits, and market value. Looking forward, Ping An plans to invest \$7.6 billion in their technology platform and generate half of the revenue on that platform from external customers contracting for technology services.

Finally, JD.com, based in Beijing and launched in 1998, is an e-commerce company with over 300 million active users that is increasingly leveraging technology to improve its operations and expand into new areas, including personal lending and wealth management.

ⁱⁱⁱ According to a definition provided by [Microsoft](#), "cloud computing is the delivery of computing services—servers, storage, databases, networking, software analytics, and more—over the internet ('the cloud')."

FIGURE 3
CHINA INTERNET USERS AND PENETRATION RATE

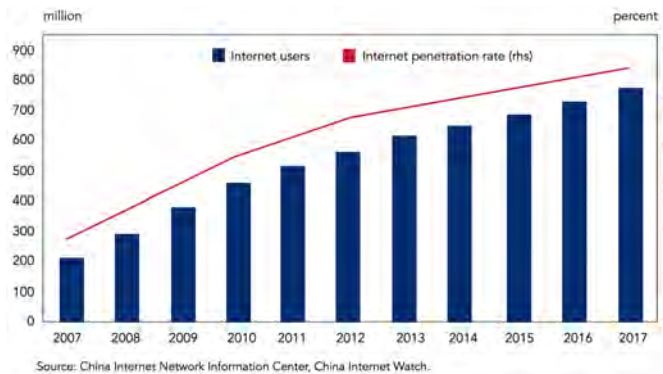
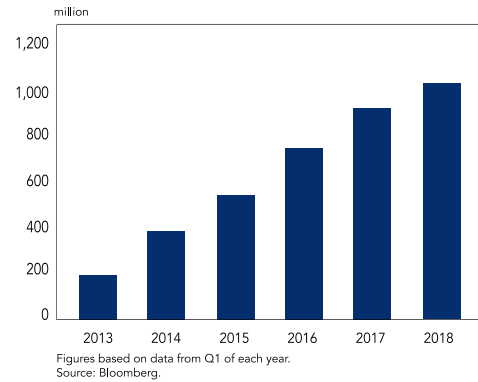


FIGURE 4
WECHAT USER BASE



ROLE AND REACH WITHIN CHINESE ECONOMY

While e-commerce is at the core of several of the Chinese bigtechs' business models, one critical difference between these firms and many leading U.S. technology companies is how pervasive these firms are in the broader economy. They have made inroads into virtually every sector and industry.

Financial Services

The expanding role of Chinese bigtechs, particularly Alibaba and Tencent, has been especially evident in financial services. Leveraging big data^{iv} and cloud technology, they have established comprehensive financial ecosystems that offer a suite of products and services around consumer and SME^v finance, including lending, wealth management, credit scoring, insurance, and mobile payments (see Figure 6, p. 9). In the Chinese model, digital platform firms have access to a 360-degree view of a customer's financial life, which generates dynamic data that can be fed into the conglomerate's business ecosystem, enabling them to serve clients at a customized level.

Alibaba's subsidiary, Ant Financial, which has 622 million users,¹² provides the best example of the growing reach of these new tech players in the space. Thanks to its latest funding round, Ant Financial's valuation is estimated to be around \$150 billion (see Figure 7, p. 10). The company aims to serve two billion customers worldwide within a decade.¹³

The rise of bigtechs in the financial services space has created a complicated partnership between these new market entrants and incumbents. Jack Ma coined the term "TechFin" to describe this Chinese partnership model; tech platforms provide the core systems, interface, and data for financial services, underpinning savings and lending, while banks keep the balance sheet. In 2017, strategic alliances were announced between Ant Financial and China Construction Bank, Tencent and Bank of China, Baidu and the Agricultural Bank of China, and JD.com and Industrial and Commercial Bank of China. This trend accelerated through 2018 with most banks entering into an arrangement with one of the major tech firms. An open question is who keeps the profit margin in the future of financial services.

^{iv} According to a definition provided by [Gartner](#), a global research and advisory firm, "big data is high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision-making, and process automation."

^v SMEs are small and medium-sized enterprises.

FIGURE 5



Source: Citi Research.






Mobile Payments

According to iResearch, in 2017, mobile payment transactions totaled approximately \$15.4 trillion in China, dwarfing the U.S. amount of \$377 billion and even besting the combined total global transactions processed by Visa and Mastercard by \$2.9 trillion (see Figure 8, p. 11). The growth in mobile payments in the country has been astronomical, jumping from \$9 trillion in 2016¹⁴ and from roughly \$2 trillion in 2015.¹⁵

Ant Financial's payment affiliate still holds the most market share when measured by transaction volume—54% vs. WeChat Pay's 40% (see Figure 9, p. 12)—though WeChat Pay has more active users—600 million vs. Alipay's 520 million.¹⁶

For the two leaders, mobile payments are not just about the transaction fees they earn from vendors, typically 0.6%.¹⁷ By providing payment services, Alibaba and Tencent are able to capture consumer information on the spending and financial behaviors of hundreds of millions of individuals and businesses. This in turn is used to market an array of customized products and services, including investment opportunities, insurance packages, loans, and even vacations. For example, Alipay users who shop online can often see offers for customized loans within the app. Those that apply, and are approved, can find the money in their accounts often within minutes of applying at a competitive interest rate, typically lower than for a bank loan.

FIGURE 6
SELECT DIGITAL FINANCE PRODUCT OFFERINGS OF CHINESE BIGTECHS

	 Alibaba Group	 Tencent 腾讯	 Baidu 百度	 中国平安 PING AN	 JD 京东
Internet Payment	Alipay (2004)	Tenpay (2005) WeChat Pay (2013) WeChat/QQ Wallet (2014)	Baidu Wallet (2014)	Ping An E-Wallet (2005)	JD Pay (2012)
Internet Wealth Management	Yu'e Bao, Taobao Lici (2013) Zhaochaobao (2014) Ant Fortune (2015)	Licaitong (2014)	Baidu Finance (2013) Bai Fa (2013)	Lufax (2011) Lufunds (2014)	JD Wealth Management (2013) JD Xiaojinku (2014)
Internet Insurance	ZhongAn (2013)	ZhongAn (2013)	Bai An Insurance (2015)	ZhongAn (2013)	JD Insurance (2014)
Online Lending	E Dairong with CCB (2007) Ali Micro Loan (2010) Jie Bei (2015)	Tenpay Microloan (2013) QQ Loan (2015)	Baidu Loan (2013)		JingBaoBei (2013)
Consumer Financing	Tmall Installment (2014) Ant Check Later (2014)	Weilidai (2015)	Umoney (2014)	Lufax (2011) LuP2P (2017)	Jing Xiaodai (2013) JD Baitiao (2014)
Crowdfunding	iZhongchou (2013) Taoxinyuan (2014)	QQ Gongyi (2014)	Baidu Baizhong (2014)	Ping An Crowdfunding (2014)	JD Crowdfunding (2014)
Digital-Only Bank	MYbank (2015)	WeBank (2015)	Baixin Bank (2015)		
Credit Scoring	Sesame Credit (2015)	Tencent Xinyong (2015)		Qianhai Credit Service Center (2013)	Xiaobai Credit (2015)

Source: Citi Research, Goldman Sachs Global Investment Research, Fortune.

Credit Rating and Lending

Two-thirds of China's citizens lack traditional credit histories, making it difficult for these "thin-file" individuals to obtain credit from traditional financial institutions. Thanks to new data sources and technologies, Chinese bigtechs have been able to step in to help meet this unmet demand. According to a 2018 Citi report, MYbank, which was launched by Ant Financial in 2015, provides small/mid-sized loans no larger than RMB 5 million (approximately \$735,000) and operates entirely on the cloud using big data to quickly evaluate applications—typically in less than three minutes—and to underwrite loans. As of June 2017, MYbank has extended total loans of RMB 115 billion (approximately \$17 billion) with a typical loan size of about RMB 17,000 (around \$2,500). Alibaba as a whole, per the same Citi report, has issued nearly \$100 billion of loans over the past five years.¹⁸

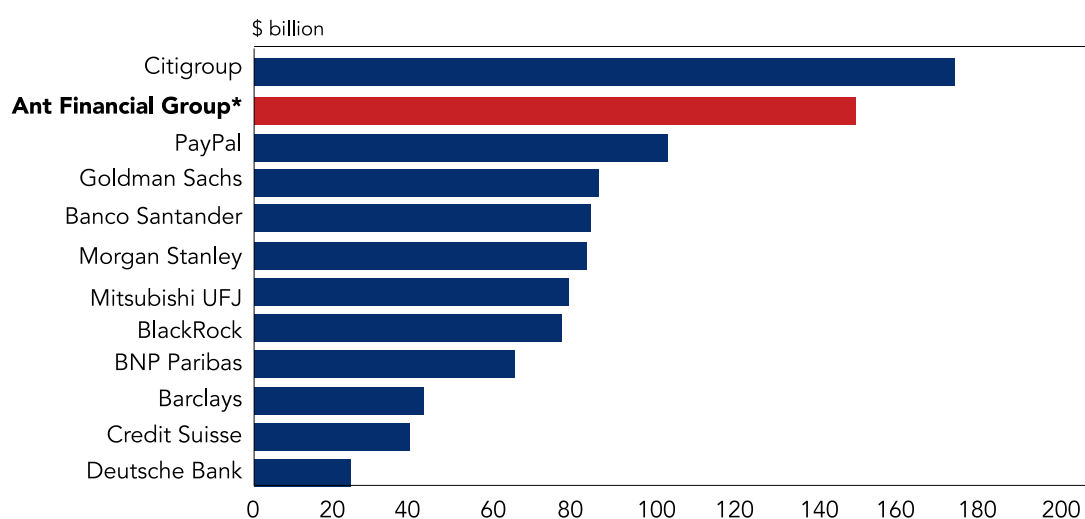
To help facilitate lending in China, which still lacks a widely used national system for evaluating creditworthiness, Chinese bigtechs have launched their own personal credit scoring services. For example, Alibaba leverages the trove of data it has on its users, including their transaction data from Alibaba's various e-commerce platforms, to feed into Sesame Credit—which, as of March 2017, had 257 million activated users¹⁹—and synthesize credit scores. Similarly, Qianhai Credit, which is owned by Ping An, captures data from its insurance business and from Lufax, its peer-to-peer lending platform to score individuals.²⁰

At the beginning of 2015, Tencent established WeBank, China's first private online-only bank. It offers a full spectrum of consumer financial services, but its unsecured personal loan product is by far the most active. As of mid-2017, the bank extended total loans of RMB 200 billion (approximately \$30 billion) with a typical loan size of RMB 8,000 (approximately \$1,250).²¹ WeBank has the enormous advantage of having Tencent, one of the world's largest internet companies, as its single largest shareholder, which allows social media data, particularly from Tencent's WeChat messaging app, to be a centerpiece of its strategy. WeBank's head of strategy, Jared Shu, notes that WeBank uses data from Tencent's WeChat and QQ platforms as a filter for fraud risk. WeBank is also experimenting with social graphs derived from social media data to

further assess applicants for fraud. These social graphs, which trace the evolution of profiles and frequency of communication, help detect whether certain profiles have been fabricated or are associated with organized crime, for example. WeBank also uses these analyses to independently assign proprietary social scores to inform loan decisions.

Moving forward, the People's Bank of China has encouraged Ant Financial and Tencent to work more closely with Baihang Credit Scoring, a government-backed agency also known as Xinlian. This is part of an effort to establish a more centralized national model covering the majority of Chinese citizens in a social credit system.

FIGURE 7
MARKET CAPITALIZATION OF SELECT FINANCIAL INSTITUTIONS



*Estimated.
As of August 13, 2018.
Source: Yahoo Finance.

Wealth Management

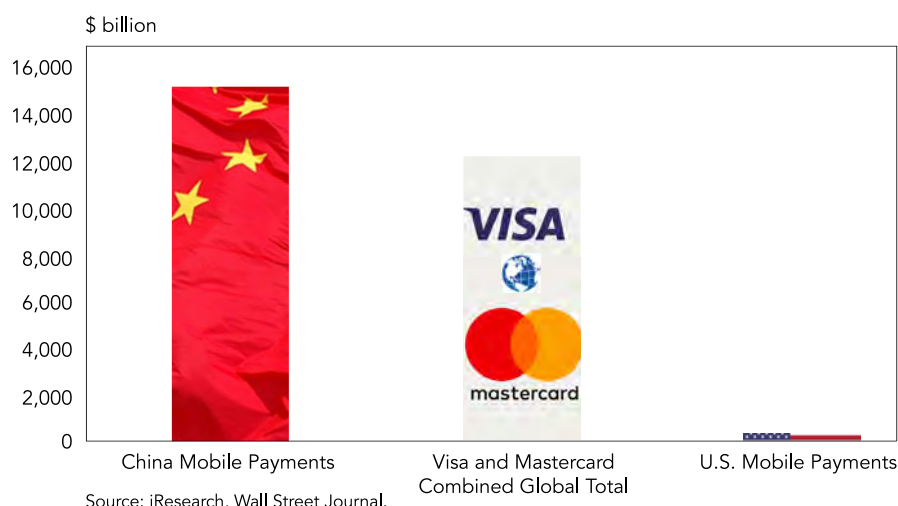
The big five have also expanded into investment services. In Q2 2018, it was reported that Ant Financial's wealth management division had RMB 2.2 trillion (\$345 billion) in assets under management, making Ant the largest consumer wealth management platform in the world. Of that amount, over RMB 1.5 trillion (\$235 billion) resided in Yu'e Bao, the world's largest money market fund.²² According to a presentation at the IMF/WB Spring Meetings in Washington, D.C. in April 2018 by Long Chen, Ant Financial's chief strategy officer, a large part of the fund is made up of small investments of pocket money (Yu'e Bao literally translates to "leftover treasure"). Supported by user-friendly functionality, ever-expanding user scenarios, big data technology, and higher returns than traditional banks, Yu'e Bao now has over 400 million customers per an Ant Financial press release.

Insurance

One of the fastest growing areas of internet finance in China is internet insurance. A variety of breakthrough technologies are beginning to spur a fundamental transformation of the industry. Cloud computing, the Internet of Things (IoT), advanced analytics, telematics, mobile phones, digital platforms, drones, blockchain, smart contracts, artificial intelligence, facial recognition, and electronic signatures are providing new ways to measure, control, and price risk; engage with customers; reduce cost; improve efficiency; and expand insurability. These technologies are also enabling bigtechs to create new insurance products, services, and business models. For example, Ping An is leveraging AI to help authenticate customers through voice recognition, enhance medical imaging, reduce patient misdiagnosis across 35 different illnesses, predict where auto accidents are likely to occur, and improve insurance claims.²³

Furthermore, Ping An, along with Ant Financial and Tencent, have invested in ZhongAn Insurance, an online-only firm launched in October 2013. It has since grown into the largest insurer in the country in terms of customers and policies sold.

FIGURE 8
TRANSACTION VOLUME, 2017



As of the end of 2016, the company had sold 7.2 billion insurance products and served nearly 500 million individuals,²⁴ an impressive feat for just a 26-month period. Other bigtechs involved in internet insurance include Baidu (Bai An Insurance) and JD.com (JD Insurance). Moving forward, as autonomous vehicles take to the street and predictive healthcare/diagnostics improve, the insurance industry is likely to experience significant transformation as risks are further mitigated thanks to safer roadways and healthier individuals.

Offline Retail

While known for its e-commerce roots, Alibaba has also expanded into offline retail. It has purchased stakes in Suning, an electronics chain headquartered in Nanjing, and Sun Art, one of the largest hypermarket companies in the country. More interestingly, Alibaba is also making strides in a space it refers to as “new retail,” which blends online and offline experiences. Hema Supermarkets, Alibaba’s high-tech grocery stores, leverage China’s QR code^{vi} culture. Every item in the store is scannable. This allows shoppers to obtain additional information about their food, receive personalized recommendations from the company’s app, and order the food for delivery to their homes. Hema is planning to open 2,000 more high-tech supermarkets across the country.²⁵

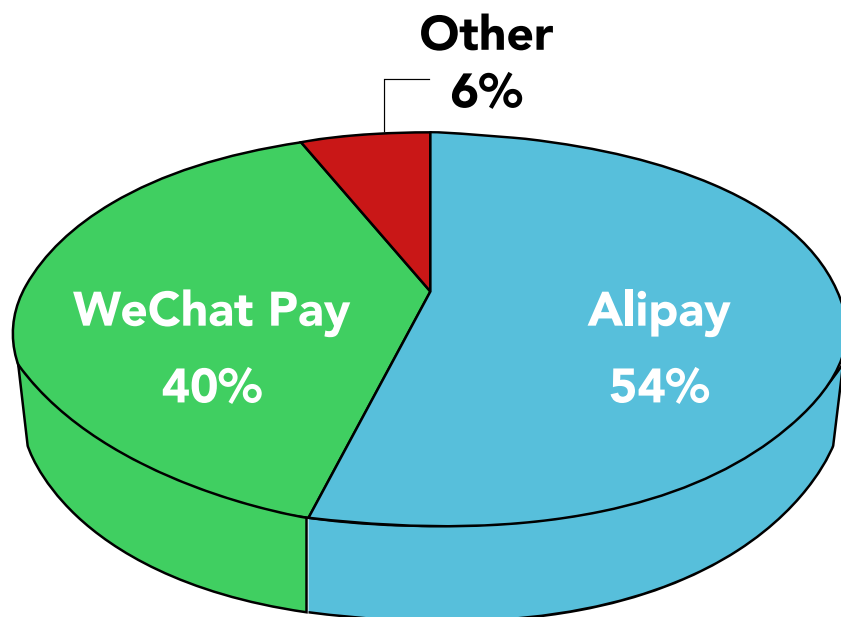
Freight and Logistics

Analysts estimate that the country’s online retail market—which is already twice the size of the U.S. market—will double in size by 2020.²⁶ As the country’s e-commerce leaders, Alibaba and JD.com are working to improve their shipping networks and have made significant advances in delivering products to far-flung corners of China, including those with poor infrastructure.

In 2013, Alibaba acquired a \$364 million stake in Haier, a Chinese appliance and logistics firm. The deal facilitated a partnership with Goodaymart, a Haier subsidiary with a network of 20,000 stores and distribution outlets in approximately 2,800 counties that Alibaba can leverage for its delivery operations.²⁷

vi A QR (quick response) code is a matrix barcode consisting of an array of black squares arranged in a grid on a white background that provides information about the item to which it is attached when scanned by a digital device.

FIGURE 9
CHINESE MOBILE PAYMENTS MARKET SHARE IN 2017, BY TRANSACTION VOLUME



Source: Wall Street Journal.

That same year, Alibaba, together with a consortium of logistics companies, also launched Cainiao, a platform aimed at accelerating deliveries and providing higher quality services at lower costs to both vendors and customers. According to a 2017 company press release, Alibaba has gradually boosted its control in Cainiao to a majority stake of 51% and has committed to investing \$15.2 billion in its global logistics network over the next five years to accomplish its goal of delivering goods anywhere in China within 24 hours and anywhere in the world within three days.²⁸

JD.com has also made shipping logistics an important priority. According to the company's 2017 annual report, JD.com employs 117,943 warehouse and delivery personnel and operates a total of 486 warehouses with an aggregate gross floor area of approximately 10 million square meters (107.6 million ft²)—roughly the size of 7,950 Olympic-sized swimming pools—in 78 cities. The conglomerate has invested billions of dollars in development, including in JD Logistics, a kind of in-house UPS. JD Logistics has become a standalone unit providing integrated supply chain and logistics services to third-party companies across various sectors. The company has also made smart logistics a high priority. Many of their warehouses are outfitted with the latest robotics technology and are heavily automated. According to the same 2017 company report, they are “in the process of exploring and developing advanced technologies such as intelligent hardware, IoT, big data, robotics, image and vision recognition, smart logistics devices and other key technologies ... and applying them to a wide range of logistics business areas such as unmanned warehouses, drone delivery, self-driving vehicles, unmanned delivery stations and convenience stores, among others.”²⁹

Media and Entertainment

Media and entertainment have become key industries for Chinese bigtechs. Tencent is the world's largest games distributor and has invested in 51 entertainment companies.³⁰ Tencent's platforms have a strong media component, including TV, film, music, video, and online book publishing. The company's billion-plus users have little reason to leave the Tencent digital ecosystem. E-commerce giant Alibaba has also recognized the value of media and entertainment and has begun expanding in the space. Because Chinese consumers tend to follow brands online and

buy goods through social media platforms, Alibaba has invested in the social media landscape to grow its e-commerce business.

In 2013, Alibaba acquired an 18% stake in Weibo³¹—the country's largest microblogging site with 411 million monthly active users as of March 2018³²—from its parent company, Sina, an IT and telecom corporation headquartered in Shanghai. According to Weibo's prospectus for its public listing on the Nasdaq in April 2014, Alibaba's stake was set to rise to 32%.³³

In addition to social media, Alibaba has made big moves in the online streaming space—a market which is estimated to grow from \$3.5 billion in 2015 to \$15.2 billion by 2020, according to IHS Markit, a UK-based global information provider—as the vast majority of China's internet users consume videos, movies, and television online. The Chinese market already has 140 million paying video-streaming subscribers, more than Netflix's global total of 125 million.³⁴ In 2015, Alibaba acquired Youku Tudou, China's largest video streaming platform, in a deal valued at \$4.8 billion in total.³⁵ With the acquisition, the conglomerate can monitor the content individuals watch on the site and obtain a clearer picture of consumer behavior, while pushing targeted ads.

Alibaba has also moved into more traditional media and entertainment areas. It jumped into the newspaper business with its 2015 acquisition of the *South China Morning Post*, a Hong Kong English-language daily. Furthermore, it has a majority ownership in TV and film production firm China Vision Media Group³⁶ and an undisclosed investment in Amblin, Steven Spielberg's production company. Alibaba Digital Media and Entertainment Group has announced that it will invest over \$7 billion in film production between 2017 and 2020.³⁷ Creating original content will allow Alibaba to control costs and limit the need to purchase licensed content from Hollywood, for example.

VC Funding

Chinese bigtechs are, unsurprisingly, heavyweights when it comes to venture capital funding. For example, of the 34 new unicorn companies in the country in 2017, 60% of them have direct or indirect equity share ownership from either Baidu, Alibaba, Tencent, or a combination of the three.³⁸ Chinese bigtechs have played an important role in helping facilitate the growth and success of many small companies in the country.

Technology Services

Technologically-advanced Chinese bigtechs continue to invest heavily in IT infrastructure and emerging technologies. In addition to facilitating their quick expansion across so many different areas of the economy and the growth of their digital ecosystems, their dominance and massive lead in deploying new technologies is enabling them to become the tech infrastructure providers for numerous industries—including banking, insurance, retail, manufacturing, security, and transportation.

The nature of Chinese bigtechs' business models and the size of their tech infrastructure requirements necessitate computing on an enormous scale. Chinese bigtechs have begun parlaying that experience and expertise into an important commercial venture offering tech infrastructure to other entities.

Alibaba launched its cloud service, Aliyun^{vii}, in 2009. The conglomerate has since become the leading cloud computing provider in China with \$2.1 billion in revenue in 2017³⁹ and has displaced IBM as the fourth largest cloud provider in the world, after Amazon, Microsoft, and Google, according to a 2018 Synergy Research Group ranking.⁴⁰

Ping An has also made cloud infrastructure a key priority. Its subsidiary, Ping An Technology, has established a cloud ecosystem that is being leveraged by a number of industries, including finance, security, education, entertainment, health, and agriculture.

vii Also known as Alibaba Cloud.

Ping An has indicated that it is working to augment its cloud ecosystem by blending AI, big data, blockchain, intelligent security, biometrics and other advanced technologies,⁴¹ and that it hopes to eventually have 50% of its earnings be from technology sales.⁴²

Baidu and JD.com have also launched cloud services and have made it a priority to grow this new area of their business.

NATIONAL CHAMPIONS AND THE SYMBIOTIC RELATIONSHIP WITH BEIJING

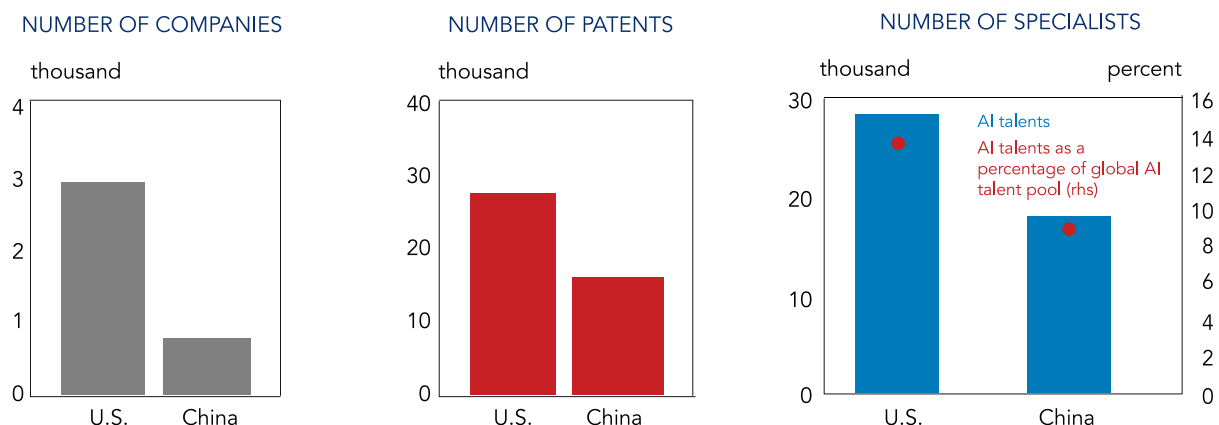
As outlined above, Chinese bigtechs are influencing wide sections of the economy by expanding and disrupting various industries. But what may distinguish Chinese bigtechs most from their foreign counterparts is their important and strategic role within their home country. As national champions, Chinese bigtechs work closely with the government to support China's economic, political, and social objectives. The intimate relationship between Beijing and Chinese tech firms contrasts with the growing hesitance of U.S. tech firms to partner with Washington. Google, for example, recently announced that it would not bid on the Pentagon's \$10 billion cloud contract because of concerns the arrangement would conflict with its AI ethical values.

State Development Plans: Promoting Emerging Technology Capabilities

Beijing is leveraging the abilities of Chinese bigtech to help the government pursue various national economic development programs—such as the “Made in China 2025” plan—that aim to make the country a global technology leader in high-tech industries, including AI, cloud computing, robotics, electric cars, computer chips, and aerospace by the mid-to-late 2020s.

China, which already possesses the second largest AI ecosystem after the U.S. (see Figure 10), is seeking to become the world's dominant AI superpower by the end of the next decade. The Chinese government has put in place an ambitious national development plan for artificial intelligence as Figure 11 (p. 15) illustrates. The country has several advantages when it comes to realizing its AI ambitions, including a massive pool of engineers; the ability to train algorithms on more than three-quarters of a billion domestic internet users (double the entire population of the U.S.); strong government support; and the leeway to collect vast amounts of citizens' data—ranging from medical records to video footage—and to share that data with third parties.

FIGURE 10
AI ECOSYSTEM LEADERS



Source: Goldman Sachs Global Investment Research, Financial Times, China AI Development Report 2018 (Tsinghua University).

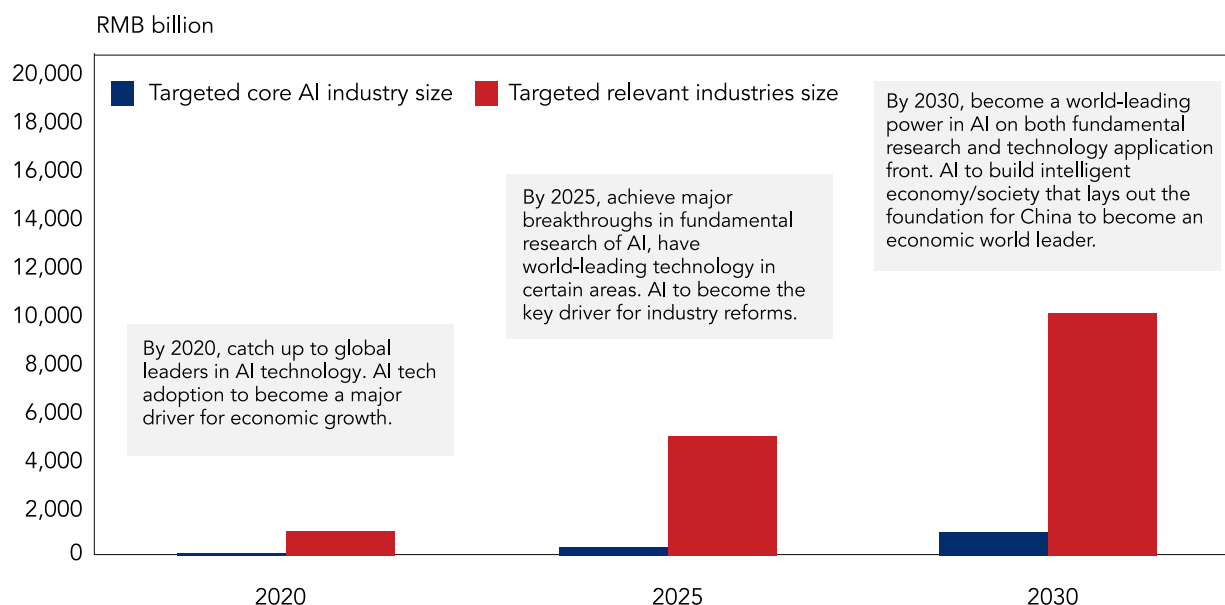
For example, most mega cities within the country have established AI institutes that include some data-sharing arrangements.⁴³

National champions and their smaller tech peers have already begun moving toward fulfilling Beijing's ambitions in artificial intelligence. At the end of last year, Alibaba announced that it would launch DAMO (Discovery, Adventure, Momentum, and Outlook) Academy, a global \$15 billion research and development endeavor focusing on emerging technology,⁴⁴ including AI and quantum computing.^{viii}

Tencent, a leader in advanced image and voice recognition, has similarly set up AI research labs of its own. Tencent's YouTu Lab provides facial and image recognition tech support to over 50 of the parent company's initiatives and is working with China Unicom, a state-owned telecommunications operator, on facial ID authentication.⁴⁵ In addition, Baidu has linked up with the National Development and Reform Commission (NDRC) to build a national deep learning lab.⁴⁶

Furthermore, in 2017, China surpassed the U.S. in equity funding to AI startups as a percentage of dollar value, reaching 48% compared to 38% for the U.S. (see Figure 12, p. 16). To put this in perspective, China accounted for only 11.3% the previous year.⁴⁷

FIGURE 11
CHINA STRATEGIC GOALS OF THE NATIONAL DEVELOPMENT PLAN ON AI



Source: States Council of the People's Republic of China, Goldman Sachs.

China is poised to make still greater advances over the next decade. In fact, according to a 2017 PwC report, AI's deployment is predicted to boost China's total GDP output between 2017 and 2030 by 26%—more than any other country or region in the world (see Figure 13, p. 18).

Cloud computing is another area where Beijing and Chinese bigtechs are collaborating to help advance the country's technological goals. For example, in 2017, the government-controlled

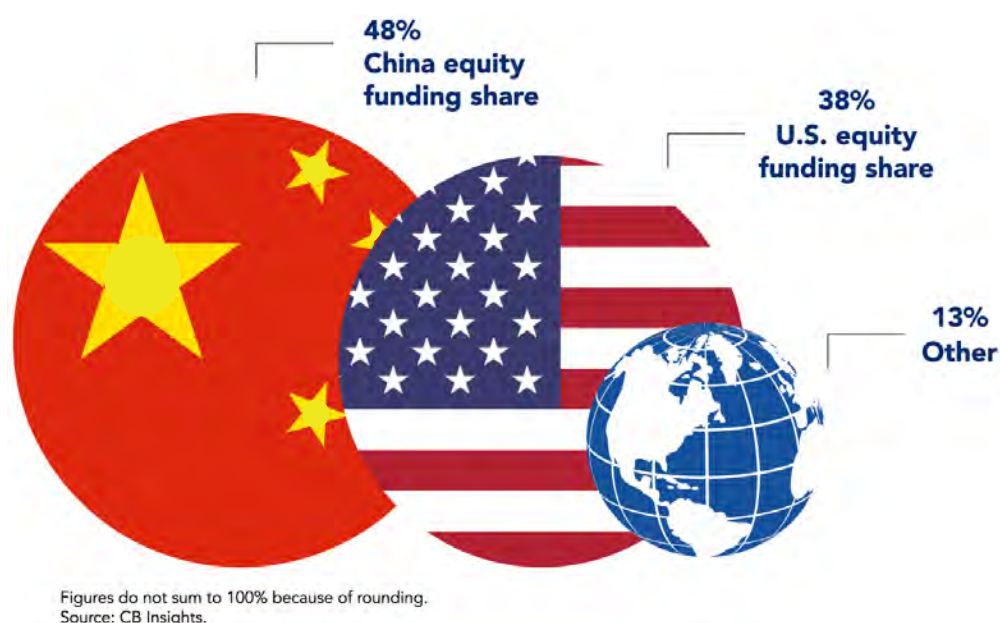
viii According to *MIT Technology Review*, a quantum computer is built on the principles of quantum physics in which sub-atomic qubits (quantum bits) can exist in multiple states at the same time, phenomena known as "entanglement" and "superposition." These computers can achieve exponentially greater processing power relative to classical computers because they can perform tasks using all possible permutations simultaneously. In contrast, classical computers are based on data encoded into binary digits (bits), each of which is always in one of two definite states (0 or 1). Some technology experts envision the possibility of quantum computers increasing computational power in the billion-fold realm and beyond.

Chinese Academy of Sciences, the world's largest research institute, and Aliyun released a cloud platform for quantum computing which allows users to develop and test quantum algorithms in a cloud-based ecosystem.⁴⁸ In addition, according to a report from Chinese media, the Ministry of Industry and Information Technology (MIIT), the NDRC, and the Ministry of Finance have provided subsidies to companies working on cloud technology, including Baidu.⁴⁹ A major factor behind the government's support to Chinese tech firms in the space is because Beijing wants its companies to be able to provide the cloud infrastructure needed for specific initiatives, including smart cities and surveilling its citizens.

Smart Cities

Chinese bigtechs are leveraging information technology to build smart cities. These types of cities aim to use data and technology to make urban areas more efficient, green, and safe, and improve the overall quality of life for urban dwellers—key government objectives. For example, smart cities deploy technological tools to encourage citizens to use public transportation during non-rush hours, to consume less energy and resources, and to direct commuters to more efficient routes.⁵⁰ As of March 2017, more than 500 Chinese cities, including 95% of provincial capitals and 83% of prefecture-level cities, had smart city plans. Of those cities, 290 had introduced smart city pilot initiatives, and over 300 cities had signed smart city construction contracts with various bigtechs,⁵¹ including Alibaba and Ping An.

FIGURE 12
GLOBAL AI FUNDING 2017: TOTAL EQUITY FUNDING TO STARTUPS AS A PERCENTAGE OF DOLLAR VALUE



At the center of Alibaba's involvement in smart city solutions is its AI cloud platform called "ET City Brain," which helps the conglomerate crunch data from a number of sources, including social media sites, cameras, sensors, and government databases. The platform leverages AI to predict outcomes across urban planning, traffic management, and healthcare. For example, in a partnership that was formed in 2016 with Hangzhou province, Alibaba is leveraging the ET City Brain to help the government improve its traffic flows and clear the way for emergency vehicles by using mobile mapping and real-time data from traffic cameras to time intersection signals.⁵² Alibaba's mobile payment service provider, Alipay, is also helping the government to significantly reduce the time it takes drivers to pay tolls on highways.⁵³ The conglomerate is working with other local governments like Macau to develop smart cities and smart tourism programs, and recently entered a partnership with the Malaysian government.⁵⁴

Alibaba has invested in, and collaborated with, various startups to help build its capabilities in the space. It has partnered with U.S.-based Nvidia for its deep learning-based video platform for smart city solutions. Alibaba also took part in a \$600 million series C investment round in Chinese computer vision firm SenseTime, giving it a valuation of \$3 billion, making it the highest valued AI startup in the world.⁵⁵ The two have announced that they are partnering on urban management, smart transportation, and surveillance⁵⁶ (see below).

Ping An is also working to improve the efficiency of urban governance, public services, and the quality of life for city dwellers. The conglomerate's tech arm, Ping An Technology, has significant application experience in advanced technologies—including AI, blockchain, cloud computing, and intelligent security—and has created the “Smart City Cloud,” which seeks to improve the management of government affairs across a number of areas ranging from finance, healthcare, education, and security to environmental protection, community life, and real estate.⁵⁷

The conglomerate has become a key member of the China Smart City Development Alliance—a coalition of municipalities and enterprises that helps promote city management, urban governance, and public service innovation⁵⁸—and recently entered into a strategic partnership agreement with the Management Committee of Hengqin New District in Zhuhai City.

According to a 2018 press release by Ping An Technology, “The two parties will collaborate in the handling of government affairs and in ensuring a positive experience for the smart city's residents, including access to the three main branches of government via a financial cloud, a medical insurance cloud, a social insurance cloud, a citizen's card, a public security cloud, and an education service management cloud, optimizing the overall management of the city while significantly enhancing service efficiency and quality.”⁵⁹

Healthcare

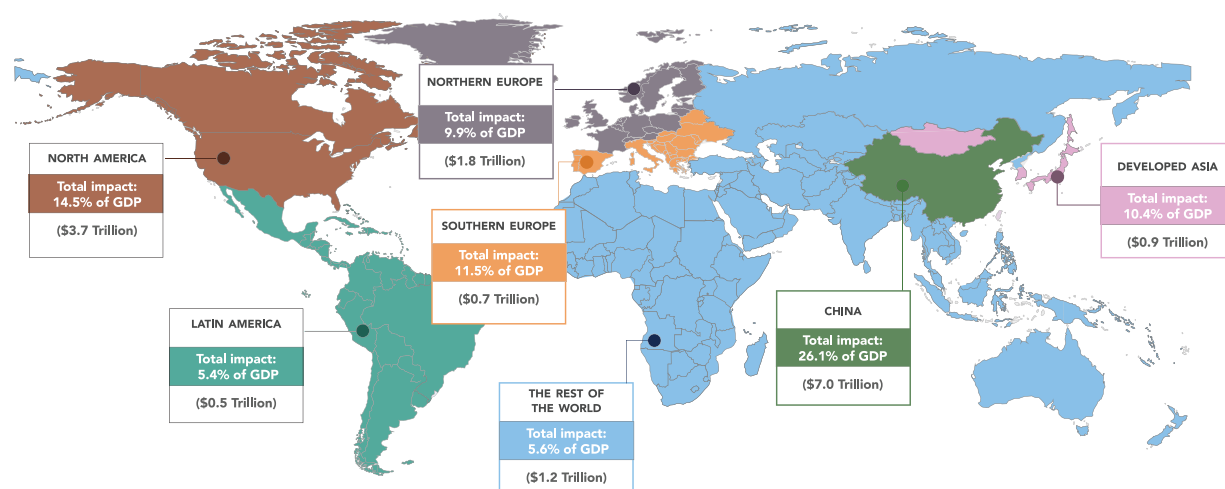
Myriad issues plague the Chinese healthcare system, including a shortage of quality doctors, inefficient distribution of resources, and long wait times. Chinese bigtechs, such as Tencent and Ping An, have begun providing systems that enable online appointment bookings, digital prescription services, online invoice payments, predictive assessments, and remote diagnosis among participating hospitals.⁶⁰ China's healthcare market—the fastest growing of any major economy—is expected to reach \$1 trillion by the end of the decade.⁶¹

Tencent is the most important bigtech in the healthcare space and has been tasked by the national government to help spearhead the modernization of the industry. In 2014, Tencent unveiled the WeChat Intelligent Healthcare platform, which enables a variety of functions, including paying bills and scheduling appointments at healthcare institutions and hospitals via WeChat accounts. As of last year, more than 38,000 medical facilities in the country had WeChat accounts, of which 60% facilitated appointment registration online,⁶² 35% supported bill payments, and 60% provided consultation via the web.⁶³ Partnerships have played a key role in helping Tencent improve its health-focused services. In 2014, the conglomerate partnered with Babylon Health, a London-based startup that is developing an AI-powered healthcare assistant that allows users to communicate their symptoms via mobile phone and receive quick and reliable feedback and guidance. Tencent has also partnered with Medopad, another health tech startup based in London. The company leverages AI to remotely oversee patients' well-being.

Tencent's own internal healthcare research and development is focused on developing the Miying healthcare platform, which it launched in 2017 and is currently used in more than 100 hospitals. Miying provides medical facilities with AI-powered assistance in the diagnosis of numerous types of cancers. The platform also leverages AI to support healthcare professionals with managing and evaluating patient records and medical imaging services.⁶⁴ Finally, the conglomerate's medical subsidiary, Tencent Doctorwork, has established brick-and-mortar clinics in Beijing, Chengdu, and Shenzhen. The subsidiary, which plans to open 60-100 clinics by year's end,⁶⁵ is developing its big data and AI abilities in collaboration with healthcare institutions across the nation.

Ping An is also having a significant impact on the space. Its smart disease prediction model, developed in cooperation with the Chongqing Center for Disease Control and Prevention and the Shenzhen Municipality Health and Family Planning Commission, has achieved incredible results around the prediction of patient diseases, effectively forecasting the occurrence of contagious diseases seven days in advance with an accuracy rate of 90%. According to a company press release, “in the recent prevention and control of an influenza outbreak in Shenzhen, Ping An Technology’s AI+ big data influenza prediction model accurately forecast the scenario for the epidemic over the subsequent week. The combination of effective prevention and control in the city led to the happy result of no one in the city dying due to contracting influenza.”⁶⁶

FIGURE 13
ECONOMIC IMPACT OF AI BY REGION, 2017-2030



All GDP figures are reported in market exchange rate terms.

All GDP figures are reported in real 2016 prices, GDP baseline based on market exchange rate basis.

For more information and methodology, please see [The marcoeconomic impact of artificial intelligence](#).

Source: PwC.

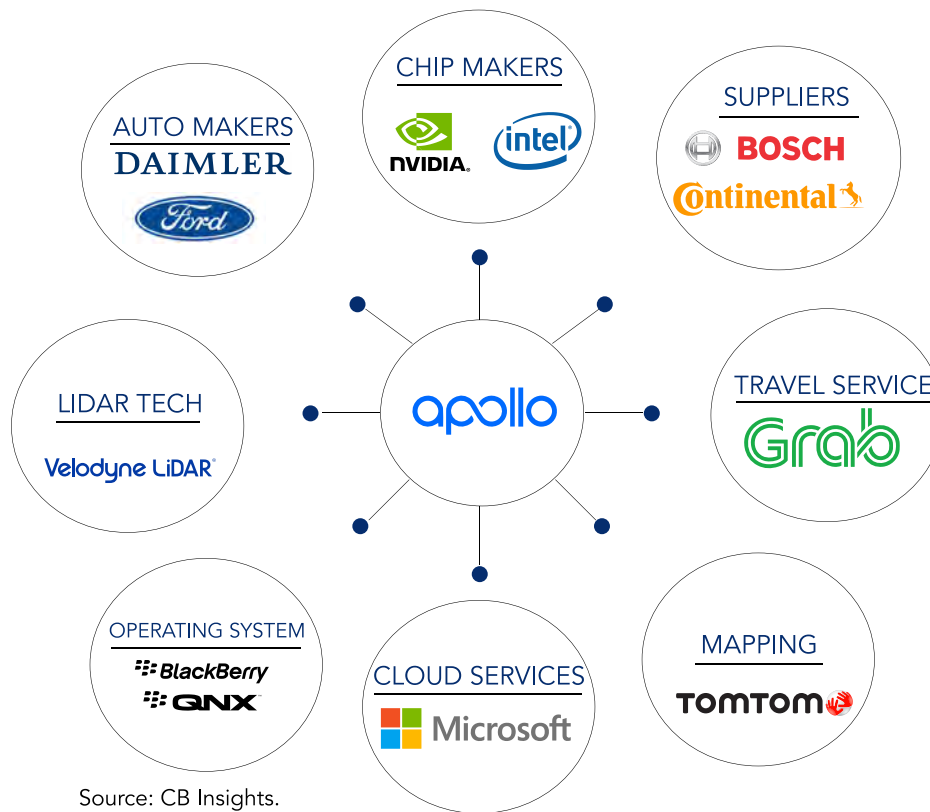
Autonomous Automobiles

Driverless technology is a shared area of interest for all three of the largest bigtechs, and an important priority for Beijing. Each of Alibaba, Tencent, and Baidu have announced their own self-driving technology initiatives; however, Baidu is the clear leader and the only one that has several issued patents in the space so far.⁶⁷

Last year, the company announced a unique open software platform for autonomous driving solutions, known as Apollo. The project, which aims to accelerate the development, testing, and deployment of self-driving vehicles, has numerous international partners, including Microsoft, Ford, BlackBerry, and Intel (see Figure 14, p. 19). By opening up the platform to contributions from other partners in the ecosystem, Baidu envisages industry innovation to accelerate as partners can build off previous progress rather than start from scratch. As of April, the Apollo ecosystem had around 100 collaborators. In comparison, Lyft, a U.S. ride-hailing company that launched a similar open platform initiative in 2017, had less than 10.⁶⁸

Beijing has given the green light to Baidu to test autonomous automobiles on city streets, an important step as the government strives to augment its national champions’ standings in the global race for self-driving vehicles. Baidu aims to introduce driverless vehicles in the country by 2019.⁶⁹

FIGURE 14
SELECT INTERNATIONAL PARTNERS OF BAIDU'S APOLLO PROJECT



Digital ID Systems

Chinese bigtechs are facilitating the emergence of digital-based IDs in the country. For example, a program co-developed by Tencent and the Ministry of Public Security is currently underway to integrate WeChat with the country's electronic ID system. The initiative—which has the support of various government departments and banks, including the Guangzhou police and the China Construction Bank—involves the platform issuing a digital ID card that people use in place of physical state-issued ID. According to reports, facial recognition software will be harnessed to authenticate applicants before they can use their digital IDs, thereby deterring identity fraud. Depending on the identification certificate level one is approved for, e-card holders can use their WeChat-issued IDs for formal banking transactions and registering their business. Tencent is also working with the Chinese government to streamline travel and border crossings between Hong Kong, Macau, and Guangdong by linking various travel documents to a person's WeChat app. Given WeChat's enormous user base and that government policy requires users to register for the platform using their real names, it is conceivable that in the future, WeChat-based IDs may become more common than physical, state-issued ones.⁷⁰ Finally, Chinese tech firms are also working at the provincial level: at least three provinces have declared they're leveraging Alipay and WeChat's facial recognition technology to issue digital ID cards for their residents.

Social Credit System

On June 14, 2014, the State Council of China published a document—"Planning Outline for the Construction of a Social Credit System"—describing how the financial and social behavior of each citizen and legal person (which includes every company or other entity) in China will be rated and ranked, impacting access to not just credit, but a broad ecosystem of punishments and rewards across a wide range of activity. To date, they have included permission for foreign travel, ability to purchase domestic and international plane tickets, blacklists for employment at state-

owned enterprises (SOEs), rankings on dating apps, and discounts on utility bills. This social credit model of ratings, criteria, penalties, and rewards is still being developed as the system prepares to go into effect nationwide in 2020. Already, a reported nine million people with low scores have been blocked from buying tickets for domestic flights. Reports have claimed that citizens with low social credit would also be prohibited from enrolling their children at high-paying private schools. China's supreme court reportedly shares a blacklist of people who haven't paid court fines with Sesame Credit, which then lowers users' scores until they pay. In the world of dating apps, Alibaba's Circles, Zhenai.com, and Baihe.com have all experimented with ways to integrate the social credit score into their system.

Several bigtechs are working with Baihang to help design a consumer credit component of the social credit system, including Ant's Sesame Credit and Tencent's Credit Bureau. Smaller tech companies specializing in credit analytics and which use proprietary data technology and advanced algorithms, including WeCash and IceKredit, are also working with the government to build more inclusive credit scoring systems.

Surveillance

The social credit system is just one way in which Beijing aims to monitor its citizens and influence their behavior. The government is leveraging advanced surveillance cameras, extensive computer networks that comb through mountains of data, and AI-powered visual and facial recognition technology provided by national champions—including Alibaba, Tencent, and Baidu—and their smaller tech peers to build one of the most sophisticated, comprehensive, and state-of-the-art surveillance systems in the world. Vital to Beijing's efforts in the space is the close collaboration between the state and Chinese tech companies who are not only providing the technological infrastructure but are also required to help the government hunt down targets in cities wired for surveillance, suppress political dissent, and censor online content that is deemed incompatible with the Party's standards.⁷¹ The government helps tech firms by providing them with enormous amounts of data on its citizens so that the firms can make their AI algorithms more efficient.

This close collaboration between the state and Chinese tech companies has made the Chinese model unique. For example, Beijing-based Megvii's Face++, one of the world's largest facial recognition technology platforms, has access to 1.3 billion face data records on Chinese citizens from the Ministry of Public Security's database.⁷² The Ministry is also working with SenseTime, the AI-based facial recognition startup partly owned by Alibaba, to develop the country's so-called citizen network identity infrastructure. The company, which has an internal training databank of an astonishing two billion faces, has collaborated with 40 Chinese municipalities, including Chongqing, Guangzhou, and Shenzhen. In 2016, Chongqing police, powered by SenseTime's software, were able to identify 69 suspects and apprehended 14 outlaws within just 40 days. The AI startup's platform is also being leveraged by the country's ten largest security surveillance manufacturers and other types of companies. Already, SenseTime's positioning technology, which is capable of analyzing data from nearly 250 points on a human face, has authenticated the faces of 400 million consumers, three-quarters of which were for state-owned China Mobile alone. Furthermore, SenseTime is working with the Cyberspace Administration of China, the country's central internet regulator, to censor online content related to violence, terrorism, and pornography.⁷³

This unique surveillance model has raised concerns globally. Many view a dystopian future in China where daily behavior and activities are closely monitored by the state. Moreover, there are fears that this technology could be exported to other authoritarian countries. According to a [Foreign Affairs](#) article written by Nicholas Wright, a British neurologist who studies AI and politics, authoritarian regimes in countries like China could leverage "AI designed for social control that will draw from the multiplicity of devices someone interacts with during their daily life." He warns about governments "combining such data with information from tax returns, medical records, criminal records, sexual-health clinics, bank statements, genetic screenings, physical information (such as location, biometrics, and CCTV monitoring using facial recognition

software), and information gleaned from family and friends.”⁷⁴ According to Mr. Wright, Beijing is already exporting aspects of this “digital authoritarianism” model to countries such as Ethiopia, Iran, Russia, Zambia, and Zimbabwe. Moving forward, the model is likely to lead to competition with those developed in liberal democracies that value citizens’ privacy and an increased risk that the world could eventually splinter into two techno-blocs with widely disparate approaches to data.

Spreading Chinese Interests Globally

Chinese tech firms have emerged as a centerpiece of Beijing’s global ambitions and Beijing frequently champions the companies’ global expansion in order to promote China’s economic and political interests abroad. For example, the government underwrites investments to certain countries under the Belt and Road Initiative—a trade and infrastructure endeavor established by Beijing in 2013 that today has over 75 participating countries and in the decades ahead is poised to impact around 60% of the world’s population⁷⁵—with the understanding that they afford Chinese firms easy access to their markets. Recipient countries acquire funds for infrastructure projects, improved services are made available to their citizenry, and Beijing gains influence abroad. Moreover, Chinese firms are presented with new business opportunities. Yu Shengfa, vice-president of Ant Financial has emphasized, “In developing countries, some of which are countries covered by the Belt and Road Initiative of China, there are two billion unbanked individuals ... and 79% of them have credit needs that are not fulfilled by the financial system in their countries.”⁷⁶

Chinese tech firms are also furthering the government’s ambitions by signing strategic agreements with parties in other countries. For example, in March, the government of Zimbabwe agreed to a strategic framework regarding a large-scale facial recognition program whereby CloudWalk Technology, a startup based in Guangzhou, would export computer vision technology to Zimbabwe in exchange for the country’s government to provide a database of their citizens’ faces to China.⁷⁷ This would allow the startup to augment their algorithms with valuable and unique data.

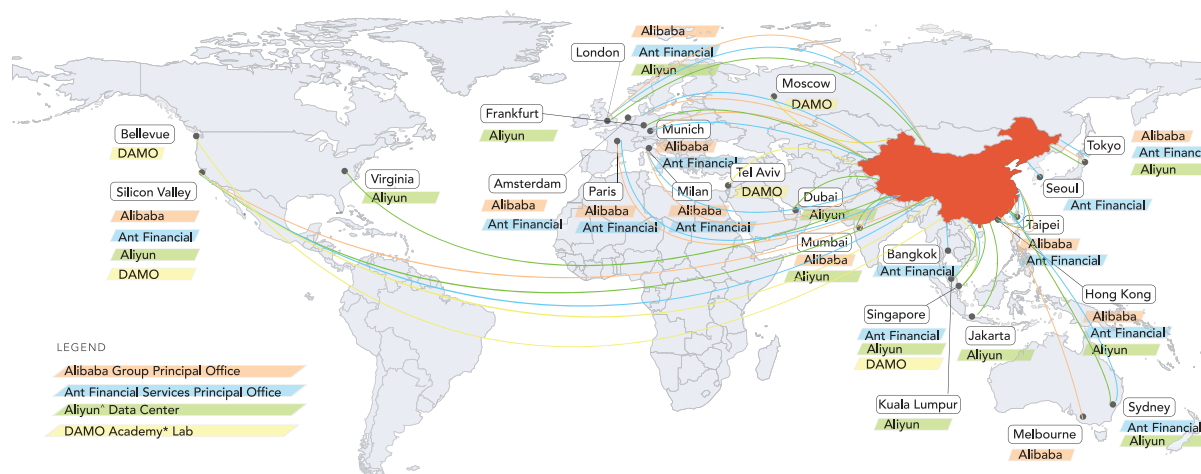
Supporting SOEs, Poverty Alleviation, and Greater Economic Integration

Chinese bigtechs and their leaders are also supporting a number of other government causes, including modernizing SOEs, alleviating poverty, and greater economic integration of the country. Earlier this year, Baidu, Alibaba, and Tencent, among others, agreed to invest nearly \$12 billion in China Unicom, to help make the wireless carrier more efficient and support the government’s goal of transferring private-sector money into SOEs.⁷⁸ In 2017, it was reported that Alibaba’s Jack Ma was establishing a foundation with a mission to raise 100 billion RMB (\$15.2 billion) from fellow entrepreneurs to provide opportunities for individuals at the base of the economic pyramid, a key priority of President Xi.⁷⁹ JD.com, for its part, is making a concerted effort to push into rural areas to help provide support for state-led programs to reduce poverty. Finally, Tencent’s founder, Ma Huateng, also known as Pony Ma, took up the government cause of advocating for Mainland China’s greater economic and political integration with Hong Kong, the former British colony that is staunchly guarding its semi-autonomous status.

GLOBAL EXPANSION

With government encouragement and the objective to maintain current rates of growth in the future, Chinese bigtechs—especially Alibaba—have become active in foreign markets and increasingly view expansion through a global lens (see Figure 15). They're buying stakes in foreign companies, poaching international talent, launching research institutes worldwide, acquiring technology from other countries through partnerships and investments, and expanding operations to various countries around the globe.⁸⁰

FIGURE 15
ALIBABA GROUP'S GROWING GLOBAL FOOTPRINT OUTSIDE MAINLAND CHINA



[^]Also known as Alibaba Cloud.

^{*}Alibaba R&D program focusing on foundational and disruptive technologies. DAMO stands for Discovery, Adventure, Momentum, and Outlook.

Source: Alibaba Group, Ant Financial, Alibaba Cloud websites.

New International Markets and Opportunities

Shadowing Chinese Tourists

Chinese bigtechs have made entries into foreign markets through their mobile payment services, which allow Chinese tourists abroad to use their platforms. Chinese tourists can now use Alipay in over 110 markets,⁸¹ including the U.S., where Starbucks, Macy's, Bloomingdale's, Saks Fifth Avenue, and Caesars Palace in Las Vegas, accept payments via the platform. Li Wang, Alipay's head for Europe, the Middle East, and Africa, told *Quartz* in March that transaction volumes on the platform in Europe are growing at 50% annually and the company intends to grow the number of European vendors accepting the platform by 15-fold within one year and by March of next year to have merchants in 20 of the continent's markets accepting the payment method.⁸²

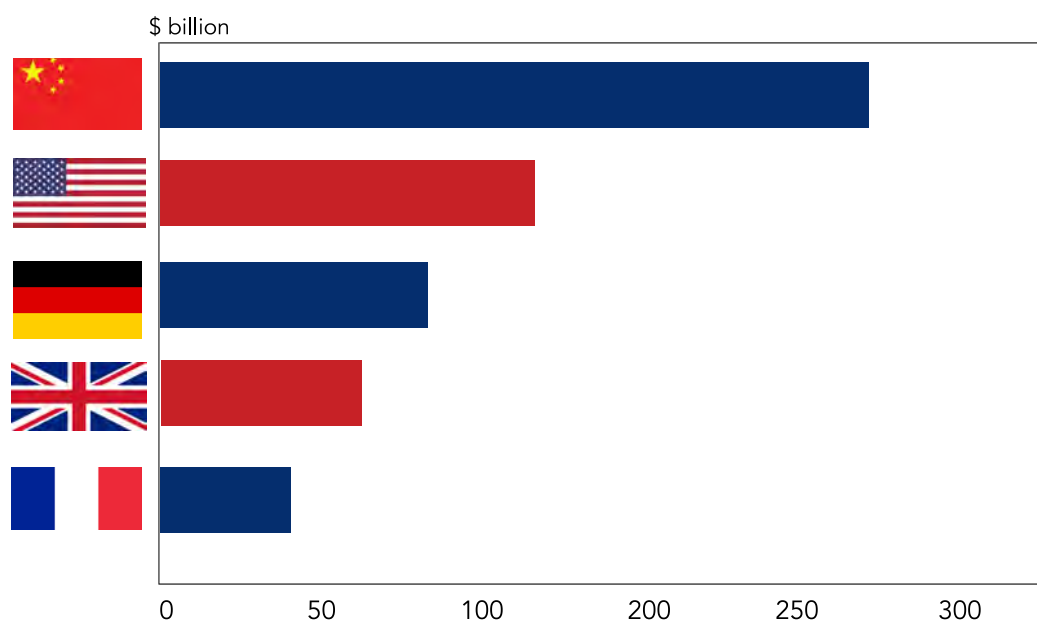
Tencent, which hopes to create an enduring relationship between international vendors and WeChat's one billion-plus users, is also leveraging its payment platform and the enormous number of Chinese tourists traveling abroad. According to a presentation by Eagle Yi—WeChat Pay's director for Europe and the Americas—at Money 20/20 in Las Vegas last year, the platform serves 13 currencies.

More and more international vendors are offering the platforms as payment options because they realize the huge opportunity represented by Chinese tourism. According to the World Tourism Organization (UNWTO), the United Nations agency responsible for the promotion of responsible, sustainable, and universally accessible tourism, in 2017, Chinese travelers spent more abroad than any other nationality—surpassing the value spent by tourists from the U.S., the UK, and France combined (see Figure 16, p. 23).

Acquisitions and Investments

Chinese bigtechs have also begun purchasing stakes in local companies and stitching them together into complex ecosystems of services to control financial and data intermediation. According to *The Economist*, Tencent and Alibaba alone have over 1,000 stakes in foreign firms and have invested in 43% of all Asian unicorns. Ant Financial has suggested that it will use most of the approximately \$14 billion it raised in its latest financing round to develop new technology and expand internationally.⁸³ Ant's parent company has indicated that it aims to raise the value of its foreign sales on its platform to 50% by 2025,⁸⁴ signaling lofty ambitions and strong expansion in key new markets, primarily in Asia.

FIGURE 16
WORLD'S TOP TOURISM SPENDERS, 2017



Source: World Tourism Organization - United Nations (UNWTO).

Asia

Thanks to its size and impressive growth, Southeast Asia is one of the most important foreign markets for Chinese bigtechs. The region has 640 million consumers,⁸⁵ a rising middle class, and according to a report co-authored by Google and Temasek last year, one of the fastest growing internet markets in the world with an online community projected to reach 480 million people by 2020, up from 330 million in 2017 and 260 million in 2016.⁸⁶ Moreover, the mobile payments market is expected to skyrocket, with Euromonitor, a British research company, forecasting transaction volumes reaching \$32 billion by 2021, a tenfold increase from 2013.⁸⁷

Given these remarkable figures, Chinese bigtechs have made a strong push into the region. For example, over the past couple of years Alibaba has invested a total of \$4 billion in Lazada, a Singapore-based e-commerce firm serving six countries in Southeast Asia. The deal, which gives Alibaba 83% ownership and is the first major investment in the region by a Chinese company,⁸⁸ will help Lazada continue to expand aggressively in Southeast Asia as it looks to capitalize on the fast-growing e-commerce market in the region—which is set to rise to \$65.5 billion in 2021 from \$20.5 billion in 2017, according to consultancy Frost & Sullivan (see Figure 17, p. 24)—and take on rivals such as Amazon. Alibaba recently appointed Lucy Peng, former executive chairperson of Ant Financial, as Lazada's new CEO and has been revamping the business model of the company, which now boasts 560 million customers.⁸⁹

To help gain a greater financial services foothold in the region, Ant Financial has also invested in various companies, including in Ascend Money, a Thai company offering e-payment services and microloans; Mynt, a Philippines-based fintech that owns GCash, the largest electronic wallet in the country; and

M-Daq, a fintech firm based in Singapore. In addition, in 2017, Ant and Emtek, an Indonesian media company, created DANA, a joint venture offering payment and financial services in the country.

Meanwhile, Tencent controls 40% of Singapore-based Sea, a gaming and e-commerce firm that raised over \$1 billion in a listing on the New York Stock Exchange last year.⁹⁰ The company's e-commerce platform, Shopee, is one of the top five retailers in the region and the firm is exploring providing microloans via its mobile electronic wallet AirPay.⁹¹ Tencent has also invested in Go-Jek, an Indonesian tech firm specializing in ride-hailing, logistics, and digital payments; Sanook, a Thai media firm; and Joox, a music streaming service that rivals Spotify in Southeast Asia. Moreover, in June, Tencent launched its first WeChat Pay service in a foreign currency^{ix} in Malaysia.

Additionally, Baidu announced in January that it was teaming up with Singapore-based Asia Mobility Industries, a firm specializing in AI and smart mobility technologies, to launch the Apollo Southeast Asia fund, a \$200 million joint venture focused on investing in autonomous driving and intelligent transportation technologies in the region. With the partnership, the internet giant hopes to establish a foothold in the region to help it sell driverless car technology in the future.

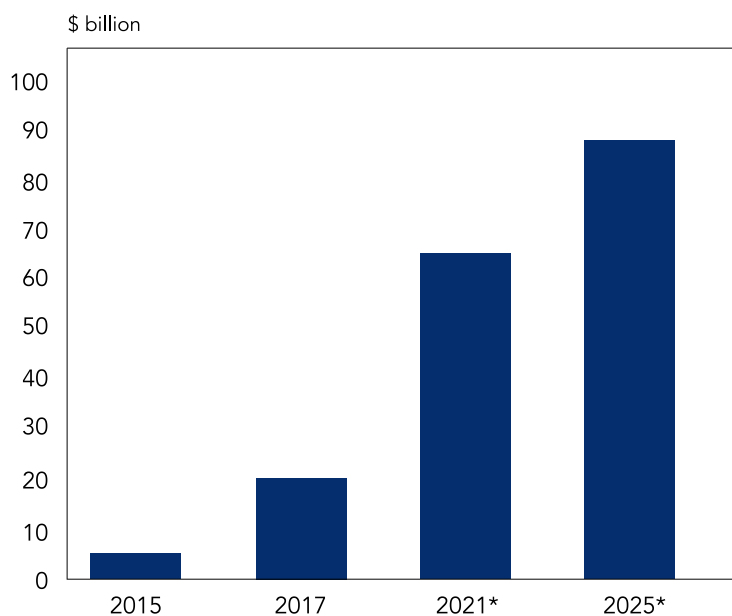
Chinese bigtechs have expanded into other Asian markets, including India, Korea, and Japan. Chinese tech firms have invested \$5 billion into Indian startups last year, a fivefold increase from 2016.⁹² Alibaba has backed Paytm, an Indian fintech specializing in e-commerce and mobile payments. The company serves nearly 280 million customers⁹³ and has a valuation of approximately \$10 billion.⁹⁴ Other ownership stakes in Indian firms by Alibaba include BigBasket, a leading online grocery group, and XpressBees, a logistics group. In Korea, Ant Financial has invested \$200 million in KakaoPay, the mobile payment service from the country's top messenger app. KakaoPay is looking to expand beyond its current general mobile payment offerings, into loans and financing. Finally, Baidu has applied for a number of AI and biometric patents in both Japan and Korea—signaling future plans for expansion in those countries.

Western Markets

In the U.S., Alibaba has invested in a variety of startups over the years, including Tango, a mobile messaging app; Fanatics, a sports e-commerce firm; Quixey, a mobile search company; Magic Leap, a firm specializing in virtual and augmented reality; Lyft, a ride-hailing app; and Snap, a social media and hardware tech company. Alibaba, however, seems to have put on hold a broader U.S. investment strategy in light of recent U.S. foreign investment reforms and concerns about Chinese investors (see below).

In Europe, Alibaba has made significant progress providing cloud services.

FIGURE 17
SIZE OF E-COMMERCE MARKET IN SOUTHEAST ASIA



*Forecast

Source: Frost & Sullivan, Temasek, McKinsey, Google, TechCrunch.

ix Outside of China. Available in Hong Kong dollar.

The conglomerate built its first European data center in Frankfurt and in 2016 teamed up with Vodafone to enable the multinational telecommunications company to resell Aliyun services, including data storage and analytics.

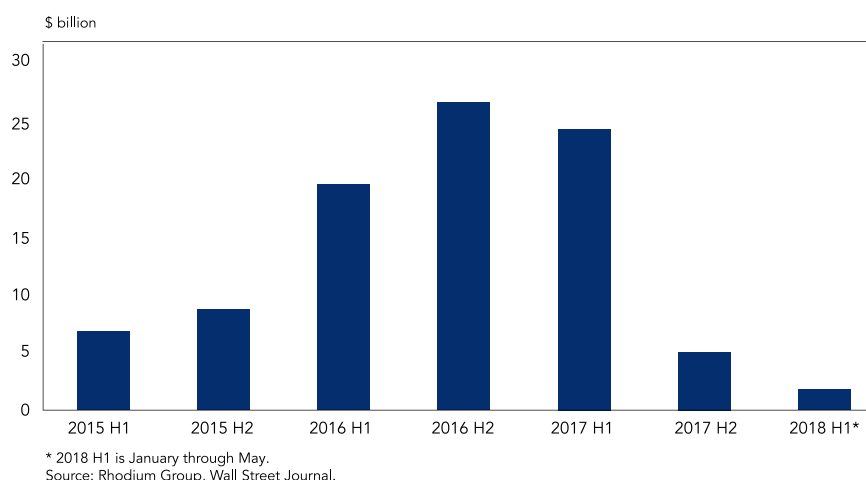
In July 2018, Alibaba expanded into France, after Alibaba and Bolloré Group, a French conglomerate involved in transportation, logistics, and communications, agreed to develop a number of joint projects and explore new business opportunities. As part of the agreement, Alibaba will provide Bolloré with a comprehensive suite of tech solutions, including artificial intelligence, big data, and cloud computing. Moreover, Alibaba is currently in talks with BT Group, a British multinational telecommunications holding company, about a cloud service partnership that could be similar in nature to the Alibaba-Vodafone arrangement. In addition to the examples highlighted above, Alibaba counts several major European companies, including KPMG, Nestle, InterContinental Hotels Group, Philips, and SAP as clients of Aliyun.

Improving Technology Capabilities Through Expansion

Chinese bigtechs are seeking to improve their high-tech capabilities and become world leaders in various emerging fields through global expansion. With encouragement and backing from the state, Chinese tech firms have been aggressive in targeting top AI engineers from around the world, oftentimes offering double the salary an in-demand talent can expect to receive in the U.S. Moreover, Chinese tech firms are launching overseas research hubs to build their technological capabilities. For example, Alibaba's DAMO Academy, the \$15 billion R&D endeavor focusing on emerging technology, will include research bases in the U.S., Russia, Israel, and Singapore. The Academy plans to hire 100 researchers to work on fields related to AI, quantum computing, and fintech.⁹⁵ In addition, Tencent established an AI research lab in Seattle in 2017. Finally, Baidu, Alibaba, and Tencent have actively invested in global AI startups over the past couple of years, especially in the U.S., partially for this objective. For example, Tencent, which is looking to import healthcare AI from abroad, participated in two AI in drug discovery deals during the first quarter of 2018, including a \$45 million Series A round in San Francisco-based Atomwise, a biotechnology company which uses deep learning to shorten the process of discovering new drugs; and a \$15 million Series B round in Massachusetts-based XtalPi,⁹⁶ a pharmaceutical firm that leverages quantum physics, AI, and high-performance cloud computing algorithms to accelerate the development of new drugs.

Challenges to Expansion

FIGURE 18
CHINESE FOREIGN DIRECT INVESTMENT TRANSACTIONS IN THE UNITED STATES



Chinese bigtechs hold a competitive advantage when it comes to data. Their total digital life business models are built on the use of personal data from a web of social networks, transactions, and behavior, which other regions of the world, particularly the European Union, with its recently launched General Data Protection Regulation (GDPR), would find invasive and unacceptable.^x

x See footnote #ii.

This, combined with the close ties with Beijing—who has subsidized various tech firms over the years and who censors and monitors citizens with the help of these companies—will serve as a considerable barrier for Chinese bigtechs as they look to expand into certain markets. In fact, the mere perception that the Chinese government has access to consumer data on platforms such as WeChat is an impediment to their growth potential abroad. The relationship to Beijing also poses challenges to Chinese bigtechs because of the risk that the Communist Party could view these increasingly powerful actors as an internal threat, or alternatively, that Beijing could attempt to bind them even closer to the state’s national security objectives.

Moreover, bigtechs will face new challenges in the form of heightened scrutiny of foreign investment, particularly in the U.S., where Congress recently adopted stricter rules around investments with national security implications. The Committee on Foreign Investment in the United States (CFIUS), an interagency body authorized to review inbound investment for impacts on national security, was updated and strengthened via reforms passed into law in August as part of the National Defense Authorization Act. The impetus for reform stemmed from fears that the increase in Chinese investment, among other countries of concern, in the U.S. in recent years has been based more on national strategy than purely financial investment, utilizing deal structures that would purposely fall outside the scope of CFIUS jurisdiction. The recently-passed legislation expands CFIUS jurisdiction to cover minority investments, particularly those involving “critical” technology and infrastructure, as well as exposure to sensitive personal data. Along with coverage of changes in foreign investors’ rights and real estate transactions in close proximity to military installations or other sensitive locations, the legislation also sets up a process to identify “emerging and foundational technologies” that should be added to the U.S. export control list. This process, coupled with uncertainty about the definition of “critical” technology or infrastructure, leaves open the possibility for outsized scrutiny of Chinese investment.⁹⁷

Even prior to enactment of the new law, CFIUS heightened scrutiny of Chinese acquisitions. For example, CFIUS blocked Ant Financial’s proposed acquisition of MoneyGram earlier this year because it was deemed sensitive on national security grounds. The interagency committee similarly barred an investment earlier this year by Tencent in Here Technologies, a Netherlands-based digital mapping firm with considerable operations in the U.S. In July, the Trump Administration declared China Mobile, a state-owned telecommunication corporation and one of the world’s largest mobile carriers, a possible “risk to national security” and the government has banned their operation in the country.

U.S. scrutiny of Chinese tech deals—combined with a general intensification of trade tensions between the two capitals—has already contributed to a 92% decline in Chinese investments in the U.S. in the first half of 2018 compared to a year earlier, according to Rhodium Group, a research provider (see Figure 18, p. 25). We can expect tighter restrictions on tech deals to follow.

While the U.S. has taken the hardest position toward Beijing, lawmakers in other markets, including Australia, Canada, and the EU are weighing more rigorous vetting procedures of deals involving sensitive technologies and Chinese investors. This trend is likely to strengthen moving forward, especially if Chinese bigtechs’ capabilities and ecosystems become even more advanced and ties with Beijing deepen.

CONCLUSION

Chinese bigtechs have moved quickly to capture China’s domestic market across a range of industries by leveraging investments in new technologies, Beijing’s lenient policies on use of consumer data, and strategic partnerships with the Chinese government. Unlike traditional Chinese SOEs, who may enjoy state support in the form of monopoly power or subsidies, Chinese bigtechs enjoy state support in the form of partnerships with the government that give them a role in providing more efficient public services in exchange for access to valuable consumer data. Each of the Chinese bigtechs built vast pools of consumer data around “private” services (banking, entertainment, and shopping) but now are cementing their supremacy in the space by

working with the Chinese state to provide municipal services such as more efficient transportation or better healthcare. For many foreign competitors, the emergence of this new form of data-fueled corporate empire, tied to public services, will have a longstanding impact on their ability to compete within China. Regardless of Beijing's formal market access policies, the scale and sophistication of Chinese bigtechs may put the country's consumers largely out of reach.

For some international markets—particularly the U.S. and Europe—the reach of Chinese bigtechs may be limited by more restrictive data rules and by national security-focused limitations on foreign investment. But for other countries in Asia, Latin America, and Africa, Chinese bigtechs will continue to move aggressively to invest, acquire technology, expand operations, and launch research institutes. In the end, competition across the globe will be impacted permanently by the rise of this new kind of conglomerate.

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