OLIVER WYMAN

FINTECH IN CHINA
HITTING THE MOVING TARGET

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TABLE OF CONTENTS

INTRODUCTION AND EXECUTIVE SUMMARY

For the last few decades, China has struggled in technological innovation and been regarded as a follower of the developed economies. However, when it comes to fintech, China could claim to be a world leader in some respects, with the potential to shape the global fintech landscape. The country contributes to some of the world's largest investments in the sector, and has been adopting technologies faster than anywhere else. The likes of Alipay, Lufax and ZhongAn Insurance have made their names across the globe by developing some of the most disruptive business models.

Riding the wave of the "Internet plus" concept advocated by the central government, a wide range of players is taking part in China's fintech space: the Internet giants, traditional financial institutions, and ambitious start-ups, both domestic and international. Despite having very different backgrounds and business models, these players have all been enjoying the fruits of the industry's unprecedented growth by filling the gaps in China's structurally imbalanced financial system in an open regulatory environment.

However, every coin has two sides. Increasing numbers of voices have been questioning the health and legitimacy of the fintech business models. Regulators and investors have been alerted by the growing closures of peer-to-peer companies and the recent defaults of high-profile online investment products.

We have not yet seen the full potential of fintech in China. We believe that technological advances, coupled with the unique circumstances of China's financial system, will propel fintech companies to further drive innovation and disrupt the traditional financial services space. Premier Li Keqiang commented at the inauguration ceremony of WeBank, the new web-based bank owned by Tencent, "It's one small step for WeBank, one giant step for the country's financial reform."

The purpose of this paper is not to provide a comprehensive view of business models and case studies for fintech companies in China – something already done by many others. Rather, this paper explores the underlying value drivers of the fintech industry in China, and discusses how these drivers will change and how fintech companies, incumbents and non-financial services players should respond to these trends.

Definition: *In this paper, the terminology "fintech companies" is used to mean those that leverage cutting-edge technologies to provide financial products and services, covering an array of business models. This may be different from narrower definitions where fintech companies are only those that provide technology or infrastructure to financial institutions.*

CHAPTER 1 contextualises the rapid growth of China fintech with the amount of capital invested in the sector and the size of its major sub-segments across lending, investing, protection, and transaction. The growth has been led by several technology companies and independent start-ups, with some notable players evolving into online financial services conglomerates.

CHAPTER 2 explains the growth of China fintech over the last five years. Fintech companies have emerged and grown opportunistically by fulfilling demand unmet by the traditional financial sector: the retail and small and medium enterprise (SME) sectors have been underserved by banks; wealth and asset management markets have been unspectacular; and infrastructure development has been immature. Yet, we argue that some players have falsely enjoyed the "fintech" label, as their business models resemble those of traditional banks and the label is used merely to circumvent regulators.

CHAPTER 3 discusses big-data analytics, the Internet of Things (IoT), and blockchain as three major technologies that will drive the next wave of growth for China fintech. We envision future winners as those that can use data effectively to expand and better manage lending. They will provide low-cost, bespoke investment advice to win over China's self-directed investors. They will enhance insurance product design, underwriting, and pricing to better fulfil the growing needs of the insurance sector. In addition, they will develop blockchain-enabled transaction infrastructure that tackles current inefficiencies.

CHAPTER 4 summarises the future key success factors for fintech market participants, namely: 1) data abundance and capabilities for insight generation; 2) monetisation of a large customer base; 3) availability of proprietary and comprehensive products; 4) strong financial service and risk management knowledge; and 5) a "fin plus tech" organisation with talent from both sides. Whilst current leaders might be able to build on their strengths and expand on all fronts, the chaser pack could still find major places for themselves by applying differentiated technology in spaces where it is needed. They could also consider more elaborate approaches, including consolidation and strategic partnerships with each other.

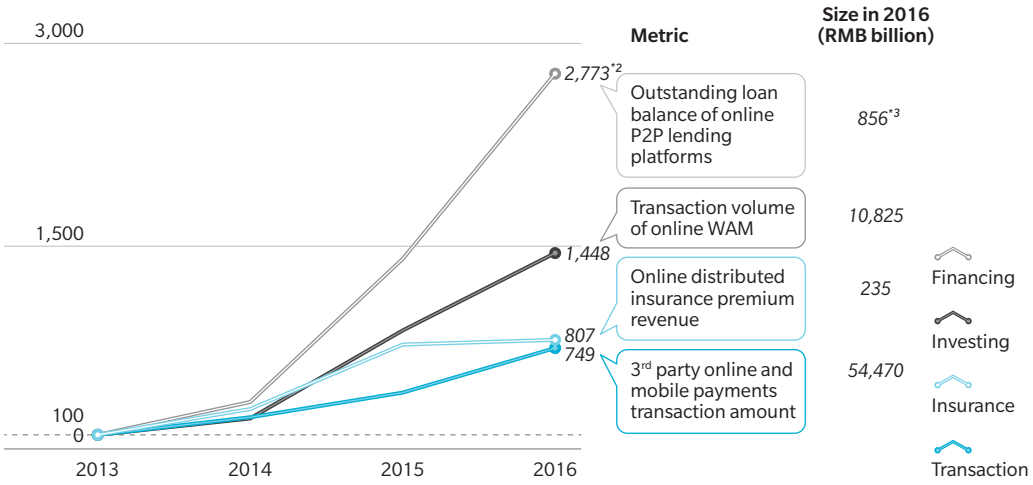
With a pair of forward looking lens, we expect players participating in the fintech space in China would need to explore their ways in an ever-changing landscape. Strategic planning, significant-but-rightly-directed investment and prompt action are required for tomorrow's Chinese fintech leaders.

1. FINTECH IN CHINA
UNPARALLELED GROWTH WITH UNIQUE CHARACTERISTICS

Over the past half-decade, we have witnessed phenomenal growth in the Chinese fintech industry. The year 2013 is widely recognised as the onset of the boom. Since then, major segments of the fintech market – namely online peer-to-peer lending, online wealth management, digital insurance, and third-party payment – have on average doubled or even tripled every year (See Exhibit 1).

To put the magnitude in context, the outstanding loan balance for online peer-to-peer lending platforms surged from RMB 31 billion in January 2014 to RMB 856 billion three years later. The amount transacted through online and mobile third-party payment systems reached RMB 54.5 trillion in 2016, compared to RMB 7.3 trillion in 2013.

Exhibit 1: Indexed growth of China fintech segments*1



*1 Methodology: One representative metric for each area adopted and indexed at 100 in 2013. Metric selection: Financing – outstanding loan balance of online P2P lending platforms; Investing – transaction volume of online wealth management platforms; insurance – Online distributed insurance premium revenue; payment – total 3rd party online and mobile payments transaction amount

*2 Used outstanding loan balance at the end of the first month of the year after in lieu of the year-end figure as no official pre-2014 data was available, i.e. the outstanding loan balance of January 2014 is indexed at 100

*3 Figure at the end of January 2017 (see note 2 for details)

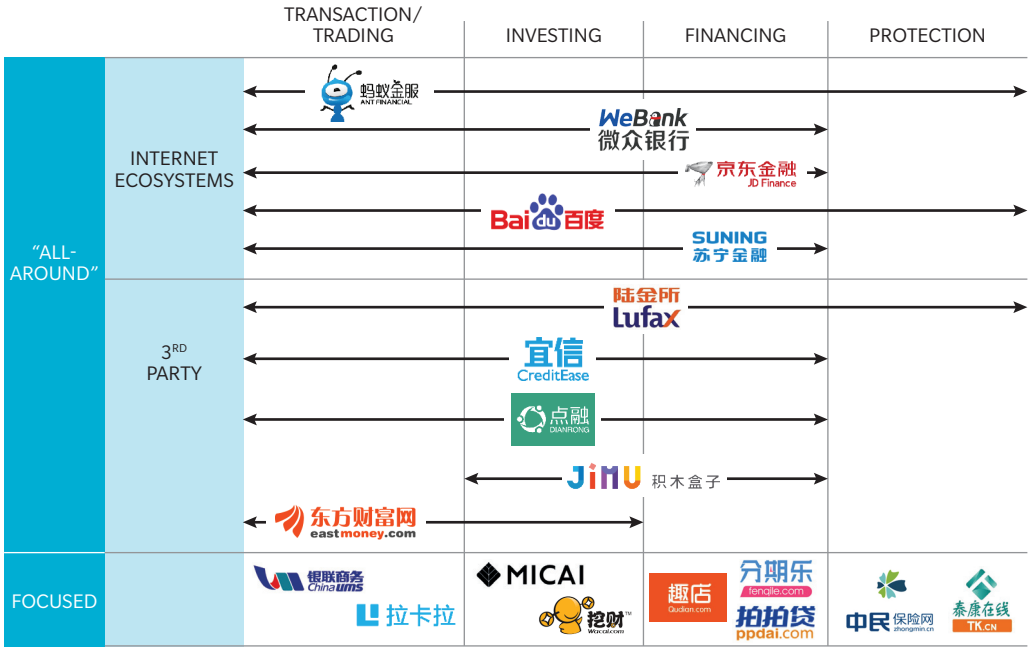
Source: WIND, Analysys, CIRC, Insurance Association of China

The explosive growth in China fintech is further characterised by its relatively short maturity curve. For example, it took four years for peer-to-peer transaction volume to exceed $5 billion in the United States, while it took only two years in China. Lufax, a Chinese peer-to-peer lending platform founded in 2011, reached an annual loan origination amount of RMB 9 billion in just two years, compared to five years for Lending Club, the biggest peer-to-peer lending company in the United States. Just over three years since its launch in mid-2013, Alibaba's online wealth management platform, Yu'E Bao, which is owned by Ant Financial, is now managing more than RMB 1.4 trillion of assets.[1]

1. Company data as of Q2 2017.

Successfully leveraging the large user base in their online ecosystems, technology companies have reacted much faster to the wave of fintech growth than traditional financial institutions. As a result, a plethora of fintech conglomerates and large, focused players have emerged (See Exhibit 2).

Exhibit 2: Notable players in the China fintech landscape

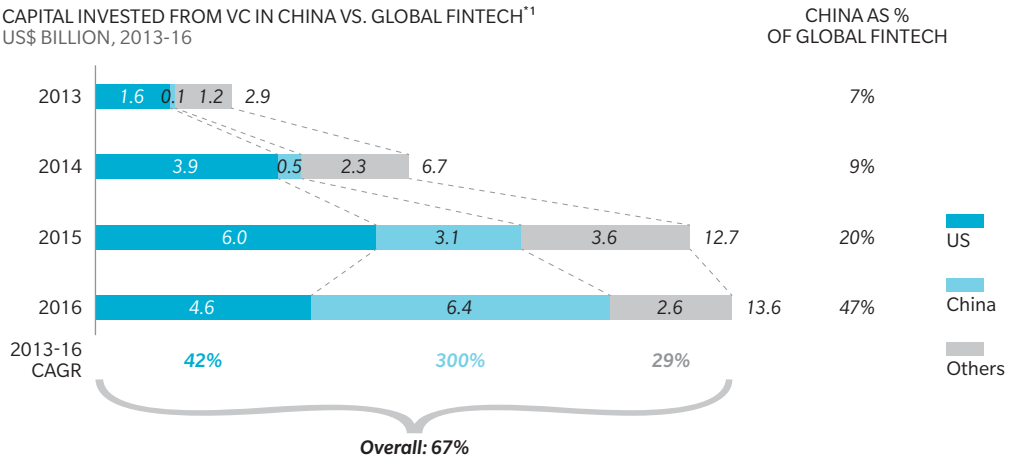


Source: Oliver Wyman analysis

Leading fintech players are highly sought after by investors who firmly believe in the China fintech story. Venture capital investments in China fintech have grown at a staggering compound annual growth rate of 300 percent over the past three years. At $6.4 billion in 2016, China has overtaken the United States as the global leader in fintech venture capital activities and represents 47 percent of global fintech investments (See Exhibit 3). The investments in China fintech have given rise to several unicorns (See Exhibit 4). Ant Financial, by far the largest unicorn globally, was valued at $60 billion in the second quarter of 2016, a valuation similar to that of major traditional financial institutions like China Merchants Bank[2]. Similarly, Lufax's valuation of $18.5 billion exceeds those of GuangFa Securities[3] and Orient Securities[4].

2. Market capitalisation as at 10 May 2017: HK$539 billion (approx. US$69.2 billion). Source: Bloomberg.
3. Market capitalisation as at 10 May 2017: RMB 116 billion (approx. US$16.8 billion). Source: Bloomberg.
4. Market capitalisation as at 10 May 2017: RMB 81.1 billion (approx. US$11.8 billion). Source: Bloomberg.

Exhibit 3: Capital market activities in the fintech space



*1 Includes: Lending tech, payments/billing tech, personal finance/asset management, money transfer/remittance, blockchain, Bitcoin, institutional/capital markets tech, equity crowdfunding, insurance tech

Source: The Pulse of Fintech Q4 2016 – Global analysis of investment in Fintech (KPMG, 21 February 2017)

Exhibit 4: Valuations of fintech unicorns in China*1

US$ BILLION, LATEST ANALYST ESTIMATE

10+	蚂蚁金服 ANT FINANCIAL; 陆金所 Lufax
5-10	京东金融 JD Finance; 众安保险; WeBank 微众银行
1-5	人人贷 renrendai.com; 拍拍贷 ppdai.com; 趣店 Qudian.com; 融360 RONG360.COM; 点融 DIANRONG; 玖富 9Fbank.com; 微贷网 weidai.com.cn; 分期乐 fenqile.com; 信而富*2 China Rapid Finance; JIMU 积木盒子

*1 A unicorn is a startup company valued at over US$1 billion. Valuation either originally quoted in US$ or converted to US$ using exchange rate US$1.00 = RMB 6.88

*2 China Rapid Finance has undergone IPO in the US in April 2017

Source: iResearch, CB Insights, Oliver Wyman analysis

Interestingly, leading Chinese fintech unicorns are characterised by their consumer-oriented ("2C") business models, a sharp contrast with most of those in the United States and Europe, which focus on serving businesses ("2B") rather than individual consumers (See Exhibit 5). The difference can be mainly attributed to the large, yet historically financially underserved, population which Chinese fintech companies can serve.

Exhibit 5: Customer models of highest-valued fintech companies in China vs. US and Europe

US

Name	Business model	Description
Square	2B	Provides payment processing and POS solutions to businesses
Stripe	2B	Provides secure online payment solutions for businesses
SoFi	2C	Provides competitively-priced financing solutions to members with a lean and innovative credit approval process

EUROPE (INCLUDING UK)

Name	Business model	Description
Adyen	2B	Offers global multi-channel payment solutions for e-commerce merchants
Klarna	2B+2C	Eliminates barriers and risks for buyers and sellers with hassle-free payment solutions
Transfer Wise	2C	Provides low-cost cross-border P2P fund transfer services

CHINA

Name	Business model	Description
Ant Financial	2C	Leverages online and O2O consumption scenarios to provide a wide range of financial services products to a large customer base
Lufax	2C	Provides a broad selection of WAM and financing products through strong presence online and offline
JD Finance	2C	Monetises large user base from JD.com, their e-commerce platform

Source: Oliver Wyman analysis

In the later chapters of this publication, we will explore the drivers of growth and valuation in China fintech. As the name suggests, fintech has both financial and technological components. At first, value was mostly driven by the "fin" component, with fintech players riding on the wave of the reform of China's financial system. However, we believe the importance of the "tech" component will take over in the future, and fintech leaders will have to be able to derive truly disruptive business models enabled by leading-edge technology combined with strong financial services acumen.

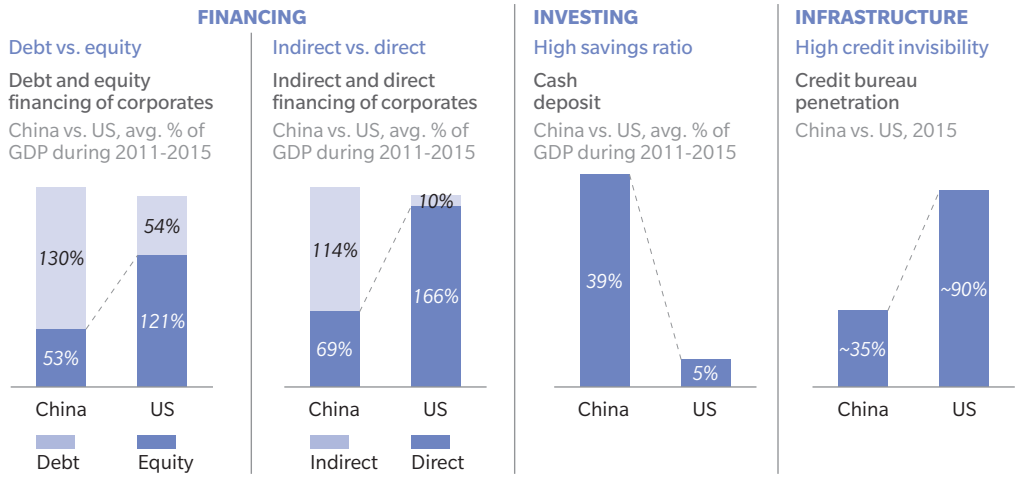
2. "FIN" AS THE HISTORICAL VALUE DRIVER
RIDING THE WAVE OF TRANSFORMATION

China's financial system had been relatively immature compared to established markets, with clear structural imbalances and an underdeveloped infrastructure. Under the Chinese government's recent financial reform efforts, structural shifts have begun to take place. Coupled with the timing of the Internet boom, this created an opportunity for fintech players to bridge the gaps in traditional financial services by capitalising on their strong online presence and loose regulation.

2.1. RIDING THE WAVE OF TRANSFORMATION

When compared to the United States, China's financial system historically exhibited main structural imbalances or inadequacies along the three dimensions of financing, investing and infrastructure. (See Exhibit 6).

Exhibit 6: Structural imbalances and immaturities in China's financial system



Source: CBRC, annual reports, S&P Global Market Intelligence, Economist Intelligence Unit, Oanda, BvD Orbis, Oliver Wyman analysis

1. Underserved retail and SME segments in the bank-dominated indirect financing model

Direct financing amounted to only an average of GDP in China from 2011 to 2015, compared to 166 percent in the United States. The bank-driven indirect financing model in China has historically been structured around large and government-related corporates. Most SMEs and retail customers have been largely unserved, amid limited and immature credit infrastructure. The complicated, lengthy loan application process further discourages SMEs from looking for financing from banks.

Hence, the penetration of SME financing has been low, with only 10 percent of SMEs enjoying proper access to credit in China, compared to 31 percent globally. Unsecured consumer loan penetration in China totalled just 9 percent of GDP in 2016, compared to 15 percent in the United States.

The financing gap has been exacerbated by the underdevelopment of local capital markets, which forces Chinese corporations to rely on indirect debt financing, including the RMB 30 trillion shadow banking system.

2. Deposit-driven investment model

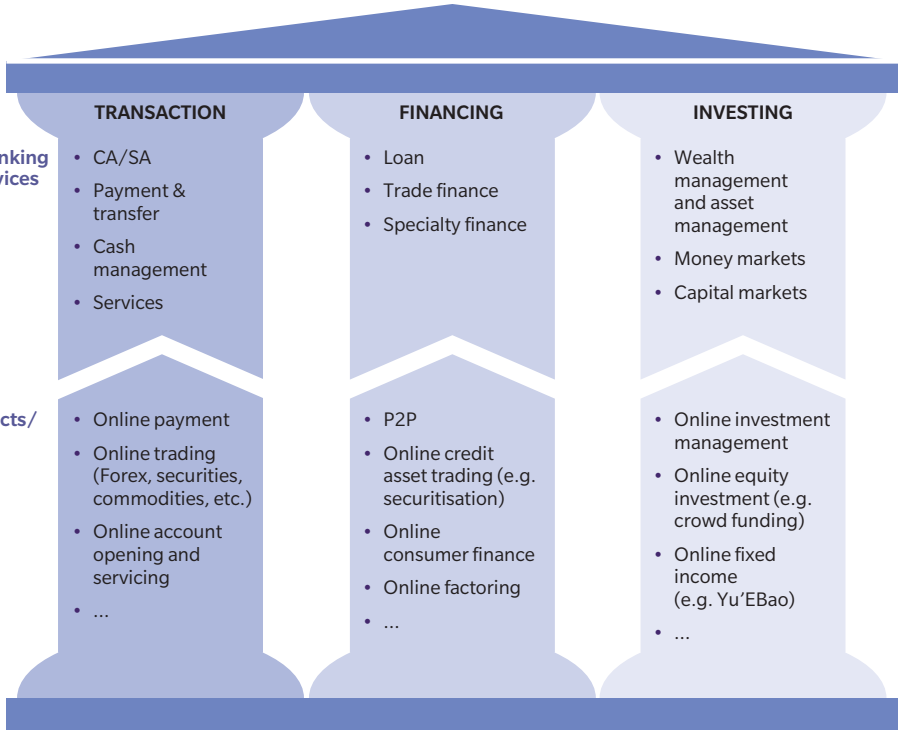
Chinese investors have been renowned for their strong preference for principal protection, who keep a large portion of their disposable income in deposits. The household savings ratio in China was 39 percent in 2015 compared to 5 percent in the United States, as retail investors in China enjoyed very high yields from bank deposits. They could also buy "implicitly guaranteed" bank wealth management products (WMPs), which were sustained by fundraising corporations willing to pay high interest rates in a rapidly developing economy. They often had local government backing too.

3. Trailing infrastructure development

Some basic features of financial infrastructure have been historically underdeveloped in China. One example is credit bureaus. Due to the lack of accurate address data, consolidated income data, and default histories, credit infrastructure had been inadequate and over 60 percent of the Chinese population were "credit-invisible" in 2015.

The structural imbalances have not gone unnoticed by the Chinese government. Increasing efforts are slowly but surely taking place to carry out financial reforms and push structural shifts. These shifts, together with the increasing penetration of the Internet and mobile Internet, promoted the growth of the first wave of fintech companies, which began to address the gaps in financial services segments with online product platforms (See Exhibit 7).

Exhibit 7: Disintermediation of financial services brought about by fintech



Source: Oliver Wyman analysis

1. From indirect to direct financing

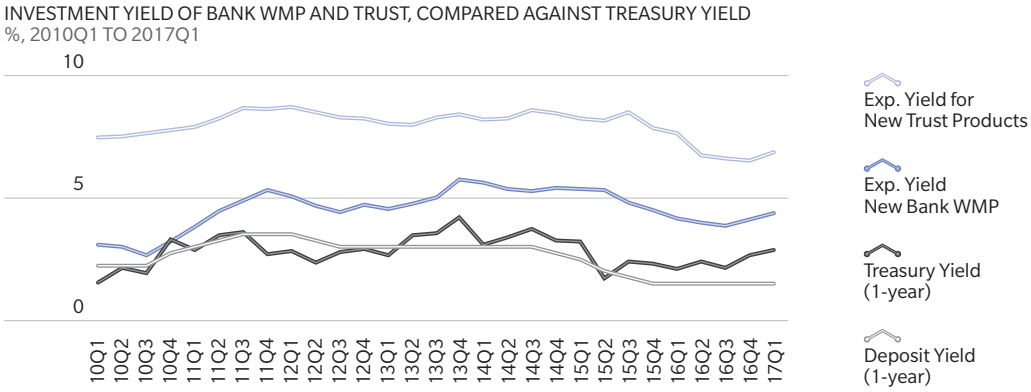
Peer-to-peer lending platforms grew because retail borrowers found it difficult to obtain bank loans. Not subject to the same capital constraints as banks, these platforms connected retail borrowers and investors online, providing borrowers with direct financing and investors with unique investment products.

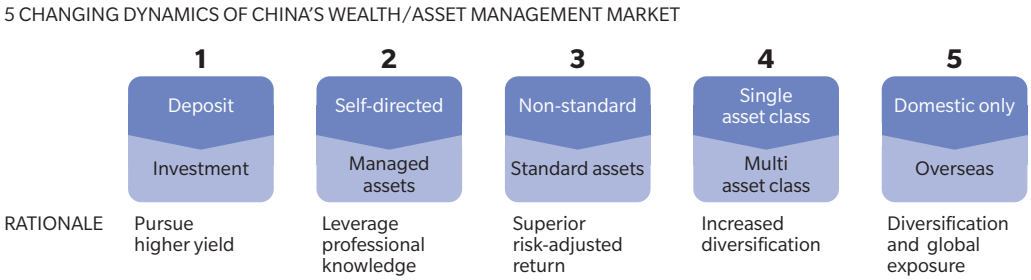
The surge in online lending was also promoted by the development of private asset securitisation. Securitisation provides a mechanism to grade private credit assets for risk and match them with investors seeking the same level of risk. This opens up access to funding not only from private investors but also from financial institutions licensed by the China Banking Regulatory Commission (CBRC) that are keen to invest in better-yielding alternative assets in a low-interest-rate environment.

2. From deposit to investment

On the investment side, the falling yields of banks' wealth management products have left investors seeking alternative high-yield investment products as substitutes (See Exhibit 8). Online wealth management platforms appeal to retail investors by providing cheap, convenient access to a wide variety of high-yield fixed-income products.

Exhibit 8: Asset yield and wealth/asset management dynamics in China





Source: WIND, Hexun.com, Oliver Wyman analysis

3. Improving infrastructure

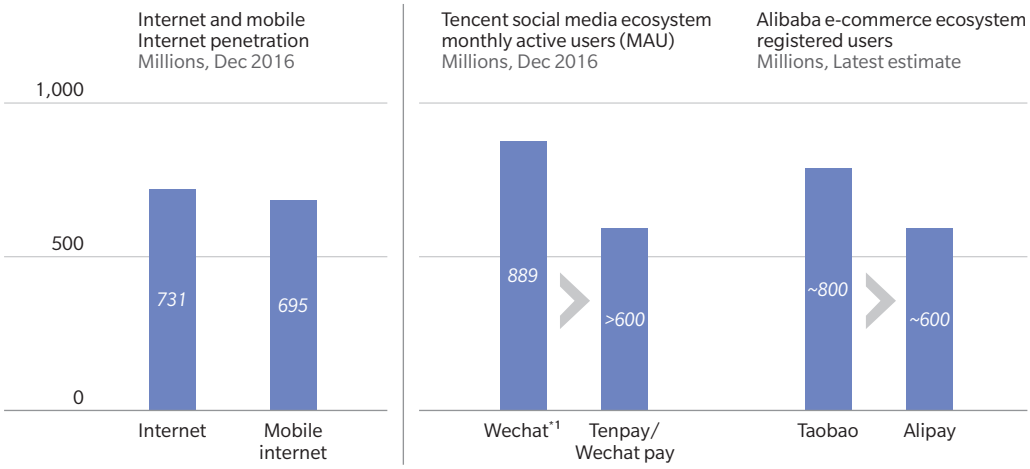
Fintech companies are actively leading China's long-overdue development of financial infrastructure. In 2015, the People's Bank of China (PBOC) authorised eight privately-owned companies, such as Ant Financial's Sesame Credit, to provide consumer credit information services. These firms build their proprietary databases from a mix of Internet data – for example, credit, e-commerce, social media, and mobile payments data – and data from financial institutions, such as banks and peer-to-peer platforms.

2.2. SERVING THE LONG TAIL IN O2O ECOSYSTEMS

The structural shifts in the financial system took place during the Internet boom. Increased Internet and mobile penetration, coupled with the emergence of large online e-commerce ecosystems, created a long-tailed base of potential customers (See Exhibit 9).

Fintech companies managed to gain scale rapidly by leveraging their existing large online user bases or acquiring massive volumes of customers through low-cost, high-reach means, such as funnelling customers through reputable ecosystems.

Exhibit 9: Long-tailed customer bases created with the internet boom



*1 Weixin (local Chinese version) and WeChat (international version) combined

Source: CNNIC, Tencent Annual Report 2016, Oliver Wyman analysis

A notable example of such a customer acquisition model is Tencent's WeChat Pay. With over half of its 889 million monthly active users (MAU) spending over an hour on the app every day, WeChat is deeply embedded in the daily lives of almost every Chinese individual who has a smartphone. This enables WeChat Pay to be seamlessly plugged into a large variety of online-to-offline (O2O) consumption scenarios.

Beyond payments, fintech players are utilising online-to-offline apps as gateways to cross-sell financing, investment, and insurance offerings (See Exhibit 10). For example, travel site and app Ctrip collaborates with fintech companies to offer consumer credit – to borrow for immediate trips – and investment – to save for future trips. It works with online insurers to provide travel-related insurance.

Exhibit 10: O2O apps with embedded financial services and products

O2O Category	Example APP	Financial services offered/cross-sold*1			
		Payment	Financing	Investing	Insurance
Finance	Alipay (支付宝)	✓	✓	✓	✓
Travel	Ctrip (携程)	✓	✓	✓	✓
Auto	JiaKaoBaoDian (驾考宝典)	✓	✓	✓	✓
Healthcare	PingAn Health Cloud (平安好医生)	✓	✓	✓	✓
Retail	JD.Com (手机京东)	✓	✓	✓	
Social	58.Com (58同城)	✓	✓	✓	
Property	Anjuke (安居客)	✓	✓		
Home	zmzx.jia.com (最美装修)	✓	✓		
Wedding planning	MarryMemo (婚礼纪)	✓	✓		
Food delivery	Muituan (美团)	✓			✓
Transport	Didi Chuxing (滴滴出行)	✓			✓
Education	XueXiBao (学习宝)	✓			
Ticketing	Maoyan.com (猫眼)	✓			
Mother-child	Babytree Pregnancy (宝宝树孕育)	✓			
Beauty	Mocha.cn (茶美妆)	✓			

*1 Availability of financial services offered/cross-sold based on example APP

Source: Oliver Wyman analysis

2.3. TIGHTENING REGULATIONS

Despite the impressive growth, we believe that not all players who emerged in this wave of transformation are truly "fintech" in nature. Some of their business models merely represent a shift of channels from offline to online – and they are sometimes still largely offline – without true technological innovation. Moreover, by using the label "fintech", these entities have been historically less regulated and are able to grow rapidly by leveraging such arbitrage to offer products that were stringently regulated in the traditional financial services system.

The unregulated growth has led to several high-profile scandals. For example, China has witnessed a soaring number of closures by peer-to-peer companies, with billions of money being taken away since 2014. Over 60 percent of the 5,890 online peer-to-peer platforms that ever existed are estimated to have ceased operations[1]. The infamous Ezubao (E租宝) peer-to-peer lending platform, which raised more than RMB 1.5 billion in one-and-a-half years, was proved to be a Ponzi Scheme, making it the biggest-ever financial fraud case in China.

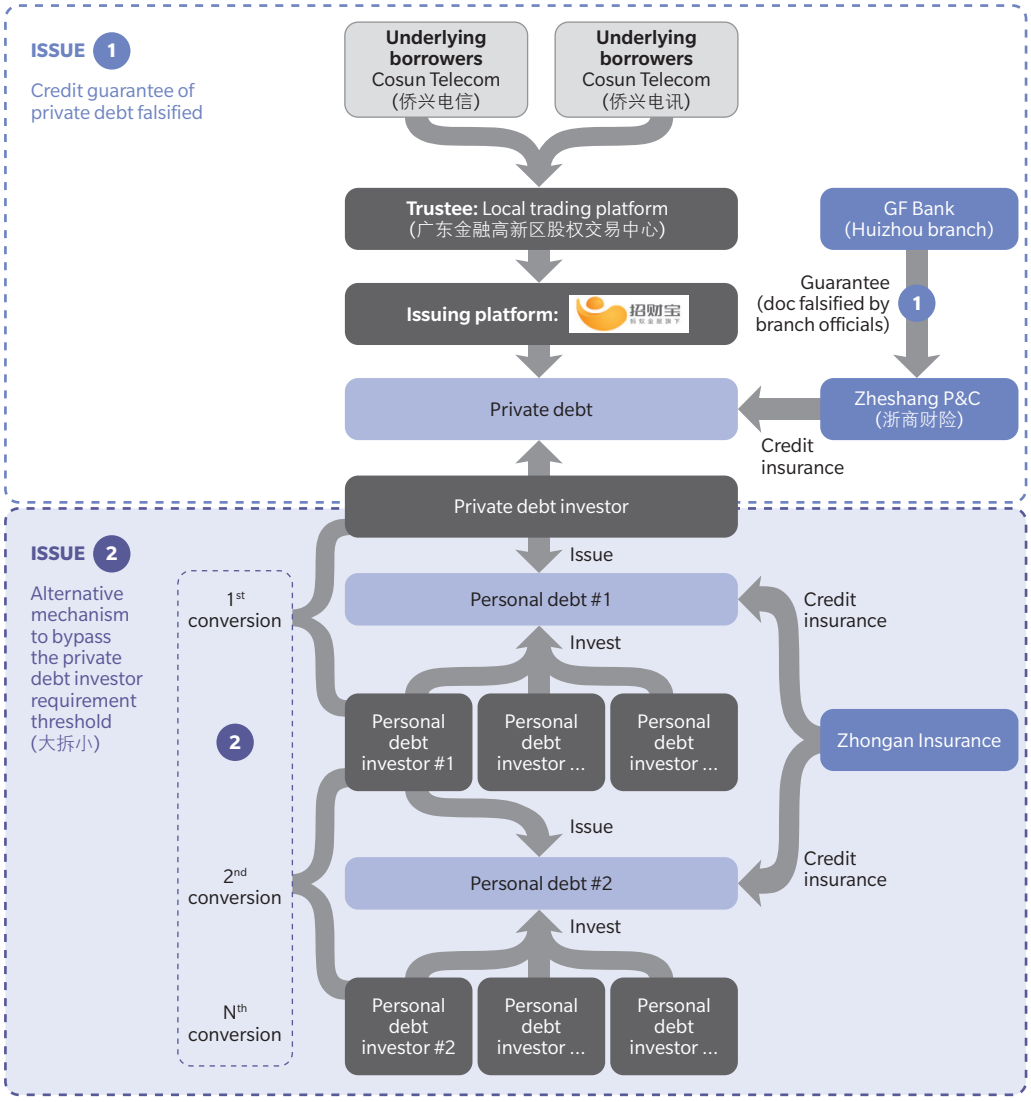
The recent Zhaocaibao default is a perfect illustration of how online wealth management products could be structured in a complicated but potentially fraudulent way. The products were offered to investors who did not have access to transparent information or did not know how to assess product appropriateness (See Exhibit 11).

Such incidents created growing concerns over the legitimacy of fintech and prompted policymakers to incorporate fintech into the regulatory framework (See Exhibit 12). Several major policy documents were released by the regulatory bodies in 2016 with the aim of tackling fraud, ensuring product appropriateness, and protecting vulnerable types of customer. The documents heavily targeted peer-to-peer lending and online wealth management.

The tightened regulatory environment will undoubtedly challenge some of the fintech players that have grown uncontrollably amid regulatory loopholes. With such a model becoming unsustainable, we believe fintech will in future increasingly emphasise the leveraging of technology to drive true innovation and disruption.

1 Wangdaizhijia.com, an independent information portal for online peer-to-peer lending; data as of May 2017.

Exhibit 11: Breakdown of Zhaocaibao's default



Note: Cosun Group = 侨兴集团

Source: Oliver Wyman analysis

Exhibit 12: Recent regulatory developments following growing concerns and incidents

	KEY CONCERNS	EXAMPLES / INCIDENTS	RECENT REGULATORY MOVEMENTS
Financing	• Borrower appropriateness/ borrowing terms • Inappropriate collection approach • Enlarging but untraceable leverage; multiple sources borrowing	• Nude selfies for loan • Student suicides amid loan shark collection	• More stringent requirements on lending to university student[*1] • Capping borrowing balance by individuals (RMB 200 thousand) and organisations (RMB 1 million)[*3]
Investing	• Visibility/transparency/ traceability of investment flows (e.g. Ponzi scheme) • Investor-asset risk mismatch/mis-selling • Liquidity mismatch	• Ezubao's Ponzi scheme • Corporate default related to Zhaocaibao • Accusation on JD.com "Baina" model	• Prohibit P2P players from exaggeration in prospectus and concealing of flaws and risks (e.g. any guaranteed principal & return of interests); disallow P2P players from asset securitisation[*3] • Investigation against Internet Co with AM license conducting inappropriate activities; against Cos without AM license but conducting such activities; against Cos with multiple licences on potential tunneling[*4] • Prohibit crowdfunding platform from engaging in public equity raising activities (more than 200 shareholders) and selling private funds[*5]
Transaction	• Fraudulent transactions/ anti-money laundering • Overexpansion of third party payment to deposit taking	• Yu'E Bao attracted transfer of bank deposits	• Require real-name identity verification[*2] • Classification of individual payment accounts, capping transaction volume and account balance[*2] • Disallow settlement and custodian for other FI[*2]
Protection	• Inappropriate product nature for speculation instead of protection • Sustainability/potential fraud of emerging insurance platforms	• Emergence of "innovative" insurance • Emergence of internet "mutual help" model	• Suspension of speculative products such as "limit down insurance (跌停险)" by CIRC • Challenge the provision of insurance activities by non-regulated platforms (e.g. Quarkers (夸克联盟))[*6]

*1《关于加强校园不良网络借贷风险防范和教育引导工作的通知》2016 April

*2《非银行支付机构网络支付业务管理办法》2016 July

*3《网络借贷信息中介机构业务活动管理暂行办法》2016 Aug

*4《通过互联网开展资产管理及跨界从事金融业务风险专项整治工作实施方案》2016 Oct

*5《股权众筹风险专项整治工作实施方案》2016 Oct

*6《建议关注互联网公司涉嫌非法经营保险业务存在的风险》2016 Apr – Internal document of CIRC which was later exposed and discussed publicly

Source: Oliver Wyman analysis

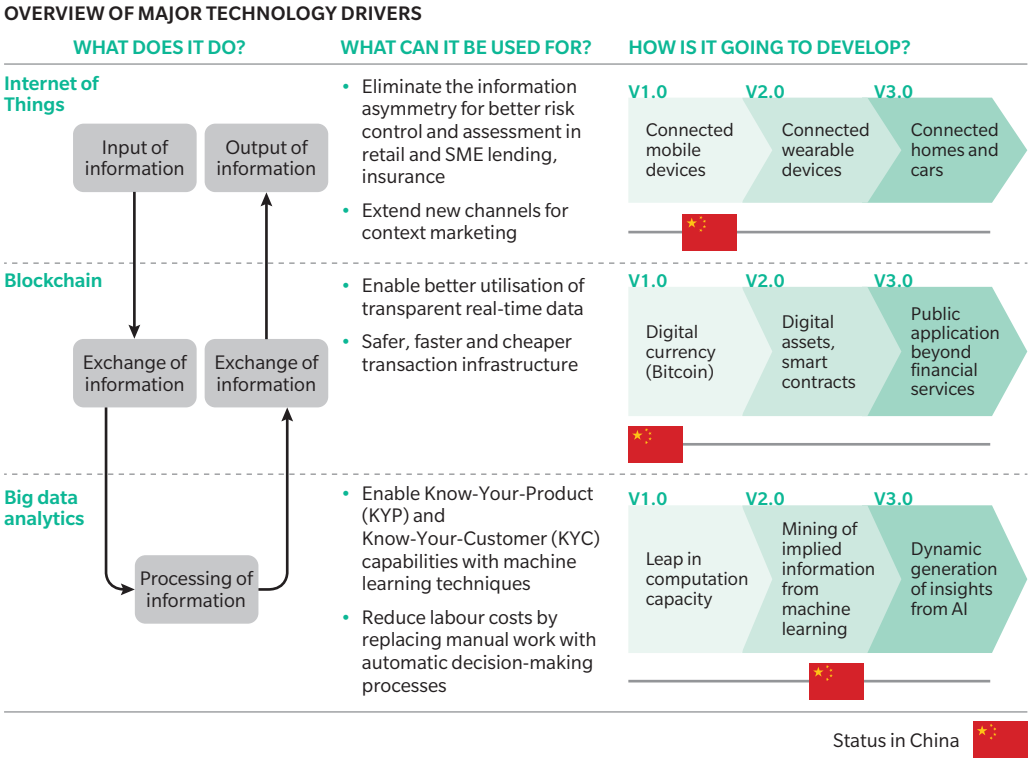
3. "TECH" AS THE FUTURE VALUE DRIVER
NEW, DISRUPTIVE BUSINESS MODELS

3.1. ENHANCING DATA CAPABILITIES THE CORE OF FINANCIAL SERVICES

As the window of regulatory arbitrage closes, future fintech leaders will differentiate themselves by pushing the frontiers of technological innovation and disrupting traditional financial services business models. Ant Financial's CEO Eric Jing famously suggested that the company would be positioned as a "techfin" pioneer, with technology serving as the bedrock of the organisation.

We see big-data analytics, the Internet of things (IoT), and blockchain as the three most representative technologies, owing to their ground-breaking capabilities to acquire, assemble, analyse, and apply information. Data treatment and information processing are at the heart of decision making for financial services, especially in China where data are often incomplete and untransparent, and sometimes questionable (See Exhibit 13):

Exhibit 13: Summary of applications and stages of development for key technology drivers in China



Source: Oliver Wyman analysis

BIG-DATA ANALYTICS

Big-data analytics is the process of aggregating and analysing large data sets with the objective of uncovering obscure patterns and identifying correlations. In China, technology leaders have already achieved a major leap in computation capacity and significant progress in machine-learning capabilities. Leading fintech players are also increasingly adopting such techniques to facilitate their understanding of the market and customers by building Know-Your-Product (KYP) and Know-Your-Customer (KYC) capabilities. They also use such techniques to support the development of more-innovative products and dynamic pricing. In addition, big-data analytics also enables the automation of decision-making processes and reduces labour costs.

INTERNET of THINGS (IoT)

The Internet of things refers to the use of intelligently connected devices and systems to gather data from and disseminate information through sensors and actuators embedded in machines and other physical objects. IoT alleviates the information asymmetry between fintech players and their customers, as valuable information can be gathered and analysed in real time, yielding predictions, feedback, and information-based decision making. This enables tailored pricing with better risk assessment and targeted marketing through new channels such as mobile and wearable devices.

Mobile connectivity is well established in China, with 695 million mobile internet users representing 51 percent of the population[1]. Looking forward, we anticipate the further development and adoption of wearable devices, smart-home gadgets, and telematics, which will pave the way for further applications of IoT in fintech.

BLOCKCHAIN

Blockchain uses a cryptographic network to provide a "single source of truth", enabling untrusting parties with common interests to co-create a permanent, unchangeable, and transparent record of exchange and processing without relying on a central authority. Blockchain will enhance the exchange of information by being the bedrock of a safer, faster transaction architecture for the financial industry.

As in the rest of the world, blockchain technology in China is still nascent. Although it is not yet clear how the financial industry is going to be reshaped by blockchain, multiple initiatives have been spawned.

3.2. TECHNOLOGY-ENABLED VALUE CHAIN DISRUPTION

The application of these technologies will create significant disruption along value chains and bring about distinctive values for each of the four major areas of financial services. (See Exhibit 14):

1. **FINANCING**
   With the availability of non-financial data and improved knowledge of how to use it, Chinese fintech companies could considerably improve their credit-risk management capabilities and enhance the customer experience. They could expand the "lendable population" from around 200 million credit-card-carrying prime borrowers to around 800 million, creating value for – and from – otherwise neglected subprime segments.

1 Source: CNNIC, data as of December 2016.

2. INVESTING

With stronger computing capabilities, online wealth management platforms can conduct detailed analysis by pulling together various types of data about the market, individual securities, and investors. They can then offer low-cost, bespoke investment solutions that are free of subjective and behavioural biases. Assuming these solutions attracted 2.5 percent of invested assets by China's historically self-directed investors by 2020, these would represent assets under management worth a whopping RMB 5 trillion[2].

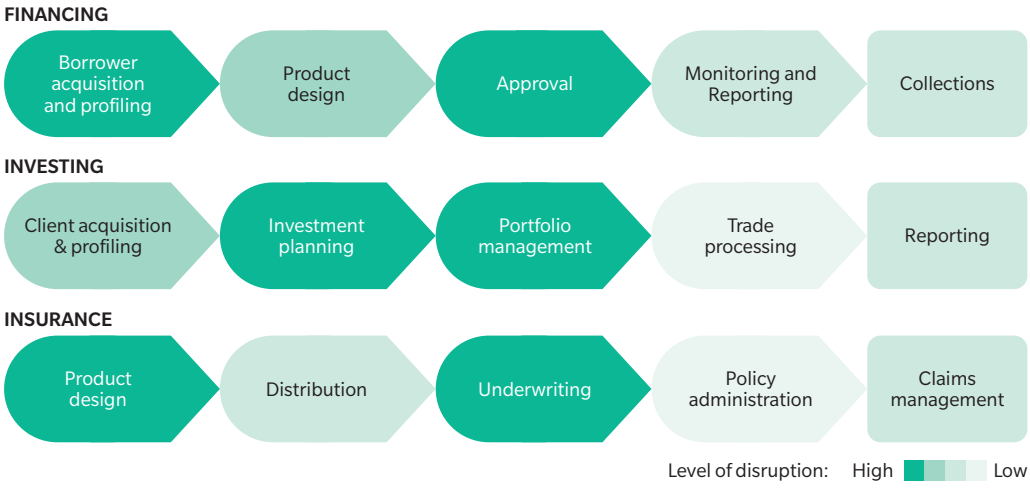
3. INSURANCE

The emergence of connected ecosystems, along with the increased adoption of technology gadgets, provides not only gateways to innovative insurance products but also alternative data sources for tailored products and pricing. In our recent publication "China Insuretech", we estimated that such technology upgrades and ecosystem embedding will present insurers with premium revenues amounting to RMB 400 billion by 2020.

4. TRANSACTION

Although still nascent, blockchain and its applications could potentially be used to provide low-cost, reliable transaction solutions across different areas of financial services. They could potentially promote mutual growth with budding fintech business models that are only economically possible with support from such solutions.

Exhibit 14: Levels of value chain disruption by technology



Source: Oliver Wyman analysis

2 Total investable assets by individuals estimated to be at RMB 200 trillion by 2020, Source: Oliver Wyman proprietary analysis.

3.2.1. **FINANCING**
EXPANDING THE "LENDABLE" POPULATION

With the increasing availability of non-financial data sources, fintech players will be able to use behavioural data-based models to better judge which customers intend to repay their loans, and so identify fraud risk. These models will be more effective than traditional credit models based on financial data, considering the financial data availability and comprehensiveness in China. For digital lenders, such advances open up a blue ocean with a long tail of around 600 million Chinese borrowers who were traditionally considered below-prime and too risky to lend to. The improved risk management will also allow better control of margins thanks to risk-adjusted pricing mechanisms.

The emergence of fintech along with online ecosystems has created new, innovative sources of non-financial data that can be collected and analysed using big-data analytics along the entire lending value chain, improving each stage (See Exhibit 15):

1. **Borrower acquisition:** Fintech companies could acquire a large number of borrowers by attracting the flow from large ecosystems. They could predict the ecosystem users' financial needs by data-mining their e-commerce consumption history and web-browsing records. Furthermore, digital lenders could leverage data from the ecosystem gateways to better validate identities and assess the quality of inbound borrowers.
2. **Product design:** Lenders today could move from product-specific to dynamic customer-specific pricing by developing a more granular understanding of borrowers' risk profiles and price sensitivities. These could be derived from their historical online consumption and payment patterns.
3. **Approval:** Digital lenders could conduct assessments of borrowers' credit risks by combining an eclectic set of data sources and various advanced modelling approaches, ranging from historical, correlation-based methods to artificial intelligence models driven by decision trees. These assessments could be for credit risk vis-à-vis the current market condition and nature of lending products applied for, and they could allow a faster decision process with significantly better customer experience. Many digital lenders have also deployed machine learning capabilities in an experimental process where they begin by offering small loans of short duration. The amounts and durations are gradually extended as a complete, thorough picture of the borrower is created.
4. **Monitoring:** Close monitoring of blacklist data from third-party institutions and social media can help lenders identify problem loans at an early stage.
5. **Collections:** Lenders are optimising collection strategies by using big-data analytics to analyse collection probability and costs in order to improve the collection-cost success ratio. Some lenders also deploy more creative collection strategies, for example identifying alternative means to reach borrowers through social media and embedding risk management into products financed by consumer credit, such as locking a phone bought with such credit in case of default.

Exhibit 15: Available data sources for credit-risk management

DATA SOURCE	EXAMPLE	PURPOSE
TRADITIONAL DATA		
Central bank	Individual credit data	✓ Credit record
Proprietary data	User behaviour	✓ Identity verification
ONLINE SOURCED DATA		
Third-party credit agencies	Individual credit data	✓ Credit record, financial condition
Third-party data institutions	Blacklist, anti-fraud data	✓ Identity verification, credit record
Telecommunication operators	Telecom data	✓ Identity verification
E-commerce platforms	Consumption records in Taobao	✓ Consumption habit
CHSI, universities	Education level	✓ Identity verification, personal reputation
Information authorised by users in app	Private information (e.g. emails, messages)	✓ Assist collection
Social media	The use of Wechat, QQ, Weibo, etc.	✓ Personal reputation
Third-party payment institutions	Third-party payment data	✓ Financial condition
Other small loans/P2P/ online consumer finance platforms	Borrowings on other platforms	✓ Liability condition

Source: Oliver Wyman analysis

3.2.2. **INVESTING** INCREASING ASSETS UNDER MANAGEMENT (AUM) ONLINE

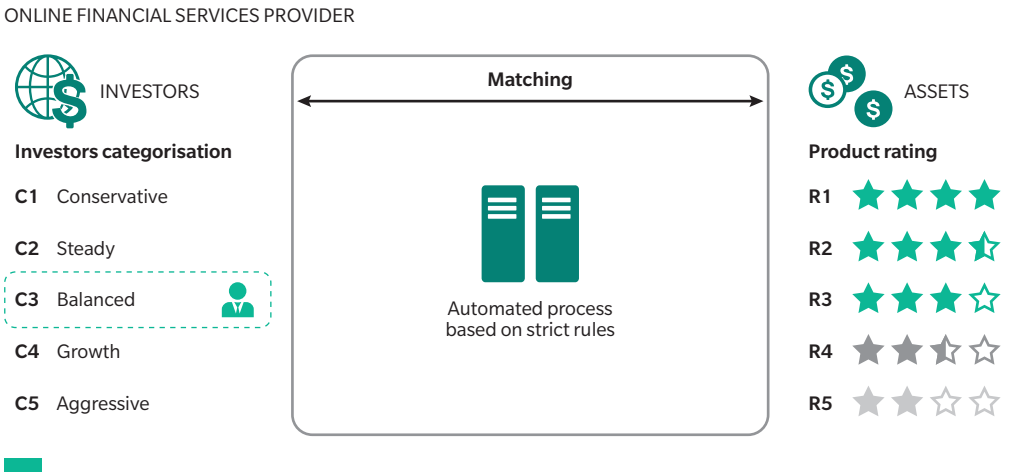
Historically, Chinese investors have practised a hands-on investment approach and placed little trust in wealth managers. So they did not demand professional investment advice. However, most individual investors have suffered heavy setbacks over the last two years due to China's volatile stock market. Notably, around 50 percent of value evaporated from the A-share market over three months from June to September 2015.

This hard lesson has made Chinese investors realise the importance of professional asset allocation across geographic locations and asset classes. Chinese investors will therefore be increasingly open to stable, long-term investment assets to diversify their risks and balance their portfolios.

Leveraging machine learning techniques in big-data analytics, digital wealth managers can aspire to provide low-cost bespoke solutions that are free of the subjective and behavioural biases present in traditional practices. The new solutions will be able to match the evolving needs of the Chinese investor. Adoption of such technologies could help to improve several key stages in the value chain:

1. **Client acquisition:** Data from various ecosystems can be analysed to identify people who are likely to seek professional investment advice. Attempts can then be made to contact these potential customers through social media platforms and targeted advertisements.
2. **Investment planning:** Big-data analysis of multiple sources improves the Know-Your-Customer (KYC) process by generating a more complete and accurate investor profile. This in turn helps maximise investment returns by determining the optimal asset allocation for the investor's risk profile and target returns (See Exhibit 16). Such enhanced machine-based decision processes would better tailor solutions for individuals and eliminate the biases of the investor and the relationship manager.
3. **Portfolio management:** After the initial portfolio set-up, machine learning techniques can be engaged to enhance Know-Your-Product (KYP) capabilities and enable dynamic asset allocation in response to changes in the market or the investor's preferences.

Exhibit 16: Automating the process of investor-asset matching

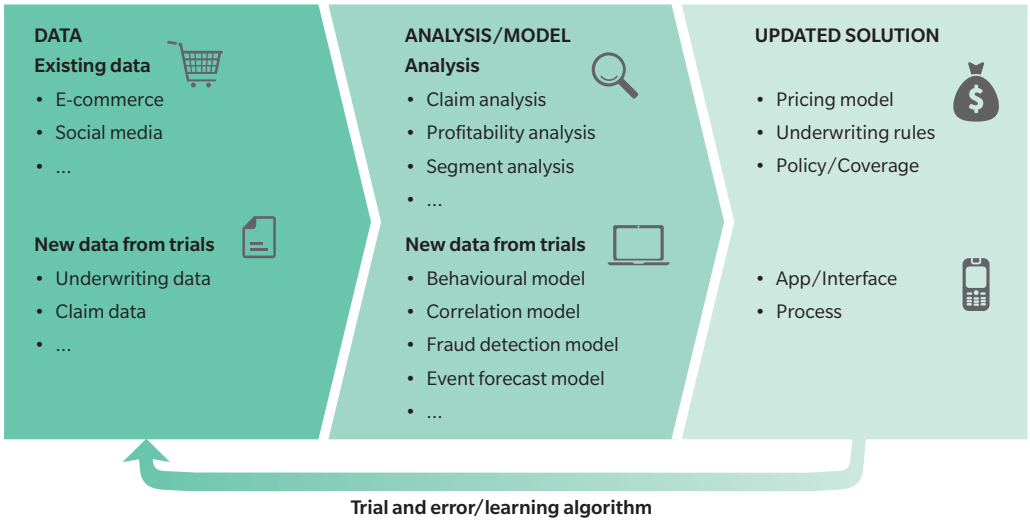


Source: Oliver Wyman analysis

3.2.3. **INSURANCE** GROWING PREMIUM REVENUES ORGANICALLY

The marriage between insurance and technology has the potential to create an Insuretech market with a variety of different opportunities beyond simple channel migration. Data analytics can be applied to target and customise insurance products better and make them more dynamic, as well as to cover currently unmet needs in embedded ecosystems. Insurance enabled by technology and oriented towards ecosystems is still nascent, with gross written premiums amounting to only about RMB 40 billion today. But we are optimistic that the introduction and application of better opportunities could increase the market size by 10 times to RMB 400 billion by 2020.

Exhibit 17: Technology-enabled dynamic pricing and underwriting



Source: Oliver Wyman analysis

The impact of technology on the insurance value chain is threefold. First, the emergence of online and online-to-offline ecosystems creates a gateway to new protection scenarios. Insuretech companies can then innovate in product design to meet the new demand by developing specific insurance products for such scenarios and pricing these innovative products with the aid of big-data analytics. For example, the growth of e-commerce created an opening for shipment returns insurance as an add-on product at checkout, allowing customers to insure themselves against receiving unsatisfactory products. Premiums for this insurance are dynamically determined using data collected and stored within the ecosystem, such as the buyer's historical return ratio and the store's reputation.

Second, some ecosystems enable the adoption of technology gadgets such as mobile and wearable devices. These can form an IoT network of real-time data collectors, which act as a unique, eclectic set of data sources. This enables insurance providers to improve their underwriting and offer tailored, premium pricing that is often more competitive. A notable example is the integration of telematics into auto insurance. The subscriber's driving habits are analysed using data such as speed and frequency of braking to determine the monthly premium dynamically, significantly improving the accuracy of risk matching.

Third, technology helps insurers combat fraud. Fraud detection and mitigation are becoming increasingly prominent challenges as insurance products become more complex and varied. With the emergence of innovative data sources through the IoT network, machine learning techniques can potentially be applied to identify customers' behavioural patterns and help detect false claims and fraudulent data submissions. Moreover, blockchain technology can potentially provide secure, decentralised data storage, preventing any single party from maliciously manipulating insurance records.

3.2.4. **TRANSACTION**
PROVIDING COST-EFFICIENT, RELIABLE INFRASTRUCTURE

Financial services will become much more complex going forward and will increasingly depend upon data. There will thus be a need for a reliable, scalable transaction solution, not only for payments but also for information storage.

As explored in our report "Blockchain in Capital Markets", blockchain could revolutionise the way information is stored and shared and provide a range of applications across the global financial sector. These could include securities settlement and asset documentation for capital markets and securities servicing, inventory information management for supply chains and receivable finance, and claims documentation handling for insurance (See Exhibit 18).

Exhibit 18: Potential benefits of blockchain adoption for capital markets

Pre-trade	Trade	Post-trade	Custody and securities servicing
• Transparency and verification of holdings • Reduced credit exposures • Mutualisation of static data • Simplier KYC/KYCC*1 via look through to holdings	• Secure, real-time transaction matching, and immediate irrevocable settlement • Automatic DVP on a cash ledger • Automatic reporting and more transparent supervision for market authorities • Higher AML*2 standards	• No central clearing for real-time cash transactions • Reduced margin/ collateral requirements • Faster novation and efficient post-trade processing • Fungible use of assets on blockchains as collateral • Auto-execution of smart contracts	• Primary issuance directly onto a blockchain • Automation and de-duplication of servicing processes • Richer central datasets with flat accounting hierarchies • Common reference data • Fund subscriptions/ redemptions processed automatically on the blockchain • Simplification of fund servicing, accounting, allocations and administration

*1 KYC – Know Your Customer, KYCC – Know Your Customer's Customer

*2 AML – Anti-Money Laundering

Source: Oliver Wyman analysis

Rapidly growing fintech businesses could also benefit from the development of blockchain technologies. Taking the peer-to-peer lending business as an example, information on borrowers and their collateral can be rather scattered and non-transparent to peer-to-peer companies and investors, and it is costly to overcome this information asymmetry. However, blockchain could provide a transparent, consistent infrastructure for identity and debt data, allowing all stakeholders equal access to accurate, valuable information. The enhanced visibility of data in turn deters peer-to-peer lending companies from facilitating loans to borrowers with problematic unsettled debt, ultimately enhancing the protection of investors. Moreover, blockchain can potentially be leveraged to increase the liquidity of debts by enabling a secure, real-time exchange platform for peer-to-peer debts.

4. IMPLICATIONS
HITTING THE MOVING TARGET

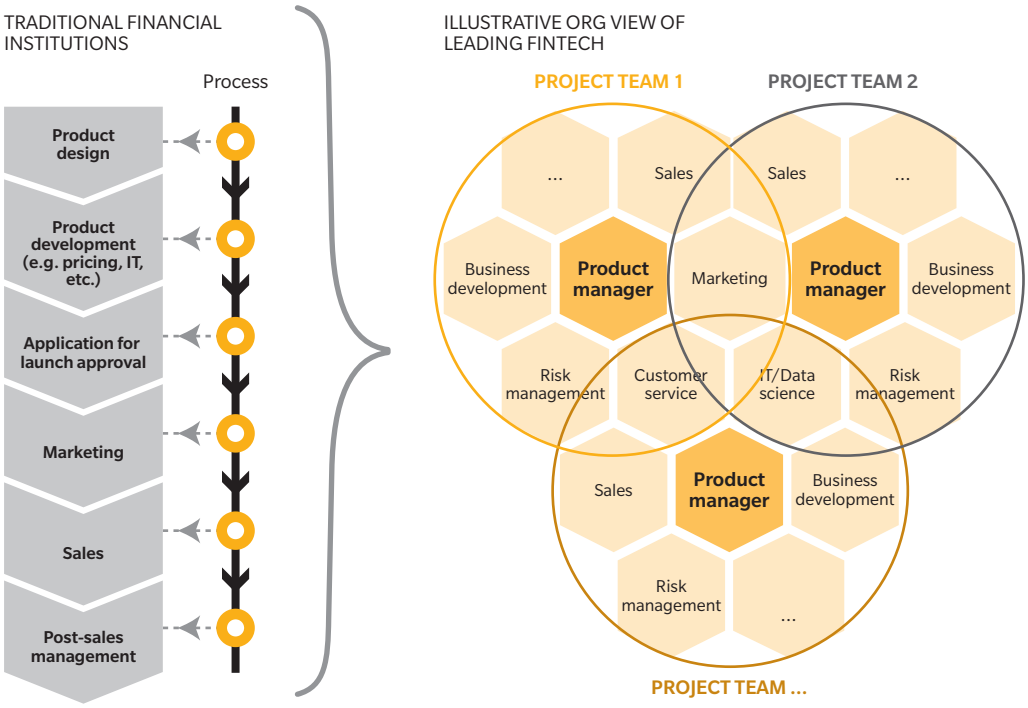
We have explored above the massive potential for technology-driven growth of fintech in China, and there is little doubt that all players will aggressively attempt to penetrate the market. With the increasing complexity of the fintech space, there is no one-size-fits-all formula for success. However, we believe there are five factors that will determine success and will decide who will become the fintech market leaders of the future. In order to lock down the moving target, we believe that fintech players, traditional financial institutions, and non-financial industry players should each develop a strategic focus based on their current competitive strengths and limitations.

4.1. KEY SUCCESS FACTORS IN CHINA FINTECH

Based on the preceding chapters, we summarise below five key success factors for the future China fintech market:

1. **Data abundance and application:** As explained in the previous chapter, business models in financial services will be increasingly data-driven, and data will be at the core of the value chain. Therefore, innovation and impact in future fintech will be greatly helped by access to or ownership of large amounts of proprietary data, as well as the ability to derive insights from them.
2. **Large customer base:** A large customer base will complement data capabilities, completing a virtuous cycle of mutual benefits for fintech players and their customers. First, fintech companies can apply data-driven insights to monetise their large customer bases, deriving direct economic value from the data. A large customer base in turn allows a faster accumulation of valuable data that can be analysed to further improve products and services for customers, risk management, and dynamic pricing.
3. **Availability of proprietary and comprehensive products:** As Chinese consumers develop more sophisticated needs, they will increasingly seek unique, proprietary products. Successful fintech players will need to develop adequate scale and obtain necessary licenses so that they can offer a comprehensive suite of products to satisfy their customers' needs and differentiate themselves from peers. At the same time, products need to be better matched with customers through enhanced Know-Your-Customer (KYC) capabilities powered by data analytics and iterative learning from the current customer base.
4. **Strong knowledge of financial services and risk management:** As stressed above, notwithstanding the importance of technology, the product propositions in fintech are closely tied to financial services. Therefore, a strong core of financial services expertise and risk management capabilities remain a prerequisite of success, as these are key elements in fintech value chains. They not only allow better control of margins for current products, but also serve as key pointers in the development of data requirements for technology-enabled innovations, filtering out noise in the data collection process.
5. **"Fin plus tech" organisation and culture:** Constant innovation will be crucial in the future of fintech, and the right operating model and culture will be integral to success. This implies a lean, flat organisational structure with product-driven teams consisting of both financial and technology talents (See Exhibit 19). Together, these two kinds of capability will shorten product development cycles through hypothesis-driven experimentation, and maximise returns by tailoring products for customers.

Exhibit 19: Illustrative view of "fin plus tech" organisation



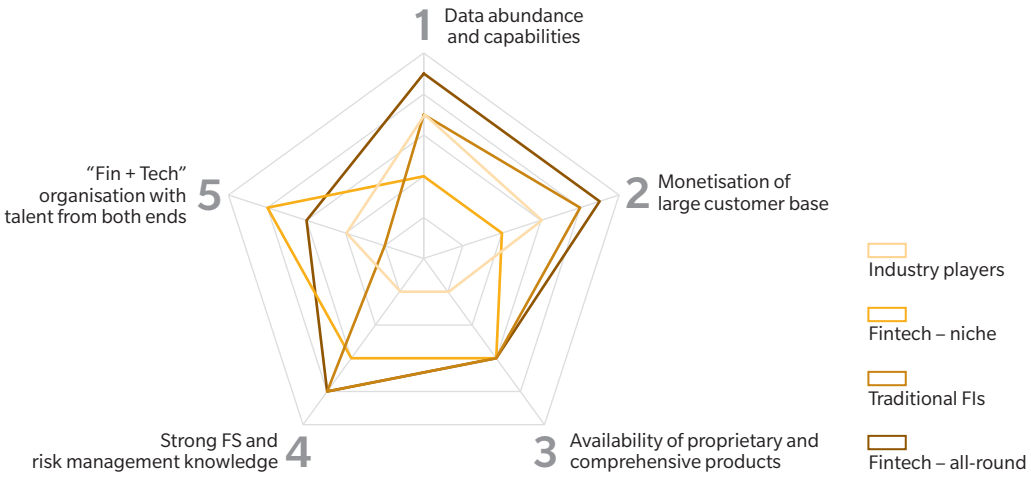
Source: Oliver Wyman analysis

4.2. IMPLICATIONS FOR FINTECH MARKET PARTICIPANTS

During the explosive growth of fintech in China in recent years, we have witnessed the establishment of four major types of player: 1) all-round fintech companies offering products across the four pillars of financial services, such as Ant Financial and Lufax; 2) niche fintech companies focusing on one or two of the four pillars; 3) traditional financial institutions, including banks and securities firms; and 4) players in specific non-financial industries, such as Suning in e-commerce and S.F. Express in logistics.

With their distinctive backgrounds, each type of fintech player has its own strengths and weaknesses in the five success factors mentioned above (See Exhibit 20). Therefore, each of them will have a specific set of strategic foci and face unique challenges.

Exhibit 20: Strengths and weaknesses of fintech player types



Source: Oliver Wyman analysis

4.2.1. **ALL-ROUND FINTECH PLAYERS** MAINTAINING ADVANTAGES WITH INNOVATION

All-round fintech players have demonstrated an overall leadership position with advantages over most other players in all five key success factors. Such strength is reflected, as we have seen above, in the valuations of Ant Financial and Lufax. In particular, they have clear advantages in their data capabilities and customer bases.

As a result, the core strategic focus of all-round fintech players is to maintain their advantages by cementing their pioneering roles in the fintech space through technology-enabled innovation. We believe they should focus on three key tasks. First, they should continue to build their customer bases and drive innovation using insights derived from their massive data pools. Second, using this abundance of data and their insight-generating capabilities, they should identify opportunities for needs-based cross-selling of financial services products. Third, given the increasing complexity of the financial services industry, it is also crucial for all-round fintech players to keep augmenting their solid foundations of financial services knowledge.

4.2.2. **NICHE FINTECH PLAYERS**
EXPANDING AND TRANSFORMING STRATEGICALLY

Similar to all-round fintech players in nature, niche players have a solid foundation of financial services knowledge and innovative products within their segment. Their key strength, however, lies in an agile, flexible organisational structure. Most are technology start-ups, which allows them to respond quickly to changes and be innovative. On the other hand, the average niche player is constrained by a lack of scale: It typically has a small user base to monetise and a limited quantity of data with which to generate insights.

As scale is the major hurdle to growth for niche fintech players, their core strategic focus should be to expand and perhaps transform their business model. The first and most intuitive way is to grow organically. Qudian, for example, has expanded beyond its legacy focus on university borrowers to develop an e-commerce ecosystem driven by a consumer finance model. At the same time, we anticipate mergers between some niche players to consolidate their strengths and resources. Some players are actively considering expansion outside China in order to replicate their success in markets with similar needs, such as South-East Asia. Since banks and all-round fintech players are dominant in their customer bases, niche players with exceptional know-how could redirect their business models from consumer orientation to a focus on business customers. Some online consumer-lending companies already proactively export their technologies to support city commercial banks that want to expand their consumer lending.

4.2.3. **TRADITIONAL FINANCIAL INSTITUTIONS**
BUILDING DATA CAPABILITIES WITH A FLEXIBLE ORGANISATION

As longstanding licensed financial service providers, traditional financial institutions have clear strengths in risk management, as well as extensive experience and product offerings, access to proprietary financial assets, and low-cost funding. Naturally, they have large customer bases from their vast offline networks. On the other hand, the challenges for traditional financial institutions are to ramp up their technological capabilities and make use of innovative non-financial data to improve their offerings. Moreover, their organisational set-ups are typically less tech-friendly and likely to be the most rigid among the four types of player, something that could potentially hinder their growth in fintech.

In light of the above, the core agenda for traditional financial institutions is to build data capabilities under a flexible organisational set-up. First and foremost, they need to create a leaner structure and culture with an operating model more suitable for fintech. This could also be done by setting up separate business units with more-independent authority and decision-making processes. It is then important for traditional financial institutions to invest in data-processing capabilities and infrastructure to effectively monetise the traditionally offline customer base by leveraging innovative data sources.

For the majority of traditional financial institutions, having an operating model suitable for fintech implies organisational restructuring. Therefore, one of the key challenges for them is an effective change-management process that includes comprehensive roadmap planning, sufficient stakeholder training, and careful resistance management.

4.2.4. **PLAYERS FROM NON-FINANCIAL INDUSTRIES** ENABLING PRODUCT EXPANSION THROUGH NEW CAPABILITIES

Although not normally considered as serious fintech market participants, players from other industries have a sizeable set of unique data from their business operations. They can therefore have a strong understanding of the statuses of stakeholders immediately upstream and downstream. This in turns enables them to derive industry insights and assess risk accurately. For example, logistics providers such as S.F. Express possess proprietary information on massive daily inventory flows. This can then be incorporated into a risk-assessment methodology and used to power their supply chain financing and consumer lending ventures.

The biggest challenge for these players is to decide whether and how best to leverage their strengths and large customer bases to expand laterally into the fintech space. Once a clear strategic roadmap is in place, the crucial next step is to develop a core financial services skillset and technological expertise through the acquisition of both types of talent.

4.3. IMPLICATIONS FOR FINTECH INVESTORS

As illustrated at the beginning of this report, capital investment in China fintech is hotter than ever. However, as the development dynamics of the industry are bound to change in future, we believe China fintech investors should follow four key rules.

1. **Avoid over-valuing regulatory arbitrage:** The historically open regulatory environment was one of the major growth drivers for a lot of fintech players. But tightening regulations are bringing the age of arbitrage to an end and will likely have a negative impact on fintech expansion. So, investors should identify targets' underlying growth drivers and avoid over-estimating the future value that will be driven by regulatory arbitrage.
2. **Explore the broader landscape:** The integration of fintech into the regulatory framework has, to a certain degree, levelled the playing field for traditional financial institutions such as banks and securities firms. The recent strategic partnerships with fintech players by Minsheng Bank and the introduction of online lending products by ICBC are just a few signs that fintech investors should start looking beyond fintech start-ups.
3. **Assess the potential downside:** Despite not bearing credit risks in legal terms, fintech platforms could face reputational losses, regulatory actions, and even liquidations due to potentially problematic products. This has been illustrated by the cases of Ezubao and Zhaocaibao mentioned above. Although the number of such products will likely diminish under the tightening regulations, investors ought to be aware of downside scenarios and diligently assess their potential impact.
4. **Capture value from technology and the surrounding infrastructure:** As technology-enabled disruption is the main trajectory for China fintech, investors should look beyond the actual innovative solutions and products. There is also value in the infrastructure enablers behind such products, such as large user bases for trials, access to proprietary data for analysis, and agile "fin plus tech" governance structures

CONCLUSION

Fintech players from a variety of backgrounds have managed to ride the wave of transformation brought about by China's financial reforms. They have thrived during a phase of explosive growth based on leveraging regulatory arbitrage.

With the ongoing integration of fintech into the regulatory framework, we believe the development of fintech in China has reached an inflexion point. From now, technology will be the key driver of value-chain disruption in an increasingly data-driven industry.

The emerging theme of technology-enabled disruption has distinct implications for the strategic focus of each type of player in the fintech space. The future winners will be those that are able to find the right strategy for their relative strengths and weaknesses, and that overcome the key challenges during execution.

The fintech landscape in China is moving fast, only those who weigh it right would be able to hit the bullseye.

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