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A Review of the Potential Impacts of Fintech on the
Financial Services Sector: Examples in the European Union,
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Bruno Marquez

Finance

June, 2019

Faculty Adviser: Dr. Zhiyan Cao

Essay completed in partial fulfillment of the requirements for graduation with Global Honors,
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Approved:

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Date

Executive Director, Global Honors

Date

Abstract

This paper examines the potential effects of Fintech on the global financial services sector. Due to the broad scope of Fintech, the paper focuses only on three elements: Alternative payment methods, blockchain and cryptocurrencies, and investment and banking services. In order to analyze the influence of Fintech companies on traditional financial services providers, the reasons behind Fintech's quick development and expansion along with details on the current status of Fintech regulation, this thesis uses arguments and empirical evidence that refer to four geographic and political regions (i.e. the European Union, Sub-Saharan Africa, China, and the United States). The analysis shows that current regulation of Fintech in the aforementioned regions is undeveloped and could lead to potential negative effects on the global financial services sector such as corruption of cybersecurity, infringement of data privacy and utilization of Fintech services for illegal purposes. Therefore, authorities in the European Union, Sub-Saharan Africa, China, and the United States need to focus on creating suitable regulations for Fintech in order to mitigate potential negative effects and integrate the benefits of Fintech startups to a global scale.

Introduction

Fintech is a term used to describe technology-enabled innovation in financial services that could result in new business models, applications, processes or products and could have an associated material effect on financial markets and institutions and how financial services are provided¹. This thesis will serve as a literature review exploring the current effects and potential consequences of the main components of Fintech such as alternative payment methods, blockchain and cryptocurrency, and investment and banking on the global financial sector. Significant examples will be provided through occurrences in the European Union, sub-Saharan Africa, China, and the United States. The relevance of this issue comes from the importance of a stable financial system in day-to-day trades.

The literature review will be followed by an analytical framework for the data presented in an attempt to identify the potential effects of Fintech. Moreover, this thesis continues with a discussion analyzing the reasons for expansion of Fintech, the current status of these sectors, and the need for legitimization of the industry.

Literature Review

Financial intermediaries

The financial system is made up of financial institutions that essentially channel savings into investment in financial markets by buying and selling financial products. Financial institutions act as intermediaries between economic agents that may be savers at one time and investors at another. The utilitarian aspect of financial services makes them essential for the contemporary society, given the crucial role of intermediaries that run the payment systems that enable local markets to operate and individuals and companies to invest.

¹ See: <http://www.fsb.org/what-wedo/policy-development/additional-policy-areas/monitoring-of-FinTech/>.

Fintech

Fintech has developed significantly over recent years, and is impacting the way financial services are produced and delivered. Fintech sits at the crossroads of financial services and the digital market. While innovation in the financial sector is not new, the pace of technological innovation has resulted in an array of Fintech solutions using digital identification, mobile applications, cloud computing, big data analytics, artificial intelligence, and blockchain and distributed ledger technologies. These solutions are changing the financial industry and the way consumers and firms access services, and are improving financial inclusion for digitally connected citizens. It attempts to place customers in the driver’s seat, to support operational efficiency, and to further the competitiveness of the economy (World Economic Forum, 2019).

The Fintech sector includes elements that can be broadly categorized into four main segments: financing, asset management, payments, and other Fintechs (Dortfleitner. 2017). The description of the segments can be seen in the Figure 1.

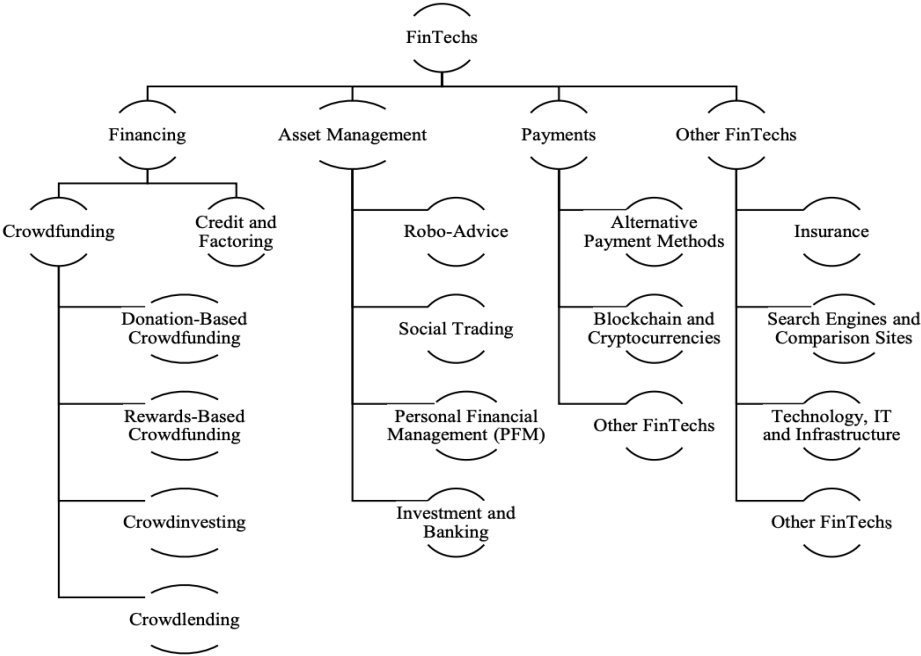


Figure 1 Segments of Fintech (Dortfleitner, 2017)

However, this thesis focuses on the three elements that are most relevant in the research and to the current economic environment of the regions studied.

Alternative payments

Alternative payment methods refer to online payment solutions provided by Fintech startups. Such platforms require a device with an internet connection and allow users to make seamless peer-to-peer money transfers and payments that are instant, and in most cases, free or at an acceptable charge. In addition, the emergence of these services has had an impact in the behavior of consumers, who now prefer digital channels when dealing with money transactions without visiting financial intermediaries (Thompson, 2017). Traditional financial services providers are under pressure to increase their focus on online platforms while the barriers to entry are high.

Cryptocurrencies and Blockchain

Cryptocurrency can be used as a means to send and receive value to and from anyone in the world using a device with an internet connection. Unlike any other tool to send money, nonetheless, it is possible without the use of financial intermediaries as a result of blockchain technology. In layman's terms, blockchain acts as a public ledger for every transaction done over a peer-to-peer network. It is permanent, digitally distributed, and resistant to corrupting due to its anonymity. It avoids "trust" as a factor for making the transactions, which are automatically verified and recorded by the network through cryptographic algorithms without human intervention or central authority. Moreover, while the supply fiat money is controlled by financial institutions, the fixed number of "currency units" of cryptocurrency create a limited supply that increases their value and utility since depreciation is impossible and deflation could be used to price goods and services (Bloomberg, 2018).

Investment and Banking

Services such as financial advising, asset and wealth management services are being offered by fintech startups at rates that compete with traditional banks and investment firms due to the increase in automation of their operations. Likewise, the interconnection and large userbase between platforms has expanded the scale of services to create mutual funds and loan services. However, the transparency and accessibility of these services may vary due to the lack of understanding of regulation policy (i.e. credit worthiness, taxation, etc.). Some users have claimed that fintech investment platforms are more customizable and intuitive, while others state that they fail to comply with regulations and discourage the public from using their services (CNBC, 2018).

Causes of the expansion of Fintech

The emergence and development of Fintech is a result of multiple trends that have reduced the public's trust in the financial system, and changes in consumer behavior caused by generational gaps and increased digitalization. The main cause was the 2008 financial crisis and the Great Recession that followed. The main region affected was the European Union given that European banks were directly or indirectly involved in the crisis, causing the population's trust in their financial system to decline dramatically.

Population with confidence in EU institutions by institution (source: DG COMM)

Code: sdg_16_60

% of population

The indicator measures confidence among EU citizens in a selection of EU institutions: ... [more](#)

partner: European Central Bank (ECB) Flags Codes Labels Codes & Labels 1,234,56 1,234,56 1,234,56

geo	time	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
EU (28 countries)		48	44	43	36	37	34	34	33	34	39	41

Figure 2 Population with confidence in the European Central Bank (DG COMM, 2018)

Figure 2 shows the net trust that the European citizens have in their institutions, including the European Central Bank. Calculated by finding the difference between the percentage of

participants that trust and the percentage of participants that mistrust, the figure shows a lower level of trust (41%) in 2018 which has slowly come close to the 48% they had in 2008.

Banks							
	Great deal	Quite a lot	Some	Very little	None (vol.)	No opinion	Great deal/Quite a lot
	%	%	%	%	%	%	%
2018	13	17	46	21	1	1	30
2017	14	18	39	27	1	1	32
2016	11	16	47	25	1	1	27
2015	12	16	45	24	2	1	28
2014	10	16	43	28	2	*	26
2013	10	16	45	26	2	1	26
2012	9	12	42	33	2	1	21
2011	10	13	40	33	3	1	23
2010	9	14	45	28	2	1	23
2009	8	14	49	26	3	1	22

Figure 3 Level of US Citizen's trust in Banks

A similar trend can be observed in the United States according to Gallup’s poll from 2018, where “some” and “very little” dominate the public’s opinion. Like in the European Union, the results seem to be a consequence of the subprime mortgage crisis that hit the United States caused by financial institutions that were thought to be “too big to fail”. The uncalculated risks and large focus on high returns failed to account for the risks associated, requiring assistance from the United States Government to bail them out with money from United States taxpayers, because it recognized that these financial institutions were vital for the economy.

Emerging economies of Asia that were not directly affected in 2008 given their better fiscal and external debt positions, foreign exchanges, and more resilient banking sectors, however, the interconnectedness with other regions slowed down their international trade and economic growth (International Monetary Fund, 2010).

Fintech startups, mainly crypto/blockchain provided the agility and freedom necessary to access faster and more affordable financial services through the internet. The “digital transformation (DX)” was catalyzed by the “Enabling Digitalization Index (EDI)” which illustrates each country’s ability to provide the necessary environment for business to succeed in an increasingly digitalized global economy. The EDI scale was presented by Euler Hermes, a subsidiary of the world’s third largest financial services company, Allianz SE.

Based on the EDI, the United States leads the revolution with a score of 87 out of 100, given the large market, strong knowledge ecosystem and optimal business environment, three major factors for digital transformation. The European Union is an exemplar scenario for Fintech in providing the right environment for businesses to thrive in the digitalization era with 16 countries ranked in the top 30 and three countries in the top 5: Germany, Netherlands, and Switzerland. The region benefits from the Union’s construction, aligned business practices, improved logistic infrastructure and stronger knowledge ecosystem. The Asia Pacific region also comes out as a region supporting digitalization: Out of the 30 top markets, 8 are from Asia-Pacific: Japan (7th), Singapore (8th), Hong Kong (9th), South Korea (10th) and China (17th) lead the pack, followed by Australia, New Zealand and Malaysia. In Africa, South Africa (46th) leads the pack. The second African country of the ranking is Kenya (70th), which owes its score to its infrastructure performance. Nigeria ranks 100th out of 115 countries, despite a substantial market size score (Euler Hermes Global, 2018).

Another reason for Fintech’s increasing adoption is the change in consumer behavior that comes with the change of generations as millennials (considered born between 1980 and 2000), represent 24% of the population of the European Union, 25% in the United States and China, and less than 30% in Africa (UN Stats, 2018). This generation has grown as the latest revolution

of digital advancements, and considered to prefer digital routes over traditional services and believes in access over ownership displayed in short-term savings and hasty spending (Suddath, 2014). However, the large variety of services makes this generation more demanding when it comes to the price-quality ratio. Though frugality might be an issue, and banks may supply more credit to satisfy millennials current spending, the greater expectations for quality paired with a constant connectedness to mobile technology could make millennials alter the financial services industry.

The Impact of Fintech Start-ups on Traditional Intermediaries

Fintech as an industry is yet to be recognized in the financial services sector, but technological advancements are attracting sizeable investments to the segment. Figure 4 shows the capital invested on Fintech companies.

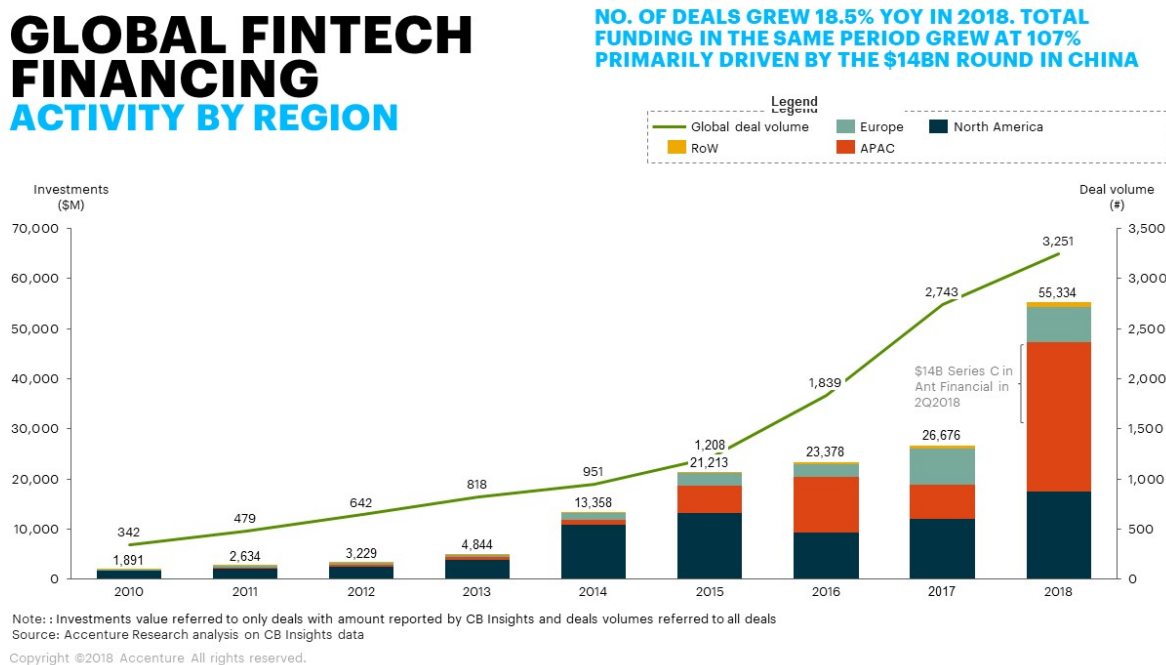


Figure 4 Global Fintech Financing

According to Accenture analysis on CB Insights data (2018), global investment in financial technology ventures more than doubled in 2018, to US\$55.3 billion. The tremendous

growth was due in large part to a ninefold increase in the value of deals in China, to US\$25.5 billion, which is nearly as much as the US\$26.7 billion from all the Fintech investments globally in 2017. More than half of China’s Fintech investment came from the record US\$14 billion funding round in May of Ant Financial, which manages the world’s largest money fund and is best known for its Alipay mobile payments system. Figure 4 shows that Fintech is leaving its infant stage and gaining major investments in most of the world to compete with traditional financial services providers.

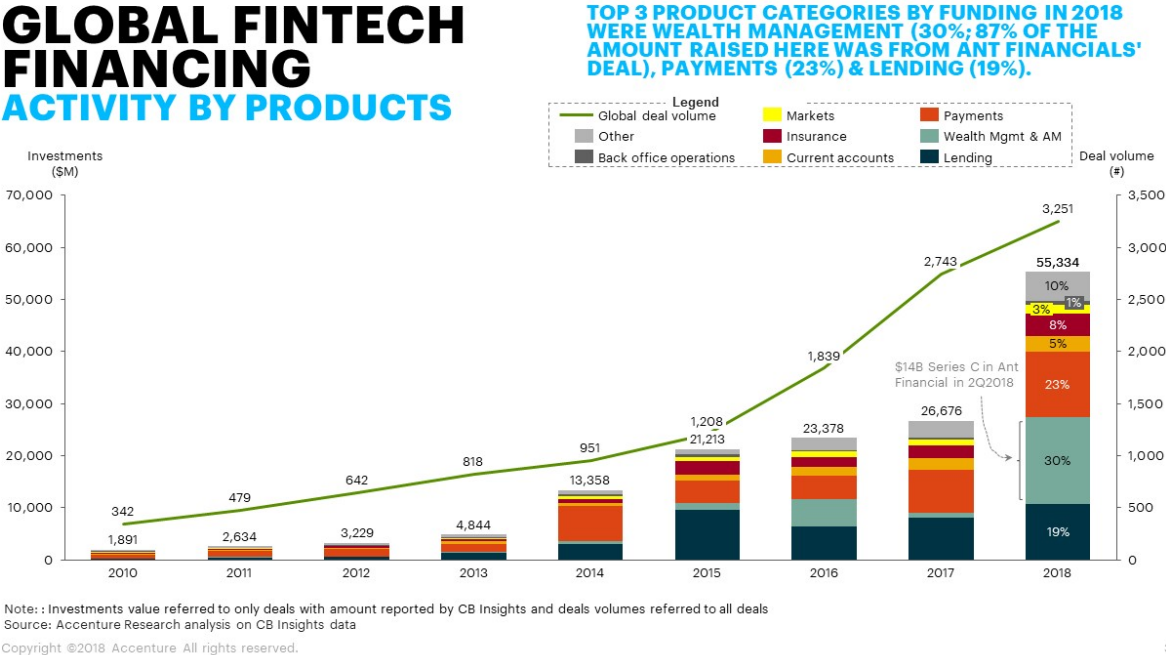


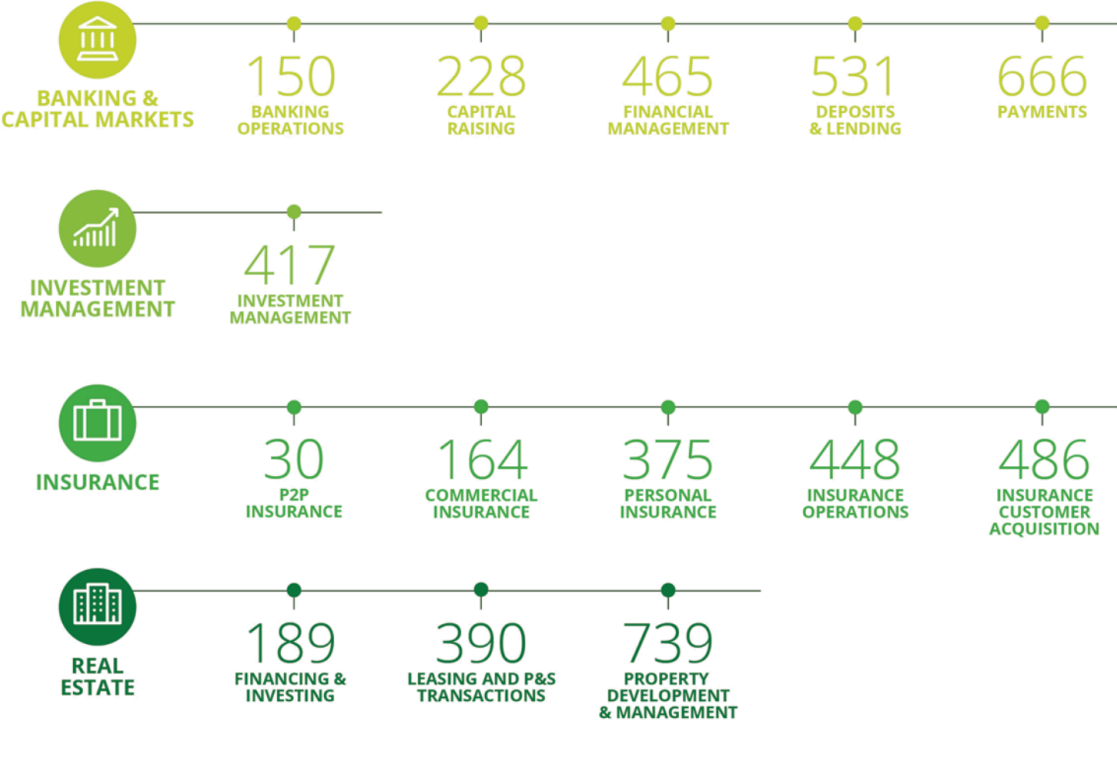
Figure 5 Global Fintech Financing (Activity by Products)

Figure 5 shows the funding distribution among the different areas of Fintech. In the scope of this research, the top 3 product categories in 2018 were wealth management (30%, for which 87% was a result from Ant Financials’ deal), payments (23%) and lending (19%).

Importance of Alternative payments per region

This element of Fintech was one of the first to develop and plenty of Fintech companies are involved in the payment solutions sector. According to the statistics in Figure 6 below, the

number of payment companies in 2018 across the globe was 666 (Deloitte, 2017). This segment is only surpassed by the 739 companies and startups in the Property Development & Management segment.



Source: Venture Scanner data, Deloitte Center for Financial Services analysis

Figure 6 Number of Fintech companies on a global level in 2018

According to the research made by the European Banking Authority (EBA), alternative payment methods are one of the most striking Fintech elements in the European Union. The research concluded that there are more than 1500 Fintech companies operating within the European Union and they created a sample of 282 companies (for which they had relevant data and information) in order to classify them by their regulatory status (EBA, 2017). From that sample of 282 Fintech companies, which were taken into consideration for the research approximately 18 percent of 50 companies declared themselves as ‘payment institutions’ liable under the Payment Services Directive (PSD), (EBA, 2017). The data is visually presented in

Figure 7 below, where the firms from the sample are classified according to their regulatory status.

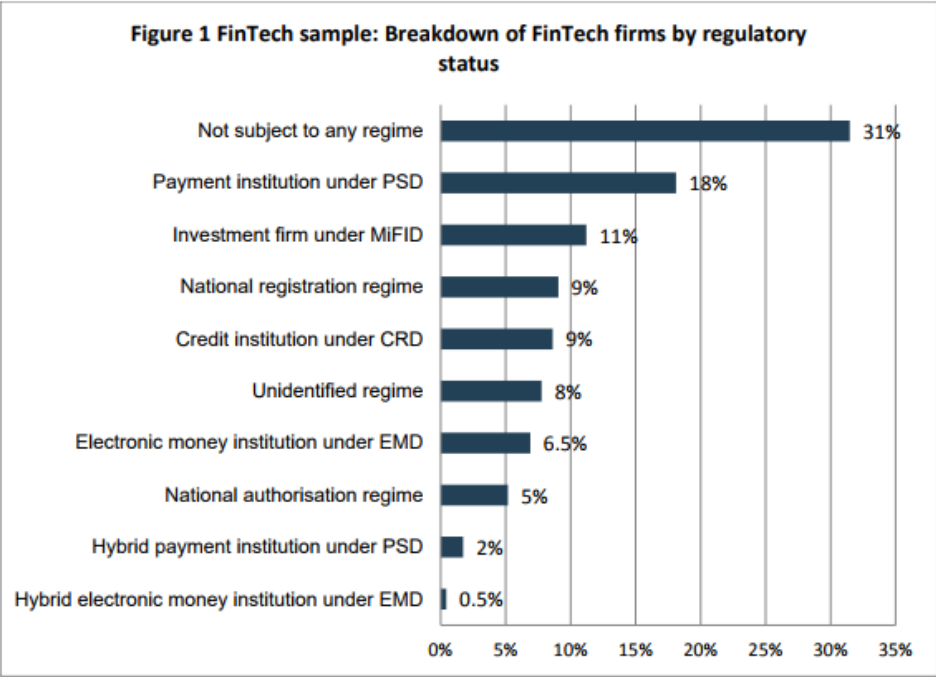


Figure 7 Fintech companies in the European Union

Another interesting aspect presented in the figure above is the fact that approximately 31 percent of the whole sample, i.e. 87 companies, are not liable to any kind of regulation (EBA, 2017). This number is high, especially if it is considered that there are more than 1500 Fintech companies with operations in the European Union and the sample consists of only 282 companies (EBA, 2017).

In terms of non-cash payments, the United States is the world leader with 461.5 transactions per capita and a compound annual growth rate of 9.8 percent for the period between 2012 and 2015 (Capgemini & BNP Paribas, 2018). The data for the countries with the most non-cash transactions per capita are shown in Figure 8, below.

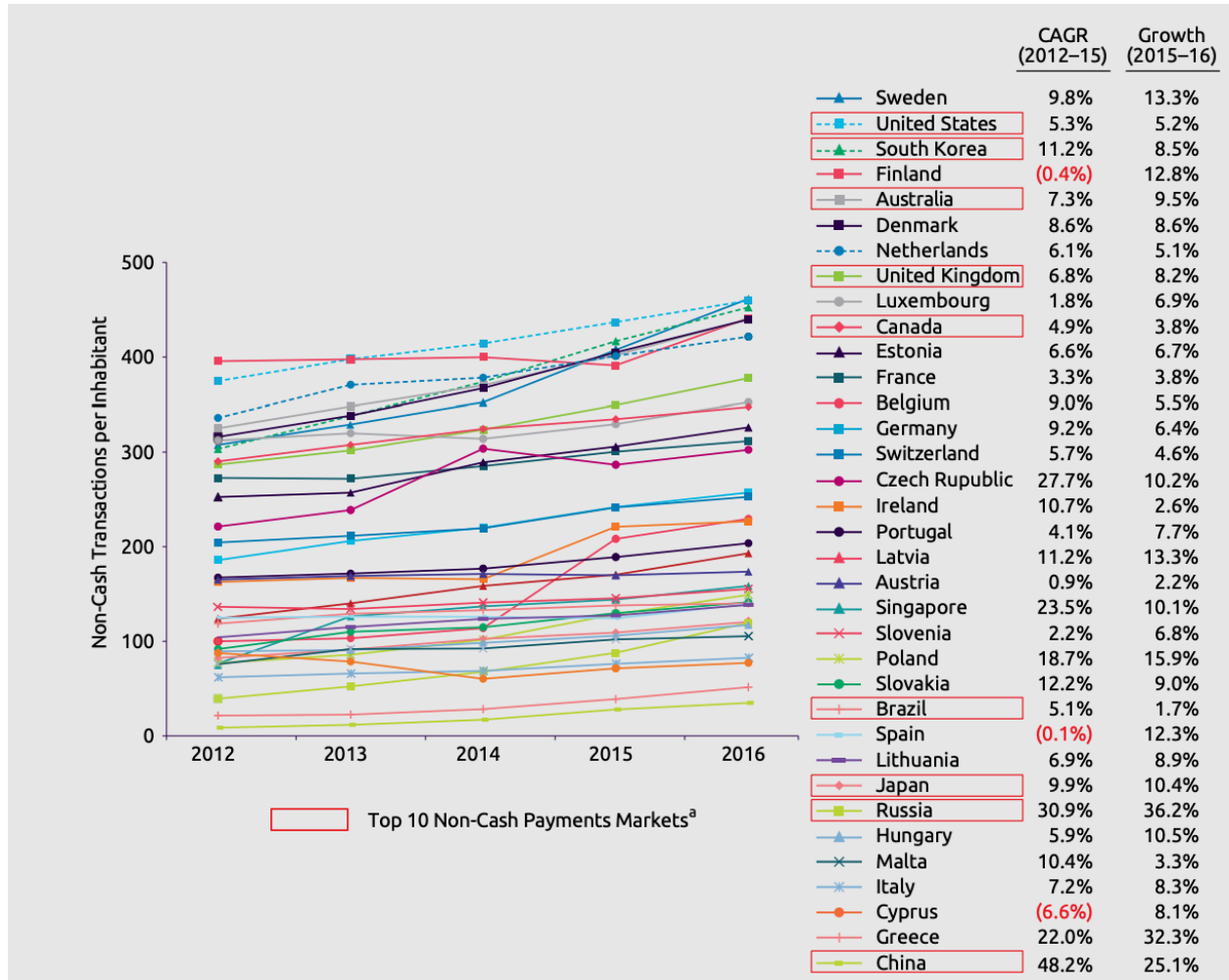


Figure 8 Non-cash payments per capita 2012-2016

It is worth noting, however, that this accounts for traditional payment methods such as cards, credit transfers, direct debits, and checks, showing a lack of need in mature markets such as the United States for alternative solutions to traditional non-cash methods. A survey conducted by S&P Global Market Intelligence (2018) shows that perceptions of inconvenience and unease top the list of concerns regarding payment apps. This can be seen in Figure 9 below.

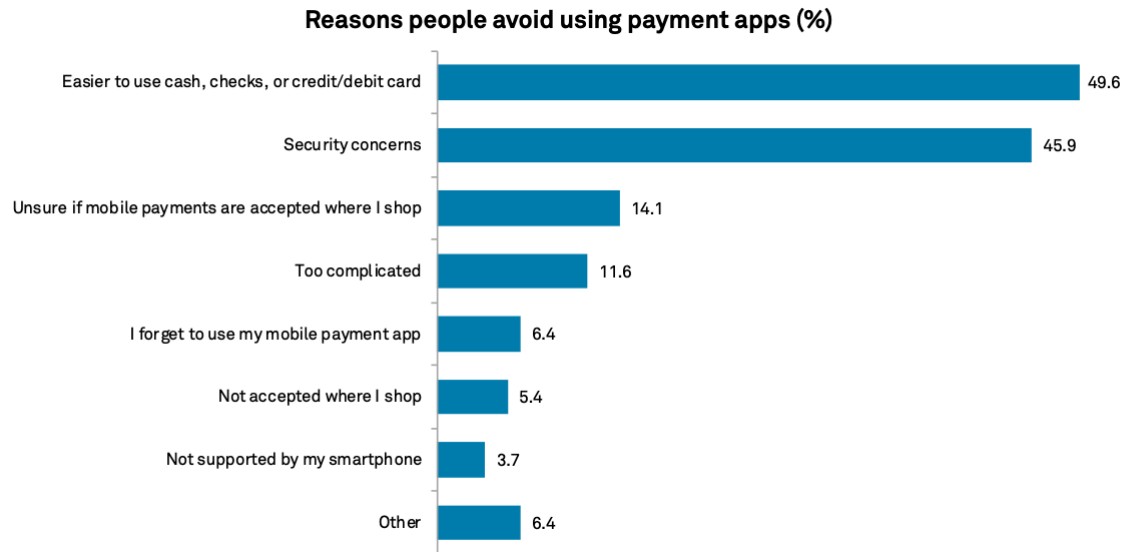


Figure 9 Reasons people avoid using payment apps (%) (S&P Global Market Intelligence, 2018)

Non-cash transaction conducted via e-wallets were estimated to total 41.8 billion globally during 2016. Of the estimated total, about 71% (29.7 billion) were conducted via payment apps and e-wallets offered by Fintech initiatives to customers. China alone accounts for 16.3 billion transactions while the rest of the world accounts for remaining 25.5 billion transactions as they adopted digital platforms in the absence of credible solutions in a very cash-based society with a limited card-acceptance network (Capgemini & BNP Paribas, 2018). These offerings present a distinct value proposition to these customers.

Similarly, the importance of these types of services is not directly correlated to the general magnitude of the transactions. The differences in infrastructure and economic practices in each region change the relative impact of alternative payment methods. For example, in Sub Saharan Africa, Fintech is emerging as a technological enabler in the region, serving as a catalyst for the emergence of innovation in other sectors such as agriculture, which promotes economic growth and development. Multiple services such as M-Pesa, Paga, SimbaPay, Orange Money, and Zoono have been successful at allowing customers to deposit and withdraw money to other users, or pay bills. The low level of technological readiness and financial market infrastructure

(branches, automatic teller machines, payment systems) generates a large unfulfilled demand for payment services in a market segment with a relatively large level of access to mobile devices.

Going forward, mobile money can accelerate the inclusion of users into the formal financial system by integrating mobile money and other financial services providers. In Kenya, the good working relationship between mobile network providers and the Central Bank of Kenya is creating a hybrid system that offers access to formal saving, loan, and insurance products such as Safaricom's M-Shwari, which provides access to savings accounts and instantaneous micro-credit products (N.R. Sy, 2018).

Importance of blockchain and cryptocurrency per region

The European Union might become a global leader in cryptocurrency and blockchain development over the next five years, according to an analysis report published by the venture capital firm Atomico. The report cites data that shows that 40 percent of all Initial Coin Offerings (ICOs) are based in the European Union. These 446 transactions raised \$1.76 billion, nearly half of the worldwide total from token sales. The United States is the second largest region for this activity, with 244 campaigns raising \$1.08 billion whereas all other countries do not pass the threshold of \$370 billion.

Another relevant indicator for the growing importance of blockchain and distributed ledger technologies is the overall market capitalization of cryptocurrencies worldwide, which can be seen in Figure 9 from CoinMarketCap, one of the most relevant providers of cryptocurrency valuation.



Figure 10 Total Market Capitalization (Crypto) 2014-2019 (CoinMarketCap, 2019)

The figure displays the growth of the cryptocurrency market from January 2014 to June 2019. Despite the exponential growth between 2016 and 2017, on January 7th 2018, the capitalization peaked at \$813 billion (CoinMarketCap, 2019). The inevitable bubble started to burst at the end of the same month and has since dropped to \$276 billion as of June 2019. Despite the economic phenomena, the interest for distributed ledger technologies rose up in highly interconnected areas such as the European Union, given the cross-border infrastructure required to use it to its full potential. The European Commission recognizes the usefulness of this technology in their efforts to build a Capital Markets Union, and a true single market for consumer financial services and a Digital Single Market, which resulted in the creation of the European Union Observatory and Forum on Blockchain. The Observatory is funded by the European Parliament. It will map existing blockchain initiatives worldwide with a focus on European ones. It will deliver thematic reports over a significant number of crosscutting issues related to blockchain technologies (e.g. interoperability, legal context and regulatory

frameworks). It will also serve as an online and offline platform to build an European Union community around blockchain technologies (European Commission, 2018).

In the United States on the other hand, despite the optimistic outlook on Fintech presented by the Office of the Comptroller of Currency (OCC), the economic environment for fintech startups in the United States is limited by the lack of “one type of fintech” in the law. Digital payments firms, for instance, considered Money Service Bureaus (MSBs) under the federal Banking Security Act (BSA) and must register with the Financial Crime Enforcement Network (FinCEN) at the Department of Treasury, as well as gain a state license. Cryptocurrency exchanges are also considered MSBs, because they transmit funds, but initial coin offerings (ICOs), where a new cryptocurrency is offered in return for investment in the startup, is considered a form of security and is subject to the Securities Act and Securities Exchange Act, regulated by the Securities and Exchange Commission (SEC) and needs to clear the “Blue Sky Laws” on a state-by-state basis. The uncertainty of the normalized presence of cryptocurrency among fiat money limits the possibility of an all-encompassing cryptocurrency exchange platform in the United States, given the well-established system with financial institutions and large tech firms that control the market (Leckow, 2017).

In Sub-Saharan Africa, most countries are in the consultation phase and are neutral to this technology, while China has joined other APAC countries to join the list of hostile countries against cryptocurrency. China banned Initial Coin Offerings in 2017 due to its incongruence with a highly controlled economic system. The Chinese authorities worried about fraudulent activity that could lead to social problems such as corruption. In 2019, China considers token/coin mining a wasteful practice due to the high computing and electrical power that it requires and has proposed plans to ban cryptocurrency mining as well. Many ICO operators offered to return

money to investors and have since switched their target markets to overseas, which they are currently allowed to do as long as they do not appear to be targeting investors in mainland China. The marketing of ICOs domestically was stopped, nonetheless, and virtual currency related events were either cancelled or moved outside China. (Forbes, 2019).

Importance of investment and banking per region

The last component examined in this thesis is “Investment and Banking”. This component is one of the fastest growing and is mainly conformed by asset and wealth management companies, financial planning and advisory.

According to KPMG ‘s report “Value of Fintech” (2017), since 2010 approximately \$11.4 billion have been invested in Fintech companies worldwide, which operate within the asset management sub-segment. These were private investments made by institutional investors (KPMG, 2017). The rate of adoption for investment and banking services in 2017 (including saving and financial planning) appears to be higher among emerging economies such as China and India, whereas the United States lags behind and countries from the European Union are not even listed in the top five (EY, 2017). The data was collected from more than 23000 people in more than 20 countries worldwide and it is presented in Figure 11 below (EY, 2017).



	 Money transfer and payments	 Financial planning	 Savings and investments	 Borrowing	 Insurance
1	 China 83%	 China 22%	 China 58%	 China 46%	 India 47%
2	 India 72%	 Brazil 21%	 India 39%	 India 20%	 UK 43%
3	 Brazil 60%	 India 20%	 Brazil 29%	 Brazil 15%	 China 38%
4	 Australia 59%	 US 15%	 US 27%	 US 13%	 South Africa 32%
5	 UK 57%	 Hong Kong 13%	 Hong Kong 25%	 Germany 12%	 Germany 31%

Figure 11 Top 5 Markets with Highest Adoption Rate per Fintech Category (EY, 2017)

Discussion and Conclusions

To complete the analysis of Fintech financing and development, this thesis concludes with a more global view. Just as all financial services industry sectors are not alike in terms of startup activity and funding levels, geography plays a role too. There are some countries where Fintechs across the board find a friendly environment for establishment and investment. This is largely due to a combination of an educated and entrepreneurial workforce, government incentives around innovation, and large pools of capital looking for investment returns. The United States and the United Kingdom are examples of fintech-friendly countries.

The United States far outstrips any other country in terms of the total number of Fintechs in operation and total investments, across a number of categories. Not surprisingly, those categories that have been in the forefront of Fintech activity from the beginning—such as deposits and lending, payments, financial management, and investment management—are notable examples. A second look at the data reveals some of the differences as well. The two largest countries in terms of Fintech investment—the United States and China—seem to be on

different paths. While the dollars invested are similar, the United States Fintech world is still made up of thousands of smaller companies. However, in China, the large diversified companies such as Tencent and Ping An command most of the investment interest. For instance, in the United States, 264 companies have received a total of \$7.71 billion in investment since 1998. This is in sharp contrast with China, where only seven payment Fintechs are found, but they are backed by \$6.92 billion in funding. Similar patterns are seen in deposits and lending, investment management, personal insurance, and real estate leasing/purchase and sale.

It is often said that there are “horses for courses,” and this aphorism appears well-suited to the Fintech world. Certain countries seem to be favorable for specific categories of Fintechs, either because of local market needs or the specific expertise that may be found. In the first case, Sub-Saharan Africa has been a favorable market for payments startups, with a few companies, but large investments. The need for “leapfrog” payment options among a burgeoning middle class with large mobile penetration is the likely driver for this specialization. The commercial insurance sector provides an example of how local expertise can drive startup activity. While the United States holds the top position as measured by number of Fintechs, it is Bermuda where the most investment dollars have been allocated. This has been driven by the large and influential reinsurance business in Bermuda. Identifying the right fintech partners with whom to engage can be a complicated endeavor. The increasing globalization of Fintechs combined with more local market specialization in certain solution categories can make this even more complex.

On their own, Fintech startups have lacked the scale to launch their own products into the banking market and therefore do not present the threat to executives that they once were thought to pose. Fintech companies, however, with their large user base, agility of service and ability to provide seamless customer experience, can be considered a threat. While these Fintechs are

making rapid inroads in the payments space, it is crucial that banks are yet to accelerate their responses. By orchestrating, banks can achieve their objectives of greater operational efficiency, leading to new business propositions. Banks could consider moving away from standard service offering by market segment into a model based on customized and contextual value-driven offerings. Many of the value-added services such as leveraging data analytics can improve areas such as cash forecasting and liquidity management ultimately generating revenue streams for clients as well. In the same manner, in a fast-moving technology environment, banks could generate revenue from the third parties that leverage bank APIs to develop more services.

Based on the context provided and relative scale, the global banking industry invested over \$260 billion only in 2018, while the entirety of the Fintech industry over the last decade is worth \$55 billion. There is much uncertainty around the ultimate impact of financial technology and policymaking, but the cost-to-benefit ratio can be proved favorable for financial institutions that consider orchestrating as a profitable implementation. Efficiency considerations include choices regarding competition and the likely impact on business models and profitability, cost and inclusion issues, risk to stability and security (including cyber-risk), monetary policy implementation and transmission, and financial integrity. However, technology will continue moving toward the ideal state of being fully instant, automated, efficient, and thus becoming more than ever a game of scale. Differentiation will come from new value creation in the greater process of companies that ultimately lead to payments and receivables.

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