

Introduction and Key Technological Trends Affecting Financial Services



Content

- Factors for digital financial services
- Financial Technology
- AI, Open Banking & Blockchain Technology
- Assignments & Office Hours

Factors for digital financial services

Political factors

Political factors, e.g., regulatory issues, in the financial services sector were described as having significant influence and being connected to a heavy workload in the operational routines, which notably increased after the financial crisis. Correct implementation and execution of regulatory issues, described by the interviewed experts, is especially a problem for small banks and insurances because of the relatively high costs for these small entities. These can initially emerge if new technological systems as well as more specialized knowledge employees are necessary to implement the rules, as is reflected in the following statement of one of the interviewed representatives of the employers' association (10A) with regard to regulatory effects on work changes and operational routines

Political factors

New regulatory issues foster digital transformation in the financial services sector because new technological systems are unavoidable. Employee's representatives, e.g., 7A, articulate that the financial institutions, i.e. banks, must fulfill regulatory issues. Consequently, employees must be able to fulfil these requirements and work their operational routines become more complex. Taken this statement further, labor union representatives, e.g., 10A, also further acknowledged that employees are concerned about the changes of their tasks. In addition, employees are afraid of not be able to fulfil their job, because as a result of these new complexity by new regulatory issues of in the financial sector.

Political factors

Political factors (regulatory issues) have, besides from mentioned negative aspects, positive influences for the incumbents, like a barrier for new market entrants. Our interview material indicates that banks and insurances face different regulatory pressures (banks at the time of the interviews more than insurances) and with a time lag, banks were regulated faster than insurances in the last years. Therefore, they must consider higher pressure of regulations in the future. Concerning digital transformation, it can be stated that political factors are a relevant driver for digital transformation in banks and insurances.

Economic factors

One of the essential features of this market in recent years is the continuing low interest rate environment, which has a significant impact on the overall sector. Concerning banks, our interviews show a clearly observable trend of consolidation in the banking sector, resulting in the closing of branch offices and, in the end, layoffs. On the other hand, the experts point out that the current number of competitors in the German banking sector is an advantage in comparison to other countries due to the lower risk of a collapse of the financial system. In line with banks, insurances also face high pressure towards digital transformation because of the above-mentioned low interest rates, changing customer demands and the requirements of new product characteristics, which are designed to meet the former two. This statement is especially true for the important classes of car and life insurance, which in particular exhibit low profitability.

Economic factors

Interviewees (especially consultants) e.g., 3A, state that the insurance market is, despite the regulatory and competitive pressure, still in a rather good economic condition. Contrary to this opinion, labor union representatives, e.g., 12A articulated a more pessimistic view on the economic situation, concluding that the economic condition of the insurance sector will lead to job reduction. The banking sector is less fortunate: Companies have to steer their businesses away from traditional products (with a focus on interest incomes) to new solutions and products for the customer (less dependent on economic factors). In result, economic factors, namely the ongoing low interest rates, profoundly influence digital transformation in both sectors.

Social factors

Social factors, describing changes of socio-cultural aspects, receive ongoing attention by financial services companies. Because of changing consumer behavior, companies face challenges from the demand side and, are forced to digital transformation, e.g., adjust their customer interfaces. People (especially the so-called Generation “Z”) increasingly inform themselves and compare financial products online. This new technological approach has to be included in the value chain of the companies. Especially sales, and here the intermediaries are most affected. This is more pronounced for banking services which are used more frequently making an easy-to-use online solution more important.

Social factors

These changes in the behavior of the customers do not necessarily mean that the clients want all the products to be offered only online. For example, old age provision or construction financing are rather complex long-term products, which (currently still) tend to require an individual and personal advice. The possibility, to have personal relationships with the customer, was perceived as a positive asset for the insurance sector compared to BigTech companies.

Social factors

In result, banks at present face more influences by social factors to add new digital channels to their business models than insurances, always without abolishing the traditional routes of communication. Connected to possible changes in working hours and behaviors, an interview partner marked the influence of social factors for the banking sector.

Social factors

In contrast, other labor union representatives, acknowledged that changes of customer demands and behaviors are connected to changes to work situation for employees, e.g., through a shift in working hours.

To sum up, social factors are a strong influence on digital transformation in banks and insurances, but even more in the banking than in the insurance sector. This difference lies mainly in the more frequent utilization of the relatively less complex products, and their ability to be easier sold and attended through online channels.

Technological factors

New technologies can also open up possibilities for companies and foster digital transformation. Our interviewees mentioned blockchain, cognitive systems, artificial intelligence/big data analytics and visualization, robo-advisory, as well as robotic process automation as relevant for the financial services sector. While emphasizing positive aspects, like possible cost savings or profitable ways of offering products, negative elements like the lack of trust and the resulting uncertainty were also mentioned. Existing companies often start to experiment with such technologies, but rarely include them in their daily businesses and routines.

Technological factors

Faster introductions might be because banking services, e.g. payment, are more challenged and already offered by new technology-driven market participants whose solutions will likely change the customer expectations. This especially increases the pressure for banks to better integrate new technological options, while companies from both sectors are at present often working on modernizing their core systems. Outdated digital infrastructures is a major issue and often regarded as a restriction for further development.

Bargaining power of suppliers

The suppliers are difficult to define in this context, because of the very few necessary pre-products for any financial service. Banks and insurances are increasingly cooperating to offer co-products/annex-products to reach more customers and enhance customer loyalty.

An outdated digital infrastructure interferes with these intentions. The bargaining power of suppliers is a driver for digital transformation because an outdated digital infrastructure will not meet their required standard, e.g., to send new customer contacts to incumbents through digital processes. In this overall context, the goal to establish ecosystems is mentioned by the interviewees. Cooperation's with BigTechs like Amazon, Apple, Facebook, or Google (Alphabet) are possible, while their likely market entry strategy is not yet apparent. BigTechs are discussed in more detail in the subsection "Threat of New Entrants".

Bargaining power of buyers

Strongly connected to social factors as part of the PEST-analysis, the bargaining power of buyers plays a crucial role for financial services companies and their digital transformation projects. Cooperation's are arranged with other business sector to address buyer's wishes more conveniently.

(Potential) buyers are easily to fulfil their financial needs and product demands online, e.g., mostly better than ever-through services by new tech companies. Mainly banks face the challenge to rethink their great number of branch offices or operational routines and workflows, because of high operating costs and low interest rates. In contrast, insurances mainly mitigate this decision to independent intermediaries.

Threat of new entrants

Keeping an eye on threats of new entrants into the financial services market, Fin- and InsurTechs are often referenced. Established companies negotiate cooperation's with FinTechs and InsurTechs to better meet customers' requirements.

Interviewees describe these cooperation's as more established in the banking than the insurance sector. This is comparable to the behavior towards adopting new technologies, as mentioned above. Besides cooperation, other strategies involve ignoring these new entrants, copying their products and technologies as mentioned before by expert 6A, or acquiring and integrating them into one's own business. In result, the threat of new entrants from Fin- and InsurTechs is described as rather low. Still, it serves as a massive influence on digital transformation of the financial services sector, e.g., resulting in the consolidation of old (technological) processes of the incumbents.

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Threat of substitute products

Substitute products currently play an under-developed role for financial service companies and their digital transformation. Most FinTechs and InsurTechs focus on business models essentially that are very similar to traditional companies, rendering them competitors rather than substitutes. However, a smaller group of start-ups intends to implement possibly disruptive solutions, mostly based on technological innovations. So admittedly, new market participants offer alternatives for parts of the value chain, especially with a focus on improving the customer interface (e.g., payments and sales). Nevertheless, and with some still negligible exceptions, they do not interfere with the core competencies and services of the incumbents.

Threat of substitute products

Technology-wise the blockchain technology can serve as a basis for various financial services and business models. Anyhow, it was described as not ready for the mass-markets yet. This is the result of the indefinite nature of blockchain, e.g., as an instrument to store values like banknotes and the acceptance of smart contracts.

Above all, it remains questionable that blockchain technology can fulfil regulatory standards. With respect to insurances, peer-to-peer business models were mentioned as not ready for the mass-market soon. Overall, the influence of substitute products can currently be described as low for the digital transformation in the financial services sector.

Financial Technology

Financial innovations

There are no universally accepted definitions of financial innovations. Nor is there any universally accepted systematics of the phenomenon. The issue was addressed for the first time at a global level by the Bank for International Settlements (BIS) way back in 1986. It was then that a specially established study group of the central banks attempted to propose a systematization of financial product innovations in the banking area (BIS, 1986). The group prepared a broad study in which it proposed a classification system for financial innovations.

Financial innovations

In its proposal, they were split into three groups:

- risk-transferring innovations, which either reduce the price risk/credit risk, inherent in a particular financial instrument, or alternatively, enable the holder to protect against a particular risk,
- liquidity-enhancing innovations, which enable loans to be sold in a secondary market which offers the lending institution the capacity to change the structure of its portfolio, and
- equity-generating innovations, which have the effect of giving an equity characteristic to assets where the nature of the debt-servicing commitment is predetermined, for example, a debt–equity swap (Mishra, 2008).

Figure 1. FinTech tree: a taxonomy of the FinTech components (Source: BIS, 2020, p.7)

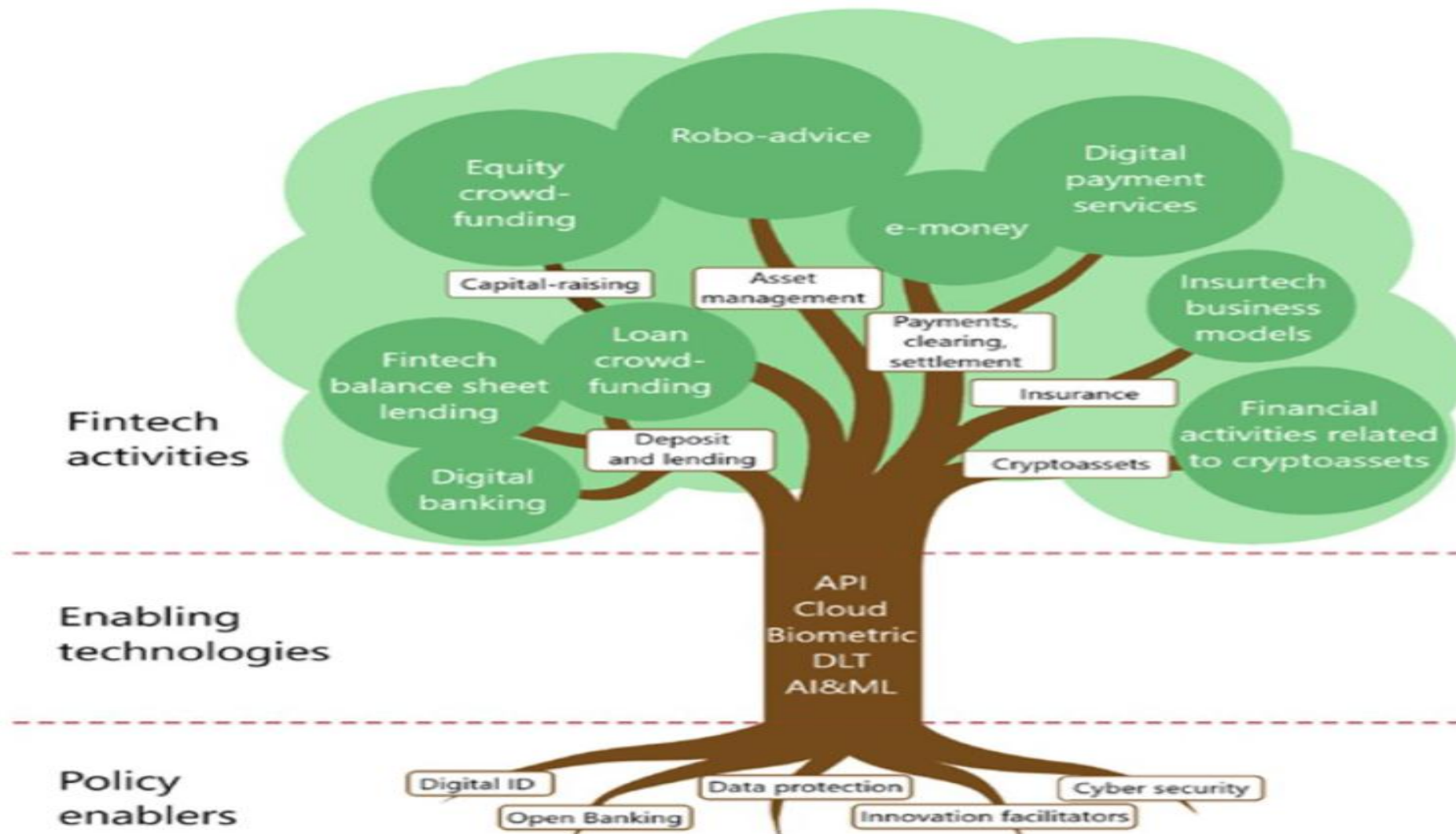
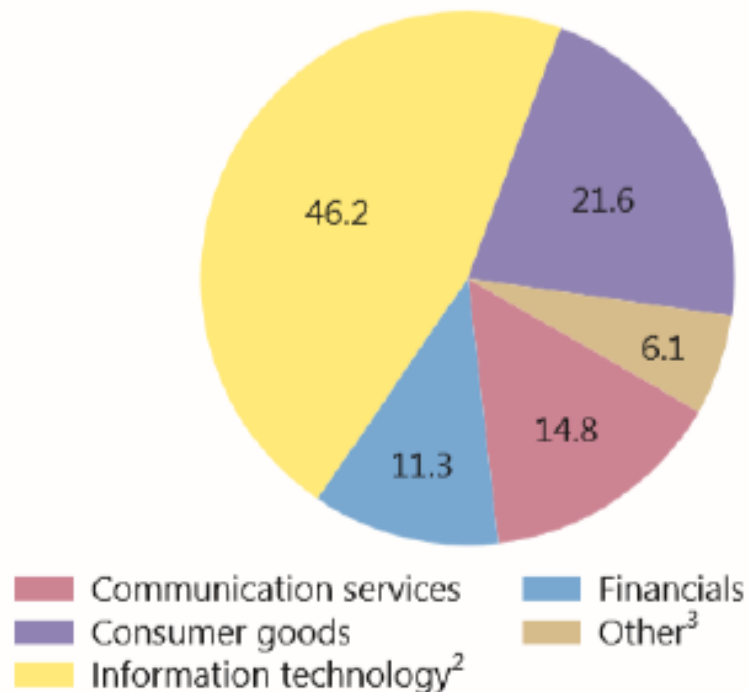


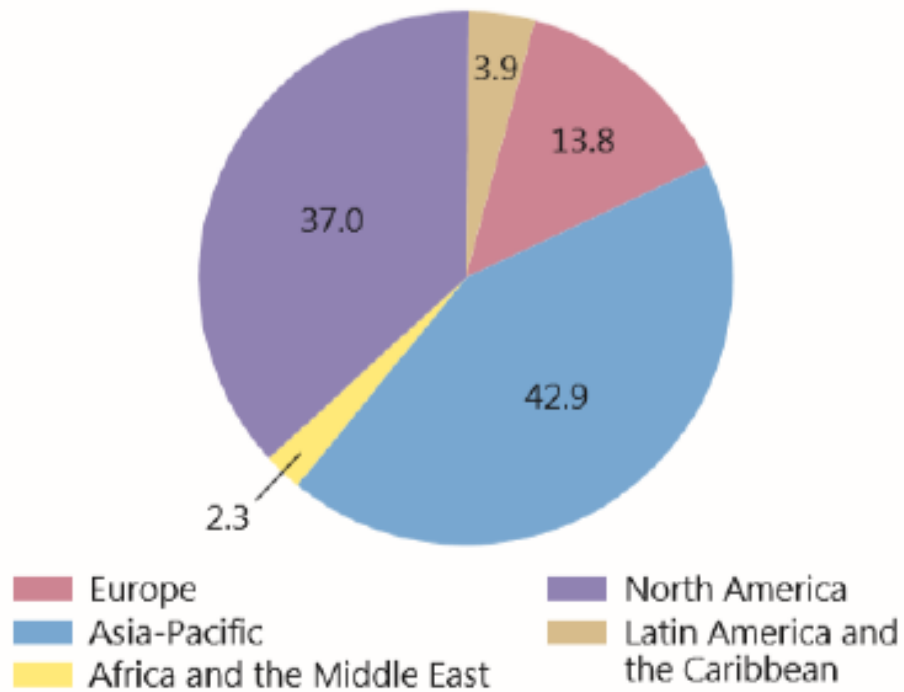
Figure 2. Financial services in Big tech portfolio (*Source: BIS, 2019, p.56*)

In per cent

Big techs' revenues by sector of activity¹



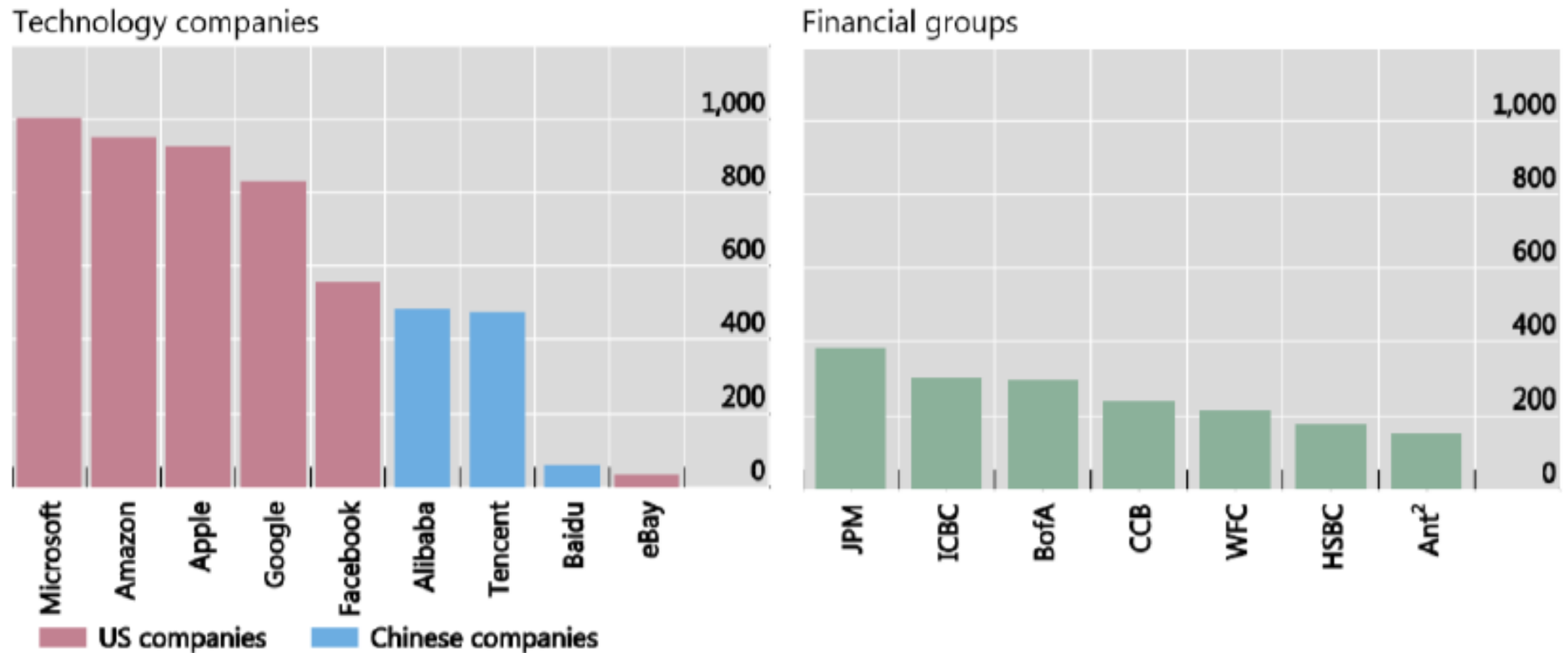
Regional distribution of big techs' subsidiaries⁴



The sample includes Alibaba, Alphabet, Amazon, Apple, Baidu, Facebook, Grab, Kakao, Mercado Libre, Rakuten, Samsung and Tencent.

¹ Shares based on 2018 total revenues, where available, as provided by S&P Capital IQ; where not available, data for 2017. ² Information technology can include some financial-related business. ³ Includes health care, real estate, utilities and industrials. ⁴ Shares are calculated on the number of subsidiaries as classified by S&P Capital IQ.

Figure 3. Stock market capitalization of Big tech versus major financial groups



Ant = Ant Financial; BofA = Bank of America; CCB = China Construction Bank; ICBC = Industrial and Commercial Bank of China; JPM = JPMorgan Chase; WF = Wells Fargo. ¹ Stock market capitalisation, 30 April 2019. ² The estimated value of Ant Financial was derived from the amount raised in the company's recent funding rounds. Sources: Thomson Reuters Eikon; hurun.net; company reports.

AI, Open Banking & Blockchain Technology

What is the Open Banking

Stefano of Yapily adds: “Open Banking allows access to account information in order to provide new and innovative financial products. However not all types of data are mandatory to share and not all accounts are covered including mortgages or long-term savings. We need to extend the capabilities of APIs.”

Open Banking can become open financing - encompassing investment, wealth, insurance and much more. “I see the purpose of Open Banking as taking down the barriers to financial services, and I see huge potential in changing how financial services are offered in the future,” he says. “But it can’t change immediately. The first wave was accounting, coming from those who used an alternative way to access a bank account and had to change. The second wave is where I think there will be huge benefits – the payments space.

What is the AI and Blockchain?

Blockchain and Artificial Intelligence are two of the hottest technology trends right now. Even though the two technologies have highly different developing parties and applications, researchers have been discussing and exploring their combination.

By definition, a blockchain is a distributed, decentralized, immutable ledger used to store encrypted data. On the other hand, AI is the engine or the “brain” that will enable analytics and decision making from the data collected.

What is the AI and Blockchain?

Additionally, blockchain can also make AI more coherent and understandable, and we can trace and determine why decisions are made in machine learning.

Blockchain and its ledger can record all data and variables that go through a decision made under machine learning.

Moreover, AI can boost blockchain efficiency far better than humans, or even standard computing can.

A look at the way in which blockchains are currently run on standard computers proves this with a lot of processing power needed to perform even basic tasks.

Which areas will see the most growth in 2020 due to Open Banking? Choose up to 2.

Current account comparison tools.



Personal financial management platforms that aggregate data across financial institutions.



Robo financial advisers.



Micro/auto savings.



Know-your-customer (KYC) solutions.



Credit scoring.



Other (please specify).



Assignments

Essay writings (900 – 1200 words)

References

1. "[The economic forces driving fintech adoption across countries](#)" Jon Frost, *BIS Working Papers* (February 4, 2020)
2. "[Deep Learning and Financial Stability.](#)" Gensler, Gary and Lily Bailey, MIT Sloan Working Paper 6223-20. Cambridge, MA: MIT Sloan School of Management, November 2020. [SSRN Link](#).