



# Julius Bär

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NEXT GENERATION



## DIGITAL PAYMENTS LIBRA – THE FUTURE OF MONEY?

- Libra, the upcoming cryptocurrency originated by Facebook, has the potential to make a lasting impact on the financial world. It will be very different from the majority of frequently traded cryptocurrencies, such as bitcoin.
- While we see major theoretical benefits of Libra in emerging markets, there are still many important regulatory, technical and reputational hurdles regarding the currency that first need to be addressed.
- According to our assessment, Libra's concept of a global payment platform does not pose an immediate threat to global banks as payments are not a big source of profits. They should still carefully monitor Libra's development.
- Libra is likely to pose the biggest threat to providers of payment solutions among emerging markets as well as between developed markets and emerging markets, particularly providers of remittance payment solutions.

**Alexander Ruchti, CFA, FRM**

+41 (0) 58 886 2642, [alexander.ruchti@juliusbaer.com](mailto:alexander.ruchti@juliusbaer.com)

### DIGITAL DISRUPTION

The phenomenon of digitalisation, led by the proliferation of computing power and greater internet connectivity, is affecting every corner of our lives.

Facebook is aiming at entering the world of finance in 2020. If all goes according to plan, it will do so with a bang rather than a whimper. At Facebook's annual developer conference F8 at the end of April 2019, Mark Zuckerberg made the following statement: "Sending money should be as easy as sending photos."

In June, Facebook's vision became clearer when the Libra Association published a technical white paper on the upcoming cryptocurrency Libra. In this Research Focus, we will shine a light on what Libra is, from function to promise to potential issues of implementation. We will reflect on our investment case for Facebook and assess the impact that Libra might have on the banking and payments industry.

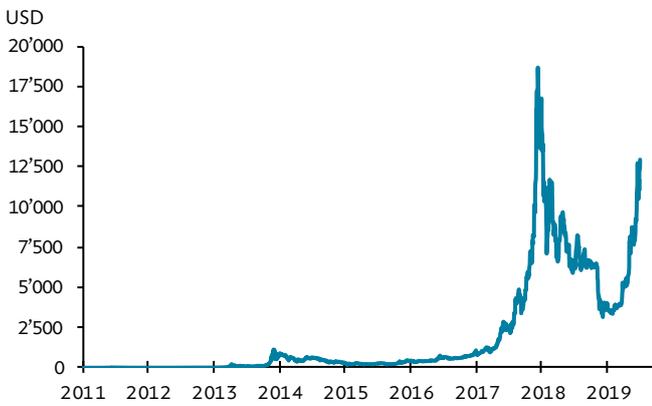
### Libra and bitcoin are two very different pairs of shoes

While Libra will be a cryptocurrency, it will be structurally different from the majority of frequently traded cryptocurrencies. To give a very brief overview, we will compare Libra to the most well-known cryptocurrency in the world, bitcoin.

#### 1) Price stability

The price of bitcoin is completely free floating and determined by supply and demand. By design, there are no central banks or other institutions that control its supply. As a result, bitcoin's price has experienced massive appreciations and also pronounced declines. Although bitcoin multiplied in value, it also suffered three declines of around 80% since being launched around a decade ago. Chart 1 shows the long-term price performance of bitcoin.

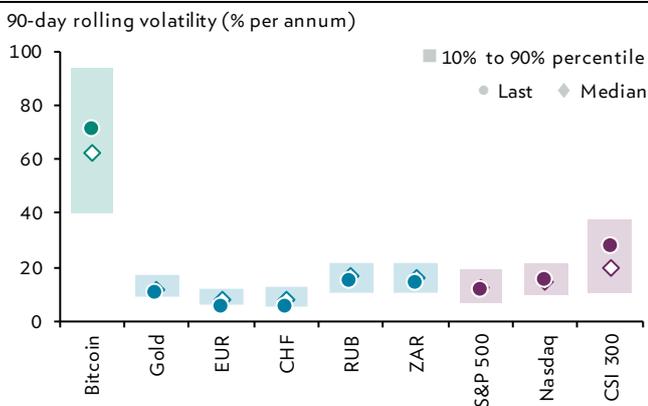
**Chart 1: Bitcoin price performance**



**Source:** Bloomberg Finance L.P., Julius Baer. Past performance and performance forecasts are not reliable indicators of future results.

Libra follows a very different approach. Investing in Libra in the hopes of seeing the price spikes relative to major currencies would be a fruitless endeavour, as the value of Libra will be pegged to a basket of major currencies. As of now, the Libra Association has not specified which currencies will be part of the basket and what their respective weights are going to be. It is all but certain, though, that the basket will mainly consist of very liquid currencies that are backed by credible central banks. We, therefore, expect that the US dollar will be the largest weight in the basket and that currencies like the Euro, Japanese yen, British pound, Australian dollar, Canadian dollar and Swiss franc are going to represent smaller shares of the overall pool. Consequently, the 90-day rolling volatility of Libra is likely to be significantly lower than that of emerging market currencies and global equities and is very likely to be several factors lower compared to bitcoin.

**Chart 2: Volatility of different assets**



**Source:** Bloomberg Finance L.P., Julius Baer

**2) Collateral**

Bitcoin is not backed by any form of physical value. There is no claim to corporate assets, as is the case with bonds, or claims to real estate, as is the case with mortgage-backed securities. The only thing that gives bitcoin its value is the network effect, i.e. the phenomenon that the value of a good or service increases by the amount of additional users. If you are the only one using a telephone, you cannot call anybody, so the telephone represents very little value to you. However, the telephone becomes very valuable when many other people possess a telephone as well and you suddenly gain the ability to communicate with those people over a distance.

In contrast, Libra will be pegged to a basket of major currencies. To guarantee that peg, the Libra Association will hold financial reserves. In simple terms, the Libra Association will act as a sort of central bank. When someone wants to buy a Libra coin, the Libra Association will create a new coin and exchange it for fiat money (i.e. a currency not backed by a physical asset, e.g. USD, CHF). The Libra Association will then invest that money in bank deposits and short-term government bonds. Those investments will act as a form of collateral. If someone wants to exchange the cryptocurrency back to fiat currency, the Libra Association will liquidate the investment into fiat currency and exchange the fiat currency with the Libra coin. The association will then destroy the cryptocurrency coin. Therefore, the number of Libra coins in circulation will be roughly proportional to the reserves held by the Libra Association.

**3) Consensus mechanism and decentralisation**

Bitcoin relies on a ‘proof-of-work’ consensus mechanism that guarantees the integrity of the blockchain. Without going into any details, proof-of-work is a consensus algorithm that allows the blockchain to operate in a decentralised fashion. This decentralisation is seen by many as the key advantage over more traditional payment methods, as it allows transactions to be facilitated without the need to trust in specific central authorities.

Libra, on the other hand, will be centralised, at least in the beginning and potentially throughout its existence. At launch, the founding members of the Libra Association will act as the sole validators of transactions. Participants will, therefore, need to inherently trust those validating institutions. In the long run, the Libra Association plans to decentralise the Libra blockchain by gradually switching to a proof-of-stake consensus mechanism. It is, however, not entirely certain if the shift to proof-of-stake will happen, and the proof-of-stake consensus mechanism is not without question. We will address proof-of-stake in a later segment of this report.

## Terms explained

### LIBRA, LIBRA ASSOCIATION, CALIBRA

**Libra** is the name of the planned cryptocurrency, whose value will be pegged to a basket of major currencies.

**Libra Association** is a Geneva-based non-profit organisation. While Facebook was the driving force behind the launch of the Libra Association, it will supposedly be operating separately from Facebook. The non-profit organisation includes a wide variety of members, such as Mastercard, Visa, PayPal, Uber, Spotify, Booking Holdings, Vodafone and Calibra. Facebook, through Calibra, will therefore be only one of many members of the Libra Association. The association alone will be in charge of the Libra blockchain.

**Calibra** is a subsidiary of Facebook. The company will maintain the upcoming Calibra app, which will act as a digital wallet for the cryptocurrency Libra. According to Facebook, the financial data collected by Calibra is to be treated strictly separate from the social media data collected by Facebook (e.g. Facebook and Instagram).

**WhatsApp and Messenger** are two instant-messaging applications by Facebook. Facebook plans to add Libra payment facilities to those applications in the future. They are two of the most widely used communication tools worldwide. According to Inc. magazine, WhatsApp currently has around 1.5 billion users, and Messenger has around 1.3 billion users.

## The potential of Libra

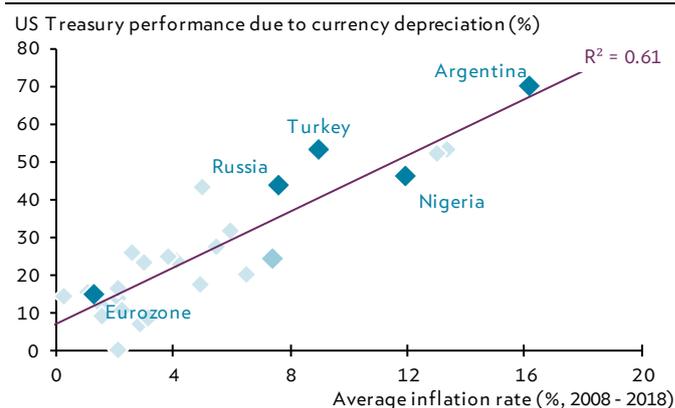
While Facebook has been rather vague about the potential of Libra, we will add our perspective on the three aspects where we see the highest potential for the cryptocurrency, namely as a store of value, as a tool to integrate the underbanked into the digital economy and as a measure to lower transaction fees.

### 1) Store of value

Very high levels of inflation are not good for economies and the individuals operating in them. They add uncertainty to the business environment and make it more difficult for corporations to budget and plan in the long run, especially for corporations that operate in a multinational environment such as import-export firms. They also introduce fiscal drag for corporations and private individuals. Fiscal drag means that if wages and earnings rise in nominal terms, but not in inflation-adjusted terms, then individuals and corporations will slide into higher-tax brackets without gaining higher purchasing power. Furthermore, the currency of a country with very high levels of inflation

will very likely become strongly devalued compared to major global currencies. Using linear regression, we show that the average annual local inflation rate is linked to the extent to which the performance of US Treasuries in local currency is due to currency depreciation (R-squared of 0.61). To give a brief example, for residents of Argentina (a high-inflation country) who invested in US Treasuries from 2008 to 2018, roughly 70% of the total performance was derived solely from currency depreciation. In the low-inflation eurozone, only roughly 15% of the return in US Treasuries would have come from currency-related changes during the same time period. Therefore, for residents of very high-inflation countries, it is often better to have access to global safe-haven currencies to preserve wealth. Libra has the potential to do exactly that, i.e. make access to safe-haven currencies for residents of high-inflation countries not only easy but also convenient.

### Chart 3: Attractiveness of hard-currency investments for investors in high-inflation countries



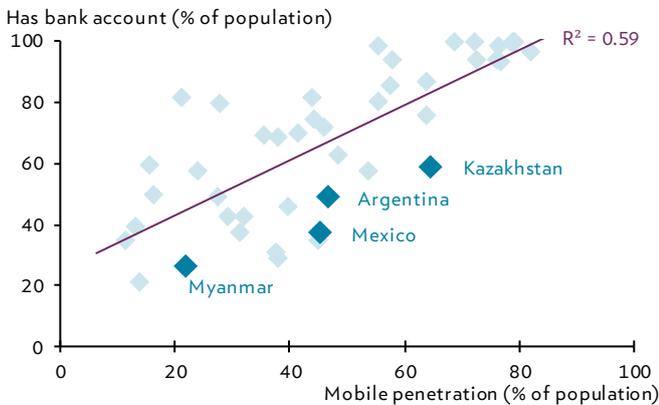
Source: Bloomberg Finance L.P., Julius Baer

### 2) Integrating the underbanked

According to the World Bank, there are 1.7 billion people in the world who do not have a bank account. Access to financial services can assist individuals in breaking out of poverty, as it allows them to carry out investments in their health, education and businesses. It also allows them to better weather financial emergencies that might arise for a variety of reasons, e.g. from the loss of cattle due to disease to the loss of a job due to economic downturns.

Based on current information, the Libra will only require a functioning smartphone and a valid ID for individuals to become part of the financial ecosystem. No physical proximity to a bank branch is required, and no minimum amount of financial assets is needed. We project that the biggest potential for Libra will be in emerging countries where the ratio between mobile penetration and banking penetration is high as compared to developed countries, e.g. Kazakhstan and Argentina.

**Chart 4: Libra targets markets for the underbanked**



**Note:** Dataset limited to top 50 markets in terms of smartphone users  
**Source:** World Bank - Global Financial Index Database 2017; Newzoo - September 2018 Smartphone penetration report, Julius Baer

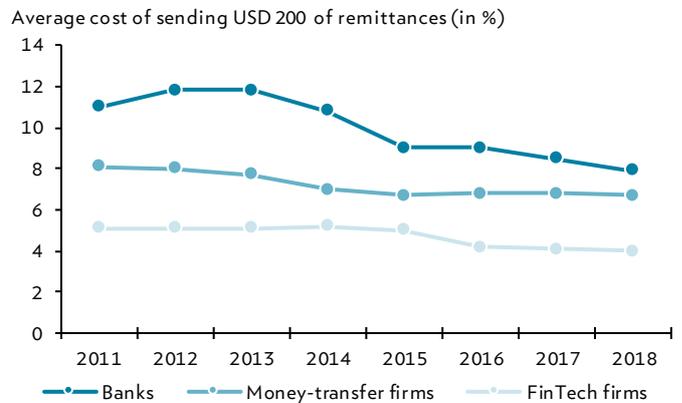
**3) Lowering transaction costs**

The costs of sending money between developed market countries has decreased significantly. Monetary transfers between individuals or small and medium-sized enterprises in G7 states now cost less than 2% of the transfer amount, according to the Economist. The general shift towards digital payments and the rise of financial technology (FinTech) companies are seen as the main drivers for the downward shift in costs. There is, however, a strong discrepancy between the cost of inter-country payments between developed market nations and certain developing market nations. According to the Economist, wiring USD 200 from South Africa to Nigeria can take days and costs over 25%. Cash transfers are even worse value.

Libra has the potential to lower the costs that burden the sender and the recipient of the money. First, if both the sender and the recipient use Libra in their daily lives, no currency exchange needs to be carried out, and hence, no expensive cross-currency spread applies. Second, since Libra will be an integrated and digital solution, overhead costs will be much lower than with traditional money transfer companies that accept cash and operate physical stores, which should result in much lower transfer fees. Therefore, we see the biggest potential for Libra in adding socio-economic value in the remittance space and in inter-country markets between developing nations.

The market for remittances into low- and middle-income countries is massive. The World Bank estimates that the market of foreign workers sending money to relatives back home was worth USD 530 billion in 2018, up 63% compared to 2008. If Libra manages to position itself correctly, it might take a substantial share of this market. A rough back-of-the-envelope calculation (7% of USD 530bn) approximates the market at around USD 37 billion.

**Chart 5: Cost of cross-border payments**



**Source:** Economist, FXC Intelligence, Julius Baer

**The hurdles for Libra**

The launch and success of Libra is far from certain. We see the biggest hurdles for Libra stemming from likely governmental backlashes as well as regulatory scrutiny. However, technical issues around the proposed decentralisation mechanism and a lack of trust in Facebook from consumers will also need to be addressed.

**1) Governmental backlash**

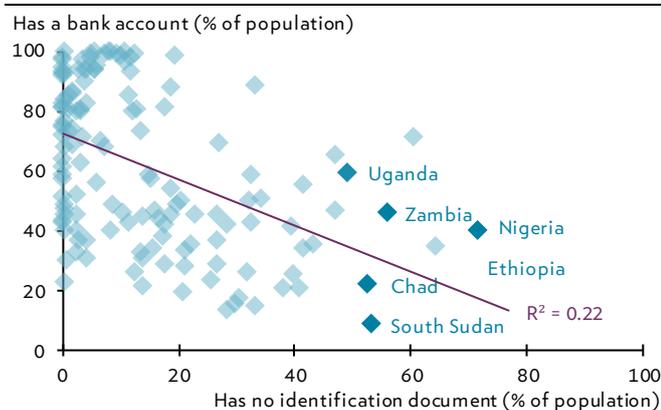
It is predicted that a majority of governments will not have a very favourable stance towards the Libra. There are three main reasons for this assessment:

- If Libra were to become a global currency, it might take away the monetary policy toolkit of central banks in certain smaller countries, i.e., they would not be able to adjust interest rates as effective countercyclical measures, such as lowering interest rates in an effort to void a recession. The only tool left would be for governments in these countries to utilise an expansive fiscal policy in such instances.
- Facebook has a less-than-stellar track record related to data protection, and the Cambridge Analytica scandal strongly diminished general trust in its ability to secure the privacy of its users' data. In July 2018, the UK's Information Commissioner's Office declared that Facebook "contravened the law by failing to safeguard people's identity" and intends to fine Facebook. The US Federal Trade Commission (FTC) enacted a fine of USD 5bn on Facebook for their actions in the Cambridge Analytica scandal. The highest previous data privacy related fine by the FTC was USD 22.5mn that Google had to pay in 2012. The distinct possibility exists that governmental agencies will therefore put further scrutiny on Facebook's subsidiary Calibra.

- Facebook is already a giant. The company has a dominant position in the social media space of a majority of countries and is one of the most valuable companies by market capitalisation in the world. Given that it already holds a solid grip on people's social-media activities across the globe, governments might think twice before allowing Facebook to also get a grip on the financial aspects of people's lives. While Calibra says that financial data and social media data are to be completely separated from each other, one may question whether this might always be the case in the future. One may also question whether Facebook might at some point offer its users the option to link social media and financial data, à la "Would you like to link Facebook and Calibra data to get great discounts on products that fit your lifestyle?"

Initial feedback from governments has generally been more negative than positive. In the United States, the Chairwomen of the House Financial Services Committee Maxine Waters called for a moratorium on Libra development and proclaimed: "It's very important for them to stop right now what they're doing so that we can get a handle on this." According to Russian news outlet Interfax, the Russian Ministry of Finance stated: "Nobody is going to ban Libra. The ruble is our national currency and all operations should be conducted using it." French Finance Minister Bruno Le Maire stated in an interview that it is out of question that Libra will become a sovereign currency, saying: "It can't, and it must not happen." Bank of England Governor Mark Carney said: "We need to have an open mind" and "look at it very closely and in a coordinated fashion". As a more general response to cryptocurrencies, according to news sources, India already began discussing the imposition of serious measures (e.g. jail time) on cryptocurrency users even before the Libra announcement.

**Chart 6: Know-your-Client challenge in integrating the underbanked**



**Source:** World Bank (Global Financial Index Database 2017, ID4D Global Dataset 2018), Julius Baer

## 2) Regulatory challenges

As noted before, to participate in Libra, potential users will not only need a smartphone, but also a valid means of identification. According to the World Bank's 2018 ID (identification document) study, around 1 billion people worldwide lack official proof of identity. Of those 1 billion people, more than 90% live in low-income and lower-middle-income countries. Overall, around 37.9% of the population of low-income countries does not possess a form of official ID, highlighting the fact that the lack of identification is a critical concern for the global poor. As illustrated in Chart 6 below, individuals who do not have a bank account also tend not to have an ID, so the potential for integrating the underbanked is curbed.

Libra users will need a smartphone and an ID.

Even for the individuals who possess an official ID, know-your-customer (KY) and anti-money-laundering (AML) regulations are likely to provide a further roadblock for Libra, which aims to become a financial instrument as well as a tool of financial inclusion for millions of people. Quickly onboarding millions of clients and adequately documenting the legality and origin of funds in developed, but also developing, markets will be a fundamental challenge. We argue that the Libra Association will aim to convince regulators to accept a staggered KYC approach to handle the massive amount of potential participants in Libra. Such an approach would, for example, expect every participant to provide a photocopy of a valid ID to open an account, but nothing more. If clients have more than the equivalent of USD 10 in the account, they would also need to provide a proof of address. If clients have more than the equivalent of USD 1,000 in the account, they would need to provide a detailed proof concerning the origins of the financial assets.

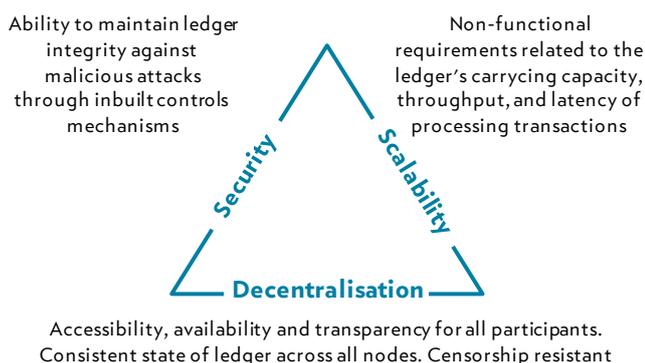
## 3) Technical proof-of-stake problems

As highlighted in a previous subsection, the Libra blockchain hopes to gradually transition to a proof-of-stake consensus after launch. It is uncertain if this shift towards decentralisation will actually occur, since proof-of-stake in itself has its share of not completely solved technical issues. To give a very brief and non-technical overview, there is the blockchain trilemma (also referred to as the scalability trilemma). This trilemma states that between scalability, security and decentralisation, it is feasible to set up a system that satisfies two criteria, but not three. Proof-of-work mechanisms, such as the one used by bitcoin, have security and decentralisation under control, but they struggle with scalability. Proof-of-stake mechanisms have security and scalability under control, but they struggle with decentralisation.

The exact aspects of the decentralisation struggle with proof-of-stake consensus mechanisms are quite technical and go beyond the scope of this report. For any interested readers, we recommend doing a Google search with the terms ‘nothing-at-stake problem’, ‘long-range attacks’, and ‘weak subjectivity’.

We expect that the Libra Association will aim at launching Libra as a centralised solution and then only shift towards a decentralised proof-of-stake solution if the technology become mature enough. There are some interesting prototypes to address the blockchain trilemma through proof-of-stake solutions, such as Ethereum Casper, Peercoin and Nxt, but none has so far demonstrated that they can solve all criticism addressed towards the proof-of-stake consensus mechanism. Proof-of-stake is likely to remain a work in progress for quite some time.

#### Chart 7: The blockchain trilemma



Source: Steemit, ReverseAcid, Julius Baer

#### 4) Lack of trust

Financial services company Jefferies conducted a survey with more than 600 individuals from the United States. 80% of all respondents stated that they were either “unlikely” or “very unlikely” to utilise the upcoming cryptocurrency Libra. The most prominent reason provided was a lack of trust in Facebook, with 45% of respondents citing it as the defining factor in their choice. It remains to be seen whether Facebook will manage to successfully onboard a large portion of its vast existing user base by improving its own reputation and highlighting the legal distinction between its subsidiaries and the Libra Association. This will likely be an uphill battle. The fact that the Facebook subsidiary Calibra and the independent Libra Association have very similar names and logos will certainly not help the case to any casual observer.

This lack of trust, however, is less pronounced in developing market countries according to our estimates. At the end of the day, people need to have faith in institutions whenever they deal with centralised monetary solutions. While Swiss citizens might on average have more trust in the Swiss National Bank than the Libra Association, and US citizens might have on average more trust in the Federal Reserve than the Libra Association, the same might not hold true for individuals in countries where the central banks have failed to provide decent levels of price stability (e.g. Venezuela’s bolivar and Zimbabwe’s RTGS dollar).

#### Whom do you trust more, your own central bank or the Libra Association?

For certain individuals in emerging economy countries, the prospect of having their monetary solution supported by a Geneva-based non-profit organisation with many high-profile members such as Visa and Vodafone might be more appealing than the local central bank. This again highlights our view that we see more potential for Libra in emerging markets than the developed world.

#### 5) Existing competitors

Facebook is by far not the first company trying to enter the mobile payment space. In fact, it is pretty late to the game. Below is a very limited number of existing and established mobile payment providers.

- M-Pesa (owned by Vodafone) is a Kenya-based mobile payment service that was launched in 2007. Kenya has a population of around 50 million people and 20 million are users of M-Pesa. Outside of Kenya, M-Pesa is present in other African markets such as Lesotho, South Africa, and Mozambique.
- Paytm (not listed) is an Indian mobile payment provider launched in 2010 that has 350 million registered users. It is India’s largest mobile commerce platform. Paytm has expanded beyond just being a mobile money wallet and also offers services such as messaging, gaming, and ticket booking.
- WeChat Pay (owned by Tencent) is the mobile wallet of the WeChat app has its roots in China. 823 million WeChat users sent virtual red envelopes, which is the Chinese tradition of gifting money in red envelopes on festive occasions, during the 2019 Lunar New Year celebration.

### Why global banks are not worried today

One of the most surprising aspects around the announcement of Libra was the composition of the founding members of the Libra Association. They include telecom firms such as Vodafone, ride-sharing firms such as Uber and Lyft, as well as the music-streaming service Spotify. However, not a single bank has joined the ranks of the founding members of the Libra Association.

Table 1 shows the profit breakdown of global banks as estimated by Citi in 2019. Based on the Libra white paper, we currently only see ambitions for Libra in the payment space that are specifically geared towards monetary transfers between private individuals. As the table shows, personal as well as small and medium enterprise (SME) payments represent only 4% of the profits that global banks generate. Therefore, even if Libra were to capture a decent fraction of these payments in the long run, the profitability of global banks would likely be affected negatively by a small amount. We assess that in the near term, global banks are facing much stronger headwinds from FinTech companies and ‘neobanks’ (a completely digital-centric bank) than from Libra, as is outlined in the respective white paper.

**Table 1: Profit breakdown of global banks**

	Payments	Savings & Investment	Lending	Capital Markets
<b>Personal/SME</b>	4%	12%	29%	1%
<b>Corporate</b>	3%	6%	21%	5%
<b>IB/Markets</b>	-	3%	6%	10%
<b>Overall</b>	7%	21%	56%	16%

**Notes:** SME = small and medium enterprises, IB = investment banking

**Source:** Citi Research, Julius Baer

However, Libra could start to become a strong headache for global banks if, in addition to becoming a global payment provider, it would then decide to enter the savings, investment and lending space for individuals and SMEs, as those make up more 40% of the profits of global banks. However, given all of the difficulties we have highlighted in previous sections around the deployment of Libra to facilitate payments, we project that payments/savings/investments/lending is not a segment that Libra is going to tackle in the foreseeable future. Nonetheless, we would advise all global banks to keep a close eye on Libra. While establishing Libra as a globally accepted payment platform might prove to be a very long and arduous task (even

potentially impossible), the shift from an established global payment-providing solution to a global payment/saving/investment/lending solution for the personal and SME market might happen quite quickly – and some global banks, particularly the ones with a strong focus on retail clients, might pay dearly should they miss that shift.

### Why global payment providers should be nervous

In its initial stage, Libra will solely focus on providing payments. As such, payment providers have much more to fear than banking corporations at this point in time. However, there are differences in the field of payment providers. We project that credit cards have less downside risk from Libra due to the line of credit function that they possess, their focus on business-to-consumer and their already widespread use in developed markets.

As we have highlighted in a previous section, the major benefits for Libra are in countries that have high inflation rates, low bank-account penetration and high transfer-fee structures. Consequently, companies that provide payment services among developing countries, as well as between developed and developing countries (especially remittance services), are likely to have the most to lose from Libra becoming a global payment solution.

### Conclusion

Libra has the potential to have a lasting impact on the financial world and change the way we view and interact with money. However, it is far from certain whether Libra will fulfil its potential. Due to likely governmental backlashes over regulatory scrutiny and technical hurdles to image problems, it will be a serious challenge to leverage Facebook’s massive user base to create a global financial payment juggernaut. We predict that if the Libra Association manages to establish Libra as a global currency, it will present a substantial challenge for payment providers, particularly the ones who generate a significant portion of their revenues in emerging markets. Global banks have little to fear in the near term from Libra, but they should keep a close eye on it. In the uncertain case that Libra manages to develop into a global payment solution, it might not take long until it starts to expand its horizons into the areas of banking where the incumbent players generate the highest earnings, i.e. the savings, investment and lending space.

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## IMPRINT

### Authors

**Alexander Ruchti**, Next Generation Research Analyst, alexander.ruchti@juliusbaer.com <sup>1</sup>

**Roberto Cominotto**, Equity Research Analyst, Roberto.cominotto@juliusbaer.com <sup>1</sup>

1) This research analyst is employed by Bank Julius Baer & Co. Ltd., Zurich, which is authorised and regulated by the Swiss Financial Market Supervisory Authority (FINMA).

## APPENDIX

### Methodology

Please refer to the following link for more information on the research methodology used by Julius Baer analysts:

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