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Examining Facebook's Proposed Cryptocurrency and Its Impact on Consumers, Investors, and the American Financial System

**Financial Services Committee
United States House of Representatives
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Good morning Chairwoman Waters, Ranking member McHenry and members of the committee. I thank you for inviting me to testify regarding Facebook's proposed Libra token and its effects on consumers, investors and the U.S. financial system.

On a personal note, it is good to be with you once again.

Since I was last before this Committee, I'm now honored to be at Massachusetts Institute of Technology, Sloan School of Management, where I am now a Professor of the Practice of Global Economics and Management. I also advise MIT Media Lab's Digital Currency Initiative and the Ethics and Governance of AI projects as well as co-direct MIT's Fintech@CSAIL. I'm honored to be engaged with many talented colleagues and students researching and teaching on blockchain technology, digital currencies, financial technology & public policy.

I formerly was Chairman of the U.S. Commodity Futures Trading Commission, Under Secretary of the Treasury for Domestic Finance, and Assistant Secretary of the Treasury. I also currently am a member of the New York Fed Fintech Advisory Group and was Chairman of the Maryland Financial Consumer Protection Commission from 2017 - 2019. The views expressed herein, though, are my personal views. I do not advise any financial, technology, blockchain or other companies, nor do I own any cryptocurrencies.

Summary of Policy Considerations

Facebook's proposal to enter the payment space with a digital token, Libra, is an ambitious plan that raises many public policy considerations. Federal Reserve Chairman Jay Powell indicated last week that Libra raises many concerns needing thorough evaluation before Facebook proceeds.

The Facebook Libra initiative, though, once it is fully living within established public policy frameworks, may help spur greater competition in payments, potentially enhancing access and reducing costs. As with any new financial technology, we must protect investors and consumers. We must ensure financial stability. We must guard against illicit activities, such as tax evasion,

money laundering, terrorist financing and avoiding sanctions. We must protect individuals' privacy.

As currently proposed, the Libra Reserve, in essence, is a pooled investment vehicle that should at a minimum, be regulated by the Securities and Exchange Commission (SEC), with the Libra Association registering as an investment advisor. There is some basis, however, to also consider the Libra Reserve as a bank or to apply bank-like regulation to it. At a minimum, though, the Libra Reserve should be restricted in its investments prohibited from making loans.

The risks posed to the rest of the economy if the project were to fail (so-called 'systemic risk') and monetary policy implications largely would be dependent upon the success of the project. Given the sheer reach of Facebook along with Libra Association members, though, it would be imprudent to ignore macroprudential and economic considerations. As Chair Powell said last week "The size of Facebook's network means it could be, essentially, immediately systemically important." The resiliency, risk management and operating policies of both the Libra Reserve and Libra Blockchain will need to be reviewed keeping this admonition in mind.

Facebook's proposed involvement through its new subsidiary, Calibra; the offering of a custodial digital wallet, Calibra Wallet; and the recording of transactions on the Libra Blockchain distributed ledger all also raise important privacy and consumer protection considerations. Full compliance with Facebook's recently announced Federal Trade Commission (FTC) \$5 billion settlement, as well as with the California Consumer Privacy Act (CCPA) and Europe's General Data Protection Regulation (GDPR) are a minimum, but more may be appropriate given the potential to commercialize private consumer financial transaction data along with data that is already amassed on Facebook's vast social and information networks.

Maintaining the new digital Libra token on the Libra Blockchain raises many challenges similar to those Bitcoin and other cryptocurrencies have presented authorities tasked with guarding against illicit activities, protecting investors and ensuring for tax compliance. Cryptocurrencies, though, have given bad actors new ways to conduct old crimes. The challenge of money laundering and tax evasion is still quite large against those using traditional fiat currencies. Plans for Libra trading on electronic exchanges, promotion of app development and competitive digital wallets run on top of the network add to these challenges. Calibra has registered with the U.S. Financial Crimes Enforcement Network (FinCEN), but full network compliance will be a challenge to achieve.

Lastly, while international coordination on policy will be sought, the history of financial innovation shows that regulatory arbitrage often occurs. This has particularly been true in the emerging field of cryptocurrency regulation. Regulatory arbitrage can also be a challenge within a single jurisdiction, particularly when activities arise outside of traditionally regulated entities. To avoid the possibilities of that happening here, it will be important, where possible, to look through to the underlying economics of the Libra activities and regulate them for what they are.

As Indiana poet James Whitcomb Riley wrote over 100 years ago: "When I see a bird that walks like a duck and swims like a duck and quacks like a duck, I call that bird a duck."

Context

In evaluating the economic and public policy implications of the Facebook proposals, I think that we should look at Libra in the context of:

- Trends in payments and fintech
- Cryptocurrency & blockchain technology

I will then discuss Facebook's Libra proposal's economics and finance.

After reviewing this context, my testimony will turn to a detailed review the many public policy considerations of Facebook's proposed Libra Reserve, Libra token, Libra Investment Token, Libra Association and Calibra digital wallet. Lastly, I will share brief thoughts on the discussion draft 'Keep Big Tech Out of Finance Act.'

Trends in payments and fintech

Though moving money electronically has been a feature of finance since the 19th century and the dawn of the telegraph, today the Internet, personal computers and mobile phones have completely transformed means of payments as well as the financial world more generally. We now live in the age of digital money, where the vast majority of commerce and government relies on electronic means to move and record money. We're now fully using digital forms of money with the vast majority of payroll, rents, mortgage payments, consumer credit payments, utility bills, online and retail purchases being conducted electronically. Physical cash and coins have rapidly declined in daily use.

In the U.S., banks, credit card companies, and other parts of big finance, along with the U.S. Federal Reserve dominate payments services. Big tech and fintech companies, around the world and here in the U.S., though, are competing with big finance in the payment space seeking as well to gain market share in the provision of credit, insurance and investment products. PayPal helped lead the way 20 years ago, trying to provide better services, greater access, and lower costs for payment and other financial services.

In this competition, though, big tech firms are set apart due to a collection of network advantages. As the Bank for International Settlements (BIS) wrote in its recent Annual Economic Report big tech's reach can allow them to establish a dominant position due to what the BIS calls the data-network-activities loop or "DNA" loop.

In China, big tech leapfrogged big finance in the provision of payment services. Alibaba Group created Alipay in 2004 for its e-commerce platform, Taobao. China's largest social media platform, Tencent, with its WeChat messaging launched WeChat Pay in 2013 and now has over 1 billion active users. Using their large networks and new technology, Alipay and WeChat Pay bypassed the traditional financial system and together now dominate the Chinese payment market. Their use

of smartphones, digital wallets and QR codes for payments has transformed commerce and banking replacing the need for cards and card readers, significantly disintermediating Chinese banks from retail payments.

Some other countries have seen similar success by tech companies entering the payments markets. Most notably, in Kenya, Safaricom, the country's largest telecom company, launched M-Pesa in 2007 for mobile payments, wallets and microfinance. Nearly 50% of Kenya's GDP is processed over M-Pesa. Korea's largest Internet firm and mobile messaging platform, Kakao, operates KakaoPay and started an on-line bank in 2017 and now has over 10 million accounts with \$15 billion in deposits and \$9 billion in loans.

While the U.S. payment system is still dominated by banks and credit card networks, ever since PayPal launched in 1999 there have been numerous efforts by fintech startups and big tech to enter the payments markets. Amongst the hundreds of startups, some of the most successful have been PayPal, Square, Stripe, TransferWise, Venmo, and Zelle, though most of the current U.S. payment plays have not yet reached mass utilization.

Big tech has made numerous efforts as well. Amazon Pay was launched in 2007. Google Wallet was launched in 2011. Amazon Coin in 2013. Apple Pay in 2014. Starting this summer, partnering with Goldman Sachs and Mastercard, Apple is offering Apple Card, built into the Apple Wallet app on iPhones.

In 2009, Facebook introduced Facebook Credits, virtual currency available in 15 currencies for use in games and other applications, terminating the effort by 2013. Facebook subsequently introduced Facebook Messenger payments in 2015, rolling it out in the U.S., U.K. and France for peer-to-peer & charitable payments. Earlier this year, however, Facebook announced that Facebook Messenger payments would no longer be available (as of this month) for peer-to-peer payments in the U.K. or France. Facebook's WhatsApp messaging service introduced WhatsApp Pay as a pilot program in India in 2018 but is still awaiting approvals to expand the program further. It plans to offer the service in other countries in the future.

This context reminds us that Facebook's proposal is not its first effort by Facebook to be involved in the payment space and far from the first effort by big tech companies to be in payments.

Cryptocurrencies and Blockchain Technology

Money is but a social and economic construct built upon consensus having taken on many forms and technologies over the millennia. Africans used cowrie shells, and on the island of Yap, large disks known as Rai stones were money. The Chinese, Greeks and Romans minted money from bronze, silver and gold. Paper money was an innovation representing a store of value in a central repository. This led to privately issued bank notes and fiat currencies issued by governments. With the coming of the telegraph and Morse code, we had the first electronic money transfers. Today, the principal methods of payments and storage of money are electronic.

As the Internet became commercialized in the 1990s, a payments riddle emerged: could value move on the Internet peer-to-peer similar to how packets of data move without any trusted central intermediary?

Then, largely unnoticed at the nadir of the financial crisis, Satoshi Nakamoto released a nine-page paper on Halloween night, 2008, entitled “Bitcoin: A Peer-to-Peer Electronic Cash System.”

What does this mean for money and finance?

Nakamoto’s innovation, commonly referred to as blockchain technology, establishes a consensus protocol amongst multiple, possibly distrusting, participants on an open ‘permissionless’ network to build an immutable chain of blocks of data (a ‘blockchain’) forming an auditable database. In Bitcoin, that is a record of who owns which coins. This database is secured using cryptography, so every entry can be widely verified.

Regardless of whether Bitcoin and other cryptocurrencies adequately exhibit the three classic characteristics of money – a store of value, a medium of exchange and a unit of account – they do provide a means to move value and run computer code run on computers connected through the Internet without relying upon a central intermediary such as a bank.

Moving value on the Internet ties blockchain technology and cryptocurrencies directly to the essential plumbing of the financial sector, which at its core performs the role of efficiently moving and allocating money and risk within the economy. To date, the principal use of the technology supports a speculative asset class of Bitcoin and other cryptocurrencies. Though no other full scale blockchain applications truly yet exist, many companies, entrepreneurs and technologists are exploring projects in an effort to lower verification and networking costs borne by transacting parties relying on their counterparties or a trusted intermediary to honestly record completion of transactions.

Open permissionless blockchain applications such as Bitcoin where anyone can join the network to validate the transaction records or ledger have also inspired permissioned or private blockchains wherein only a closed set of authorized entities can join the network as validators. With increased competition and innovation in the financial system, blockchain technology – both permissionless and permissioned - offers a catalyst for change by incumbents or as an opportunity for entrepreneurial start-ups, potentially lowering costs, risks and economic rents in the financial sector.

Cryptocurrency tokens’ nearly \$300 billion market cap, though modest in comparison to global debt and equity markets of over \$380 trillion, also has drawn attention from financial sector incumbents due to its volatility, wide margins and public interest. For instance, Intercontinental Exchange, the exchange operator which owns the New York Stock Exchange, is seeking regulatory approval to start a new cryptocurrency trading platform, Bakkt. The large asset manager, Fidelity Investments, has started Fidelity Digital Assets providing cryptocurrency custody and other services to institutional investors.

Many mobile messaging companies around the globe also have projects with cryptocurrencies and tokens as part of their offerings. Korea's Kakao has a blockchain platform, Klatyn and plans to integrate a crypto wallet into its KakaoPay. LINE, Japan's leading messaging app has a crypto token, Link, and has plans to start a crypto exchange (BitMax) for its customers to trade cryptocurrencies. Encrypted messaging app Signal's founder is working on a privacy preserving token, Mobilecoin designed to be used on Signal as well as Facebook messenger and WhatsApp. The other leading encrypted messaging app, Telegram, with an estimated 300 million users worldwide, raised \$1.7 billion in early 2018 through an initial coin offering of its digital token, Gram and launched a crypto wallet in 2018 within its massaging app as well.

Facebook Libra Proposal – Economics and Finance

Facebook is now proposing to create a new token – Libra – to facilitate payments after having had limited success to date with its earlier payment offerings. The proposal comes within a context of big tech firms around the globe – messaging companies in particular – competing with payment solution and cryptocurrency related offerings.

Just as when an architect first shares blueprints for a new structure, particularly one as ambitious as this, many aspects of Facebook's proposal will be up for serious review and lively discussion. Facebook has made many financial, commercial, technical and legal design decisions in formulating its proposals.

I've organized my review which follows around the proposal's key elements:

- The Libra Reserve
- Libra
- The Libra Association
- The Libra Blockchain
- Calibra & the Calibra Wallet

Running throughout the review, I also will focus on the many key design decisions the architects at Facebook have made, though based upon global reactions there are likely to be many changes:

- Using a multicurrency backed digital token as a payment solution
- Promoting this new token as a global digital currency
- Paying no interest on transaction accounts
- Having 2 classes of participants split the economic returns on assets backing the token
- Promoting adoption by offering an investment token earning the float on customer funds
- Using Exchange Traded Fund mechanisms for the issuance and redemptions of tokens
- Recruiting 100 other global organizations to be part of the effort
- Setting up an association for those members' collaboration as a non-profit in Switzerland
- Using a permissioned distributed ledger for the accounting and operating ledgers

- Developing a new programming language to facilitate apps running on top of the network
- Offering a new digital custodial wallet app for storing, sending and receiving the tokens
- Setting up a wholly owned subsidiary to offer services and custody customer tokens

Libra Reserve, a Multicurrency Short-Term Bond Fund

Facebook has proposed pooling customer funds within a new entity, the Libra Reserve. It is anticipated that a special purpose vehicle will be set up solely to receive, hold and manage the Libra Reserve funds. Fiat money received would be converted into a multicurrency basket and invested in bank deposits and short-term government securities from multiple jurisdictions. Facebook has indicated that this would include investments in U.S. dollar, the British pound, the euro, and the Japanese yen. Economically and financially, the Libra Reserve would in essence be equivalent to a pooled investment vehicle focused on multicurrency short term government bond investing.

There are likely a number of commercial and technical reasons why Facebook may have chosen to use a multicurrency backed digital token as a payment solution. It appears that foremost they decided to have some form of stable value token backed by fiat currencies. If they wanted to limit their offering to only one token, the alternatives seem to have been either a U.S. dollar backed token, or one backed by a basket of currencies. As a global company with users in every country around the globe, Facebook may have chosen that a dollar backed token would not have sufficient customer appeal. Alternatively, they could have (or in the future may) proposed a suite of single fiat backed stable value tokens. The implications of the design choice are that consumers will bear currency and market risk when using the token, potentially limiting adoption.

Facebook has proposed at least two classes of participants in this short-term multicurrency government bond fund, in some ways not all that different, other than the zero-interest rate, than intermediate-term global bond funds offered by PIMCO, Templeton or Vanguard.

The first set of participants in the Libra Reserve will receive Libra Investment Tokens ('LIT'). Facebook proposes that holders of this first token – LIT – will be entitled to the stripped-off interest earnings of the fund (possibly up to a cap), net of operating costs of the Libra Reserve and the affiliated Libra Association.

The second set of participants in the Libra Reserve will receive the second token, Libra, in return for their investment of fiat funds. Facebook proposes that the Libra token be backed only by the principal of the underlying investments of the Libra Reserve not receiving any interest returns from these investments. Libra tokens could be redeemed and issued directly with the Libra Reserve through 'Authorized Resellers' of the fund. The proposed Authorized Resellers would perform a function through a mechanism very similar to that used by 'Authorized Participants' for U.S. exchange traded mutual funds (ETFs). Authorized Resellers – like Authorized Participants in ETFs – would be the only parties authorized to transact directly with the Libra Reserve, converting customers fiat currency to newly issued Libra or to facilitate redemption of Libra in exchange for fiat currencies. The Libra Association is in discussions with cryptocurrency trading firms (likely to

be hedge funds and high frequency trading firms) and banks to become Authorized Resellers of Libra.

The public will also be able to purchase or sell Libra to other members of the public, either directly, through over-the-counter trading desks or on secondary exchanges. The Libra Association will encourage regulated electronic exchanges around the globe to list Libra. Regulations, supervision and enforcement of such electronic exchanges, though, will vary greatly depending upon jurisdictions, particularly if Libra is listed on crypto exchanges many of which are rife with fraud, manipulation, false volumes and scams.

Though designed to be a so-called 'stable value' token, Libra's value will clearly fluctuate with the multicurrency basket of deposits and securities underlying the Libra Reserve. The Libra holders also bear market, credit and interest rate risks with regard to the underlying bank deposits and government securities. Any market fluctuations in the prices of the underlying securities due to changes in spreads, yields or correlations of the various countries' securities are born by the Libra token holders. Any gains or losses on the trading of the securities – to meet redemption requirements or otherwise – would be that of the Libra holders. Further, if one of the banks (or governments) defaults, the Libra holders will bear that risk. Whether it be gains or losses due to defaults, currency, interest rate or other market moves, by design the Libra holders ultimately bear those valuation risks similar to a mutual fund holding. As Facebook discloses in its proposal 'Libra is not a "peg" to a single currency' and 'as the value of the underlying assets moves, the value of one Libra in any local currency may fluctuate.'

Essentially the holders of Libra tokens are a 2nd class of investors in the Libra Reserve.

There also may be in essence a 3rd class of participants in the Libra Reserve – the Libra Association and indirectly, its members. To the extent that LIT's share of the Libra Reserve's interest earnings are capped, the excess may go to the Libra Association.

Facebook has proposed that the Libra Reserve's assets be held by an internationally diverse group of custodians – commercial banks and possibly central banks – with at least investment grade credit ratings. Facebook has not yet proposed some other customary limitations on custodians – such as a ban on re-hypothecation or use of custodied assets in affiliate or third-party financing transactions.

Substantively and economically, the Libra Reserve is a pooled investment vehicle. It is offering two classes of participation in two different returns & risks: with one class - LIT holders – getting the returns and bearing the risks of net interest and the other class – Libra holders – getting the returns and bearing the risks of the principal investments. Libra holders certainly bear currency risks – and based upon the underlying markets for & investment management of the Libra Reserve – bear capital risk as well.

Furthermore, LIT and Libra holders participate jointly in a comingled multicurrency investment pool with each class' return dependent upon the returns of the other. Basic finance tells us that

on average, the more principal risk that a bond portfolio takes, the higher the expected average interest returns. Thus, given the design – with the LIT holders participating in interest only returns and the Libra holders participating in principal only returns – there is an embedded and unavoidable financial conflict within the structure.

Libra Reserve, a Bank

In the 19th century, private actors were issuing private forms of money and using those funds to invest in loans and other assets. These private actors were called banks and the money was called banknotes. Federal chartering of banks occurred in the 1860's when we as a nation created the Office of the Comptroller of the Currency. The Libra Reserve – proposing to issue a private form of money, process payments, store value, and lend the proceeds to banks (as deposits) and governments (as debt securities) – has many similarities to banks, which create, process, store and lend money.

Thus, there is some basis to consider the Libra Reserve as a bank or to apply bank-like regulation to it. At a minimum there should be restrictions on Libra Reserve's investments and prohibition on its ability to lend or operate as a fractional bank.

Libra, Special Drawing Rights & Adoption

The design decision of Facebook to have a multicurrency backed token has parallels to the International Monetary Fund's Special Drawing Rights (SDRs). Originally priced in reference to gold, SDRs were redesigned after the collapse of the Bretton Woods system in 1973. The SDR references a basket of currencies, now including 5 – U.S. Dollar, the Euro, Chinese Yuan, Japanese Yen and the Pound Sterling. Although SDRs have no commercial or retail uses, an SDR is an international reserve asset.

While hard to predict adoption for the Libra token, there are many economic reasons why multijurisdictional currencies have failed to take hold in the past. The Libra token is designed to address gaps in domestic and cross border payment systems. In advanced economies, though, few merchants are likely to want to take unnecessary currency risks in their day-to-day business. In less developed or smaller economies, though, there may be more benefits to merchants and consumers to transact in a token not tied to the local economy. Many countries have experienced so-called 'dollarization' with the U.S. dollar (or other strong currency) is used in addition to or instead of the local fiat currency. If Libra were successful, it might see adoption in developing or emerging market countries that might otherwise move towards dollarization, in what may come to be known as 'Libralization.'

In advanced economies, though, for the Libra token to have economic viability, I think that merchants and the broader public will seek mechanisms to lower multicurrency risk. For merchants to say 'we accept Libra here' they will require software that converts Libra, almost instantaneously, to their local fiat currency. They will want to continue pricing their coffee in local

fiat currency, with a customer's mobile phone accessing an app (with fees) behind the scenes seamlessly exchanging Libra in their digital wallet for whatever local currency is needed.

Otherwise, Facebook and the Libra Association may consider offering a suite of single currency backed stable value tokens in addition to (or instead of) Libra's multicurrency token. Though designed differently, Bitcoin and other cryptocurrencies have seen very little adoption for retail payments in the developed world.

Libra Association

The Libra Association has been set up as a non-profit entity in Switzerland. Per Facebook's proposal the Libra Association's role is to 'evolve and scale' the Libra network and Libra Reserve. According to Facebook's recent letter to Senate Banking Committee Chair Mike Crapo and Ranking Member Sherrod Brown "The Association will be responsible for setting rules for its members, operating the Libra Blockchain, issuing the digital currency, and managing the reserve that backs the digital currency."

It is proposed that Libra Association membership grow to 100 members, with no entity – including Facebook - controlling more than 1% of the voting governance. Though set up as a non-profit entity, Facebook's proposal refers to distributing Libra as incentives to qualifying members.

The Libra Association would have managerial responsibility for the Libra Reserve, setting investment allocations and guidelines. The initial currency allocations of the Libra Reserve will be announced next year before launch. Afterwards, it will take a supermajority 2/3 vote of the Libra Association council to revise the composition (asset allocation) of the basket of allowed jurisdictions and currencies for investments. While it may yet be but aspirational, Facebook also has described the Libra Association's approach to the management of the Libra Reserve as, "very similar to the way in which currency boards (e.g., of Hong Kong) have operated."

At a minimum, though, the Libra Association authorities will be to operate as an investment advisor to the Libra Reserve. At the maximum, the Libra Association would be making decisions akin to currency boards which may affect local economies, particularly in smaller or less developed economies around the globe. Depending upon the success and scale of the Libra Reserve, the Libra Association might influence individual countries government debt issuance, or monetary policies.

Many large international organizations will be founding members of the Libra Association – including payment companies, venture capital firms, retailers, ride sharing companies, telecommunications firms and blockchain related firms. Membership criteria are based various measures of size. For instance, for businesses, the evaluation criteria include measurements by market value, customer balances, scale, and brand leadership.

While Libra Association membership and LIT investment may overlap, it is not proposed that either be a condition of the other. It is anticipated that some Association members will not invest in LIT and that some holders of LIT will not be Association members.

Libra Blockchain

For recording Libra transactions and account balances, Facebook has proposed using a distributed database. Building upon recent developments in blockchain technology, Facebook has developed open source software called 'Libra Core' to operate what it calls the 'Libra Blockchain.' It would be maintained by a distributed network of authorized and permissioned validator nodes. Validator nodes will run a newly written consensus protocol 'LibraBFT' to execute and store transactions along with an updated state of the entire Libra database. Though the technical paper says that 'LibraBFT is designed as a proof-of-stake system, where participation privileges are granted to known members based on their financial involvement,' it appears that initially it might operate as a proof-of-authority system, where validator privileges are granted on identity.

Libra ownership and programmable resources on the database will be authenticated using asymmetric cryptography and private keys. Asymmetric cryptography, established in the 1970s with the help of MIT faculty, revolutionized encryption and has made possible much of what we now do daily on the Internet. In asymmetric cryptography, private keys are kept secret and are paired with public keys which help authenticate transactions or encrypt messages. Satoshi Nakamoto relied on asymmetric cryptography as one of the two essential cryptographic primitives used to secure a blockchain network. Facebook has also proposed a new custom-built programming language 'Move' for developers to create apps (using so-called 'smart contracts') that would run on top of the Libra Blockchain.

Given the actual design of the Libra Blockchain, there are some lively debates amongst crypto enthusiasts and computer scientists as to whether the software is truly blockchain technology and whether the Libra token is a cryptocurrency. While I will pose some of these questions for students at MIT this Fall, these questions are less relevant to the important public policy considerations raised by the Facebook proposals. Regardless of the vocabulary we use to describe the underlying technology, the Libra Blockchain will be a shared database system designed to record transactions and balances of Libra maintained amongst a closed group of permissioned large organizations. Economically, Libra will be a digitized representation of a unit interest in the Libra Reserve, a multicurrency bond fund.

Calibra & Calibra Wallet

Facebook has set up a wholly owned subsidiary, Calibra, to be a member of the Libra Association and to build and offer services in support of the Libra network to Facebook members and the broader public. Calibra's initial product offering is a digital wallet by the same name, Calibra. (For clarity, reference herein to the digital wallet will be 'Calibra Wallet' and to the company simply as 'Calibra.')

The Calibra Wallet will be usable directly within both WhatsApp and Facebook Messenger. It also will be offered as a stand-alone app in Apple's App Store and Google Play.

Calibra Wallet will be a custodial wallet storing, sending and receiving Libra tokens. As a custody wallet, that means that the company, Calibra, would take control of all of the underlying Libra

tokens and related private keys. A custody wallet has tradeoffs for customers. On the one hand, it enhances user experience in that they no longer have to worry about losing a private key. On the other hand, it subjects customers to the risk that the wallet operator may lose or misuse the customer funds. It also subjects customers to the counterparty risk of the wallet operator defaulting. Calibra has not yet indicated any restrictions on its custody of such customer Libra tokens.

To promote competition, encourage development on top of the Libra Blockchain and widen use of the Libra token, the Libra Blockchain also will allow so-called 'non-custodial' or 'self-custodial' digital wallets whereby individuals are responsible for their own private keys. For a variety of operational and security reasons, though, Facebook chose to design its Calibra Wallet as a custody wallet.

Calibra is registered as a money services business with the FinCEN. It has announced that all account users of the Calibra Wallet will be verified by a government-issued ID.

Policy Considerations

As with any new financial technology, we must still protect investors and consumers. We must ensure financial stability. We must guard against illicit activities, such as tax evasion, money laundering, terrorist financing and avoiding sanctions. We must protect individuals' privacy. I will now review in detail Facebook's proposal in light of these various public policy considerations.

Libra Reserve, Investor Protection and Systemic Risk

Substantively and economically, the proposed Libra Reserve will operate as a pooled investment vehicle. A reading of relevant U.S. law, the Investment Company Act of 1940 (the "40 Act") is consistent with the Libra Reserve being a unit investment trust or a mutual fund. If the SEC thought it unclear, though, I would recommend amending the law to clarify that an investment vehicle such as the Libra Reserve be appropriately covered under the law.

There are also valid reasons why some jurisdictions around the globe might choose to regulate the Libra Reserve as a bank. In the 19th century, during the 'Free Banking' era, many private entities issued private forms of money in the U.S., using the proceeds to make loans and invest in other assets. Though the money was called bank notes, the issuers included states, private banks, railroads, stores and even some individuals. Such free banking existed in many other countries as well, often ending after one or a series of financial crises. Federal chartering of banks in the U.S. occurred in the 1860's when we created the Office of the Comptroller of the Currency.

Similarly, the Libra Reserve - proposing to issue a private form of money, process payments, store value, and lend the proceeds to banks (as deposits) and governments (as debt securities) - has many similarities to banks, which create, process, store and lend money.

Facebook anticipates that the Libra Association will be licensed or have similar authorizations around the globe as an issuer of digital currency. Many jurisdictions have adopted electronic money (e-money) licensing and regulatory regimes, to protect consumers while promoting competition in electronic payments. For instance, Europe adopted an E-money Directive (EMD) and subsequently the Payment Systems Directives (PSD and PSD2) setting rules for e-money institutions and payment services. In the U.S., while money transmission services must comply with FinCEN rules, they are largely regulated and supervised through state-level money transmission laws. Treating the Libra Reserve and Libra Association, though, with all their complexity and global reach through a patchwork of state money transmission laws, in the same manner as Western Union or MoneyGram is clearly unsatisfactory.

The systemic risk issues caused by U.S. money market funds in the midst of the 2008 financial crisis are a reminder to bear in mind when considering appropriate regulation for the Libra Reserve. Though it held different assets than proposed for the Libra Reserve, one \$65 billion fund, The Reserve Primary Fund, nearly caused a run on money market funds when it broke the buck. Only an extraordinary Guarantee Program by the U.S. Treasury stemmed the tide. Decades old money market regulations had proved to be an Achilles heel to our economy at that critical moment.

Regardless of whether the Libra Reserve is regulated as a pooled investment vehicle or a bank, it's important that there are clear investment restrictions on how the underlying assets are managed. Facebook has indicated that there will be a set of investment restrictions set by the Libra Association, but it is important that there are federally mandated eligible investment limitations, liquidity requirements, a ban on lending or fractional banking and operating guidelines transparently set out in regulation.

Other countries have grappled with similar policy challenges.

In China, when big tech companies Alibaba and Tencent offered payment solutions, the Peoples Bank of China, the central bank, said that those companies had to register as financial companies, and placed certain restrictions on the investment of the underlying funds. Initially the tech companies could earn significant revenue, though, through investing funds in mutual funds, select loans and other wealth management products, after depositing funds (20% in 2017, 50% in 2018) in commercial banks as well. More recently, the People's Bank of China placed greater restrictions on the investments, clearing and custody of customer funds, cutting the profitability of the big tech companies. This year's changes now require that 100% of third-party payment providers' customer funds be placed in non-interest-bearing reserves with the central bank.

Kenya grappled with the same issues when Safaricom got into the payment space with M-Pesa. The banking authorities ultimately required Safaricom to place the funds in a dedicated trust and not be lent to anyone – operating as a 'narrow bank'. The regulators further required that 100% of the funds be deposited in the banking system in Kenya.

These narrow set of investment restrictions set in both China and Kenya are illustrative in how public officials have proceeded in similar circumstances of big tech entering the payments space

and issuing a private form of money to protect consumers and guard against systemic risks. At a minimum, policy officials should consider for the Libra Reserve the investment, liquidity, transparency, auditing, governance, investor protection and other prudential criteria as set out in SEC rules for government money market funds. The potential scale and scope of the Libra Reserve, however, may dictate that the fund have more restrictive provisions than these.

Libra Blockchain, Payments Infrastructure & Systemic Risk

Federal Reserve Chairman Jay Powell said last week “The size of Facebook’s network means it could be, essentially, immediately systemically important.” On the same day, Bank of England Governor Mark Carney similarly said, “If it’s successful, it becomes systemic because there are a large number of users.”

Payment systems act as a critical public infrastructure, for which there are many interested parties well beyond the users and owners of a system. Thus, governance and regulations become important so that private actors best internalize the public good nature of the payment system. Thus, while there are real uncertainties about broad commercial or retail adoption of the multi-currency backed Libra token, given that the Libra Blockchain might in the future grow into a critical payments’ infrastructure appropriate, prudential and operating standards are appropriate prior to its launch. The Federal Reserve oversees payment systems in the U.S. and international standards are set by the Committee on Payments and Market Infrastructures.

Libra Association, Libra Reserve, Monetary Policy & Governmental Debt Management

Facebook has described the Libra Association’s approach to the management of the Libra Reserve as, “very similar to the way in which currency boards (e.g., of Hong Kong) have operated.” While this may yet be but aspirational, depending upon adoption of Libra and eventual success of the overall project, the analogy is an important consideration. The Libra Association would be a private-sector actor making decisions which, depending upon scale, could possibly affect the execution of monetary policies and governmental debt management in countries.

Throughout the history of money, the world has seen many countries set up currency board regimes. Facebook’s proposal, though, has no direct analogy as it would be run by an association or private-sector actors. To the extent some developing economies that might have dollarized instead turn to the Libra token, what I might call ‘Libralized’ or ‘Libralization’, these economies would be reliant in part on the Libra Association for its monetary policy.

Thus, the proposal raises many public policy issues around governance, transparency, and the relationship to central banks and finance ministries. Furthermore, it will be important to ensure that Libra Association members and management not be able to trade on or profit from the deliberations of the association regarding basket allocations and investment decisions.

In addition, Facebook has indicated that they will be working with central banks to set up direct reserve accounts in some countries. In the U.S., such access comes with many prudential

restrictions and is limited to regulated banks and select systemically important payment and clearing organizations. In China big tech payment apps Alipay and WeChat Pay are mandated to keep their transaction balances in non-interest-bearing central bank accounts. Access to direct central bank reserves and accounts should not be considered lightly. Facebook's indication that it is working to achieve some direct accounts with central banks, also raises questions as to whether Facebook is also seeking access for the Libra Reserve to various central bank lending authorities, such as through the U.S. Federal Reserve's discount window. Such an approach in the U.S. would be an extraordinary departure from long-standing discount window policies.

Libra, Libra Investment Token & Investor Protections

There will be debates on whether Libra is a security under relevant U.S. law, including the '40 Act, the Supreme Court's 'Howey Test' and the Supreme Court's 'Reves family resemblance Test'. While those debates might technically be interesting, they are a bit of a red herring. It's unambiguous that LIT is a security as it will receive a net return based upon interest on the Libra Reserve. Looking through to the economics, the Libra token is part of the same pooled investment vehicle and bears multicurrency and market risk. Further, investor protection will be just as important for the proposed Libra token as it is for investors in international bond funds or in commodity ETFs such as gold, silver, or oil ETFs. I also believe that each Authorized Reseller of the Libra token would need to be a registered broker dealer.

Some might ask: what are the implications for other so-called 'stable value' tokens? While I think that might be an interesting question for some single currency backed tokens – like the US Dollar Coin (USDC) issued by Coinbase and Circle – that's not the circumstance here. While holders of USDC and other single currency backed tokens bear forms of operating and counterparty risks, holders of the proposed Libra token will rely on the reserve management guidelines of the Libra Association and asset management of others – even if set up like a passive fund - for the value of Libra tokens. In both the multicurrency case as proposed for the Libra Reserve and the single currency stable coins, though, there are similarities to investments made in money market funds – with just one exception: holders aren't being paid interest on the underlying investments. The debate about other stable value tokens, though, should not confuse what Libra is – a digitized (tokenized) interest in a multicurrency pooled investment vehicle.

Libra & Tax Compliance

For tax purposes, the Internal Revenue Service confirmed once earlier this year in guidance that virtual currencies, such as Bitcoin, are to be treated as property not as currency. Thus, someone who receives it for services must record as revenue the fair market value of the token. Taxpayers are also required to report gains or losses on any exchange or use of virtual currencies. Under earlier IRS and FinCEN guidance, Libra would be considered a virtual currency and similarly be treated as property, not as a currency.

The IRS might wish to update rules such that crypto exchanges and digital wallets, particularly custodial wallets such as Calibra Wallet include software to facilitate tax compliance and reporting of transactions over a certain size to users, such as brokerage forms 1099-Bs.

Libra Association, Calibra Wallet & Custody of Funds

As the Libra Association is the entity through which the Libra Reserves are managed, it is economically equivalent to an asset manager. It should be required to register as such under the '40 Act. The custody of funds for the Libra Reserve should also comply with the SEC custody rules, 'Custody of Funds or Securities of Clients by Investor Advisers'.

In addition, as Facebook envisions that the Calibra Wallet will be a custodial wallet, it is appropriate that rules be in place to guard against Calibra's use or potential abuse of such customer funds. Rules for segregation, against re-hypothecation and robust cybersecurity would be appropriate. The SEC's Customer Protection Rule (Rule 15c3-3) and recent staff statement on Broker-Dealer Custody of Digital Asset Securities would be relevant to these considerations.

Libra Network, Calibra Wallet & Guarding Against Illicit Activity

Calibra has announced that all account users of the Calibra Wallet will be verified by a government-issued ID. Facebook has also said that the Libra Association will encourage listing of Libra on regulated electronic exchanges throughout the world.

Guarding against illicit activity – keeping all Libra transactions within the perimeter of anti-money laundering (AML), counter terrorism finance (CTF) and know your customer (KYC) regulations – will be far more challenging than the two requirements alone will address.

The biggest technical challenge presented by blockchain technology is that tokens representing value can be moved digitally with the use of the related cryptographic private key. This ability to resist transactions being denied, delayed or deleted (so-called 'censorship resistance') is a key part of the economics and benefits of the technology. Thus, cryptocurrencies have given bad actors new ways to conduct old crimes. Dark markets conduct sales of illegal drugs and other contraband using cryptocurrencies. State actors, such as Venezuela and Russia, have used crypto finance to undermine U.S. policies. Cryptocurrencies also have added new challenges to global tax compliance.

For a host of commercial and technical reasons the Libra network design allows for the 'self-custody' of Libra token private keys. The Libra design also anticipates vibrant competition from companies creating applications run with so-called 'smart contracts' on top of the Libra Blockchain as well as creating digital wallets other than the Calibra Wallet.

Once someone owns Libra – even individuals who have cleared through various Bank Secrecy Act law provisions – they will be able to take custody and control the cryptographic private key for their Libra. While Facebook's digital wallet, Calibra, is a so-called 'custodial wallet', in which

Calibra will control users' private keys, competitive digital wallet will provide self-custody of Libra private keys. With this design, and the goal of competitive app development, it will be quite challenging to limit an individual's ability to move their digital token to someone who may not be within the 'AML perimeter.'

It's hard to maintain any digital token fully within an AML perimeter, when individuals can transact with numerous apps, crypto exchanges and OTC trading desks around the globe. It is simply unlikely that all of these transactions will stay within a perimeter in which everyone is properly cleared through a KYC check as well as not on a sanctions list. This is particularly challenging as there is a wide variation on how jurisdictions regulate and monitor exchanges, digital wallet providers and for money laundering.

There may be ways to lessen the leakage of Libra outside of a compliance perimeter – all of which, though, would have commercial or technical challenges. For instance, every authorized reseller could be required to register with FinCEN. All exchanges listing Libra could be required to agree to comply with U.S. Bank Secrecy Act requirements or comparable requirements. Far more challenging would be considering limiting app development to only those performing KYC and AML requirements within the app. Law enforcement agencies and regulators around the globe may find the Facebook proposal presents opportunities to set standards that go beyond this application to other cryptocurrency networks.

A more disruptive, but potentially tighter possibility might be to consider if the Libra Blockchain could be modified such that digital ID management could be handled centrally as a condition of transactions. This would be counter, however, to the spirit of decentralization Facebook seeks to harness in the creation of the Libra Blockchain.

Calibra, Libra Blockchain & Privacy

Facebook's Libra proposal comes in the midst of important public policy debates on how best to protect consumers and their data privacy in the face of rapidly advancing technologies and data analytics. Payment system providers and other financial services firms, such as Visa, Mastercard, and others use transaction data, machine learning, deep learning and other analytic methods to discern an increasingly nuanced picture of trends, from the macro market trends to the hyper-local, including detailed analysis of personal behavior for each one of us.

These issues are ever more relevant given Facebook's history of mishandling users' personal information as evidenced by its recent settlement and \$5 billion fine with the FTC and the UK Information Commissioner Office (the UK Data Protection Authority). Calibra, as a 100% owned subsidiary of Facebook, might give Facebook an ever-greater reach into each of its customers' identifications. Combining the reach of a big tech firm such as Facebook, already with its extraordinary global information and social network – along with that of a broad new financial network of Libra could present significant commercial opportunities for Facebook, but also raise additional risks for consumers.

These data privacy issues will arise even though Calibra has indicated that “aside from limited cases, Calibra will not share account information or financial data with Facebook or third parties, without customer consent.” We know that many of the most intrusive privacy practices of concern to privacy regulators have actually been subject to some form of consumer consent. So, it will be essential to conduct a more thorough analysis of what uses of Libra data should be allowed and which uses should be prohibited. How would such restrictions be monitored and enforced? What are the limited exceptions and might Calibra broadly seek customer consent in the form of standard user agreements? It would be likely that Calibra would want to commercialize this data. At a minimum, without sharing the raw transaction data from customers’ Calibra Wallets, it would still likely analyze such data to earn money either through advertisements or by offering targeted services to wallet holders.

Calibra would need to comply with the recently passed CCPA and Europe’s GDPR. Facebook has announced that the Libra Association “cannot, and will not, monetize data on the blockchain,” and will be regulated by the Swiss Federal Data Protection and Information Commissioner for the purposes of data and privacy protections. In any regard, the Libra Blockchain as a distributed ledger for recording consumer financial transactions should seek to comply with GDPR, CCPA and any relevant Federal privacy standards.

Keep Big Tech Out of Finance Act

The Committee also asked for input on the discussion draft ‘Keep Big Tech Out of Finance Act’ which provides that large platform utilities would not be able to own financial institutions. Large platforms are defined as those with \$25 billion in revenues and predominantly in the business of offering an online marketplace, an exchange, or a platform for connecting third parties. The draft appears, though, to allow large tech platforms to continue to innovate and compete with financial firms by contracting with un-affiliated financial institutions for the provision of financial services to their platform users.

As the BIS wrote in its recent Annual Economic Report, “the entry of large technology firms (“big techs”) such as Alibaba, Amazon, Facebook, Google and Tencent into financial services, including payments, savings and credit, could make the sector more efficient and increase access to these services, but also introduces new risks.”

The discussion draft’s prohibition on big tech owning financial institutions is one alternative Congress and regulators might consider in balancing how best to promote competition in the provision of financial services while lowering the risks from big tech affiliations. The spirit of the discussion draft also is consistent with long standing U.S. policy separating banking and commerce. Further, history tells us that once any part of a complex financial institution fails, there is generally a run on the liabilities of all of its affiliated companies. A run on a financial institution might through contagion bring down an affiliated large tech platform and a failing large tech platform might bring down an affiliated financial institution. Prohibiting ownership affiliations between large tech platforms and financial institutions might lower potential systemic risk of such affiliations.

Conclusion

In conclusion, Facebook's ambitious proposal to enter the payment space with a digital token, Libra, raises many significant public policy considerations. These range from investor protection to privacy, systemic risk, guarding against illicit activity, monetary policy, government debt management, tax compliance and consumer protection. As Federal Reserve Chairman Powell said last week, issues "are going to need to be thoroughly and publicly assessed and evaluated before this proceeds." The Facebook Libra initiative, though, living fully within established public policy frameworks, may help spur greater competition in payments, potentially enhancing access and reducing costs.

Thank you again for inviting me today, and I look forward to your questions.