



CENTRAL BANK OF THE FUTURE



Central Bank of the Future

Project Brief & Overview

Produced December 3, 2018

Authors

Adrienne A. Harris
adrienah@umich.edu

Michael S. Barr
msbarr@umich.edu

The authors thank the Bill & Melinda Gates Foundation for their support of this research. Thanks are also due to the research assistants at the Center on Finance, Law & Policy, especially Jennifer Chasseur, Charmaine Chua, Jessica Kaplan, Safia Sayed, Karin Thrasher, Emma Waitzman, and Michael Xu.

Center on Finance, Law, and Policy
University of Michigan
Weill Hall Suite 5211
735 S. State St.
Ann Arbor, MI 48109

<https://financelawpolicy.umich.edu/central-bank-research>

© Center on Finance, Law, and Policy 2019.
All rights reserved.

ABSTRACT

This paper was drafted at the inception of the Central Bank of the Future research project as a brief memo and overview of ideas. It is intended to provide background supporting the project's intent and importance. The brief details the approach University of Michigan faculty will take, an overview of some areas of inquiry they will pursue, and some specific examples of how central banks might evolve over the next 5-10 years, based on avenues currently being pursued by countries that have made financial inclusion a priority.

INTRODUCTION

We are excited about the opportunities a technologically powered central bank may bring. We would like to explore a new role and design of a central bank that would enable development of inclusive financial systems and inclusive digital economies that serve all, including the poor.

Our lens for examining the future of central banks is the changing nature of finance, driven by technology. How should central banks be re-thought in light of technological change?

OUR APPROACH

The Bill & Melinda Gates Foundation/Financial Services for the Poor team has given a two-year research grant to the University of Michigan's Center on Finance, Law & Policy to work on this agenda. The research will be led by Michael Barr, Joan and Sanford Weill Dean of the Ford School of Public Policy and Adrienne Harris, Gates Senior Research Fellow, Center on Finance, Law & Policy and Professor of Practice, Ford School of Public Policy.

Areas of inquiry will include (but are not limited to) the following:

1. Do the three policy functions of the modern central bank—monetary policy, payments system oversight, and financial institution supervision – contribute to financial inclusion, poverty alleviation, and a more inclusive economy? What could be improved?
2. The financial sector is critical to the functioning of an economy, and central banks are core actors in driving stable economic growth. How would the design and function of central banks change if the remit included development of inclusive financial systems, inclusive growth, and/or poverty alleviation?
3. Do we need a new approach for regulating digital products or a cashless economy?
4. How might technology strengthen a central bank's ability to promote inclusion?
5. Does the central bank have a role to play in promoting innovation?

6. Gender specific implications: What would be different if women designed the central bank of the future? What would be different if we were to design a central bank with an aim for advancing women and girls?

This research project will consider how the role of a central bank could evolve in the future, enabling it to make greater contributions toward financial inclusion. The research is also meant to identify technologies, processes, or tools that could benefit a central bank in supporting public policy objectives related to inclusion, and consider whether philanthropy might have a role to play in supporting the development of those tools.

A key output of this project will be a policy paper outlining potential future designs for a central bank and potential pathways for reaching that future state. Over the next two years we plan to engage standards-setting bodies, central banks and other financial regulators and policymakers, as well as futurists and technologists, and other financial ecosystem stakeholders, as part of the research and analysis.

IMAGINING THREE FUTURE STATES OF A CENTRAL BANK (IN 5-10+ YEARS)

While we do not intend to prejudge the outcome of this research, we have included below three specific examples of possible future states of central banks in countries with a financial inclusion priority. These examples are based on early discussions we already have conducted with stakeholders around the world, but by no means constitute a comprehensive scope for the project. We will continue to refine and expand the list of potential avenues for central bank involvement in promoting financial inclusion using advances in technology. In addition to progress on expanding the regulatory perimeter, building a pro-poor payments infrastructure, and adapting to changes in the digital economy, we imagine a broad range of activities that central banks and other regulators may engage in to advance financial inclusion.

1. Activity or products-based regulation vs. legal banking charter or entity-based regulation.

[Current being envisioned by Monetary Authority of Singapore¹]

- If fintech is unbundling the financial services value chain, then policymakers can “unbundle” relevant laws and regulations to apply similar rules to the type of service rather than the type of entity.
- Full unbundling of banking functions should lead to risk-based and proportional regulations. Policymakers should set thresholds for when regulation applies; calibrate regulatory

¹ Ravi Menon, *Singapore FinTech Journey 2.0*, BANK FOR INTERNATIONAL SETTLEMENTS, (NOV. 15, 2017), <https://www.bis.org/review/r171115a.htm>. (Remarks by the Managing Director of the Monetary Authority of Singapore).

requirements to specific risks and activities; and apply these requirements to relevant activities, regardless of the type of entity that is offering the service.

When public authorities contemplate opening their markets to new financial service providers to promote inclusion, stakeholders frequently question whether these new providers will be regulated in a manner similar to existing providers to (1) reduce opportunities for regulatory arbitrage and (2) promote a more “level playing field” for incumbents and newcomers. Take for example allowing nonbanks to accept deposit-like funds from the public. This policy approach creates tension with international standards, and, in keeping with those standards, many jurisdictions’ legacy regulatory frameworks limit the taking of deposits from retail customers to entities licensed as banks or as other deposit-taking institutions.

Segmenting a bank’s functions into separate activities could divide most incumbent banks into three broad business lines – deposit taking; payments services; and credit intermediation (lending). Each of those business lines, however, could be broken down further into smaller segments: credit intermediation could include lending for residential mortgage, commercial real estate, land acquisition, construction, development, personal, card, student lending, small and medium-sized enterprise, and so on. The typical “universal” bank might represent hundreds of activities.

Several jurisdictions have already taken initial steps in this journey of an expanded regulatory perimeter by creating differentiated or “narrow” banking licenses: [India](#) (creation of Payment Bank Regulations), [MAS](#) (Payment Services Bill) and [Nigeria](#) (Payment Service Bank Regulations) via.

2. Central banks (or a set of regulators) are the providers of core financial infrastructure that advances financial inclusion: They could maintain and oversee payments highway and credit information highways.

[Envisioned for India, by Nachiket Mor²]

If central banks enable payments and credit information highways as public goods, could this future state advance innovation, reduce barriers to entry, and reduce costs of AML/CFT monitoring? In such a system, might systemic/settlement issues disappear due to full and real-time visibility of the sector by the regulators? AML/CFT monitoring and all supervision may even be built into the system and performed by the central bank, as a service, for the whole market.

According to Nachiket Mor, credit and payments strategies need to evolve differently within broader financial inclusion strategies. While progress on credit would necessarily need to be more measured given the inherent risks and customer protection concerns, there is an urgent need to make access to

² Nachiket Mor, *Some Thought on Financial System Designs to Enhance Inclusion*, GLOBAL PARTNERSHIP FOR FINANCIAL INCLUSION [GPFI] (Oct. 2014), <http://www.gpfi.org/sites/gpfi/files/documents/Keynote%20address%20from%20Nachiket%20Mor.pdf>. (Remarks at the GPFI conference on standard setting bodies and financial inclusion).

payments ubiquitous. In addition, there is a need to create an architecture that allows information relating to customer behavior – in particular transaction histories with financial institutions, telecommunications companies, and utilities – to be captured and transmitted with high integrity, while simultaneously maintaining the highest standards of customer privacy.

The development of these payments and information architectures will not only have inherent value but also could be thought of as “highways” on which a more diverse credit intermediation system could be built. For example, India has a strong Unique Identification (UID) project and an electronic KYC database, a rapidly growing telecommunication network in rural areas with over one billion mobile phone users, expanding broadband connectivity which is expected to cover every village, and multiple credit bureaus. If these improvements in supply-side infrastructure can be strengthened and adequately leveraged by both existing and new financial institutions, India could deliver on universal access to basic payment services and be well-prepared for rapid but high-quality growth in the availability of credit to all customer segments and regions of the country.

3. A fully digital world, enabled by central bank-issued digital currency

[Winds of Change: The Case for New Digital Currency, By Christine Lagarde³]

In a digital fiat currency world, all accounts could be opened (housed) directly at central banks. Both payments and accounts may be provided as public goods, and the market could provide and compete on the remaining functions and/or products.

“I believe we should consider the possibility to issue digital currency. There may be a role for the state to supply money to the digital economy. This currency could satisfy public policy goals, such as (i) financial inclusion, and (ii) security and consumer protection; and to provide what the private sector cannot: (iii) privacy in payments.

Let me conclude. I have tried to evaluate the case this morning for digital currency. The case is based on new and evolving requirements for money, as well as essential public policy objectives. My message is that while the case for digital currency is not universal, we should investigate it further, seriously, carefully, and creatively.”

– Christine Lagarde

³ IMF, *Winds of Change: The Case for New Digital Currency*, Singapore Fintech Festival (Nov. 2018). (Remarks by Christine Lagarde, IMF Managing Director. Available at <https://www.imf.org/en/News/Articles/2018/11/13/sp111418-winds-of-change-the-case-for-new-digital-currency>.)

Central Bank digital currency (CBDC) has been considered by many countries.⁴ **Uruguay** has evidently made the most effort in terms of testing the concept of a CBDC among the experimenting countries. In November 2017, the central bank of Uruguay (BCU) presented a six-month pilot plan for the issuance and use of the digital version of the Uruguayan peso. The agency stressed that “[it] is not a new currency, it is the same Uruguayan peso that, instead of having a physical support, has a technological support.”

According to the plan, a total of 10,000 mobile phone users of ANTEL, the state-owned telecommunications company, would download an app with an integrated digital wallet. The first issue of digital tickets consists of 20 million Uruguayan pesos, the report notes. Other players participating in the pilot scheme, apart from BCU and ANTEL, are RGC, the system provider; IBM, for storage support, circulation and control; IN Switch, for user management and transfers; and RedPagos, for ticketing. The head of the BCU elaborated on the plan, adding that Uruguay “is very much in the vanguard” of virtual currencies development: “It will be a process of trial and error, success and failures [...] This must have the same soundness as normal currency, but sooner or later it will be implemented in Uruguay.”

A key objective for Uruguay in doing the experiment is to drive financial inclusion. Results of the Uruguay pilot are not yet known.

Estonia had been considering launching its CBDC called Estcoin. However, it gave up the idea after facing EU regulators’ criticism.

Hong Kong has a much clearer position regarding CBDCs. On May 30, 2018, its government issued a press release stating that Hong Kong will not issue a central bank digital currency (CBDC) in the near future, citing the existence of an already efficient payment infrastructure. The statement was made by Joseph Chan, the Acting Secretary for Financial Services and the Treasury in the Legislative Council.

Japan: In April, the Bank of Japan, the country where Bitcoin is recognized as an official means of payment, dismissed the idea of CBDC, as Deputy Governor Masayoshi Amamiya declared that such currencies can have a negative impact on the existing financial system.

The Deputy Governor noted that CBDCs are “[stimulating] global discussion on to what extent central banks should provide their payment and settlement infrastructures to society,” noting “[t] he issuance of central bank digital currencies for general use could be analogous to allowing households and firms to directly have accounts in the central bank. This may have a large impact on the aforementioned two-tiered currency system and private banks’ financial intermediation.”

⁴ Stephen O’Neal, *State-Issued Digital Currencies: The Countries Which Adopted, Rejected or Researched the Concept*, COINTELEGRAPH (July 19, 2018), <https://cointelegraph.com/news/state-issued-digital-currencies-the-countries-which-adopted-rejected-or-researched-the-concept>.

Sweden: In the spring of 2017, Sweden began investigating what role it should adopt in an increasingly digital world. The e-krona project examines the scope for the Riksbank to issue a CBDC, the so-called e-krona.

Currently, the project is procuring suppliers to develop proposals for a CBDC. The Riksbank notes that if the state does not offer an alternative to the private payment market, it may lead to a “less stable payment system, as well as make it difficult for certain groups to make payments.”

References

1. IMF, *Winds of Change: The Case for New Digital Currency*, Singapore Fintech Festival (Nov. 2018). (Remarks by Christine Lagarde, IMF Managing Director. Available at <https://www.imf.org/en/News/Articles/2018/11/13/sp111418-winds-of-change-the-case-for-new-digital-currency>).
2. Nachiket Mor, *Some Thought on Financial System Designs to Enhance Inclusion*, GLOBAL PARTNERSHIP FOR FINANCIAL INCLUSION [GPFI] (Oct. 2014), <http://www.gpfi.org/sites/gpfi/files/documents/Keynote%20address%20from%20Nachiket%20Mor.pdf>. (Remarks at the GPFI conference on standard setting bodies and financial inclusion).
3. Ravi Menon, *Singapore FinTech Journey 2.0*, BANK FOR INTERNATIONAL SETTLEMENTS, (NOV. 15, 2017), <https://www.bis.org/review/r171115a.htm>. (Remarks by the Managing Director of the Monetary Authority of Singapore).
4. Stephen O'Neal, *State-Issued Digital Currencies: The Countries Which Adopted, Rejected or Researched the Concept*, COINTELEGRAPH (July 19, 2018), <https://cointelegraph.com/news/state-issued-digital-currencies-the-countries-which-adopted-rejected-or-researched-the-concept>.