Technological Disruption of Modern Financial Intermediation

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The financial sector has seen increased activity from shadow banks that heavily rely on technology and are not subject to the same regulatory framework in which traditional banks operate.

Against this backdrop, Professor Amit Seru (Stanford University) gave a keynote lecture, "Technological Disruption of Modern Financial Intermediation," at ABFER's welcome dinner. He discussed the two central forces behind the growing activity of shadow banking: technology and regulation, and to what extent each has contributed to the growth of shadow banking.

The Professor started by identifying three dimensions along which technology and tech firms have disrupted financial intermediation.

Firstly, technology has helped produce new, higher-quality products that offer convenience or novelty.

Prof. Seru used the mortgage household sector as a case in point. Backed by technology and big data, many startups have offered distinctly convenient and better quality products or solutions, which have subsequently allowed these startups to gain market share at an explosive rate. This growth has occurred in some cases in spite of high fees such firms have charged for this service. Customers are willing to pay a premium for efficiency and/or quickened processes. Many startups have aptly targeted these time-sensitive customers by offering them convenience in exchange for a fee, disrupting the traditional household mortgage market. The Professor particularly drew attention to the elimination of traditional broker activities. Through proprietary processes that rely on aggregate data, startups successfully cut out a lot of back-and-forth between the consumer and the lender – activities traditionally assigned to brokers.

Secondly, technology has allowed firms to introduce products or services that are more efficient or cost-effective.

The Professor illustrated his point by referring to startups such as Square that have disrupted the credit card payment system in the U.S. by rendering some traditional stages in the system's value chain redundant, thereby increasing the overall efficiency of the payment processing system and, in the process, gaining market share rapidly by passing some of the gains to the consumers.

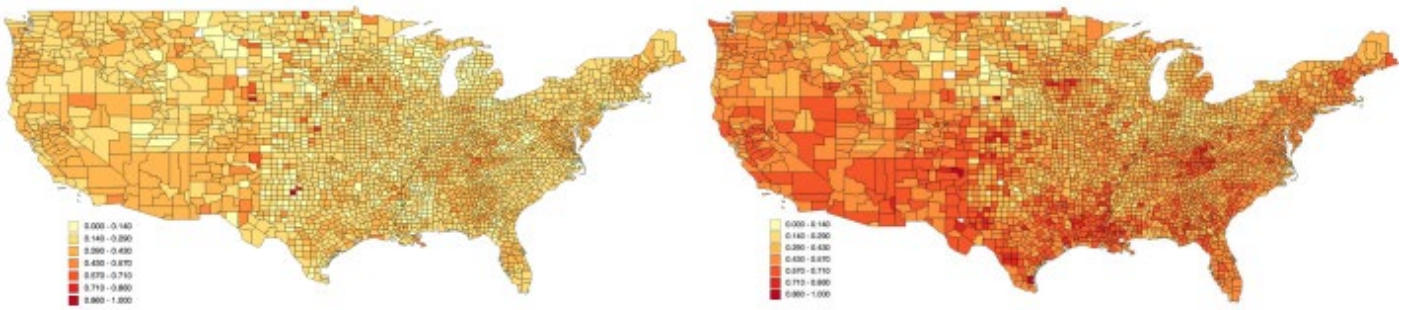
Thirdly, through better models and big data, technology allows for better risk assessment and screening in intermediation. By leveraging information and technology, many startups have developed distinctly better models for screening and pricing risk associated with various segments of borrowers, gaining increased market share.

To illustrate, the Professor shed light on disruptors such as Mercado Libre – an e-commerce giant in Latin America that also provides loans to retail borrowers and businesses. These disruptors have used proprietary information on transactions of borrowers and applied big-data analysis to construct a reliable assessment of borrowers over and above what a credit bureau would provide, thereby significantly improving the quality of risk assessment models and revolutionizing the risk-facing side of intermediation.

The Professor also discussed the "play book" used by many disrupters as they have scaled up their activities beyond what they might have started with. In moving from a particular activity that they targeted to a broader set of products and services, there is an increased reliance on payment data. This payment information is important for the customization of new and broader set of products and services to consumers. People are getting comfortable with mobile payments to the extent that today three out of four people use one or more types of mobile payments. This exponential growth has come on the back of widespread adoption of mobile payments across all demographic segments – including the most reluctant generation, the baby boomers. Payment transactions leave digital footprints. Using such information along the lines of the above three dimensions, fintech startups and shadow banks have disrupted almost every activity that banks would carry out. From lending, retail banking, and investment banking to payments, wealth management, and treasury functions, every banking activity has experienced disruption in the past five to six years. The play book has been to start with targeting one primary activity ("unbundle") of banks and then using payment and other data offer a suite of product and services that touch other activities ("bundle") – i.e., unbundling followed by bundling.

Yet, although technology is a primary reason for the growth of these fintech firms, the Professor argued that regulation has perhaps played a bigger role in expansion of these firms. As an example, the Professor showed how, in the wake of the 2008 financial crisis, the increased regulatory burden on banks in the form of capital charges, lawsuits, and supervisory intensity resulted in a retreat of banks and increased penetration of shadow banks across the U.S. as the following pictures show (darker red colors signifying more market share of shadow banks).

CHANGES IN GEOGRAPHIC PENETRATION (2008-2015)



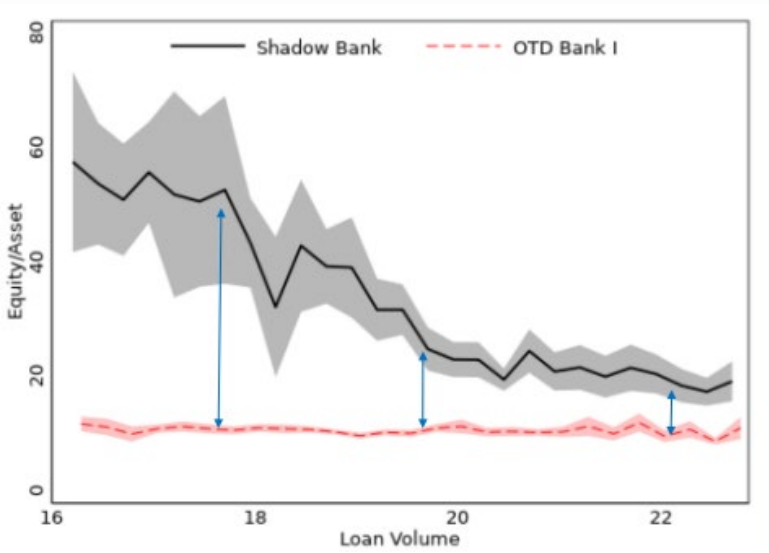
Source: Buchak et al. (2018)

Going back to the U.S. household mortgage market, the Professor highlighted his research has shown that about 2/3rd of the growth in shadow banking and fintech activities has been due to regulation, and only 1/3rd has pertained to improved technology. Thus, a lot of actions across the fintech sector have been due to regulatory arbitrage, which disrupting firms have exploited to their advantage.

There has been a growing concern that shadow banks should also be regulated similar to bank, since they are engaged in the same "activities" as banks. Therefore, the Professor speculated that since a large part of the comparative advantage of most fintech disruptors was due to regulatory arbitrage, there was uncertainty about how these startups would differentiate themselves once regulation kicks in for them. Increased regulation of shadow banks might result in a saturation of activities across the financial intermediation spectrum, and might prompt excessive risk raking in the financial sector, especially by newer firms.

Furthermore, the Professor pointed out that, despite the likelihood of being subjected to more regulatory stipulations, many fintech startups might end up becoming banks. He pointed out that even without any regulation, on the funding side, their balance sheets measured by equity over assets becomes more similar to that of banks as they scale up (see figure below). As they scale up, many fintech startups tends to lever, just like banks. For banks, the main reason for high leverage has been proposed to be the cheap source of funding – deposits. Fintechs and shadow banks do not have access to this funding source and tend to get funding from the market. As funding markets become tighter, shadow banks might have increased incentives to "become banks" in order to access deposits.

Source: Jiang et al. (2021)



Lastly, the Professor identified three challenges that regulators face.

Firstly, a lot of risk has migrated to the shadow banking space due to lower regulation faced by these firms. Consequently, banks have responded by shifting their business models too. To address this growing challenge to the stability of the intermediation sector, policymakers need to institute a framework that allows them to examine the activities being undertaken in the banking and shadow banking sectors, changed business models, and where and how traditional and shadow banks compete. Put this together will allow them to better understand how much risk resides in the traditional banking sector and how much is outside. Moreover, this will also allow them to assess how the allocation of risk might change in response to different policies (like the QE tightening).

The second challenge is naturally the harmonization of regulation. Regulators everywhere have voiced that if fintech startups are doing the same activity as banks, they must face the same regulation as banks. If regulatory arbitrage is what fintech startups are relying on, imposing banking regulations on them will take away that advantage. Policymakers, therefore, need to understand what comparative advantage will remain and which activities will be affected before subjecting shadow banks to more regulation. It also allows them to understand if some of these firms might change how the originate risk once there is increased regulatory costs imposed on them.

The last challenge pertains to understanding the limits of big data, as well as big data based models created by data scientists who might not appreciate the economics that underlies banking and other intermediation activities. The Professor emphasized that big data and analytics may not always lead to correct insights if such economics are ignored. For instance, big data based models can generate systematic errors if the data generating process that is assumed to be driving these models changes due to a regime change (e.g., due to changed incentives behind an intermediation activity). As an example, the Professor discussed data analytics models used by credit agencies during the subprime housing boom in early 2000s. The models used to predict default were estimated in the pre-default era when intermediation activity was "originate to hold". However, these models yielded poor predictive results when used in later era when the regime changed and intermediation moved to "originate and sell". Data scientists who might be

focused on using “lots of data” might face similar struggles and not appreciate how changed incentives behind an intermediation activity (e.g., from “originate to hold” to “originate to sell”) could render a model from one regime inappropriate for another regime. Over-reliance on models just because they are based on big data could, therefore, be very risky.