

Financial Sector Disruption¹

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Thanks for having me.

When cab drivers start bragging to me about their investment prowess, I usually conclude trouble is coming. The fact that Bitcoin is more valuable than all the other cryptocurrencies combined and that Makarov and Schoar (2021) estimate that 90% of the Bitcoin trading appears to be unconnected to meaningful economic activity, makes me fear we are reaching another period of mania in financial markets.²

To many who are investing, I am sure they think of cryptocurrencies as a disruptive innovation that represents the future. Predicting the future is fraught, but today I want to share my views on when we should expect financial innovation to be transformative and disruptive and when is it likely to be irrelevant.

I will argue this distinction involves answering two key questions;

a) what explains the market structure that currently exists?

b) is the value proposition associated with the new innovation likely to be enough to upend the status quo?

I will suggest that there are broadly 3 economic forces that can be responsible for existing arrangements.

Evaluating disruption possibilities depends on which force is present, because some are much easier to overturn than others. Put differently, just because the current arrangements look cumbersome or expensive, it does not necessarily follow that a better alternative will succeed at overturning the status quo.

I will try to convince you of the usefulness of the framework by using it to explain some of what we see in the current financial sector landscape.

Then I will turn to a few areas of the current financial system where I think disruption is likely to happen. I will close with a few observations on cryptoassets and what my observations might mean for risks to financial stability.

¹ I thank Tania Babina, Michaela Costello, Doug Diamond, Andrew Hauser, Megan Harris, Jeremy Leake, Grainne McGread, Jackie Reses and Nancy Stokey for helpful conversations on these issues. The views here, however, are purely my own and should not be ascribed to any other individuals or to the policy committees of the Bank of England.

² Makarov, Igor and Schoar, Antoinette, Blockchain Analysis of the Bitcoin Market (October 13, 2021). Available at SSRN: <https://ssrn.com/abstract=3942181> or <http://dx.doi.org/10.2139/ssrn.3942181>

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The economics of disruption opportunities

Having spent 30 years on the faculty at the University of Chicago, you will not be surprised to find that I start from the premise that markets tend to work well. To be sure, we know conditions when they do not and much of the current research in finance focuses on these conditions and seeks to understand the implications in particular circumstances.

So my starting point today is to think about when do we expect the financial system to settle on arrangements that appear from the outside to be vulnerable to disruption? As I already said, I believe this requires two conditions. First, the status quo must offer profits to whoever innovates to change the existing arrangements. Second, the innovation must not merely assume away all the constraints exist within the current system. In some cases, the whole point of the innovation is overcome a weakness of the existing system that looks like a constraint, but that is not always the value proposition of new approaches.

Perhaps an example will help make this more concrete. Cross border payments are notoriously expensive and fees tend to be high. This might make it seem like anyone that can come up with a low cost way to transfer money will inevitably be able disrupt this market.

One reason why fees are high is regulation. It is completely appropriate for the official sector to worry about the ability of people to move money across border in ways that are untraceable. The financing of terrorism or other illegal activities is a real threat and we want to be able to make sure that the authorities can track transfers. This creates the need to build in monitoring procedures that must be reliable and maintained. Offering a service that cut costs by eliminating tracking would be cheaper but it would have no chance of actually succeeding. A truly disruptive innovation must not only be cheaper but also must operate in a way that does not give criminals a free pass.

Stepping back from this particular example, regulation is in fact a general factor that can raise costs (and hence prices) that might make some services or products appear to be ripe for undercutting. In some cases, as in my example, the regulation is clearly in the public interest and an entrant that sought to avoid the regulation would be irresponsible. In other cases, however, the cost of complying with regulation can be so high that it deters entry. Indeed, there are times when incumbent firms favor complicated regulation precisely to keep out new competitors. Minimizing that kind of regulation is desirable and there are times when new firms can call attention to areas where this is happening.³

A second force that can lead high prices are the presence of what economists would call fixed costs. These can take many forms. For example, licensing rules often vary across jurisdictions (this can be true inside a country, for example across states in the U.S. or across countries). To achieve scale, entering each new market involves incurring a new set of expenses. When the rules differ across areas, that makes it more expensive to operate and larger firms will tend to have an advantage in dealing with this

³ It is also possible the well-intended regulation may be poorly implemented and innovation maybe one way to overcome this problem. In that case, end users might be better off and the incumbent providers that were constrained by the existing rules will be dislodged.

issue. Compliance costs also take this form. There is simply a large amount of overhead that is necessary to follow rules.

The fixed costs are more important when they interact with the third force that can shape market structure, the presence of network effects. These are ubiquitous in financial services. Credit cards are much more valuable when many businesses take them. An exchange is more attractive when many people do business there. Back in the day, a bank that had more branches and automatic teller machines was more attractive.

Before moving on, I should say that these same three factors would be relevant for thinking about market structure in almost all industries. Financial services are heavily regulated so the relative importance of that factor is probably higher than other industries. So I am not trying suggest that finance is unique. (Next Slide)

Proof of Concept

By looking at regulation, fixed costs and network effects, we can understand a lot about the current structure of the financial system. Here are several examples.

Credit card lending is extremely profitable. For instance, despite the pandemic, credit card companies reported income of \$176 billion in 2020 despite the pandemic.⁴ Yet Mastercard and Visa continue to dominate this industry. Obviously the network effects explain why they have been able to withstand many attempts to enter the business so far. For most consumers (or firms) one only needs a couple of credit cards. The value of the card depends critically on the ability to use it. Offering people a lower cost card that is accepted at many fewer merchants will be unappealing to many customers. Historically, there have been non-trivial costs to recruiting new merchants.

Cross border payments are another example of a very expensive service. It costs several percent of the amount being transferred. The World Bank estimates that about \$700 billion each year is sent by people residing outside their native country back home. So this is a large market and one important requirement to operate is the ability of a service provider to trace transactions and comply with money-laundering rules. The fixed cost of complying with the various local regulations would also need to be addressed.⁵ One of the biggest advantages of the incumbents is brand recognition and the fact that most people are cautious about who they will trust with their money.⁶

Buying a house involves mountains of paper work. I expect that most first time buyers in the United States are shocked to learn that you need to buy title insurance to make sure that you in fact have a good claim on your property. The mere fact that it requires expertise to figure out if there is a lien on a

⁴See <https://www.fool.com/the-ascent/research/credit-card-company-earnings/>

⁵ See the FSB report on the barriers that arise for cross border payments. <https://www.fsb.org/wp-content/uploads/P131020-1.pdf>

⁶ The same forces that give rise to scale will contribute to trust: being large and having a long track record helps build a brand. Finance is an industry where this can create an additional advantages for incumbents, but the same is true in other industries such as health care where people worry about downside risk. It can be difficult for challengers to build a brand, but it is important the regulation recognizes when new entrants have a better mousetrap and does not hold them back. One way ahead maybe for entrants to avoid direct customer facing businesses and instead try to get customers by providing back end services to existing businesses.

property and that this is not something that can be reliably looked up on the internet is also surprising. The process for verifying this information differs from location to location. For instance, in the state of Ohio there are 88 different offices that are in charge of titles. Even when the status of the title is clarified, the various parties involved in the sale (a realtor, the lender, the title company and owner) all need to be updated on the status of the transaction there is considerable effort that goes into collecting all the various approvals that must be passed back and forth. So the fixed costs of operating in this market to navigate this maze are large. (Next Slide)

This framework can also be used to understand why some innovations have happened. As I mentioned, the presence of physical branches was once an essential component of growing a market share in banking. With the rise of the internet electronic banking became possible and now many people can conduct their banking without ever entering a branch. The telecommunications revolution also made it possible to link various ATM networks so that most cards work at almost all locations. Put differently these technology advances removed the fixed cost of having physical branches and also changed the kind of network arrangements that were possible.

Another area that has been fundamentally transformed is the way payments are made. Not long ago payment systems were what economists called vertically integrated, where the entire infrastructure that was involved in a payment. Figure 1 reproduces a pair of stylized examples from the Bank of England Financial Stability Report shows how the payment system looks now and how it is regulated. Technological advances have made it efficient to break up parts of the chain and new entrants have substantially lowered costs.

Impending disruptions

A more ambitious and speculative application of the framework is to use it to try to anticipate where some further disruption is likely. Here I will focus on three areas where change is already underway and quite possibly be transformative.

The first is the cross-border payment area. Here there are already firms such as Ripple are already operating to serve business to business payments. Ripple does business with central banks around the world and complies with money laundering rules. It can process more transactions per second than banks can and it charges tiny fees for its services. Part of the way that it makes money is by settling transactions in its own digit asset, XRP. So it earns profits from releasing this asset into the system.⁷ It seems to me that over time more and more business will flow through these kinds of providers rather than traditional banks.

A second area is small business lending. It is notoriously difficult for traditional banks to determine the credit worthiness of small businesses. It is expensive to enforce covenants and these kinds of firms are vulnerable to lots of shocks that larger firms would just shrug off. Yet there is considerable demand for credit from these firms. For instance, the US Small Business Administration estimates that in 2019 there

⁷ I am not suggesting that the XRP asset is riskless or will become the model that other challengers will adopt, I am just noting that jumping to a new model may be an advantage for disrupters.

was in aggregate more than \$170 billion in loans that were individually less than \$100,000.⁸ In the language of the framework, the fixed costs of monitoring these kinds of customers and loans are high.

With the rise of new Fintech payment services firms such as Square and Stripe, there is a revolution underway in the provision of business credit. The Fintech lenders see all the revenue that is coming into a business. Based purely on monitoring this cash flow they can lend safely at relatively low cost. As these firms expand their networks to serve more and more business, this kind of lending is destined to grow. This kind of lending is exploding and one can imagine that a huge fraction of the market will eventually migrate to these platforms.

A third business that seems ripe for disruption is property title insurance. Perhaps eventually someone will manage to digitize all the property records so that searches can be automated. In the meantime, at least the paperwork process could be automated. Companies like Empora Title are attempting to do just that. By consolidating the information that all the parties who need to be appraised of the status of the title can find it in a central location. This can squeeze out the time spent exchanging information so as to lower the costs of this business. (Next slide).

The special issues with cryptocurrencies

The myriad issues associated with cryptocurrencies would require their own full speech and analysis. For those of you who have not seen it, I strongly recommend the recent speech by my colleague Jon Cunliffe. Sir Jon offered a comprehensive and deep analysis of many of these issues (Cunliffe (2021)). Let me briefly review his several of his main points and refer you to his speech for the details, then I will add a couple additional observations.

First, he notes that it is essential to separate those assets that are unbacked (such as Bitcoin) from those that are backed. I will follow him and call the latter stable coins. The unbacked ones exhibit extreme volatility, for instance he notes that Bitcoin has seen its price fall by 10% on a single day on more than 30 occasions in the last five years. Second, today the direct losses to banks from an extreme collapse in unbacked crypto asset values would be still modest.

Third, the larger stability risks from these unbacked assets flow from the fact that the broader financial sector is becoming connected to them through indirect channels. For example, ownership by leveraged investors are growing and exposure of exchanges is increasing. A price correction in this context could generate knock on effects through a variety of channels. These linkages are growing quickly and so this risk will also grow.

Finally, the issues with stablecoins are very different. It is quite possible that these arrangements will help squeeze costs out of some payment arrangements. However, as Cunliffe notes, they must deliver the same level of safety and assurance as the existing arrangements and the official sector is taking steps to insure that is the case. Importantly, some of the major players in this space do not meet this standard, for instance because the backing is unclear. (This echoes one the key parts of my framework that gaining market share by a race to the bottom is not a successful strategy.)

⁸ <https://cdn.advocacy.sba.gov/wp-content/uploads/2020/09/10092858/Report-2019-Small-Business-Lending-Report.pdf>

I agree with all of these points, my framework also highlights the risk of the unbacked crypto assets. The value propositions of these assets does not come from issues related to fixed costs or network effects. To some extent they are useful to some actors specifically because they allow people to potentially engage in illegal activity.

To the extent they are treated as a new asset class, one has to ask what determines the risk and reward of that class. The possibility that something will rise in value because a greater fool will want to buy it is not a solid investing philosophy. We know for sure that large negative price corrections are possible and if the entire sector were to reprice downwards, it seems plausible to conjecture that this would be more likely during a time of stress when other assets prices were moving down. So it is not clear that one even gets diversification from holding unbacked crypto assets.

One sometimes hears claims that fiat money is being irresponsibly managed by central banks and these assets are good alternative. That argument runs into two problems. First, precisely because governments control fiat money, the governments can accept payment in that money for taxes. The ability of the state to make that decision creates a fundamental demand for fiat money. Second, even if one crypto asset such as Bitcoin is in finite supply, there are scores of other cryptoassets that exist alongside each other and since these assets are all unbacked it is difficult why one set is so much more appealing than another.

For all these reasons, I think the future of unbacked cryptoassets is not bright. (Next slide)

Stability Implications

This approach to thinking about disruption suggests several principles for financial stability regulation.

First, and most importantly, it is useful start the evaluation of new services or innovations to existing businesses by seeing what this framework says about the use case for them. Cost benefit analysis is central to stability regulation and trying to understand the drivers of change is an obvious first step. When there are high benefits to an innovation it is appropriate account for that in deciding how much risk to accept.

Second, when the use case is fundamentally about a race to the bottom and avoidance of protections that exist in the current system, regulators need to be especially vigilant. Put differently, when it is difficult to deduce the value proposition from an innovation, skepticism is warranted.

Third, this perspective can help identify areas where change may be on the way. Keeping up with the pace of change in the financial system is a difficult task. If this approach can allow regulators to be monitoring areas that are likely to evolve that can be quite valuable. By anticipating changes, regulators can make sure that as a transition occurs that appropriate safeguards are in place so that no new systemic risks emerge.

The lower half of Figure 1 shows why this is potentially important. As you can see, the payment system evolution has outpaced the regulatory process. There are now potentially many more links in the payment chain that if they were compromised, could have systemic ramifications. Fortunately this has been noticed and the authorities are consulting on how best to respond. Because the financial system is

dynamic, keeping up with the evolution of risk and the emergence of new critical nodes in the financial system is one of the biggest challenges that regulators face. (Next slide)

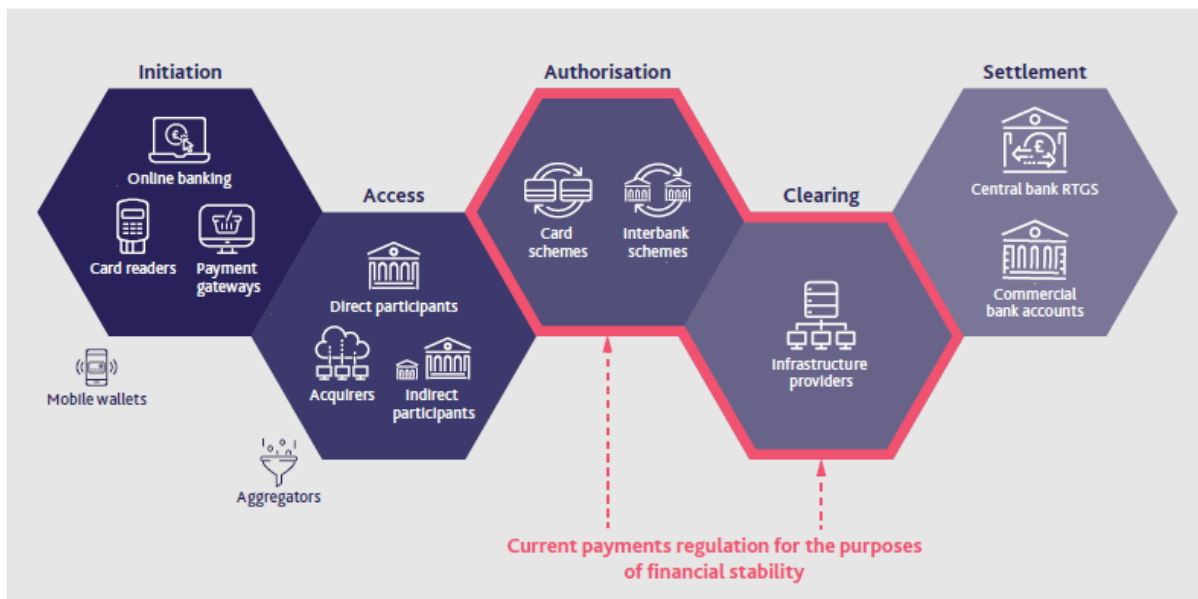
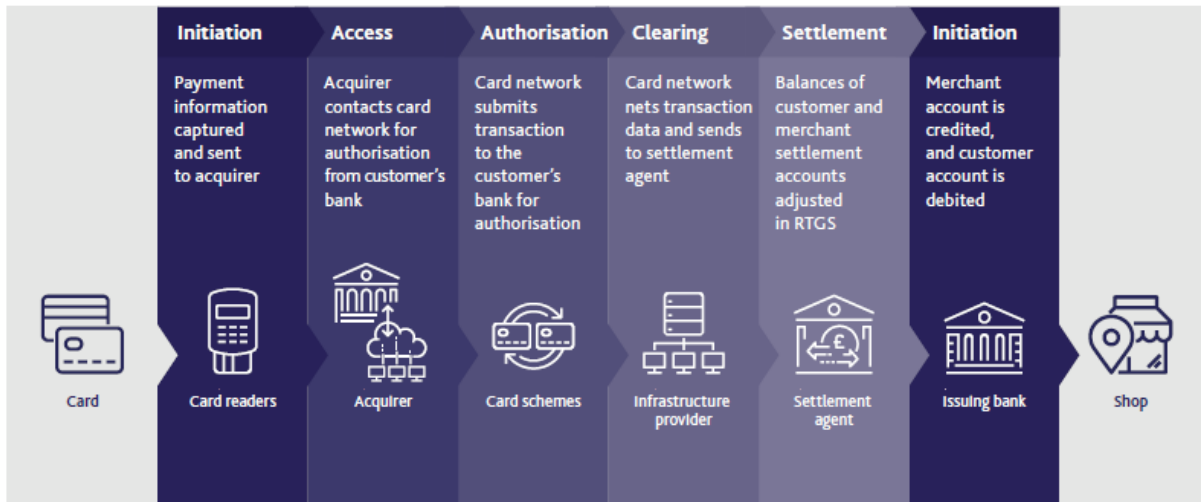
On a more forward looking basis, suppose that the model of cash flow based lending that I described comes to dominate that market. That business model would likely exhibit substantial pro-cyclicality, meaning that when times are good credit extension would be generous and when times are bad, terms would tighten. This would be appropriate if we just think about the risk to the lender of extending the credit. For the borrowers, however, this could lead to the amplification of cycles. Thinking about this kind of change in advance would be prudent for stability regulators.

Finally, we might want to think slightly differently about innovation that alters fixed costs relative to those that change the nature of network connections. In very abstract terms, one might expect reductions in fixed costs to promote entry and perhaps increase competition. Whenever network effects (or any other force that creates what economists call “increasing returns to scale”) markets may become more concentrated. Concentration can often create stability risks if a single entity or small group of firms become dominant providers of an essential service. If innovation allows a new provider to challenge an existing network that can be good, especially if it lowers costs. It can also, however, create new risks that need to be monitored.

Conclusions

I hope by honing in on the forces that drive innovation and disruption regulators can do a better job of safeguarding the financial system. In the meantime, don't get your investment advice from your cab driver! Thanks for your attention and I welcome some questions.

Figure 1: The Payments System Architecture



Source: Bank of England Financial Stability Report, December 2019