

# Fintech: Revolution or Evolution?

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and Applied Science  
Philadelphia, PA  
April 3, 2017

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The views expressed today are my own and not necessarily those of the Federal Reserve System  
or the Federal Open Market Committee (FOMC).

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Good afternoon. It's a pleasure to be back on Penn's campus and an even bigger pleasure to return to my postgraduate days at the Engineering School.

So, why am I here? What's a Fed president doing talking to a bunch of engineers? I suppose it's all in the title of this lecture series: Technology, Business, and Government. There is so much overlap in that it makes sense to look at the ways they're intertwined. It's like a three-legged stool of modern commerce that you'll all undoubtedly encounter in whatever profession you pursue. I started out as an engineer, so I suppose I'm living proof of that.

I've actually found that some theoretical insights from systems engineering are easily applicable to commerce. So, the principles I learned right here come in handy, from complex adaptive systems to robust control to the Lucas critique. Although while engineers focus on the comfort of 95 percent accuracy, I've noticed that economics earns the term "the dismal science." Central bankers focus on that errant 5 percent and seem to always be looking for black swans.

Since I've mentioned my colleagues, now's a good time to deliver the standard Fed disclaimer that I'm speaking for myself today and my views do not necessarily represent those of anyone else in the Federal Reserve System or my colleagues on the Federal Open Market Committee (FOMC).

So, today I'd like to briefly outline what it is I do, give a quick economic update and outlook, and then talk about an area of increasing discussion these days: fintech. This is

something that touches all three legs of the stool — technology, business, and government — and is an area some of you might find yourselves working in or alongside.

## **Federal Reserve Overview**

Before I start, just a very brief overview of the Federal Reserve System for the uninitiated. The Fed is set up in a uniquely American way: It's a decentralized central bank. We have 12 regional Banks around the country and a Board of Governors in Washington, D.C. We vote on policy roughly every six weeks, which now mostly consists of decisions on whether or not to raise interest rates.

We make monetary policy, which shouldn't be confused with fiscal or other policy. We focus on a dual mandate given to us by Congress, which is maximum employment and price stability. We don't make decisions about things like debts and deficits, spending, and entitlements.

In general, you don't hear too much about us unless we've done something, so you probably know that we raised rates at this last FOMC meeting. It was only the third time we've done that since we lowered them to near zero more than eight years ago, so it attracted some attention.

## **Economic Outlook**

From my perspective, it made sense given the data we've seen.

The labor market has shown steady improvement, and the 4.7 percent unemployment rate is at, or near, what I consider to be the natural rate of unemployment. We created 235,000 jobs in February, and we're averaging about 200,000 jobs a month over the past 12 months.

Wage growth has ticked up, which is something I've been looking for. Average hourly earnings increased 2.8 percent over the past 12 months.

Job openings remain high, layoffs remain at almost historical lows, and more people are quitting their jobs. This is one of those quirky measures we focus on. It's a good

indication of how people view the economy: They're more likely to quit when they have confidence they can find a new job quickly.

On the inflation side of things, the momentum continues to be in the right direction. Inflation has been persistently below our target rate of 2 percent, but it's been moving slowly but surely upward. We're on the right track to reach our goal by the end of this year or the beginning of next, in my estimation. Recently, GDP (gross domestic product) growth has been driven largely by consumption, and I continue to forecast just above 2 percent growth for the year.

I'm on record as saying that I view three rate hikes as appropriate in 2017, assuming things stay on track, and I still think that's the right call. I continue to believe they should be gradual, both in pace and increments. I don't want to get behind the curve, but I don't think we need to rush, either. I consider every meeting to be live and that gives us plenty of opportunity over the course of the rest of the year.

We say all the time that our decisions are data dependent. So, I'll be looking at the information as it comes in, but right now that's the trajectory I see for policy.

### **Fintech: The Technology Leg**

So, what does all this have to do with fintech? The obvious answer is that we deal with the banking system. The other is that we deal with money. And a big area of interest for a lot of people is digital currency. What impact might digital currency have? And how do I, as a monetary policymaker, view it in the context of my responsibilities? Before I get into that, I want to take a step back and first consider what, exactly, currency is and how — or rather, why — it works.

The underpinning of currency, like the financial system itself, is trust. A fiat currency like that in the United States, which is issued by a central bank in a secure and stable economy, works because we trust it. A dollar is a dollar. We all agree that it is and there's not much that can undermine that faith. We experience inflation, sure, but not often in dramatic or abrupt ways.

On the other hand, one of the things you'll see with digital currency is how wildly the value swings. The question is will there ever be a digital currency that is stable enough to become as widely used as a government one.

Research by my staff indicates that privately issued currencies can lead to unstable money supply and depreciation of the currency. Why? Because there's no fundamental guarantee of its value in the same way that there is with currency issued by the central bank of a credible and stable government.<sup>1</sup> So, unless a government issues it, the answer is likely that no, digital currencies won't drive out our own any time soon. And while some governments are exploring the possibility of producing their own digital currencies, several hurdles remain, as my colleague, Governor Powell, outlined recently. Those include technical challenges, the unprecedented risk of cyberattacks, potential for criminal activity like money laundering, and threats to privacy.<sup>2</sup>

Then there's blockchain. Blockchain has tremendous potential and banks can use it to further manage risk. From my perspective, however, its real value is in authentication, not on distributing a virtual currency. And the implications of having a distributed ledger that offers virtually failsafe data storage are huge on the risk management side for any business.

So, there's definitely some very interesting and potentially game-changing innovation coming out of fintech. But fintech overall is actually just natural market evolution and the assumptions about disruption — or indeed, creative destruction — are, with apologies to Schumpeter, probably out of proportion.

Part of the reason things can look like a revolution instead of an evolution is that we're viewing them in isolation. If you look along the broad history of an industry, you put things into context. You see the way banking evolved its products and appendages just like the first single-cell organisms evolved fins and gills and eventually feet and legs. Securitization, credit scoring, prepaid cards — which my team had already done

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<sup>1</sup> Daniel Sanches, "[On the Inherent Instability of Private Money](#)," *Review of Economic Dynamics*, 20 (2016), pp. 198–214.

<sup>2</sup> Jerome Powell, "[Innovation, Technology, and the Payments System](#)," speech given at Blockchain: The Future of Finance and Capital Markets? The Yale Law School Center for the Study of Corporate Law, New Haven, CT, March 3, 2017.

about 20 studies on before anyone was paying much attention to them — don't look revolutionary on the scale of fintech. But neither does the Commodore 64 when you stand it next to a MacBook Air. Yet we'd never overlook the effect of widely available in-home computers.

So, while much of this is exciting and the technology is very, very cool, I always warn against overstating its overall effect. This is, by and large, the same kind of evolution the banking system has seen for the past 40 years; it's just a different delivery system.

My favorite analogy is peer-to-peer lending. When I was growing up in New Jersey, we had the same thing. Only in our case, Frankie asked Jimmy at the local bar to loan him a 20. The big difference was Jimmy knew where Frankie lived, so there was a lower rate of default. But overall, we're talking about the same concept; we've just applied new technology to it.

In fact, what underpins the Frankie and Jimmy scenario, and banking and lending in general, is the fundamental principle of trust. In the grand scheme of things, as innovations enter and leave markets, the ones that survive — in any good business, but especially banking — are the ones that engender trust.

We trust that the cash we take out of an ATM is U.S. currency that has an agreed-upon value. We trust that when we want to access our bank accounts, the funds will be available. We trust that when we access credit that the terms and conditions we agree to will be followed by both parties.

Fintech may be a major player, but people have to be able to put their trust in it, and it has to prove its value to markets and the consumer.

We're hosting a conference in September that's going to focus on exactly that subject: What's the end result in the efficient functioning of markets and in benefits to the consumer? What's the benefit in consumer surplus that any of these innovations creates?

More research from my Bank indicates in its initial findings that for the same risk of default, consumers pay smaller spreads on loans from fintech companies than from

traditional lenders. That's something that can add value to a lot of people.<sup>3</sup> The question of trust and value, of course, is a basic business principle.

### **Fintech: The Business Leg**

Which leads me to the next leg of the stool: What do these developments mean for business? If fintech is wildly successful, if we all abandon tellers and ATMs, are banks going away?

Policymakers don't like to make predictions, because the future has a funny way of defying expectations. But in this instance, I'll go out on a limb and say no. Banks aren't going anywhere.

It's true that out of every innovation, a little disintermediation must fall. And sure, some roles and functions will be made obsolete. But that happens with all progress. The changes in the banking system over the past 40 years have continually pushed some players out at the same time that it's steadily brought others in.

With banks, I think it's more a case of the real estate agent than the travel agent. Here's the analogy: With the advent of e-commerce, both the travel and housing markets were affected. But only one of them saw the demise of one set of intermediaries. Travel agents largely disappeared because we all know what we want out of a flight, a hotel, or a vacation. It's something we do often enough and are familiar enough with to trust our own instincts. The risks are small. Buying a plane ticket isn't inexpensive, but it's a low-risk proposition in the grand scheme of things. And the value that travel agents brought can be largely replaced by our own Internet research. In this case, the web did replace the travel agent as our intermediary.

We still have real estate agents, however, even though I can get a 360-degree view of a house that's five states away from the comfort of my living room. Why? Because real estate agents still add value. They perform a fundamental service that we can't provide ourselves and can't be found online — at least not as well. People don't buy houses that

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<sup>3</sup> Cathy Lemieux and Julapa Jagtiani, "Promise and Peril: Managing the Uncertainty of Rapid Innovation and a Changing Economy," unpublished findings presented at Promise and Peril: Managing the Uncertainty of Rapid Innovation and a Changing Economy, Federal Reserve Bank of Chicago, Chicago, March 29–30, 2017.

often. I personally don't want to take on the risk of doing it all myself. I want a professional who knows what papers to file, what zoning laws have to be followed, what surveys should be done, and what market expectations are. Even though the technology has evolved, we still need those intermediaries.

Likewise, no matter what happens in the world of fintech, you still need a trusted broker of money. The roles may change and adapt, but someone needs to be the source of funds and credit.

There's always going to be a place for maturity transformation, for instance. When people make longer-term loans, it creates a maturity mismatch on the balance sheet of the lender. This is because the liability side of the balance sheet can evaporate much more rapidly than the asset side, making the lender either illiquid or insolvent.

One of the key economic contributions of banks is that they manage that risk. A fintech firm is unlikely to have that scope and long-term trust, at least not for a while. Similarly, you and I wouldn't make good credit card lenders, even if we had the right coding and software. So, those won't completely disappear, either.

There will be some disintermediation, but that's been the case in banking since deregulation started in the 1980s. At the end of the day, we still rely on those institutions to manage risk and provide a safe haven.

This is where I return to the core principle: The benefit a business or technology creates for markets and the consumer. Banks know they have to focus on the functions that add value. It's easy for a well-capitalized bank to fund a start-up, let it take the risks, and then adopt the successful technology. Fintech may fully permeate the banking industry, but it will likely be in a way that sees many of the old players adapting new technologies rather than being put out of business by them.

### **Fintech: The Government Leg**

That relates directly to the government part because a large portion of government's role in fintech will be regulation. Regulators have to think about how to create oversight

that doesn't stifle innovation while simultaneously protecting markets and consumers. The fintech industry has to think about what regulation means for them.

I want to say here that regulation isn't a bad thing. It's necessary for a functioning system, and it's one of the ways to confer the trust that is so essential. And in the case of fintech, it's in fintech firms' best interest to know what's expected from them from the beginning. Otherwise, they may have to play catch-up or retrofit their business model to comply with oversight that comes later. Not to mention, building the trust in the system that regulation can offer makes their businesses more resilient.

Most fintech firms are relatively new. They haven't been through the downside of a credit cycle. And the unfortunate reality of modernity is that there *will* be a down cycle. For those companies that are getting to a scale where negative events could have a major impact on their business, regulation is especially important because it acts as a safety net.

More important, regulation that comes in after a crisis almost always fights the last war. That kind of oversight is generally more restrictive and would likely put far more burden on fintech firms than starting out sooner.

I want regulation that safeguards the consumer, the market, and the emerging fintech industry itself. I like innovation; I like responsible innovation more.

## **Conclusion**

That's about the long and the short of it. Fintech touches many sectors and it offers some exciting ways to modernize the banking industry. It's not a radical departure in the sense that the industry has been evolving over the past several decades, but it's new and interesting in the sense of the technology it offers. I hope the value is equal to the technology, and I think it will be because that's the story at the end. At the end of the day, it's about efficient market function and protecting the consumer.

Thank you.