



James J. Angel, Ph.D., CFA  
Associate Professor of Finance  
Georgetown University<sup>1</sup>  
McDonough School of Business  
Washington DC 20057  
[angelj@georgetown.edu](mailto:angelj@georgetown.edu)  
1 (202) 687-3765  
Twitter: @GuFinProf

December 14, 2018

Secretary  
Board of Governors of the Federal Reserve System  
20th Street and Constitution Avenue N.W.  
Washington, DC 20551

[regs.comments@federalreserve.gov](mailto:regs.comments@federalreserve.gov)

Re: Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments

Docket No. OP – 1625

Dear Board of Governors:

I am a finance professor at the McDonough School of business at Georgetown University who studies fintech as part of my work in financial market structure and infrastructure. I have been a member of the Faster Payments Task Force (FPTF) as well as the subsequent Governance Framework Formation Team (GFFT) that is launching the US Faster Payments Council (FPC).

---

<sup>1</sup> All opinions are strictly my own and do not necessarily represent those of Georgetown University or anyone else.

I strongly support this proposal to support interbank settlement of faster payments. In addition, the Fed should work toward facilitating a system of routing numbers and addresses that can be used to route payments to different service providers.<sup>2</sup>

#### Background:

As the Fed is well aware, major parts of the U.S. payment system are extremely slow. The European Central Bank has just launched a faster payment system for retail payments. Many other countries have ubiquitous faster payments systems. The slowness of the U.S. payment system causes several major problems:

- Risk. The piling up of unsettled payments causes risk to pile up as well.
- Inconveniences to consumers, businesses, and financial institutions.
- Cost as people chase payments in process or incur liquidity shortage costs (missed deliveries, late fees, interest, etc.).
- Disproportionately high costs to the poor and unbanked.

The Fed in its role as convener brought together the Faster Payments Task Force (FPTF). The FPTF did a thorough job of examining our payment system and coming up with a vision of future payments that we called the effectiveness criteria. In short, we need a payment system that is

- Real-time 24/7/365
- Ubiquitous: Anyone on any system can pay anyone on any system
- Safe and secure, in terms of cybersecurity and systemic risk, as well as consumer protection
- Efficient
- Extendible so that future technological innovations can be easily incorporated

Different financial institutions often prefer to settle their payments in central bank money, not just in the U.S. but in other countries as well. It is essential that the Fed modernize by transitioning from 20<sup>th</sup> century bankers' hours to a 24/7/365 environment. In order to have a safe, secure, and modern payment system, it is necessary for the Fed to offer its settlement services around the clock. This is important for competitive reasons so that new financial payment innovations can plug into the U.S. payment network.

It was also clear to the FPTF that the payment world is not standing still and many new faster payment systems are coming on line. With so many different systems, a fragmented faster payment world is emerging. The FPTF realized a need for a coordinating body to help different payment systems work together, which has led to the efforts to create a US Faster Payments Council (FPC).

---

<sup>2</sup> Question 8 on page 47 of the proposing release explicitly asks “What other approaches, not explicitly considered in this notice, might help achieve the broader goals of ubiquitous, nationwide access to faster payments in the United States?”

Payment systems are what economists call network products: the more people who use a network, the more valuable that network becomes. When networks compete head-to-head, the larger network has an advantage and usually wins in a winner-take-all situation. Network effects are quite common in technology areas such as computer operating systems, communication networks, and technology format wars. The battles between VHS and Betamax, and between HD-DVD and Blu-Ray are examples of these kind of network effects.

One of the characteristics of network battles is that the larger networks have a strong financial incentive to prevent other networks from interoperating with them. If the larger network allowed the smaller network access, then it would make no difference whether a customer was on the larger or smaller network and the larger network would lose its advantage. History shows this pattern playing out repeatedly in areas such as telephone networks and stock exchanges.

The reason we have interoperability in our telephone network today is because it has been mandated by Congress. In the early days of telephones, the Bell companies refused to connect with the independents.<sup>3</sup> 47 US Code §251 specifically mandates that telecommunications carriers have a duty to interconnect with each other.<sup>4</sup> The U.S. Securities and Exchange Commission has used its regulatory authority to force stock exchanges to interconnect.<sup>5</sup>

It would be a disaster to the U.S. economy to have a fragmented faster payment system. The last thing we need is a bunch of squabbling networks that refuse to interconnect. We need a payments system where we can pay anyone regardless of what system they are on.

Part of the vision of the FPTF was to create an industry body that would facilitate interoperability. However, not all the players in the industry want to be interoperable and they oppose anything that would promote interoperability on anything other than their terms. The Faster Payments Council that has emerged is thus very different from the entity that was envisioned by the FPTF.

I get where this opposition is coming from. The shipping industry is a good example. Airlines use standardized containers. Ocean shippers uses different standardized containers. Neither the airlines nor the ocean shippers want to be forced to change what they do in the name of interoperability. However, shipping still works in the sense that one can ship a parcel to anyone regardless of what shipping systems they are connected to. The shipping industry has worked out methods of interconnection between air, sea,

---

<sup>3</sup> See Milton Mueller, 1993, Universal service in telephone history: A reconstruction, Telecommunications Policy 17(5) 353-369. [https://doi.org/10.1016/0308-5961\(93\)90050-D](https://doi.org/10.1016/0308-5961(93)90050-D)

<sup>4</sup> The text of 47 USC §251 is included as an appendix.

See also 47 CFR 64.621 for regulations mandating interoperability of Video Relay Services for the deaf.

<sup>5</sup> See §11AC of the Securities Exchange Act of 1934 and the SEC's Regulation NMS <https://www.sec.gov/rules/final/34-51808.pdf>

rail, and truck. The key is that participants have addresses and shippers can figure out how to route shipments based on the address. Private entities have figured out how to move stuff from an airplane to a delivery truck without needing government rules on how to do it. All they need is the address.

What is needed is a flexible address standard that can facilitate faster payments across different systems. Each person or account would have its own address that is a superset of the identifier used by the payment system. In short, we should use the time-tested method of routing numbers so that new and nonbank payment services can route their payments wherever they should go.

Their personal address would contain the account number or identifier used by their payment service, but would also have the equivalent of a U.S. routing number.<sup>6</sup> The address could be alphanumeric characters such as an email address, if that is what the payment entity uses.

For example, the first part of the address could be a country code, then a routing number for the payment vendor, and then the native identifier used by the payment vendor. For example, if someone on another system wanted to send money to someone else's PayPal account and PayPal's routing number was 123456789, then they would send the payment to US.123456789.someoneelse@email.com. If they wanted to send money to someone's debit card, then the address might be US.visa.400012345678.

These addresses could easily be embedded in QR codes. It would be up to the sending system to figure out whether or how to connect with any particular service. I suspect that service bureaus will spring up that will happily carry payments from one system to another and deal with the technical interconnection issues such as message format translations and payment settlement. Of course, the Fed's proposed 24/7 services are essential for this kind of interconnection to occur.

Notice that an address standard is much simpler than the directory system proposed by the Directory Working Group. There would be no need for a detailed directory that contains information about individual customers.

The Fed should continue to push for ways to make it easier for consumer and businesses to pay anyone in real time no matter what system they are connected to.

Respectfully submitted,

James J. Angel, Ph.D., CFA  
Georgetown University

---

<sup>6</sup> The external address used by the particular payment entity need not be the same address as it uses internally. All that is necessary is that when the payment entity gets the payment it can apply it to the correct account. Likewise, a payment entity could provide its customers with separate addresses for payments and for requests for payment.

**47 USC §251:**

**(a) GENERAL DUTY OF TELECOMMUNICATIONS CARRIERS** Each [telecommunications carrier](#) has the duty—

**(1)** to interconnect directly or indirectly with the facilities and equipment of other [telecommunications carriers](#); and

**(2)** not to install network features, functions, or capabilities that do not comply with the guidelines and standards established pursuant to section [255](#) or [256](#) of this title.

**(b) OBLIGATIONS OF ALL LOCAL EXCHANGE CARRIERS** Each [local exchange carrier](#) has the following duties:

**(1) RESALE** The duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its [telecommunications services](#).

**(2) NUMBER PORTABILITY** The duty to provide, to the extent technically feasible, [number portability](#) in accordance with requirements prescribed by the Commission.

**(3) DIALING PARITY** The duty to provide [dialing parity](#) to competing providers of [telephone exchange service](#) and telephone toll service, and the duty to permit all such providers to have nondiscriminatory access to telephone numbers, operator services, directory assistance, and directory listing, with no unreasonable dialing delays.

**(4) ACCESS TO RIGHTS-OF-WAY** The duty to afford access to the poles, ducts, conduits, and rights-of-way of such [carrier](#) to competing providers of [telecommunications services](#) on rates, terms, and conditions that are consistent with [section 224 of this title](#).

**(5) RECIPROCAL COMPENSATION** The duty to establish reciprocal compensation arrangements for the transport and termination of [telecommunications](#).