

The Hidden Risks of Faster Payments

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The Hidden Risks of Faster Payments

Introduction

The goals of faster payments¹, as currently envisioned in the U.S., are that they will be fast, secure, irrevocable, risk free and that they can be made anywhere by anyone to anyone at any time (24x7x365).² This goal of making payments by anyone to anyone at any time is the definition of ubiquitous payments. Some entities are already offering faster payment services and others are planning to in the future. Most are using or planning to use credit push payments³ as the backbone payment type to achieve these goals. This paper primarily examines the risks of one key requirement of ubiquitous, credit push payments; the use of directories⁴ in the payment process. The brevity of this paper negates the opportunity to address other risks associated with credit push or debit pull payments and how those risks might be mitigated.

Real-Time Payments

The future of payments in the U.S. is real-time payments⁵, sometimes called faster payments. Most faster payments initiatives in the U.S. in 2019 are not real-time. The future of payments is expected to evolve from the current offerings to a real-time environment once the Federal Reserve offers 24x7x365 real-time settlement⁶ and after financial institutions (FIs) have implemented real-time posting⁷ of customer accounts.

Many payments appear to consumers as if they are instantaneous (real-time) because the payments are between two accounts with the same provider, for example PayPal. Transfers of money between two PayPal accounts occur in real-time, but before that can happen the two accounts must be set up with PayPal and funded. Funding typically occurs through an ACH payment⁸ between the customers' bank accounts and that process normally takes one to two days⁹. Instantaneous payments are possible only if both parties have accounts with the same provider, in this example PayPal. If only one of them has an account with PayPal, payments will not be instantaneous because of setup and funding requirements. To achieve payment ubiquity across every entity in the U.S. requires that every entity have an account with

¹ Faster payments are defined in the Definition Section and elsewhere in this paper.

² These are the aspirational goals of the Federal Reserve's Faster Payments Task Force, Secure Payments Task Force, the Governance Framework Formation Team and the U.S. Faster Payments Council for payments in the U.S.

³ Credit push payments are defined in the Definition Section and elsewhere in the paper.

⁴ Directories are defined in the Definition Section and elsewhere in the paper.

⁵ Real-time payments are defined in the Definition Section and elsewhere in this paper.

⁶ Federal Register / Vol. 83, No. 221, Thursday, November 15, 2018 – *Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments, Request for Comments*. Tiller Endeavors' response to the request for comment can be found at <https://tillerendeavors.com/wp-content/uploads/2018/12/Meyerson-Walker-Comments-on-RFC-December-14.pdf>.

⁷ Real-time posting is defined in the Definition Section and elsewhere in this paper.

⁸ While funding can occur through other methods, such as credit card or debit card, ACH is probably the most representative.

⁹ With same day ACH, funding can sometimes occur the same day and be available for use the next day.

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every provider which could require billions of new accounts.¹⁰ This is not a practical solution.

These quasi real-time payments are the first steps in the evolution to an actual real-time system. The prerequisites to achieving ubiquitous, instantaneous payments are, 1) real-time posting of customer bank accounts throughout the day, 365 days a year, 2) real-time settlement¹¹ between FI accounts at the Federal Reserve and 3) one or more providers to network connect every party to every other party.

Today some financial institutions, most notably credit unions and community banks, post transactions to customer accounts as they occur throughout the day but only on days when those institutions are open. Most financial institutions, however, do not yet have this ability and most transactions that occur today may not be reflected in the customers' accounts until one or more days after initiation.

Additionally, even those FIs posting in real-time are limited to only those days when the Federal Reserve is open or approximately 252 out of 365 days each year ($252 / 365 = 69\%$) and of that only during the time of day when the Federal Reserve Fedwire is currently open 21.5 hours per day ($21.5 / 24 \text{ hours per day} = 89.5\%$). Combined these total only about 62% ($69\% \times 89.5\% = 62\%$) of the hours each year which may sound like a lot but that 62% applies only to those credit unions and community banks with real-time customer account posting. Many deposits in the U.S. are held by only a few large financial institutions most of which do not post in real-time. Therefore the 62% applies only to a small percentage of the total deposits/payments in the U.S.

Credit Push and Debit Pull Payments

Many entities believe that real-time payments should only be credit push payments under the belief that credit payments are risk free and more efficient than debit payments. Credit push payments and debit pull payments¹² differ in many aspects and one key difference is the sequence in which customer account balances are increased or decreased.¹³ See the graphic below. For example, for debit payments, the beneficiary's¹⁴ account balance is first increased followed by the paying party's account balance being decreased. While this creates some credit risk¹⁵, the amount of risk diminishes to near zero for real-time, instantaneous, debit payments. Additionally, the paying party's account and balance can be verified at the time of payment initiation and funds held.¹⁶

The sequence of credit push payments is the opposite of debit pull payments. This difference in sequence

¹⁰ Some providers do offer a version of an instantaneous payment to parties even when both parties do not have accounts with that provider but at the cost of creating new credit risk when the money is made available to the beneficiary before the money is actually drawn from the sender's account. This paper does not address that additional risk.

¹¹ Settlement is defined in the Definition Section and elsewhere in this paper.

¹² Debit pull payments are defined in the Definition Section and elsewhere in the paper.

¹³ The terms debit payments and credit payments, while related, are not the same as accounting debits and credits and should not be used interchangeably or confused.

¹⁴ Beneficiary is defined in the Definition Section and elsewhere in this paper.

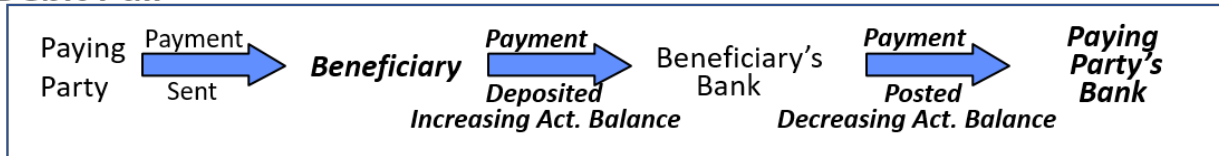
¹⁵ Credit risk is defined in the Definition Section and elsewhere in this paper.

¹⁶ There are other risk reduction actions that can be implemented for real-time debit payments that are not addressed in this paper.

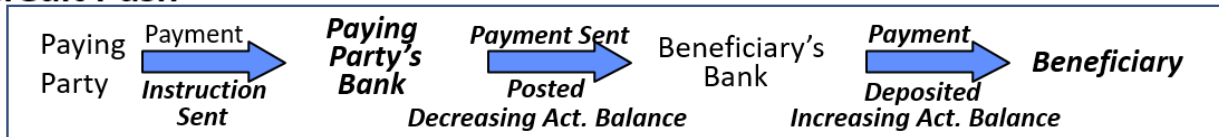
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is the source of the belief that credit push payments are risk free because the money is taken from the paying party's account prior to the money being paid to the beneficiary therefore avoiding the risk of non-payment.

Debit Pull



Credit Push



Examples of credit push payments are Fedwire and ACH credits. Credit push payments should not be confused with credit card charges which are not payments but rather extensions of credit that will later be satisfied through one or more payments. Examples of debit pull payments are checks, ACH debits and debit card payments. Debit card transactions, unlike credit card transactions, are payments since debit card transactions pull money out of paying parties' accounts at the time of the transactions. To consumers, debit card payments appear to be instantaneous since they decrement their account balances immediately. But the beneficiary of the debit card transactions will typically not receive its funds until later, such as after the completion of the next ACH processing cycle and settlement window at the Federal Reserve later that evening or the next banking day.

The Need for Directories

The difference in processing sequence described above between debit and credit payments, creates the need to know more information before initiating a credit push payment than for a debit payment. Many parties have expressed reluctance to provide their banking relationship to a universally accessible data base such as a directory¹⁷. Some have argued that everyone has been sharing their information through the check (debit payment) system for many years so the sharing of that same information for credit payments is no different. That position fails to recognize, 1) that consumers seldom write checks and 2) the vast difference in providing banking information to a single party for one or more specific payments and providing that same information to every entity in the world through a universally assessable data base, forever.

When an ACH debit or a check payment is made, the party making the payment knows how to deliver the payment to the beneficiary since the beneficiary provided its delivery information for that specific payment but **the beneficiary does not provide its banking information** to the payor. For checks, the payor knows the physical address of the beneficiary or hand delivers the check. For ACH debits, the

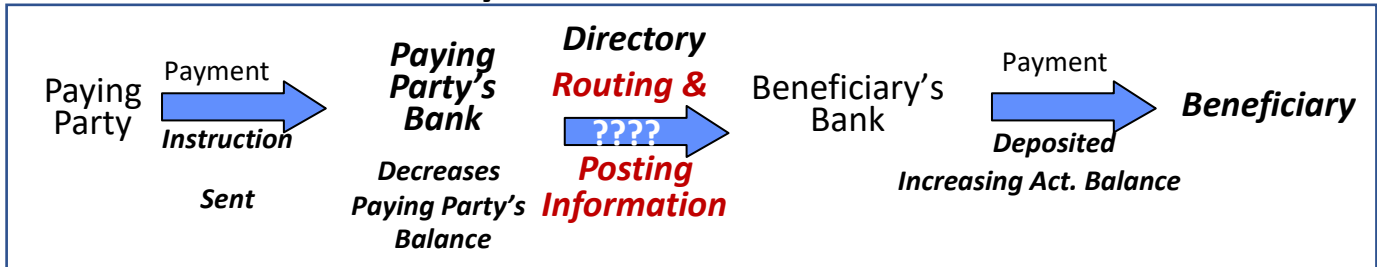
¹⁷ Directory is defined in the Definition Section and elsewhere in this paper.

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beneficiary provides its electronic address for delivery of the payment. For debit card payments, the paying customer physically provides the beneficiary with the plastic card or electronically provides the card number directly to the beneficiary.

For credit push payments which are primarily, if not exclusively electronic, the paying party **must know the specific banking information of the beneficiary** in order to affect the payment, including the institution's routing information and the beneficiary's account number.

Credit Push with Directory



For limited numbers of beneficiaries such as is typical of ACH credit payments, this information could be maintained by the paying party's financial institution such as for a bill payment service. Expanding this need for banking information to support ubiquitous payments from anyone to anyone at any time, a very large volume of banking information would need to be stored. The most efficient method to achieve this storage requirement is through one or more directories. Otherwise, every financial institution or its processor would need to obtain and maintain the banking information for every customer of every financial institution in the U.S. That duplication would be costly and fraught with risk. Some of the risks associated with directories are discussed below.

By contrast, directories are not needed for debit pull payments such as for checks, since the paying party never needs to know the beneficiary's banking information. The debit pull check system is already a ubiquitous payment system that supports payments from anyone to anyone at any time.¹⁸

Risks Associated with Credit Push Directories

Without routing information, a credit push payment cannot be delivered to the correct financial institution and posted to the correct customer's account. However, the use of directories raises some key questions including:

- Who is liable for the timely and accurate creation and maintenance of the directory(ies)? and
- What is the amount of that liability for fraud, errors, omissions, etc.?

Consider the scenario in which a new directory entry is made identifying the wrong financial institution and/or customer account number and a payment is routed to that wrong account, followed by the funds being withdrawn from the account and the subsequent closing of the account. Would the responsible party for the intended beneficiary's financial loss be:

¹⁸ This paper does not address the potential use of real-time debit pull payments in addition to credit push payments.

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- The party making the payment?
- The intended beneficiary of the payment?
- The directory(ies) provider(s)?
- The paying party's financial institution?
- The intended beneficiary's financial institution?
- The processor providing the payment service?
- One or more intermediaries in the payment processing stream? or
- The unintended receiver of the funds?

Is liability potentially shared among more than one of the parties based on comparative negligence? What guidance is available to courts when adjudicating disputes over misrouted/mis-posted payments due to erroneous directory entries? Some payments systems have a strong statutory, litigatory or regulatory base to guide the dispute adjudication process but none of these exists for credit push payment directories or for faster payments.

Also consider the scenario in which the owner of an insurance policy makes a premium payment that is dependent on a directory for routing and posting instructions. Should the payment fail to occur because of erroneous directory entries and the insurance lapses followed by the occurrence of the insured event, would the liable party(ies) be additionally liable for proximate¹⁹ (consequential) damages, such as for the value of the insured property or damage done to other property or life? The determination of the liable party and the amount of liability should not be left to expensive litigation through a court system without guidance in liability assignments. Such a process would lead to inconsistent judgements and create the additional risk of resolution uncertainty thus diminishing the interest of entities in becoming providers of faster payments.

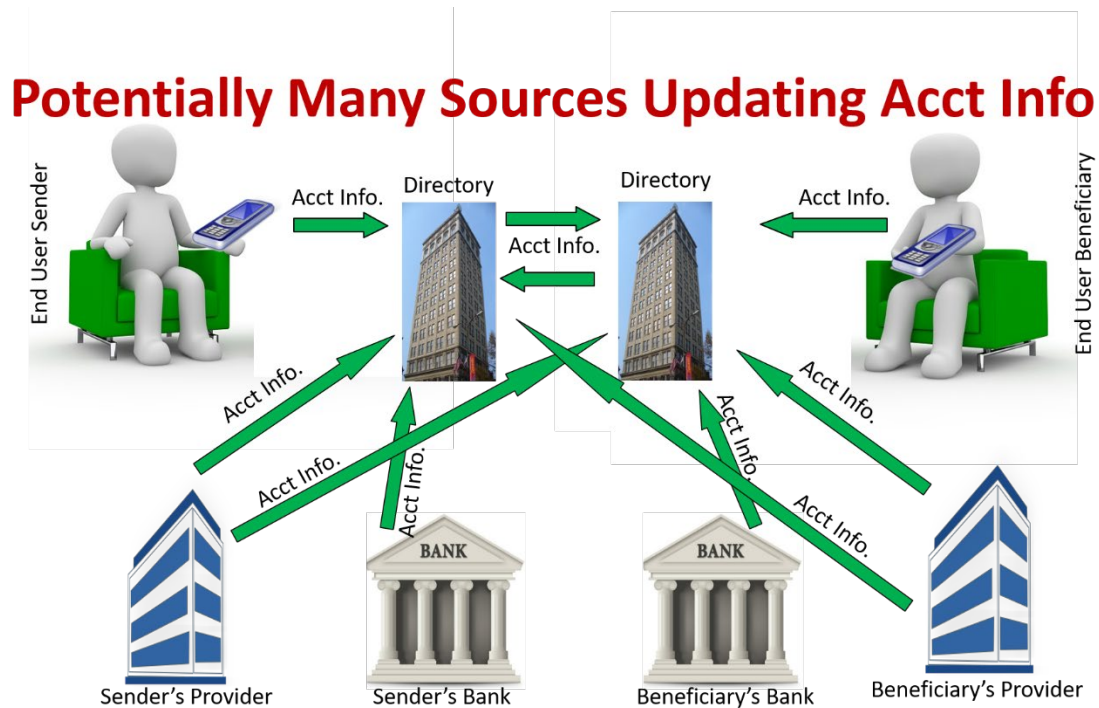
Similar damages could result from maintenance that is performed correctly but not timely. For example, when a party, 1) changes its banking relationship or 2) replaces an account with an existing banking relationship or 3) opens an additional account with another financial institution while leaving its original account(s) open and the directory(ies) is not updated timely to reflect those changes, the intended beneficiary could suffer financial losses.

The risks that one or more directories might not be updated timely increases when multiple parties are providing updates to the directories. The graphic below depicts some of the potential sources of changes to directories. As the number and sophistication levels of the potential update sources increases, so does the probability that timing errors could occur.

These credit payment risks are exacerbated in the transitional state from a non-real-time environment to a real-time environment in which some but not all institutions are real-time enabled. Should the parties have the same level of liability when some functions of a payment occur in real-time and others are delayed for batch processing, posting and/or settlement cycles? Any party that has made the investment and transitioned to a real-time posting system would likely object to bearing any part of losses created by a party that has not made that same investment thus raising the risk of litigation.

¹⁹ Proximate (consequential) damages are defined in the Definition Section of this paper and elsewhere in the paper.

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Further, as time compression occurs between the time when a payment request is made and the time when the payment is expected to be received, the risk related to untimely directory maintenance increases. One way to address the time compression impact on maintenance is to automate the maintenance process; for example, by using sophisticated artificial intelligence such as neural networks to manage updates from multiple sources. If neural networks were used to update the directories in real-time, would liability for wrongly directed payments fall on the owner of the neural network, the users of the network or perhaps the party that accepts automated changes from a neural network?

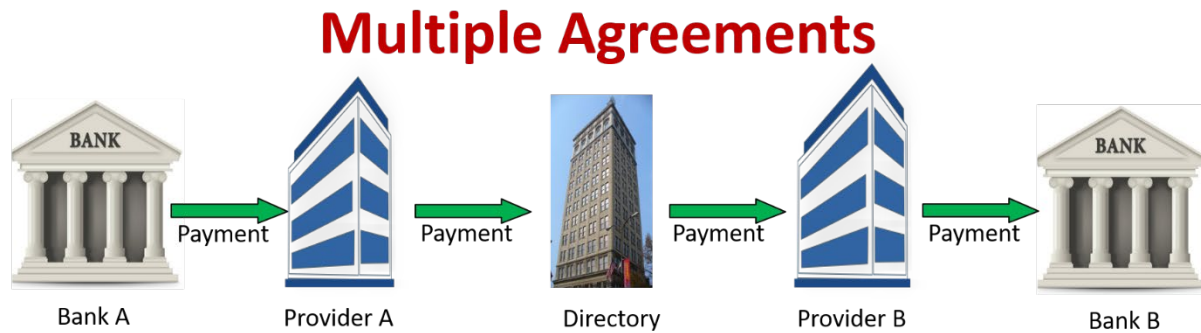
Another risk of credit push directories arises from the concentration of every banking relationship for every individual, business and government entity in the U.S. into a single or a small number of directories. Unfortunately, we have learned that every data base can be hacked and what more appealing target than the universally accessible location of where all the money is.

Addressing Risks Associated with Directories and Credit Push Payments

Traditionally the assignment of liability among the parties has been addressed for other payment types through multiparty agreements or rules. Today, no organization has yet to step up to the task of creating a uniform, multilateral agreement in which the allocation of these liabilities is addressed and to which all parties have agreed and that courts can use as guidance when adjudicating disputes. Without the development and adoption of such agreements, specific liability assignments are left to the courts that likely have little training in rapidly evolving faster payments and payments' directories. This litigation risk becomes even more uncertain for jury trials than for bench trials in which the public would determine which party is responsible.

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Alternatively, each provider of faster payments could have its own, unique agreement creating different and inconsistent liability assignments for the same party or for the same payment (see graphic below). When a single payment transaction is processed through two or more providers, the likelihood of disputes and therefore litigation would potentially increase. Given the dollar value of business payments and the potential for consequential damages, financial judgements could be indeterminately large.



- Bank A's agreement with its customer (not shown) could make the customer liable for everything!
- Provider A's agreement with Bank A could make Bank A liable for everything!
- Directory's agreement with Provider A could make Provider A liable for everything!
- Directory's agreement with Provider B could make Provider B liable for everything!
- Provider B's agreement with Bank B could make Bank B liable for everything!
- Bank B's agreement with its customer (not shown) could make the customer liable for everything!

The risks associated with directories are examples of just some of the unique risks created by credit push payments that need to be understood and addressed. Clearly these payments are not risk free!

How can these risks be addressed? One way would be a new federal law implemented through a new regulation to specify the allocation of liabilities. This is not generally thought to be a good idea and especially in a rapidly evolving environment. Regulation would be slow to implement and slow to change. In a Congressional environment in which new laws are being passed, the results could create undesirable requirements that would be difficult to change and that could stifle innovation and discourage the transition to a more efficient payment system. In a Congressional environment in which little action is occurring, the risks would continue indefinitely. Alternatively, all fifty states could individually implement their own unique, fifty versions.

Another option is for the private sector to create a uniform set of agreements (rules) that would be provider independent and with consistent allocation of liabilities and thus diminish the need for expensive litigation with uncertain outcomes. Examples of this approach are the NACHA rules that govern the exchange of ACH payments and the ECCHO rules for interbank exchange of check images. Both have been highly successful. Some would prefer for the Federal Reserve to provide the uniform rules for faster payments but the Federal Reserve is limited to binding only those parties that use its services. Federal Reserve service agreements (Operating Circulars) apply only to payments processed through the Federal Reserve and do not apply to payments processed outside of the Federal Reserve through private sector

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exchanges.

In the past, some entities have simply copied Federal Reserve Circulars and adopted them for their private sector payment services. There are at least two potential issues with this approach. One is that the Federal Reserve's objective is to provide agreements specific only to its product offerings which may not match private sector offerings and therefore be incomplete or in conflict with other private sector offers/agreements. Second, the Federal Reserve's focus is to protect itself from any liability. When multiple financial institutions agree to exchange payments, one or more must assume the liability for errors, system failures, etc. By simply adopting the Federal Reserve's agreements for private sector exchanges, it is possible that no party would be assigned liability or multiple parties could be assigned the same liability either of which could result in litigation to resolve disputes.

Currently, the logical entity to develop and implement provider independent multilateral agreements for the private sector faster payments is the U.S. Faster Payments Council (Council). As of the date of this writing, the Council has not publicly pronounced its intentions to develop any such rules or standards. Because of this, the only option is for some other organization to fill the gap and provide the uniform rules for faster payments. Should the Federal Reserve determine to become a provider of faster payments, both the Federal Reserve and the private sector would need to develop its own set of exchange rules and to coordinate among themselves to minimize conflicting provisions.

In the case of credit push payments, the new rules would need to include provisions for the exchange of the payments and provisions for the creation and maintenance of the directory(ies). Given the objectives of the Faster Payments Task Force and the U.S. Faster Payments Council to achieve ubiquity by 2020 this work needed to have been completed already.

Losses from Credit Push Directories

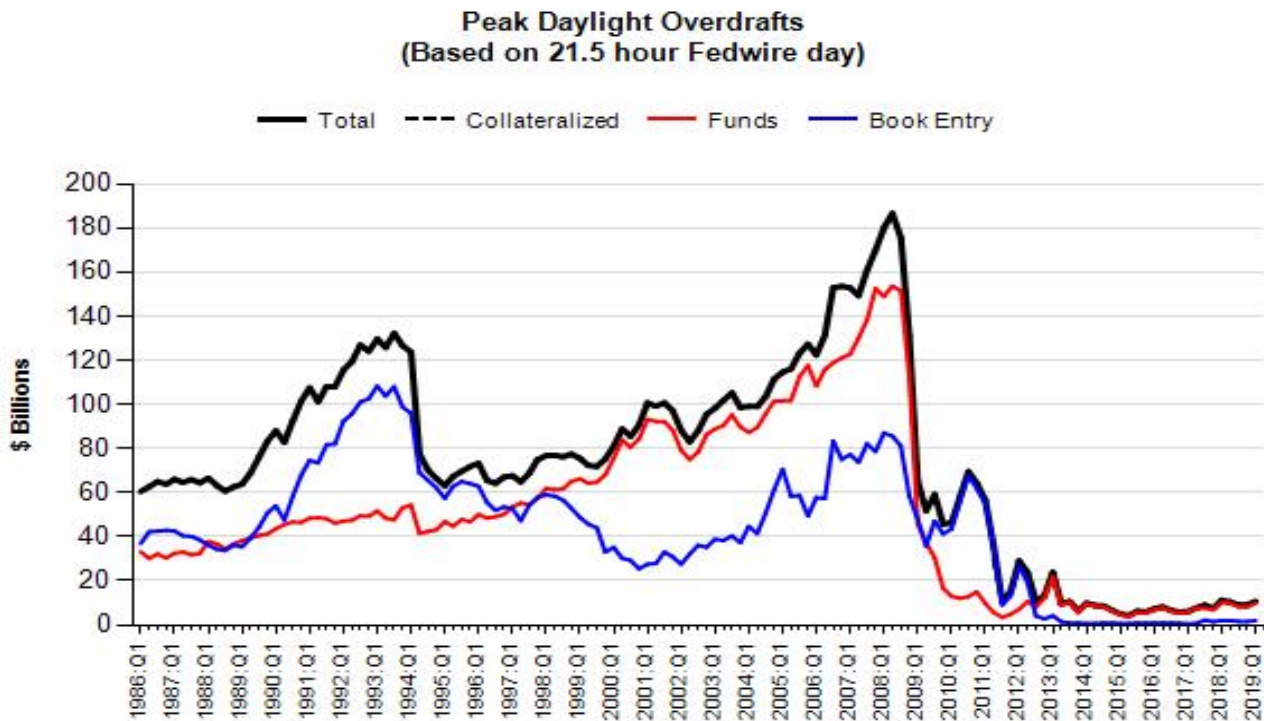
Risk and losses are not the same. During the 1980's there was much ado about daylight overdrafts in financial institution accounts held at the Federal Reserve. In 1985 the Federal Reserve implemented a new policy, Federal Reserve Payments System Risk Policy²⁰, intended to reduce the level of risk to the Federal Reserve and therefore the economy by reducing the amounts of overdrafts during the day. The risks were very large (see graphic below²¹), and sufficiently large to cause a cascade of bank failures should daylight overdrafts have become end-of-day overdrafts. Although there were no actual losses as the result of daylight overdrafts, the risks were real and it was prudent for the Federal Reserve to recognize the risks and take action to minimize the risk and protect the U.S. economy. The graphic below shows a peak risk of \$180+ billion of intraday credit risk while there were no actual losses.

The faster payments system in the U.S. is too young to have much data on losses and no data is available for losses specifically associated with credit push payment directories. Additionally, directories have not yet been used for every customer account with all 10,000 U.S. financial institutions which further limits any useful loss data.

²⁰ https://www.federalreserve.gov/paymentsystems/files/psr_overview.pdf

²¹ *ibid*

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Conclusion

The future of payments in the U.S. is real-time (faster) payments. Most entities consider credit push payments as the only option for faster payments under the assumption that credit push payments are safer and more efficient than debits payments. However, credit push payments are not risk free and ubiquitous credit push payments are dependent on the use of directories to route and post payments to the correct parties. The risks associated with credit push directories are not well understood and could be indeterminately large, potentially including consequential damages. The industry can address these risks through multilateral, uniform agreements but has not yet accepted that mantle.

The Federal Reserve has yet to determine whether it will offer faster payment services but its decision will not negate the need for private sector agreements and therefore should not delay private sector action.

Key to the success of faster payments is the trust of the users that the system works and is safe. Dispute litigation among users and providers could create significant harm to the success of faster payments and delay the achievement of the objective of ubiquitous payments. Risks and losses are not the same and knowing the risks associated with directories, the industry should take action to mitigate these risks prior to broad acceptance and implementation of faster payments.

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About – Tiller Endeavors, LLC

Tiller Endeavors is a consulting firm created when ECCHO was dissolved. David Walker worked with ECCHO (Electronic Check Clearing House Organization) from 1990 when it was created until 2018 when it was dissolved as a legal entity and as ECCHO's President and CEO from 2001 through 2018. In 2017, the ECCHO Board of Directors determined to sell all ECCHO's assets to The Clearing House (TCH) creating the need to dissolve the organization.

Mr. Walker has more than 40 years in the banking industry, including electronic check exchange rules, industry advocacy, check certification program, ACH operations, wire operations, funds management trading operations, Federal Reserve and Due From balance management, customer balance and controlled disbursement reporting, ACH and wire product management, daylight overdraft management, IT systems for wire and balance reporting and IT operations for the then largest bank in Texas.

Mr. Walker participated in the Executive (Presidential) Signing Ceremony of the Check 21 Act in the Oval Office. He was a member of the Faster Payments Task Force, Chaired the Legal Work Group of the Faster Payments Task Force, was a member of the Governance Framework Formation Team, is a Founding Member of the U.S. Faster Payments Council and served as a Director on the U.S. Faster Payments Council Interim Board of Directors.

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Definitions Used in This Paper

Beneficiary – A beneficiary is the party that receives funds from the party that is making a payment.

Credit push payments – A credit push payment occurs when the amount of the payment is first deducted from account of the paying party at its financial institution before the funds are deposited (pushed) into the beneficiary's account with its financial institution. For credit push payments, the paying party or its financial institution must either have or have access to the beneficiary's banking relationship and the beneficiary's account information in order to deliver the payment to the beneficiary.

Credit risk – Credit risk occurs when a beneficiary is provided funds prior to the funds being drawn from the paying party's account. The beneficiary's account may be at a financial institution or some other provider of payment services.

Daylight overdraft - A negative balance in a financial institution's Federal Reserve account at any time during the Fedwire operating day. Daylight overdrafts that are unresolved by the end-of-day become actual overdrafts. Also see the Federal Reserve Payments System Risk Policy.

Debit pull payments - A debit pull payment occurs when the amount of the payments is first deposited into the beneficiary's account with its financial institution before the funds are deducted (pulled) from the paying parties account with its financial institution.

Directory – Directories are needed to perform two tasks, 1) to route credit push payments from the paying party's financial institution to the beneficiary's financial institution and 2) to route the payment (deposit) to the beneficiary's account with the beneficiary's financial institution. While different directories could perform each of the functions separately, for the purposes of this paper, it is assumed that faster payments directories perform both functions.

Faster payments – The term "faster payments" is generally used to refer to payments that occur almost instantaneously from the perspective of the parties making and receiving payments. "Faster payments" are expected to be risk free or near risk free for those parties.

Proximate (consequential) damages – Proximate (consequential) damages are those financial damages that are awarded to the plaintiff in addition to the amount of the payment. Some examples of approximate damages include, 1) the replacement cost of insured property when an insured event occurs following a failed premium payment, 2) loss of business income during the adjudication process to resolve the dispute, 3) personal injury costs resulting from an insured event, 4) the legal costs to sue the party responsible for the financial loss, and 5) all other costs/losses associated directly or indirectly with the failure of the payment to successfully be available to the beneficiary and/or the failure for the payment to be available to the beneficiary timely.

Real-time payments – Real-time payments refers to payments that occur almost instantaneously for all parties, end-user to end-user, including initiation and receipt of payments and initiation and receipt of interbank settlement between financial institutions in their accounts held at the Federal Reserve. The combination of real-time posting and real-time settlement (24x7x365) creates real-time payments.

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Real-time postings – Real-time posting refers to the online posting of payments made from or to customers' accounts with their respective financial institutions throughout the day as payments are initiated. This contrasts with the more traditional batch posting of transactions at the end of the banking day. With real-time posting, the impacts on the accounts, whether to increase or decrease the account balances, occurs instantaneously throughout the day.

Settlement – Settlement refers to the movement of funds between the paying and receiving financial institutions via their accounts with the Federal Reserve. Settlement is associated with but independent of payments between customer accounts with their financial institutions. At the time of this writing, the Federal Reserve is only open for settlement transactions during selected hours of the day and only during selected days of the week. In the current environment, should financial institutions provide real-time payments to their customers 24X7X365, they would assume credit risk in the amounts of the payments executed outside of the Federal Reserve's settlement windows.