Federal Reserve

Payment System Improvement Public consultation Paper

VocaLink response

Questions for the Public

Q1. Are you in general agreement with the payment system gaps and opportunities identified above? Please explain if desired.

> ***What other gaps or opportunities not mentioned in the paper could be addressed to make improvements in the US payment system?***

[1]Cheques are convenient and generally ubiquitous: investment in improving cheque acceptance (e.g. paying in via a mobile phone) has tended to increase this sense of convenience. They also create the "sense" of an immediate transfer of value. With both true immediacy (instant transfer of value) and convenience (integrated digital channels), real-time ACH type payments will prove a far more flexible and attractive method than cheques for both business and consumers. Such an underlying service can be presented as an integrated range of services tailored to a range of different values and customer needs.

[2 & 3] In the UK, where there is effective **ubiquity of access to real-time retail payments**[1] it is estimated that close on 1 billion transactions will be made in the current year. This number is growing at 28% per annum, and appears to be accelerating as new digital channels are added. Growth comes from cannibalisation of existing non real-time ACH business (e.g. payroll), but also from cash, cheques and by creating new payment opportunities. Businesses and government have created new services (e.g. instant insurance claim payout, instant loans, emergency benefit payments) based on this ubiquitous service. Over the next year, new services such as mobile-number based payments and a consumer to merchant services are due to launch which will similarly benefit from the universal underlying rails. In the absence of core underlying rails products have been developed in closed communities such as transit (e.g. Octopus in Hong Kong), parking services (e.g Ring-Go in the UK) and even coffee shops (e.g. Starbucks). Whilst successful in their own domain they have a tight commercial boundary which inhibits delivery of general macro-economic benefit, and have generally focussed on values appropriate to cash substitution but not cheques. Other innovation efforts have concentrated on either "closed loop" systems where value is held within accounts linked to the same provider (stored vale), which inhibits their wide uptake, or by providing new "front-ends" to legacy payment mechanisms such as cards (e.g. NFC roll-out, Isis etc). The cards network is of course suited only to a limited range of transaction types, being based on a person to business model, thus limiting the ability to support other models, (although mobile card acceptance

[1] via the Faster Payments service which is connected to the vast majority of personal and business bank account and has been in place since May 2008

has been successful in the US where consumers are prepared to pay relatively high transaction fees in the absence of other services) .

[4] The list is reflects many of the key features which have been built in to the UK Faster Payments service and are either incorporated or planned for a number of other real-time payments services globally. In general real-time offers a more intuitive and natural payment model than both wire transfer and card-based payments; more like physical cash but without the physical limitations. It is, importantly symmetrical unlike forms of payment like Direct Debit and Card systems which typically have pre-defined roles for Corporate/Merchant and Personal users. A refreshed ACH model offers the same basic functionality to every account owning user. Looking at each point individually:

- *"A real-time validation process assuring the payee that the payer's account exists and it has enough funds or available credit to cover the payment."* In our view this is implies perpetuating an unsafe payment process that requires the payer to unnecessarily reveal account related information to a third party/the payee as in legacy credit and debit card processing. In our view it is better to use a process that requests the payer to initiate a real-time transfer and the payer then directs his or her bank to do so. The completion of the real-time payment will indicate that funds were available for the transaction to be made without the payer revealing any critical financial information as to his/her credentials or financial position. Habitually card processing has used "pre-authorisation" for a minority of transactions[2]. Alternative work flows can be used for these transactions to avoid perpetuating existing fraud-prone transaction models.
- *Assurance that a payments will not be returned or reversed.* This is a core feature that must be in place to ensure confidence in the payment system. It can be best achieved by a "safe" settlement model where each payment protected by clear settlement and risk arrangements that will ensure each counterparty (payee's bank) can expect to receive settlement in respect of that payment, even if the payers bank suffers a critical [technical or business] failure. This requires real-time linkage of participant risk positions to settlement agent [usually central bank] deposits. A variety of mechanisms[3] are possible to support this ranging from full item by item Real-time gross settlement, to pre-funding of liquidity pools and collateralisation of background loss sharing arrangements. The key common attribute is that they are acceptable and honoured by all participants.
- *Timely notification to the payer and payee that the payments has been made.* Is essential to enable linkage to the wider business process such as the release of goods or services to the customer conditional on receipt of payment.
- *Near real*-time posting / availability of funds to both the payer's and payee's accounts. This feature is critical to the replacement of cash by electronic methods. Cash can be quickly recycled, (i.e. put to use again by the beneficiary). This is similarly a feature of real-time payments, and a distinct advantage over existing card and ACH models. The improved cash flow is likely to have significant benefits to smaller businesses and, if widely adopted, create economic efficiencies and reduce overall payment lead times [debtor days].

[2] Where goods or services are provided before the amount of the transaction is known/paid for, e.g. hotel incidental charge guarantees and self-service gas station fuel pumps

[3] VocaLink believes that the choice of settlement mechanism and risk protection can be critical to ensuring the technical efficiency of the system and the attractiveness to different sizes of participant.

- *Masked account details, eliminating the need for end users to disclose bank account information to each other.* As discussed above, security of account information is increasingly important, both to protect individual identity and prevent fraud. In the UK such a service is being implemented using the Payee's mobile phone number as a proxy for the bank account. Similar services are in place or being commissioned in India, Poland, Sweden and Australia. An additional benefit of such a "proxy" service (encompassing additional proxies such as identity card number, email address etc) is the ability to build in a step which enables the identity of the payee to be confirmed though non-financial details before the transaction is made[4].

[5] Cross border services could be greatly enhance by delivering similar transparency to that available in a domestic real-time system. One way to achieve this would be to focus efforts on linking real-time ACHs where they exist. For example were a real-time ACH to be established in the United States a real-time reciprocal arrangement could be set up with Mexico, the UK, India, Sweden and Poland, all of which have real-time services at present. Mechanisms for cross border settlement could be facilitated using cross-participation and correspondent bank support. By being a bank account to bank account type transfer, existing counter terrorist and Anti money laundering procedures at both sending and receiving bank could be leveraged.

[6] Mobile devices will drive adoption of services like real-time transfer, which will replace cash. "Wallet" services and other third party applications will proliferate in the absence of banks providing mobile payment capability. A generic standard for bank payments apps to enable them to interoperate generically with merchant apps would make them significantly more attractive to merchants, and enable banks/payment service providers to offer customers the level of security and convenience that they seek, whilst obviating the need for the customer to store sensitive financial credentials on a third parties system. The Ideal system in the Netherlands, and more recently ZAPP in the UK are services designed to enable bank and merchant interoperation in this way. Such models which also engage the bank offer the customer real value adds, such as the opportunity to review available funds and budgetary information at the time of a purchase. Given the tight control of information, it also gives the customer the potential to only "opt in" to sharing personal information with merchants, or to remain effectively anonymous, based on the perceived trade off between benefits (loyalty schemes, free delivery etc) and fears of identity compromise.

[7] The move to immediate payments and commerce will be driven by consumers who generate high volumes and frequencies of payments and have no complex back office arrangements. Businesses have, however, adapted to the current levels of inconvenience in making payments. This is such that they seek to minimise their transaction volumes by aggregating transactions such that a single payment is used to cover multiple due remittances. Complex back office systems (both manual and automated) have been developed to enable the reconciliation of invoices to payments and associated aggregated remittance advices etc. This is a considerable overhead but these processes have become embedded and the cost of change is huge. To offset the cost of change, a payments system would need to offer a step change in efficiency, cash flow benefits etc. Large scale adoption of disaggregated real-time transfers based on ISO20022 messaging, (which is interoperable with

[4] In this workflow the payer would use the chosen "proxy" to identify the payee/payee's bank account. On entering the proxy, the payer would be presented by a central database with information to enable him/her to confirm the identify of the payee in non-financial terms such as a personal or company name.

most new ERP systems) might offer an opportunity to do this, with consequent benefits both to the individual firms concerned and macro-economically.

[8] Consumer fears regarding the security of payments are justifiable in the wake of the number of instances of large scale compromise to individual payment card details held online by third parties. Whilst steps have been taken by card schemes to improve the standards for securing such data, such models which involve the individual surrendering critical financial information are a legacy of former manual systems and as such are outdated. More modern models which have an inherently more secure underlying processes (e.g. bank centric models) can eliminate this problem, and give payment service providers the confidence to issue guarantees to their customers. For payments, the mobile platform has the capability to incorporate many additional layers of security, the challenge being to retain levels of convenience such that the customer will use the service. Many methods are being employed to secure mobile and internet based transactions, including ones that increase the level of authentication complexity in relation to the value of the transaction. Unlike with cards, mobile phones give the payers payments service provider the ability to flex their level and approach to security as a competitive differentiator and in line with technological advances and with consequent benefits to adoption.

Q2. Are you in general agreement with the desired outcome s for payment system improvements over the next 10 years? Please explain if desired.

What other outcomes should be pursued?

In general we agree with the outcomes as stated which reflect meeting the gaps in the current payment system, and we refer you to our comments to question 1 above, which state our rationale. The evidence of achievement of the desired outcomes would, we believe be most visible by clear generic changes to market structure

We would see demonstration of the successful achievement of the desired outcomes by both the implementation of an updated clearing and settlement system between Payment Service Providers and the presence of a thriving ecosystem of new and developing services using that underlying infrastructure. The underlying infrastructure would be real-time which will prove a more “natural” payment process than pre-existing electronic means. This is explained by the following characteristics:

- Instant – no waiting for funds or currency of information
- Symmetric – pay anyone or be paid by anyone potentially – unlike cards which are asymmetric (although square looking to improve symmetry)
- Adaptable – as transactional (not batch) more easily adaptable to different uses, also to new technologies
- Easily Accessible – to both payment service providers and users
- Convenient – through universal channel and device availability
- Available – potentially to anyone who has a bank account, and possibly new forms of pre-paid accounts
- Connected – to user applications (e.g. merchants) , third party service providers and other networks (e.g. to facilitate cross border transfers)

Hence adoption will be greater than previous electronic instruments which were dedicated to only a subset of the above categories such as a channel or a use case. The new services using the infrastructure will be provided by a wide variety of traditional payments service providers and users, although over time it will become more common for some organisations to adopt both roles, (as at present with self-acquiring organisations like Amazon and PayPal). There will be a beneficial interplay between areas of non-competitive collaboration, competitive collaboration and pure competition. Central to this will be the need to establish common standards, straightforward access catering for multiple sizes of participant and levels of participation. And finally the presence of a dynamic supply chain and clear economic models to incentivise those who provide payment services.

Q3. In what way should the Federal Reserve Banks help to improve the payment system as an operator, leader and/or catalyst?

Create a framework for payment development that meets the needs of the wider stakeholder community, including banks, consumers, businesses and public bodies such that the need for Central Government intervention or legislation is minimised. This could include:

- Providing thought leadership across both user and provider groups;
- Produce standards based on other countries lessons learned and US needs;
- Encourage and develop the supply chain;
- Run pilot services in limited areas;
- Provide an optional, operational service and rules to enable participation; adn
- Build new services and mandate connectivity.

Q4 On implementation approach

i) Which of these perspectives is most accurate and why?

From evidence of other countries it appears that no recent successful universal or near universal collaborative, market-wide infrastructure renewal has taken place without co-ordination by a public authority or an industry body or a clear request from the Public Authority or regulator and/or a self-regulatory response from the industry. As described elsewhere in this response document such an intervention is only justified when it represents a step change in a core underlying collaborative infrastructure.

Incremental ACH change is unlikely to deliver successful outcomes, as the benefits of step by step movement are likely to be insufficient to justify any change from either a participant business case or macro-economic perspective (e.g. expedited settlement).

Competitively driven changes have tended to be closed loop, (both payer and payee must sign up for an account with the service provider to use the service); whilst these could theoretically be made to interoperate to provide a “super-service” it is highly likely that proprietary features of one system will be incompatible with other competitive efforts. Where universal reach is required, new development have concentrated on putting a “front end” on existing infrastructure (primarily cards) which may enable use of new channels, but overall does not create the fundamental new opportunities as would say a real-time end to end ACH process.

ii) What other perspectives should be considered?

Whilst ubiquitous participation is a desirable end state, it may be that such a service starts from a lesser base of participants, more of a critical mass.

Given the scale and diversity of the US market, reach to participants may be best effected by a "network of networks". In this case the key role for the Federal Reserve Banks would be in establishing the rules, standards and service levels for interoperability and access. VocaLink has done some work on this within the context of a similar model for the European Union, (EU) and would be happy to discuss this with the FRB.

Q5. Features of a near-real-time system.

Our agreement and assessment of these features is contained in question 1, [4]. We are in absolute agreement that features a. to e. are critical features of a near real-time system. In addition the following features are attractive:

- Direct access to as broad a range of system participants (payment service providers) as possible. Whilst major banks will be able to connect directly, the development of simplified participation models for smaller banks will be important to enable rapid take up. This should enable such payments service providers to access the system without a high fixed cost investment requirement. This can be facilitated by encouraging the participation of managed service providers who can facilitate technical access for these smaller providers. Accreditation of such providers to recognised standards would be a high priority.

- Facilities for direct access to the infrastructure by payments service users, and to enable interoperability with point of sale, billing and other commercial processes. This could also include straight through processing of complex business transactions (e.g. in the health, insurance, utility, taxation and other government sectors), where successful payments is dependent on the completion of other business outcomes.

- Access facilities to enable innovative service providers to "overlay" their services onto the basic real-time transaction to create value added services.

- Use of ISO20022 to define the payment message to enable forward interoperability with payments services and adjacent systems being built in the US and the rest of the world.

- Compliant to CPSS-IOSCO principles, such that the system is usable up to high values for business to business trading, although excluding very high values used for wholesale interbank settlement (e.g. for securities and foreign exchange) which should be addressed by RTGS transfers.

Q6. There are strong benefits in building a new fit for purpose system, that incorporates the above features to cater for a range of transaction values able to accommodate quite high frequency and value business to business transactions as well as person to person or person to business transactions. This obviously does not include "systemically significant" transactions (such as securities or FX wholesale settlement) which are the preserve of the RTGS system.

To achieve the benefits already described, a new system, as described earlier, will be the best approach, avoiding the design compromises that must be made if adaptation of an old model such as the debit card network or wire transfer system is made (both of which are designed for sub-sets of the market). Such a system is capable of providing for both low and higher value payment services from the same core infrastructure. Methods of initiation, authentication and presentation to the customer will enable the service to be "tuned" by the PSP to the needs of individual user segments, (e.g. low cost "money transfer" or high value "wire transfer").

Q7. Check processing has seen significant enhancement "around the edge" through Check21 and recent development such as smartphone imaging. A new real-time transfer service could reduce check transfer time, but may require premium charging to cater for the increased risk to payer and beneficiary associated with check and check-related fraud. For this reason it may be more beneficial not to allow the real-time service to be used for cheque processing.

Q8. Taking the UK example, the introduction of Faster Payments raised concerns that levels of on-line fraud might increase. However this has not been the case, and whilst Card fraud is increasing over the last year levels of on-line banking fraud have significantly declined. The control of customer authentication by the bank with few handoffs and the push credit model contribute to this.

Q9. Mobility is the natural companion to a real-time payment service. Whilst a real-time service as envisaged within this document will create the potential to transfer funds as simply universally and irrevocably and symmetrically as handing over cash, the mobile channel enables such payments to be made anywhere, face to face, at the point of sale or remotely. This matches and exceeds the flexibility of cash and all other existing instruments (including other mobile offers such as those based on cards which are basically asymmetrical or based on a closed loop model). The mobile platform (especially the smart phone) has additional benefits such as enabling the payee to mask their financial identity by using the phone number as a proxy and by providing multiple technologies to secure the device, transaction and user's identity.

Q10. This is a very large and important question, the answer to which we believe lies in the obverse to the statements made in this document, i.e. short term benefits would be made by not driving through on payment system investment. Increasingly however, negative effects would be incurred as:

- End to end payment costs for U.S. businesses would rise vis-à-vis many of its major competitors.
- U.S. businesses, banks and consumers will increasingly be faced with different and incompatible payments methods for use at home and abroad
- The market will continue to flourish for closed loop providers, one of which may become dominant on a purely commercial and competitive basis, thus disintermediating existing payments service providers.

Q11. In terms of bank back office processing, the most critical need is for banks to operate their core accounting and supporting systems (e.g. risk management) on a real-time platform. Whilst many major banks have this capability throughout their customer base, some smaller banks have adequate capability for lower value payments in order to support debit card transactions. Where an upgrade is

needed, most vendors of banking systems have now developed the capability to interface to near real-time systems, and the vibrant market for outsourced banking services in the U.S. should be able to provide for this need from the smallest to nearly the largest bank.

Q12. Proxy services: such a facility has many benefits especially when asking to be paid or pay another hitherto unknown party (evidenced by UK mobile scheme where only public information, in this case the mobile number and name is used to identify the beneficiary).

However where a beneficiary is already known to the payer (i.e. has been paid before) there is less benefit in use of such a service, and a more straightforward transaction may be made.

There are some overheads in the maintenance of such a service, requiring updates as customers change addresses, bank accounts and mobile phones. Automated links to account databases and phone company records will alleviate these issues. Also, given the number of cell phones in use in the U.S., it may be worth considering a distributed database model.

Q13 Generally, to meet the needs of users, a migration should be driven not by the withdrawal of existing payment types but by the attractiveness of alternative new instruments. Speaking from a UK perspective, it became clear when the UK trade body, the Payments council announced cessation of cheque clearing by 2018 with a clear intention, but without a clear roadmap, for their replacement by other instruments, the outcry from specific sectors of the end user community led to government intervention to retain the cheque. However existing migration rates from cheques creates the problem of increasing per transaction costs as volumes drop towards a fixed cost base, and widespread use of cheques perpetuates fraud and slow payment. The following steps might be expected to increase the rate of willing migration:

- Introduction of near ubiquitous real-time based services across a variety of sectors (including both business and personal payments);
- Creation of an "open market" for service providers to cater for the specific needs of end user communities with alterative payments solutions, (including those targeted towards older people, small organisations and those physically unable to use certain existing systems); and
- Removal of any "illicit benefits" from cheque use to level the playing field for comparison with electronic instruments. This includes removing delays in clearing (so payers do not benefit from artificial delays) and not treating cheques as irrevocable until cleared (i.e. release of goods cannot be made on receipt of a cheque until cleared).

Only when steps such as these are in place would it be safe to make an assessment of the actual migration rates. Thus the timetable for payment improvement is the most important dependency here. Given that several European economies and many Asian economies have completely moved away from the cheque already, those economies like the U.S. and UK which retain cheques are already arguably disadvantaged from a cost perspective.

Q14.

i. No comment
ii. Key challenges are:
    - Data content in existing payments transactions is limited allowing less accompanying remittance information, or even insufficient information to reconcile payments to

information sent via another method (e.g. email) . Adoption of ISO20022 standards may be an appropriate answer to this question, but this needs standardisation of key areas such as transaction identification and widespread adoption. In our view use of ISO20022 as a core transaction standard eliminates many of these problems.

- A lack of an easy interface or API for third party providers to develop data services for business invoicing and/or consumer billing which can interface with payment service providers to a common standard.
- Lack of an API which enables exceptions to be effectively self managed by the end customer as part of their business process – bank interventions are costly and frequently inaccurate due to the banks distance from the business process.

iii. Reduction in hidden benefits of using cheques (see answer to Q 13) will be a major factor in increasing the relative attractiveness of electronic solutions. However we feel the major benefit will be in providing the necessary standards and APIs to enable the wider technology community to develop corporate invoicing solutions and consumer billing services that interface with the banking infrastructure on a standard basis.
and the engagement of the wider community and technology enabler market. If these APIs connect with real-time information and payment services we believe the attractiveness will be greatly increased.

iv. It is critical to payment services providers together with the end user community. As such reaching out to such bodies as the Association for finance Professionals is useful and a multi-stakeholder working group such as the Remittance Coalition co-ordinated by the Federal Reserve Bank of Minneapolis seems a very credible working approach.

Q15. ISO 20022 is rapidly becoming the de-facto standard for financial and payments systems. Whilst it does not “solve” problems on its own, the standardisation of approach reduces the burden of interoperability between systems, assisting both reconciliation and integration with the end to end business process, as well as enabling a greater “payload” of identifying information to accompany the payment. For businesses, see comments on Q14. For cross-border transfers, the widespread adoption of ISO20022 (lead by the euro-zone, but now increasingly elsewhere) globally ensures that its use will increase the potential for end to end data retention and transparency in such use.

Q16. At a high level we believe the following would provide greater cross-border choice and efficiency:

- Adoption of ISO20022 domestic transfer capability between PSPs to enhance interoperability
- Enabling cross border transfers to be made to or from an on-line bank account (subject to know your customer and sanctions checking processes) direct to a recognised cross-border service provider, (with ACH transfer effected in real-time).
- As an alternative a single cross-border ACH to ACH gateway with linkage in end-to-end real time to countries with real time transfer services to give service levels approximately equivalent to a domestic real-time transfer in terms of timing and transparency.

Q17 Security: Key threats: There are significant weaknesses in current retail payments systems, especially those that relay on the use of cards to enable debiting of a consumer account by a third party.

Authentication: Whilst measures have been developed to authenticate the user of the card, both on-line and at the physical point of sale, there has been a resistance to their adoption in the U.S. EMV ("Chip and PIN") standards , which have proved an effective deterrent to point of sale fraud where implemented is resisted as another imposition to the industry. Additional authentication measures to prevent card fraud on-line have been resisted by major on-line retailers who see reduced sales when customers are faced with another hurdle to transaction completion. Simplified authentication as offered by some self-acquiring retailers and providers of wallets has been well received by retailers and consumers. It is arguable, however that authentication requirements will be better served if a model which is based on push "credit" payments is employed, instead of the legacy cards model. In this model the payment flow is one which presents a merchant "request to pay" to the payer who then instructs hi or her payment service provider (account holder) to pay that request. No financial details are revealed by the payer, who only ever authenticates him or herself to their own payment service provider. In such a situation authentication may be specific to each payments service provider: variation between organisations would present greater complexity to fraudsters.

Storage of data: an additional benefit of the above "request to pay" model is that merchants, acquirers and wallet providers are not required to hold payment data and the consequent risk of exposure is minimised (both merchants and acquirers have been subject to significant data breaches in recent years).

Security of software and devices: whilst there are "fears of the new" associated with use of the mobile phone as a platform for payment initiation it is arguable that it has the capability to support far more flexible and robust security than any previous device used to enable payment:

- Strong authentication
- Choice of device access security
- Remote disabling when lost or stolen
- Continuous remote upgrade to security standards
- Both hardware and software based security measures
- Multi-factor authentication based on both web and phone number addressing

Security of infrastructure carrying payments messages. Whilst measures to encrypt and authenticate payments initiation messages between customers and payment providers are robust, they may be compromised by impersonation. The above mentioned push model (where the payer instructs his or her bank to pay) does much to invalidate this type of attack as the customer does not reveal financial data unless the payments service provider authentication handshake can be impersonated. This is not the case with card type models, when a legitimate merchant can be far more easily impersonated and both data stolen and actual transactions misdirected.

Within both the customer to payments service provider and interbank networks the ability for those networks to be compromised or unwittingly monitored has been exposed through recent disclosures in the press. Whether financial data is seen as being vulnerable to exposure to either the security services or organised crime may mean that the financial system loses some level of public trust. It is therefore recommended that the necessary and legal measures taken to

protect data from financial crime are made very transparent by service providers to avoid misunderstanding and any further loss of trust. The recent discussions of the European Parliament around the disclosure of SWIFT information are a good example of the public interest in this area.

Q18 Threat awareness information: general threat awareness of such things as Distributed denial of Service Attacks and other new malicious threats require a national or supra national alert centre enabling any variation in normal threat levels to be monitored as close to real-time as possible: however the majority of incident response activities will be and will continue to be delivered through commercial automated systems and providers like FireEye. This type of service can monitor IP addresses or other electronic ID, alert to any breaches in similar organisations and vulnerabilities that have been discovered in specific systems and execute blocking through IPS or firewall rules

Q19 & Q 20 Security-related payments standards include authentication both between payer and payments service provider and potentially end to end within the financial transaction. As briefly mentioned above, payer authentication standards have been the focus of the cards world in the face of a model based on giving card details to an unknown merchant so that merchant can debit your account. A push based model between payer and bank as also described above allows more flexibility in the level of authentication, so it becomes a competitive approach based perhaps on “minimum” standards (e.g. specifying 2 factor authentication). Arguably such an approach to standards would improve security in this area.

Q21; no comment