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

Dated: December 14, 2018

Attention: Board of Governors of the Federal Reserve System

Filed Electronically to: regs.comments@federalreserve.gov

> Re: _Docket No. OP – 1625_, _Request for Comment for Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments_

Ladies and Gentlemen:

Baton Systems is pleased to provide feedback for the Federal Reserve Board's ("Board") potential action to support Interbank Settlement of Faster Payments. We believe that action to bring faster settlements to the US is very important for growth of commerce, reducing risks in banking, and creation of new businesses. We welcome the initiative and are eager to participate with the Board on this.

Our comments in this submission are based on expertise we have gained by working with various financial institutions in payments and settlement, as well as advising regulatory bodies around settlement and synchronization.

Our detailed response to the committee's questions is attached with this letter. We look forward to the next steps in this process to make faster settlements a reality.

Thank you,

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Executive Summary

1. Baton has worked with many other global payment experts in developing operating rules and settlement finality opinions across multiple jurisdictions. Baton is a direct settlement agent with the US Federal Reserve for the NSS (National Settlement Service) services and was one of four companies globally selected by the Bank of England to develop a proof of concept on the new RTGS (Real Time Gross Settlement) Systems.

2. The decision to make the payments network available on an as-needed basis is vitally important in a globally-interconnected system. Ideally, the Federal Reserve will opt for this 24/7/365 solution, although 24/6.5/365 would be a workable alternative.

3. The US Dollar is the unofficial global trading currency and is therefore the most traded currency. It is important for the US Federal Reserve to allow for global accessibility and solve problems not just for the US retail markets, but also global capital markets.

4. Avoid the temptation to look for a blockchain-focused solution. Many of the same benefits can be achieved through the use of strong APIs and improvements in accessibility, and without requiring conversion to digital currencies.

5. Accessibility for banks and technology providers is important to enable new and more efficient solutions to be developed. Innovation centers are a great idea.

6. We request the US Federal Reserve to consider some policy changes on eligibility of central accounts, synchronization between multiple central banks and security depositories, etc., to facilitate solutions for large retail institutions in the US, as well as global demand for settlement of US Dollars and US Securities.

Background about Baton Systems

Baton Systems ("Baton") is a software company that develops payment solutions for capital markets. Several large global banks are already using the Baton platform for faster clearing and settlement of over $10 billion daily in cash and securities across the Americas, Asia and Europe. While the Baton platform has a distributed ledger, our solutions deliver faster settlement of real assets in real bank accounts without the need for crypto assets or tokenization.

Our experienced leadership team has has worked with many other global payment experts in developing a set of operating rules and settlement finality opinions that fit in with the electronic funds transfers rules across multiple jurisdictions.

Baton is a direct settlement agent with the US Federal Reserve for the NSS (National Settlement Service) services and was one of four companies globally selected by the Bank of England to develop a proof of concept on the new RTGS Systems[1]. The company is also a SWIFT member.

About Baton Systems' response

The Baton team has market knowledge of both retail and wholesale payment markets and products. On the capital markets side, we have interacted with settlement banks, custody banks, correspondent banks, exchanges, clearing houses and CSDs (central securities depositories). The team has also built consumer and SMB business applications that facilitate near real-time settlements for end users over ACH and interchange rails. The Fed has asked for responses that are mostly product and technology related. While these are important, we wish to highlight the following:

1. Policy Related Issues: The Central Banks, Central Securities Depositories and Central Settlement Venues (such as CHIPS, CHAPS, TARGET, CLS, etc.) have very strict policies on the eligibility criteria for account holders. In addition to capital requirements, there are other complex policy requirements that prevent large global institutions from opening accounts at these settlement venues. To continue to do business, these large institutions need to go through intermediaries to move large amounts of assets. This leads to increased risks (concentration, counterparty), delays, and costs (cost of capital, added settlement costs, operational overhead). While the Federal Reserve does facilitate accessibility, we believe it should extend this access not just to technology

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[1] https://www.finextra.com/finextra-downloads/newsdocs/rtgs-renewal.pdf

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providers that can interface with the RTGS, but also to the eligibility criteria for access to central bank accounts. The Fed guidelines on opening joint accounts is a good starting point.

2. Timing: We are excited that the US Federal Reserve is undertaking the effort for a 24X7X365 system. We think that even a 24X7X6.5 days would be an adequate start, and also reflects the Bank of England's approach as it looks to revamp its RTGS System.

3. Accessibility and Interoperability: Building a new payment network even with innovative end user functions is going to face adoption problems due to lack of participants to bootstrap the network. As the paper addressed this in the accessibility section, we want to emphasize the need for interoperability that will allow for payment solutions with new end user services to use the Reserve Banks' network of 11,000 banks on the current RTGS System. Hence, we think extending the current FedWire based RTGS may be a more practical approach.

Baton's Response to Fed SIPS

SIPS: Strategies for Improving the U.S. Payment System

1.0 Is RTGS the appropriate strategic foundation for interbank settlement of faster payments? Why or why not?

Baton Response:

Short Response: We think **BOTH** an enhanced DNS and RTGS will be required for solving the problems. We see two different set of problems in payments:

(a) Speed for Retail Markets

(b) Speed, Risk and Liquidity Management for Capital Markets

While RTGS will help solve the current set of problems in retail payments, we think the liquidity constraints that it places on the banks will be very large.

DNS on the other hand will allow for liquidity savings. We think this is the prefered way to solve the payments problem for large value payments especially in capital markets. To help reduce risks, participants and settlement agents should have access to collateral accounts that can be pre-funded to reduce counterparty risks.

The problems are different, but the same rails can be used for both. We believe there would be a way to solve both these problems with a well laid out strategy and execution.

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Detailed Explanation:

The following table summarizes our view of the current state of DNS and RTGS and, while valuable, where we think each of these fall short of the user needs for both retail markets as well as capital markets.

Features	DNS	FedWire (Current RTGS)	Comments
Speed	Batch based. Hence payments are delayed.	Real Time	For FedWire, Recipient bank has access to funds. However, a separate step is required for clearing and settlements. Receiver's funds are delayed with DNS.
Risks	Counterparty Risk	Settlement is final and irreversible	Counterparty risks exist because the underlying transaction is not collateralized at the Fed.
Liquidity Efficiencies	High as payments can be netted	Low. Banks need to have access to liquidity.	Managing large value payments in RTGS becomes difficult. May not be an issue for smaller value payments in retail.
Cost	Lower	Higher	End users pay significantly larger fees than what the Federal Reserve charges members for a FedWire.
Messaging	Separate Messages for Clearing and	Can be combined	

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	Settlements		
Interoperability	Low (Complex)	High	Interoperability and visibility into payments in DNS is lower as each end user service may have different risk models, payment threshold and frequencies.

Baton's recommendations are based on our learnings from a diverse set of business requirements from both retail and capital market participants, as well as the appeal of distributed ledger technologies. We think it is important to have BOTH an enhanced RTGS System and enhancements to support a better DNS with lower risk.

Why RTGS: The RTGS (FedWire) is the current foundation that has over 11,000 member banks and a well understood protocol for FedWire and NSS. RTGS already has access to the central bank accounts of the various depositories and has a set of well understood interfaces and messaging schemes to communicate. which makes it easier for market participants.

1. Extending the times for settlement to 24X7X365 (or atleast 24X6.5) would be required for the new framework.
2. The RTGS today supports only simple debit and credit operations. The FedWire supports a credit push protocol for gross settlement. The NSS allows for delayed net settlements. In addition, the FedWire also supports 1031 FedWire drawdown requests. While these are useful for simple retail payments, it is not sufficient for performing synchronized operations (payment versus payment, delivery versus payment, etc.) across multiple settlement venues.
3. We think there are a set of feature enhancements that will be beneficial for the current RTGS system to support synchronization between central banks and CSDs as well as improved liquidity management.

Why DNS: Despite the value that RTGS can provide in terms of elimination of counterparty risks and unified messaging for both clearing and settlement steps, there would be a market need for DNS. This is because of the size of the payments, especially in capital markets. The problems with risk can be mitigated with collateral accounts that can be pre-funded and managed by a settlement agent. The settlement agent will also be able to provide the layer of unified

messaging for the clearing and settlement steps. The efficiencies in netting are important for market participants. The collateral that is pre-funded in the collateral accounts can help mitigate the risks.

2.0 Should the Reserve Banks develop a 24x7x365 RTGS settlement service? Why or why not?

Baton Response:

Short Response: Yes. The new RTGS System (RTGS 2.0) needs to consider the global nature of payments. While 24X7X365 may be ideal, we think a 24X6.5X365 is sufficient to deliver most of the benefits for speed.

Detailed Explanation:

There are a few choices when addressing the question about who should develop RTGS.
1. Only Reserve Bank develops this service
2. Only one private party develops this service
3. Multiple private parties develop their own RTGS services
4. Reserve Bank and other private parties develop their own RTGS service

Let's start with enumerating key characteristics of 24X7X365 RTGS Settlement Service.
1. One party (potentially Fed) can provide RTGS settlement service. Various agents can provide settlement instructions to this settlement service.
2. RTGS could involve message (like FedWire) to allow efficiency (by having a single message for both clearing and settlement) and choices (split and route clearing and settlement parts of the messages).
3. RTGS service can make use of existing electronic access connections and payment service network that Reserve Bank provides.
4. RTGS may require auxiliary services (e.g., proxy database / directory of recipient's aliases, fraud monitoring, and transaction limits). These services, if required, will likely be developed by banks and other service providers.
5. 24x7x365 RTGS Settlement Service will provide societal benefits of:
   a. Accessibility
   b. Safety

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c. Efficiency

Accessibility Considerations:
Reserve Bank is in the best position to provide this service from an accessibility perspective. It may be difficult for the private sector to create an infrastructure that, on its own, could provide equitable access to enough banks to achieve ubiquity. However, accessibility could be greatly enhanced if existing and potential future private-sector RTGS services were able to interoperate with Reserve Bank RTGS.

Safety Considerations:
RTGS will inherently avoid settlement risk, thereby improving the overall faster payment market in United States. Having a Reserve Bank-provided RTGS will be crucial in case of financial trouble. If Reserve Bank develops this service, there will be both real and perceived benefits for resiliency of service. (Perceived benefits can help with adoption.) Resiliency can be further enhanced if private RTGS co-exists with RTGS provided by Reserve Bank.

Efficiency Considerations:
Efficiency is particularly driven by opposing views. First, that the value of a payment system increases with increased participation from banks. Reserve Bank - with its existing network of more than 11,000 banks - is in the best position to influence participation. However, given the industry has already built some RTGS services, bringing a new service will lead to increased market fragmentation and thus slower adoption of overall faster payments. There may also be operational and technical adjustments needed. Additionally, having multiple players will lead to further innovation in market.

Further Considerations and Data Points:

Our summary section notes the need for a payment system to have a global view of the market needs. The US Dollar is also the preferred currency of trade and exchange in global markets. The Faster Payments Initiative in the US in 2015 took a well thought out and measured approach on security, tokenization, real-time clearing and settlement, etc. It also led to the 'Same Day ACH' which has helped service providers and end customers.

In comparison to the US, other Central banks have less investment in legacy systems for both technologies within the central bank and in depository banks. They have therefore been quicker in rolling out faster payment initiatives and a framework for mobile payments. This has allowed for notifications for payments to be sent and received from mobile phones. Most of these

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services work on near real-time clearing (RTC) and delayed net settlements (DNS).

Current Access Times and Problems: We also wish to highlight the following:

1. FedWire is accessible for over 20 hours a day
   (https://www.frbservices.org/resources/financial-services/wires/operating-hours.html)
   though a combination of online and offline services. However, local banks have hard
   cutoff times (2.00 PM PST in most cases). So access to real-time funds is significantly
   reduced.
2. Access to Same Day ACH, Bill Pay, etc. also have hard cutoff times for banks (e.g.
   https://www.svb.com/corporate/product-support/transaction-cutoff-times/)
3. By contrast, the Interchange debit and credit rails, ATM networks, etc., offer a 24X7X365
   global payments framework. This facilitates real-time clearing and delayed net
   settlements. To minimize fraud and misuse, banks and technology providers have added
   payment thresholds, advanced fraud detection, pin and chip, pin verification, etc. Some
   of the other characteristics include large transaction commissions, high interest rates,
   etc., which are ultimately passed to the end consumers. Despite this, the guarantee of
   funds and ease of accessibility of the APIs make this an area where there has been a lot
   of innovation. It is also the prefered payment method for retailers globally and the
   preferred medium of payments for new gig economy services such as Uber, AirBNB, etc.
   Access to APIs and extensibility makes it easier for new innovative services to be
   developed.

We think the 24X7X365 availability of the credit/debit card rails along with the easier
accessibility of connectivity APIs is a major reason for the innovation in the space. It is easier for
card acquirers, merchant processors, new API developers, fraud detection platforms, etc. to
develop new and innovative services on top of the system and still be interpreted in a fairly
efficient manner. Specifically, we would recommend that the RTGS System consider the
following important tenants in the redesign:

● Settlement window for RTGS: Moving to a 24X7X365 will significantly help both in the
   large value payment systems in the US and with global payments. The details on when a
   payment is recorded (EST vs. GMT) is less important as banks maintain their own
   ledgers and transaction records.
   o **24X6.5X365 as a start**: We think that while the 24X7X365 would be ideal, it is
   also a significantly larger technology challenge than allowing for a fixed down time every
   week for software upgrades and patches. While the technology is available for rolling
   updates and upgrades with an active-active server set up, it adds to cost and
   implementation timelines.

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We think a 24X6.5X365 would be sufficient. The rationale for this is:

> o The large value or wholesale payments benefit more from the 24X7 availability than retail payments, as most retail payments perform settlement in a DNS manner. Capital markets is a major part of the wholesale payments. The global trading week has an eight-hour window in which the markets are not open in any part of the world. During this time, access to central bank settlement, while useful for one-off settlements or automatic sweeps, is not as critical, so 24X6.5X365 would be an acceptable compromise. It would also reduce costs of implementation and the operational and technology challenges to upgrade software and apply critical and major software patches, including security patches.

- Access to central bank accounts: While the ability to hold joint accounts is a good start, it does not allow institutions that do not or cannot have a central bank account to be members of the joint account. We think this is a policy that should be looked into in more detail. We understand some of the complexities and legal impact in relaxing these requirements. However, we do believe that it would open up significant opportunities that would benefit the system as a whole. In discussions with other central banks, we understand that there is a willingness to consider a review of this policy for exceptions.
- Access for settlement agents to multiple protocols and CSDs: This is another area we would like to emphasize. For example, Baton Systems is a direct settlement agent for the US Federal Reserve. We think Baton would be able to add more value to the payments ecosystem with access to FedWire and FedSecurities. Further extending this to the DTCC would add even greater value. Being a settlement agent with only one protocol (NSS) and one central bank makes it harder to innovate in this space and provide a broad scope of services to the payments ecosystem. This is an area that Blockchain and Distributed Ledger technologies are trying to disrupt via easier accessibility. NOTE: as previously stated, we are not recommending a DLT based framework.

We think using existing messaging protocols (SWIFT/ISO 20022) and security standards is important. Allowing settlement agents access to the Fed protocols and to operate joint accounts would be very beneficial. A reasonably high bar for SLAs, reporting of the SLAs, governance processes, etc., should be acceptable. However, requiring settlement agents to be highly capitalized limits the population of companies to only a few incumbents. We would request the Federal Reserve review this policy and increase accessibility for settlement agents.

Conclusion: While there will be short term disruption, in the long term increased participation will outweigh the risks associated with this disruption. Reserve Bank is again the right entity to

build the RTGS. To ensure existing and future solutions offered by private parties can exist and help spur innovation, Reserve Bank should allow private RTGS to coexist and interoperate with RTGS provided by Reserve Bank. Based on these, our final recommendation is that Reserve Bank should develop RTGS while allowing private RTGS to coexist and interoperate.

3.0 If the Reserve Banks develop a 24x7x365 RTGS settlement service,

3.(a). Will there be sufficient demand for faster payments in the United States in the next ten years to support the development of a 24x7x365 RTGS settlement service? What will be the sources of demand? What types of transactions are most likely to generate demand for faster payments?

Baton Response:

Short Response: Yes, there will be sufficient demand to justify the investment. Further, it will lead to large efficiencies and reduction of risks for capital markets and smaller, but still important, efficiency gains in retail payments. Large Value payments would benefit the most from this right away. Large value FX Settlements, Trade Finance, Overseas remittances would see value immediately with large value FX trade settlements realizing instant benefits. With open access and access to joint accounts, we see large value settlements helping in areas like Repo, Overnight Repo, Securities Lending, Mortgage Payments, Equities settlements for cash, etc. seeing increased use of the 24 hour settlement window.

Detailed Explanation:

Baton Systems views the 24-hour window as a <u>necessary but not sufficient</u> condition for solving many problems in large value payments. The problems with delayed settlements result in increased settlements risks, increased capital costs and operational costs for members. This eventually results in increased costs and delays for end users including corporations and individual users on behalf of who intermediary banks perform the actions. Once the RTGS is available for extended hours and access to central bank settlement is available for settlement agents, it is easier to develop solutions that will help synchronize asset movement across multiple settlement venues. These settlement venues could be other central banks, central securities depositories, or other custody banks. The central banks can allow the member banks that work with the settlement agent to decide on the op

erating rules and the details of the settlement finality.

Here, we wish to limit the explanation to the question on increasing the window for RTGS System to 24X7X365 and the applications that can benefit from it. Increasing the access to central bank money and to settlement agents will further increase benefits, and has been already explained in previous questions.

The following are the types of transactions that will benefit the most from the extended settlement window for RTGS:

- FX trade settlements
- Repo and Overnight Repo markets
- Securities Lending
- Trade Finance
- Extended hour margin movements.
- Large value retail payments

Much of the FX settlement today is done today by CLS for the currencies that are CLS eligible. CLS is a net funding gross settlement model that settles 18 currencies for less than 80 member banks. However, CLS does not settle non-cash or non-CLS eligible currencies. For these non-eligible currencies, members face settlements risks, delays in settlements and high costs. Many of these issues can be resolved if central banks in most countries are open 24X7. Baton Systems has developed software that will move real assets in real banks without the need for

crypto or digital assets. We are working with multiple global banks and central banks to demonstrate the power of settling with RTGS in respective countries.

Repo and Secured Lending

Repo trades today are done by tri-party agents that act as the escrow for multiple agents. While the tri-party agents do provide other bundled services, it is not the most efficient or cost effective way for members to settle. We believe that central securities depositories are best at settling securities while central banks are best for settling sovereign currencies and sovereign bonds (unless the sovereign bonds for a country are settled by the CSD in that country). Tri-party agents have multiple charges including capital charges, account fees, and membership requirements for the purpose of facilitating settlements. Smaller institutions need to go through other member banks to use these features which increases costs (capital costs and settlement costs), delays and risks (counterparty, concentration etc). In addition, the repo markets have hard cut-off times making it inefficient to sweep funds in and out. Most banks want to have excess cash in their central bank accounts which increases yield and reduces risk. We think to solve these kinds of complex problems, 24X7 access to RTGS is a necessary step. It would then be possible to develop a true PvP or DvP solution using central bank money and assets at the CSDs. This can extend to multiple jurisdictions. The solutions being proposed using blockchain and digital assets introduce higher risks, change operating models and require significant reinterpretation of settlement finality rules. Baton is working with multiple global banks to solve this problem without digital assets. Similar solutions can benefit significantly with the expanded settlement window of the RTGS.

Securities lending and extended hours margin movements follows a similar fund flows. The legal ownership of the assets during this transfer is already detailed in the operating rules between the principals and the facilitators of the transaction. Today, these movements have hard cut-off times, leading to increased capital and operational inefficiencies. Our view is that central banks and central securities depositories can be enablers in this by extending the time the settlement window is open and opening access to the central bank settlement accounts and systems for banks and settlement agents.

Most retail payments happen on a DNS (deferred net settlement basis). Institutions such as TCH (The Clearing House), Zelle payments, etc. allow for a good funds model to reduce counterparty risk. Only the clearing is done in real-time while the settlement is delayed. The delay leads to settlement risks. It also restricts the amounts that can be made available to members. For large value payments like mortgage and trade finance, access to a 24X7 settlement window will be very useful.

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3.(b). What adjustments would the financial services industry and its customers be required to make to operate in a 24x7x365 settlement environment? Are these adjustments incremental or substantial? What would be the time frame required to make these adjustments? Are the costs of adjustment and potential disruption outweighed by the benefits of creating a 24x7x365 RTGS settlement service? Why or why not?

Baton Response:

Short Response:

Only incremental adjustments if the RTGS is an extension of the current systems, message protocols and slight changes in account structures (with the added support for collateral account in addition to one central bank account as recommended). Membership criteria being eased to allow new members and settlement agents access to central bank settlements would also come under this category. Baton Systems recommends this approach.

Significant adjustments will be needed if the RTGS is a new system that requires substantial changes to membership including new accounts, new messaging protocols and new systems to access the 24 hour settlement window. A consideration by the Federal Reserve to consider the new RTGS on a distributed ledger would be an example of this type of changes. Baton systems does not recommend this approach.

Detailed Explanation:

Most banks that have access to the FedWire or FedSecurites have systems in place to connect up and make wire transfers. These systems, message protocols, legal structures, operating rules and process, IT security policies etc are well understood, tested and reported by the banks.

Using Existing RTGS system and messaging protocols: Extending the settlement window to 24X7 may require the following types of changes by the participating institutions:

1. Slight changes to operating processes to account for the increased hours. This may require the banks to have a round the clock operational support. Most global banks already have this mode. This may increase costs for smaller banks.
2. Improved liquidity management process and tools.
3. Management of collateral and cash accounts separately. This will require new operating rules that can develop independently of the RTGS system between the participating institutions and the settlement agents.

Overall, we think the disruption and associated costs will be controlled. We also think the benefits for this are obvious and would outweigh the costs.

Note: We think some banks will benefit more than others with access to the 24X7 settlement window. There are several ways the Fed can democratise this for all member banks and Baton would be available to provide more feedback and ideas on this topic if requested.

Development of a new system: While the Blockchain and distributed ledger technologies have been touted as the next generation shared ledgering systems, we do not think central banks should consider this approach, or the use of digital assets, at this time.

The following would be the impact of an entirely new RTGS system for the payments ecosystem:

1. Development and launch times for the new system at the Federal Reserve would be significantly longer than simply extending the window for the current systems. The payments ecosystem will continue to develop new interim solutions further increasing their switching costs to any new system.

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2. Bootstrapping and have members join a new settlement system is a significant effort and can cause delays. Without the network of participants, the new RTGS systems would not be very useful.
3. New systems will need to be developed to manage the new RTGS System. In addition, new support and operational teams will need to be hired to run two systems in parallel
4. New accounts and new operating rules are expensive and time-consuming for the banks. Global banks will need to take the global settlement views into consideration.
5. The Distributed Ledger Systems and Central Bank issued digital token have other inherent systems problems (scalability, security of a private DLT) governance problems (policy updates, new member provisioning etc), risk issues (security of tokens in DLT, fiscal policy on issuance etc). Controlling these problems would take out the power of the DLT and make it similar to the current RTGS System with better API access. Baton Systems does not recommend that central banks take this path.

We think this path will lead to longer timelines, costs, and risks.

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3.(c). What is the ideal timeline for implementing a 24x7x365 RTGS settlement service? Would any potential timeline be too late from an industry adoption perspective? Would Federal Reserve action in faster payment settlement hasten or inhibit financial services industry adoption of faster payment services? Please explain.

Baton Response:

Baton Systems recommends the following milestones, that while aggressive, are realistic:

0-8 months:

- **Work with settlement agents like Baton and member banks on sample use cases for the initial testing.** Limit the number of cases, as trying to solve all problems at the same time will cause significant delays. Understand the impact on operating rules and settlement finality (even if it it not finalized).

12-15 months:

- **Extend current FedWire, Fed Securities and NSS operating hours** and possibly ACH to 24 hours a day for a select group of banks and settlement agents to test sample flows. In parallel, work with settlement agents, DTCC and custody banks on synchronization efforts (like project Ubin, Japser, etc., but without the need for a DLT).

15-21 months:

- **Extend the group of participating banks, finalize the fee structure, operating rules.** In parallel start the POC for synchronization efforts for DvP and PvP flows for select asset classes. Call for interest from member banks for 24 hour settlement.

24 months and beyond:

- **Extend 24 hour cash settlement to larger group** to handle more use cases. Extend PvP DvP flows for a controlled set of banks to test in production.

36 months:

- **Allow full access to all members for 24 hour settlements**

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We think an incremental approach as laid out above with a detailed white paper of learnings at every stage and increased member participation in pilots would hasten adoption.

Baton does not recommend the approach taken by the Faster Payments initiative of having very large committees and leaving it to the working groups for the recommendations. We are not criticizing the effort or intent of the Federal Reserve. On the contrary, we think it was a good effort by very knowledgeable people. While that was useful for ACH, which is the most widely used settlement protocol, the outcome was quite obvious from the start. More importantly, as the industry products are evolving at a fast pace, the recommendations of the faster payments get out of date very quickly. We believe that the most agile way forward is to run controlled production releases and generate incremental value for the ecosystem.

3.(d). What adjustments (for example, accounting, operations, and agreements) would banks and bank customers be required to make under a seven-day accounting regime where Reserve Banks record and report end-of-day balances for each calendar day during which payment activity occurs, including weekends and holidays? What timeframe would be required to these changes? Would banks want the option to defer receipt of such information for nonbusiness days to the next business day? If necessary changes by banks represent a significant constraint to timely adoption of seven-day accounting for a 24x7x365 RTGS settlement service, are there alternative accounting or operational solutions that banks could implement?

Baton Response:

Most banks use settlement systems and ledgering systems that were either developed internally or are commercially developed by large institutions like FIS, FiServ, Zelle, etc., for their core payments.

We wish to separate the accounting entries that need to be made for clearing versus settlements. Most banks today support book entry transfers that are almost always 24X7. Support for this means that most of the underlying accounting systems are capable of handling 24 hour clearing and settlements for interbank movements of assets. In addition, with the introduction of the same day ACH and payment providers like Zelle, several of these ledgering and accounting systems are capable of 24 hour clearing. Twenty-four hour clearing may require a good funds model in some cases where the payer's account will need to be debited. Thus, in effect, most systems today allow for 24 hour clearing. The banks may choose to not use these features but that is more of an operating decision rather than a technology limitation for banks today.

Settlement, on the other hand, requires liquidity management including end of day balances, overdraft protection etc. This will be a slight change to the operating procedures as well as

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some updates to the existing systems. These changes may or may not be acceptable for smaller banks. If the banks can charge for the speed for e.g. in the case of overseas remittances versus a service that is comparable to Western Union or MoneyGram for pick up, they may be incentivised to make this investment.

Based on this, our overall response is the following:

1. Banks will need to make some changes to the systems (accounting, payment systems, etc.), operating rules, and operating processes.
2. Some banks may see larger uplift in businesses due to additional services offered for the increased speed of settlement.
3. If the banks are allowed to charge for the services and participation is not made mandatory, the market economics can determine which banks will participate in the extended settlements times.
4. Changes to this should be incrementally rolled out so that banks can update these systems. We think the timelines that proposed in 3(C) would help with increased adoption.
5. Banks would want the option to defer the receipt of such information to the next business day. We think the RTGS system should be implemented whereby if a member bank does not opt in to the next extended service, it should revert back to the way it currently works for them. This should make it less disruptive. The Fed can require that the banks either disclose this to the participants and not charge the end users if the service is not going to be any faster than the current settlement.
6. If backward compatibility to existing systems and processes is maintained, the constraints would be minimized for the banks.

3.(e). What incremental operational burden would banks face if a 24x7x365 RTGS settlement service were designed using accounts separate from banks' master accounts? How would the treatment of balances in separate accounts (for example, ability to earn interest and satisfy reserve balance requirements) affect demand for faster payment settlement?

Baton Response:

Short Response: The incremental operational burden as it relates to settlement from an account separate from the master account is likely to be marginal (though not zero) for large banks and medium-to-small banks. The treasury systems in large banks already deal with a variant of this problem by managing accounts at various settlement venues and through various settlement agents. For smaller banks, this could add a moderate amount of operational overhead. The opportunity to monetize the benefits of the 24X7 settlements would also be different depending on the size of the bank. As suggested in response to previous questions, if the Fed were to allow for an opt-in capability for banks and backward compatibility to existing systems, this should increase the probability of adoption for the extended settlement.

Note: Baton is not a bank, but acts as a settlement agent for banks for settlement of various products. So our view on this is based on our interactions with the treasury and operations teams at various large banks. Baton has worked with the Bank of England on a POC to demonstrate the use of a separate collateral account, that is separate and distinct from the master account, to manage settlement on behalf of member banks. We are familiar with the proposed architecture.

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Detailed Explanation:

Large banks today use various settlement venues like CHIPS, CHAPS, CLS, Target 2, CSDs, Nostro Accounts, Correspondent banks, etc., for managing settlement with various counterparties. These are typically pre-funded models that settle assets on either a netted or gross basis. So the banks today already have a way to manage and report liquidity across these institutions.

Our learnings from the POC with Bank of England: Baton Systems developed a system where members would have one or more collateral accounts that are separate from the master account. Baton acted as the settlement agent to allowed the member banks to facilitate settlement from either the collateral account or the master account. The following were the highlights

1. Banks typically view these accounts as funding sources. Each funding source will have a cost and a yield functions. The cost is the direct and indirect costs of maintaining the account and the yield can be approximated with a linear function.
2. Banks have a way to manage multiple funding sources from an operational perspective They currently have to do this at various settlement venues globally and across various nosto agents and correspondent banks.
3. The benefit of having a separate account would be in reduced risks (due to guaranteed funds), reduced capital costs (due to netting and liquidity savings mechanisms, compressions, etc.), and operational efficiencies such as pre approved sweeps, threshold based settlements, etc. This is offset by the opportunity costs of the overnight interest rates and penalty costs for delayed settlements and overdraft fees.
4. Overall, we think the benefits significantly outweigh the costs. Baton recommends this approach of settlement for 24X7 settlements. A summary of Baton Systems' work with the Bank of England is publshed here - https://www.finextra.com/finextra-downloads/newsdocs/rtgs-renewal.pdf . We are happy to share more details with the Federal Reserve.

3.(f). Regarding auxiliary services or other service options,

3.(f).(i). Is a proxy database or directory that allows faster

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payment services to route end-user payments using the recipient's alias, such as e-mail address or phone number, rather than their bank routing and account information, needed for a 24x7x365 RTGS settlement service? How should such a database be provided to best facilitate nationwide adoption? Who should provide this service?

Baton Response:

It is not needed, but can be useful. To be useful and extensible, we think a more comprehensive strategy like the Aadhaar directory should be considered. This will invariably bring up data privacy concerns that can slow down progress. For now, we think the Federal Reserve should consider options for future integration, but not include it in the scope for the first integration.

3.(f).(ii). Are fraud prevention services that provide tools to detect fraudulent transfers needed for a 24x7x365 RTGS settlement service? How should such tools be provided? Who should provide them?

Baton Response:

We recommend relatively simple fraud checks for the RTGS and not a comprehensive set of statistical analysis or machine learning tools as these require a lot of context (metadata) of the underlying transaction pattern. The RTGS does not have access to all the metadata at this point. Examples of the simple fraud check would include simple anomaly detection that could incorporate velocity checks (for debits and credits from an account or set of accounts), payments to new accounts that have not been paid out before. We think the fraud example of a payment instruction from Bank of Bangladesh is an example of a case that could be prevented or required manual intervention with checks like these in place. In most cases the Federal Reserve does not have a lot of metadata about the underlying transactions to build sophisticated machine learning models to predict fraud patterns the way a Visa/American Express (since Amex is the issuing bank as well).

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3.(f). (iii). How important are these auxiliary services for adoption of faster payment settlement services by the financial services industry? How important are other service options such as transaction limits for risk management and offsetting mechanisms to conserve liquidity? Are there other auxiliary services or service options that are needed for the settlement service to be adopted?

Baton Response:

Directory and Risk: We have explained this in (i) and (ii)

Transaction Limits: These could be helpful and can help prevent or limit fraud. If this is provided, there should be a way to change it through an API and a user interface. We think a simple baseline functionality would be sufficient as more advanced dynamic threshold based transaction limits are already implemented by the banks. The threshold takes into account, risks, credit scores, trade volumes, etc. to set the limits dynamically to initiate clearing at the depository bank level before it reaches the central bank.

Offsetting Mechanism: We think the Liquidity Savings Mechanisms which is an offsetting model that has been implemented by the Bank of England is a good start. It requires a priority setting at a payment level and good queue management. We would consider this a 'nice to have feature' at this point. We think these could be implemented in subsequent releases after the settlement window is increased to 24 hours.

Additional Background on Directory Services:

Nationwide directory services that perform e-KYC with biometric and phone based identity verification is complex and requires a substantial build out and maintenance. But, if done well, can be a big nationwide infrastructure that can be very beneficial for the country.

Aadhaar:

We think the Indian Adhaar is a good example of a directory structure with a set of auxiliary services that had been well built and is getting nationwide adoption. Banking and Payments is a

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core part of the reason for the creation of Adhaar. It could also provide the framework for allowing access to banking services for the rural and unbanked population in India.

While some security concerns relating to data privacy have been recently raised, we think overall it is the type of open and extensible architecture that can be considered. However, we are not sure if this is something that the Central Bank of a country should manage. Instead, in the US, we think it is the type of service that fits in with the infrastructure services the Department of Homeland Security or the Department of Social Security could provide. Some of the details of the architecture can be found here

- https://trai.gov.in/sites/default/files/presentations_&_cv/Day-3_25Aug2017/Session2_Digital%20world/Digital%20Identifiers_Ashok%20Kumar.pdf
- http://scripts.mit.edu/~varun_ag/readinggroup/images/b/.../Technical_Aspects_of_UID.ppt

Zelle Pay:

Zelle on the other hand is a directory and a banking infrastructure and member network that has been built by a consortium of banks in the United States. The infrastructure can be thought of as the following core components:

- Directory
- Security Services (2FA Authentication, KYC, Authorization, data protection, etc.)
- Extensible APIs, including mobile APIs
- End user mobile application

The mobile app can be used by individual users while the APIs allows a rather easy integration hook for banks to integrate Zelle Pay and offer faster settlements to its users. (https://www.aba.com/Tools/Function/Technology/Documents/UnderstandingZelle.pdf)

While it may be theoretically possible to extend the Zelle architecture to handle more than payments, we think as a national infrastructure for identity, banking, taxes, wealth management, fraud detection, etc., a nationwide infrastructure like Aadhaar is superior. In India, all property transactions, mobile phone registrations, insurance transactions, etc., are also linked to Aadhaar numbers. However, this also poses a cyber threat and needs to be treated as a national property and maintained and secured in a similar manner.

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3.(g). How critical is interoperability between RTGS services for faster payments to achieving ubiquity?

Baton Response:

Short Response:

Interoperability is useful to achieve ubiquity.

We believe that almost all respondents would agree that interoperability is important. We think the more important questions to ask would be the following:

1. How can RTGS achieve interoperability
2. Is participation of other settlement venues (central banks, depository institutions, CSDs, etc.) needed for achieving ubiquity?
3. Is there a need for new standard for messaging for clearing and settlements?

Baton Systems will address these in the detailed explanations below.

Detailed Explanation:

We believe that ubiquity can be achieved by creating a payments ecosystem which has the following

- Well-defined APIs and interfaces to interact with the infrastructure (for example the interchange rails).
- Well defined process and rules for the various participants to build solutions and be value added service providers (banks, settlement agents, card issuers, payment processors, etc.)
- Accessibility to the APIs making it easier for payment service providers, software companies and settlement agents to build new solutions to solve for market problems. This will require access to central bank accounts and RTGS settlement protocols.
- There are existing standards like ISO20022, ISO15022, MT, FIX, FpML, MQ message formats. The Bank of England supports building the next-generation RTGS system to be compatible with ISO20022 messaging standard. We recommend support for a standard like ISO20022 rather than creating a new standard for interfacing with RTGS.

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3.(h). Could a 24x7x365 RTGS settlement service be used for purposes other than interbank settlement of retail faster payments? If so, for what other purposes could the service be used? Should its use be restricted and, if so, how?

Baton Response:

Short Response:

Yes. As per our response to 1.0, we believe that a 24X7X365 RTGS settlement service will lead to large efficiencies and reduction of risks for capital markets and smaller efficiency gains in retail payments. Large Value payments would benefit the most from this right away. Specifically, we see large efficiency gains for the following types of services

- FX trade settlements
- Repo and Overnight Repo markets
- Securities Lending
- Trade Finance
- Extended hour margin movements

Detailed Explanation:

See 1.0.

3.(i). Are there specific areas, such as liquidity management, interoperability, accounting processes, or payment routing, for which stakeholders believe the Board should establish joint Federal Reserve and industry teams to identify approaches for implementation of a 24x7x365 RTGS settlement service?

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Baton Response:

> **Short Response:**
>
> A base set of APIs for the banks and settlement agents to access the following will be sufficient for developing solutions:
>
> - Balances: real-time Balances in the master account (currently available through messaging) and collateral account (based on the proposed solution in the paper). In addition, opening and closing balances will be useful.
> - Funding, de-Funding and settlement APIs: Ability to fund, defund and settle from the collateral account or master account.
> - Ability to Query the Queue: most deferred settlements will require some type of a queue management. This allows members to achieve liquidity savings with netting. An ability to view the queue entries will be useful in building better analytics.
>
> We do not think the RTGS System needs to develop a liquidity management system. The use of this will be limited as advanced tools for liquidity management, risk and predictive analytics exist for all members that settle through the RTGS. Thus, we do not expect the marginal use of this tool to be high.

4.0 Should the Federal Reserve develop a liquidity management tool that would enable transfers between Federal Reserve accounts on a 24x7x365 basis to support services for real-time interbank settlement of faster payments, whether those services are provided by the private sector or the Reserve Banks? Why or why not?

Baton Response:

> **Short Response:**
>
> From our response above, we think a comprehensive set of APIs for balance checks, historical transaction reports, funding/defunding/settlements, queue management will be sufficient. An advanced set of self service tools will only have marginal benefits for members as participating agents and settlement agents currently have access to a variety of tools.

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Detailed Explanation:

For a global bank, the US Federal Reserve is only one of the venues where settlements are performed. Even in the United States, it has several funding sources for the purpose of settlements of various business lines. Examples of business lines include retail payments, credit card payments, large value capital market payments for FX, Repo, Securities Lending, Equities settlements, etc. The products include financial products such as swaps, derivatives and futures, that require complex liquidity management. Further, banks manage liquidity from various settlement venues like custody banks, settlement banks, multiple central banks, multiple central securities depositories, etc. Even if the US provided 'self serve' tools, it is unlikely they would be able to capture the complexities of all these transactions. In addition, different teams are responsible for the liquidity of their respective product lines. A smaller retail bank also uses deferred net settlement and other liquidity management tools and will need to manage liquidity across correspondent banks, nostro agents, etc., while the treasury team has a set of tools for recording and closely managing liquidity across all these funding sources.

We think a comprehensive set of APIs for four functions will be sufficient:

- Balance check
- Historical transaction reports
- Funding/Defunding/Settlements
- Queue management

Access to these APIs, rather than a user interface, will be more useful for the ecosystem to build specific liquidity management tools for various products that require settlements.

5.0 If the Reserve Banks develop a liquidity management tool,

5.(a). What type of tool would be preferable and why?

      I.   **A tool that requires a bank to originate a transfer from one account to another**

      II.   **A tool that allows an agent to originate a transfer on behalf of one or more banks**

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Baton Response:

> **Short Response:**
>
> A simple API is sufficient. A user interface is unlikely to be useful as this would require integration to the authentication systems of banks as well as treasury controls for approvals such as maker / checker. We recommend that the RTGS only provider API access for this.

III. A tool that allows an automatic transfer of balances (or "sweep") based on pre-established thresholds and limits

Baton Response:

> **Short Response:**
>
> APIs are sufficient.
>
> Reason: The Sweep functionality is useful, but can be achieved by a set of funding and defunding APIs. The threshold based limits, while theoretically useful, require a lot of context about the transactions to be useful. This is managed by banks based on a set of complex limit settings and counterparty risk scores. Without sufficient context and a complex set of statistical analytics algorithms that have context of the underlying transactions, threshold or frequency based sweeps are more likely to have false positives and false negatives.

IV. A combination of the above

Baton Response:

> **Short Response:**
>
> No, APIs described above are sufficient
>
> Reason: As explained above, liquidity management requires sufficient context of the transaction. The transactions in turn may be a complex set of trades or transactions. Simple rule-based systems may not be as useful.

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5.(b). Would a liquidity management tool need to be available 24x7x365, or alternatively, during certain defined hours on weekends and holidays? During what hours should a liquidity management tool be available?

Baton Response:

APIs described above are sufficient

5.(c). Could a liquidity management tool be used for purposes other than to support real-time settlement of retail faster payments? If so, for what other purposes could the tool be used? Should its use be restricted and, if so, how?

Baton Response:

Short Response:

APIs are sufficient.

Reason: We do not think the RTGS System should build a liquidity management tool. It is sufficient to provide the following categories of APIs:

- Balance check
- Historical transaction reports
- Funding/Defunding/Settlements
- Queue management

6.0 Should a 24x7x365 RTGS settlement service and liquidity management tool be developed in tandem or should the Federal Reserve pursue only one, or neither, of these initiatives? Why?

Baton Response:

24X7X365 RTGS: Extending the settlement window to 24X7 has a lot of benefit to the payments ecosystems and banks. We think several of these benefits can quickly be realized. With an incremental approach, ability for banks to opt in to the service and backward compatibility are some of the design considerations that the Federal Reserve should consider while designing the new system. We also think that it should be an extension of the current system or be built on top of the existing RTGS infrastructure, rather than a completely new infrastructure that can cause delays and risk while adding costs to all member banks and settlement banks. This is something that we think the Federal Reserve must pursue. We also recommended a phased launch for this.

Liquidity Management: We recommend that the Federal Reserve only provide API support for the following set of actions

- Balance check
- Historical transaction reports
- Funding/Defunding/Settlements
- Queue management

The Fed Reserve is only one of the funding sources for the banks. Other funding sources include accounts in other central banks, commercial banks, central securities depositories, etc. Liquidity will need to be managed across all these funding sources. If the Federal Reserve were to provide this set of APIs, the banks and settlement agents will be able to build more powerful liquidity management tools across multiple funding sources.

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7.0 If the Federal Reserve pursues one or both of these actions, do they help achieve ubiquitous, nationwide access to safe and efficient faster payments in the long run? If so, which of the potential actions, or both, and in what ways?

Baton Response:

> **Short Response:**
>
> A 24X7X365 settlement window, increased access to central bank settlements, a robust and rich set of APIs, etc. significantly increase the probability or greater adoption and the creation of an ecosystem that can lead to safe and efficient faster payments.
>
> Since payments systems are global and many varied types of asset are settled today, we think interoperability and ubiquity is a journey rather than a destination. We also think that no one central bank (including the G7 central banks) or the central securities depositories can single handedly achieve ubiquity. We think it is important to think of a faster settlement framework that will foster adoption, innovation, and increased operational and capital efficiencies, with reduced risk for all participants.

Detailed Explanation:

We believe that ubiquity can be achieved by creating a payments ecosystem which has the following

- Well-defined APIs and interfaces to interact with the infrastructure (for example the interchange rails)
- Well defined processes and rules for the various participants to build solutions and be value added service providers (banks, settlement agents, card issuers, payment processors, etc.)
- Accessibility to the APIs, making it easier for payment service providers, software companies and settlement agents to build new solutions to solve for market problems. This will require access to central bank accounts and RTGS settlement protocols
- There are existing standards like ISO20022, ISO15022, MT, FIX, FpML, MQ message formats. The Bank of England supports building the next generation RTGS system to be compatible with ISO20022 messaging standard. We recommend support for a standard like ISO20022 rather than creating a new standard for interfacing with RTGS.

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8.0 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?

Short Response:

To improve nationwide access to faster payments The US Federal Reserve should not be limited to just technology and operations improvement, but rather should consider the following categories of improvements:

1. Policy Enhancements: This includes the following items
   a. Eligibility for central bank accounts
   b. More clarity on settlement finality
   c. Minimum set of participation rules for current and new participants

2. Feature Enhancements
   a. Greater accessibility and support for new settlement agents
   b. Sub Ledger Feature
   c. Strong set of APIs
   d. Standardization of APIs
   e. Telco and private industry participation for mobile payments

Detailed Explanation:

Policy Enhancements: At Baton Systems, we think that the US Federal Reserve should look at some of the policies to open up access as well as bring more clarity on important aspects such as settlement finality. We believe that Central Banks should provide an ecosystems where the rules are clear and accessibility is not artificially limited or made very onerous. Once this is achieved, efficient market dynamics will drive innovation which will lead to more innovative and faster payment solutions. Although different, we wish to contrast ACH payments versus payments over two other payment channels to highlight the need for improved accessibility and clarity in policies.

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- Interchange over debit and credit card versus ACH Payments
- Overseas remittances using Western Union, MoneyGram, etc.

Interchange rails: Credit cards, debit cards, and to a lesser extent prepaid cards, are the prefered payment mechanisms in retail and e-commerce payments. Despite the higher interchange and usage fees, the adoption is very high. There is also a healthy ecosystem of payment processors, service providers, technology providers, card issuers, etc.

Overseas Remittances: Services like MoneyGram and Western Union have extensive retail reach and in turn have created an ecosystems for cash pick up in various countries. Despite the high fees and larger spread in exchange rates, it is an alternate way for overseas remittances in the retail market, which is especially useful for the unbanked or underbanked population.

We believe that US Federal Reserve can help foster an ecosystem of innovation that should increase overall payment speeds. The following are some of the areas that we think policy changes can help.

- **Eligibility of Central Bank Accounts:** We highlighted this in previous questions, but wish to reiterate that access to central banks accounts for settlement agents and non banks would be very useful. Current policies require the account holder to be a regulated depository in the United States. We think this is very limiting and restricts the ecosystems while potentially adding risk and delays. The US Federal Reserve can continue to require high standards for reporting, security, and accessibility for the account holders thereby mitigating the risk of poor governance and operations risk from the operators of the account.

- **Settlement Finality:** There is still ambiguity in markets on the use of central bank accounts and central banks settlements. Settlement Finality on protocols like NSS versus commercial banks is not well understood.

- **Minimum Set of Participation Rules:** Despite the best efforts by the US Federal Reserve, market participants including originating and receiving institutions, payment processors, technology vendors, etc. must participate and make the services available for it to be available to the end users. Similar to Same Day ACH, the US Federal

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Reserve should continue to set the guidelines and rules for participation for all members.

Feature Enhancements: We have covered several of the feature requests such as support for settlement agents, and standardization of APIs in the specific questions. We think the following could also be explored by the Federal Reserve:

- **Support for the Sub Ledger:**

  Today, the US Federal Reserve maintains only a single ledger. That is only the current balances and the transaction details of the payments between central bank accounts which are maintained by the Fed. We think, it may be useful to consider a sub-ledger. Today, the bank that holds a central bank account has a positive balance in that account. The bank then maintains a ledger that records how the balances further break down into the individual account holders. While it is not practical or useful for the federal reserve to maintain sub ledger at this level, we think there are some cases where a sub-ledger is useful.

  Market settlement utilities and CCPs today settle on behalf of banks and other financial institutions. The number of these financial institutions is in the thousands rather than the hundreds of millions of accounts at the banks. Some market utilities (for example CCPs) prefer to leave their cash in commercial banks and not utilize central bank accounts. We believe this has to do with lack of clarity on settlement finality in case of default of one of the members. A sub ledger view may be useful in this scenario. While there are complex issues on liquidation procedures that this can open up, we think it is something the US Federal Reserve should review. These complex issues still exist today and are dealt with by the institutions, which leads to added risks, delays and costs at commercial banks.

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9.0 Beyond the provision of payment and settlement services, are there other actions, under its existing authority, the Federal Reserve should consider that might help its broader goals with respect to the U.S. payment system?

Baton Response:

In our responses to the previous questions, we covered topics like policy changes on eligibility of accounts, access to central bank accounts by settlement agents, classification of settlement finality, reduction of systemic market risk especially for large value payments, etc. While these are not directly related to the software systems that facilitate RTGS, we think these are important to consider while designing the new system.

We also would like to reiterate that the US Federal Reserve should have a global view to make trading in US dollars faster, safer and easier for global market participants. Of course this is valuable for end-user service providers as well.