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Global Equity Research
Industry Note
Industry Update

FINANCIALS RESEARCH

December 3, 2017

V, MA: VocaLink, RTP and ISO 20022

Ratings

Industry View:	Neutral

KEY TAKEAWAYS

On 11/14, the largest US banks - acting through the Clearing House (TCH) - launched the interbank account-to-account (A2A) real-time payments system (RTP) to respond to the requirements of the Fed's faster payments task force and to re-assert bank branding and control over the customer payments experience. RTP payments are instant (unlike bitcoin which requires a confirmation time of at least 20 minutes), available to all US financial institutions (FIs) either directly or through their processors (FIS, FISV, and JKHY), and secure (through tokens with TCH as the token service provider or TSP).

While the initial use-cases for RTP will likely be B2B and B2C "push" payments (using the global ISO 20022 message-format for cross-border transactions and to improve bookkeeping), we expect it to evolve a request-to-pay protocol and compete with card-based "pull" payments in C2B as with the equivalent solution in the UK. In 2015, Accenture estimated that new regulation and technologies would cost UK banks >40% of retail-based payments revenue by 2020; and we agree with MA's observation that "if banks can't figure out their revenue stream … how do you expect them to invest in expanding acceptance and issuance?"

More generally, our thesis is that the pricing power of card-based schemes will be eroded as payments are integrated into third-party apps – whether Apple Pay, Android Pay, PayPal, or Starbucks/Walmart/Tesco – through APIs which allow software to connect to multiple providers hence lowering entry-barriers for new solutions such as RTP; and as regulators push for network interoperability through open account-directories. Visa is responding with token-routing rules – requiring that payments using Visa tokens are processed over VisaNet – but the strategy will fail as third-parties, including banks, acquirers, and TCH, establish competing TSPs. TCH and FDC are already certified to tokenize Mastercard-branded transactions, and PYPL has integrated into the TSPs of JPM and BAC.

We continue to prefer MA over V given that RTP, like the faster payments solution (FPS) in the UK, leverages the technology of MA-owned VocaLink; and given that we do not believe the open-banking requirements of PSD2 create a supportive environment for Visa to raise prices in the Single European Payment Area (SEPA). We also believe that intensifying network-on-network competition, as token requestors connect software to multiple payment service providers through APIs, will reduce transaction funding costs at PYPL hence generating a margin tailwind; PYPL has already commented on the economic benefit from integrating with the Chase TSP and ChaseNet, for example.

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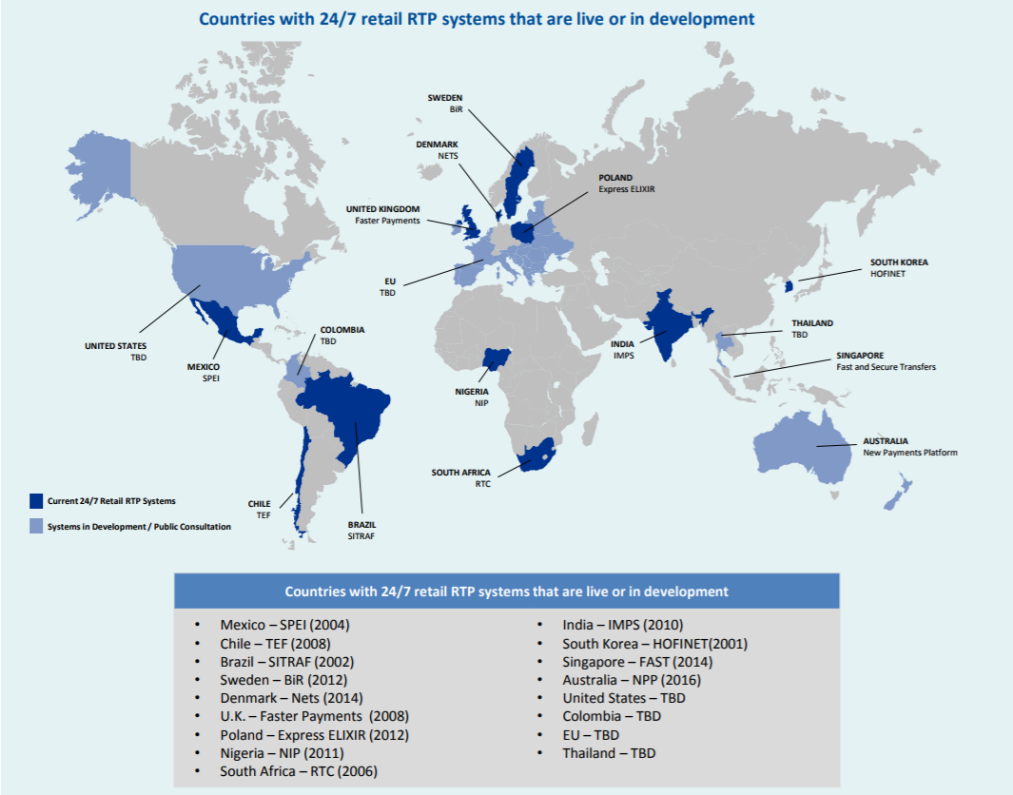
V, MA: VocaLink, RTP and ISO 20022

In our note of 11/29 titled "Bitcoin: No Better than Bearer Bonds", we argued that bank implementation of faster payment solutions, including blockchain technologies, was more likely than success of bitcoin as a scaled currency. This view was echoed the following day by the ECB which commented that "banks need to implement instant payments as soon as possible and provide an alternative narrative to the ongoing public debate on the alleged innovation brought by virtual currency solutions".

This note looks in more depth at the evolution of immediate inter-bank, account-to-account (A2A) payment solutions with a focus on the 11/14 launch by US banks through the Clearing House or TCH (the only private operator of the ACH system accounting for >50% of ACH volumes) of their Real-Time Payments (RTP). RTP is intended to respond to the requirements of the Fed's faster payments task force and "bring payments back into the bank"; its launch pathway was cleared in September when the Justice Department declined to challenge RTP on anti-trust grounds. Integrated into the ISO 20022 message format, which is emerging as a global standard for both domestic and cross-border payments (Exhibit 1), RTP can help businesses with payments tracking, automated reconciliation, and cash-flow management. It is open to any participating financial institution (FIs), regardless of charter or type, not just the 25 owner-members of TCH – including JPM, WFC, and BAC – and can be access through issuer processors including FIS, FISV, and JKHY by those FIs who do not want to connect directly.

Exhibit 1: Global Adoption of Real-Time A2A Payments Solutions



Source: TCH, KPMG

RTP enables A2A payments directly between bank accounts and is positioned to complement existing third-party payment systems, although our thesis is that it will compete with them in many use-cases particularly in consumer payments where it addresses some important risks (Exhibit 2) that can impact customer satisfaction and are of concern to regulators such as the CFPB. For example:

1) *Immediacy*: With RTP, funds are immediately available to the payee and can be identified with non-payment messages such as an invoice or request-for-pay identification. This immediacy cannot be achieved by bitcoin, because of confirmation latency, and will be necessary for POS use-cases since merchants may be reluctant to allow shoppers to take delivery without confirmation of payment receipt.

2) *Good Funds*: RTP is a credit-transfer system only meaning that payers "push" payments from their accounts as opposed to debit-transfer protocols, such as card-based systems, where payees pull payments from payer accounts. However, RTP can replicate the functionality of a card-based system through its "request for pay" capability where a payer initiates a transaction by

triggering a request- message from the payee and responds to it with funds to the destination account. The UK's Faster Payments System (FPS), equivalent to RTP in the US and running on the same VocaLink backbone, is already competing with card-based debit at point-of-sale through the Zapp-branded "Pay-by-Bank" service.

3) *Security*: The advantage of RTP's push protocol is that, unlike in a card-based pull protocol, the payer does not have to expose account credentials to the payee; the payee does, of course, but not accompanied by a debit authorization. And, in any event, the payee's credentials will be tokenized using the TCH or a certified third-party token service provider (TSP).

Exhibit 2: Advantages of RTP for Consumer Payments

Identified consumer risks with current payment system	RTP mitigation
Unauthorized debits from consumer accounts via ACH leading to unexpected fees to the customer and a significant effort for customers to stop payments and revoke orders	***Push transactions*** only; no auto-debit of customer accounts
Lack of transparency, particularly as it relates to ***funds availability,*** causing confusion for customers and often significant overdraft charges	***Real-time funds availability*** with payment certainty and extensive set of payment and non-payment related messages
Need for expedited payments and ***expedited funds access*** for individuals with immediate needs or emergency situations leaving them to rely on high-cost money order services to expedite funds transfer	***Real-time payment delivery*** for consumer, business, and other payment transactions available 24/7/365

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RTP in Europe

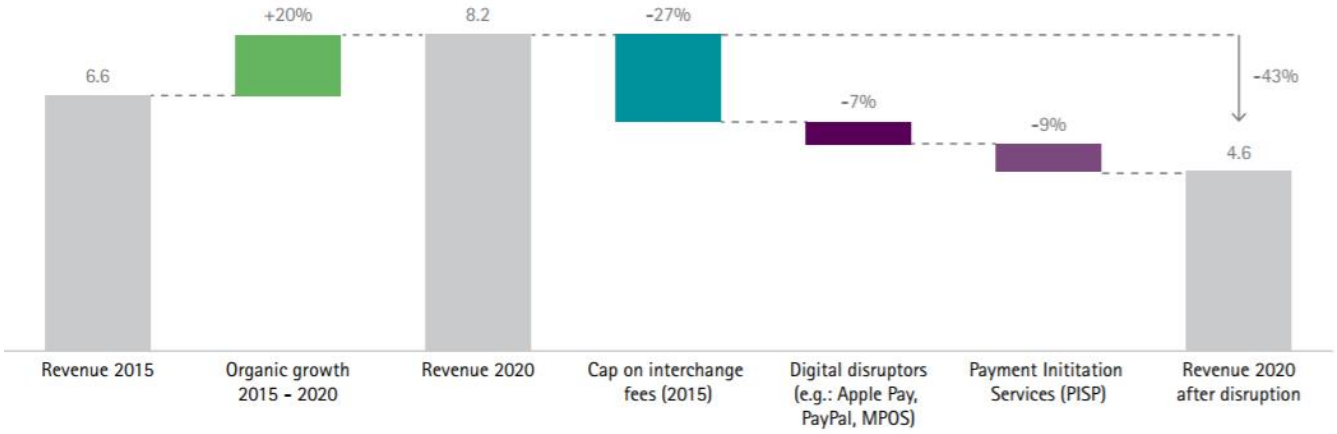
The governing fact for the C2B payments globally is privileged access of Visa and Mastercard to the transaction accounts of bank customers. The networks secure this privileged access through making bounty payments to card-issuing banks – both in the form of volume-based incentives (representing of network revenues) and transaction-based "interchange" payments – and funding these payments through supra-competitive pricing for merchants to accept cards. The arrangement has been extraordinarily profitable for the networks (which generate ROEs >40%) and for the banks (generating ROA on their card business of near 3% often more than double enterprise-wide ROAs). And it has been extraordinarily frustrating for merchants who, despite serial litigation (and some successes), face exorbitant costs for accepting card payments which, at Alaska Air for example, account for more than spending on food and beverages for customers.

In Europe, regulators diagnosed that the card industry, and particularly the "interchange" mechanism by which card-accepting merchants pay card-issuing

banks, is broken: "cardholders are encouraged to use cards that generate higher fees, and card networks compete primarily to attract issuing banks by offering higher interchange fees. Hence competition between payment card schemes leads to cost increases for retailers which they pass on to consumers through relatively higher retail prices given that merchants find it difficult to refuse and/or surcharge 'must-take' consumer debit and credit cards." A key element of the prescription takes effect on January 2018 with the implementation in the Single European Payments Area (SEPA) of the second payments services directive (PSD2) which releases the bank monopoly on access to the customer accounts: with customer consent, third parties (PISPs) will be able to access bank-serviced accounts to gather transactional information or initiate "account-to-account" (A2A) payments (as opposed to payments processed by the card schemes).

Accenture estimated that by 2020 banks in the UK (Exhibit 3), as a representatively mature card-based market in the Single European Payment Area (SEPA), would lose >40% of 2015 retail-based payments revenue following interchange caps (imposed by the first payment services directive or PSD1 in 2015) and the loss of privileged access to customer accounts (under the "open banking" requirements of PSD2 which takes effect next month).). The share-shift from card-based to A2A solutions will constrain and offset the benefit to Visa from raising prices for card-based payments, along with network effects and displacing A2A schemes that are already entrenched in some markets (Exhibit 4). As MA CEO Ajay Banga has asked "if banks can't figure out their revenue stream, whether they are issuer or acquirer, how do you expect them to invest in expanding acceptance and issuance?".

Exhibit 3: Retail Payments Forecast for the UK (EUR bn)



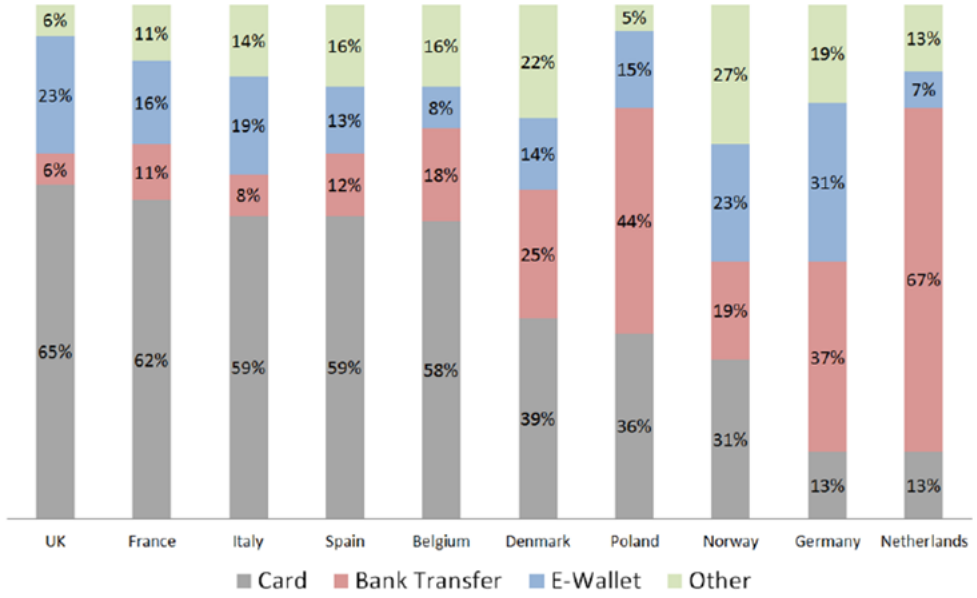
Notes:
1. Issuing, acquiring and processing fees included
2. Only cards payments revenues considered
3. Interest income from credit cards and cross border retail payments excluded

Assumptions Digital Disruptors:
1. Apple Pay accounts for 15% of card transactions value by 2020
2. E-wallets (e.g. PayPal) account for 6% of retail transactions by 2020
3. MPOS account for 5% of card transactions value by 2020

Assumptions PISPs:
1. PISPs erode 33% of online debit cards and 10% of online credit cards
2. PISPs acquire 90% of their transactions online and 10% in-store by 2020
3. PISPs in-store volumes originate 80% from debit cards and 20% from credit cards
4. PISPs account for 16% of online retail payments by 2020
5. PISPs account for 0.5% of in-store retail payments by 2020
6. PISPs account for 4% of retail payments (e.g.: cash, cards, e-wallets, PISPs) by 2020

Source: Accenture

Exhibit 4: Card-Based vs. A2A Payment Schemes in Select Europe Markets



Source: Accenture

The challenge for SEPA banks is that they have monetized this privileged access by trading it to Visa and Mastercard in return for bounty payments (in the form of rebates/incentives and "interchange" transfer payments from merchants who cannot otherwise gain enable workable electronic access to bank accounts at point-of-sale for their customers), but this will no longer be possible since PSD2 requires banks to offer equal access to all certified third-party payment initiation services providers or PISPs. Combined with faster payments solutions, of which RTP is an example in the US and FPS in the UK, this will allow PISPs – such as Apple Pay, Android Pay, and PayPal – to offer A2A routing to customers along with card-based routing.

The challenge for the card-based networks is that application programming interfaces (APIs), which connect software and web applications from multiple providers and are the delivery mechanism for payment services to PISPs, lower entry-barriers for new payment services. In particular, we expect large retailers to certify as PISPs and to customers A2A payments services as an alternative to card-based services, and to at least match the rewards from these card-based services. For example, following its partnership with MA (which owns VocaLink), Tesco is likely to FPS-enable its popular Tesco Club loyalty card.

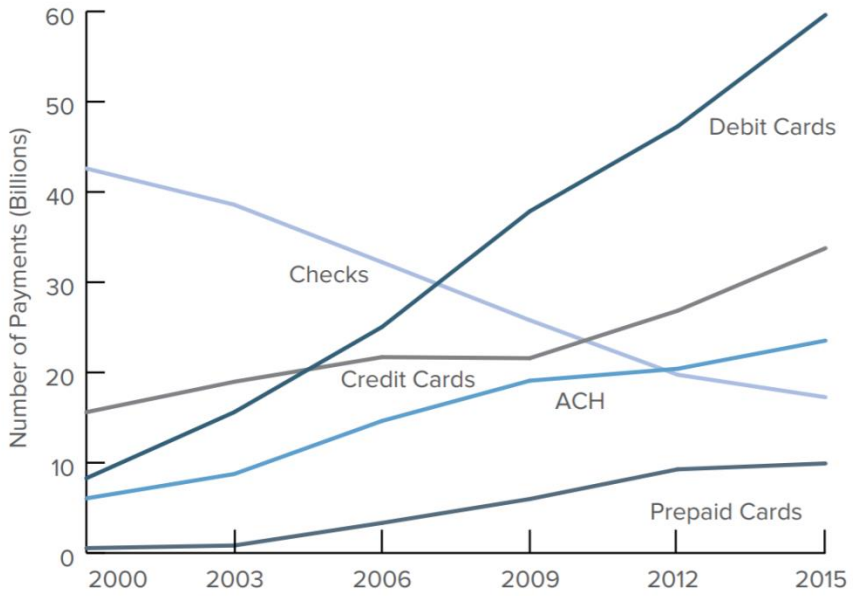
RTP in the USA

US regulators have taken a more "market-based" approach than their European counterparts so that there is no open-banking mandate; and, indeed, RTP is open to FIs but not to non-bank players such as Apple Pay, Android Pay, PayPal, and retailers whom we will refer to as "token requestors". In theory, this means that token requestors can support A2A services only through ACH, and accept the resulting settlement risk of 2-3 days or more, as in the case of the Target RED debit card. In practice, this runs against the spirit of the Federal Reserve (Fed) task force on faster payments as discussed below, including the likely evolution of RTP business processes that are likely to arise from the working group on open directories and routing mechanisms.

The Fed task force noted that non-cash retail payments had shifted to electronic formats (Exhibit 5) particularly debit cards but also given that checks which are now almost entirely processed electronically, and added that ACH payments account for ~80%, and checks ~15%, of transactions by value. This is mix is directionally true overseas – with the World Bank reporting that there are ~1 billion bank accounts without an associated card – and likely explains MA's insistence that, rather than an exclusively card-based solution such as Visa Send,

"we need to extend into bank account-based payments, go beyond card-based payments into bank account-based payments", and excitement over VocaLink as a transformational deal.

Exhibit 5: Non-Cash Retail Payments by Number and Type in the US



The first report from the task force in January 2017 commented on important technology shifts for both the front- and back-ends of payment infrastructure: (i) apps on mobile and IoT devices which are opening new channels for consumers to engage with financial services providers to manage personal finances and integrate payments into transactions; and (ii) distributed ledger technologies (DLT) such as the Bitcoin block-chain, have the potential to eliminate the need for centralized transaction book-keeping. It added that the use of application programming interfaces (APIs) to connect software and web applications from multiple providers can lower entry-barriers for new payments providers.

The second report in July 2017 addressed the question of payments-industry structure, and is worth quoting at length: "*It is possible that faster payments solutions could be consolidated to a few solution operators due to economies of scale and scope and network effects. However, this may have negative effects; with limited competition, solution operators may not have incentive to respond to the demands and interests of end users and other service providers, especially smaller ones. Specifically, smaller depository institutions, nonbank service providers and smaller solution operators are concerned that the major solution operators would set pricing, rules and other processes that are not transparent and could make it difficult for smaller service providers to compete with their*

larger counterparts on a level-playing field. In addition, business end users are concerned about having the ability to manage usage in a way that enables them to balance the expenses they incur with the benefits they receive from faster payments".

Having reviewed proposals from several private operators – including Dwolla, Ripple, Shazam, and TCH/FIS – the task force concluded that ensuring interoperability through a common framework for message format (e.g. around ISO 20022) and business process (e.g. including open directories and routing mechanisms) was necessary to support competition and innovation; and recommended a working group to "assess the payments regulatory landscape and recommend changes to the regulatory framework". In drawing the distinction between Visa Direct/Mastercard Send and its Fast ACH solution through VocaLink, MA has referenced this governance context: "we spoke about reach already … there's a few other things that Fast ACH does … you have a data standard in Fast ACH called ISO 20022 … it's a broad and rich standard … [and] the important thing is regulators and national payment schemes are pushing for that standard. If your network is not enabled for ISO 20022, you have a problem to respond to those requests." It is likely that Visa will need to organically build more compatibility with this data standard.

The Industry Impact of Chase Pay

However, even if regulators do not require access by non-FIs to RTP, competitive dynamics will likely have a functionally-equivalent effect as illustrated by the evolution of Chase Pay. The reason is that banks are keen to brand the consumer payments experience even if it is engaged through a non-FI app; and these token-requestors may insist on better payments-processing choices in return for offering up to banks shelf-space within their digital store fronts. JPM's comment on Chase Pay illustrate this dynamic: "when you look at Chase Pay … you can embed it in a wallet … you can have a piece of real estate where people can click on it … we'd like to be there, and we'll see how it pans out". The partnership between Chase and Paypal provides a concrete example with the three key elements being: (i) PayPal will integrate with Chase's token service so that users can add Chase cards to PayPal directly from Chase's properties and they will see a digital representation of their Chase card, making it easier to select it; (ii) PayPal will enable Chase as an acquirer for PayPal volume including processing Chase card transactions via ChaseNet; and (iii) Chase Pay (Chase's mobile payments solution) will be integrated with PayPal Wallet; and PayPal's Braintree will also add Chase Pay as a method of payment for merchants.

There is a lot to unpack here. First, integration with Chase's token service makes it easier for Chase customers to enroll cards into the PayPal service; PYPL has a similar arrangement with BAC having commented in September that "we also announced new strategic relationships with JP Morgan Chase and, as of today, Bank of America to utilize their token service and enable their customers to easily integrate their cards into PayPal and seamlessly create a new PayPal account from their properties." The second element of the deal, the enablement of Chase as an acquirer for PayPal volume on Chase cards, and processing of transactions via ChaseNet which is an ON-US system since Chase is both issuing and acquiring bank, is important. PayPal's primary acquiring bank is WFC, and the typical rule is that a merchant can have one and only one acquiring bank for bankcard transactions; the effect of this "single acquiring bank" rule is that it limits ON-US transactions to a single bank. Prior to the Chase deal, PYPL could settle WFC card transactions ON-US (provided they did not use Visa tokens which, for fixed internet, they would not have done given PYPL, like other e-Com merchants, has a card-on-file model), but not settle Chase card transactions ON-US (since the acquiring bank, WFC, and issuing bank, Chase, were distinct). Now, however, PYPL has two acquiring banks and so can settle ON-US for both WFC and Chase cards, and has commented that "there is a benefit to us with the [Chase] agreement through more favorable economics ... that also provides for a better overall experience for our consumers, as Chase is processing that on their [ChaseNet] network, if you will, you tend to see faster authorizations". We imagine that other token-requestors, such as AAPL and FB, are also talking to Chase about using ChaseNet and integrating with Chase as a token service provider (TSP). This generates two worthwhile questions:

1) As PYPL extends it franchise from internet to physical point-of-sale via NFC transactions using the Visa token service, following Visa's decision last July to admit PYPL to the Visa Digital Enablement Program (VDEP) in the US and hence gain access to the Visa Token Service, how will the Chase partnership operate? Will PYPL use Visa tokens and hence, by Visa's token-routing rules, be required to route to VisaNet; or will PYPL use Chase tokens, or even TCH tokens, and hence route over ChaseNet or, for debit given the Durbin routing rules, over RTP (using a request-for-pay protocol)? This puts into context Visa's reluctance to certify third-party TSPs, such as TCH, since the combination of the Durbin routing rules and third-party tokens, creates the same network-on-network competition for Visa debit as already exists for PIN debit with likely the same consequence for network pricing. WMT, for example, reportedly pays Visa a nickel less per transaction on PIN debit than signature debit so that, given WMT is paying at most 7 cents for each

signature debit transaction, routing flexibility has reduced network pricing by at least 70%.

2) What is BAC's strategy for mobile payments? There is no reason that BAC could not demand of Visa that they can be an acquiring bank for BAC cards at PYPL just as Chase is an acquiring bank for Chase card; of course, at that point, PYPL would be routing nearly 40% of its Visa volumes off-network which, while it may be acceptable for e-Com, is going to be a challenge as PYPL extends via mobile to physical point-of-sale. In practice, BAC is likely getting equivalent economics through rebates from Visa which, in effect, means that PYPL is paying more to accept BAC cards than WFC or Chase cards. However, this will change if Chase is correct that "some of those things [e.g. Chase Pay embedded in a third-party wallet] will create pull in the card … people might want our card because it's so usable with double benefit programs." If it turns out that banks can lower customer acquisition costs by gaining access to shelf-space for branded pay buttons on the apps of token-requestors, then BAC Pay will appear, and BAC will need to cut a deal with PYPL to have PYPL place BAC within their own app and, through Braintree, distribute it to merchant-client apps. And that deal will likely mean BAC following the Chase paradigm of acting as acquiring bank for PYPL volume on BAC cards and settling the transactions ON-US (no need for a fancy new network name such as BAC Net).

Chase is, of course, exceptional in that it has a unique arrangement with Visa allowing it to process Visa-branded transactions over its proprietary ChaseNet system; for all other banks, Visa-branded transactions must be processed over Visa's VisaNet system unless the issuing bank is also the acquiring bank in which case an ON-US transaction is permitted where the bank settles the transaction off-network by book-entry (i.e. so debiting the merchant account and crediting the cardholder account). However, in the case of mobile payments, Visa is restricting ON-US processing through token-routing rules which require that a Visa-tokenized transaction must be routed to VisaNet even if it could otherwise be settled ON-US. In choosing to use the Visa Token Service (VTS) for its mobile NAB Pay app, National Australia Bank, for which 20% of in-store plastic transactions are processed ON-US, commented that "it's a financial decision … you do your trade-offs against the cost of routing it out to the network versus the investment you have to put in to maintain your own tokenization service". In the US, this trade-off is different because TCH will begin tokenizing Mastercard-branded cards in 2018Q1, and is reportedly close to being certified to tokenize Visa-branded cards as well. It will then be able to provide tokens for its member banks for both card-based payments and for its real-time payments solution. The

advantage to banks of leveraging TCH as a TSP, assuming it succeeds in being certified to tokenize both Visa- and Mastercard-branded transactions, is that they will then have a single architecture for securing ACH-, RTP-, and card-based transactions.

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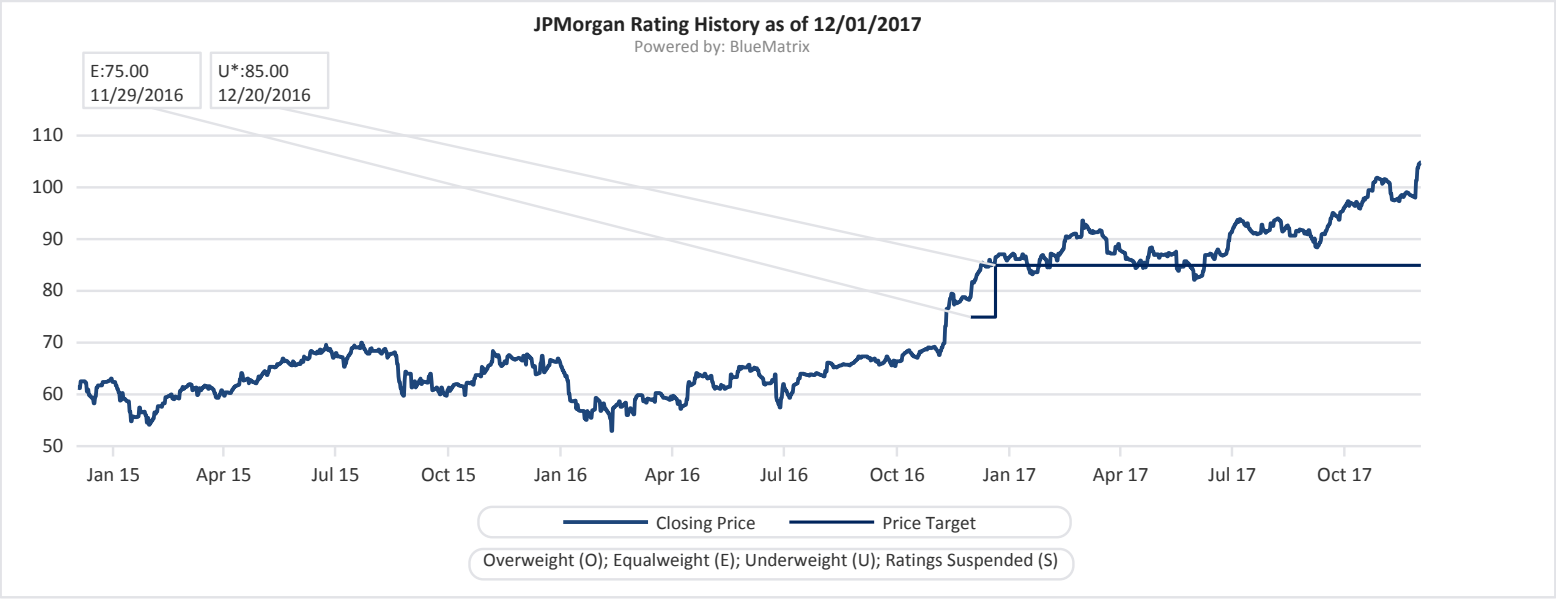
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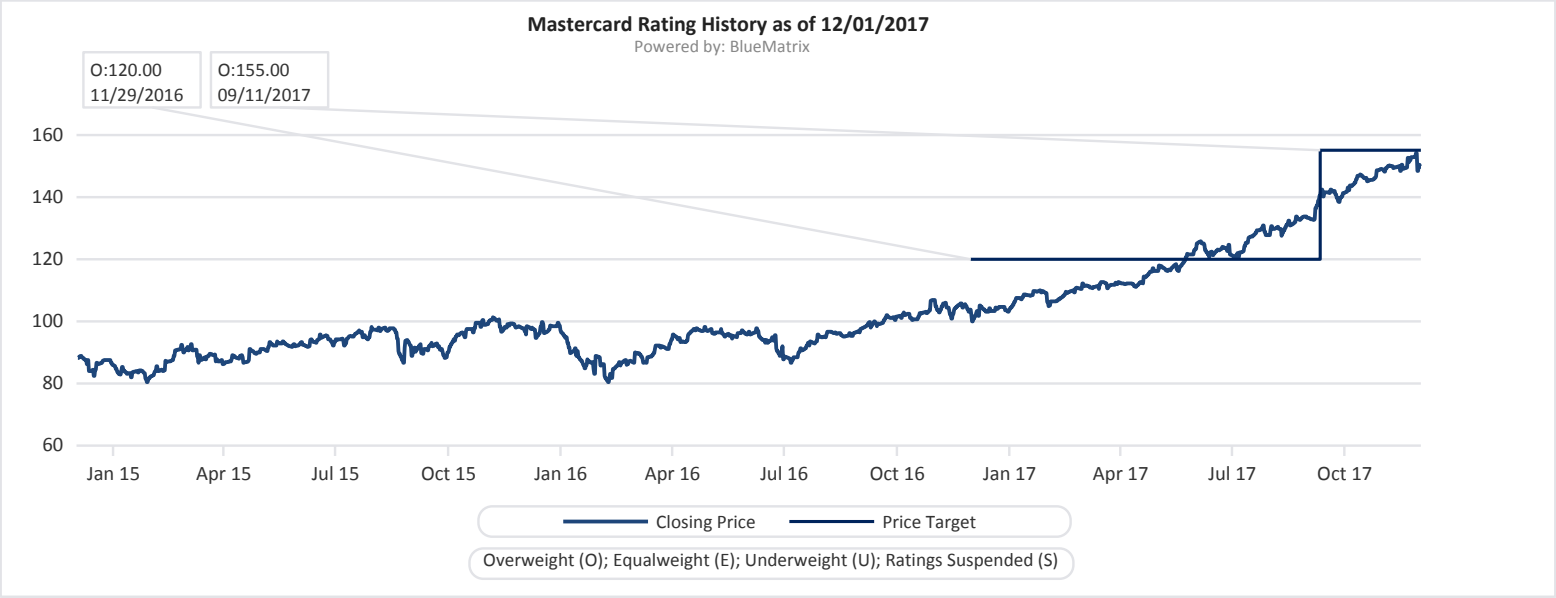
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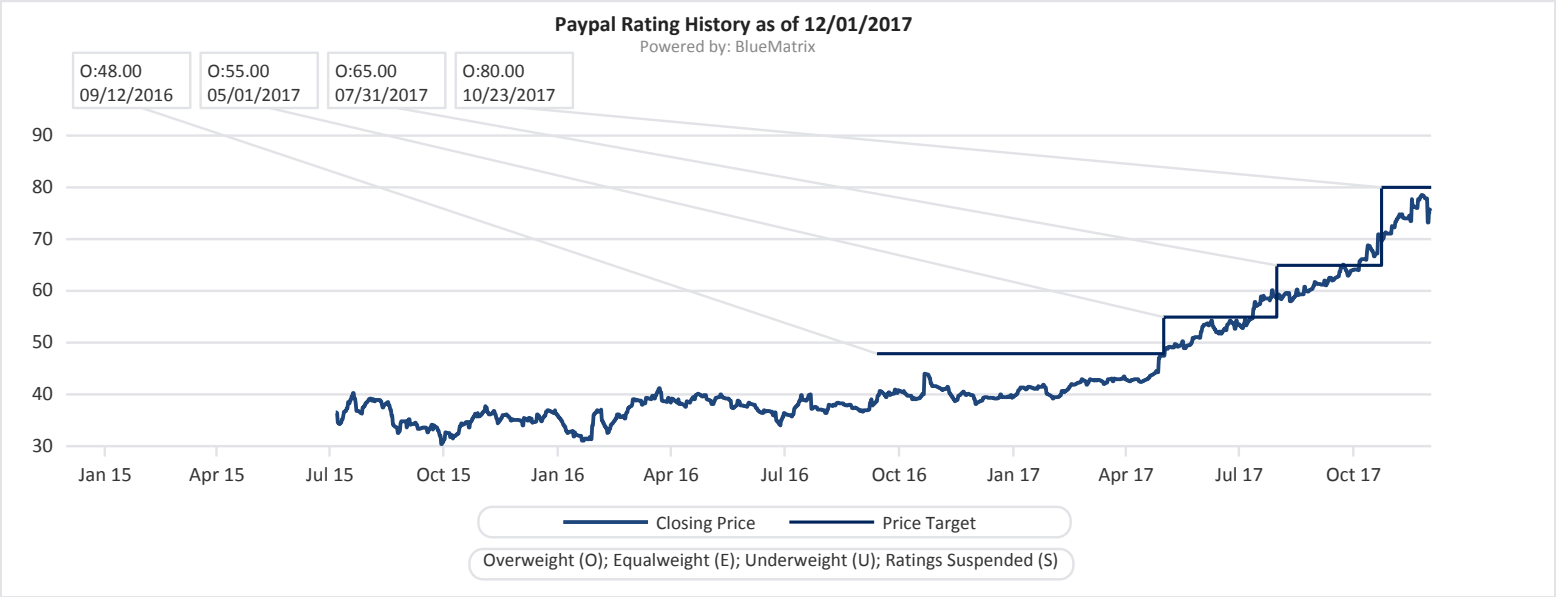

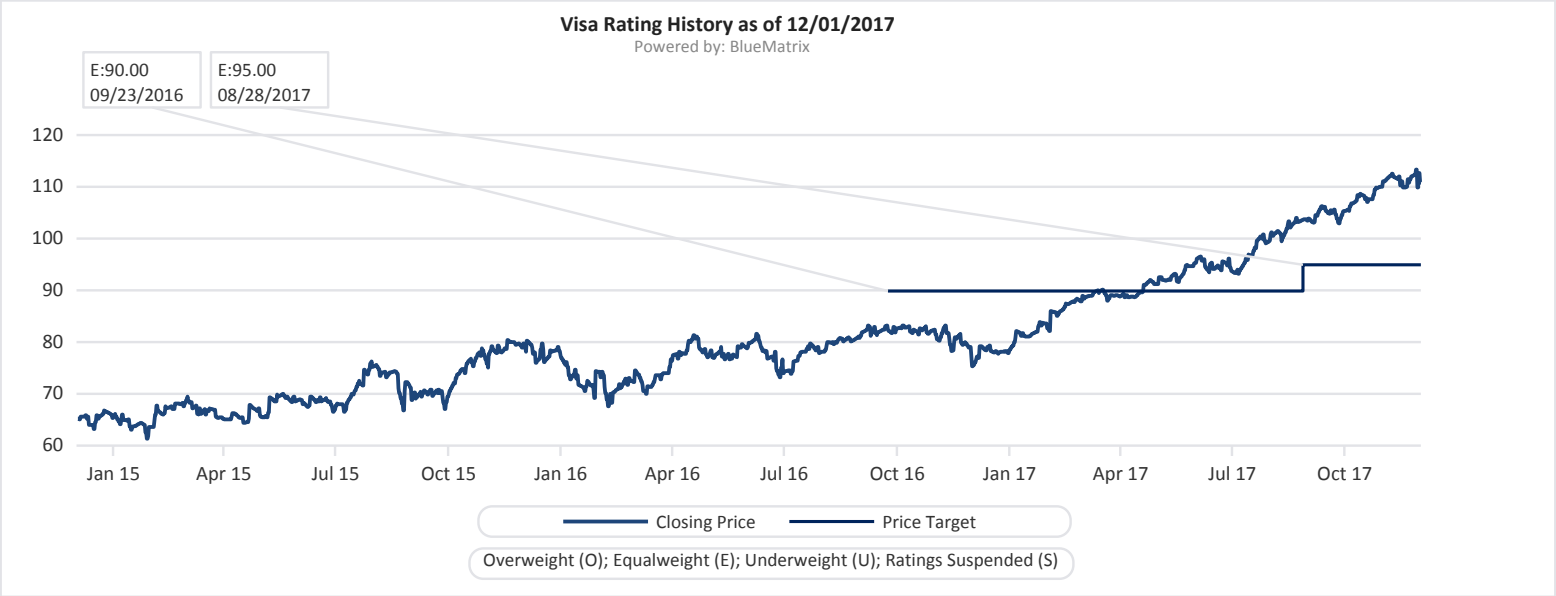

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