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Global Equity Research
Company Note
Company Update

FINANCIALS RESEARCH

August 27, 2017

Visa

The Erosion of Network Effects by Bank Token Services

KEY TAKEAWAYS

The ability of Visa to enjoy the same network effects in digital payments as in card-based payments depends on it being able to establish the same duopoly with Mastercard over the tokens which virtually represent cards in smartphones and other IP-connected devices as it enjoys over the primary-account-numbers or PANs embossed on the front of plastic cards.

The challenge is that, while large banks have no interest in generating PANs, they are committed to generating their own tokens for IP-connected devices because they want a single architecture for both card- and non-card payments (such as Fast ACH). Indeed, on July 26th, PYPL announced that it was integrating with the token services of BAC and JPM alongside the previous integration with the Visa Token Service (VTS). We expect other large "token requestors", such as Apple Pay and Android Pay, to integrate with bank token-service providers or TSPs so as to reduce the risk of lock-in to VTS; and there are reports that JPM is already using its own TSP to tokenize Chase cards within Apple Pay.

While tokens are presented as primarily a security solution, they also have commercial significance through token-routing rules: Visa, for example, insists that transactions using VTS must be processed over VisaNet even in the case where the same bank represents both cardholder and merchant (so that a transaction could be processed by "ON-US" ledger-update rather than routed to Visa). The use of bank TSPs alleviates the constraints on network competition imposed by these token-routing rules.

True, Visa has other defenses including the requirement that merchants have only one acquiring bank – so that, regardless of TSP, a merchant cannot put in place ON-US settlement procedures with both BAC and WFC, for example. But ChaseNet has circumvented this by qualifying as a "closed-loop", and so is allowed to conduct acquiring activities side-by-side with a merchant's primary Visa acquiring bank just as AXP and DFS do. And we believe BAC and WFC could insist on similar exemptions either individually or, perhaps through Zelle as it is extended from person-to-person (P2P) to point-of-sale (POS) payments, collaboratively with other banks.

V: Quarterly and Annual EPS (USD)

		2017			2018		
FY Dec	2016E	Old	New	Cons	Old	New	Cons
Q1	N/A	NC	N/A	0.86E	NC	N/A	0.98E
Q2	N/A	NC	N/A	0.86E	NC	N/A	0.97E
Q3	N/A	NC	N/A	0.86E	NC	N/A	1.00E
Q4	N/A	NC	N/A	0.85E	NC	N/A	1.04E
Year	N/A	3.28	3.40E	3.42E	3.70	3.90E	4.00E
P/E		31.5x	30.4x		27.9x	26.5x	

Source: Renaissance Macro Research
Consensus Estimates are from FactSet

Refer to page 9 for important disclosures and Analyst Certification. RenMac and its affiliated companies do not seek to do business with the companies covered in this report. RenMac does not make a market in the security. The analyst owns shares in the security.

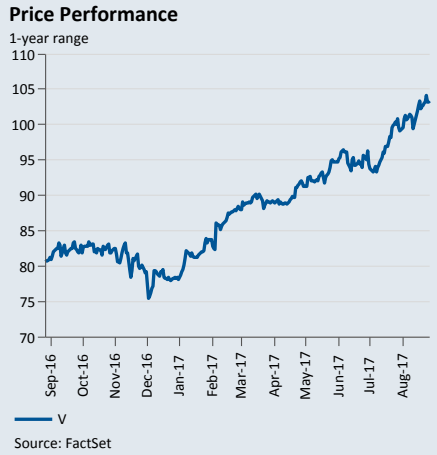
Ratings

Stock Rating:	Equalweight
Industry View:	Neutral
Target Price:	$95.00

Financial Data

Symbol:	V (NYSE)
Rating/Target Price:	EW / $95.00
Price (08/25/2017):	$103.35
52-Week Price Range:	$75.17 - $104.20
Diluted Shares Outstanding (mm):	2,385
Market Cap (mm):	$230,864
Average Daily Vol (mm):	7.1
Book Value/Share:	$11.55
Dividend/Yield:	0.6%
Net Debt (mm):	$4,670

Price Performance



Source: FactSet

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Visa: The Erosion of Network Effects by Bank Token Services

Visa comments that it has to win a transaction twice: once with a merchant accepting the payment, and once with the consumer making it. The migration of payments to digital formats is changing the rules of engagement on both sides of the network increasing the disintermediation risk faced by Visa. The firm has responded by looking to reserve for itself the ability to generate tokens for Visa-branded cards, and to insist through "token-routing" rules that transactions using the resulting Visa Token Service (VTS) are processed over the VisaNet "rails". This note evaluates the strategy in the context of the desire of large US banks to act as token-service providers (TSPs) themselves, and the announcement on July 26th that PayPal was integrating with the proprietary TSPs of BAC and JPM.

The Merchant Level

Traditionally, winning the transaction at the merchant-level has been about persuading a merchant to support Visa transactions for its customers and to display the Visa brand as a decal in a shop window and at point-of-sale. As the internet fracks into the physical economy, however, the definition of acceptance points must be expanded to include third-party apps running on IP-connected devices including smartphones. These formats tend to integrate payments into the purchase experience instead of running it as a parallel utility. The result is that the Visa brand is pushed down the payment stack so that it is more Uber, PayPal, Android, Walmart, or Whirlpool who are branding the consumer payments experience, and less Visa.

Visa has fought to preserve its brand-identity through, for example, its partnership with PayPal so that Visa digital card images are incorporated into payment flows for the PayPal wallet and the Visa Checkout buy-button will be distributed by PayPal's Braintree gateway. But the challenge is the emergence of technology companies that are mediating the relationship between the Visa brand and merchants – either through branded wallets, as in the case of PayPal or Amazon Pay, or through gateways as in the case of Stripe and Braintree. For market relevance, these acceptance channels have been keen to work with Visa – as we saw with the

launch of Apple Pay – but they also provide a conduit for competitors as illustrated by PayPal's enabling of (even if not steering towards) ACH and Apple's backward-integration into payments processing through with the launch of Apple Cash.

The Consumer Level

Traditionally, winning the transaction at the consumer-level has been about persuading a bank to support Visa transactions for its customers and to display the Visa brand on its credit and debit cards. As payments migrate to digital formats, however, the definition of issuance must be expanded to include representing cards, through "tokens", on IP-connected payment devices including smartphones. Through the EMVCo partnership with Euromoney and Mastercard, Visa has defined token specifications, and hopes both to monopolize the generation of tokens for Visa-branded cards as well as build an ecosystem of vendors and developers who will support the provision, and lifecycle management, of these tokens in IP-connected payment devices.

Furthermore, by insisting that transactions using the Visa Token Service (VTS) are processed over the VisaNet "rails", Visa hopes to replicate in a digital environment its source of pricing power in a physical environment: if a consumer uses a Visa-branded card at point-of-sale, the transaction must typically process over the VisaNet rails (with the exceptions Durbin-regulated PIN debit transactions and ON-US transactions where the issuing banks is the acquiring bank and so can settle by book-entry). Indeed, the token-routing rules extend even to the case where the issuing and acquiring bank is one in the same so that, if the transaction were card-based rather than tokenized, it would be settled "ON-US" by ledger-update rather than network-routed.

The case of National Australia Bank (NAB) is illustrative. When launching its mobile payments solution, NAB Pay, in January 2017, the bank elected to tokenize Visa cards using VTS rather than acting as its own token-service provider (TSP). Visa's insistence that Visa-tokenized transactions must be presented to the Visa network creates the oddity that if an NAB cardholder pays with plastic at an NAB acquiring merchant, the transaction can be processed off-network (through ON-US ledger update) while the same transaction on a mobile phone is on-network. As NAB comments of

VTS adoption, "it's a financial decision … you do your trade-offs against the cost of routing it out to the network service versus the investment you would have to put in to maintain your own [TSP]".

The challenge for Visa, however, is that monopolizing TSP market will be complicated by large banks in the US who want to generate proprietary tokens and maintain their own token vaults to map tokens to the underlying card accounts. COF and WFC have reportedly indicated that they are using the Visa Token Service (VTS) for their own mobile banking apps since they already use it for Apple Pay, and added that "they don't think they are at risk of being locked in to Visa's tokenization service since they believe they could shift to an in-house TSP if necessary". And we have confirmed that WFC is running its own token vault which will facilitate a migration from VTS to a proprietary TSP. Furthermore, on July 26, PayPal confirmed that "we also announced new strategic relationships with JPM and, as of today, BAC to utilize their token services"; and there are reports that JPM using its own TSP to tokenize Chase cards within Apple Pay.

ON-US Transactions and the Single Acquiring-Bank Rule

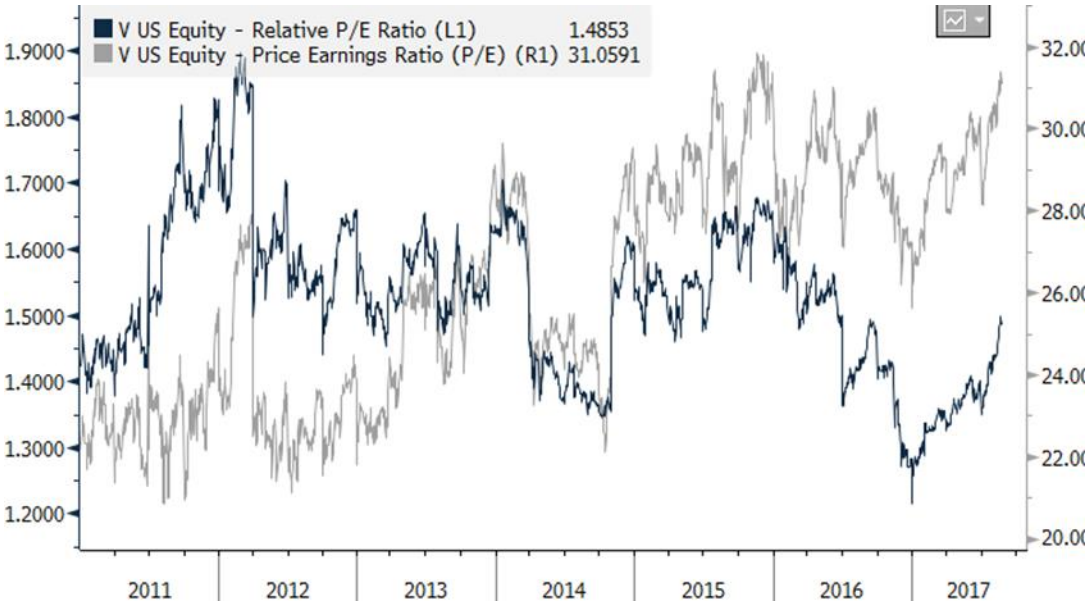
For the time being, the benefit to banks of a proprietary TSP over VTS is that they can continue off-network processing for ON-US transactions. The limitation, of course, is that ON-US transactions comprise a small proportion of the market even at JPM which has ~15% of both issuing and acquiring markets for card transactions. This limitation arises because the Visa rules require that each merchant have only one acquiring bank for Visa-branded transactions, and so cannot appoint, say, BAC as acquiring bank for transactions on BAC-issued cards and WFC as acquiring bank for transactions on WFC-issued cards.

The exception is JPM which qualified ChaseNet as a closed-loop and so, like AXP, is able to enter into an acquiring relationship with merchants for ChaseNet transactions in parallel with that merchant's acquiring bank for Visa transactions. As large banks build their own TSPs and large wallet-providers (more formally "token-requestors") gain increasing scale, we expect Visa to come under increasing pressure to relax the single acquiring-bank rule. In particular, as Zelle is extended to physical point-of-sale, we expect banks to argue that it qualifies for closed-loop status.

Valuation

To some extent, the increasing structural risk to Visa's business model is reflected in a declining relative multiple which now stands at just under 1.5x the multiple of the S&P500 index versus nearer 1.7x in early 2012 (Exhibit 1). This modest compression is more than offset by the ~15% EPS CAGR at Visa leaving investors with solid gains on both an absolute and relative basis.

Exhibit 1: Absolute and Relative P-E Multiples for Visa



Source: Bloomberg

Going forward, Visa presents the opportunity as displacing cash and checks, and notes that it captures >40% market share of digital payments volumes versus ~15% for non-digital format (because of the competition from cash and checks). Our thesis is that these share gains in the transition to digital will be more than offset by pricing pressures since, in a digital format, Visa will face large and powerful TSPs representing customers and large and powerful token-requestors, such as PayPal and Apple Pay, representing merchants. The result is that consensus, which seems to be calling for an increase in fees on processing transactions (Exhibit 2) based on the change in governance for Visa Europe, will likely be disappointed.

Exhibit 2: Revenue Drivers at V

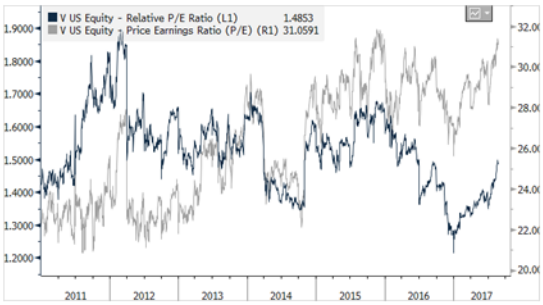
Revenue Drivers - V	2014	2015	2016	2017	2018	2019	2020	2014	2015	2016	2017	2018	2019	2020
Revenue	**12,702**	**13,880**	**15,082**	**18,126**	**19,860**	**21,911**	**24,272**	**8%**	**9%**	**9%**	**20%**	**10%**	**10%**	**11%**
Consensus	12,666	13,875	15,066	18,064	19,865	21,920	25,344	7%	10%	9%	20%	10%	10%	16%
Client Incentives	(2,592)	(2,861)	(3,409)	(4,445)	(4,965)	(5,370)	(6,068)	12%	10%	19%	30%	12%	8%	13%
% Gross Revenue	17%	17%	18%	19%	20%	20%	20%							
Gross Revenue	15,294	16,741	18,491	22,968	24,825	27,281	30,340	8%	9%	10%	24%	8%	10%	11%
Service	5,797	6,302	6,747	8,018	8,708	9,562	10,574	8%	9%	7%	19%	9%	10%	11%
Payment Volume - $bn	4,678	4,931	5,764	7,493	8,063	8,740	9,527	9%	5%	17%	30%	8%	8%	9%
Service Fee Yield - bps	12.4	12.8	11.7	10.7	10.8	10.9	11.1	-1%	3%	-8%	-9%	1%	1%	1%
Data Processing	5,167	5,552	6,272	8,083	8,730	9,647	10,843	11%	7%	13%	29%	8%	11%	12%
Processed Transactions	65.0	71.0	83.2	112.3	121.2	131.4	144.6	11%	9%	17%	35%	8%	8%	10%
Fee/TXN	8.0	7.8	7.5	7.2	7.2	7.3	7.5	0%	-2%	-4%	-5%	0%	2%	2%
International TXN	3,560	4,064	4,649	6,044	6,588	7,273	8,073	5%	14%	14%	30%	9%	10%	11%
Other	770	823	823	823	800	800	850	8%	7%	0%	0%	-3%	0%	6%

Furthermore, consensus appears to be calling for a flat-to-rising operating margin off the expected 67% in 2017. We see this is as challenging, and think it more likely that earnings increase in line with revenue growth at ~10% with EPS growth lifted 2-3% by stock buyback partly funded by increasing leverage (with the equity-to-assets ratio falling to ~one-third by 2020 from ~one-half today – Exhibit 3). Reflecting this bias, we are modestly below consensus for 2019 EPS; we are increasing our price target to $95 reflecting 25x our 2018 EPS estimate of $3.90 versus the prior price target reflecting 25x our 2017 EPS estimate of $3.40.

Exhibit 3: EPS Drivers and Valuation at V

FCFF & BS	2014	2015	2016	2017	2018	2019	2020
Leverage	**71%**	**76%**	**51%**	**50%**	**44%**	**38%**	**31%**
ROA		17%	13%	13%	15%	16%	18%
ROE		22%	26%	26%	33%	43%	57%
Assets - $bn	38.6	39.4	64.0	63.7	63.6	63.5	63.4
Equity - $bn	27.4	29.8	32.9	31.6	27.7	23.8	19.9
Net Debt	(7.0)	(9.4)	3.0	3.6	7.1	10.6	14.1
Cash/Inv	7.0	9.4	12.9	12.3	12.3	12.3	12.3
Gross Debt	-	-	15.9	15.9	19.4	22.9	26.4
Increase in Debt - $mm	**-**	**-**	**15,971**	**-**	**3,500**	**3,500**	**3,500**
Plus: Other Financing	(1,535)	318	(145)	(73)	-	-	-
New Borrowing - Gross	(1,535)	318	15,826	(73)	3,500	3,500	3,500
FCFF	**6,652**	**6,170**	**5,051**	**7,862**	**9,306**	**10,329**	**11,454**
Earnings	5,438	6,328	5,991	6,518	9,386	10,430	11,554
Other CFO	1,332	(238)	(919)	1,473	-	-	-
Net Capex	118	(80)	21	129	80	100	100
Capex	553	414	523	675	675	748	805
DA	435	494	502	547	595	648	705
Capital Return	**4,943**	**3,921**	**8,349**	**8,164**	**9,306**	**10,329**	**11,454**
Buyback	3,937	2,744	6,999	6,579	7,435	8,408	9,490
Dividend	1,006	1,177	1,350	1,585	1,871	1,921	1,964
Other CFI	**149**	**83**	**9,082**	**302**	**-**	**-**	**-**

v	24-Aug	P/E	28.9
Price - $	103	2018	25.5
Shs - bn	2.4	2019	23.2
EV - $bn	245	EV/EBITDA	19.4
MC	236	2018	17.4
ND	3.6	2019	15.7
Pfd/Oth	5.5	Div Yield	0.9%



Adjusted PL - $mm	2014	2015	2016	2017	2018	2019	2020
Revenue	12,702	13,880	15,082	18,126	19,860	21,911	24,272
Consensus	12,666	13,875	15,066	18,064	19,865	21,920	25,344
Op EBITDA	8,585	9,558	10,526	12,629	14,100	15,547	17,210
Consensus	8,548	9,584	10,457	12,602	14,144	15,596	na
DA	435	494	502	547	595	648	705
Op EBIT	8,150	9,064	10,024	12,083	13,505	14,899	16,505
Margin	64.2%	65.3%	66.5%	66.7%	68.0%	68.0%	68.0%
Non-Op	27	41	(345)	(457)	(457)	(457)	(457)
EBT	8,177	9,105	9,679	11,626	13,048	14,442	16,048
Consensus	8,146	9,100	9,605	11,588	13,037	14,711	na
Earnings	5,891	6,438	6,864	8,154	9,238	10,182	11,266
Tax	2,286	2,667	2,815	3,472	3,810	4,261	4,782
Tax Rate	28.0%	29.3%	29.1%	29.9%	29.2%	29.5%	29.8%
EPS - $	**2.33**	**2.62**	**2.84**	**3.40**	**3.90**	**4.40**	**5.00**
Consensus	2.25	2.62	2.78	3.39	3.97	4.55	5.64
FCFF/Sh - $	2.64	2.51	2.09	3.28	3.93	4.47	5.08
Avg Dil Shs - mm	2,524	2,457	2,414	2,395	2,370	2,313	2,254
EOP Shares	2,472	2,434	2,343	2,348	2,286	2,222	2,155
Issued	0	6	2	81	81	81	81
Repurchased	80	44	93	76	80	84	86

2014	2015	2016	2017	2018	2019	2020
8%	9%	9%	20%	10%	10%	11%
7%	10%	9%	20%	10%	10%	16%
	11%	10%	20%	12%	10%	11%
	14%	2%	9%	9%	9%	9%
13%	11%	11%	21%	12%	10%	11%
13%	11%	6%	20%	12%	11%	11%
18%	9%	7%	19%	13%	10%	11%
0%	17%	6%	23%	10%	12%	12%
	12%	**9%**	**20%**	**15%**	**13%**	**14%**
	-5%	-17%	57%	20%	14%	14%
-4%	-3%	-2%	-1%	-1%	-2%	-3%
	-2%	-4%	0%	-3%	-3%	-3%

Risks

The risk to Visa is that large token-requestors, including wallet-providers such as Apple Pay and PayPal and gateways such as Stripe and Braintree, integrate with large proprietary TSPs, such as BAC and JPM, setting the stage for disintermediation of VisaNet. This potential for disintermediation is presently limited by the Visa requirement that merchants have a single acquiring bank for Visa-branded transactions so that ON-US transactions, where the issuing and acquiring bank are one in the same, are less than 5% of Visa-branded volumes in the US. However, ChaseNet has circumvented this limitation by introducing its own "closed-loop" in what seems like a technicality given that ChaseNet leverages the Visa acceptance brand and even Visa's processing infrastructure. We believe WFC and BAC could obtain similar terms, and will almost surely seek them if JPM's ability to offer better pricing to merchants on the acquiring side, in return for a differentiated

payments experience for their customers, leads to share-shifts on the issuer side. This makes the customer response to integration of Chase Pay into the SBUX and WMT apps in 2107H2 important.

ANALYST(S) CERTIFICATION(S): I, Howard Mason, herby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this research report.

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Analyst Ownership: The analyst principally responsible for the preparation of this research report or a member of the analyst's household holds a long equity position in the following covered stocks:BAC, JPM and WFC

Primary Stock:
Visa (V, 08/25/2017, US $103.35). Equalweight

Price target and Valuation Methodology: Each Analyst has a single price target in all of the stocks that they cover. The price target represents that Analyst's expectation of where the stock will trade in the next twelve months.

We use a variety of valuation methodologies to arrive at our price targets including an enterprise value multiple of estimated future EBITDA and a tangible book value multiple of estimated return on tangible common equity.

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Key risks for banks and payment companies include changes in interest and currency rates among other market factors, the willingness and ability of borrowers and derivative counterparties to make good on due amounts, legal risks related to conduct and compliance with governmental requirements including those related to banking and money-transfer licenses such as know-your-customer and anti-money-laundering controls, structural shifts in competitive dynamics, and regulatory and other constraints on the ability to return capital to shareholders. We refer clients to the relevant SEC filings of covered companies, including in particular the 10-K reports, for a more complete discussion.

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Stock Ratings:

Overweight – The stock is expected to outperform the un-weighted expected total return of the industry coverage universe over the next 12 months.

Equal Weight – The stock is expected to perform in line with the un-weighted expected total return of the industry coverage universe over the next 12 months.

Underweight – The stock is expected to underperform the un-weighted expected total return of the industry coverage universe over the next 12 months.

Ratings Suspended - The ratings and price target have been suspended temporarily due to market events that make coverage impracticable or to comply with applicable regulations and /or firm policy.

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RenMac has 31 companies under coverage.
42% have been assigned an Overweight Rating. 45% have been assigned an Equalweight Rating. 13% have been assigned an Underweight Rating. None of the companies under coverage are Invetment Banking clients.

Industry Rating:

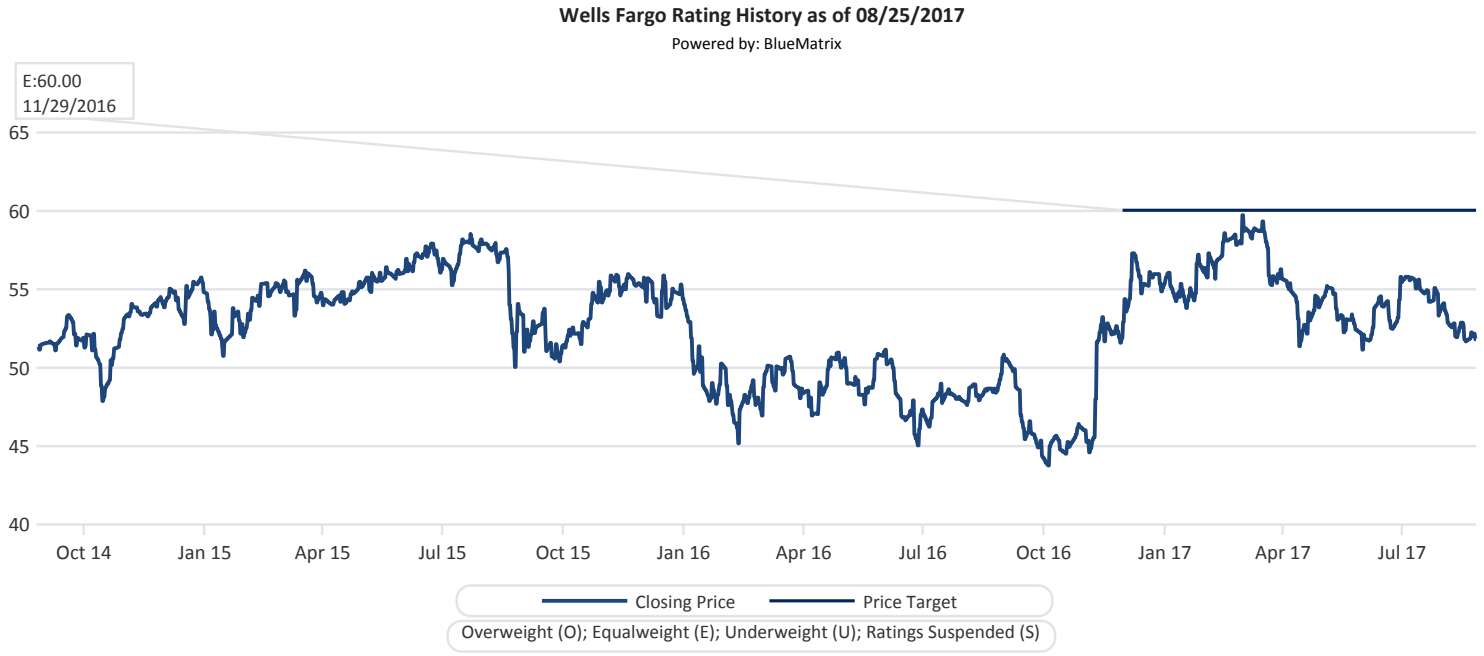
Positive – Industry coverage universe has improving fundamentals and valuations.

Neutral – Industry coverage universe has neutral fundamentals and valuations.

Negative – Industry coverage universe has deteriorating fundamentals and valuations.


American Express Rating History as of 08/25/2017
Powered by: BlueMatrix
E:70.00
09/21/2016
100
90
80
70
60
50
Oct 14
Jan 15
Apr 15
Jul 15
Oct 15
Jan 16
Apr 16
Jul 16
Oct 16
Jan 17
Apr 17
Jul 17
Closing Price
Price Target
Overweight (O); Equalweight (E); Underweight (U); Ratings Suspended (S)


Bank of America Rating History as of 08/25/2017
Powered by: BlueMatrix
O:26.00
11/29/2016
O:29.00
07/24/2017
30
25
20
15
10
Oct 14
Jan 15
Apr 15
Jul 15
Oct 15
Jan 16
Apr 16
Jul 16
Oct 16
Jan 17
Apr 17
Jul 17
Closing Price
Price Target
Overweight (O); Equalweight (E); Underweight (U); Ratings Suspended (S)



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