



Banks Undervalued: Different Lens, Same Conclusion

U.S. Banks

Deploying Value Based Analysis

- **Positive bank view.** Value Based Analysis (VBA) improves the traditional ROE to price-to-book analysis by translating accounting value to estimated economic value. On this basis, banks are about the most undervalued sector in the S&P500, led by JPM, STT, and GS. VBA is extra validation of our positive bank theme.
- **Superior to ROE.** VBA adjusts ROE by standardizing accounting across the S&P 500 to estimate return on invested capital (ROIC). It helps. The r-squared between ROIC and adjusted price-to-book value is far better than under the traditional ROE to price-to-book value approach, whether by industry (95% vs. 28%) or company (56% vs. 0%).
- **Undervalued banks.** Based on this adjusted ROE/price-to-book approach, financials are undervalued and banks even more so. We continue to believe the market has not rewarded banks enough for improving earnings stability and returns. On a bank-by-bank basis, the most undervalued banks are JPM (\$105.93) and STT (\$97.67), which have among the highest ROIC, and GS (\$250.35) (all rated Outperform).

Mike Mayo

Senior Analyst | 212-214-5300

mike.mayo@wellsfargo.com

Robert Rutschow

Senior Analyst | 212-214-5302

robert.rutschow@wellsfargo.com

Christopher Spahr

Senior Analyst | 212-214-5301

christopher.spahr@wellsfargo.com

Eric Chan

Associate Analyst | 212-214-5303

eric.chan@wellsfargo.com

Please see page 8 for rating definitions, important disclosures and required analyst certifications. All estimates/forecasts are as of 12/10/17 unless otherwise stated. 12/10/17 18:50:35 ET

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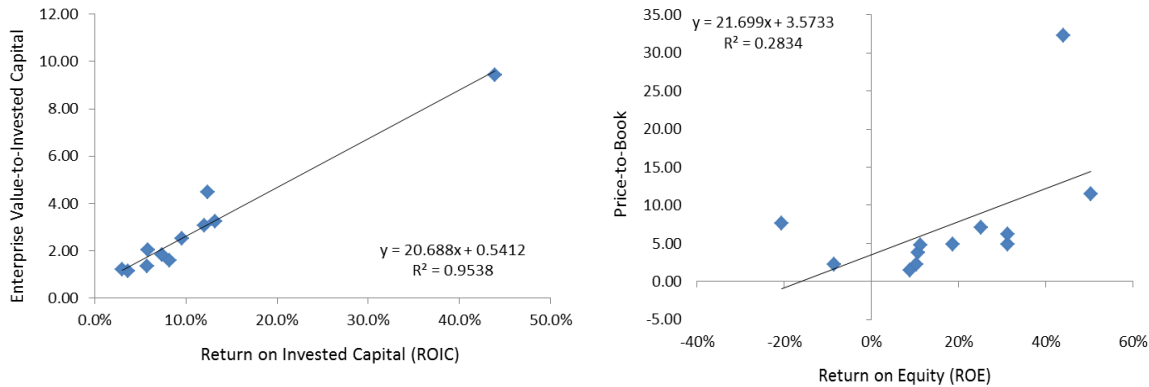


Banks are Undervalued Through another Lens

Validation of positive bank theme. For all of the reasons to own banks - price-to-book ratios, free cash flow yield, lower cost of capital, less taxes, etc. - there is yet one more: Value Based Analysis (VBA). VBA creates a scrubbed version of ROE (earnings/equity) by translating accounting earnings and accounting equity to estimated economic earnings and economic equity. To level the accounting playing field, our VBA analysis estimates economic earnings and economic capital by adjusting 20 key accounting categories. The process helps reverse overstated earnings and understated capital. This is based on a unique data set provided to us by New Constructs. VBA matters. VBA explains far more value than a traditional price-to-book regression by industry (95% vs. 28%: see Figure 1) and company (56% vs. 0%: see Figure 2).

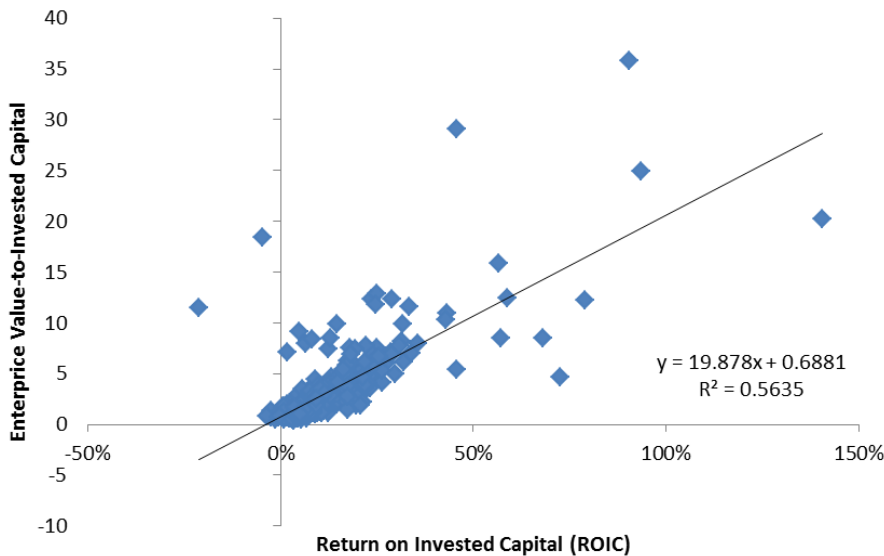
Banks are undervalued compared to other industries. Based on current valuations and last twelve months data, the broader financial industry appears undervalued compared to other industries, and when banks are stripped out of the financial segment, they appear even more undervalued. We continue to believe the market has not rewarded banks enough for their improved earnings stability and improving returns. Using VBA on a bank by bank basis, we found that JPM, STT and GS (all currently rated as Outperform) look undervalued relative to other banks in the group. In particular, VBA analysis shows that STT and JPM have achieved among the best adjusted ROEs, termed Return on Invested Capital, or ROIC.

Exhibit 1: By Industry, EVA explains far more value than ROE vs. price-to-book (by industry)



Note: as of 12/5/2017 LTM ROIC data. Industries include Information Technology, Utilities, Telecom Services, Real Estate, Materials, Industrials, Health Care, Financials, Energy, Consumer Staples, Consumer Discretionary. Source: New Constructs, LLC, Wells Fargo Securities, LLC estimates, FactSet

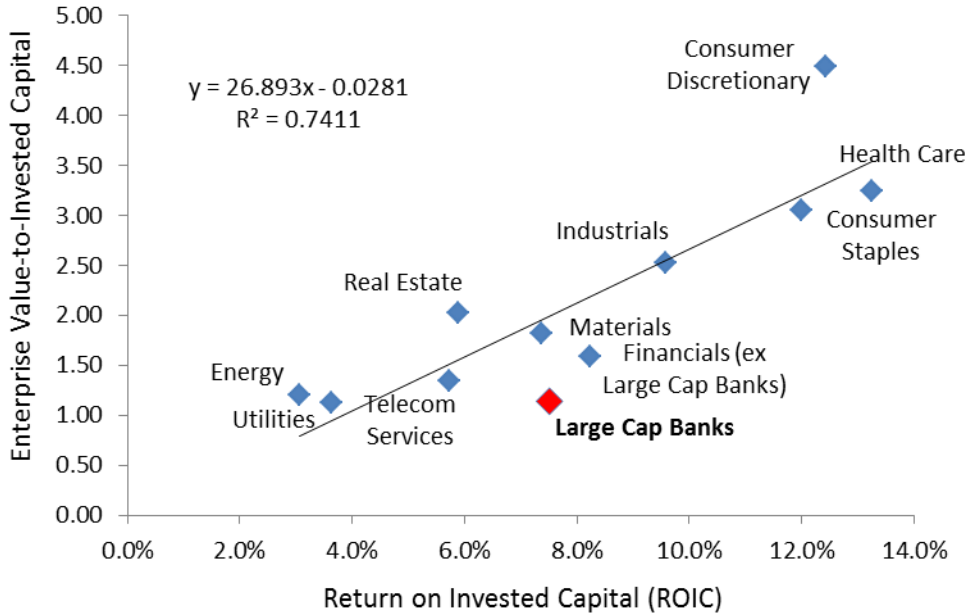
Exhibit 2: By company, a VBA regression of S&P 500 companies explains a decent amount, too



Note: as of 12/5/2017 LTM ROIC data. Source: New Constructs, LLC, Wells Fargo Securities, LLC estimates, FactSet

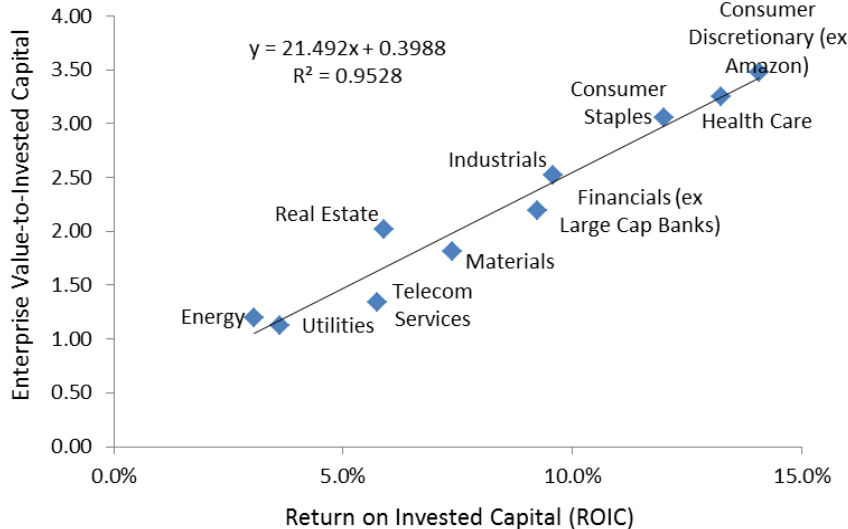
Banks undervalued. The regressions remains strong (r-squared 74%) even after excluding the big outlier, Information Technology (highest ROIC and valuation). Large cap banks are the furthest below the regression line (most attractive) after removing them from financials as a whole. Sectors with similar valuations to banks (Energy and Utilities) have returns (ROIC) that are less than half their level. Sectors with similar returns to banks (Real Estate and Materials) have valuations (economic value to invested capital) of almost double (avg. 1.92 vs. 1.14).

Exhibit 3: Banks appear undervalued relative to other S&P 500 sectors



Note: as of 12/5/2017 LTM ROIC data.
Source: New Constructs, LLC, Wells Fargo Securities, LLC estimates, FactSet

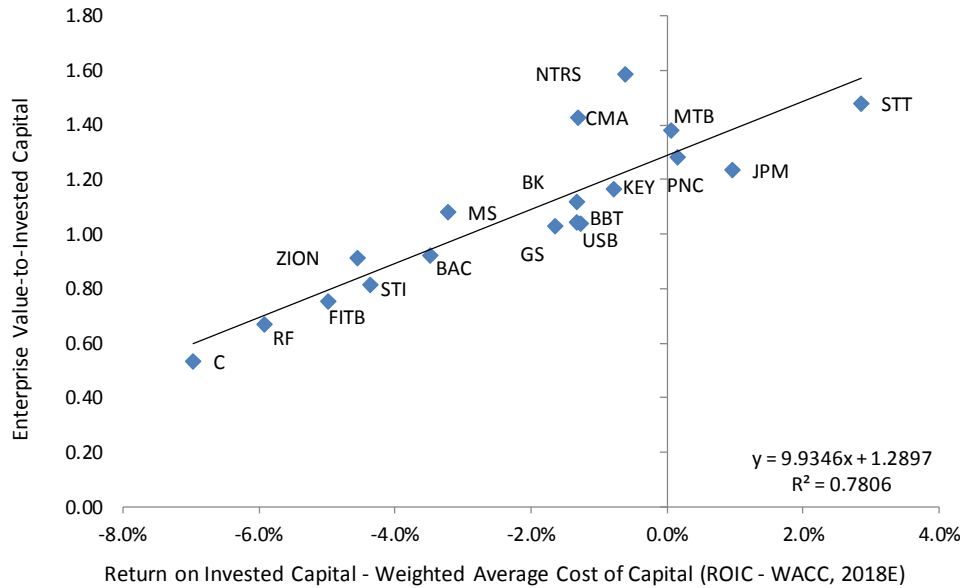
Exhibit 4: Excluding banks and Amazon causes the sector r-squared to rise to 95%



Note: as of 12/5/2017 LTM ROIC data.
Source: New Constructs, LLC, Wells Fargo Securities, LLC estimates, FactSet

Some banks look more undervalued than others. While we believe the entire group of large cap banks are undervalued, certain banks look more undervalued than others using VBA. We projected 2018 return on invested capital based on our own assumptions, and subtracted the cost of capital to calculate value added by each bank. Based on our projections for returns and current valuations, banks that appear more undervalued include JPM, STT, GS (all Outperform-rated), USB, and BBT.

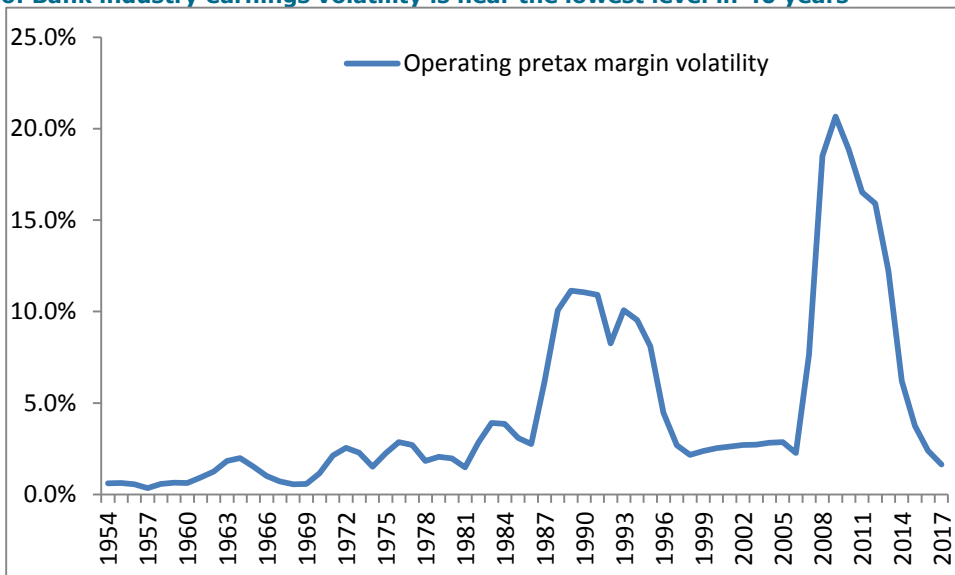
Exhibit 5: JPM, STT and GS are among the most undervalued banks based on a VBA regression



Note: Companies above the regression line assumed overvalued relative to companies below the line.
 Source: New Constructs, LLC, Wells Fargo Securities, LLC estimates, FactSet

Earnings volatility should result in lower betas and cost of capital. VBA shows that many banks are not yet generating returns above the cost of capital. For this analysis, as with our prior work, a key consideration is that the bank stock beta will likely decline from 1.3 to 1.0 (see our launch report, “Bank Betas Back to One”). A key reason is this: we estimate that earnings volatility for the banking industry (a key driver of stock beta) near the lowest level in the past 40 years. That’s based on the standard deviation of pretax margins for the industry (2.2% over the past 20 quarters – lowest level since 1998), which we estimate will decline in 2018 (to under 2.0 – lowest level since 1981).

Exhibit 6: Bank industry earnings volatility is near the lowest level in 40 years

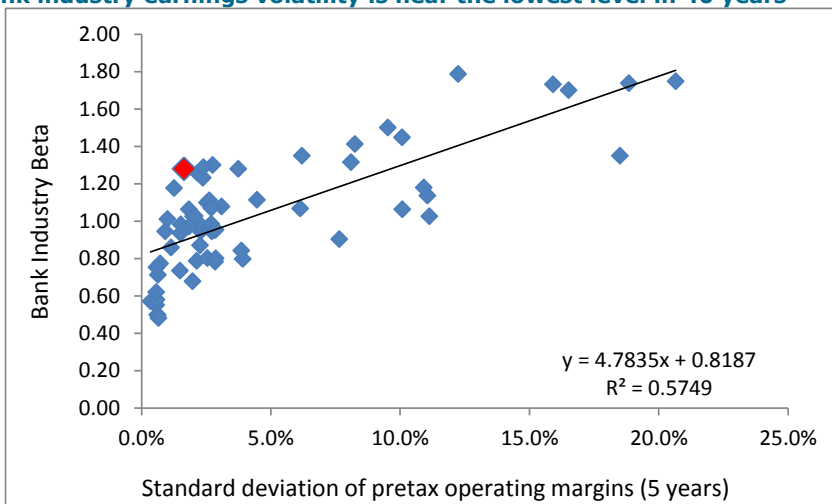


Note: Standard deviation of pretax margin over 20 quarters
 Source: FDIC, Wells Fargo Securities, LLC estimates, FactSet

Bank Betas are about the most mispriced in history. We regressed the 5 year earnings volatility against the 5 year beta for the bank industry as a whole and found a good correlation between the two. We believe that earnings volatility should be correlated with beta, as investors should consider the stability of earnings when considering the cost of capital. Interestingly, the 2017 reading of beta relative

to earnings volatility is nearly the furthest away from the regression line in history, suggesting betas for banks is more disconnected from earnings stability than in any time in the past.

Exhibit 7: Bank industry earnings volatility is near the lowest level in 40 years



Note: Standard deviation of pretax margin over 20 quarters. Red observation is 2017.
Source: FDIC, Wells Fargo Securities, LLC estimates, FactSet

Value Based Analysis (New Constructs’ Research or Robo-Analyst) Explained

Explanation of adjustments. [New Constructs](#) leverages robo-analyst technology to gather all of the data needed to accurately calculate¹ return on invested capital across most US companies and some international companies, which allows for analysis within and across various sectors. The result is a valuation model that yields superior results relative to many other methods that ignore accounting footnotes. In order to level the playing field across industries, the New Constructs’ model makes several key adjustments.

Earnings adjustments. Net Operating Profit After Taxes (NOPAT) is used to determine scrubbed earnings. Key adjustments include: goodwill amortization, one-time items, capitalized expenses, cash taxes, etc.

Exhibit 8: Key adjustments to profit calculations

<i>Operating</i>	<i>Financing</i>
Operating Revenue	Net Income
- Operating Expenses	+ Adj. for Capitalized Expenses
- Hidden Items	Adjusted Net Income
EBIT	+ Increase in Equity Equivalents
+ Goodwill Amortization	- Other Income
EBITA	+ Other Expenses
+ Adj. for Capitalized Expenses	- Hidden Items
+ Income Equivalents	+ Interest Expense After Taxes
NOPBT	NOPAT
- Cash Operating Taxes	
NOPAT	

Source: Wells Fargo Securities, LLC, New Constructs, LLC.

Invested Capital (IC) adjustments. GAAP accounting allows firms to reduce equity to reflect goodwill amortization, pooling of interest transactions, AOCI, and other items. New Constructs provides a unique data set that allows a level playing field by eliminating these accounting differences. That data is applied

¹ Ernst & Young white paper "[Getting ROIC Right](#)" attests to the unique accuracy of New Constructs’ technology.

to a standardized VBA model, and we took that a step further by inputting our own projections for returns and cost of capital.

Exhibit 9: Key adjustments to profit calculations

<i>Financing</i>	<i>Operating</i>
Short Term Debt	Current Assets
+ Long-Term Debt	– NIBCLS
+ All Leases	Net Working Capital
Total Debt & Leases	+ Tangible Assets
+ Equity Equivalents	+ Intangible Assets
+ Common Equity	+ Other Assets
Invested Capital	Invested Capital

Source: Wells Fargo Securities, LLC, New Constructs, LLC.

For banks, key equity adjustments to arrive at Invested Capital include:

1. Goodwill. Goodwill created from pooling of interest transactions and goodwill eliminated through amortization is added back to equity. If a company spends money on a deal, whether it be cash or equity, that should be treated as capital invested in the business.
2. Loan Loss Reserves. Loan Loss Reserves are treated as an equity equivalent instead of a contra-asset.
3. Asset Write-Downs. Write-downs allow companies to erase the impact of poor capital allocation. Companies should be held responsible for the capital they invest, even if that investment ends up being worth significantly less. Accumulated asset write-downs are aggregated to create an equity equivalent
4. Pensions. Adjustments are made to equity to reflect over-funded defined benefit pension plans.
5. Operating Leases. Long term operating leases are converted to capitalized leases and included in equity.
6. AOCI. Equity is adjusted for accumulated other comprehensive income.
7. Other Liabilities. Liabilities related to unfunded commitments, tax advantaged investments, other variable interest entities, etc., are treated as equity equivalents.

For banks, key income adjustments to arrive at NOPAT include:

1. Non-operating Charges. One-time charges are excluded from operating results.
2. Pension Costs. Pension service costs are recorded as operating expenses. All other pension charges, including pension service income, are excluded.
3. Operating Leases. The implied interest component of operating lease rental cost is excluded from earnings.
4. Change in Loan Loss Reserves. The difference between charge-offs and loan loss provisions are excluded from earnings (i.e. reserves are assumed to be static).
5. Cash Taxes. Stated or reported taxes are adjusted to reflect actual cash taxes paid (using pre-and after-tax values for non-operating charges found in the footnotes).
6. Goodwill Amortization. Goodwill amortization is added back to earnings. This adjustment only impacts companies prior to 2002 when the practice of goodwill amortization was ended.
7. Stock Options Expense. Stock options expense not captured in earnings are included in NOPAT. This adjustment only impacts companies prior to 2006 when recording stock option expense became a requirement.

Rating Basis Information:

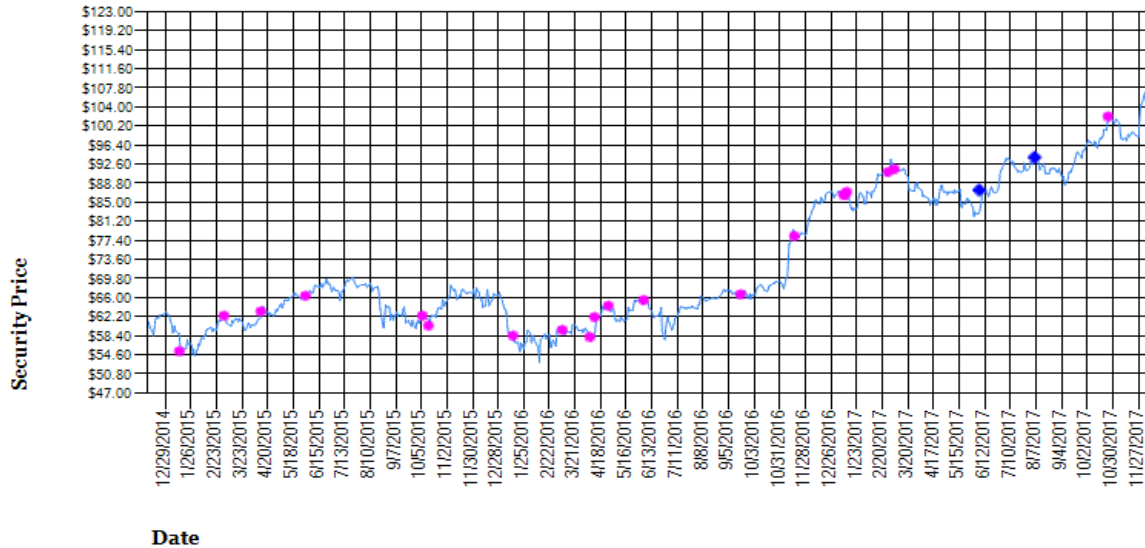
GS Thesis: Goldman Sachs has underperformed peer MS over the past five years, largely due to weaker trading businesses that had been a historical strength. Two thirds of the franchise is doing well (IB, I&L, Asset Mgt.), and we believe that management can address shortfalls in trading to close the gap with US peers. Operating leverage and capital returns via buybacks augment growth, with additional potential upside if below average volatility improves.

JPM Thesis: JPMorgan Chase (JPM) has excelled at both offense and defense over the past decade in which it has been gaining market share in all major business lines while optimizing its businesses, showing consistent earnings relative to other global banks and creating a fortress balance sheet (as defined by its CEO). Decade to date, playing defense has carried more importance but greater offense is needed ahead. Despite the risk with a transition from optimization to growth, the result should be the greatest value creation in a decade. We expect JPMorgan's ROTCE to reach the company's 15% target by 2020, the best in the firm's history on a risk-adjusted basis during a period of time its cost of capital is declining.

STT Thesis: State Street is in year 2 of its second 5 year technology restructuring plan (Project Beacon), which should help drive fees-to-expenses higher. Coupled with rising NII, we expect State Street to generate mid-teens ROE from 2016-2020E, close to the highest among large banks. Superior ROE should result in a superior valuation.

Required Disclosures

JPMorgan Chase & Co. (JPM) 3-yr. Price Performance



Date	Published Price (\$)	Rating Code	Price Target	Val. Rng. Low	Val. Rng. High	Close Price (\$)
12/10/2014		Burnell				
12/10/2014	NA	1	NE	68.00	70.00	60.68
1/15/2015	56.81	1	NE	66.00	68.00	54.99
3/4/2015	62.13	1	NE	68.00	70.00	62.13
4/14/2015	63.04	1	NE	69.00	71.00	63.04
6/2/2015	66.33	1	NE	73.00	75.00	66.02
10/8/2015	62.13	1	NE	72.00	74.00	62.13
10/14/2015	61.55	1	NE	69.00	71.00	59.99
1/14/2016	58.20	1	NE	68.00	70.00	58.20
3/9/2016	58.78	1	NE	67.00	69.00	59.12
4/8/2016	57.32	1	NE	66.00	68.00	57.74
4/13/2016	61.79	1	NE	68.00	70.00	61.79
4/27/2016	64.11	1	NE	69.00	71.00	64.11
6/6/2016	65.06	1	NE	71.00	73.00	65.28
9/20/2016	67.87	1	NE	74.00	76.00	66.46
11/17/2016	78.02	1	NE	85.00	87.00	78.02
1/9/2017	86.12	1	NE	91.00	93.00	86.18
1/12/2017	87.08	1	NE	92.00	94.00	86.24
1/13/2017	86.70	1	NE	94.00	96.00	86.70
2/28/2017	90.62	1	NE	96.00	98.00	90.62
3/7/2017	91.21	1	NE	99.00	101.00	91.41
6/9/2017		Hausner				
6/9/2017	86.97	SR	NE			86.96
8/9/2017		Mayo				
8/9/2017	93.53	1	110			93.53
10/26/2017	101.74	1	115	NE	NE	101.74

Source: Wells Fargo Securities, LLC estimates and Reuters data

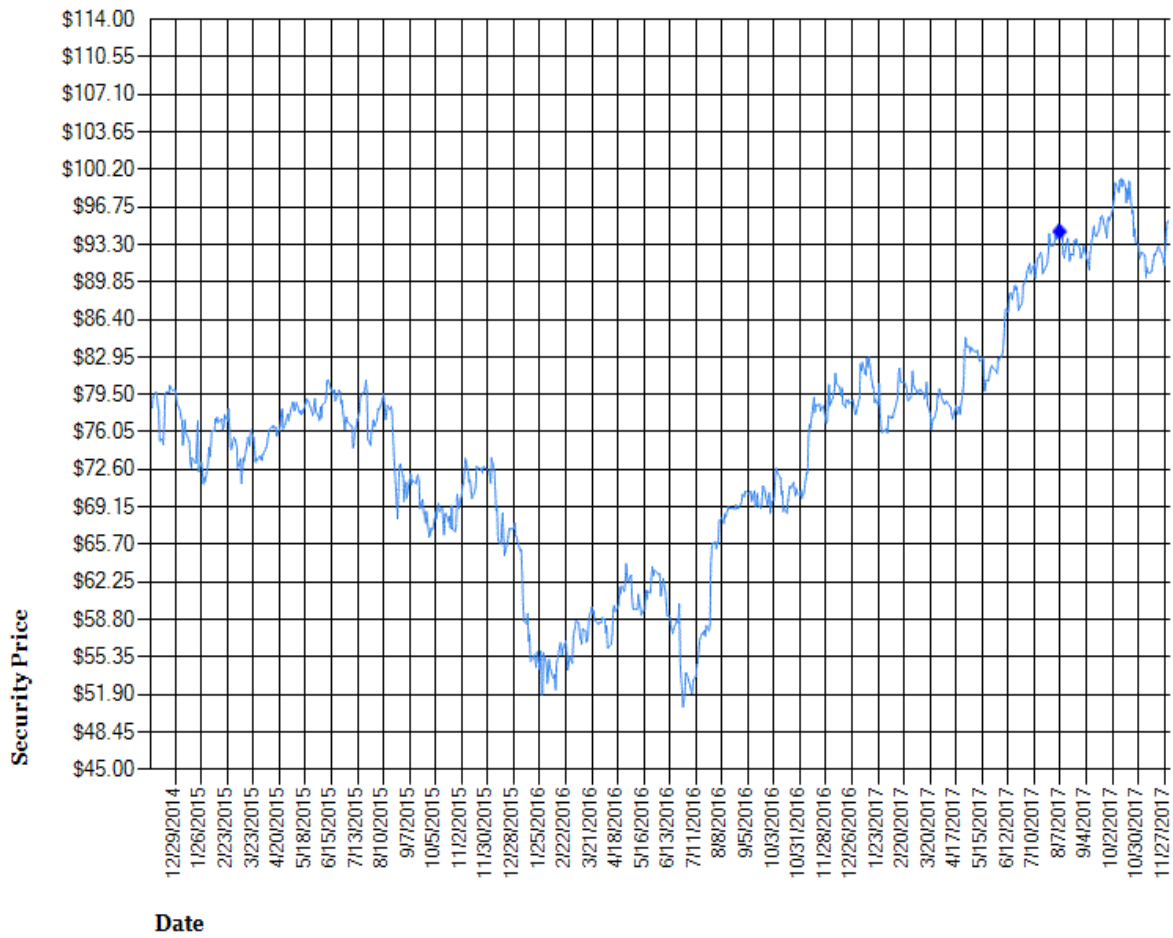
Symbol Key

- ▼ Rating Downgrade
- ▲ Rating Upgrade
- Price Target/Val Range Change
- ◆ Initiation, Resumption, Drop or Suspend
- Analyst Change
- Split Adjustment

Rating Code Key

- 1 Outperform/Buy
- 2 Market Perform/Hold
- 3 Underperform/Sell
- SR Suspended
- NR Not Rated
- NE No Estimate

State Street Corp. (STT) 3-yr. Price Performance



Date	Published Price (\$)	Rating Code	Price Target	Val. Rng. Low	Val. Rng. High	Close Price (\$)
8/9/2017		Mayo				
8/9/2017	94.28	1	115			94.28

Source: Wells Fargo Securities, LLC estimates and Reuters data

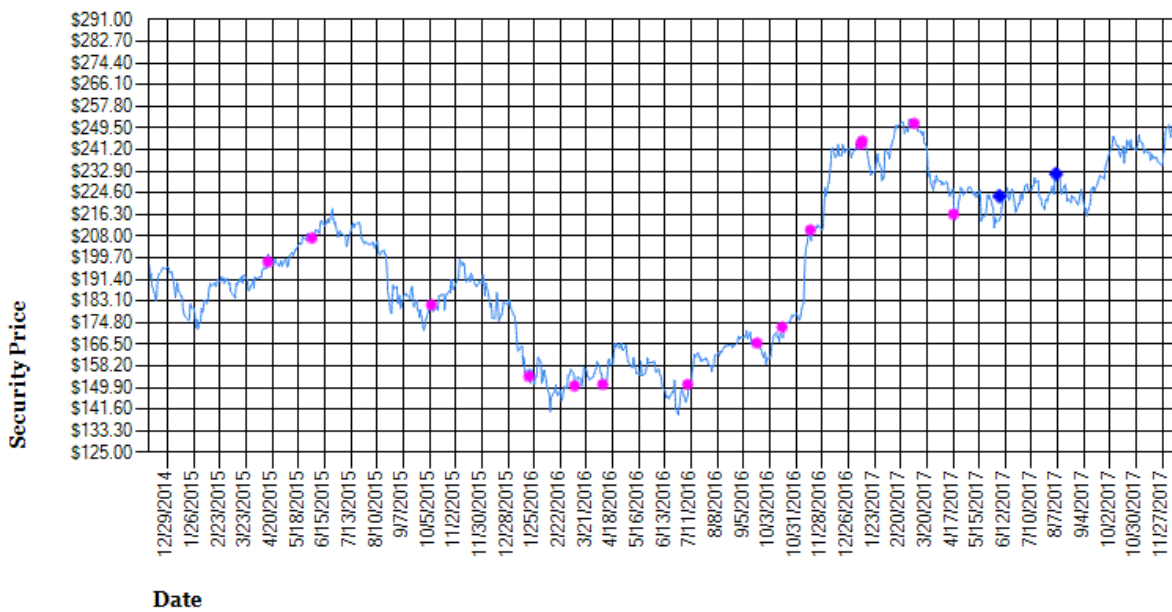
Symbol Key

- ▼ Rating Downgrade
- ▲ Rating Upgrade
- Price Target/Val Range Change
- ◆ Initiation, Resumption, Drop or Suspend
- Analyst Change
- Split Adjustment

Rating Code Key

- 1 Outperform/Buy
- 2 Market Perform/Hold
- 3 Underperform/Sell
- SR Suspended
- NR Not Rated
- NE No Estimate

The Goldman Sachs Group, Inc. (GS) 3-yr. Price Performance



Date	Published Price (\$)	Rating Code	Price Target	Val. Rng. Low	Val. Rng. High	Close Price (\$)	
12/9/2014		Burnell					
12/9/2014	NA	2	NE	190.00	200.00	196.89	
4/17/2015	200.21	2	NE	200.00	210.00	197.35	
6/2/2015	208.87	2	NE	205.00	215.00	206.43	
10/8/2015	181.07	2	NE	195.00	205.00	181.07	
1/20/2016	156.19	2	NE	170.00	180.00	153.75	
3/9/2016	151.60	2	NE	165.00	175.00	149.91	
4/8/2016	150.41	2	NE	160.00	170.00	150.28	
7/8/2016	147.00	2	NE	150.00	160.00	150.38	
9/20/2016	167.15	2	NE	170.00	180.00	166.47	
10/18/2016	172.63	2	NE	175.00	185.00	172.63	
11/17/2016	209.63	2	NE	210.00	220.00	209.63	
1/9/2017	244.90	2	NE	235.00	245.00	242.89	
1/12/2017	245.76	2	NE	240.00	250.00	243.84	
3/7/2017	250.24	2	NE	250.00	260.00	250.90	
4/18/2017	215.59	2	NE	220.00	230.00	215.59	
6/9/2017		Hausner					
6/9/2017	222.18	SR	NE			222.44	
8/9/2017		Mayo					
8/9/2017	231.01	1	265			231.01	

Source: Wells Fargo Securities, LLC estimates and Reuters data

Symbol Key

- ▼ Rating Downgrade
- ▲ Rating Upgrade
- ◆ Price Target/Val Range Change
- ◆ Initiation, Resumption, Drop or Suspend
- Analyst Change
- Split Adjustment

Rating Code Key

- 1 Outperform/Buy
- 2 Market Perform/Hold
- 3 Underperform/Sell
- SR Suspended
- NR Not Rated
- NE No Estimate

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2=Market Perform: The stock appears appropriately valued, and we believe the stock's total return will be in line with the market over the next 12 months. HOLD

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M=Market Weight: Industry expected to perform in-line with the relevant broad market benchmark over the next 12 months.

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As of: December 10, 2017

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