Chartered Financial Analyst

Research Challenge

By

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In Partial Fulfillment of the Bachelors degree
With Honors in

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THE UNIVERSITY OF ARIZONA

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Approved by:

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Abstract

The University of Arizona Honors College and the Eller College of Management jointly offer the optionality to participate in either the CFA Institute Research Challenge or the CQA Investment Challenge for graduating finance seniors looking to complete their honors thesis requirement. While both research opportunities are team-based tasks and require a comprehensive skillset learned within the finance undergraduate experience, the challenges vary significantly in scope and responsibility. The CFA Institute Research Challenge is much more micro focused consisting of the valuation of a single company while the CQA Challenge is much more macro in nature as that challenge consists of managing an investment portfolio exposed to global financial markets.

This report is focused on my personal and my team's experience participating in the CFA Institute Research Challenge. My team consisted of Tessa Collins, Amber Lucas, Shivani Patel, Henry Roden, and myself, Robert McCollister. As has been consistent with my tenure at the Eller College of Management, team-based objectives are of a completely different complexity than projects where one is solely responsible for the end product. I found my experiences described below to be not only transformative but also extremely rewarding.

Statement of Purpose

As outlined to us by our faculty supervisor, Dr. Scott Cederburg, we received a clear objective as a team and as individuals. We were to participate in the southwest portion of the CFA Institute Research Challenge and represent the University of Arizona. The nature of this task and our collective goal are both detailed below:

What is the CFA Institute & the CFA Institute Research Challenge?

The CFA Institute is a highly respected global association of investment professionals. Much like how accountants can become CPAs (certified public accountants) to provide accounting services to the public and gain credibly as accountants, those working can earn a similar distinction as a CFA via the CFA Institute. Although there are no federal regulations mandating that one obtain his or her CFA to provide financial services to the public, the difficulty of obtaining the CFA distinction provides a large amount of credibility to an investment professional who obtains the distinction. Currently the CFA Institute has 142,000 members worldwide and a wide range of influence among financial employers[1]. The institute also prides itself on its wide reaching programs sponsoring a variety of causes including: college scholarships, volunteering initiatives, and professional integrity training.

The CFA Institute Research Challenge is a global competition aimed to provide university students' hands-on training and exposure to financial analysts. Run by CFA members, in the CFA Challenge teams from each university are required to research and create an equity research report regarding an assigned company. The researching teams are given an equal playing field as each team is given a

[1] Cfainstitute.org

presentation of the company’s financials and growth projections by the company’s executive team. This gives each team the opportunity to ask educated questions early on. In order to win the competition, a university team must first win their regional division by producing the best equity research report. If they succeed in doing so, they must then go to a national competition to present their equity research report and hopefully win nationals. Finally the winners of the national competition are then given the opportunity to compete in the worldwide competition.

Our assigned company for the 2017 competition was Western Alliance Bancorporation. A mid-cap financial institution headquartered in Phoenix Arizona with a market value ranging from $5-6 billion dollars. There were seven university teams competing in our region and our report deliverable needed to be within the top 5 to qualify for the first round. Western Alliance Bancorporation’s CFO met with us for two hours to discuss the company and answer any questions we had regarding his company which we were about to be researching.

Our Goal

As a team, we determined it to be paramount that we share a common goal and objective as a group. Although it was not required upon us to do so as a group in order to fulfill our honors requirement, we decided to set forth to hopefully win the competition at the regional level and proceed to nationals. In order to do this, we agreed we would need to produce a high quality report that properly valued

Western Alliance Bancorporation and their competition, as well as describe their macroeconomic environment.

Statement of Relevance

In many ways an equity research report is the most financially wide reaching deliverable that can be produced. It incorporates a valuation of a particular company while incorporating macroeconomic themes and conditions. An outstanding equity research report illustrates a full narrative into a business and a business's industry, competition, and environment. Traditional equity research is sold to financial institutions looking to make more informed investment decisions.

The CFA Challenge presented a unique opportunity where we could incorporate nearly all that we have learned as undergraduate finance students. Especially since the company we were dealing with was a financial institution. Everything from bond math, to how loans work, to capital structures, to valuation techniques, to global financial markets were necessary to complete this report. The more we incorporated from school the better our product would be. Also the equity research report format also forced us to see the forest from the trees and truly understand the nature of the business we were writing about.

Methodology

As a team we really wanted to tell a fluid story in our equity research report. However, we quickly realized that this would be difficult to do as much of the research of our company would have to be done independently and we would have to bring our independent research together appropriately. To maintain a singular voice, we decided it was best to approach the challenge by dividing up the work as opposed to having multiple people working on the same sections.

I was responsible for creating the various valuations in excel as well as other financial data that would be needed in the equity research report. Shivani was responsible for the report itself and held autonomy over the final deliverable. Henry, Amber, and Tess all focused on doing an immense amount of research about Western Alliance and external forces affecting their business. The idea being that we could each work on parts separately and then Shivani could build piece by piece what we had put together. Below are further details about the valuation and the report:

Valuations

Valuing Western Alliance was by far the most difficult singular component of this project. As someone who will be entering investment banking after college and having completed investment-banking internships in New York, I have prided myself in the past on my valuation ability for an undergraduate. Unfortunately I had never valued a financial institution before. This proved to be extremely difficult as financial companies must be valued with completely different methods.

Traditional discounted cash flow models and Enterprise Value/EBITDA multiples are not adequate because of the way financial institutions package and resell debt. To put it simply, financial institutions are one of the few companies where debt is considered to be more like inventory than it is a liability which effectively voids traditional valuation techniques. To over come this, I used a residual income model and a Price/Tangible Book Value multiples that are both appropriate valuation methods for financial institutions. For the residual income model, which instead of projecting out financial cash flows projects the margin of return on equity (*ROE)* relative to weighted average cost of capital (*WACC)*, I showed a range of sensitivities or possible ranges of outcomes. Additionally to support our valuation, I included price ranges displaying Western Alliance's 52 week trading high and low as well as analyst consensus on the firm's price target (used Bloomberg Terminal). Both these metrics acted as relative measures to the intrinsic valuations we were displaying.

The Report

Although the report was simply an expansion of the narrative being told by the various valuations, the report is what would determine our success as a group in the competition. We worked to incorporate a variety of macroeconomic trends and idiosyncratic risks to which Western Alliance was exposed. One thing that made this extremely difficult to do was the election of President Donald Trump. Although members of the team often disagreed as to whether Donald Trump was a good thing for the country, one thing that was most certainly agreed upon was a sense of volatility and unpredictable conditions that would be affecting financial institutions especially.

Our report ultimately was 10 pages and we had about 10 pages of appendices, maxing out what we were allotted by the competition. We worked to demonstrate with graphs and charts external forces that would be affecting Western Alliance, and also while incorporating the unique financial health and competitive advantages/disadvantages of the bank.

Report Overview

Our valuation and equity research report were contrarian and ultimately stated that Western Alliance was overvalued. This went against Wall Street analyst consensus. From a macro stand point, we felt that the stock which had been trading at $20-$30 dollars pre-presidential election and was now trading near $50 a few months later had really priced in all expected potential benefits that would benefit the share price any time into the future. Any further potential rise in stock price would be marginal and not worth the volatility which financials are currently exposed to. Western Alliance's current stock price completely depends on an implemented tax reform by the Trump administration as well as regulatory reform for financial institutions. Although each one of these are independently likely in the coming years, we felt the financial markets have prematurely priced in their implementation.

The only truly intrinsic valuation, the residual income model, indicated an average expected stock price of $35-40. We felt that this valuation would prove to be most accurate as it was an intrinsic valuation. Our multiples comparables analysis and consensus metrics all gave us stock price ranges based on the vary markets to which we claimed were over inflated.

Results

Unfortunately we fell short of our goal of winning our regional division and advancing to nationals. Three judges rated our equity research report and gave us scores out of 100. Judge #1 and Judge #3 gave us a score of 90 and 88 respectively (strong scores) and also provided fantastic insight into our presentation and ways to improve it. Both of these judges were complimentary of our work and our approach. Judge #2 gave us a score of 77 out of 100 and provided very little reasoning as to why. From the little feedback he gave, it appeared he took issue with the presentation of the report. Citing a few typos and things that were difficult to interpret, he unfortunately did not provide any insight as to what he thought of the content of the report. Unfortunately this score did not allow us to advance.

I think ultimately there are a certain things as a group we would do differently had we had the opportunity to do this again. Here are a few changes we would make:

- The Handling of the Valuation – I think as a group we largely underestimated the behemoth task of handling the valuation of Western Alliance. I felt overwhelmed at times and wish I had gotten other team members involved earlier on. The large amount of time it took complete the valuation really delayed the progress of other components of the presentation because the financial data and valuation really drove the narrative behind the remainder of the equity research report

- Time Management – Frankly we failed to hit internal deadlines as a team. For understandable reasons such as people being busy with finals and it being difficult to work together over winter break, but that said, ultimately missed internal deadlines did force us to cram work at the end. I think ultimately if I had to advise next year's team on a way to overcome this, I would recommend for them to really focus on the final deliverable. Create a vision of what you want the final deliverable to look like early on and work towards that. This will prevent excess work from being done and allow work to be done more efficiently.
- Delegation of Work – I think by nature this challenge is difficult to delegate across five people. I think a three-person team could handle the challenge as effectively in an equal amount of time. Typically one or two experienced analysts write equity research reports. This CFA challenge was a lot of work, but ultimately sometimes it takes longer to get someone up to speed than just completing the work one's self.

Conclusion

Although as a team we fell short of our goal of advancing to the National CFA Equity Research Challenge, I feel we are all much better for our experience participating in the challenge. The work required for the equity research report really demanded the recollection of much of what we have learned within our finance classes. I personally benefited from building a valuation for a financial institution, something I had never done before. Most importantly we as a team experienced a real-world simulation as to how to work together towards producing a high quality deliverable. I think learning to efficiently and effectively operate in such a setting is half the journey.

I would like to thank the University of Arizona Honors College, the Eller College of Management, Dr. Scott Cederburg, and my teammates for allowing me to grow via this experience.

CFA Institute

CFA Institute Research Challenge

hosted by

CFA Society Phoenix

University of Arizona

University of Arizona Student Research

Financials Sector, Commercial Banking Industry
New York Stock Exchange ("NYSE")

Date: 1/13/2017
Ticker: NYSE: WAL

Closing Price: $49.26

Recommendation: SELL
Target Share Price: $41.36 (16% Decrease)

Executive Summary

Business Background

Western Alliance Bancorporation (referred to as "Western Alliance", "WAL", or the "Company") is an American financial services firm and bank holding company. Western Alliance provides lending, deposit, banking, and treasury management services to commercial and retail clients. The Company operates through five major entities: Alliance Bank of Arizona, Bank of Nevada, Bridge Bank, First Independent Bank, and Torrey Pines Bank. With a $5+ billion market capitalization, Western Alliance boasts a robust national presence.

Investment Recommendation

We are issuing a **SELL** recommendation on NYSE: WAL with a 12-month target price of $41.36 per share. Driven primarily by an intrinsic residual income valuation and a markets-oriented multiples valuation, we are confident in our current target price and believe Western Alliance Bancorporation is currently overvalued at $49.26 per share.

Investment Thesis and Outline

Understanding the varying facets of corporate valuations, especially for financial institutions, we have incorporated both intrinsic and markets-focused valuations in order to support our price target of $41.36. Western Alliance serves as a unique valuation target as a rapidly growing financial with extensive exposure to systematic risks within industry. The following reviews our multifaceted approach for appropriately and accurately valuing the company:

Intrinsic Valuation – Residual Income

Western Alliance Bancorporation can be most precisely valued using a residual income model. As with most financials, leverage and the repackaging of debt restrict our ability to derive a reliable discounted cash flow valuation for Western Alliance. However, contrary to most other financial institutions, Western Alliance does not issue dividends. This rules out the dividend discount model which is widely used for banks such as Western Alliance. The residual income model closely resembles the discounted cash flows in that it discounts the projected future value of residual income into an absolute present value.

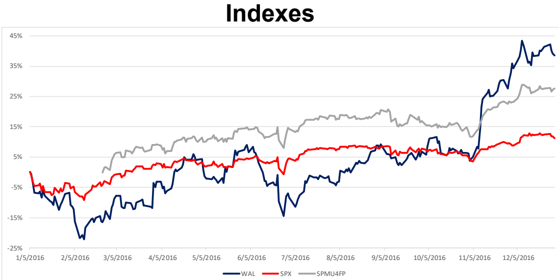
Extrinsic Valuation – P/E & P/TBV Multiple Comparison

In addition to the residual income model, the traditional price to terminal book value multiple for financials produced a dependable markets-orientated valuation. We also conducted a price to earnings valuation to supplement the P/TBV valuation.

Systematic Risks

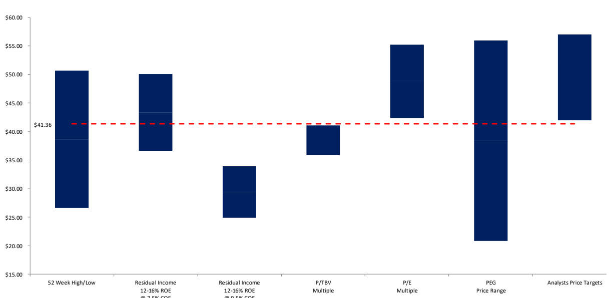
Multiples in the financial industry are currently inflated and this overvaluation can be attributed to financial markets prematurely pricing in potential policy changes thought to be incorporated by the incoming Trump administration and also failing to price in rising costs of capital. Although we believe tax reform, the revision or replacement of Dodd-Frank, and other regulatory reforms all carry moderate likelihood with

Figure 1: WAL Historical Price Change vs. Comp. Indexes



Source: Bloomberg

Figure 2: WAL Summary Valuation with Target Price



Source: Bloomberg

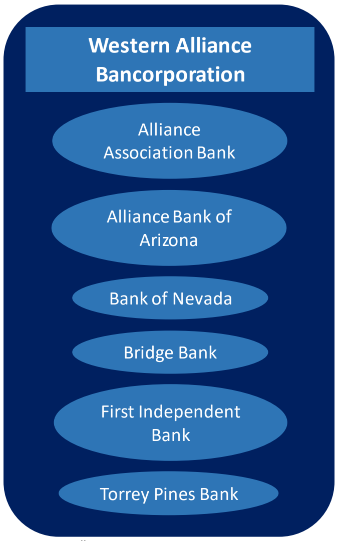
Figure 3: Cost of Equity Calculation

	Rate	Date
10-Year US Treasury	2.37%	1/20/2017
Market risk premium	3.50%	1/20/2017
Beta	1.56	1/20/2017
Cost of equity	**7.8300%**	

Source: Bloomberg/Morningstar

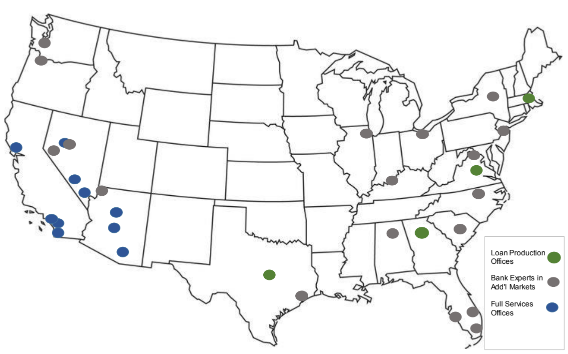
Republican-controlled Congress, speculation alone does not warrant the valuations currently supporting the multiples of volatile financial firms such as Western Alliance. As markets sway with sentiment, we have maintained discipline when valuing Western Alliance by integrating financial and fundamental analysis.

Figure 4: WAL Corporate Structure



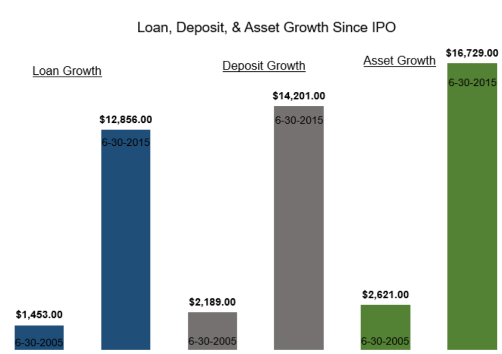
Source: Western Alliance Bancorporation

Figure 5: WAL Locations



Source: Western Alliance Bancorporation

Figure 6: Loan, Deposit, & Asset Growth Since IPO



Source: Western Alliance Bancorporation

Business Description

Headquartered in Phoenix, Arizona, Western Alliance Bancorporation operates in the commercial lending space with many of its clients in industries such as life sciences, construction, and hospitality. As of 6/30/2016, the Company has over $16bn in assets, $13bn in loans, and $14bn in deposits. Western Alliance Bancorp has over 45 locations for banking resources across over 15 states. WAL has five major operating segments:

- Alliance Bank of Arizona
- Bank of Nevada
- Bridge Bank
- First Independent Bank
- Torrey Pines Bank

Western Alliance also has non-major subsidiaries that provide financial services, such as Alliance Association Bank. The Company has one non-bank subsidiary known as Las Vegas Sunset Properties.

Western Alliance's loan services include:

- Working capital lines of credit
- Inventory & A/R lines of credit
- Mortgage warehouse lines
- Equipment loans and leases
- Home equity loans
- Home equity lines of credit

Loan, Asset, & Deposit Growth

From 2005 to 2016, WAL's loan portfolio grew at a CAGR of 21.9%. Assets grew at a CAGR of 18.4% over the 2005 to 2016 period. As of 9/30/2016 Western Alliance's assets measured at ~$17bn, a $15bn increase from 2005. The Company also experienced growth in its deposit portfolio over the past decade, growing at a CAGR of 18.5% from 2005 to 2016. Deposits increased by ~$12bn over the past decade. These deposits consist of the following accounts:

- Certificates of Deposit (CDs)
- Savings and Money Market Deposit Accounts (MMDAs)
- Non-bearing Demand Deposit Accounts (DDAs)
- Negotiable Order of Withdrawal (aka Checking Account) (NOW)

Deposit Composition

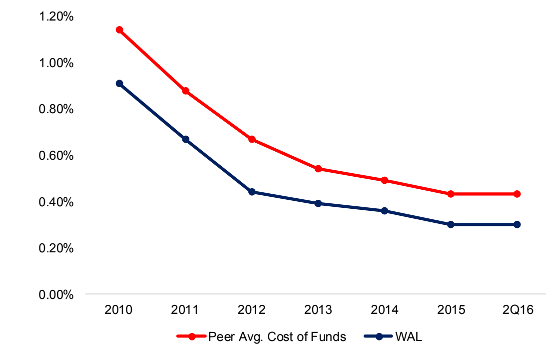
As of 2016, Western Alliance Bancorp's deposit composition consists mostly of MMDAs or savings accounts which are ~42% of deposits. The remainder of the accounts in the deposit portfolio are as such:

- CDs ~12%
- NOW ~9%
- DDA ~37%

Shareholder Base

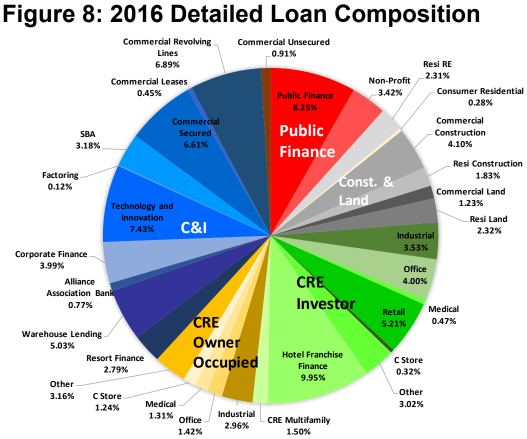
WAL issued common shares that are listed on the New York Stock Exchange. In respect to common shares, 10.2% of shares are held by all insiders and 5% owners. About 72.1% of shares are held by institutional & mutual fund owners. Of direct holders, Robert Gary Sarver, the Chairman and CEO of WAL, holds the most shares at 955,075 shares (~0.9% of shares outstanding). Of institutional owners, T. Rowe Price owns the largest percentage of shares at just over 7.5 million

Figure 7: Cost of Funds vs. Peers



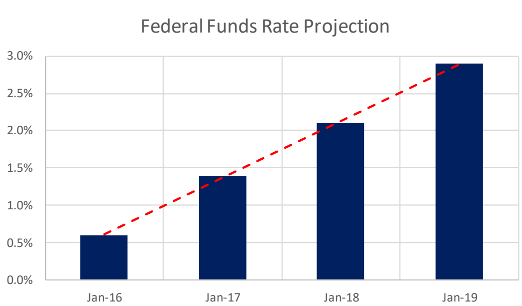
Source: Western Alliance Bancorporation

Figure 8: 2016 Detailed Loan Composition



Source: Western Alliance Bancorporation

Figure 9: Federal Funds Rate Projection



Source: St. Louis Fred

shares (7.1% of shares outstanding). See Appendix B for additional information.

Management's Shareholder Value Generating Initiatives

Company management is focusing on growing through:

- Acquiring GE Capital's U.S. hotel franchise finance loan portfolio, giving them an opportunity to establish a new presence in the attractive risk-adjusted return, select-service hotel industry (Sarver).
- Entering new geographies, with de novo banks and the acquisition of The Bridge Bank to gain more access to Northern California.
- Entering new verticals, by entering the technology & innovation market through the Bridge merger.
- Greater breadth of existing markets**,** by the technology group launching life sciences group and equity fund resources.

Industry Overview and Competitive Positioning

Industry Overview

Western Alliance Bancorp operates and provides services to multiple commercial banking sectors in the United States:

- Depository Services: WAL currently has experienced large growth in deposits over the past 5 years, leading to about $13 bn in deposits among all member banks.
- Commercial Loans
- Industrial Loans
- Commercial Real Estate Loans

Demand Drivers

The commercial banking industry in the United States has contracted by 0.9% over the past five years because of the subprime mortgage crisis had on the banking sector. About 350 banks failed between 2010 and 2015, while smaller banks experienced periods of little or no profit in the same time period (Hoffman). Economic data from 2008-2016 has shown a large recovery among consumers since the 2008 crisis, signaling strong growth for banks over the next five years. With expected decreases in the unemployment rate, continued increases in the Federal Funds Rate and the prime rates by commercial banks, and a move towards technology driven banking, revenue and profit margins among commercial banks are expected to expand.

Rise in Federal Funds Rate

There are strong economic indicators that the Federal Reserve will continue to raise rates through 2019. The recent rate rise in December 2016 signaled that there are more rate increases to come over the next few years. This rise in rates has been long awaited since rates were cut to near-zero during the 2008 financial crisis. The spread the banks make between their loans and the interest they pay out will likely increase, resulting in higher profitability.

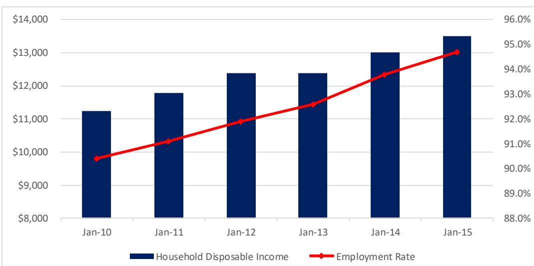
Unemployment Rate Steady, Poised to Decline

Consumer spending is directly related to employment levels. Economic data shows the more people employed, the more money they spend. Historically, the United States' employment level has not been very volatile, but it has been more active in the past ten years. The St. Louis Fed expects the unemployment rate to fall to about 4.5% in 2018, then level off around 5% by 2020 (St. Louis Fed). These economic factors are positive for commercial banking, increasing consumers' ability to deposit and save more in their personal accounts.

Figure 10: SWOT Analysis

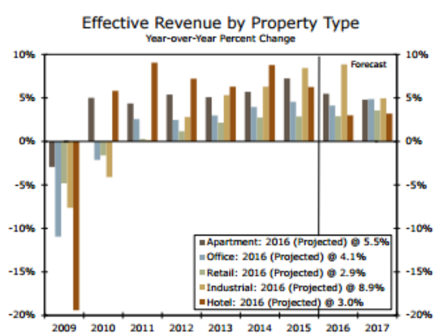
Strengths	Weaknesses
Premium pricing from client centric solutions	Does not issue dividends
Tailored compensation plans create sense of ownership	Decrease in the value of loans and other assets secured by real estate
Local, faster decision making	An impairment of certain intangible assets such as goodwill
Deeper market knowledge	
Opportunities	**Threats**
Expansion into new territories	Increased competition resulting from the increasing consolidation of financial companies
Expanding presence within existing markets	Number of borrowers becoming delinquent, leading to nonperforming assets, charge-offs and provisions for credit losses
Entering new return verticals on a broader geographic basis	Decreases in the deposit balances
	Decrease in demand for loans

Figure 11: Household Disposable Income compared to Employment Rate



Source: St. Louis Fed

Figure 12: Real Estate Revenue by Property Type



Source: Wells Fargo

Regulation

New regulation will likely dominate the commercial banking industry over the next five years to 2021 (Hoffman, 2016). Since the passage of Dodd-Frank in 2010, many analysts have predicted banks to experience profit margin deterioration in the following years as compliance rules come into full effect. This crunch is mostly due to increased compliance costs, fee reductions, and changing reserve requirements. As these costs rise banks are likely to push those expenses onto their customers in the form of fees. Given these assumptions, analysts further expect revenue growth to recover and continue to grow after 2021. The U.S. election has made future regulation uncertain, as Donald Trump has pledged to change regulations and possibly repeal Dodd-Frank. A loosening of the currently imposed regulations is predicted to make for a more prosperous environment for commercial banks, but substantial uncertainty about the future of financial regulation remains (Hoffman, 2016).

Competitive Positioning

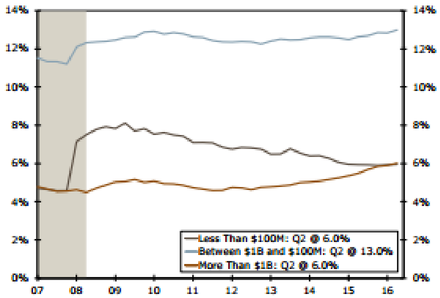
- **WAL operates in a unique middle-market niche that allows geographic recognition while maintaining a customer-focused business model:** Because of their regional presence, WAL can provide low cost funding, large credit capacity and a considerable geographic footprint when compared to smaller community banks. When compared to larger national banks, WAL has more defined market knowledge of the areas they operate in, local decision making processes, and better access to top management. These lending platforms have allowed them to grow organically within their own regions as well as into new regions.
- **WAL has achieved growth through acquisitions that have increased loan balance and provided new services to their customers:** WAL's most recent merger with Bridge Bank in Northern California is one of multiple acquisitions that have helped drive growth and increase industry expertise. They have been able to enter new geographies and product markets through these acquisitions. They have increased their loan balance and entered the technology, energy, and innovation market in the past year.
- **WAL's asset quality has been outperforming may of their peers ttm:** WAL has been outperforming their peers on asset performance over the past few years. Most recently, they have published an ROAA of 1.62 compared to an average ROAA of .99 from their close competitors. They also have a ROAE of almost double the average of their peers and exceed them by almost a percentage point on their net interest margin.

Investment Summary

Based on various valuation methods, the current business and economic environment, and research of the business, this report ultimately recommends a **SELL** rating for Western Alliance Bancorporation. Western Alliance Bancorporation has a relatively low market capitalization (~5bn) compared to its closest competitors. Nevertheless, Western Alliance Bancorporation is trading at relatively high valuation multiples.

Most notably, the Company is trading at a price-to-book value of 2.7x against the peer universe average of 1.5x and a price to tangible book value of 3.2x against the average of 2.2x. The residual income model places Western Alliance Bancorporation's stock price generally $5 to $8 dollars below the current price of roughly $49.26. Still, given the investment risks and the forces that will drive the banking industry over the medium to long term future, it would be in an investor's best interest to gradually unwind positions of Western Alliance Bancorporation.

Figure 13: CRE Non-residential lending - by commercial bank size, % total assets



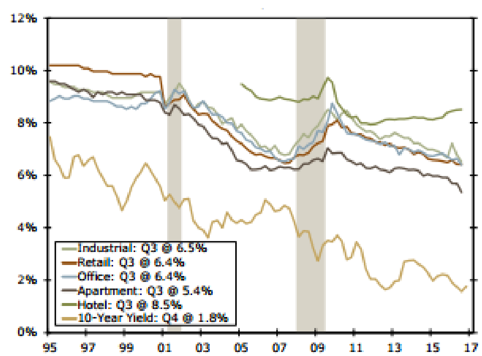
Source: Wells Fargo

Figure 14: Nonperforming Assets

Asset Type	Sept 30, 2016	Dec 31, 2015
Non-Accrual Loans	$40,608.00	$48,381.00
Loans past due 90 days or more on accrual status	$2,817.00	$3,028.00
Accruing Troubled Debt Restructured Loans	$53,704.00	$70,707.00
Other Assets Acquired through Foreclosure, net	$49,619.00	$43,942.00

Source: Western Alliance Bancorporation 10-Q

Figure 15: CRE Cap Rates vs. 10- Year Treasury Yields



Source: Wells Fargo

Investment Drivers

Political Uncertainty

President Elect Donald J. Trump vocalized his support for the deregulation of banks, cutting corporate taxes, and the removal of the Affordable Care Act. Another feature of Mr. Trump's campaign was to repeal the regulation on the Dodd-Frank Act, making it easier for banks to operate. In the context of the current political climate, any changes in regulation are highly uncertain.

Volatile Financial Environment

In the wake of the investigations and prosecutions into larger banking institutions, notably Wells Fargo and Deutsche Bank, many banks have been careful about operating in riskier areas of business. This level of oversight by American authorities will likely create obstacles for banks operating within American borders.

Despite large fines and provisions, big banks beat Wall Street earnings expectations while their stocks rallied in response to Trump's deregulation policies toward banks. The big 4 banks have also been tightening their grasp on the market, controlling ~45% of total bank assets. This recent competitive aggression is making it more difficult for local banks to compete in major markets.

Unfavorable Commercial Real Estate Conditions

Commercial Real Estate investors are the largest portion of WAL's loan portfolio. Unfavorable commercial real estate conditions create a decline in demand for loans or additional funding. Overall rent growth has been slowing in key sectors such as the apartment and hotel space. The decrease in rent growth is coupled with muted construction as industry experts estimate private non-residential construction spending to grow about 5.5% this year (Wells Fargo, 2016).

Strong Deposit Growth

The Company has recently experienced increases in deposits both QOQ and YOY. Much of this growth is attributable to two categories: non-interest bearing demand deposit accounts and savings and money market demand accounts. In 2016, savings and MMDA accounts compromised of 42.3% of the deposit portfolio, while non-interest bearing DDA accounts represented 37.1%. Overall, deposits have increased $2.8bn YOY with a CAGR of 18.5% since WAL's IPO.

Strong Loan Growth

WAL has exhibited strong loan growth with QOQ and YOY loan growth driven by the following categories:

- Commercial Real Estate (Non- Owner Occupied)
- Commercial and Industrial
- Construction and Land

Non-owner occupied commercial real estate loans accounted for 28% of the loan portfolio while commercial and industrial loans accounted for 43.3% of the loan portfolio in 2Q16. Construction and land consisted of only 10.4% in the loan portfolio during this time. Loan growth has increased overall with a CAGR of 21.9% since the IPO.

Figure 16: WAL PEG Range

Western Alliance Price Per Share	Low	Average	High
P/TBV	21.12	35.92	41.06
P/E	42.39	47.45	55.26
PEG Value	$ 20.84	$ 47.42	$ 50.39

Source: Bloomberg

Figure 17: Porter's 5 Forces

Figure 18: WAL Price Change vs. Competitor

Source: Bloomberg

Valuation

Method	Low	Average	High
52 Week High/Low	$ 26.60	$ 38.66	$ 50.72
Residual Income12-16% ROE @ 7.5% COE	$ 36.62	$ 43.37	$ 50.12
Residual Income12-16% ROE @9.5% COE	$ 24.90	$ 29.43	$ 33.97
P/TBV Multiple	$ 35.92	$ 38.49	$ 41.06
P/E Multiple	$ 42.39	$ 48.83	$ 55.26
PEG Price Range	$ 20.84	$ 38.42	$ 56.00
Analysts Price Targets	$ 42.00	$ 52.33	$ 57.00
Western Alliance Price Target		**$ 41.36**	

Source: Bloomberg, Financial Model

Historical Prices

Although historical prices in no way provide absolute value for an equity nor reflect current market conditions affecting that security, for Western Alliance to incorporate a degree of elasticity the 52-week trading high/low were included. At $49.26 the stock is currently hanging around its 52-week high as it is still benefiting from the post-election atmosphere. The average share price over the last year has been $38.66. This number has no real bearing by itself, but provides a sense of the general direction of the stock and raise possible flags as to whether it is trading in its ranges.

Residual Income Valuations

For an absolute intrinsic valuation, a residual income valuation was deemed most reliable. This valuation ultimately produced a sensitivity table of possible share values dependent on Western Alliance's return on equity (ROE) and cost of equity (COE). When bringing our valuations together, we incorporated two valuation ranges at a standard 7.5% and inflated 9.5% cost of equity, as we believe these are most likely forward facing costs of equity under current market conditions. In January 2017, fed minutes revealing three planned rate hikes for 2017 alone, and a likely strengthening dollar under the Trump administration, it is likely costs of equity will be on a continued rise. The intrinsic value of Western Alliance With the 10-year Treasury yield years rallying from 1.94% in January 2016 to 2.4% in January 2017, Fed minutes revealing three planned rate hikes for 2017, and a likely strengthening dollar under the Trump administration, it is likely that the cost of equity will increase. The intrinsic value of Western Alliance Bancorporation is heavily exposed to costs of equity as it not only determines the base line for the margin in which it makes money, but also determines the discount rate that which future values are discounted. Please refer to Section A of the Appendix for more information.

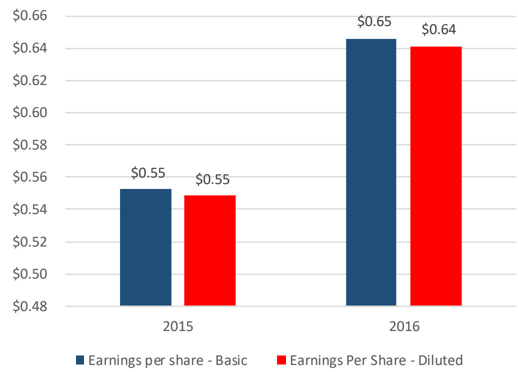
Multiples Valuation

Price-to-tangible book values and price-to-earnings were incorporated to accurately have a market-focused valuation. Both these multiple metrics are commonly used for financial institutions.
Comparables include Zion Bancorp, CIT Group Inc., East West Banc Corp, PacWest Bancorp, and Texas Capital Bancshares Inc. All these comparables generally offer similar products in similar geographies. Please refer to Section A of the Appendix for more information.

Analyst Price Targets

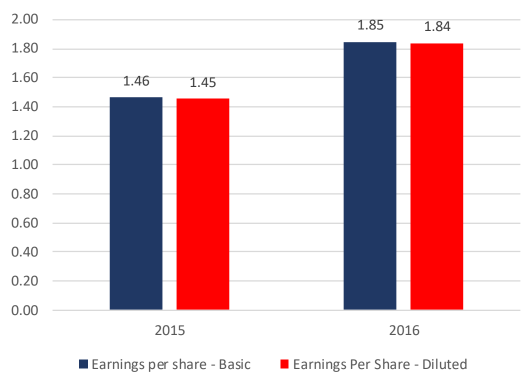
In a volatile market driven by Wall Street sentiment, it is imperative to incorporate all possible information and perspectives when conducting a valuation. To incorporate market sentiment in our valuation of Western Alliance, we factored in a price range based on analyst recommendations. Recommendations from RBC Capital Markets, Piper Jaffray, Jeffries, Wells Fargo Securities, Macquarie, Sandler O'Neil & Partners, Invex, D.A. Davidson & Co, Keefe Bruyette & Woods, and FIG Partners LLC were all included.

Figure 19: EPS Growth, 3 months ending Sept 30, 2016



Source: Western Alliance Bancorporation 10-Q

Figure 20: EPS Growth, 9 months ending Sept 30, 2016



Source: Western Alliance Bancorporation 10-Q

Figure 21: 9 Quarter Stress Result

	4Q 2015 Actual	1Q 2018 Stressed Result	Lowest 9 Quarter Stressed Result
Common Equity Tier 1 Capital Ratio (CET1) %	9.67%	6.92%	6.92%
Tier 1 Risk-Based Capital Ratio (%)	10.16%	7.44%	7.44%
Total Risk-Based Capital Ratio (%)	12.15%	10.89%	10.89%
Tier 1 Leverage Ratio (%)	9.80%	7.05%	7.05%

Source: Western Alliance Bancorporation Dodd-Frank Stress Test Results

Financial Analysis

Ratio Analysis	2010	2011	2012	2013	2014	2015
Liquidity Analysis						
LT Debt/Total Assets	1.87	5.70	3.02	4.11	2.36	1.47
Total Debt/Total Assets	3.64	7.51	4.05	4.88	4.58	2.79
Total Debt/Capital	27.24	44.67	28.91	34.68	32.67	20.02
Profitability Analysis						
Operating Margin	(3.79)	17.23	29.64	41.01	48.22	49.50
Return on Assets	(0.12)	0.48	1.01	1.36	1.49	1.56
Return on Capital	(0.82)	3.18	6.56	9.67	10.58	11.17
Credit Analysis						
Net Debt/Capital	(5.07)	35.58	12.01	14.58	24.27	9.84
Net Debt/EBIT	-	6.98	1.04	1.00	1.62	0.67

Liquidity ratios are extremely important when analyzing the company as investors consider Western Alliance Bancorporation's ability to pay off debt and their operating stability. During the 2008 financial crisis, several financial institutions became insolvent as many of the securities which their balance sheets depended turned south. Our financial model, as well as Western Alliance's most recent stress test, reveal their the company has been 'well capitalized' over the last 5 years and is projected to be so in the future.

Over the past five years, long-term debt as a proportion of assets has declined to 1.5% as long-term debt has become a less significant source of financing for Western Alliance. More importantly, Western Alliance's primary source of funding is deposits. The bank maintains a total risk-based capital ratio of 12.2%, indicating that the bank is well capitalized. Further, recent stress test results for fiscal year 2015 indicate that the total risk-based capital ratio only declines to 10.9% under stress test conditions.

As a financial institution is dependent on the margin between deposits and returns on loans issued, solvency is largely dependent on the quality of the loans issued by the bank. A minimal portion of the bank's large loan portfolio was categorized as either 'past 90 days accrual status' or 'troubled debt restructured'. These results indicate that the loans issued the bank are of relatively high credit quality, which should prove to be advantageous during times of financial distress.

The operating margin has increased over the past 5 years, reaching 49.5% in 2015. This increased operating margin allows for more of a cushion as there is less leverage necessary to draw revenue. This trend reflects an overall increase in profitability of Western Alliance following the losses incurred during and after the financial crisis.

Net debt-to-capital spiked between 2010 and 2011 as well as between 2013 and 2014. It sharply declined between 2014 and 2015; however, the volatile movement may be of some concern to investors. As of the end of fiscal year 2015, the net debt-to-capital ratio stood at 9.84%. See the Appendix for a consolidated Income Statement and Balance Sheet

Investments Risk

This section of the of the analysis outlines the various risks that could possibly affect Western Alliance Bancorporation.

Stress Test
Western Alliance Bancorporation is a bank holding company with total assets between $10 and $50 billion. As such, Western Alliance Bancorporation is required to undergo a series of stress tests per the Dodd-Frank Wall Street Reform and Consumer Protection Act. The test covers the time frame from 1Q16 through 1Q18. The results show that Western Alliance Bancorporation maintains the financial resources to withstand a severe and protracted economic downturn as well as, in such an event, exceed capital requirements.

The Board and management annually consider the overall risk environment when operating strategic planning. Western Alliance Bancorporation evaluates risks in the following categories: Credit Risk, Liquidity Risk, Interest Rate Risk, Market Growth Risk, Operational Integrity Risk, Legal and Compliance Risk, Reputation and Brand Image, and Financial Strength. For the company's objectives, see the Appendix.

Interest Rate Risk
Interest rate risk is important to track moving forward. The Federal Reserve is set to hike interest rates a projected three times this year. Yellen has a Federal Funds target rate of 3% by 2019. Potential problems could come if rates increase too fast to accommodate current debt levels. Rates have been at historic lows for nearly a decade. This fact has encouraged borrowers to take on more debt. It is important that hikes are gradual to avoid defaults. Loan defaults for small and middle market banks like WAL can be catastrophic for WAL.

Market and Macroeconomic Risk
Market risk is most prevalent in publicly traded banks such as Western Alliance Bancorporation. Markets may be more volatile than usual due to the upcoming administration's plans for the economy. The market may also expect traditionally business favorable policies from Congress.

Business Risk
Generally, business risk is when a company experiences a loss or delivers lower than expected profits. For banks, a business risk is that the bank deviates from its long-term goals or misses a revenue target. It is important for management to make long term strategies flexible because markets are unpredictable. It is vital that backup plans are in place. Systematic risk and moral hazards rarely lead to downfalls; however, when systematic risk and moral hazards do come to the surface, they can be disastrous for the Company and others. Systemic risks are not isolated to the individual bank but rather the entire industry. Moral hazards occur when banks take risks knowing that someone else will take the burden. With responsible management, both are avoidable.

Operational Risk
Operational risk occurs because of failed or inadequate systems, processes, or people internally and externally. Operational risk generally includes legal risks as well. These risks are mostly driven by human inadequacies and malfeasances. Failure to implement proper controls can lead to operational problems and potential liabilities. For example, the recent Wells Fargo incident with fraudulent account creations led to severe consequences for stockholders. Categories of operational risk include but are not limited to human risk, information technology/system risk, and processing risk. The biggest risk to Western Alliance Bancorporation could be operational as it is a smaller bank. Smaller banks may be more susceptible to operational risk as they generally run lean operations. On the other hand, Western Alliance Bancorporation may be in better position operationally as it has better control of its day to day operations because they occur on a smaller scale.

Corporate Governance

Key Management

- **Robert Sarver** has been CEO since 2002 and has extensive experience in commercial banking, mostly within Arizona. He previously sat on the board of Torrey Pines Bank (prior to its merger with WAL), Zion Bancorporation, California Bank & Trust, and Skywest Airlines. He also has several community-focused pursuits, sitting on the board of the Sarver Heart Center at the University of Arizona and acting as a managing partner for the Phoenix Suns NBA team.
- **Dale Gibbons** has been CFO since 2003 and has more than 30 years of commercial banking experience. He transitioned to his current role from being EVP and CFO of Bank of Nevada, which was later acquired by WAL. Under his watch, WAL has maintained excellence in financial reporting and has published a considerable amount of growth.

See the Appendix for biographies for the entire management team.

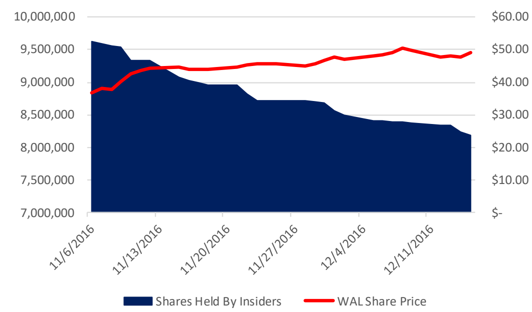
Board of Directors

The WAL Board of Directors currently has 15 members, 13 of which are independent. This is significant because of the recent industry push towards having more independent directors to encourage more unbiased decisions being made, as well as a healthier top down management structure. Without many of the directors being directly tied to the bank, they can make better decisions without a conflict of interest. See the Appendix for short biographies of the Board of Directors.

Recent WAL Stock Price Increases Triggering Insider Sales

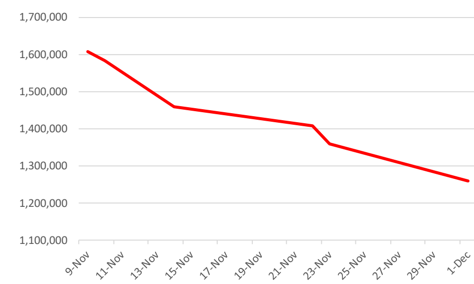
A rise in the WAL stock price between early November, 2016 and December 15, 2016 correlates directly with massive amount of stock sales by insiders. Figure #22 shows us exactly how rapidly the amount of direct and indirect shares held by insiders have been decreasing during a time of price increases of the stock. CEO Robert Sarver has sold 350,000 (22% of his original holdings) shares, both direct and indirect, since November 6, 2016. Board members M. Nafees Nagy, Todd Marshall, Marianne Johnson, and Steven Hilton have sold 215,000 (70%), 210,869 (23%), 179,000 (28%), and 172,825 (40%) shares of direct and indirect WAL stock, respectively.

Figure 22: Shares Held by Insiders to WAL Stock Price since 11/1/2016



Source: WAL SEC Filings

Figure 23: WAL Shares Held by Robert Sarver, CEO, since 11/1/2016



Source: WAL SEC Filings

Section A: Valuation & Financial Analysis

Appendix A1: Comparables Analysis

Competitors	Current Market Cap (in millions)	Net Interest Income (in millions)	P/BV	P/TBV	P/E	1 YR EPS Growth Rate	PEG Ratio
Zion Banccorp	$ 8,509.30	$ 1,835.70	1.2x	1.4x	22.5x	24.87%	0.91
CIT Group Inc.	$ 8,371.40	$ 856.20	0.7x	0.9x	10.5x	-6.69%	0.50
East West Banc Corp	$ 7,079.90	$ 1,185.50	2.1x	2.5x	17.3x	8.28%	2.09
PacWest Banccorp	$ 6,392.90	$ 942.20	1.4x	2.8x	18.3x	3.94%	-
Texas Capital Bancshares Inc	$ 3,796.00	$ 610.80	2.2x	2.3x	27.0x	30.13%	-
Competitor Average	**$ 6,829.90**	**$ 1,086.08**	**1.5x**	**2.0x**	**19.1x**	**12.11%**	**1.16**
Western Alliance Banc Corp	**$ 4,983.50**	**$ 625.30**	**2.7x**	**3.2x**	**19.3x**	**17.00%**	**1.14**
High	$ 8,509.30	$ 1,835.70	2.7x	2.8x	22.5x	30.13%	2.09
Total Average	$ 6,522.17	$ 1,009.28	1.7x	2.4x	19.2x	12.92%	1.16
Low	$ 3,796.00	$ 610.80	0.7x	1.4x	17.3x	-6.69%	0.50

Appendix A2: Share Price Sensitivity to Cost of Equity

$ 34.13		ROE					
	$34.13	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%
Cost of Equity	9.5%	$22.63	$24.90	$27.16	$29.43	$31.70	$33.97
	8.5%	$27.13	$29.86	$32.60	$35.33	$38.06	$40.80
	7.5%	$33.24	$36.62	$39.99	$43.37	$46.75	$50.12
	6.5%	$42.03	$46.35	$50.66	$54.98	$59.29	$63.61
	5.5%	$55.79	$61.60	$67.41	$73.21	$79.02	$84.82

Appendix A3: Allowance for Credit Losses – 3 months Ending September 30, 2016

	Construction & Land Development	Commercial Real Estate	Residential Real Estate	Commercial and Industrial	Consumer
	2016				
Beginning Balance	21,386.00	24,867.00	4,546.00	70,547.00	758.00
Charge-offs	0.00	72.00	79.00	2,558.00	
Recoveries	(302.00)	(521.00)	(179.00)	(466.00)	(21.00)
Provision	(347.00)	(450.00)	(513.00)	3,406.00	(96.00)
Ending Balance	21,341.00	24,866.00	4,133.00	71,861.00	683.00
	2015				
Beginning Balance	19,537.00	28,946.00	6,399.00	59,589.00	585.00
Charge-offs	0.00	0.00	8.00	1,109.00	0.00
Recoveries	(329.00)	(1,401.00)	(232.00)	(1,147.00)	(24.00)
Provision	419.00	(5,173.00)	(1,313.00)	6,152.00	(85.00)
Ending Balance	20,285.00	25,174.00	5,310.00	65,779.00	524.00

Appendix A4: Residual Income Forecast

RI BUILDUP	2012A	2013A	2014A	2015A	2016A	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024
	Historicals					*Development phase (from op model)*				*Maturity phase*			
Net income to common				194,971	254,418	221,413	248,396	275,132	298,322	322,889	340,870	353,324	359,282
% growth					30.5%	(13.0%)	12.2%	10.8%	8.4%	8.2%	5.6%	3.7%	1.7%
Dividends													
% growth													
% payout													
Total stockholder's equity - BOP					1,591,502	1,857,354	2,078,767	2,327,163	2,602,295	2,900,617	2,984,552	3,017,134	2,994,014
Plus: Net income to common					254,418	221,413	248,396	275,132	298,322	322,889	340,870	353,324	359,282
Less: Dividends					0	0	0	0	0	(238,954)	(308,288)	(376,444)	(439,781)
Total stockholders' equity - EOP				1,591,502	1,857,354	2,078,767	2,327,163	2,602,295	2,900,617	2,984,552	3,017,134	2,994,014	2,913,515
Less: Goodwill				(289,638)	(289,967)	(289,967)	(289,967)	(289,967)	(289,967)	(289,967)	(289,967)	(289,967)	(289,967)
Plus: Junior subordinated debentures issue				176,313	176,313	176,313	176,313	176,313	176,313	176,313	176,313	176,313	176,313
Plus: Other				-	-	0	0	0	0	0	0	0	0
Tier 1 Capital - EOP				1,478,177	1,743,700	1,965,113	2,213,509	2,488,641	2,786,963	2,870,898	2,903,480	2,880,360	2,799,861
ROE (Net income to common / Shareholders' equity)					14.8%	11.3%	11.3%	11.2%	10.8%	11.1%	11.4%	11.7%	12.0%
RWA - EOP				14,491,931	16,929,126	14,209,978	16,448,283	18,632,329	20,777,609	22,857,512	24,801,972	26,538,962	27,998,605
% growth					16.8%	(16.1%)	15.8%	13.3%	11.5%	*10.0%*	*8.5%*	*7.0%*	*5.5%*
Capital ratio (Tier 1 capital / RWA)				10.20%	10.30%	13.83%	13.46%	13.36%	13.41%	12.56%	11.71%	10.85%	10.00%
Minimum capital ratio										*12.56%*	*11.71%*	*10.85%*	*10.00%*

RESIDUAL INCOME FORECASTS		2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Residual Income		67,314	75,904	82,144	82,883	92,485	105,904	117,987	128,002
Discount factor (assumes midyear adjustment)		*96%*	*89%*	*83%*	*77%*	*71%*	*66%*	*61%*	*57%*
PV of RI	545,149.2								

Appendix A5: Consolidated Income Statement (As Reported)

CONSOLIDATED INCOME STATEMENTS (Unaudited)	09/16 YTD	09/16 Q	09/15 YTD	09/15 Q
As Of Date	9/30/2016	9/30/2016	9/30/2015	9/30/2015
Source Document	9/30/2016 10-Q	9/30/2016 10-Q	9/30/2016 10-Q	9/30/2016 10-Q
Currency Code	USD	USD	USD	USD
(in thousands)				
Interest and dividend income				
Loans, including fees	467,715	167,914	338,946	133,087
Investment securities	37,278	13,797	27,075	10,559
Dividends	6,217	2,209	7,629	2,542
Other	1,885	830	163	45
Total interest income	513,095	184,750	373,813	146,233
Interest expense				
Deposits	21,993	8,072	16,058	5,550
Qualifying debt	8,746	4,048	2,900	2,008
Other borrowings	366	68	5,558	1,246
Other	46	15	64	22
Total interest expense	31,151	12,203	24,580	8,826
Net interest income	481,944	172,547	349,233	137,407
Provision for credit losses	7,000	2,000	700	0
Net interest income after provision for credit losses	474,944	170,547	348,533	137,407
Non-interest income				
Service charges and fees	13,849	4,877	10,344	4,327
SBA / warrant income	2,828	1,457	846	846
Card income	3,268	1,177	2,666	954
Income from bank owned life insurance	2,858	899	2,733	984
Lending related income and gains (losses) on sale of loans, net	3,282	459	5	(314)
Gain (loss) on sales of investment securities, net	1,001	0	582	(62)
Other income	5,289	1,814	3,113	1,767
Total non-interest income	32,375	10,683	20,289	8,502
Non-interest expense				
Salaries and employee benefits	139,108	49,542	108,607	43,660
Occupancy	20,359	6,856	15,677	5,915
Data processing	16,506	6,077	10,147	4,338
Legal, professional, and directors' fees	17,010	5,691	12,658	4,052
Insurance	9,430	3,144	7,739	3,375
Marketing	2,432	678	1,587	747
Loan and repossessed asset expenses	2,522	788	3,473	1,099
Card expense	2,247	536	1,844	757
Intangible amortization	2,091	697	1,266	704
Net (gain) loss on sales / valuations of repossessed and other asset	(91)	(146)	(1,673)	(104)
Acquisition / restructure expense	6,391	2,729	8,836	835
Other expense	24,299	8,415	17,997	7,538
Total non-interest expense	242,304	85,007	188,158	72,916
Income before provision for income taxes	265,015	96,223	180,664	72,993
Income tax expense	75,017	29,171	44,946	17,133
Net income	189,998	67,052	135,718	55,860
Dividends on preferred stock	0	0	599	176
Net income available to common stockholders	189,998	67,052	135,119	55,684
Earnings per share available to common stockholders				
Basic (actual)	1.85	0.65	1.46	0.55
Diluted (actual)	1.84	0.64	1.45	0.55
Weighted average number of common shares outstanding				
Basic (#)	102,791	103,768	92,345	100,776
Diluted (#)	103,532	104,564	92,932	101,520
Dividends declared per common share (actual)	0	0	0	0
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME				
Net income	189,998	67,052	135,718	55,860
Other comprehensive (loss) income, net				
Unrealized (loss) gain on AFS securities, net of tax effect	16,316	(7,415)	4,261	5,486
Unrealized gain (loss) on SERP, net of tax effect	18	6	108	(229)
Unrealized (loss) gain on junior subordinated debt, net of tax effect	(1,491)	(2,825)	(1,676)	3,274
Realized (gain) loss on sale of AFS securities included in income,	(711)	0	(365)	38
Net other comprehensive (loss) income	14,132	(10,234)	2,328	8,569
Comprehensive income	204,130	56,818	138,046	64,429

Appendix A6: Consolidated Balance Sheet (As Reported)

CONSOLIDATED BALANCE SHEETS	09/16 Q		2015 Y	2016 Y
As Of Date	9/30/2016		12/31/2015	12/31/2016
Source Document	9/30/2016 10-Q		9/30/2016 10-Q	9/30/2016 10-Q
Currency Code	USD		USD	USD
(in thousands)				
Assets				
Cash and due from banks	180,752		133,709	180,752
Interest-bearing deposits in other financial institutions	175,331		90,931	175,331
Cash and cash equivalents	356,083		224,640	356,083
Money market investments	247		122	247
				0
Investment securities - measured at fair value	1,279		1,481	1,279
Investment securities - AFS, at fair value	2,659,182		1,982,523	2,659,182
Investment securities - HTM, at amortized cost	52,421		0	52,421
Investments in restricted stock, at cost	65,013		58,111	65,013
Investment Securities	2,777,895		2,042,115	2,777,895
				0
Loans - HFS	21,337		23,809	21,337
Loans - HFI, net of deferred loan fees and costs	13,012,262		11,112,854	13,012,262
Less - allowance for credit losses	(122,884)		(119,068)	(122,884)
Net loans held for investment	12,889,378		10,993,786	12,889,378
				0
Premises and equipment, net	121,274		118,535	121,274
Other assets acquired through foreclosure, net	49,619		43,942	49,619
Bank owned life insurance	163,605		162,458	163,605
Goodwill	289,967		289,638	289,967
Other intangible assets, net	13,625		15,716	13,625
Deferred tax assets, net	72,720		86,352	72,720
Other assets	286,852		273,976	286,852
Total assets	17,042,602		14,275,089	17,042,602
Liabilities				0
Deposits			24,061,248	0
Non-interest-bearing demand	5,624,816		4,093,976	5,624,816
Interest-bearing	8,818,344		7,936,648	8,818,344
Total deposits	14,443,160		12,030,624	14,443,160
Customer repurchase agreements	44,372		38,155	44,372
Other borrowings	0		150,000	0
Qualifying debt	382,932		210,328	382,932
Other liabilities	314,784		254,480	314,784
Total liabilities	15,185,248		12,683,587	15,185,248
Stockholders' equity				0
Common stock	10		10	10
Additional paid in capital	1,394,526		1,323,473	1,394,526
Treasury stock	(26,210)		(16,879)	(26,210)
Accumulated other comprehensive income	36,392		22,260	36,392
Retained earnings	452,636		262,638	452,636
Total stockholders' equity	1,857,354		1,591,502	1,857,354
Total liabilities and stockholders' equity	17,042,602		14,275,089	17,042,602

Source: WAL 10-Q

Section B: Company Analysis

Appendix B1: Shareholder Summary

Top 10 Holders	# of Shares	% of Total Shares
Price (T. Rowe) Associates Inc.	7,689,441	7.32%
Vanguard Group	6,693,828	6.37%
Victory Capital Management Inc.	4,158,272	3.96%
Wellington Management Company	4,104,379	3.91%
ClearBridge Investments, LLC	3,179,739	3.03%
Lord Abbett & Co	2,953,379	2.81%
State Street Corporation	2,742,864	2.61%
BlackRock Institutional Trust Company	2,509,989	2.39%
Dimensional Fund Advisors LP	2,112,148	2.01%
Westwood Holdings Group Inc	1,967,923	1.87%

Appendix B2: Share Holdings Breakdown

Breakdown	
10.18%	Shares Held by All Insider and 5% Owners
72.10%	% Shares Held by Institutional & Mutual Fund Owners
80.27%	% of Float Held by Institutional & Mutual Fund Owners
233	Number of Institutions Holding Shares

Appendix B3: Dodd-Frank Stress Test Results

Type of Risk	Result
Credit Risk	The Company pursues a credit risk management strategy that minimizes undue credit concentrations and produces high quality assets over the long term.
Liquidity Risk	The Company maintains sufficient liquidity and contingent liquidity to survive a variety of systemic and idiosyncratic events and to comply with Board approved ratios.
Interest Rate Risk	The Company maintains its interest rate risk profile within Board-approved limits; these limits constrain the Company's exposure to changes in the level and shape of market rates and yield curves.
Market Growth	The Company pursues organic growth strategies as well as targeted mergers and acquisitions that meet its growth objectives while identifying and managing the resulting risks.
Operational Integrity	The Company invests in technology and appropriate controls to minimize operational disruptions and losses. There is also risk of loss resulting from model risk.
Legal and Compliance Risk	Banking regulations may limit or affect the Company's activities, which may result in higher compliance costs or liability for private damages and regulatory penalties.
Reputation and Brand Image	The Company avoids activities and strategies that could have a negative impact on its reputation.
Financial Strength	The Company maintains sufficient capital to remain within BOD approved capital targets, and to meet the requirements of the "Well-Capitalized" Basel standard and the regulatory stress tests, i.e., DFAST.

Source: Western Alliance Bancorporation Stress Test Results

Appendix B4: Western Alliance Bancorporation Key Executives

Name	Title	History with WAL	Background
Robert Sarver	Chairman and CEO	CEO since 2002 Chairman since 2016 President, 2002-2010 President, National Bank of Arizona 1984-1994 Chairman and CEO, California Bank & Trust 1998-2001	Mr. Sarver has held multiple positions within banking and has served on various boards over his impressive career. He has been on the board of Torrey Pines Bank (prior to their merger with WAL), California Bank and Trust, Zions Bancorporation and SkyWest Airlines. He is currently a director of Meritage Homes Corporation, the Managing Partner for the Phoenix Suns NBA team, on the board of the Sarver Heart Center at the University of Arizona, and a part owner of the Spanish professional soccer club Real Club Deportivo Mallorca. Mr. Sarver's day-to-day leadership and intimate knowledge of the industry has helped fuel WAL's substantial growth. Mr. Sarver has sold about 100,000 shares of WAL in Q4 of 2016.
Dale Gibbons	EVP, CFO	CFO since 2003 EVP since 2013 EVP, Bank of Nevada 2004-2013 CFO, Bank of Nevada 2004-2007 CFO, Zions Bancorporation 1996-2001	Mr. Gibbons has more than 30 years of commercial banking experience, beginning his career at First Interstate Bancorp in 1979. He has held multiple retail and management roles throughout his career, the most notable being CFO and EVP for both WAL and The Bank of Nevada. His dedication to the clients of the bank and his deep industry knowledge have helped provide steady growth and prosperity during his time at WAL. Mr. Gibbons also sold about 13,000 shares of WAL during Q4 of 2016.
Gerald Cady	EVP, Southern CA	EVP, Southern CA since 2013 CEO, Torrey Pines Bank since 2006 SVP and President, California Bank & Trust 1987-2003	Mr. Cady has had an notable 37 year career in commercial banking. He has also held multiple board positions across industries and continues to support his local community. Mr. Cady served on the board of Grossmont Hospital and was Chairman of the board from 2007-2008. He is currently Chairman of the board of Sharp Memorial Hospital and the Continuous Quality Insurance Corporation which is owned by Sharp Healthcare. He also serves on the board for the Timken Museum of Art and the San Diego Chamber of Commerce.
Duane Froeschle	EVP, Credit Admin	EVP, Credit Admin since 2013 President, Western Alliance Bank 2011-2013 Chief Credit Officer, 2002-2011 Chief Credit Officer, National Bank of Arizona 1997-2001	Mr. Froeschle has dedicated most of his 41 years of commercial banking experience to banks in Arizona. He held a variety of positions with the National Bank of Arizona from 1987-2002, including serving as their Chief Credit Officer. He has also served as a director of Western Alliance Equipment Finance from 2007 to 2015. Mr. Froeschle sold about 15,000 shares of WAL in Q4 2016.
John Guedry	EVP, Southern NV	EVP, Southern NV since 2015 President, Bank of Nevada since 2011 CEO, Bank of Nevada since 2013	Mr. Guedry's banking career began in 1994 when he served as a sales director for the Valley Bank of Nevada. He left Valley bank of Nevada in 1999 and was then a board member for the Business Bank of Nevada from 2000-2007, when the bank was sold to City National Bank. He remained at City National Bank as EVP and the Director of Nevada Operations until 2009. He is currently a member of the board of the Las Vegas Metro Chamber of Commerce (where he served as chairman in 2015), a board member, executive committee member, and treasurer of the Public Education Foundation, a board member of the Economic Club of Las Vegas, and an executive committee member of the Las Vegas Bowl.
Robert McAuslai	EVP, Chief Credit Officer	EVP since 2011 Chief Credit Officer since 2013	Prior to joining the Company, Mr. McAuslan was a Senior Credit Executive for Western U.S. markets with Mutual of Omaha Bank from 2008 until 2011. He also served as the Chief Credit Officer for H.F. Ahmanson/Home Savings of America and held multiple positions with Citibank/Citigroup and BBVA/Compass Bank.
Daniel Myers	EVP, Northern CA	EVP since 2015 President & CEO, Bridge Bank since 2015 President & CEO, Bridge Capital Holdings 2004-2015	Mr. Myers has over 30 years of commercial banking experience, almost all of which with small independent business banks in the Silicon Valley area. He was also President and CEO of Bridge Bank, National Association from 2001 until 2015. WAL's acquisition of Bridge bank in June 2015 is an exciting exhibition for the Company and they are excited, through the leadership of Mr. Myers, to move into the technology banking sector.
John Peckham	EVP, Technology & Operations, CIO	EVP & CIO since 2015 EVP IS Division Manager, Bridge Bank 2002-2015	Mr. Peckham is responsible for management of oversight of deposit products, electronic services technology, security compliance, facilities, vendor management, business continuity planning, and disaster recovery. He has 19 years of banking experience which includes information systems management, internal audit, and financial planning and analysis. Like some of his colleagues, Mr. Peckham is excited to help push WAL into the banking technology sector and provide operational excellence through technology.
Patricia Taylor	EVP, CRO	EVP since 2010 Chief Risk Officer since 2013 SVP & Compliance Officer, PacWest Bancorp 2004-2010	Ms. Taylor has 32 years of financial services industry experience, working for commercial banks and the Office of the Comptroller of the Currency as a national bank examiner for 10 years. Ms. Taylor also worked for KPMG, LLC where she was responsible for the ongoing management and supervision of outsourced internal audit engagement for multiple financial services clients. She has seen the Company undergo a few acquisitions, adding to her extensive financial services background.
Randall Theisen	EVP, General Counsel, Secretary	General Counsel since 2006 EVP & Secretary since 2013	After Graduation from the Sandra Day O'Connor School of Law at Arizona State University, where he served as writer and editor of the law review, Mr. Theisen spent more than 20 years in private practice representing financial institutions in banking, corporate, and financial services law. He was named "Leading Lawyer 2006" and "Best of the Bar 2005" among banking attorneys by the Business Journal of Phoenix.
Merrill Wall	EVP, Chief Admin Officer	EVP since 2005 Chief Admin Officer since 2013	With over 40 years of banking experience, Mr. Wall has served as the EVP and director of human resources for Zions Bancorporation and its subsidiary, California Bank & Trust, from 1998 to 2005. Mr. Wall also worked for H.F. Ahmanson/Home Savings of America as a senior executive managing both human resources and training corporate-wide from 1987-1998. He also spent 17 years with First Interstate Bancorp doing a variety of commercial, retail, and administrative positions.

Source: Reuters

Appendix B5: Western Alliance Bancorporation Board of Directors

Name	Title	Background	Tenure
Bruce Beach	Lead Director (Independent)	Chairman of the Audit Committee in 2009 and Lead Independent Director in 2010, Chairman of BeachFleischman PC since 1991	11 Years
Robert Sarver	Chairman and CEO	See Appendix B4	14 Years
William Boyd	Independent Director, Principal Shareholder	Founder of WAL's first bank subsidiary, the Bank of Nevada, Fmr. director of the Nevada State Bank from 1965 to 1985, Has actively practiced law in Nevada for 15 years, specializing in business related matters	14 Years
Howard Gould	Independent Director	Fmr. director of Bridge Capital Holdings , Currently Vice Chairman of Carpenter and Company and Carpenter Fund Manager, GP, LLC, Fmr. State Superintendent of Banks for the State of California, Fmr. officer at Bank of American and Wells Fargo Bank	1 Year
Steven Hilton	Director	Fmr. director of Western Alliance Bank, Co-founder, Chairman and CEO of Meritage Homes Corporation, Founded Arizona-based Monterey Homes in 1985	14 Years
Marianne Johnson	Independent Director	Founding director of Bank of Nevada, Fmr. director of Nevada Community Bank	21 Years
Robert Latta	Independent Director	Fmr. director of Bridge Capital Holdings, Currently a senior partner at Wilson Sonsini Goodrich & Rosati	1 Year
Cary Mack	Independent Director	Fmr. director and Chairman of Torrey pines Bank, Co-manages Southwest Value Partners Enterprise	11 Years
Todd Marshall	Independent Director	Founding director of Bank of Nevada, Fmr. director Torrey Pines Bank, Fmr. director of Marshall Retail Group, Currently owns Marshall Management Co.	21 Years
M. Nafees Nagy	Independent Director	Fmr. director of Bank of Nevada, Practiced medicine for more than 30 years in the Las Vegas area, Fmr. Secretary for the Nevada State Board of Medical Examiners, Fmr. director of Sun Bank, Appointed by the Governor of Nevada to the Special Healthcare issues advisory board, Sold 70,000 WAL shares in Q1 2017	12 Years
James Nave	Independent Director	Fmr. director for the Bank of Nevada, Fmr. Officer in the armed forces, Owner of Tropicana Animal Hospital, Member and the past President of the Nevada Veterinary Medical Association	21 Years
John Sande	Independent Director	Fmr. director of Western Alliance Bank, Fmr. Chairman of First Independent Bank of Nevada, Currently a director of Fennemore Craig PC, Admitted to the State and Federal courts in both Nevada and California	9 Years
Donald Snyder	Independent Director	Fmr. director of Bank of Nevada, Fmr. Chairman of Bank of Nevada from, Founding director of the entity created to charter Bank of Nevada and was one of its initial investors Fmr. President of Boyd Gaming Corporation, Fmr. Chairman and CEO of First Interstate Bank of Nevada	19 Years
Sung Sohn	Independent Director	Fmr. director of Torrey Pines Bank, Current Professor of Economics and Finance at California State University CI, Commissioner on the Los Angeles City Employees Retirement System Board of Administration, Currently on the board of the National Association of Corporate Directors Southern California, Fmr. senior economist on the President's Council of Economic Advisors in the White House	6 Years
Kenneth Vecchione	Independent Director	Fmr. non-management Chairman of Western Alliance Bank, Fmr. Vice Chairman of Bank of Nevada, Fmr. Chief Financial Officer at Apollo Global Management, LLC, Currently a director of International Securities Exchange and is a member of its Audit and Finance, Compensation and Governance committees	9 Years

Source: Reuters

Section B6: Subsidiary Overview

Subsidiary Name	Description
Alliance Bank of Arizona	Alliance Bank of Arizona provides a full range of banking services for both commercial and retail clients. The Company has ~$5.0bn in assets and recently placed in the Top 5 for deposits in Arizona, including in Maricopa County, its largest market. Alliance Bank of Arizona provides a diverse set of business services such as secured business loans, revolving lines of credit, SBA loans, and equipment financing. The Company also provides personal banking services such as home equity loans, personal checking, personal savings and lines of credit.
Bank of Nevada	Founded in 1994, Bank of Nevada offers a highly-personalized banking experience by providing a diverse range of services. The Company was recently named Mesquite Chamber of Congress Member of the Year. In addition to its recent award, the Company raised more than $1,000 for the Food Bank of Nevada County. Similar to Western Alliance's other subsidiaries, Bank of Nevada offers industry-specific expertise in fields such as healthcare, education, nonprofits, and technology and startups.
Bridge Bank	On June 30, 2015, Western Alliance Bancorporation acquired Bridge Capital Holdings and its wholly-owned subsidiary Bridge Bank. The Company has a diverse client base which include entities in the life sciences, manufacturing and distribution, and professional and support services spaces. Coupled with Bridge Bank's large client base, the Company has reaffirmed its commitment to providing commercial banking services to technology and innovation companies throughout the country with new offices in San Francisco, Raleigh-Durham and Menlo Park. In addition, the Company has launched and expanded two new business lines including the Equity Fund Resources to serve the venture capital and private equity communities and the Life Sciences Group to serve innovation companies in the biotech sector
First Independent Bank	First Independent Bank operates similar to the other Western Alliance subsidiaries by providing a large selection of services coupled with a diverse client base. Some of First Independent Bank's clients include Golden Gate Petroleum, Bill Pearce from Courtesy Honda and French Gourmet. First Independent Bank approved funding for an upscale apartment project in downtown Reno this year. The housing project is part of Reno's growth projections to meet housing needs for the expected 50,000 jobs in 2020.
Torrey Pines Bank	Torrey Pines is a bank holding company strategically located in the San Diego and Los Angeles area, and provides both commercial and personal banking services. The Company was recently awarded Volunteer Company of the Year by Junior Achievement of San Diego as a result of their impact on over 2,000 students as part of their Mission Fed Junior Achievement Finance Park program. In addition, Torrey Pines Bank took part in the Connect LA conference, one of the most highly anticipated commercial real estate events that showcased Los Angeles' ever changing landscape and introduced "The Bloc" at the Sheraton Los Angeles Downtown Hotel. Torrey Pines Bank, a silver sponsor of the event, had their team of seasoned bankers that specialize in commercial real estate on site to talk to business owners about their business and real estate goals.
Alliance Association Bank	Alliance Association Bank is another bank holding company and business segment of the Western Alliance Bancorporation. Alliance Association Bank focuses on homeowner associations (HOAs) or common interest.

Source: Western Alliance Bancorporation

Section B7: Porter's 5 Forces

Porter's Force	Description
Threat of New Entrants (Mid-to High)	The barriers to enter the banking industry are mid to high, but it remains difficult to remain in operation while complying with federal and state regulation. Rules such as the Volcker Rule, part of the Dodd-Frank Act put banks under more regulation and scrutiny. These laws make it more difficult for banks like WAL to turn a profit. Many of the big players in the industry acquire smaller banks to increase their market share and reach more clients. However, it is often more convenient to expand operations and open more branches or invest more capital in banking technology.
Buyer Power	Western Alliance's buyer power is dictated by its largest lending groups which are Non-Owner Occupied Consumer Real Estate, Commercial & Industrial, and Owner Occupied Commerical Real Estate. Developments in construction and commercial real estate overall dictate the volume of demand for commercial loans which impact WAL's bottom line. Wells Fargo recently reported slowing growth in both commercial real estate and construction, posing a decrease in demand for WAL commercial loans.
Threat of Substitution	Mobile and online banking proves to be a considerable threat for traditional banks such as Western Alliance Bancorporation. McKinsey & Co argued in a report this week that up to $45bn of bank profits will be subject to the interception of electronic trading and mobile banking in 2020. (Demos, 2017) The report also disclosed that fees for wires, checks, lending, and wealth advisory could drop by more than 10% in the US and more than 20% in the UK and Japan.
Supplier Power	For a bank like Western Alliance Bancorp, deposits represent a component of how much the Company can lend to its other clients. Western Alliance has a strong deposit base increasing QOQ and YOY. From 2Q15 to 2Q16, total deposits increased by ~24% with an ~8% increase from 1Q16 to 2Q16.
Competitive Rivalry	Western Alliance competes with many banks both regional and national. Western Alliance must work to maintain their current clientele base, and bring in new clients and accounts. The big 4 banks which include Bank of America, Citigroup, JP Morgan Chase and Wells Fargo account for 45% of total bank assets. With expected bank deregulation policy from Trump's campaign, big banks will be able expand their operations and encroach into the local bank space and capture more market share.

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