Annual Report

2017

The Student-Managed Endowment for Educational Development (SEED)

Compiled By:
Stephen LaRow, Co-CEO
Ned Zawislak, Co-CEO
Arjan Peters, CIO

Virginia Tech Pamplin
College of Business

www.virginiatechseed.com

Contents

SEED 2017 Performance Highlights ____ 1
Year in Review ____ 4
Sector Reports ____ 8
Contact Information ____ 16
University Information ____ 16

Notable Placements

Full Time

Liza Brown
Citigroup, S&T

Michael Mullen
Morgan Stanley, S&T

Dominic D'Alexander
Goldman Sachs, S&T

Jon De Pena
Credit Suisse, IBD

Madeline Warholic
Dimensional Fund Advisors

Brian Kang
Capital One

Jordan Aulen
Baker Tilly, Advisory

Ben Shtuhl
Capital One

Carter Niehoff
PwC, Advisory

Internships

Stephen LaRow
Goldman Sachs, IBD

Ned Zawislak
Citigroup, CMO

Caroline Rector
Credit Suisse, IBD

SEED 2017 Performance Highlights

Financial Highlights

In 2017, The Student-Managed Endowment for Educational Development (SEED) achieved a total return of 21.69%, slightly underperforming our benchmark, the S&P 500, which generated a total return of 21.82% (Exhibit 1). After modifying our return to adjust for risk using the Capital Asset Pricing Model, we arrive at a risk-adjusted return of -1.14%, with an average portfolio beta of 1.049 and a risk-free rate of 1.32%.

We ended the year with $5,723,067.79 and currently hold 42 positions. The technology sector was our highest performing sector in terms of percent contributed to our total return, accounting for over 40% of our total return. Conversely, the energy and financials sectors both contributed under 5% to our total return for 2017 (Exhibit 2).

Performance Analysis

In 2017, we underperformed our benchmark target by thirteen basis points. While both our technology and consumer sectors slightly outperformed their respective sector benchmarks, the financials and energy sectors both underperformed. The energy sector experienced a sharp rally in prices at the end of 2016, after OPEC announced their first production cuts on November 30, 2016. Around halfway through 2017, markets corrected, and oil prices declined as investor confidence in OPEC dwindled. Since SEED was more heavily weighted in upstream investments than the S&P 500, we took a much larger hit than our benchmark index. At the same time, the financials sector underperformed due to their greater exposure to commercial REITs than the S&P 500.

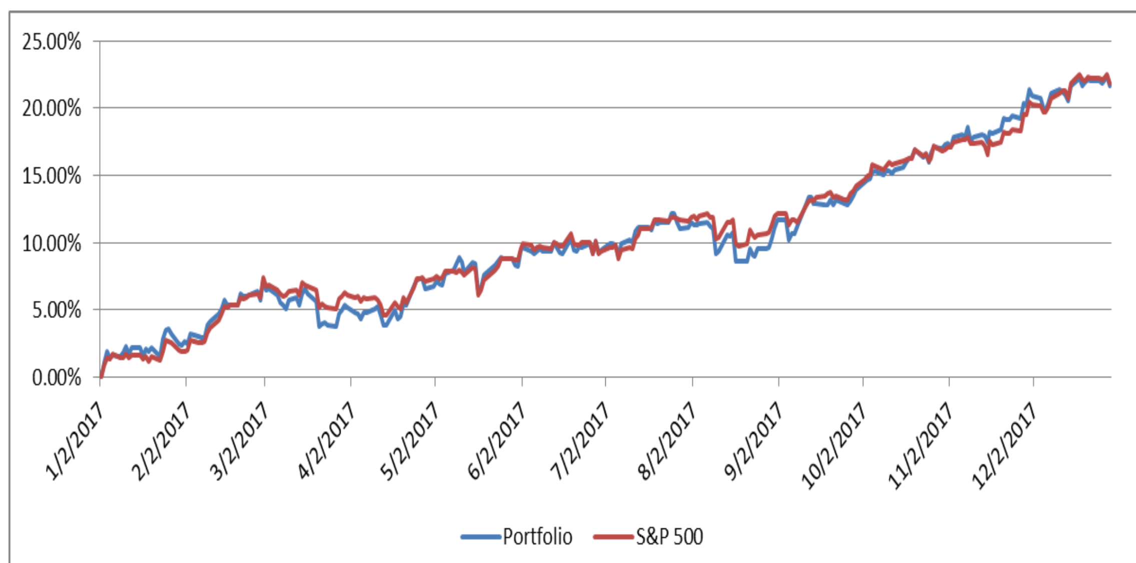


Exhibit 1: 2017 SEED's 2017 Total Return vs. The S&P 500's 2017 Total Return

Notable Placements

Internships (Cont.)

Bryce Jackson
Citigroup, S&T

Arjan Peters
RSM, Consulting

Logan Stone
Ernst & Young, Audit

Rehan Ghani
BP, Commodities Trading

Gus Capace
Frontier Services Group

Justin Cone
Davenport Asset Management

Sean Walsh
KPMG, Valuation

Grant Briers
PwC, Valuation

Bradley Ong
Deloitte, Audit

Justin Van Ahnen
Stout Advisory, Valuation

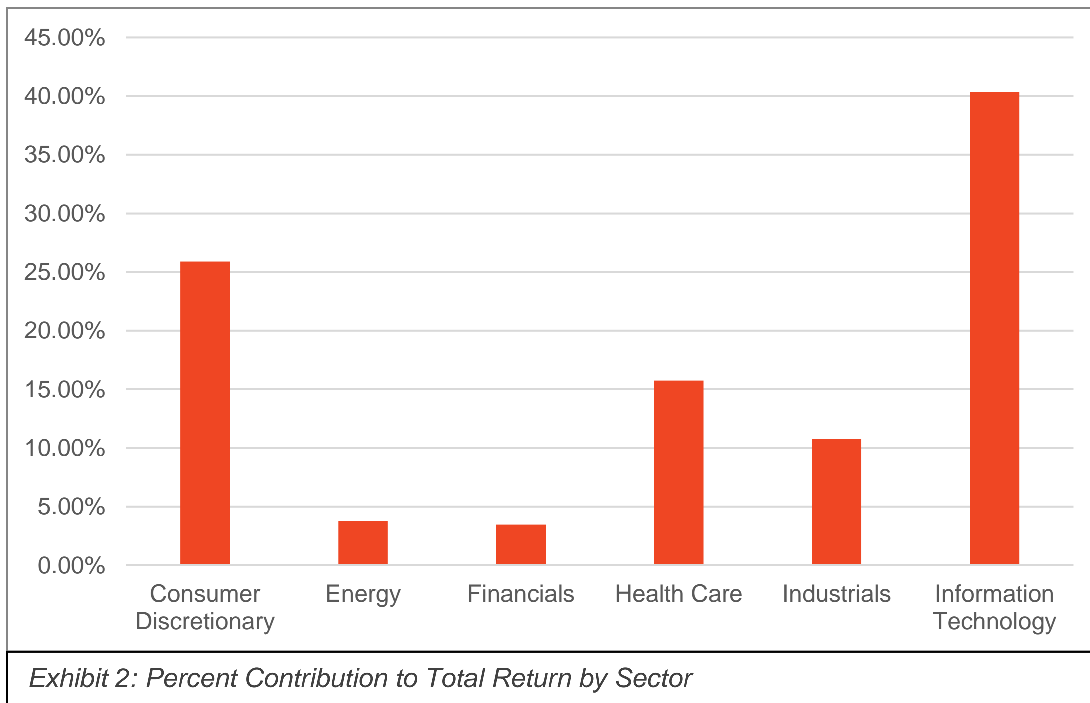


Exhibit 2: Percent Contribution to Total Return by Sector

Placement

SEED finished 2017 with 28 members, three of whom graduated in December, and an additional 15 going are through training in the spring of 2018. In November of 2017, our Co-CEOs Liza Brown and Michael Mullen, as well as our CIO Dom D'Alexander, finished their tenures in their respective roles. Liza will be returning to Citigroup to work full-time in their Sales and Trading division. Michael will be heading back full-time to Morgan Stanley in their Institutional Equity Sales and Trading division. Dom accepted an offer to return to Goldman Sachs full-time in their Sales and Trading division, working with their foreign exchange team. We are very proud of the success our members have found regarding job placements, and at the same time, we are grateful for a dedicated, supportive alumni base that have helped create these opportunities.

Looking Ahead

SEED's newly appointed Co-CEOs are Stephen LaRow (junior, finance and accounting) and Ned Zawislak (junior, finance); they are both looking forward to a productive and successful 2018. Arjan Peters (junior, finance) recently took over the role of CIO.

This past December, our healthcare and financial sectors' lead analysts, Madeline Warholic and Brian Kang, graduated and moved on to full-time roles. Taking over their roles as lead analysts will be Grant Briers for healthcare and Logan Stone for financials.

We are also excited that Connor Bolen will be taking over as lead analyst for the energy sector, as he switches roles as an analyst in the industrials sector.

Year in Review

Recruitment

SEED has historically held interviews in both the fall and spring semesters. 2017 was an extremely competitive year for recruitment with over 100 applications each semester. Our recruitment process involves two stages. First, applicants submit their resume, transcripts, and a questionnaire to our recruitment team. Applicants selected to advance to the second round are then given about one week to prepare for two 30-minute interviews. The first interview involves a stock pitch during which a panel of interviewers ask questions and evaluate the candidates' responses. The second round is a two-on-one behavioral interview with a case study at the end. This past fall, SEED accepted fifteen out of the 100 applicants for the Spring 2018 Analyst class.

Training

Once applicants are extended an offer, they are required to complete a semester of training before admission into SEED. Training involves weekly meetings covering financial analysis/valuation and the entirety of SEED's investment process. To conclude the training process, analysts-in-training must create a stock pitch and valuation model to present to the co-CEOs, CIO, and Lead Analysts. Those who successfully complete their training in-line with expectations are then extended offers as full-time analysts in one of SEED's six sectors.

Trips

In the fall of 2017, SEED made its annual trip to New York City to visit with eight firms. We met with Virginia Tech alumni as well as human resource contacts from Morgan Stanley, Citigroup, Goldman Sachs, Alliance Bernstein, JP Morgan, Bank of America Merrill Lynch, Credit Suisse, and Houlihan Lokey. Because of the trip, some of our executives and analysts received internship offers for the summer of 2018. On February 23, 2018, four of our members will be heading to the University of Georgia to compete as finalists in their annual stock pitch competition.

Investment Strategy and Process

SEED follows a traditional, value-based investment philosophy. We screen for undervalued opportunities where there is a disconnect between market prices and intrinsic value, as determined through financial analysis and valuation. Our goal as active managers is to outperform our benchmark, the S&P 500, by picking stocks that offer superior risk-adjusted returns, while holding no more than 50 stocks in observance of our IPS constraint.

Our investment process involves a combination of extensive due diligence, fundamental analysis, and various valuation methodologies. The process begins by screening for attractive stocks using a factor-based model. We have historically focused on fundamental and value metrics, such as the price-to-book ratio and the spread between return-on-invested-capital and the weighted-average-cost-of-capital (ROIC/WACC). ROIC/WACC allows us to analyze a company's ability to allocate capital effectively by comparing their rate of return on invested capital from their historical operations with the required rate of return that stakeholders demand. Recently we have been experimenting with new momentum and information discreetness metrics. These metrics are in the process of being back-tested to ensure their reliability. Once implemented, these metrics should provide us with beneficial insights to help us continue refining our investment strategy.

Once a potential opportunity has been identified, thorough research is done into the company to learn the story behind the numbers. This narrative is a crucial aspect of our investment process. To determine if a company is undervalued, it is essential to figure out what the market is overlooking and why it is overlooking it in an efficient capital market. Lead analysts and analysts work together to comb through financial statements, earnings reports, and various research databases to fully understand the financial position of the company and what drives its performance.

After initial due diligence is performed, we generate future cash flow projections for the foundation of our valuation models. Generally, we will use a discounted-cash-flow ("DCF") model to determine an intrinsic price; however, for certain equities we use a Net-Asset-Value ("NAV") model or an Excess Return model. We then conduct sensitivity analysis using bear, base, and bull case scenarios, where our projections are worse and better than the base case, respectively. In combination with intrinsic valuation, we also conduct relative valuation analysis using a company comparable model. We primarily use this model to corroborate the accuracy

of our intrinsic value estimate of the company, but it also often serves as platform to better understand a company's competitive atmosphere.

Our portfolio generally consists of 35 to 40 companies and consolidates the eleven sectors of the S&P 500 into a six-sector framework for portfolio management: Consumers, Energy, Financials, Healthcare, Industrials, and Technology. We manage sector exposures to vary no more than +/- 4 percent from each sector's market value weight in the S&P 500. This prevents excessive sector concentration and is consistent with the Virginia Tech Foundation's Investment Policy Statement for SEED.

2018 Investment Outlook

Despite recent turbulence, we remain cautiously optimistic regarding overall market performance in 2018 due to the strong fundamentals underlying our current economy.

Throughout 2017, stock prices soared to record levels due to an expanding global economy, unexpectedly high corporate earnings, and a decrease to the corporate tax rate. At the same time, volatility was surprisingly low, reaching its lowest point since 1993, as measured by the VIX. During these past nine years, we have experienced the second-longest bull run in recorded history. However, stock prices recently decreased at an alarming rate, as the S&P 500 index fell 5.75% over the trading week of 2/5/2018 to 2/9/2018. During that same period, volatility spiked over 150%. While this seems a small market correction, we need to keep in mind the possibility of another recession

As SEED evaluated where we currently are in this economic cycle, we return to the fundamentals underlying our economy as we continue into 2018. That specific selloff in equities came at a surprising time, as a plethora of healthy economic indicators were released in the preceding weeks. GDP growth for 2017 was announced to be estimated at 2.3%, a substantial increase over the 1.5% growth in 2016. The unemployment rate was also reported at an estimated 4.1%, its lowest level since December of 2000. Finally, the Bureau of Economic Analysis released news that personal income had risen 3.1% in 2017 while personal consumption expenditures increased 4.5%. This increase in both personal income and personal consumption expenditures show that people are not only earning more, but they are also increasing their spending at a greater rate. All these metrics indicate that our economy is quite healthy. The higher demand for workers is driving down unemployment and creating an expectation of wages increases soon. As people increase their spending rate, businesses will continue to benefit, and a promising cycle continues.

At the same time, we expect the new Federal Reserve Chairman, Jerome Powell, to follow a similar strategy of the previous Federal Reserve Chair, Janet Yellen. This approach of gradual rate hikes will slowly increase the flexibility of the Fed in the event of a downturn and should simultaneously cool down the expansion of the economy. We forecast around three rate hikes in 2018, with the first one coming at their next meeting in late March given the strong economic metrics.

Current market valuations do appear quite steep; however, earnings are catching up and thereby decreasing valuation multiples. The trailing twelve-month P/E ratio for the S&P 500 index was estimated at 19.00 and the forward TTM P/E ratio at 16.35, as reported by the *Wall Street Journal* on February 9, 2018. At the same time in 2017, the TTM P/E was estimated to be 24.48. While the current ratio is still above the historical average, the gap is closing as earnings are beginning to outpace price appreciation. Looking back at 2017, there was substantial revenue growth across all sectors, and this trend is expected to continue throughout 2018. While revenue growth is expected to slightly decrease in 2018, it is only by a matter of basis points as indicated by the S&P 500 column below (Exhibit 3). Also, companies will experience a further increase to their bottom line in 2018 due to the decrease in the corporate tax rates. Given the current information available, we expect valuation multiples will continue to contract throughout 2018 due to an increase in earnings rather than a decreae in prices.

Despite much evidence of a healthy economy, the possibility of a recession is always plausible. According to a consensus of U.S. forecasters gathered by the *Wall Street Journal*, the probability of a recession occurring in 2018 stands at just over 14.00%. No bull run lasts forever, and a recession is inevitable in the future. As a result, SEED is actively analyzing the economy and our portfolio to manage our risks. This involves careful planning for a potential market downturn, analyzing the cyclicality of each security that we hold, and assessing their performance in previous down-cycles.

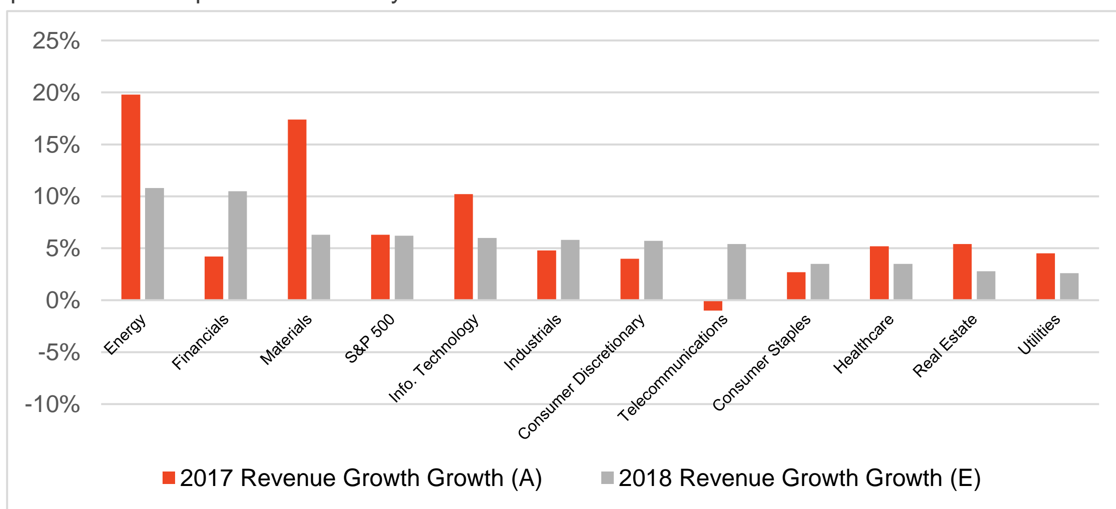


Exhibit 3: 2017 Revenue Growth vs. 2018 Expected Revenue Growth by Sector

Sector Reports

The following six pages delve further into the 2017 performance and 2018 forward outlook for each one of our sectors in the following order: consumer, energy, financials, healthcare, industrials, and technology.

Consumer Sector

Lead Analyst: Jon de Pena

Holdings as of 12/31/2017

Name	2017 HPR
Hanesbrands Inc.	5.03%
The Home Depot	44.61%
Hilton Worldwide	44.67%
Diageo Plc.	44.13%
Dr. Pepper Snapple Group	6.36%
Crown Holdings, Inc.	7.00%
Estee Lauder Companies	46.34%

Statistical Highlights

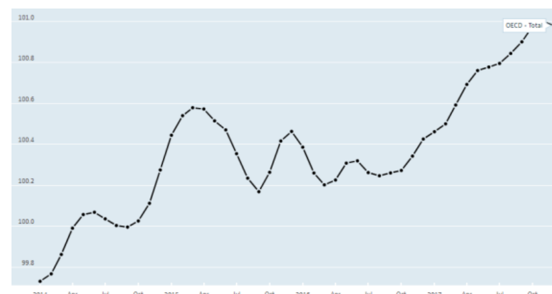
Sector Value: $903,218
% of Portfolio Allocated: 16.28%

Sector Summary

In late September, we chose to exit a position in Ford Motor Company (F). This decision was driven by our sector's view that new car sales are likely nearing their cyclical peak and that Ford would continue to struggle capturing market share with its core brands. After the sale in September, the stock gained 6.75% by the end of the year but has fallen more than 12% in the first month of 2018. Our sector believes our reason to sell was sound and has been evidenced by weak sales in both of the company's core brands (Ford and Lincoln) and alongside slowing U.S. car sales. In April of 2017, we bought positions in Estée Lauder (EL) and Dr. Pepper Snapple (DPS). Estée Lauder was our top performing holding in 2017 due to their international brand expansion, significant online sales growth, and effective marketing towards millennials. An overall shift in consumer preference towards higher end makeups has us confident in EL's performance moving forward.

Consumer Confidence Index (CCI)

2014 to Present



Sector Performance

2017 has been a strong year for our sector. During the year, our sector's portfolio has returned 31.45%; 9.44% of which was due to selection effects. During the same time period, the combined consumer discretionary and staples ETFs returned 17.84%. Our top two holdings were consumer discretionary companies Estee Lauder and The Home Depot, which outperformed the discretionary index (XLY) by 22.53% and 21.79%, respectively. Our lowest performer, Hanesbrands Inc (HBI), was added to our portfolio in March and has posted low single-digit returns since then. Most of the top-line softness affecting the company is due to what we see as short-term headwinds resulting from difficulties at brick-and-mortar retailers. We see HBI's vertical integration and the compatibility of HBI's products with all distribution channels as the factors that will deliver value in the long-term.

2018 Investment Expectations

The key factors dictating the performance of product-based discretionary and staples stocks will be those companies' abilities to expand their online presence and their ability to entice customers back to brick-and-mortar store locations. Macroeconomic factors including continued strength in consumer spending and the pace of monetary policy through 2018 will also be determining factors for the sector's success. We expect consumer spending to remain close to their current strength through 2018 while rates are still generally low and consumer confidence is still high. The growing possibility of a cyclical market correction in the next one or two years will be reflected in our adjustments towards more insulated positions and away from positions that have high market sensitivity.

Energy Sector

Lead Analyst: Connor Bolen

Holdings as of 12/31/2017

Name	2017 HPR
Andeavor	3.68%
Marathon Petroleum Corp.	12.57%
RSP Permian Inc.	8.68%
Suncor Energy Inc.	2.64%

Statistical Highlights

Sector Value: $470,294
% of Portfolio Allocated: 8.49%

Sector Summary

In 2017, crude oil prices fluctuated wildly, between $45 and $60 per barrel due to many uncertain macroeconomic factors. Most importantly, investor confidence strengthened regarding continued production cuts in the near future. At the same time supply was slowly dwindling, demand was gradually increasing at an unexpectedly higher rate, mostly driven by demand in China. This opened up many opportunities for U.S. oil and gas production companies to ramp up production and steal market share. Towards the end of the year and through the beginning of 2018, the inventories in the U.S. have begun to decline despite the uptick in production. Companies are slowly starting to pay off their hefty debt levels, and the industry is stabilizing after multiple consecutive years of a very pessimistic environment.

Sector Performance

Throughout 2017, the energy sector substantially outperformed its XLE index, mostly due to our heavy weighting towards downstream investments. At the beginning of the year, upstream companies were wildly overpriced due to investor bullishness regarding recent OPEC cuts. As a result, these upstream equities struggled throughout the first half of 2017. At the same time, one of our downstream investments, Western Refining was bought up by Tesoro in mid-June for a hefty premium. Tesoro subsequently changed their name to Andeavor, and have performed nicely for our sector since that time. Energy sold off its ownership stake in Noble Energy due to consistent poor capital allocation decision by management. They ended up steering their company in a different direction, which conflicted with our original investment thesis, thus initiating our sell decision.

2018 Investment Expectations

Global demand for oil is growing and is likely to continue to do so. Therefore, crude inventories are declining and oil prices are at three-year highs at just under $70/bbl. Geopolitical risks, a weaker U.S. dollar, and efforts by OPEC to curb supply have also played a defining role in these prices. Previously, it seemed that U.S. production would continue its rise since the middle of 2017, but the U.S. is now seeing a leveling off and decline in oil stockpiles. Downstream refiners still show the most attractiveness since they are generally the first to improve cost controls and profitability. Oil prices will always be volatile, but current global levels of demand and the expectation of continued OPEC production cuts should keep prices stable in the short-term.

Financials Sector

Lead Analyst: Logan Stone

Holdings as of 12/31/2017

Name	2017 HPR
Bank of the Ozarks	-6.51%
Discover Financial Services	8.91%
BankUnited Inc.	4.11%
PNC Financial Services Group	25.96%
Assured Guaranty Ltd.	-9.04%
Everest RE Group	-3.99%
CBL & Associates Properties	-44.22%
Equity Lifestyle Properties	-.33%
Capital One Financial Corp.	2.44%

Sector Summary

This year has had a flurry of news come out for our sector, after coming off the “trump bump” at the end of 2016. AGO has a sizeable exposure to insuring Puerto Rican bonds, which has dragged the stock down over the past year as fears of default has scared investors. However, AGO has been very proactive in dealing with this situation and is well prepared to outperform in 2018. RE was hurt towards the middle of the year due to its exposures to the southeastern portion of the United States and California, which experience natural disasters that forced insurance companies to pay out a lot in claims. OZRK’s Chief Lending Officer, Dan Thomas, left the company in 2017, causing the stock to drop by 12% in a day before rebounding over the next week. He was the head of their RESG group, which has been responsible for a large portion of OZRK’s CRE loan growth. He has since been replaced and the company has emphasized its culture and practice of its conservative lending strategy has not changed. In late 2017, the financial sector sold off its shares in COF due to concerns over credit deterioration in their auto loan portfolio and stretched valuation.

Statistical Highlights

Sector Value: $885,239
% of Portfolio Allocated: 15.96%

Sector Performance

Our best performers this year were PNC and DFS with respect to weighting. AGO was weighed down by their Puerto Rican bond exposure as mentioned in the sector summary, but we expect them to recoup their losses and outperform in 2018. CBL was our worst performer, but their weighting is very small compared to most of the other holdings. CBL has been hurt by a 25% dividend cut and strong headwinds in the retail sector. This holding will be sold by the financial sector in 2018. COF was sold off at a slightly positive gain, and PK was sold with a 9.05% gain. Overall, the financial sector’s portfolio return for 2017 was 6.17%

2018 Investment Expectations

This coming year is promising for the financial sector. Financials are expected to have the second highest earnings growth this year, behind only energy. The recent tax cut will benefit all our companies, especially companies such as DFS that have a high effective tax rate. The Federal Reserve is expected to increase interest rates three times over 2018, which will help NIM expansion drive revenue growth for banks. Regional and community banks have the highest interest rate sensitivity, so these rate hikes should benefit our sector. In addition, upcoming legislation in Congress could move the current SIFI designation from $50 billion in assets to $250 in assets. This will provide regulatory relief from regional banks and encourage a surge in M&A activity within our sector. On the other hand, REITs will have increased headwinds in this rising interest rates environment due to the high amount of leverage REITs rely on to conduct their business. Within the financial sector we will continue to watch for any signs of credit deterioration, particularly in CRE, auto, and student loans. Moving forward, we will likely liquidate positions in our REITs for better opportunities. Our positions in our insurance companies will be held because of their favorable valuations and solid fundamentals.

Healthcare Sector

Lead Analyst: Grant Briers

Holdings as of 12/31/2017

Statistical Highlights

Sector Value: $641,507
% of Portfolio Allocated: 11.56%

Name	2017 HPR
Biogen, Inc.	3.68%
Medtronic PLC	1.52%
AbbVie, Inc.	12.57%
UnitedHealth Group, Inc.	8.68%
McKesson Corporation	2.64%

Sector Summary

Republican efforts to repeal and replace the ACA were a significant driver of increased volatility in the Healthcare sector in 2017. The repeal of the ACA was unsuccessful, but Republicans did manage to remove the individual mandate element of the ACA as part of their tax bill. Under the new FDA Commissioner, Scott Gottlieb, US drug approvals hit a 21 year high as 46 novel medications gained approval. AbbVie was a top performer during 2017 as it delivered a 10.4% YoY increase in sales, with Humira contributing heavily to top-line growth. AbbVie's settlement with Amgen extended Humira's patent life to 2023, mitigating some of the biosimilar risk and giving AbbVie more time to further develop its pipeline. Biogen divested its hemophilia business in January and shifted its focus more heavily to neurology and rare diseases. We decided to sell Express Scripts in September in order to exit the weakening PBM industry. Additionally, we sold our remaining position in Sanofi in April due to a negative holding period return of -12.44% and poor outlook for its drug pipeline. Lastly, we bought McKesson in November due to its position as a leader in a mature industry, superior efficiency, and foothold in the oncology and specialty drugs market where it distributed 17 new specialty drugs during the year.

Sector Performance

During 2017, we saw positive returns. The XLV (SPDR Healthcare ETF) had a 2017 annual return of 21.73%. Our strongest performers in 2017 were AbbVie and UnitedHealth Group, which returned 12.57% and 8.68%, respectively. Continued Humira sales growth by AbbVie and UnitedHealth Group's industry-leading enrollment growth were major factors of their strong performance. Express Scripts performed negatively during the year with a YTD return of -9.74% and a holding period return of only 0.25% at the time we sold our position.

2018 Investment Expectations

Looking forward to 2018, we are striving to further diversify our portfolio to offset some of the risks associated with our holdings in and Biogen and AbbVie. We anticipate that 2018 will see continued drug pricing pressures. We plan to exit our position in Medtronic, seeing that it is nearing our price target and we believe there are other companies in the industry with better upside potential. Furthermore, we are looking into a position in LabCorp whose Covance Drug Development segment, which assists large biotechnology and pharmaceutical companies with navigating the FDA approval process for a contract price, offers us a way to realize gains from increased R&D expenditures without incurring the FDA approval risk associated with the biotech or pharmaceutical company bringing a drug to market.

Industrials Sector

Lead Analyst: Winston Giles

Holdings as of 12/31/2017

Name	2017 HPR
American Airlines Group	12.40%
Fluor Corp.	0.14%
Union Pacific, Corp.	32.24%
Honeywell Inc.	35.09%
Huntington Ingalls Ind.	29.48%
Toll Brothers, Inc.	55.85%
Stericycle Inc.	-11.75%
Scana Corp	-10.32%

Statistical Highlights

Sector Value: $907,051
% of Portfolio Allocated: 16.35%

Sector Summary

The Industrials sector performed incredibly well in 2017. Two of our holdings had negative performance, while our other five have done exceptionally well. We continue to benefit largely from the equities bull market. The industrials sector experienced an overwhelming price appreciation following the election of Donald Trump, leaving a big question coming into 2017 if earnings and cash flow could justify the increase in valuations. Overall, steady revenue and margin expansion drove bottom line growth and potential tax adjustments buoyed anticipation for an increase in shareholder value. While there is no doubt multiples are higher, we are looking for our holdings to continue to grow earnings per share by approximately 12% given economic conditions forecasted for 2018.

Sector Performance

UNP's performance can be attributed to its impressive organic growth rates and significant margin enhancement. HII has outperformed predominantly due to the Pentagon increasing the naval fleet from 274 to 335, as well as an increase in size and volume of defense contracts. HON hit fiscal year '18 targets this year and continues to grow revenue and increase margins, Honeywell will spin-off their home/ADI global distribution business (~19% of revenue) in attempt to streamline operations. TOL has benefitted greatly from substantial increase in housing starts and home prices. FLR's price has recovered significantly due to an increase in organic revenues and by adding new contracts into the pipeline. We added a utilities position, SCG, in Q4 2017. Our goal in buying Scana was to buy an undervalued company with a satisfactory dividend yield. Shortly after our purchase, an acquisition bid was made by Dominion Energy; negotiations are currently ongoing and we will see a significant price appreciation should the deal go through.

2018 Investment Expectations

Industrial equities thrived throughout 2017 with the XLI ETF returning 21.62%. Throughout the year, macroeconomic conditions strengthened, while the value of the dollar and low interest rates contributed to positive performance. While interest rates are steadily increasing, and the dollar has begun to experience an increase in volatility, we remain confident our holdings will continue to grow earnings and cash flow as we turn our focus to 2018. As the corporate tax rate changes have begun to take shape, we anticipate a significant boost in earnings, cash flow, and shareholder value. As the market runs up, our determined intrinsic valuations will become more crucial as it edges towards a top. Looking ahead to 2018, we are currently seeking out additional opportunities for investment in the utilities sector and ADR/international markets. We remain confident in our positions and decisions moving forward while our analyst team continues to research opportunities within the industrials and utilities sector.

Information Technology Sector

Lead Analyst: Rehan Ghani

Holdings as of 12/31/2017

Statistical Highlights

Sector Value: $1,243,790
% of Portfolio Allocated: 22.42%

Name	2017 HPR
Apple, Inc.	48.48%
Salesforce.com, Inc.	49.33%
Cognizant Technology Solutions Corp.	19.74%
Cyberark Software, Ltd.	-9.03%
Electronic Arts Inc.	18.02%
Lam Research Corp.	76.19%
Oracle Corp.	24.93%
Qualcomm, Inc.	2.03%

Sector Summary

Apple continues to be SEED's largest holding. With the recent introduction of the HomePod, our investment in Apple has now given us exposure into the rapidly growing smart speaker space. Lam Research Corporation has cemented itself as a leading parts supplier to semiconductor companies. One of Lam's largest customers is Micron, another one of SEED's holdings. Micron is a global corporation that produces many semiconductor devices. Qualcomm completes our exposure to the semiconductor industry with its Snapdragon processors being popular in phones. Electronic Arts boasts a large and diverse portfolio of video games and has taken advantage of its dominance in sports games to improve user engagement. Salesforce has a myriad of platforms and applications on the cloud, with their CRM software being the most popular. Cyberark is an Israeli-based cybersecurity firm focusing mainly on solutions for internal cyberthreats.

Sector Performance

Electronic Arts was able to improve margins and increase time spent on their games, leading to an increase in their stock price. However, the launch of Star Wars Battlefront 2 towards the end of the year proved to be controversial and negatively impacted the company. Qualcomm had a mixed year, citing issues with their bid to acquire NXP Semiconductors, as well as a legal dispute with Apple. However, we saw a sharp increase in stock price when Qualcomm themselves were the subject of an acquisition bid from Broadcom. We exited our position in Micron shortly into the year. Both Lam and Cognizant were able to consistently beat the expectations set for them and both also had healthy outlooks for the upcoming year. This led to an increase in share price to all-time highs for both companies, respectively. We saw mixed guidance coming from Cyberark, and felt that they were getting crowded out in a competitive and ever changing cybersecurity landscape. As a result, we decided to exit our position. Oracle's stellar 1H performance was offset by a slowdown towards the end of the year, but not before pledging to expand into emerging markets and getting Bank of America as a new cloud customer.

2018 Investment Expectations

We believe that there is more opportunity and growth in Saas companies moving forward. We are well positioned to take advantage of this growth through our investments in Salesforce and Oracle. There has been some indication that there could be a slowdown in the growth of mobile sales due to oversaturation and a lack of differentiation from older products. Apple, Lam and Qualcomm could be affected by this. However, we believe that growth in other non-related segments of these companies (and possibly, growth or expansion in emerging markets) will be able to offset the slowdown in orders of phones/semiconductors. The passage of the new tax bill will allow some of the companies we hold to spend more on R&D or look for acquisition targets. We will continue to analyze their decisions and update our stances on them accordingly. Finally, while we do see growth for the immediate future, we are aware that a correction could come at any time. Our goal this year will be to position ourselves to minimize the shock of such correction, while continuing to seek long term value.

Exhibit 4: The 2017-18 SEED Team

Contact Information

Stephen A. LaRow
Co-Chief Executive Officer
Phone: 703-624-4103
E-mail: slarow@vt.edu

Edward D. Zawislak
Co-Chief Executive Officer
Phone: 203-858-3160
E-mail: dzedward@vt.edu

Arjan M. Peters
Chief Investment Officer
Phone: 703-401-5871
E-mail: arjanp@vt.edu

Professor R. Billingsley
Faculty Advisor
Phone: 540-231-7374
E-mail: r.billingsley@vt.edu

University Information

Virginia Tech Pamplin College of Business
www.virginiatechseed.com
Facebook.com/VirginiaTechSEED