Applied Investment Management (AIM) Program

AIM Class of 2019 Equity Fund Reports
Spring 2018

Date**: Friday, April 20th* | ***Time:** See Schedule Below* | ***Location: AIM Research Room 488

Presenter	Company Name	Ticker	Sector	Page
Tom Borin	John B. Sanfillipo & Son	JBSS	Consumer Staples	2
Andrea Blomquist	New Oriental Education and Technology Group ADR	EDU	International Consumer Discretionary	5
Nicholas Tenuta	AEGON N.V ADR	AEG	International Financials	8
Riddhi Vakil	iRobot Corporation	IRBT	Consumer Discretionary	11

These student presentations are an important element of the applied learning experience in the AIM program. The students conduct fundamental equity research and present their recommendations in written and oral format – with the goal of adding their stock to the AIM Equity Fund. Your comments and advice add considerably to their educational experience and is greatly appreciated. Each student will spend about 5-7 minutes presenting their formal recommendation, which is then followed by about 8-10 minutes of Q & A.

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John B. Sanfilippo & Son, INC (JBSS)
April 20, 2018

Tom Borin — Domestic Consumer Staples

John B. Sanfilippo & Son, Inc. (NASDAQ: JBSS) processes and markets nuts and related products throughout the United States. Its products include peanuts, almonds, cashews, pecans, and walnuts. The company also manufactures various snack items such as peanut butter and trail and snack mixes. These products are marketed under the brands Fisher, Sunshine Country, Orchard Valley Harvest, and Squirrel, as well as several other private label brands. The company processes these products at their various facilities around the United States. These facilities also handle packaging, warehousing, and distribution. The company was founded in 1922 by Gaspare Sanfilippo and John B. Sanfilippo. JBSS is currently headquartered in Elgin, IL.

Price ($):	$58.33	Beta:	0.60	FY: June	06/30/2016	06/29/2017	06/30/2018	06/30/2019
Price Target ($):	$70.49	M-Term Rev. Gr Rate Est:	4.80%	Revenue (Mil)	$952	$847	$897	$942
52WK H-L ($):	74.69 - 54.32	M-Term EPS Gr Rate Est:	6.15%	% Growth	7.2%	-11.07%	6.00%	5.00%
Market Cap (mil):	$510	Debt/Equity:	25.06%	Oper Inc	$51	$58	$54	$58
Insider Holdings	18.14%	Debt/EBITDA (ttm):	1.04x	% Growth	-1.09%	13.70%	-7.08%	6.38%
Avg. Daily Vol (mil):	0.069	WACC	6.50%	Op Margin	5.39%	6.89%	6.04%	6.12%
Yield (%):	0.9	ROA (%):	7.51%	EPS*	$2.68	$3.17	$3.47	$3.73
ESG Rating	B	ROE (%):	14.01%	P/E (Cal)	15.9	19.7	18.58	17.26
Short Interest	7.70%	ROIC (%):	12.40%	EV/EBITDA	7.7	10.4	11.47	10.99

Recommendation

John B. Sanfilippo & Son has been in the industry of processing, packaging, warehousing, and distributing nuts for over 90 years and continues to be an industry leader. JBSS sells its products primarily through three different distribution channels: consumer, commercial ingredients, and contract packaging. In FY2017, the consumer channel accounted for 62.7% of the company's total revenue, followed by commercial ingredients at 19.4% and contract packaging at 17.9%. The company also has an in-house R&D facility that allows them to maintain their current products and develop new flavors to meet constantly changing consumer needs and they operate a test kitchen which provides an opportunity to ensure product viability before it is produced for the wider market. The unemployment level in the United States recently hit a 7 year low of 4.1%, which will result in higher average income and increased consumer spending. According to the Bureau of Economic Analysis, personal income in the U.S. increased by .2% or $56.1 billion, while personal consumption expenditure increased by .3% or $43.6 billion. Due to the wide array of products JBSS offers, they stand to significantly benefit from an increase in consumer spending. Consumer sentiment in the United States is currently shifting in favor of JBSS. More and more people are looking for high quality and healthy foods. This has led to growth in the nuts and seeds market in the U.S. According to Statista the US nuts and seeds market is expected to grow at a CAGR of 6.4% from 2018-2021. Also, the global food consumption rate is projected to increase 3050 Kcal per day by 2030 according to estimates from the Food and Agriculture Organization of the United Nations. The increase in global food consumption could lead to increased demand for JBSS's products. Given JBSS's strong sales growth, focus on R&D, and improved consumer sentiment it is recommended that JBSS be added to the AIM Small Cap Equity fund with a price target of $70.49, representing a 20.84% upside.

Investment Thesis

- **Vertical integration.** JBSS has a vertically integrated nut processing operation that allows direct control over procurement from growers, shelling, processing, packaging, and marketing for pecans, peanuts, and walnuts. Having a vertically integrated supply chain allows JBSS to ensure product quality and lower their procurement price point. JBSS operates this vertical integration through their five state-of-the-art manufacturing facilities. These factories are equipped with the last technology to ensure maximum efficiency. The company's Elgin, IL facility, and company headquarters, handles most of the company's warehousing needs. This facility can accommodate a 20-35% increase in capacity, meaning the company will not have to invest in new facilities as volume continues to grow. Further, JBSS also sources all of their walnuts, almonds, and peanuts from domestic sources.

- **OVH growth**. JBSS's Orchard Valley Harvest, their produce nut brand, increased dollar sales by 56% in Q2. This increase was mainly due to more retailers giving Orchard Valley Harvest shelf space. JBSS is working to launch new product lines for this brand, such as their antioxidant mix and heart healthy blend, as well as a line of salad toppers. The new products are projected to continue the high level of growth this brand has seen over the past year.
- **Aggressive appetites.** There has been a recent shift in consumer appetites away from unhealthy and processed snack foods to whole, raw products that provide greater health benefits. JBSS is perfectly poised to capture the new demand for healthier snack foods. The company is introducing a new line of snack nuts under the Fisher Snack brand that will be trademarked as "Oven Roasted Never Fried."–the products will only contain whole nuts and salt. JBSS's marketing team is planning to emphasize the lack of added oil compared to traditional roasted nuts. This new product line, along with growing demand for the company's Orchard Valley Harvest segment, will provide JBSS with a great avenue to capitalize on this change in consumer preferences.

Valuation

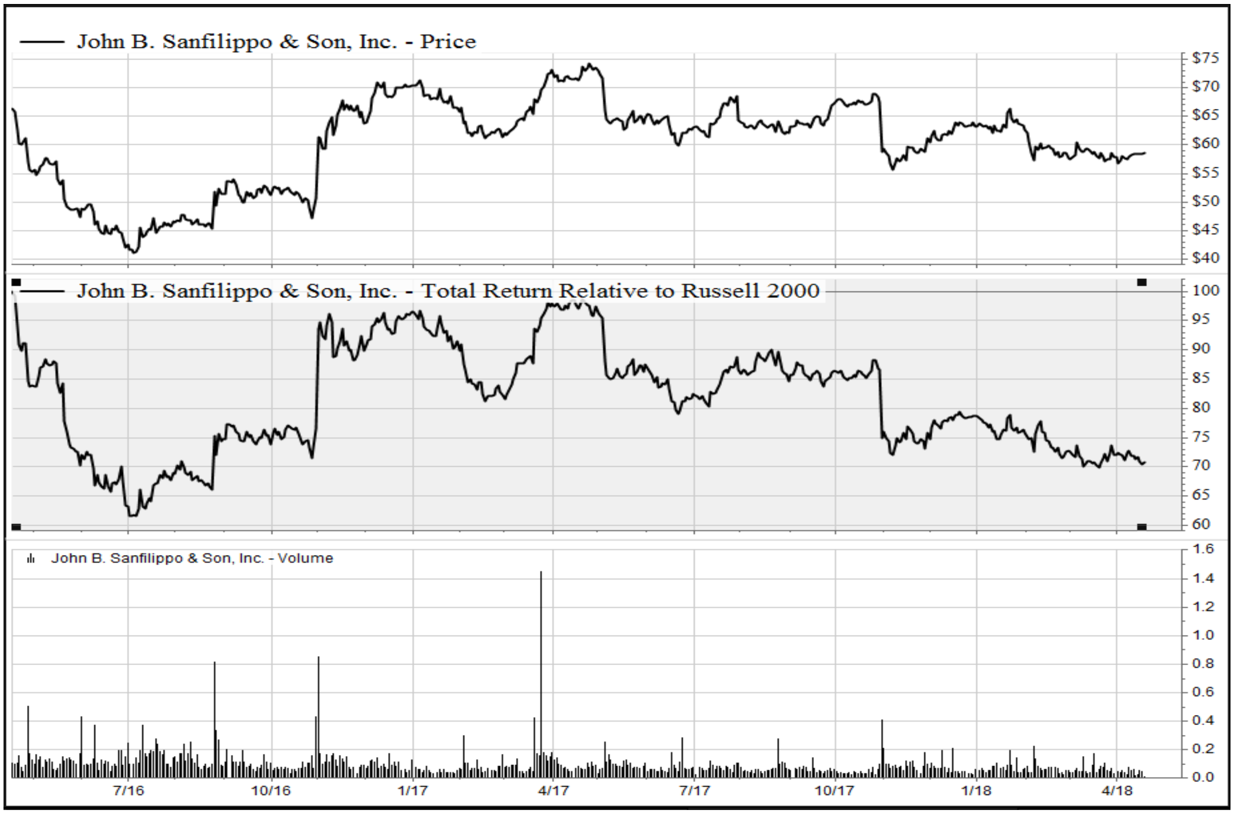
In order to reach an intrinsic value for JBSS, a five year DCF model was constructed. Using a terminal growth rate of 2.25% and a WACC of 6.50%, an intrinsic value of $75.35 was reached. Additionally, a P/E multiple valuation was calculated. Using a 2018E EPS of $3.47 and utilizing a blended average P/E multiple of 19.97x, resulted in an intrinsic value of $69.22. A EV/EBITDA multiple valuation was also calculated. By using a blended average EV/EBITDA multiple of 11.11x an intrinsic value of $66.73 was reached. By weighing the three models 34/33/33, a price target of $70.49 was reached, resulting in a 20.84% potential upside. JBSS pays a dividend of 0.9%.

Risks

- **Lack of hedging instrument.** JBSS's raw materials are the nuts that they process and distribute. The nuts are treated like a commodity and thus are priced by the market. This makes it difficult for the company to accurately project future expenses. The company is unable to hedge any adverse change in commodity price because no appropriate futures, derivatives, or other risk mitigating market for these materials exists. This presents a significant exposure to raw material price fluctuation.
- **Consumer preference.** JBSS operates in a business of constant consumer preference changes. If the company fails to continuously keep in touch with their customer base and create new products to meet changing customer needs, then this would have an adverse effect on sales.

Management

Jeffery T Sanfilippo has been the Chairmen and Chief Executive Officer since 2008. Prior to this role, he served as Executive Vice President of Sales and Marketing at JBSS. Jasper P. Sanfilippo Jr. has been the Chief Operating Officer since 2006. Previously he served as Executive Vice President of Operations at JBSS from 2001-2006.



Source: FactSet

Peer Valuation

Name	Ticker	Market Cap (mil)	P/S	P/E	EV/EBITDA	P/B
John B. Sanfilippo & Son, Inc.	JBSS	510	0.79	18.77	9.46	2.92
Tootsie Roll Industries, Inc.	TR	2,288	3.72	24.06*	24.01*	3.11
TreeHouse Foods, Inc.	THS	2,215	0.36	18.71	8.16	1.24
J. M. Smucker Company	SJM	13,954	1.89	13.79	10.81	5.70
J & J Snack Foods Corp.	JJSF	2,606	2.33	27.39	14.34	3.68
Peer Averages		5,266	2.07	19.97	11.11	3.43

*not included in valuation

Peer Fundamentals

Name	Ticker	Revenues	ROE	ROA	Debt/Equity	Est 5 yr NI growth
John B. Sanfilippo & Inc.	JBSS	846.64	14.85	9.15	25.06	21.53
Tootsie Roll Industries, Inc.	TR	519.29	11.19	8.74	1.08	
TreeHouse Foods, Inc.	THS	6307.10	-12.01	-4.54	112.48	32.90
J. M. Smucker Company	SJM	7392.30	8.51	3.67	78.81	13.48
J & J Snack Foods Corp.	JJSF	1084.22	11.99	9.48	0.18	11.44
Peer Averages		3825.73	4.92	4.34	48.14	19.27

Source: Factset

New Oriental Education and Technology Group ADR (EDU)
April 20, 2018

Andrea Blomquist — International Consumer Discretionary

New Oriental Education and Technology Group, Inc. (NYSE: EDU) is China's largest private education service provider. The firm provides a variety of services including primary and secondary education, after-school tutoring across all subjects, foreign language training, international and domestic test prep courses, and educational software content. Focused on providing students with a competitive advantage in the workplace, EDU has provided services to over 33.5 million students across nearly 1000 learning centers since its inception. Language Training and Test Prep Courses currently make up the majority of EDU's revenue (84%), followed by Other (14.4%) and Primary & Secondary Education (1.7%). While New Oriental assists their clients with international educational affairs, the firm only has learning centers throughout China. New Oriental Education and Technology Group was founded in 1993 and is headquartered in Beijing, China.

Price ($):	$90.62
Price Target ($):	$115.72
52WK H-L ($):	108.4 - 59.83
Market Cap (mil):	14,457
Insider Holdings	15.5%
Avg. Daily Vol (mil):	1.9
Yield (%):	0.0
ESG Rating	BB
Short Interest (%)	1%

Beta:	1.02
M-Term Rev. Gr Rate Est:	25.1%
M-Term EPS Gr Rate Est:	30.9%
Debt/Equity:	0%
Debt/EBITDA:	0.00
WACC	8.70%
ROA (%):	10.38
ROE (%):	17.77
ROIC (%):	17.77

FY: May	05/31/2016	05/31/2017	05/31/2018	05/31/2019
Revenue (Mil)	1,478.3	1,799.5	2,388.0	3,123.3
% Growth	18.6%	21.7%	32.7%	30.8%
Oper Inc	198.8	262.1	311.6	437.2
% Growth	29.5%	31.8%	18.9%	40.3%
Op Margin	13.4%	14.6%	13.0%	14.0%
EPS*	$1.43	$1.74	$2.07	$2.92
P/E (Cal)	29.6	41.2	43.8	31.0
EV/EBITDA	20.3	29.0	36.0	23.9

Recommendation

Starting off as just an English language tutoring center, New Oriental Education and Technology Group has since grown into the largest private education institution in China in terms of enrollment, number of programs offered, and geographical presence. In FY17 alone, EDU enrolled nearly 5 million students throughout their 940 learning centers, a 33% YoY growth in enrollment. New Oriental employs more than 24,000 teachers 70 cities nationwide, not to mention 19.5 million users registered on their online education network. Over the past decade, the firm's revenue has experienced a nearly 30% CAGR with net income not far behind at a 25% rate. Not only has New Oriental seen significant growth in the past several years, but China has continued to expand with an annual GDP growth just shy of 7% for the past three years; much faster than other major economies. At this point in time, China is still considered to be a developing country by the World Bank and is following a five-year plan (2016-2020) to focus on improving socioeconomic and environmental conditions, including access to education. Without a doubt, New Oriental is well positioned to be on the receiving end of this large and growing customer base as the largest private education provider in China. EDU sees the key areas of expansion being those in low-tier cities where education and educational resources are not as prevalent. Due to a history of strong growth as well as favorable timing in the Chinese economy, it is recommended that New Oriental Education and Technology Group be added to the AIM International Equity Fund with a price target of $115.72, representing a 27.7% upside.

Investment Thesis

- **Redirected Focus in a Booming Market.** In 2015, the size of China's education industry was more than $261 billion. By 2020, it is expected to reach a size of more than $465 billion, growing at a CAGR of 12.7%. This growth is attributable mainly to an increase in demand for K-12 tutoring, due to an influx of school age children after China's amendment to the one-child policy. Three years after this change to the two-child policy, K-12 tutoring itself is expected to increase from 11.43% of the industry in 2015 to 17.43% by 2020. New Oriental has responded to these market changes and has repositioned itself to focus on K-12 tutoring instead of test preparation or consulting services. EDU anticipates the majority of FY18 growth to come from their K-12 segment, growing at 40-45%.

- **Dual Teacher Model.** Since 2016, New Oriental has been employing a teaching model called the dual-teacher model. This allows one teacher to simultaneously instruct up to 20 classes and has allowed EDU to grow substantially into smaller, lower-tier cities where resources, in particular quality teachers, are scarce. Under this method, the main teacher (located in a major city) gives the lesson via live-streaming, while a second teacher/tutor is present in the classroom to answer questions and provide additional assistance. This method is key for expansion into China's rural areas where education is uncommon, and the market remains untapped. As of 2Q'FY18, this method is being leveraged in over 40 cities (30 existing and 10 new programs) and EDU is planning to expand it into 5-10 more by end FY18. Management is anticipating this to be one of the biggest drivers of revenue and profitability over the next 3 years, particularly in the K-12 tutoring segment with 40-45% projected YoY growth.
- **Regulation Increases Competitors' Barriers.** The Chinese private education market is highly fragmented with China's two largest private education providers (EDU and competitor TAL) combining to account for only 4% of the industry. In late 2017, the Chinese Ministry of Education enacted new legislation which increased regulation around K-12 tutoring. The new legislation makes it necessary and more difficult for educators to obtain licensing. Added regulations include curriculum standardization and health and safety standards, among other requirements. Ultimately, these new regulations negatively affect the smaller players in the industry and create a potential moat for education giants like EDU and TAL. The extra difficulties that come with the regulation are enough to create a consolidating effect and pave the way for EDU to take greater market share in the K-12 area.

Valuation

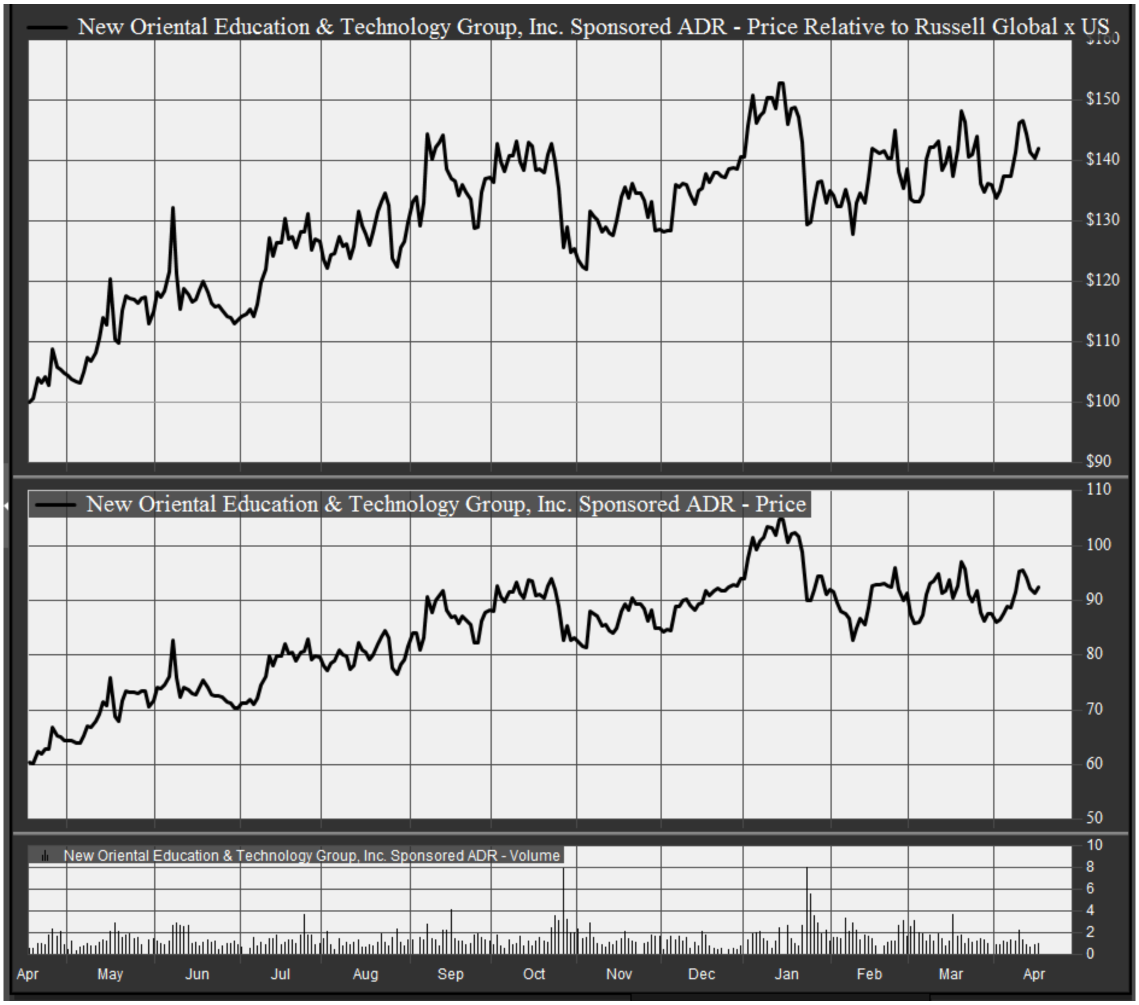
In order to reach an intrinsic value for New Oriental Education and Technolgy Group, a five year DCF model was constructed. Using a terminal growth rate of 3.0% and WACC of 8.70%, an intrinsic value of $121.98 was reached. A sensitivity analysis on the terminal growth and the WACC of +/- 0.5% resulted in a range from $100.14 to $168.21. Additionally, a P/E multiple valuation was conducted using a peer P/E multiple of 37.32x and an NTM EPS of $2.59, and intrinsic value of $96.97 was reached. By weighting the two models 75/25, a price target of $115.72 was reached, representing a 27.7% upside. EDU does not presently pay a dividend.

Risks

- **Short-Term Margin Impact.** EDU is expected to experience a slight decline in margins through FY18. Due to rapid expansion and implementation of the dual-teacher model into rural locations, capex has been higher than in the past. However, management remains confident that this is only in the short term and expects margins to fully recuperate from robust expansion by FY19.
- **Stronger Competition in Low-Tier Cities.** Management for-sees the dual teacher model being a market disruptor in the K-12 tutoring industry, allowing EDU to capture market share in low-tier cities. However, if competition in these areas increases and the economic moat from new regulation is immaterial, EDU could experience lower than expected top-line growth, which would trickle down and negatively impact earnings.

Management

Michael M Yu is the founder of New Oriental and has been Chairman of the Board since 2001. For 15 years, Yu also served as CEO, but ended that role in 2016. Prior to founding New Oriental, Yu taught English at Peking University where he also received his bachelor's degree. As of 2016 the CEO of EDU is Chenggang Zhou. Joining the company in 2000, Zhou has held multiple positions including president and Executive VP.



Source: FactSet

Peer Valuation

Name	Ticker	Market Cap (mil)	P/S (NTM)	P/E (NTM)	EV/EBITDA (NTM)	P/B (NTM)
New Oriental Education ADR	EDU	14,457	4.82	34.81	25.10	6.11
TAL Education Group ADR	TAL	18,191	6.64	63.35	35.74	12.61
Grand Canyon Education	LOPE	5,342	4.95	22.92	13.71	-
Bright Scholar Education ADR	BEDU	1,808	5.62	32.39	13.65	7.38
Strayer Education	STRA	1,209	2.54	26.51	11.65	-
Cornerstone Ondemand, Inc.	CSOD	2,540	4.89	55.14	26.93	8.04
Peer Averages		5,818	4.93	40.1	20.34	9.3

Source: Factset

Peer Fundamentals

Name	Ticker	Revenues	ROE	ROA	Debt/Equity	Dividend Yield
New Oriental Education ADR	EDU	3,029.8	17.6	10.4	0.0	0.0
TAL Education Group ARD	TAL	2,731.3	19.9	9.3	25.8	0.0
Grand Canyon Education	LOPE	1,079.7	-	14.3	6.8	-
Bright Scholar Education ADR	BEDU	321.5	22.8	7.3	0.0	-
Strayer Education	STRA	476.5	-	12.2	0.0	1.1
Cornerstone Ondemand, Inc.	CSOD	519.3	14.6	5.3	2,410.5	0.0
Peer Averages		1,025.7	19.1	5.3	488.62	0.4

Source: Factset

AEGON N.V ADR (AEG)

April 20, 2018

Nicholas Tenuta International Financials

Aegon N.V (NYSE: AEG-US) is multi-line insurance company that provides an array of different risk management services to their individual and institutional clients. The main services that drive earnings include, life insurance (45%), pensions (29%) and individual savings & retirement (25%). AEG operates out of four main segments, Americas (primarily US, Mexico and Brazil), Europe, Asia (primarily Hong Kong, Singapore, China, India and Japan) and Asset Management. The majority of their services are distributed via third parties, including: brokers, financial advisors, agents and banks. Aegon N.V was established in 1983 and they are headquartered in The Hague, the Netherlands.

Price ($):	$7.36
Price Target ($):	9.57
52WK H-L ($):	7.03- 4.73
Market Cap (mil):	14,440
Insider Holdings	18%
Avg. Daily Vol (mil):	9,219,557
Yield (%):	4.4%
ESG Rating	AA
Short Interest	5.9%

Beta:	1.44
M-Term Rev. Gr Rate Est:	5.7%
M-Term NI Gr Rate Est:	2.9%
Financial Leverage	18.51
WACC	5.1%
ROA (%):	63%
ROE (%):	12.9%
ROIC(%)	6.8%
Unearned Premium/Total Capital	14.42

FY: Dec	2016A	2017A	2018E	2019E
Revenues	34,097.66	34,493.11	35,527.90	38,547.78
% Growth	5.4%	1.2%	3.0%	8.5%
Operating Income	1981.27	2883.16	2964.46	3328.74
%Growth	3.7%	45.5%	2.8%	12.3%
Net Margin	1.5%	8.2%	8.2%	9.5%
Efficency Ratio	12.6%	8.0%	8.2%	9.0%
P/E	23.42	4.85	8.49	7.81
EPS	0.31	1.31	0.87	0.94

Recommendation

Aegon started out as a traditional life insurance company that also provided actuary-related services for pensions. Historically, insurance companies generated income through two sources: earned premiums and investment spreads. Both the life insurance and pension industries have begun to experience rapid change. Due to recent technology, customers now prefer personalized products, that are transparent and easily accessible from their homes. These new preferences have caused a decline in new term life insurance sales, and standard defined pension benefits - ultimately having a negative effect on the firms' earned premium income. The current low-interest rate environment has decreased the ability to generate sufficient investment income; however, in fiscal year 2017, Aegon positioned themselves to compete in this changing market. AEG's management is driven to become a lower cost, fee-based revenue company by providing innovative and personalized products. AEG's first step in the strategy was their divesture in all non-core operations; which included the sale of their US and UK annuities book, all reinsurance operations and AEG-Ireland. These divestures have provided AEG with $900 billion in capital which is now 90% invested in their core operations. In late 2016, Aegon acquired both Blackrock and Cofunds – both of which are online financial platforms, resulting in the firm becoming the UK's largest retail investment platform. Expanding the asset management business is critical to the firm's fee-based strategy. In 2017, Aegon opened an asset management branch in both Frankfurt, Germany and Mexico, with expected sales growth of 10% by 2019. As of Q1 2018, AEG now outsources the administration of their US life insurance business, which is expected to reduce costs by $70 million this year. Though these changes were not completely implemented by year-end 2017, Aegon still saw solid financial results for the year. Net income increased slightly from 2016 including the effects of restructuring, along with a 44% increase in net deposits. Due to Aegon's disposition of non-core businesses and increased focus on fee-based revenue and innovation, it is recommended that Aegon N.V be added to the AIM International Equity Fund with a price target of $9.57, representing a 30% upside.

Investment Thesis

- **Rising Rate Environment.** With interest rates still near all-time lows, insurance companies have been unable to generate sufficient income through investment spreads. In this next fiscal year, interest rates are expected to rise; thereby resulting in widening spreads and increased investment income. The increased investment income, paired with AEG's top line growth through their fee-based strategy will serve as a competitive advantage over the industry.

- **Revamped Capital Position.** In 2018, AEG has already deployed a new set of objectives focused on capital generation. Management has made asset allocation changes and announced they will increase their mix of alternative investments. This includes matching illiquid assets with liabilities, increased use of private loans, and increased investments in private equity, direct real estate and infrastructure. This plan is expected to generate an additional $64 million of capital this year. Last year, AEG also used the proceeds from their divestures for a $1 billion cash injection into their core businesses. This has increased their Solvency II ratio from 157% to 201% has allowed AEG to increase total capital allocated to core businesses. AEG's strong capital position will benefit shareholders in 2018 via dividends and share buybacks.
- **Customer Retention.** Aegon's new 'connected' business model should increase their current 53% customer retention rate. Prior to these changes, AEG could only offer basic services to individuals nearing retirement. Now, AEG is positioned to offer personalized products to individuals at all stages of their life. This includes insurance for young families and savings for education, pension growth for pre-retirement customers, and asset management for post-retirement customers.

Valuation

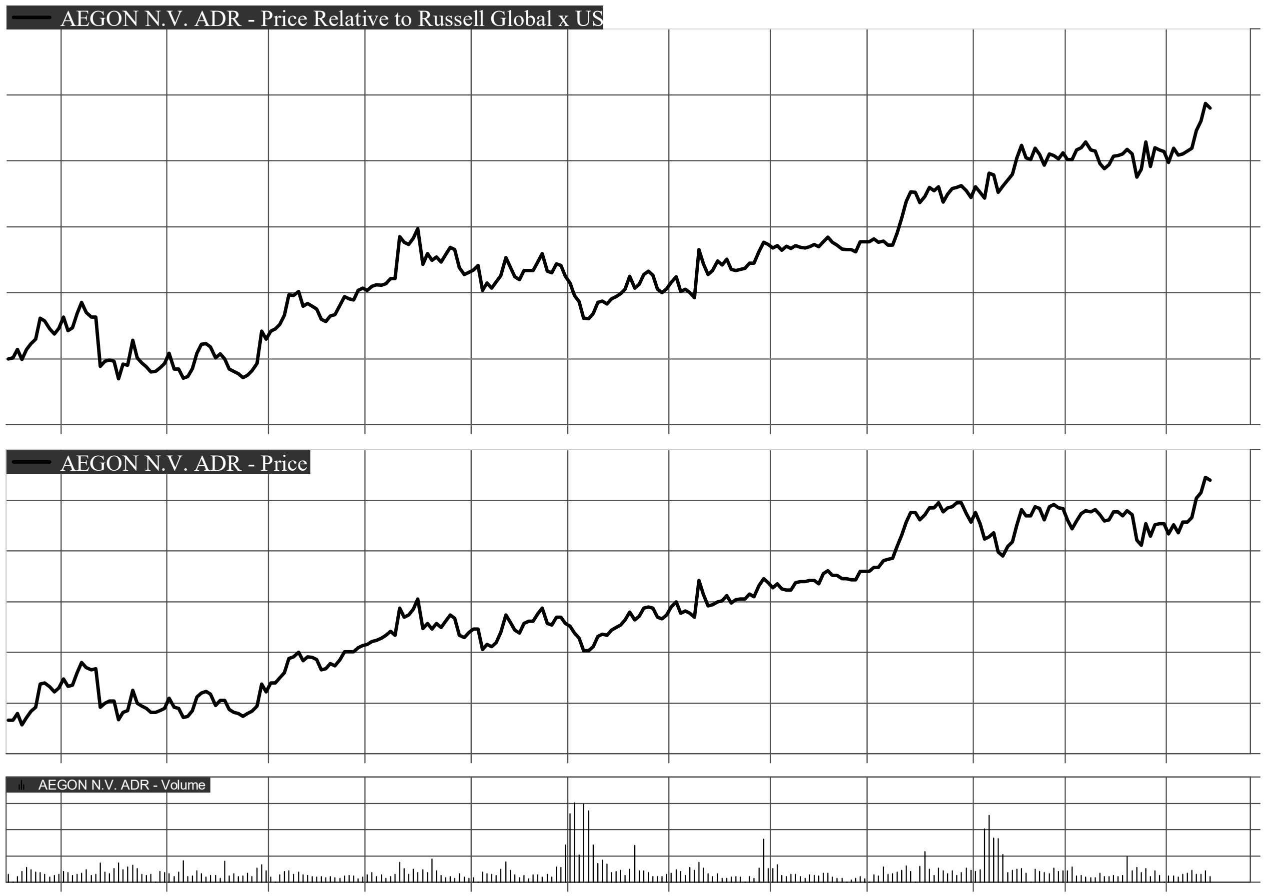
In order to reach an intrinsic value for AEG, a five year DDM was constructed. Using a terminal growth rate of 2.5% and a cost of equity of 8.4%, an intrinsic value of $8.01 was reached. A sensitivity analysis on the terminal growth rate and COE ranged from $7.40-$8.74. Additionally, a P/B multiple valuation was calculated. Using 2018 BVPS of $12.39, and utilizing a blended average P/B multiple of 1.07x, resulted in an intrinsic value of $12.39. Finally, a Price/Premiums Earned multiple valuation was calculated. Using 2018 premiums earned per share of $11.21 and utilizing a blended average Price/Premiums Earned multiple of 0.94x, resulted in an intrinsic value of $10.53. By weighting the three models 60/20/20 respectively, a price target of $9.57 was reached, resulting in a 30% upside. AEG paid a dividend of $0.35 dividend, which is a 4.4% yield.

Risks

- **SEC Settlement.** AEG currently has a pending investigation with the SEC. In 2015, AEG realized an error in the quantitative assumptions in one of their models. They immediately told the SEC about it and have cooperated since. The decision is expected to be made this year which could result in an $85 million payment; however, the firm has already put the funds in reserve.
- **Baby Boomers**. The population in western economies is getting very old and many 'baby boomers' are set to retire in the upcoming years. People are also living longer as healthcare improves, which is a concern for AEG, as they will have to start paying many claims.
- **Regulation.** Regulation of the insurance industry is always changing. The solvency and liquidity requirements have changed multiple times in the past decade; therefore, if Solvency II is increased, this could have a potential dampening effect on dividend payments.

Management

Alexander R. Wynaendts is the current CEO and Chairman of the Executive Management Board. He joined Aegon in 2003 as a Senior Vice President. He became CEO in 2008. Matthew J. Rider is the current CFO of AEG. After serving as CIO at ING Groep, he joined AEG in January of 2017, and became CFO during May 2017.



Source: FactSet

Name	Ticker	Market Cap	P/E	P/B	P/TBV	Div Yld
Aegon N.V ADR	AEG	14,346	4.85	0.53	0.54	4.42
Prudential plc	PUK	65,499	12.20	2.63	3.76	2.55
Swiss Life Holdings AG	SLHN	12,127	11.14	0.80	0.84	3.91
Aviva PLC	AV	27,679	14.47	1.2	1.44	5.41
NN GROUP	NN	15,292	5.81	0.70	0.58	4.60
Peer Averages		23,079	10.65	1.073	1.23	4.43

Name	Ticker	Net Margin	ROE	ROA	Expense Ratio	Last 3yr NI growth
Aegon N.V ADR	AEG	8.16	12.09	0.63	26.36	21.60
Prudential plc	PUK	2.76	15.43	0.50	21.89	-5.50
Swiss Life Holdings AG	SLHN	5.28	6.91	0.49	17.97	4.80
Aviva PLC	AV	3.03	8.76	0.36	28.48	-8.20
NN GROUP	NN	11.58	9.06	1.04	27.68	42.60
Peer Averages		6.24	8.96	0.62	24.43	11.21

iRobot Corporation (IRBT)

April 20, 2018

Riddhi Vakil Domestic Consumer Discretionary

iRobot Corp. (NASDAQ: IRBT) has been a global pioneer in the robotics industry for over 25 years. They design and manufacture products which include the various lines of Roomba series vacuums, Braava family mops, and Mirra residential pool cleaners - ranging in price from $299 to $999. They operate through one business segment, Consumer Robots, both domestically (51.2% of total revenue in 2017) and internationally (48.8%). Products are sold through distributors, retail stores, and their online store. iRobot Corp. was founded by Rodney Allen Brooks, Colin M. Angle, and Helen Greiner in August 1990 and went public in November 2005. The company is headquartered in Bedford, Massachusetts.

Price:	$66.97	Beta:	1.31	FY: Dec.	2016A	2017A	2018E	2019E
Price Target:	$84.11	WACC:	9.80%	Revenue (Mil):	$660.60	$883.59	$1,064.73	$1,240.41
52WK H-L ($):	$109.78-$55.77	M-Term Rev. Gr Rate Est:	16.00%	% Growth:	7.11%	33.76%	20.50%	16.50%
Market Cap (Mill):	$1,894.00	M-Term EPS Gr Rate Est:	13.35%	Operating Income:	$59.41	$72.43	$91.03	$118.46
Insider Holding:	4.12%	Debt/Equity:	0.00%	Operating Margin:	8.99%	8.20%	8.55%	9.55%
Avg. Daily Vol:	1,069,037	Debt/EBITDA:	0.00	EPS:	$1.48	$1.77	$2.40	$3.15
Dividend ($):	$0.00	ROA:	8.50%	FCF/Share:	$3.12	$1.08	$2.42	$3.41
Yield (%):	0.00%	ROE:	11.86%	P/E:	39.49	43.33	27.94	21.28
ESG Rating:	AA	ROIC:	11.86%	EV/EBITDA:	18.32	20.19	12.80	10.96

Recommendation

In 2002, iRobot entered the home robot cleaning category with the introduction of their first Roomba vacuuming robot and has since become an industry leader. Over the past 16 years, the firm has been able to sell 20 million consumer robots worldwide. In April 2016, IRBT completed the divestiture of their defense and security business unit which developed and delivered unmanned tactical ground robots. IRBT was known for building robots that have been used for space exploration, searches at the World Trade Center after the 9/11 attacks, and for monitoring the 2010 Gulf of Mexico oil spill. They have now shifted their focus to producing and marketing consumer robots for use inside the home. Their products, Roomba 690 and Roomba 890, have placed 2nd and 3rd, respectively, in the top ten products for floor care performance. Their Braava mop is the company's newest product and serves as a developing second revenue stream. IRBT achieved a 5-year sales CAGR of 15.2% and is expected to continue to grow at a CAGR of about 15%. In 2017, the Roomba brand products experienced a 44% YoY growth in revenue, while their Braava product saw a growth of 65%. Despite a 43% increase in competition in the robotic vacuum cleaner (RVC) market in 2017, the Roomba represented 62% of the market share, making them the industry leader. IRBT thrives on the design of an ecosystem of consumer robots working together to create the Smart Home. They have integrated their robots to work with Amazon Alexa and the Google Assistant, while also creating the iRobot app that functions with their vacuums and mop. From the divestiture of their defense business unit, management has said they will be expanding into other product lines that will expand their initiative of the Smart Home. With their leadership in technology, the RVC market's expectancy to grow, and direct control over international markets, it is recommended that iRobot Corp. be added to the AIM Equity Fund with a price target of $84.11, representing an upside of 25.59%.

Investment Thesis

- **Robotic Leadership in Technology.** Currently, IRBT is 5th in top electronic patent powerhouses with over 130 patents issued in navigation, robot sensors, and robot behaviors. They strive to be "Smart, Simple, and Clean" through their advanced cameras and lasers, debris extractors, and dirt detection systems. IRBT's robots have cloud connectivity, meaning they can start and end their cleaning job from the app on a smartphone. In the future, they plan to release a new software with advanced mapping functioning within the app. They also plan to build an ecosystem of robots through their vacuums, mops, and pool cleaners. With the expansion into new products, IRBT wants consumers to build a Smart Home where several robots work together to clean the house without any human help. IRBT also includes AeroForce Cleaning System technology in their Roomba models which is similar to the technology they used in their defense and security business unit, making them the first in the industry to include the integration.

- **Continued RVC Market Growth.** It is estimated that 20% of the world's vacuum cleaners are now robotic. IRBT vacuums are presently found in about 10% of total homes in the U.S., which accounts for 13 million households. In 2012, the RVC category represented 13% of total vacuums sold and grew to 23% in 2017. This category has also experienced growth of 56% YoY, larger than the stick vacuum category at 15%. IRBT holds more than a 60% share of the industry globally and more than 80% domestically and has done so for the past three years. Quarter 4 sales have been the strongest for IRBT mainly due to the holiday season. In Q4 of 2017, IRBT revenue increased 54% YoY and EBIT increased 21% YoY, setting a new company record. They are set to release new products at the end of 2018, along with upgrades to their Roomba vacuums. Coupled with new marketing strategies and retailer investment, IRBT is expected to grow market share by 1.5%.
- **Global Expansion.** In fiscal year 2017, IRBT completed the acquisitions of Robopolis SAS, a robotic platform company, and Sales On Demand Corp., a manufacturer of Roomba vacuums. This has given IRBT greater control over the global market. Sales On Demand Corp. aids IRBT in expanding greater into the market in Japan, and Robopolis SAS helps to expand into Western Europe. One of IRBT's goals was to increase control over their international revenue, and with these acquisitions, they have direct control of over 75% of global revenue which allows them the ability to better execute overseas for the future.

Valuation

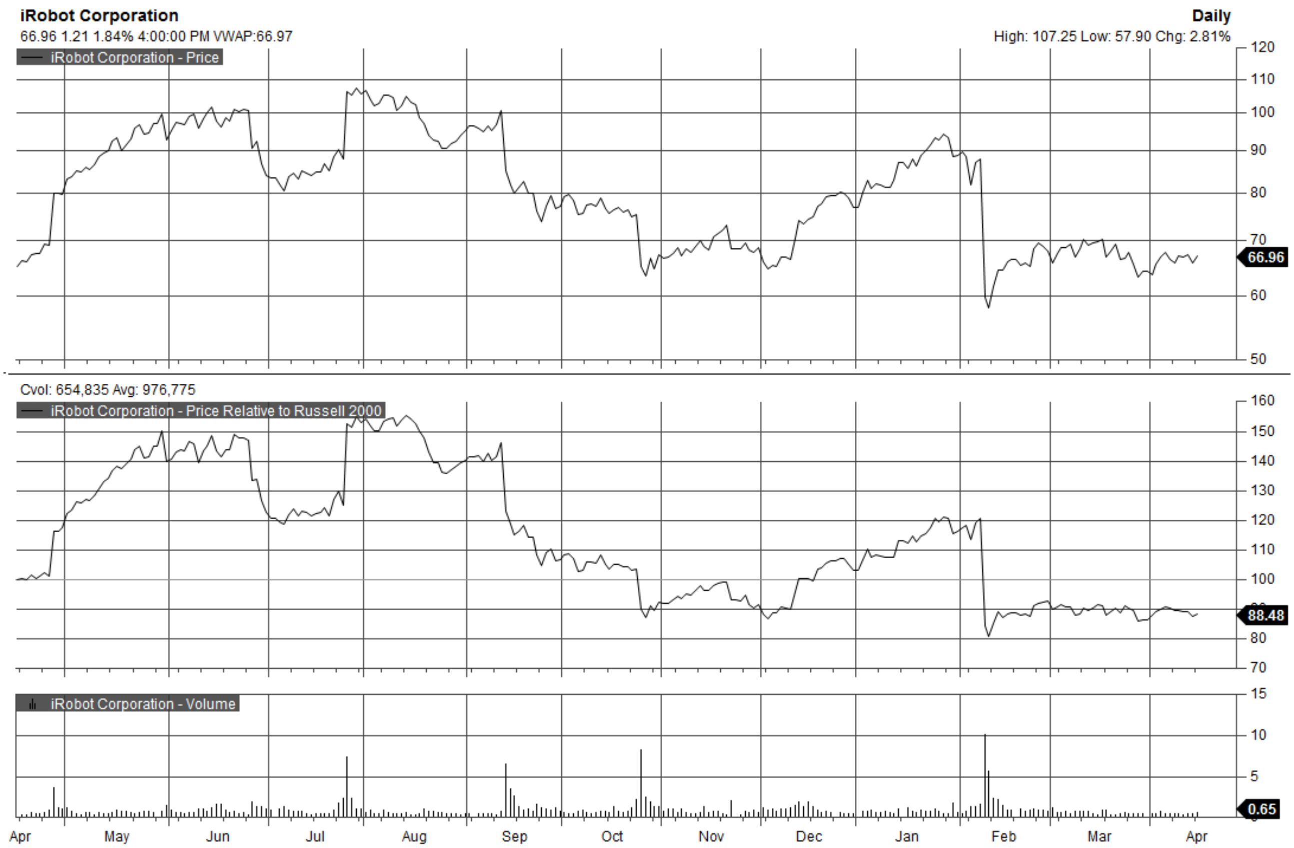
In order to reach an intrinsic value for IRBT, a five-year DCF model was constructed. Using a terminal growth rate of 2.00% and a WACC of 9.80%, an intrinsic value of $81.68 was reached. A sensitivity analysis on the terminal growth rate and WACC ranged from $70.52-94.64. Additionally, a P/E multiple valuation was calculated. Using a 2018 estimated EPS of $2.40 and utilizing a blended average P/E multiple of 33.35x, resulted in an intrinsic value of $79.95. Finally, an EV/EBITDA multiple valuation was conducted using a blended average EV/EBITDA multiple of 19.28x, resulting in an intrinsic value of $93.13. By weighing the three models 50/25/25, a price target of $84.11 was reached, resulting in a 25.59% upside. IRBT does not pay a dividend.

Risks

- **Single Source Manufacturers.** IRBT currently depends on several single source contract manufacturers for some of their products. For example, their Mirra Pool Cleaning Robot comes in the market from a relationship with Aquatron, Inc., a developer and manufacturer of the robots. Other companies supply them raw materials. If any manufacturer were to terminate their relationship with IRBT, the company would be adversely affected.
- **Cybersecurity.** IRBT is technology based and most of their information is stored on their servers and computer systems. Despite efforts to create security barriers, this company faces threats of potential data and security breaches.
- **Competitive Technology.** The number of competitors for RVC increases every year, and from 2015 to 2017, it increased from 20% to 43%. If the technology in their robots does not meet the standards of the consumers or those of the competitors, they could fall behind in the industry. IRBT tries to prevent this by holding numerous patents.

Management

Colin M. Angle serves as Chairman and CEO of IRBT, and Special Advisor at Data Point Capital with a BS and MS from Massachusetts Institute of Technology. Allison Dean has served as CFO, Principal Accounting Officer, Executive VP, and Treasurer since 2013 and holds an MBA from Brown University.



Source: Factset

Peer Comparables

Name	Ticker	Market Cap (Mil)	P/S	P/E	EV/EBITDA	P/B
iRobot Corp.	IRBT	$1,894.00	2.20	27.94	12.80	4.00
Roper Technologies	ROP	$28,083.00	6.19	27.58	19.22	4.10
Fortive Corp.	FTV	$25,998.00	3.97	24.44	16.60	6.86
ABB Ltd.	AABN	$49,726.00	1.40	25.61	11.09	3.25
AeroVironment	AVAV	$1,344.00	4.27	52.91	23.13	3.41
Cognex Corporation	CGNX	$8,719.00	11.76	36.23	26.35	8.03
Peer Averages		$22,774.00	5.52	33.35	19.28	5.13

Source: FactSet

Peer Comparables

Name	Ticker	Revenues	ROE	ROA	Debt/Equity	Est. 5 Yr. NI Growth
iRobot Corp.	IRBT	$883.60	11.86	8.50	0.00	194.60
Roper Technologies	ROP	$4,607.00	15.36	6.79	75.10	101.00
Fortive Corp.	FTV	$6,656.00	32.25	11.18	107.00	-
ABB Ltd.	AABN	$34,167.00	15.57	5.28	50.30	-13.80
AeroVironment	AVAV	$297.80	3.36	2.96	0.00	11.10
Cognex Corporation	CGNX	$747.90	17.22	15.23	0.00	160.2
Peer Averages		$9,295.14	16.75	8.29	60.70	64.63

Source: FactSet