



Gary Mishuris

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Silver Ring Value Partners





SILVER RING
VALUE PARTNERS

ALLERGAN (AGN) INVESTMENT OVERVIEW WIDE-MOAT INVESTING SUMMIT 2018

Gary Mishuris, CFA | Managing Partner, Chief Investment Officer

BIOGRAPHY



GARY MISHURIS, CFA

Managing Partner,
Chief Investment Officer

Professional Experience:

- Fidelity Management & Research (2001-2004): Equity Research Associate
- Evergreen Investments/Wells Capital Management (2004-2010): Vice President, Senior Equity Analyst/Portfolio Manager
- Manulife Asset Management (2011-2016): Managing Director, Portfolio Manager
- Silver Ring Value Partners (2016-present): Managing Partner, Chief Investment Officer

Prior to founding Silver Ring Value Partners in 2016, Gary successfully managed the US Focused Value strategy using a concentrated intrinsic value process at Manulife Asset Management from 2012-2016 as Lead Portfolio Manager.

Education:

Massachusetts Institute of Technology
Bachelors of Science in Economics, Computer Science (2001)



OBJECTIVE AND STRATEGY

The Fund seeks to compound capital over the long-term through a concentrated portfolio of well-researched securities.

Why Silver Ring Value Partners:

Competence:

Time-tested intrinsic value investment philosophy and process that have generated good results in the past.

Alignment:

Structured so that the investment manager can only build meaningful net worth if the clients do well over a number of years.

Passion:

Motivated by the intellectual challenge of investing and the desire to make a positive impact on others.



COMPETITIVE ADVANTAGE



Long-term Time Horizon – ability to take advantage of market inefficiencies



Limited Asset Base to preserve the ability to invest in the most inefficiently priced securities



Micro-Economic Focus – concentrate on opportunities where the key drivers of investment success are company- and industry-specific factors



Temperament to consistently implement a rigorous value investing process developed over fifteen years of professional experience



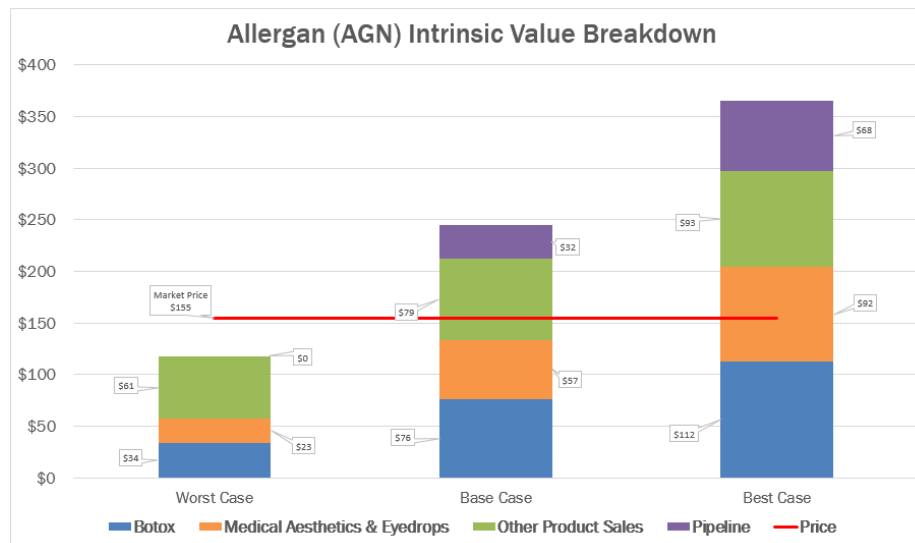
INVESTMENT PHILOSOPHY

- **Intrinsic Value:** A stock is a partial ownership interest in a business with its worth determined by the underlying business's long-term economics.
- **Margin of Safety:** An investment's margin of safety is determined by the combination of the *quality* of the underlying company and the discount from a conservative appraisal of intrinsic value offered by the *price*.
- **Long-term Time Horizon:** The focus is on achieving the best possible *compounding of capital* over a period of many years rather than managing short-term volatility of returns.
- **Rational and Disciplined Execution:** The market occasionally misprices securities for behavioral reasons. These arise due to market participants reacting to developments emotionally rather than rationally and to some market participants' misaligned incentives. By remaining rational and disciplined in the implementation of my process, I can both take advantage of the market's mistakes and guard against making mistakes of my own.
- **Concentrated Portfolio:** Investment opportunities that combine a company of high quality with a price that is at a material discount to intrinsic value are infrequent. After constructing a portfolio where being wrong on any single judgment should not result in a material loss of principal for the portfolio as a whole, additional diversification is more likely to increase rather than reduce risk by forcing the inclusion of increasingly inferior investments.



INVESTMENT PROCESS

Thesis Summary



Allergan (AGN) is a pharmaceutical company with **three components of value**:

1. **Botox & Medical Aesthetics** medications – economics are more similar to luxury goods than to typical drugs
2. **Other medications** – mix of stable niche specialty drugs and regular drugs with a steep patent cliff
3. **Future pipeline sales** derived from substantial R&D investment

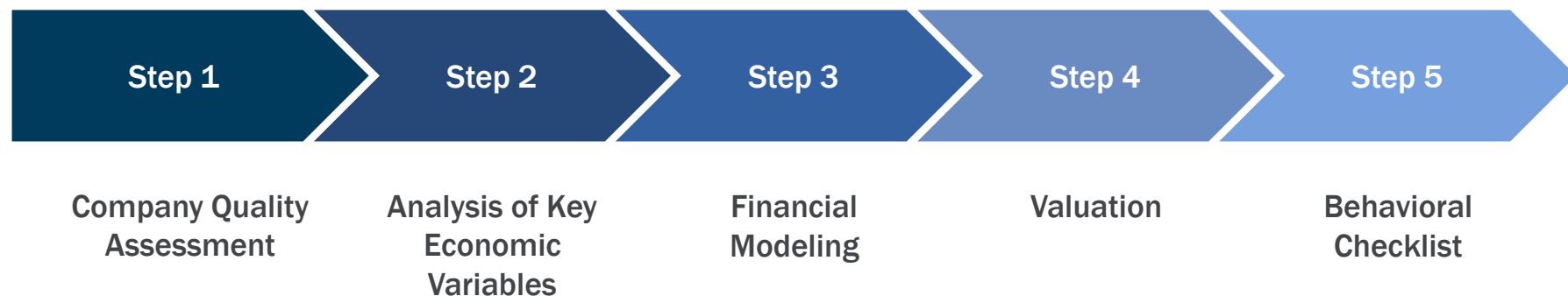
My estimate of the company's intrinsic value puts the stock at less than 65% of my Base Case value (50%+ expected return) with a downside to the Worst Case value of less than 25%. The market is overly concerned with near-term patent losses while underestimating the inelastic demand for and growth characteristics of the Botox and Medical Aesthetics franchises. The pipeline, which has meaningful value on an expected-value basis, is also overly discounted due to few readily identifiable blockbusters close to launch.



INVESTMENT PROCESS

Security Research and Valuation

Five-Step Research Process



The goal is to answer the following two questions:

- How predictable is the long-term economic outcome of the business?
- What is a reasonable range of intrinsic values?



INVESTMENT PROCESS

Security Research and Valuation

Step 1

Company Quality Assessment

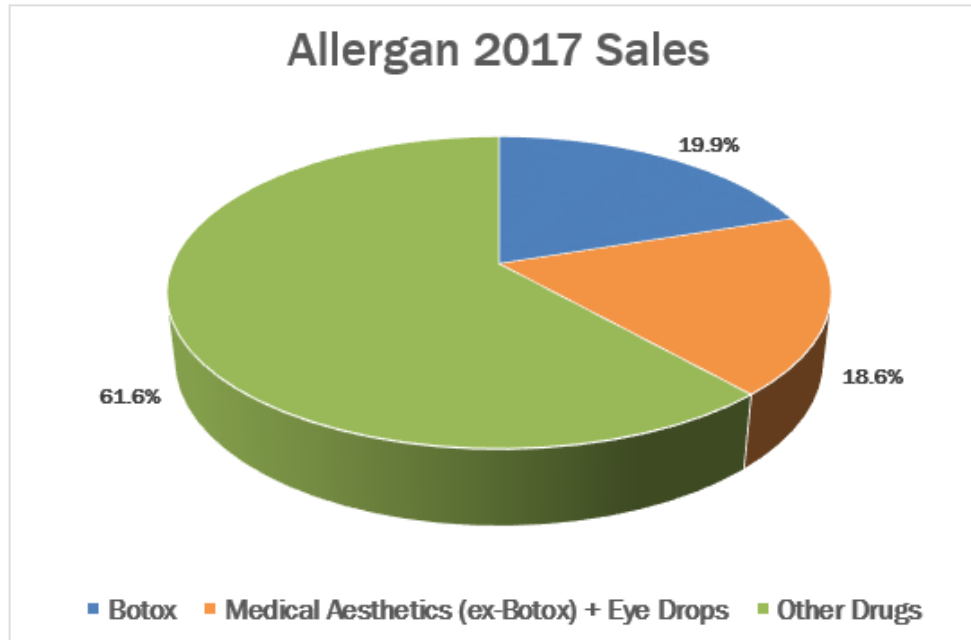


- **Business Quality** – industry’s structural attractiveness and company’s sustainable competitive advantage
 - **Management Quality** – track record of operations and capital allocation as well as alignment of incentives
 - **Balance Sheet Quality** – ability to withstand temporary adversity without reducing security value
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INVESTMENT PROCESS

Business Overview



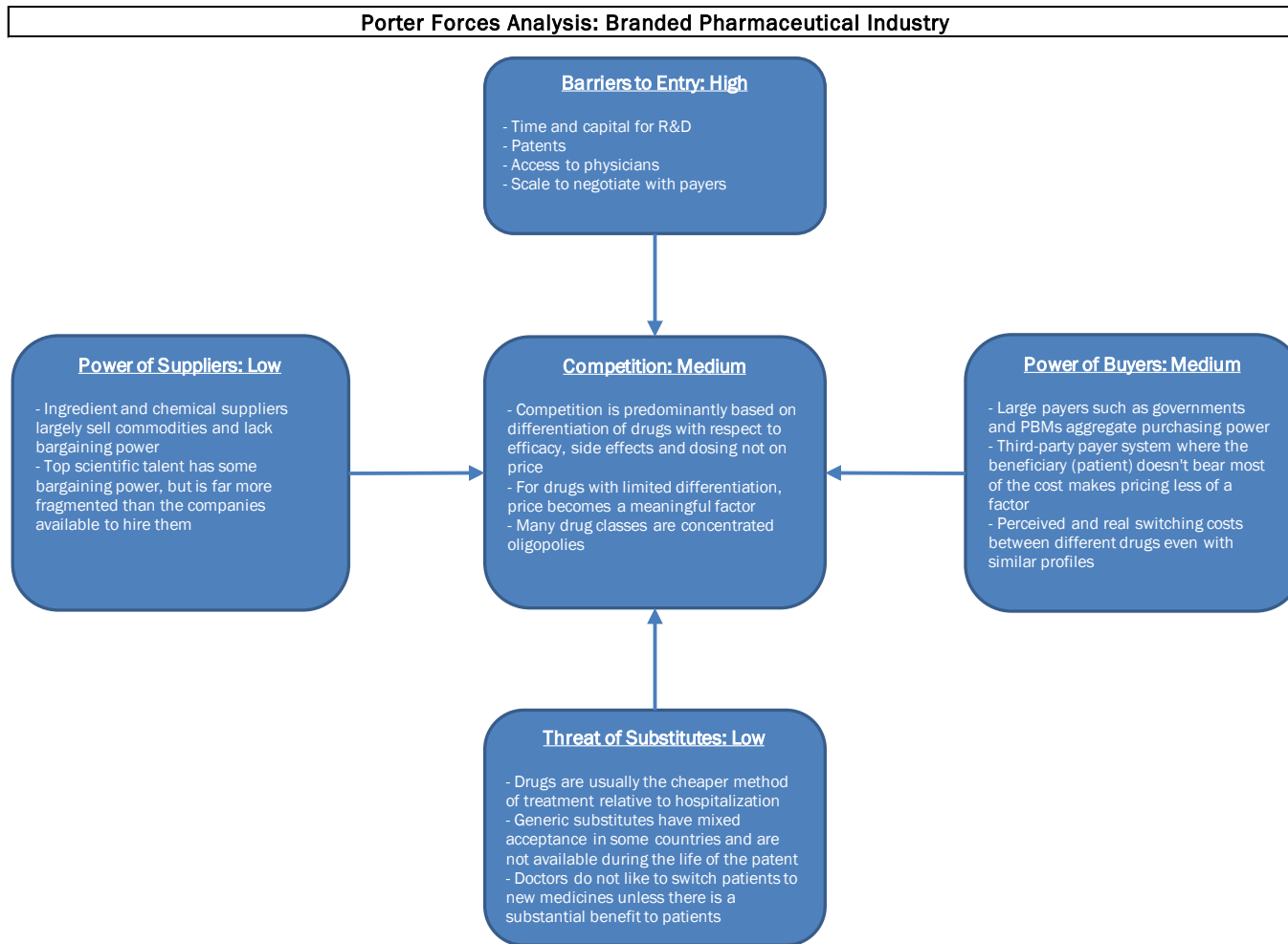
Source: Company reports

- Botox and Medical Aesthetics are growing businesses with long duration of revenues
- Other drugs mostly face patent expiration in the next 1-10 years and have little terminal value
- Therefore the Botox and Medical Aesthetics businesses represent a substantially larger portion of *intrinsic value* than they do of sales



INVESTMENT PROCESS

Business Quality: Structural Industry Attractiveness



Conclusion: Branded Pharmaceutical industry is **structurally attractive**



INVESTMENT PROCESS

Business Quality: Competitive Advantage

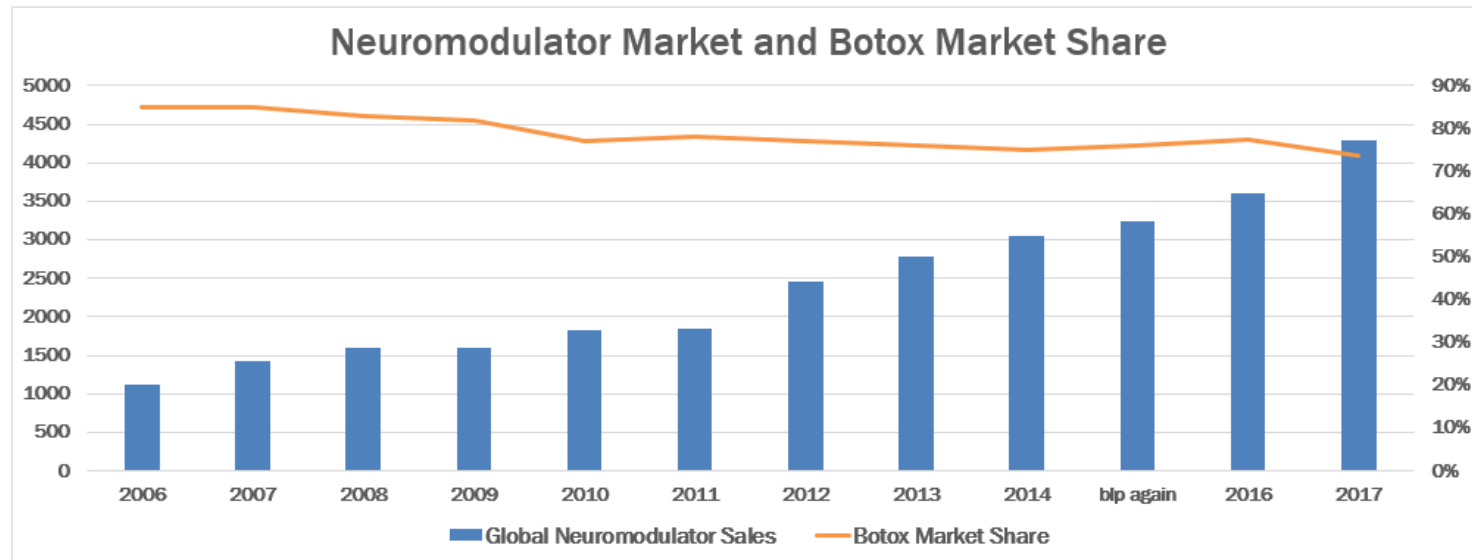
Sources of Sustainable Competitive Advantage

1. Very strong Botox brand which likely creates inelastic demand more similar to luxury goods than to typical drugs
2. Dominant market shares in Neuromodulators (Botox) and Medical Aesthetics leading to scale advantages in Sales & Marketing
3. Patents protecting a number of drugs



INVESTMENT PROCESS

Business Quality: Competitive Advantage – Dominant Market Share

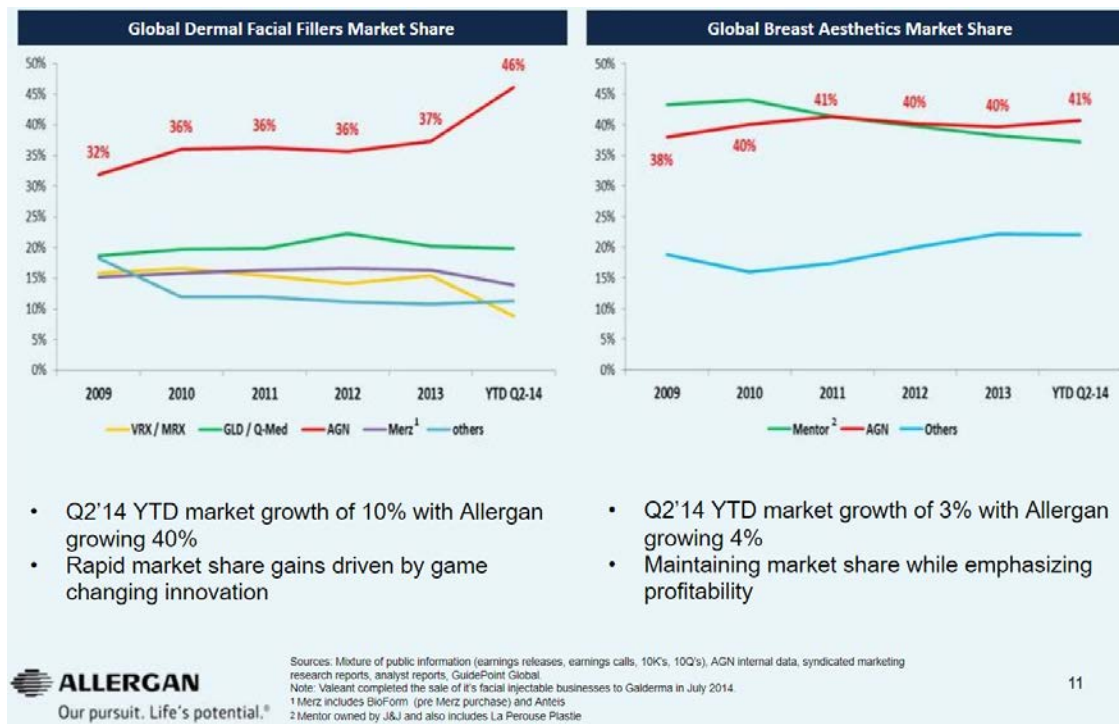


- Market penetration is still low, leading to above-average growth (low-teens historically)
- Botox market share has remained very high despite competition from new toxins over the last 5 years



INVESTMENT PROCESS

Business Quality: Competitive Advantage – Dominant Market Share



Source: Legacy Allergan Presentation, 2014

- Allergan has strong #1 positions in Medical Aesthetics ex-Botox
- Market shares do not move around rapidly – increases predictability of long-term economics



INVESTMENT PROCESS

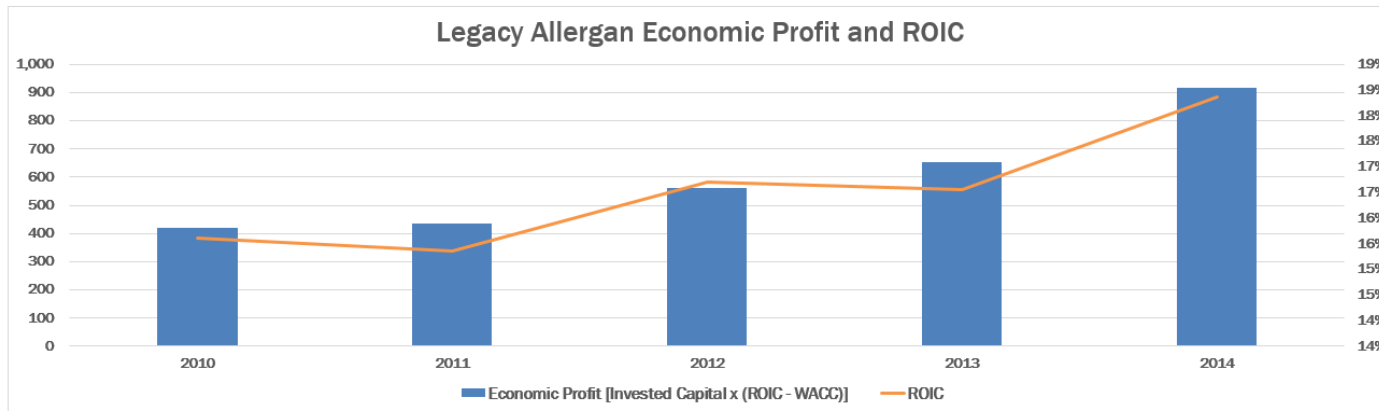
Business Quality: Competitive Advantage – Strong Botox Brand

- Market share losses have been very small despite many years of market presence of cheaper alternatives
- Customers using Botox for cosmetic reasons are:
 1. Wealthy
 2. Care about what their peers think
 3. Identify Botox with the category (similar to how Xerox was synonymous with a photo-copy).
- The ‘tox’ in Botox stands for ‘toxin’. Therefore a long track record of safety is very important, and absence of proof of negative side-effects in alternatives is not the same as proof of absence.
- Amgen’s Enbrel is a useful analog – it was a mature complex biological drug that faced numerous new entrants with somewhat better efficacy. However, because its efficacy was good enough and its safety track-record long and superb, it was able to grow and significantly raise prices despite new drugs that had better efficacy and in theory non-inferior side-effect profile.
- **Conclusion: Business Quality is Excellent**



INVESTMENT PROCESS

Business Quality: Validation



- It is important to compare our qualitative analysis against historical financial metrics
- High quality businesses should have Return on Invested Capital well in excess of their cost of capital
- Hard to get a data for the current Allergan due to acquisitions and divestitures, but we do know that:
 - Legacy Allergan (majority of current business value) had high ROIC
 - Current Return on Tangible Invested Capital is very high (~ 80% in 2017)
 - Current Return on Invested Capital is low (~5% in 2017) due to the prices paid for legacy Allergan and for the recent acquisitions which have early-stage products not yet fully reflected in current returns
- Clear evidence that the *underlying business* is of high quality, not clear whether management's capital allocation decisions have been good on average



INVESTMENT PROCESS

Management Quality

What Determines Management Quality

1. Track-record of a) operating the business b) capital allocation
2. Alignment of incentives with shareholders

Allergan's Management: Track Record

- Too early to tell given that current management team at the helm of the company in its current form for only ~ 3 years
- Key franchises (Botox, aesthetics) showing strong organic growth (but likely due to prior management)
- Divestiture of the generics business to Teva looks like a good capital allocation decision
- Purchase of Allergan so far is not earning its cost of capital; more recent deals are too recent to fully assess

Allergan's Management: Alignment

- Large direct share ownership: CEO \$30M and ex-CEO/current Board Member: \$60M
- Compensation driven by a combination of qualitative goals, revenue/EPS goals and performance shares based on relative stock return and R&D outcomes. Could be improved if there were a meaningful explicit ROIC/Economic Profit component.

Conclusion: Management Quality is Above Average, with above-average alignment and average track record.



INVESTMENT PROCESS

Balance Sheet Quality

What Determines Balance Sheet Quality

1. Ability to withstand temporary adversity without needing to raise capital
2. Appropriate leverage relative to profitability that doesn't necessitate the use of Free Cash Flow to reduce debt

Balance Sheet Quality

- \$27B of debt, with Gross Debt/EBITDA ~ 3.5x
- Interest Coverage (EBITA/Interest) is ~ 7x on 2017 EBITA.
- Maturities well distributed over time

Conclusion: Balance Sheet Quality is Average



INVESTMENT PROCESS

Security Research and Valuation



Step 2

Analysis of Key Economic Variables



- Identify key economic variables most likely to materially impact the long-term business outcome
 - Establish a range of reasonable values for each variable under different scenarios
-

If we could only know 5 or fewer things about the business 10 years from now, what would they be?

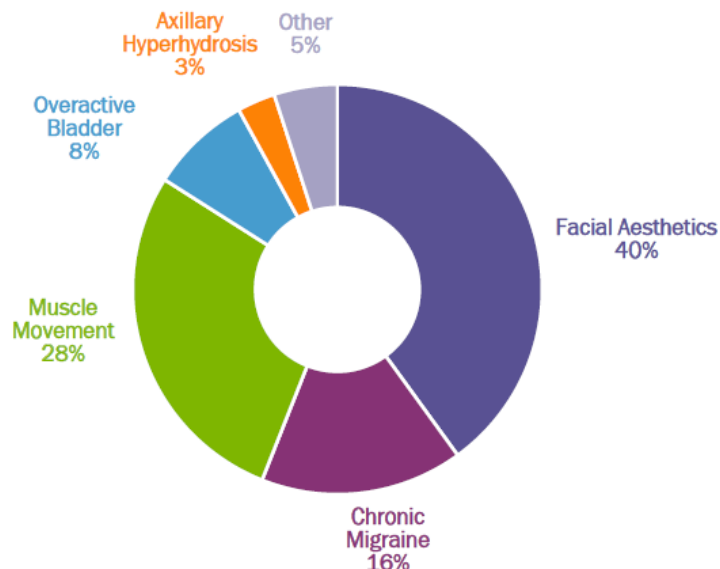
1. Botox sales growth
2. Medical Aesthetics ex-Botox sales growth
3. Sales generated from the R&D Pipeline



INVESTMENT PROCESS

Key Economic Variables – Botox

% of Sales of Neuromodulators by Indication – 2017E WW*



Projected Neuromodulator Sales US\$ 5-Year CAGR, 2017-2022F**

	Therapeutic	Aesthetic	Total
United States	13.5%	10.0%	<u>12.2%</u>
International	9.6%	10.2%	<u>9.9%</u>
<u>Worldwide</u>	<u>12.3%</u>	<u>10.1%</u>	<u>11.3%</u>

* Source: Global Industry Analysts, Inc. Botulinum Toxin – A Global Strategic Business Report, Jan 2018

**Projections from Niche HealthCare Strategic Advisors



Source: Revance presentation, 2018

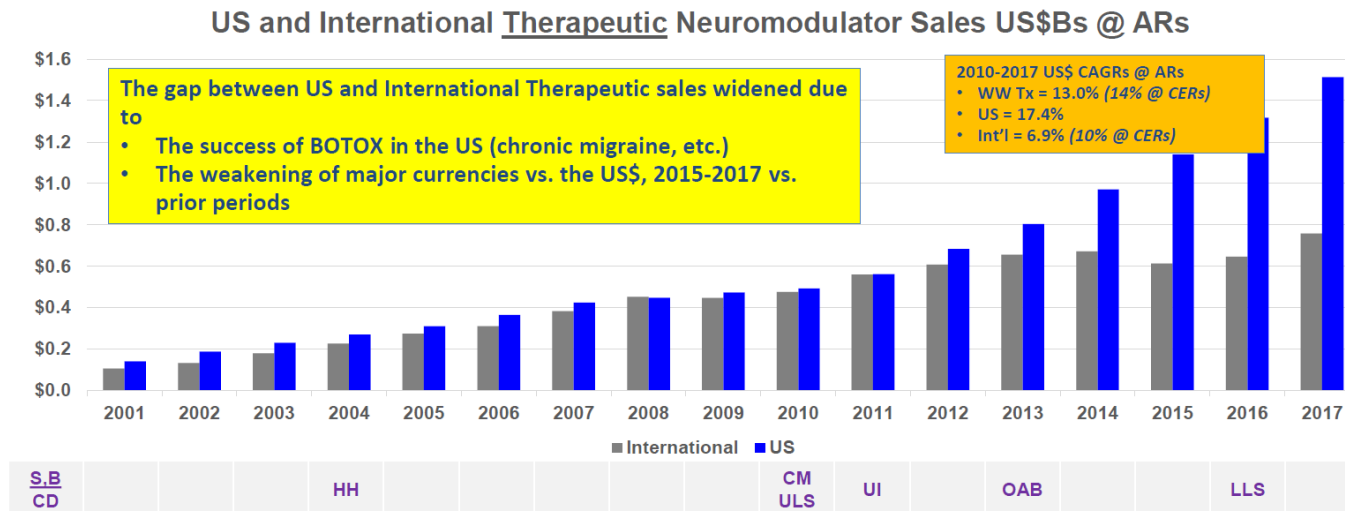
- Historical annual market growth of 18% over 5 years, 12% over 10 years
- Opportunity: high market growth due to low penetration



INVESTMENT PROCESS

Key Economic Variables – Botox

A Total of Nine FDA Therapeutic Approvals for BOTOX Have Helped Drive the Growth of the Therapeutic Neuromodulator Sales



Sources: AGN, analysts' reports, EvaluatePharma, Galderma, Hugel, Ipsen, L'Oréal, Medytox, Merz, Nestle, syndicated reports, estimates

Source: Revance presentation, 2018

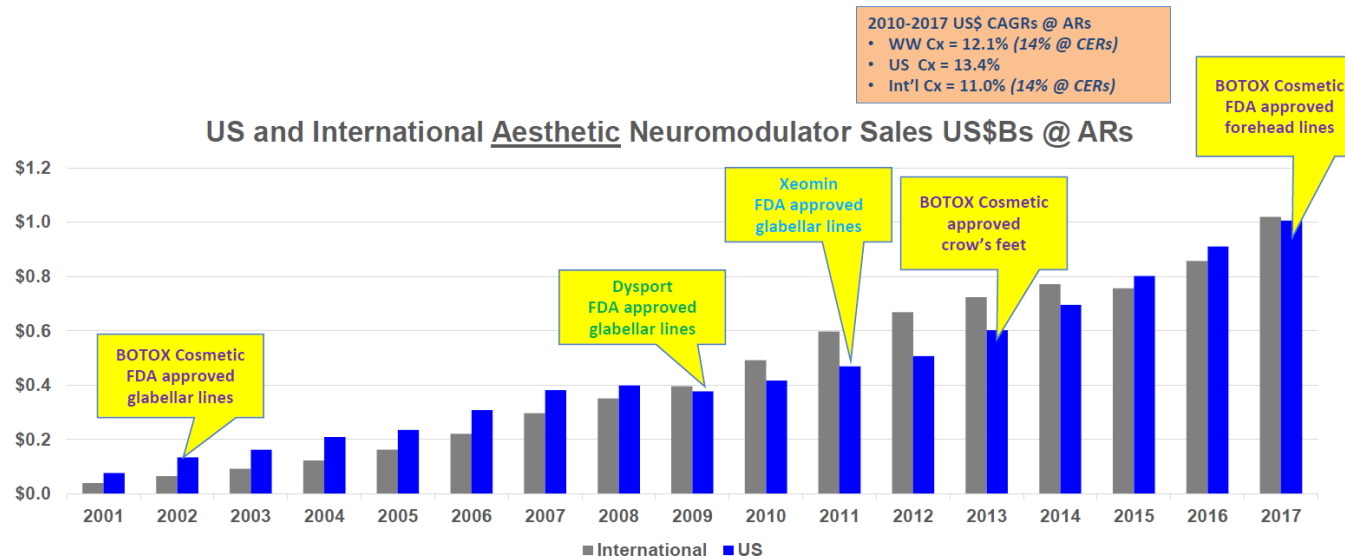
- Indication expansion has helped drive growth in the therapeutic market



INVESTMENT PROCESS

Key Economic Variables – Botox

Aesthetic Neuromodulator Sales and Growth Have Been Particularly Robust the Past Eight Years



Sources: AGN, analysts' reports, EvaluatePharma, Galderma, Hugel, Ipsen, L'Oréal, Medytox, Merz, Nestle, syndicated reports, estimates

Source: Revance presentation, 2018

- Aesthetic neuromodulator growth driven by low penetration, new indications and marketing



INVESTMENT PROCESS

Key Economic Variables – Botox

- Threats:
 1. Biosimilar Botox
 2. Longer-acting Toxin from Revance
 3. New class of drugs, CGRPs, that address Chronic Migraine
- 1. Biosimilar Botox: likely to have low impact due to strong brand, strong safety record and superior provider economics.
- 2. Longer-acting Toxin: likely to take some market share, but gradually. Still has to overcome huge brand equity/name recognition and compete with Botox's safety record. Could also help to expand the market.
- 3. CGRPs: Will definitely take some market share but will also grow the market



INVESTMENT PROCESS

Key Economic Variables – Botox



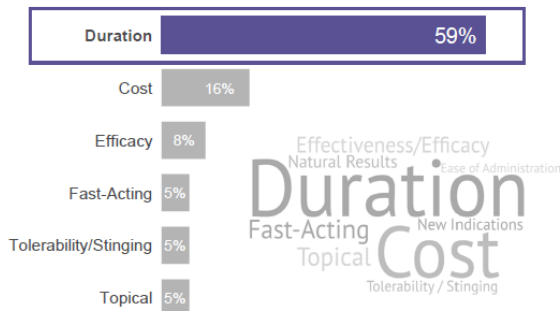
Duration is the #1 Aesthetic Physician Unmet Need Long-lasting is the #1 Patient Request

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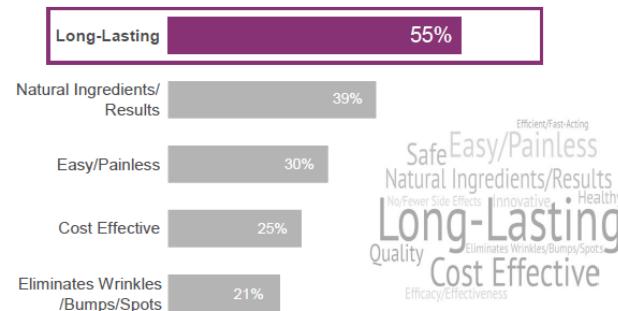
PHYSICIANS

What are the most important unmet needs not addressed by currently available botulinum toxin products? (n=80)



PATIENTS

If you could create the ideal treatment for fine lines and wrinkles, what would be the three most important things for it to have? (n=80)



RT002 Has the Potential to Be the First Neuromodulator to Deliver on the Most Important Physician Unmet Need and Patient Request

Physician-Patient Dialogue Market Research Oct. 2017
RT002 is an investigational product



Source: Revance presentation, 2018

- Competition in Aesthetics in 2020/2021, in therapeutic settings beyond that
- Competitor, Revance, projecting \$3B+ in sales in 2026, implying ~ 25% share



INVESTMENT PROCESS

Key Economic Variables – Botox

[A/B] BERNSTEIN

100 High-Volume US Aesthetic Physician

- New entrants will capture 33%-34% of the US market, with majority captured by Revance (18%).

COWEN AND COMPANY

25 Leading KOL Physicians

- If a toxin lasted 24 weeks, 60% thought it could capture 50% or more of the market.
- 72% of patients would have high enthusiasm for a longer-acting toxin.

BARCLAYS

61 Plastic Surgeons and Dermatologists

- ~74% indicated they would be "somewhat likely" to recommend RT002.
- 53% felt the product would also offer better alignment to filler injection schedule.

William Blair

60 Dermatologists

- 50% ranked their level of interest as a 10 (1 - 10 scale) in a long-acting neurotoxin.
- 90% indicated that a long-acting neurotoxin is meaningfully differentiated.

WELLS FARGO SECURITIES

25 Plastic Surgeons and Dermatologists

- 56% percent would prefer longer duration.
- RT002 is expected to capture 14% of the market in 1st year, grow to 30% in the 5th.

Goldman Sachs

35 High-Volume Dermatologists and Plastic Surgeons

- Nearly 90% thought 6-month duration would be "meaningful or very meaningful" for their practice and patients, supporting nearly 40% penetration in glabellar lines 4-years from launch.

Source: Revance presentation, 2018

- Duration of treatment matters to doctors and patients
- Initial surveys point to it taking a material minority of the market
- Real-world experience likely to be somewhat tempered by prescriber economics, Botox brand recognition and risk-aversion for a complex drug



INVESTMENT PROCESS

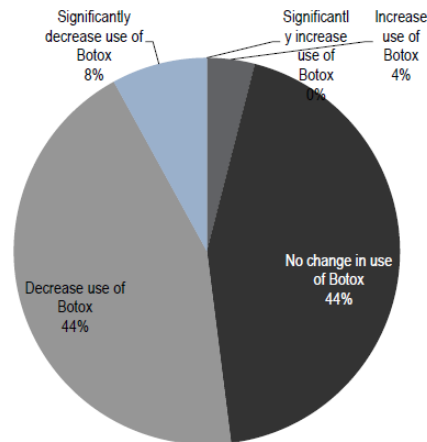
Key Economic Variables – Botox

Expectations for Future Use of Botox Post-CGRP Approvals

Physicians don't expect a significant change in use of Botox post-CGRP approvals

How do you expect the CGRP class to affect your future use of Botox, if at all?

- Physicians split between those who expect to reduce Botox use (52%) and those who do not expect their use to change at all (44%) with very few expecting to significantly decrease (8%) or increase (4%) use
- **JPM View:** We are anticipating a slowdown in Botox therapeutic growth as the CGRPs enter the market but see this impact as fairly manageable in the context of a broader Botox franchise with strong aesthetic trends as well as continued growth in a range of other therapeutic indications



Source: JP Morgan Research

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J.P.Morgan

Source: JP Morgan Research Report, 5/2018

- CGRPs will have some impact



INVESTMENT PROCESS

Key Economic Variables – Botox

Botox Future Growth (10-Year CAGR)								
Market Growth (10-Year CAGR)		Share Change (10-Year Cumulative)						
		-40%	-35%	-30%	-25%	-20%	-15%	-10%
	4%	-3.8%	-2.5%	-1.3%	-0.2%	0.8%	1.7%	2.5%
	5%	-2.9%	-1.6%	-0.3%	0.7%	1.7%	2.6%	3.5%
	6%	-2.0%	-0.6%	0.6%	1.7%	2.7%	3.6%	4.5%
	7%	-1.1%	0.3%	1.6%	2.7%	3.7%	4.6%	5.5%
	8%	-0.1%	1.3%	2.5%	3.6%	4.6%	5.6%	6.4%
	9%	0.8%	2.2%	3.4%	4.6%	5.6%	6.5%	7.4%
	10%	1.7%	3.1%	4.4%	5.5%	6.6%	7.5%	8.4%
	11%	2.6%	4.1%	5.3%	6.5%	7.5%	8.5%	9.4%
	12%	3.6%	5.0%	6.3%	7.5%	8.5%	9.5%	10.4%
	13%	4.5%	5.9%	7.2%	8.4%	9.5%	10.5%	11.4%
	14%	5.4%	6.9%	8.2%	9.4%	10.4%	11.4%	12.3%

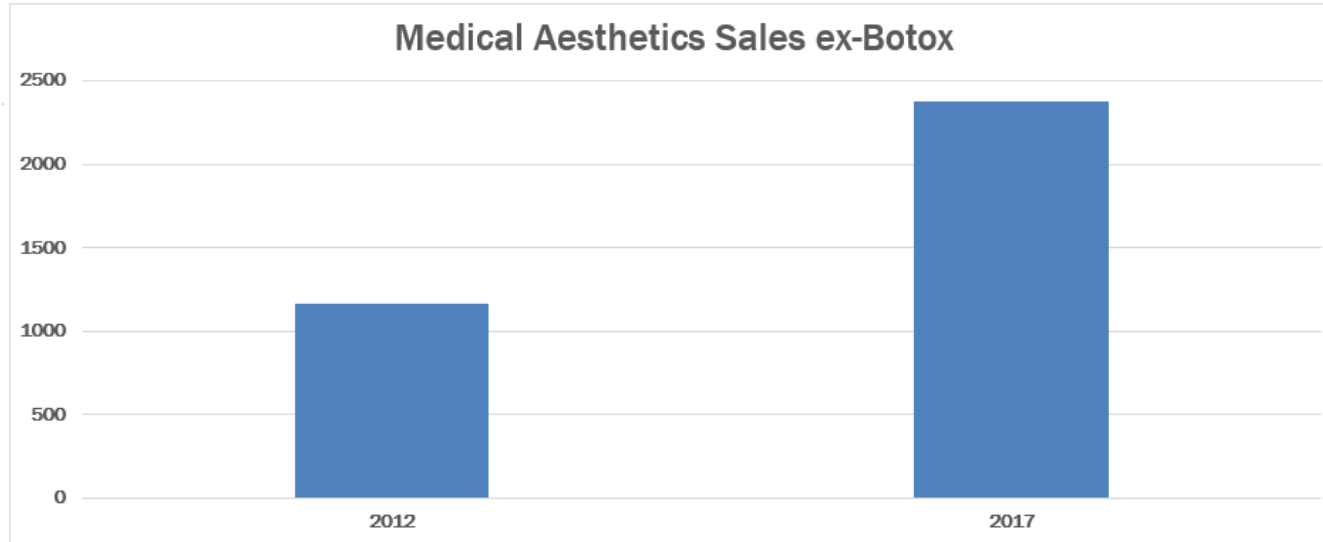
Source: Silver Ring Value Partners estimates

- Botox likely to enjoy high single-digit growth over the next decade despite the threats
- 10-year growth forecast: 3% to 12% with a Base Case of 8%



INVESTMENT PROCESS

Key Economic Variables – Medical Aesthetics ex-Botox



Source: Legacy Allergan filings, Allergan filings, Silver Ring Value Partners estimates

Note: Includes Eye Drops since they share similar economic characteristics

- Organic growth 5-year CAGR of 7.5%
- Key Juvederm filler product family (45% of Medical Aesthetics) continues to grow double-digits due to low penetration despite ~ \$1B in sales
- Recently acquired products in the portfolio at an early stage of maturity
- **10-year growth forecast:** 2% to 12% with a Base Case of 8%



INVESTMENT PROCESS

Key Economic Variables – Sales from R&D Pipeline

- Approach is based on estimating a relationship between R&D investment and incremental sales
- Not as precise as modeling each pipeline drug, but avoids false precision and arbitrary probabilities and gets it “approximately right” rather than “precisely wrong”
- Less susceptible to swings based on small data-points than that of most market participants
- **Step 1:** Calculate 10 Years of R&D spend
- **Step 2:** Adjust for any known failures, successes already on the market and maintenance R&D for products already on the market
- **Step 3:** Estimate the company’s historical R&D productivity, defined as the incremental sales due to R&D 5 years after the end of the 10-year period of R&D spend divided by the adjusted R&D spend
- **Step 4:** Estimate the company’s future R&D productivity by giving partial weight to the company’s historical productivity and partial weight to the industry’s (usually 50/50)
- **Step 5:** Apply the estimated R&D productivity from Step 4, to the adjusted R&D spend from Step 2 to get estimated future pipeline sales.
- Worst Case assumes 0% R&D productivity, Best Case assumes 50% higher than Base Case



INVESTMENT PROCESS

Key Economic Variables – Sales from R&D Pipeline

Pipeline Sales Estimation Process Illustration: Allergan's Base Case

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E	2021E
Allergan (and relevant predecessors) R&D	718	798	783	1,613	2,065	1,796	1,042	2,156	2,359	2,576	2,100				
Cumulative R&D, 2008-2017															17,287 <- Step 1
Assume 15% is maintenance (for drugs on the market)															
Adjusted Cumulative R&D															14,694 <- Step 2
Company Historical R&D Productivity															(Legacy Allergan R&D productivity was above average but no longer relevant given new management) <- Step 3
Weight															
Industry Historical R&D Productivity															24%
Weight															100%
Estimated Future R&D Productivity															24% <- Step 4
Pipeline Peak Sales (in 2022E)															3,527 <- Step 5



INVESTMENT PROCESS

Security Research and Valuation



Step 3

Financial Modeling



Use the analysis from Steps 1 and 2 to model the company's income statement, balance sheet and cash flow statement, and create 3 scenarios:

- *Worst case*, where each key economic variable has its *worst* likely outcome
 - *Base case*, where each key economic variable has its *most* likely outcome
 - *Best case*, where each key economic variable has its *best* likely outcome
-



INVESTMENT PROCESS

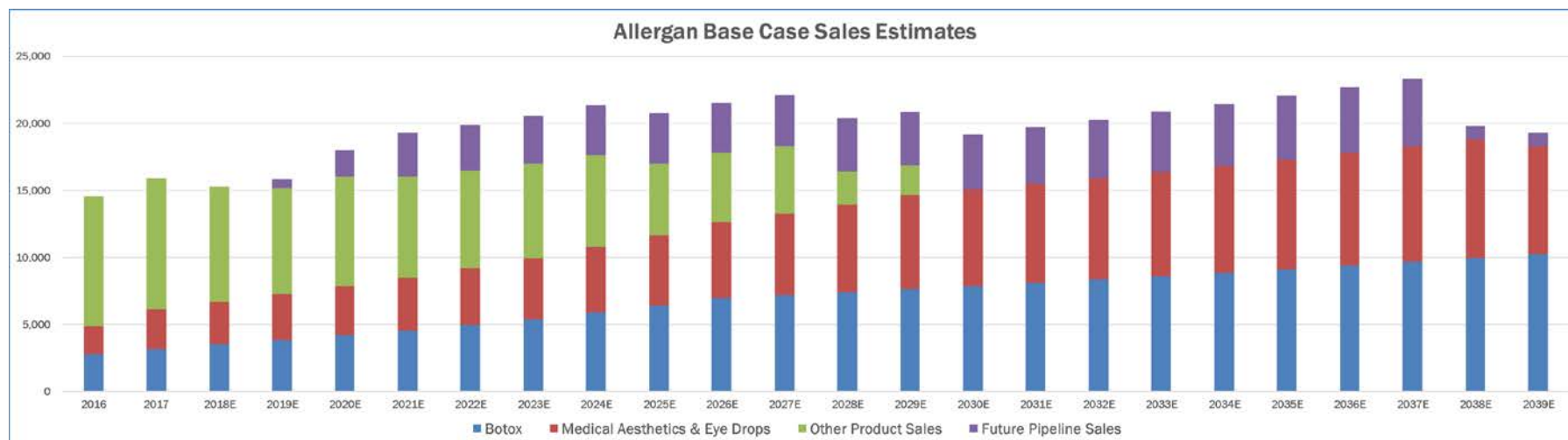
Financial Modeling

ALLERGAN PLC (AGN US) Model & Value Estimate						Notes	
	Worst	Base	Best	LFY	LT Avg		
Sales Assumptions							
Botox Growth	2%	8%	12%				
Medical Aesthetics ex-Botox Growth	2%	8%	12%				
Other High-Growth Drugs Growth	2%	8%	12%				
R&D Productivity	0%	24%	39%			Base Case Implied R&D after-tax ROIC =	14.0%
COGS % Sales	17.0%	14.0%	11.0%	12.7%			
R&D % Sales	2.5%	10.0%	12.0%	13.2%			
Sales & Marketing % Sales	19.0%	21.0%	23.0%	21.2%			
G&A Growth Rate	0.0%	2.0%	4.0%				
EBITA (%)	51.7%	49.7%	50.0%	44.3%			
Interest Expense	933	933	933	1,061			
Tax Rate	21.0%	14.0%	14.0%	12.6%			
Shares	334.6	334.6	334.6	333.8			
Organic Sales Growth	-2%	3%	6%				
EBITA Growth	-1%	5%	8%				
FCF % Net Income	100%	100%	100%				
Debt	30,075	30,075	30,075	30,075		LFQ =	26,563
Debt/EBITDA	2.00x	2.50x	3.00x	4.2x			3.7x
Equity	72,346	72,346	72,346	73,837			
Intangibles	102,626	102,626	102,626	104,511			
Tangible Equity	(30,280)	(30,280)	(30,280)	(30,674)			



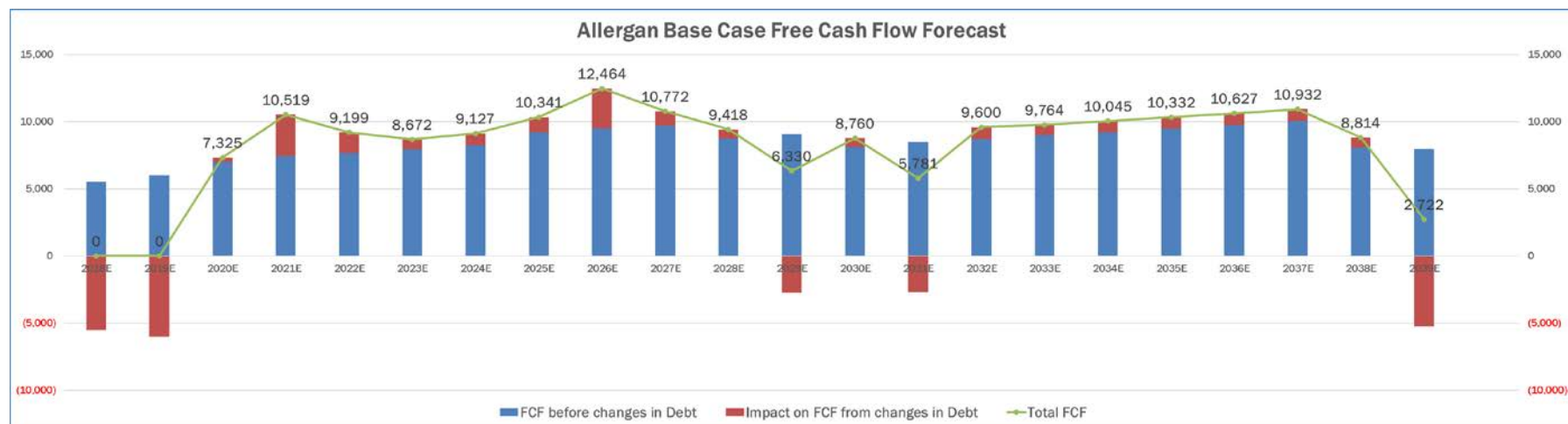
INVESTMENT PROCESS

Financial Modeling



INVESTMENT PROCESS

Financial Modeling



INVESTMENT PROCESS

Financial Modeling

ALLERGAN PLC (AGN US) Base Case Model																												
	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	CAGR			
Sales	14,603	15,941	15,144	15,732	17,894	19,210	19,936	20,631	21,448	20,839	21,628	22,181	22,186	20,495	20,964	19,290	19,838	20,401	20,982	21,579	22,195	22,830	23,483	19,859	19,340	3.0%		
Botox	2,786	3,169	3,541	3,852	4,191	4,561	4,966	5,408	5,891	6,419	6,996	7,242	7,645	7,874	8,111	8,354	8,604	8,863	9,128	9,402	9,689	9,975	10,274	7.8%	7.8%			
Cosmetic	1,209	1,369	1,515	1,631	1,756	1,892	2,019	2,198	2,371	2,557	2,760	2,843	2,928	3,016	3,106	3,200	3,296	3,394	3,496	3,601	3,709	3,820	3,935	4,053	6.9%	6.9%		
International	729	812	885	938	995	1,054	1,118	1,185	1,256	1,331	1,411	1,453	1,497	1,542	1,588	1,636	1,685	1,735	1,787	1,841	1,896	1,953	2,012	2,072	5.4%	5.4%		
Therapeutic	480	557	629	692	761	838	921	1,013	1,115	1,226	1,349	1,389	1,431	1,474	1,518	1,564	1,611	1,659	1,709	1,760	1,813	1,867	1,923	1,981	8.7%	8.7%		
Therapeutic	1,577	1,800	2,026	2,221	2,435	2,669	2,927	3,210	3,520	3,861	4,236	4,363	4,494	4,629	4,768	4,911	5,058	5,210	5,366	5,527	5,693	5,864	6,040	6,221	8.4%	8.4%		
International	323	358	411	460	516	578	647	725	811	909	1,018	1,048	1,080	1,112	1,146	1,180	1,215	1,252	1,289	1,328	1,368	1,409	1,451	1,495	10.3%	10.3%		
Medical Aesthetics ex-Botox	1,478	2,373	2,563	2,768	2,989	3,228	3,486	3,765	4,067	4,392	4,743	5,123	5,533	5,975	6,154	6,339	6,529	6,725	6,927	7,135	7,349	7,569	7,796	8,030	7.2%	7.2%		
Eye Care	3,581	3,613	2,193	2,251	2,312	2,378	2,447	2,521	2,600	2,106	2,198	2,239	1,165	1,199	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052	0	-4.3%	-4.3%		
Restasis	1,488	1,474																								-100.0%	-100.0%	
International	1,420	1,412																								-100.0%	-100.0%	
Alphagan/Combigan	68	61																								-100.0%	-100.0%	
Lumigan/Ganfort	546	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	552	0.0%	0.0%		
Oxandrolone	688	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	689	0.0%	0.0%		
Eye Drops & Other	263	312	337	364	393	424	458	495	534	53	48	43	39	35											-16.4%	-16.4%		
Linzess	597	586	615	646	678	712	748	785	824	866	909	954	1,002	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052	0	4.5%	4.5%		
Bystolic	643	701	785	879	985	985	985	985	985	98	89	80	72	65											-17.9%	-17.9%		
Namenda	639	612	643	64	58	52	47	42	38	34	31	28	25	22											-24.5%	-24.5%		
Namenda	640	453	158	143	128	116	104	94	84	76	68	61	55	50											-16.6%	-16.6%		
Namenda	58	131	465	488	513	538	565	594	623	654	687	722	72	65											16.8%	16.8%		
Lo Loestrin	404	459	496	536	579	625	675	729	787	850	918	992	397	357											7.2%	7.2%		
Estrace Cream	380	367	396	158	143	128	115	104	94	84	76	68	61	55											-14.2%	-14.2%		
Vibryd/Petrium	342	333	343	353	364	36	33	29	27	24	21	19	17	16											-22.8%	-22.8%		
Asacol/Delcol	415	196	98	88	79	71	64	58	52	47	42	38	34	31											-13.9%	-13.9%		
Aczone	217	178	0	0	0	0	0	0	0	0	0	0	0	0											-100.0%	-100.0%		
Minoxidil 24	327	61	69	7	6	5	5	4	4	3	3	3	2												-24.1%	-24.1%		
Other Products	2,692	3,295	3,394	3,496	3,601	3,241	2,917	2,625	2,362	2,126	1,914	1,722	1,550	1,395											-5.7%	-5.7%		
Pipeline				649	1,047		3,245	3,527	3,673	3,834	3,870	3,841	3,881	4,089	4,087	4,210	4,336	4,466	4,600	4,738	4,880	5,026	5,177	1,035	1,035			
New Drug R&D						11,519	14,094	15,301	15,975	16,125	16,003	16,170	17,038	17,029														
R&D Productivity						24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%			
Organic Sales Growth (%)			-5.0%	3.9%	13.7%	7.4%	3.8%	3.5%	4.0%	-2.8%	3.8%	2.6%	-7.6%	2.3%	-8.0%	2.8%	2.8%	2.8%	2.9%	2.9%	2.9%	2.9%	-15.4%	-2.6%	3.5%			
Botox			11.7%	8.8%	8.8%	8.8%	8.9%	8.9%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	8.6%	8.6%		
Cosmetic			10.6%	2.7%	7.2%	7.7%	7.8%	7.8%	7.9%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.6%	7.6%		
U.S.			9.4%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%		
International			13.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	9.6%	9.6%		
Therapeutic			12.6%	9.6%	9.6%	9.6%	9.6%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.3%	9.3%		
U.S.			12.4%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	8.7%	8.7%		
International			15.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	11.4%	11.4%		
Medical Aesthetics ex-Botox			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%		
Eye Care			-39.3%	2.6%	2.7%	2.8%	2.9%	3.0%	3.1%	-16.9%	1.8%	1.8%	-48.0%	2.9%											-100.0%	-100.0%		
Restasis			5.4%	9.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%		
U.S.			5.0%	9.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%		
Alphagan/Combigan			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Lumigan/Ganfort			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Oxandrolone			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Eye Drops & Other			5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%		
All Other Products			0.9%	-9.3%	-3.9%	-10.2%	-5.0%	-4.5%	-3.9%	-20.9%	-3.7%	-3.0%	-38.7%	-10.0%											-55.6%	-55.6%		
Pipeline				200.0%	66.7%	8.7%	1.4%	4.4%	0.9%	-0.8%	1.0%	5.4%	-0.1%		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%		
COGS			1,705	2,032	2,120	2,203	2,505	2,689	2,791	2,888	3,003	3,028	3,105	2,869	2,935	2,701	2,777	2,856	2,937	3,021	3,107	3,196	3,288	2,780	2,708	3.9%	3.9%	
% Sales			11.7%	12.7%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%		
R&D			1,508	2,100	1,514	1,573	1,789	1,921	1,994	2,063	2,145	521	541	555	512	524	482	490	510	525	530	555	571	587	496	-11.4%	-11.4%	
% Sales			10.3%	13.2%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	2.4%	2.5%	2.8%	2.4%	2.5%	2.6%	2.7%	2.8%	2.8%	2.9%	3.0%	3.1%	3.2%	3.3%	7.8%	7.8%	
Selling & Marketing			3,195	3,377	3,180	3,304	3,758	4,041	4,187	4,333	4,504	4,376	4,542	4,658	4,804	4,402	4,051	4,166	4,284	4,406	4,532	4,661	4,794	4,931	4,170	4,061	3.0%	3.0%
% Sales			21.9%	21.2%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%	
% Change Y-Y			1,225	1,191	1,167	1,190	1,214	1,239	1,263	1,289	1,314	1,341	1,367	1,393	1,421	1,448	1,510	1,540	1,571	1,602	1,634	1,667	1,700	1,734	1,769	1.8%	1.8%	
COGS			2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%				

INVESTMENT PROCESS

Security Research and Valuation



- Estimate the range of intrinsic values for the business using Discounted Cash Flow (DCF) analysis
 - Perform sanity checks on each part of the range by checking other valuation metrics, such as normalized P/E, EV/EBITA, and Price to Book (P/B) ratios
-



INVESTMENT PROCESS

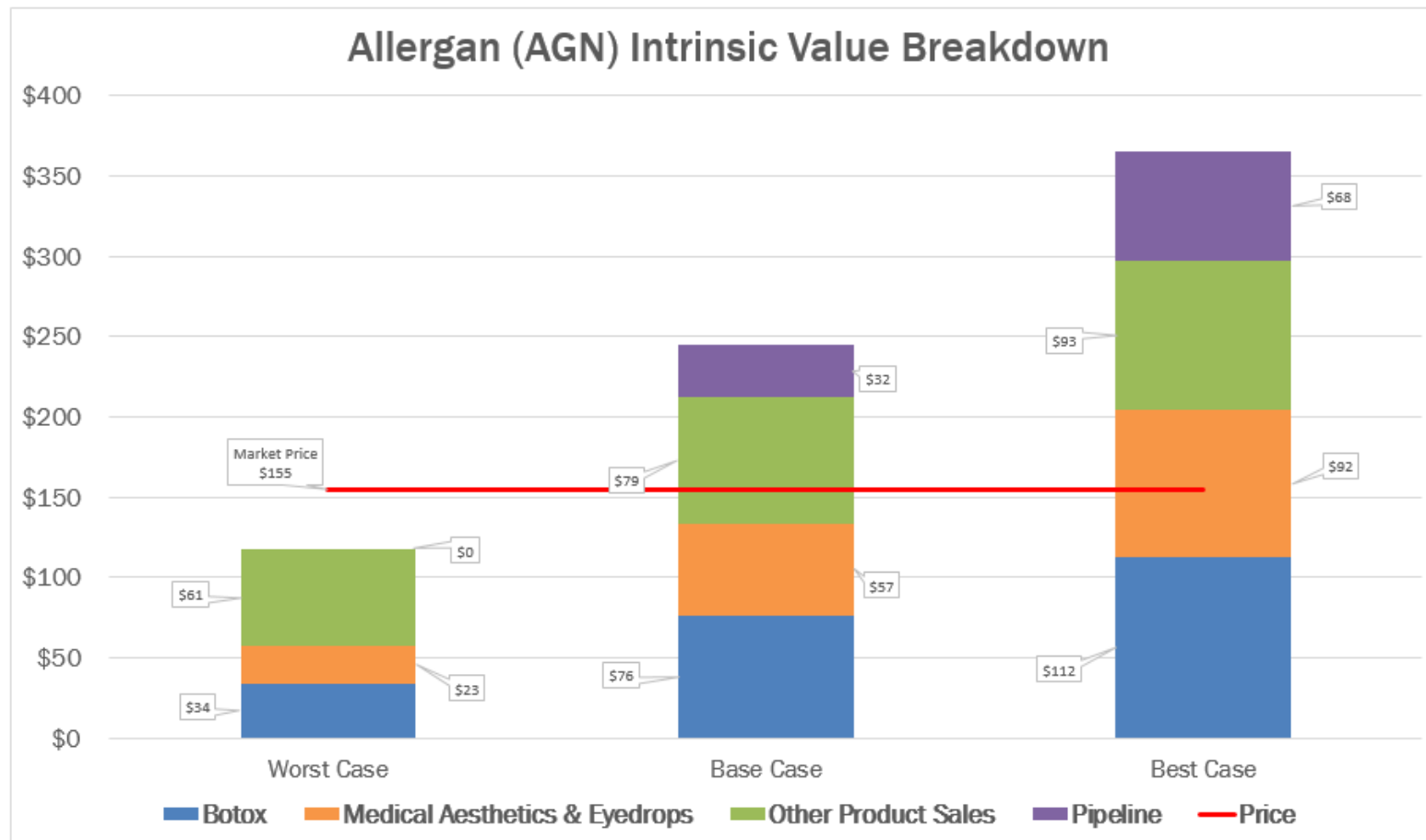
Valuation

ALLERGAN PLC (AGN US) Model & Value Estimate					
	Worst	Base	Best	LFY	LT Avg
Other Assets/Sh	\$12.12	\$8.58	\$8.58		
Excess Cash/Investments	\$500	\$500	\$500		
Unfunded Pensions	\$0	\$0	\$0		
NPV of Tax Shield	\$3,554	\$2,369	\$2,369		
Future Contingent Payments	\$0	\$0	\$0		
DCF Value	\$118	\$246	\$366		
Price	\$155.00	\$155.00	\$163.27		
Price % Value	131%	63%	45%		
Expected Return	-24%	59%	124%		
IRR	7.4%	14.4%	18.9%		
Implied P/E on Normalized EPS	6.4x	14.6x	22.0x		
Current P/E on Normalized EPS	8.6x	9.0x	9.5x	12.3x	
Implied EV/EBITA	10.1x	15.8x	21.7x		
Current EV/EBITA	12.0x	11.5x	12.1x	12.1x	
6/3/2018					



INVESTMENT PROCESS

Valuation



INVESTMENT PROCESS

Valuation – Sensitivity Analysis

Additional Sensitivity Analysis			
Key Assumption Change	Change in Base Case Value	New Base Case Value	New Price % Value
No Growth for Botox	\$67	\$179	91%
Botox for Migraine goes to Zero	\$30	\$216	75%
No Growth for Medical Aesthetics	\$50	\$196	83%



INVESTMENT PROCESS

Security Research and Valuation



Step 5

Behavioral Checklist

- Ask a series of questions to guard against behavioral biases before finalizing the analysis
 - Checklist includes questions such as:
 - Have the most recent developments – positive or negative – colored the analysis of the company's prospects disproportionately to their long-term significance?
 - If the markets closed and I couldn't sell this security for five years, would I be comfortable owning it?
 - Do I have emotions – positive or negative – towards this investment?
-



INVESTMENT PROCESS

Portfolio Construction

Quality Assessment:

- Margin of Safety comes from considering the combination of the quality of the company and the discount to intrinsic value.
- The goal is to avoid below-average businesses, as it is too hard to estimate their value accurately.
- The minimum required expected IRR is 12% for the highest quality businesses and increases to 15% for average businesses.

PURCHASE GUIDELINES

	Business Quality		
	Average	Above Average	Excellent
Price as % of base case value	<55%	<65%	<75%

- Allergan clearly qualifies for purchase as my Business Quality assessment is 'Excellent' and the stock is priced at less than 65% of Base Case value



INVESTMENT PROCESS

Portfolio Construction

Position Sizing:

Three principles are used to size positions within the portfolio:

- **Portfolio at Risk (PaR)** – PaR is the position size multiplied by the downside to the worst case value estimate. As an example, a 10% position with worst case downside of 30% would have a PaR of 3%. PaR will typically not exceed 5% at purchase.
- Risk of permanent capital loss declines as company quality increases. Increasingly higher quality parameters are a prerequisite for larger positions in the portfolio.
- No position size should be so large that a complete loss, however improbable, would result in capital loss that the rest of the portfolio would be unable to overcome.

POSITION SIZING GUIDELINES

	Position Size		
	Small (5%)	Medium (10%)	Large (15%)
Price as % of Base case value	<75%	<75%	<75%
Business quality	Average+	Average+	Above Average+
Balance Sheet quality	Any	Average+	Above Average+
Management quality	Any	Average+	Above Average+
Downside to Worst case	Any	<35%	<35%



INVESTMENT PROCESS

Portfolio Construction - Allergan Position Sizing

- **Initially made Allergan a small (5%) position** at ~ \$180 in November 2017 when it fell below 75% of Base Case Value
- **Recently increased the position to a medium (10%) position** when the stock fell below \$155, which put it below 65% of my Base Case value estimate with less than 25% downside to the Worst Case



LEARN MORE

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