Analyst: Christian Pacheco

Auto Industry

General Motors Company

Recommendation	BUY
Target (today's value)	$46.00
Current Price	$35.15
52 week range	$26.69 - $37.97

Share Data	
Ticker:	GM
Market Cap. (Billion):	$53.15
Inside Ownership	7.8%
Inst. Ownership	61.6%
Beta	1.21
Dividend Yield	4.32%
Payout Ratio	17.2%
Cons. Long-Term Growth Rate	16.1%

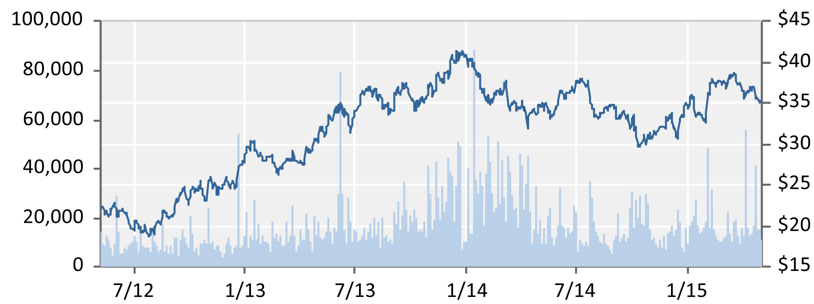
	'14	'15	'16E	'17E	'18E
Sales (billions)					
Year	$155.9	$152.4	$164.9	$170.6	$175.3
Gr %	0.3%	-2.3%	8.3%	3.4%	2.8%
Cons	-	-	163.6	$163.3	$167.6
EPS					
Year	$1.75	$6.11	$6.18	$6.33	$6.86
Gr %	-	249.6%	1.2%	2.4%	8.4%
Cons	-	-	$5.92	$5.76	$5.80

Ratio	'14	'15	'16E	'17E	'18E
ROE (%)	10.1%	25.7%	25.7%	22.2%	18.2%
Industry	10.5%	13.0%	13.0%	13.8%	12.%
NPM (%)	2.5%	6.4%	6.4%	5.8%	5.4%
Industry	4.7%	4.6%	4.6%	5.2%	5.4%
A. T/O	0.91	0.82	0.82	0.85	0.82
ROA (%)	2.3%	5.2%	5.2%	4.9%	4.4%
Industry	3.2%	3.1%	3.1%	3.3%	3.4%
D/A	26.4%	32.4%	34.2%	35.4%	35.8%

Valuation	'15	'16E	'17E	'18E
P/E	12.9	4.7	4.0	5.8
Industry	10.5	8.9	27.5	8.3
P/S	0.38	0.36	0.34	0.33
P/B	1.7	1.3	1.2	1.2
P/CF	4.6	4.9	3.7	4.3
EV/EBITDA	29.4	11.3	11.3	4.5

Performance	Stock	Industry
1 Month	-0.7%	-0.2%
3 Month	9.7%	10.8%
YTD	0.9%	1.3%
52-week	3.4%	27.0%
3-year	0.9%	18.1%

Contact: Christian Pacheco
Email: cpacheco@uwm.edu
Phone: 262-880-3882



Source: FactSet Prices

Summary: I recommend a buy rating with a target of $46. GM has been at the forefront of the automotive industry in sales, posting record earnings in 2016. It has the opportunity to improve in its two lagging segments, GM Europe and GM South America, as the regions settles from political and economic volatility. The stock is undervalued based on a discounted cash flow analysis.

Key Drivers:

- Demand for light-truck vehicles in US: As a result of a recovering economy, lower gasoline prices and increased fuel efficiency, the US auto industry has experienced a changing preference to more pick-up trucks, crossovers and SUVs that have driven GM sales, which concentrates on a higher margin light-truck portfolio.

- GM China & SAIC-GM-Wuling: Buick, Cadillac, Wuling and Baojun continue to post record quarters in China. This is quickly becoming GM's most important segment for growth in sales and market share.

- Stock/Share Repurchase Program: The board of directors at General Motors approved a plan to repurchase a combined total of $9 Billion in shares by 2017, or nearly 18% of shares outstanding based on the current price.

- Mobility Technology and Alternative Fuel: GM has invested a $500 million 9% equity ownership in ride-sharing company Lyft, and $1 billion acquisition of Cruise Automation for autonomous driving. GM launched an all-electric Chevy Bolt to compete against Tesla ahead of its model 3 release, and won car of the year.

- Macroeconomic Factors: Low oil prices, low rates of unemployment and high consumer confidence help the auto industry thrive.

Valuation: Using a relative valuation approach, General Motors appears to be much fairly valued in comparison to the automotive manufacturing industry. DCF provides the best way to value the stock as it best incorporates my long-term assumptions for growth. General Motors is undervalued, based on the DCF analysis, as the value is $46 and the shares trade at $35.15

Risks: Threats to business include rising price of oil, consumer preference shifting to smaller vehicles, global competition, and incentives that decrease bottom line in key segments like the United States and China. Foreign currency exchange rates continue to pose a material threat to GM's bottom line as sales outside of the US fall as the dollar strengthens.

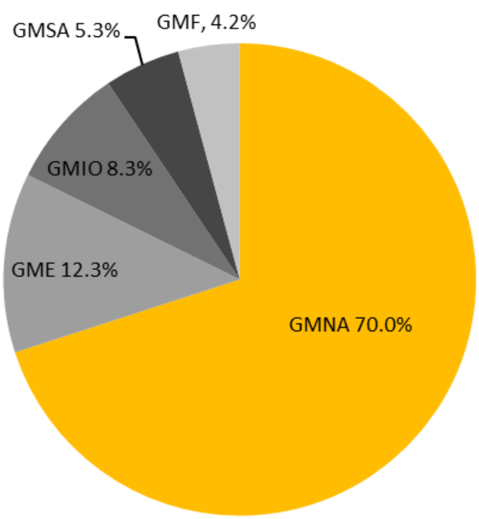
Company Overview

General Motors Company (GM) designs, builds and sells cars, trucks, crossovers and automobile parts worldwide. It also provides automotive financing services through General Motors Financial Company, Inc. The company was founded by William C. Durant on September 16, 1908 and is headquartered in Detroit, MI. GM employs over 215,000 people worldwide.

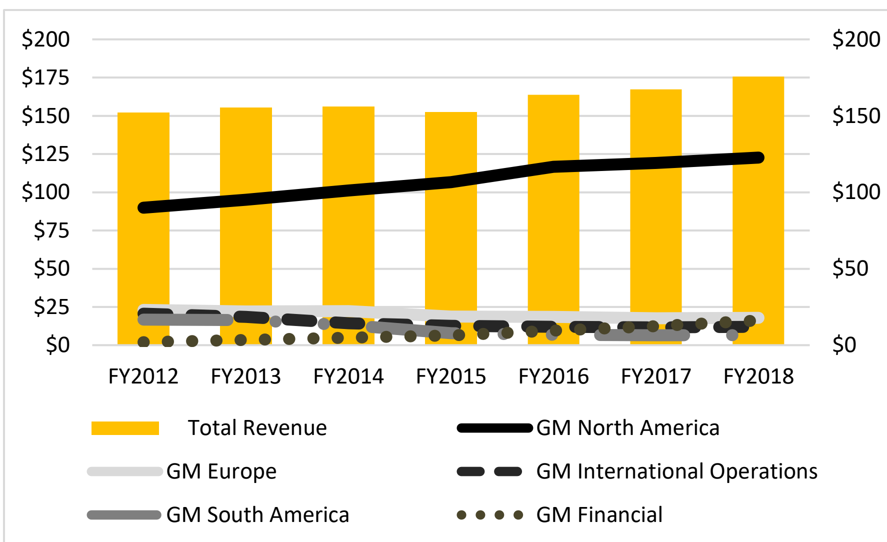
It operates through five segments, four automotive and one financial: GM North America (GMNA), GM Europe (GME), GM International Operations (GMIO), GM South America (GMSA), and GM Financial (GMF), that provides retail lending, both loan and lease, across the credit spectrum. GM also holds equity ownership stakes directly or indirectly in entities through various subsidiaries in Asia, primarily in China, through a joint venture SAIC-GM-Wuling Automobile.

- GMNA: Offers the Buick, Cadillac, Chevrolet and GMC brands. This is the biggest source of revenue for GM, led primarily by the United States. CAGR is 4.3% for 2010-2015.
- GME: Includes the Opel brand and its subsidiary Vauxhall. GM reported a profit in 2015 for the first time since 2008. CAGR is -4.1% for 2010-2015.
- GMIO: Includes the highly successful GM China. It offers Buick, Cadillac, Chevrolet, Jiefang, Wuling and Baojun brands primarily located in Asia. CAGR is -8.5% for 2010-2015 partially offset by success in China.
- GMSA: GM's least successful segment due to political and economic distress; however, there is a possibility the situation will improve in the near future. CAGR is -10.7% for 2010-2015.
- GMF: After its acquisition as AmeriCredit Corp in 2010 for $3.5 billion, GM Financial has become increasingly profitable part of GM. CAGR is 68.6% for 2010-2015 and growing.

Figures 1 and 2: Revenue sources for GM, EOY 2015 (left), and combined segment revenue since 2011 (right) in millions



Source: Company Reports 10-k



Source: Company records, 10-K

Business/Industry Drivers

Although many factors may contribute to General Motors' future success, the following are the most important business drivers:

1) North American demand for light trucks
2) GM China and SAIC-GM-Wuling
3) Stock Repurchase Program
4) Macroeconomic Trends

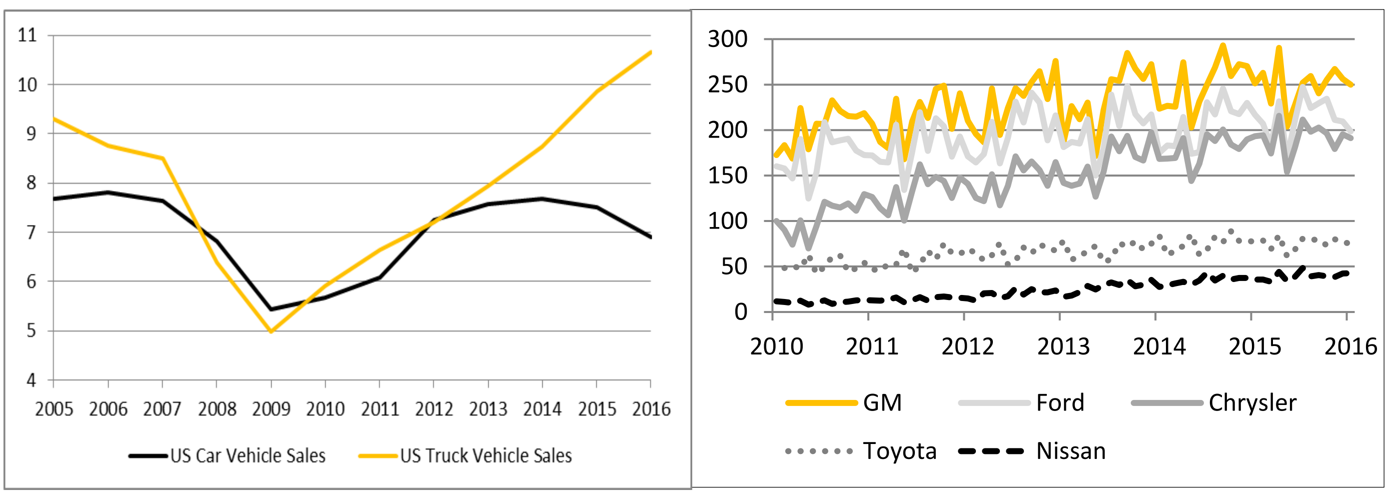
GM continues to have the highest market share in the United States thanks to its variety of brands and models.

North American demand for light trucks

Automotive industry sales in North America, primarily driven by the United States, have reached record highs as the economy recovered from the financial crisis of 2008 when auto sales barely surpassed 10 million units. Sales for light trucks, which include pick-ups, vans, crossovers and SUV's with maximum payload capacity of 4,000 lbs were also fueled by decreasing gasoline prices, greatly benefitting GM's light-truck focused portfolio.

Though GMNA offers a variety of small, mid-size and large cars, it generally recognizes higher profit margins on light truck vehicles. Of the 45 vehicles offered through its Buick, Cadillac, Chevrolet, and GMC brands, 28, or 62%, of those are light-trucks. GM states that variable profit, defined as revenue less material cost, freight, variable component of manufacturing expense, policy, warranty and recall-related costs, is higher in trucks and crossovers, 170% and 80% respectively, than it is in cars which is only 30%. GM sold more vehicles in this class than all other competitors.

Figures 3 and 4: US light truck and car sales for industry in millions (left), US light truck sales by company in thousands (right)



Source: Bloomberg, IMCP

GMNA experienced a decrease in market share of 0.1% to 16.8% in 2015 from 16.9% in 2014; although, it achieved higher revenues and higher net income in 2015 compared to 2014. GMNA was achieved EBIT-adjusted margins of 10.3% in 2015, up from 6.5% in 2014. GMNA is expected to sustain margins of 10% in 2016 due to a consistent to slight increase in U.S. industry light vehicle sales, key product launches, continued cost performance, and an overall strengthening economy.

With lessened concern for gas prices and increased fuel efficiency on larger vehicles, consumers have chosen to purchase light trucks over small cars. However, a change in the price of oil could cause a shift in consumer demand towards smaller, more fuel efficient vehicles, and weaken the demand for higher margin full-size pick-up trucks and SUV's.

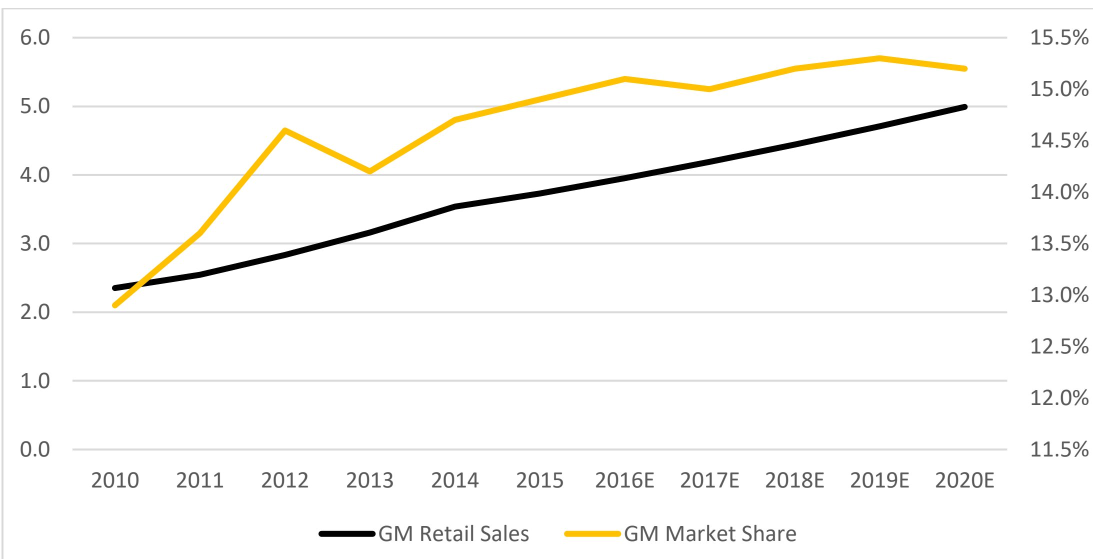
Both the Buick and Baojun brands are top sellers in China. Cadillac has experienced a 35% unit sales increase YTD-16 through the month of September.

GM brands and SAIC-GM-Wuling Joint Venture thriving in China

SAIC-GM-Wuling Automobile Co., Ltd. (SGMW) is a joint venture that was founded on November 18, 2002. GM China has a 44.0% stake, SAIC a 50.1% stake, and Wuling Motors a 5.9% stake. SGMW manufactures a range of Wuling brand mini-trucks and minivans as well as a growing family of Baojun brand passenger cars. The Baojun 560 became the second best-selling SUV in China two months after its launch in the summer of 2015, while the Baojun 730 has been the market leader in its segment since launching in August 2014. SGMW currently has three manufacturing plants throughout China and expects about 4.2 million units to be sold in its SUV, MPV and luxury segments through 2020. GM will capitalize on this trend with over 40% of its new vehicles in the SUV, MPV and the Cadillac luxury brand will introduce 10 refreshed models.

General Motors International Operations, reported a record 3.7 (retail vehicle sales) million units sold and a 14.9% market share despite a moderation of industry growth and pricing pressures for the year ended December 31, 2015. Sales were primarily driven by successful launches in key growth segments of SUVs, multipurpose vehicles and luxury vehicles including the Buick Envision and Cadillac XT5. GM reported that 2016 Buick global sales surpassed 1 million year-to-date to post 23% growth, placing the brand as the second largest passenger-car in China. Cadillac has also seen success in the China reporting YTD unit sales of 77,028 units as of September, for an increase of 35.4% from 56,873 in 2015. EBIT-adjusted margins rose to 11.1% in 2015 up from 8.5% in 2014.

Figures 5: GMIO light truck sales in millions (left), Chinese market share as a percentage (right)



Source: Company Filings, 10-K

GM China will introduce about 20 vehicle models by the year 2020. It projects 4.2 million units sold through the same period.

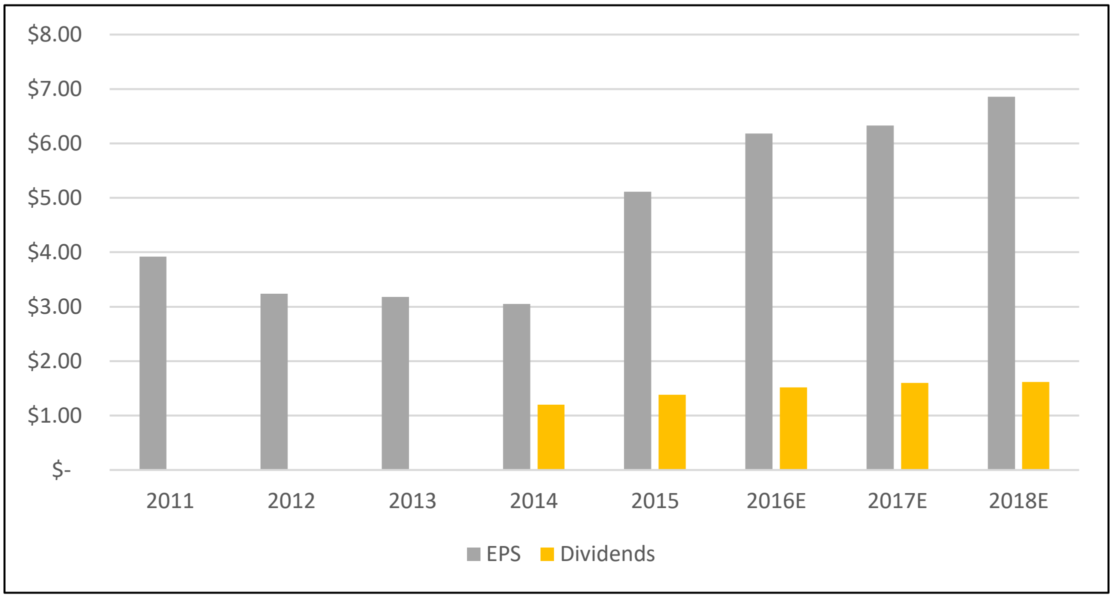
GM's Chevrolet recently announced plans to introduce more than 20 totally new or refreshed products in China, its second-largest market for growth, by the end of 2020. Nearly 30% of the models will be SUVs and nearly half will be new nameplates for the China portfolio. Most of the products will be manufactured in China by SAIC-GM-Wuling. GM China has expanded the brand to be offered in 600 dealerships in more than 200 cities nationwide. GM China began implementing a "tier" growth strategy to reach cities with populations greater than one million which currently provide the greatest opportunity for sales growth as larger cities have become increasingly saturated. GM wants stay ahead of competitors to ensure its brands are reaching as many potential customers as possible.

$9 Billion Stock Repurchase Program through 2017

In March 2015, management announced its plan to return all available free cash flow to stockholders while maintaining and an investment grade balance sheet. Management's capital allocation framework includes a combined cash and marketable securities target of $20 billion and plans to reinvest in the business at an average target ROIC of 20% or more. In connection with this plan, the company's Board of Directors announced a plan to repurchase $5 billion of common stock by 2016.

The company repurchased a combined total of 102 million shares for a reported $3.58 billion in 2015, while paying $2.24 billion in dividends for the same year. In January 2016, it was announced that the Board authorized an additional increase in the stock repurchase program of $4 billion for an aggregate total of $9 billion before the end of 2017.

Figure 6: Earnings Per Share (EPS) with total amount of dividends paid out for same fiscal year



Source: Company Filings, 10-K

As of December 31, 2016, GM has purchased an additional 48 million shares for a combined total of $1.5 billion while paying an estimated $2.38 billion in dividends for the year or $1.52 per share (from $0.38 quarterly dividends). GM has accomplished this while maintaining a combined cash balance and marketable securities target of $20 billion for 2015 and 2016 even after having upped its quarterly dividend from $0.30 in 2014 to $0.36 in 2015 and $0.38 in 2016.

GM launches Maven, car-sharing service, and makes $500 million investment in Lyft ride-hailing service in 2016.

Ride-hailing investments: Maven, Lyft and Yi Wei Xing

In the years ended 2015, 2014, 2013 research and development was $7.5, $7.4 and $7.2 or 4.9%, 4.7% and 4.6% of sales revenue respectively, placing it fourth behind Volkswagen, Toyota and Daimler. GM has also continued product development for services like its 6.6 million subscriber OnStar subsidiary as well as hybrid vehicles and alternative fuel technologies, including the Chevrolet Bolt, which are important as GM tries to remain relevant and competitive. GM plans to expand the OnStar service to have 12 million OnStar connected vehicles on the road. By 2020, more than 75% of its global sales volume is expected to be actively connected. In China, all Cadillac, Buick and Chevrolet models will be connected by 2020. The company plans to capitalize on the future of personal mobility using tools such as connectivity, ridesharing, car sharing and autonomous driving in the US and China.

In January of 2016, GM started its own mobility brand called Maven which combines and expands the company's multiple car-sharing programs. Through Maven, GM offers customers a fleet of new vehicles on-demand for use in exchange for an hourly fee. Seven months into launch, Maven has managed to expand to five U.S. cities, with over 5,000 registered members and 4.2 million miles driven. GM sees car sharing as an opportunity to earn lease income and to expose consumers to their brands and models by going beyond the dealership showroom.

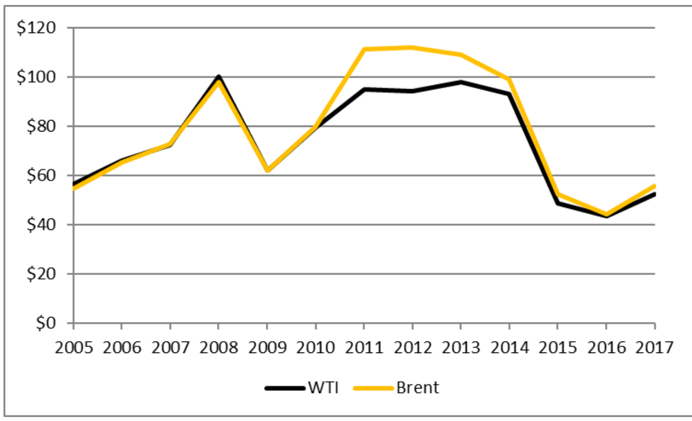
Additionally, GM has recently invested in the car-and-ride sharing business and in autonomous driving technology. In the first half of 2016, GM invested $500 million to purchase a 9% equity ownership interest in Lyft, Inc., greater than the $300 million invested in Gett by Volkswagen and the $100 million investment in Uber by Toyota. This was soon followed by a $1 billion acquisition of Cruise Automation, a self-driving technology start-up and later an investment in Yi Wei Xing Technology Co. Ltd, a leading car-sharing technology solution provider in China to explore new-car sharing models, gain insights into China's rapidly changing car-sharing market and develop a deeper understanding of Chinese consumers' personal mobility needs.

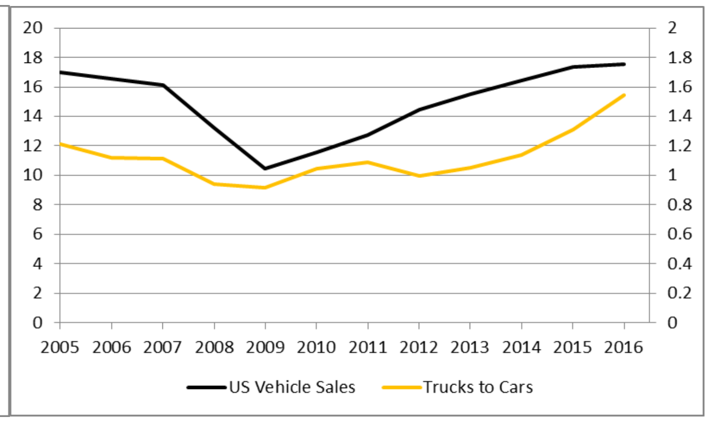
Oil price per barrel has hovered between $40-60 since end of 2014

<u>Macroeconomic Trends: Low oil prices, positive correlations with ISM and low rate of unemployment</u>

Oil prices have decreased from $100 a barrel at the end of 2014 and have remained between $40-60 since April 2015. Part of this can be attributed to the fact that US has doubled its shale oil production, decreasing dependency on oil imports. Simply put, supply has exceeded demand. This paired with increasing fuel efficiency helped push consumer preference to a 1.6:1 ratio of light-trucks to car sales.

Figures 7 and 8: WTI and Brent price per barrel in USD (left), total US vehicle sales and truck-to-car ratio in millions, (right)

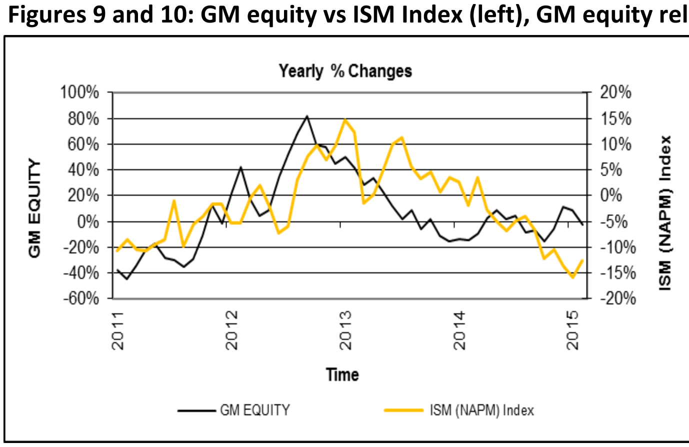


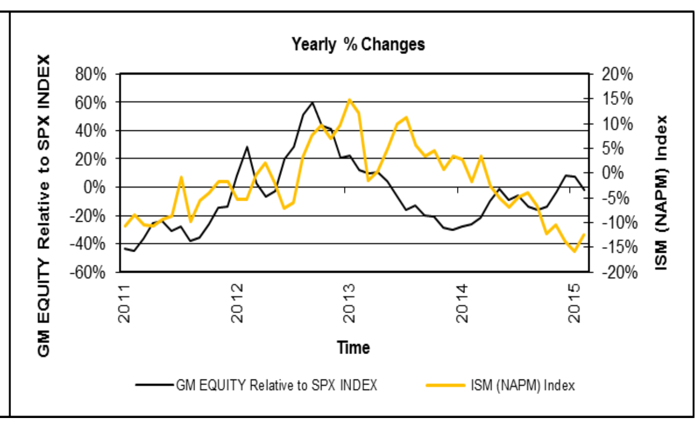


Source: Bloomberg, IMCP

The Institute of Supply Management (ISM) is a leading coincident indicator of expansion or contractions in the economy. GM's equity has a correlation of 0.527 and an R Square of 0.28 to the ISM Index. GM's relative return to the SPX has a 0.366 correlation and an R Square of 0.13.

Figures 9 and 10: GM equity vs ISM Index (left), GM equity relative to SPX Index vs ISM Index



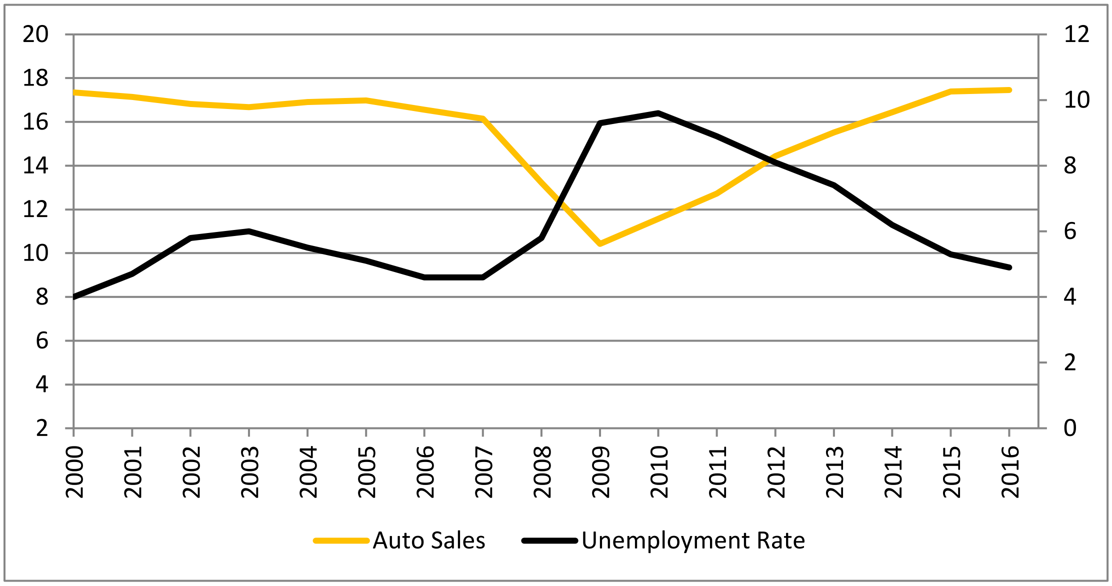


Source: Bloomberg, IMCP

Source: Bloomberg, IMCP

The rate of unemployment has been steadily decreasing since the recession of 2008, and settled around 4.9% as of September, 2016. More people working and a greater need for personal transportation helps provide more discretionary income that can be used towards the purchase of a new vehicle.

Figure 11: Total auto sales in millions (left), unemployment rate in percentages (right)



Source: Bloomberg, IMCP

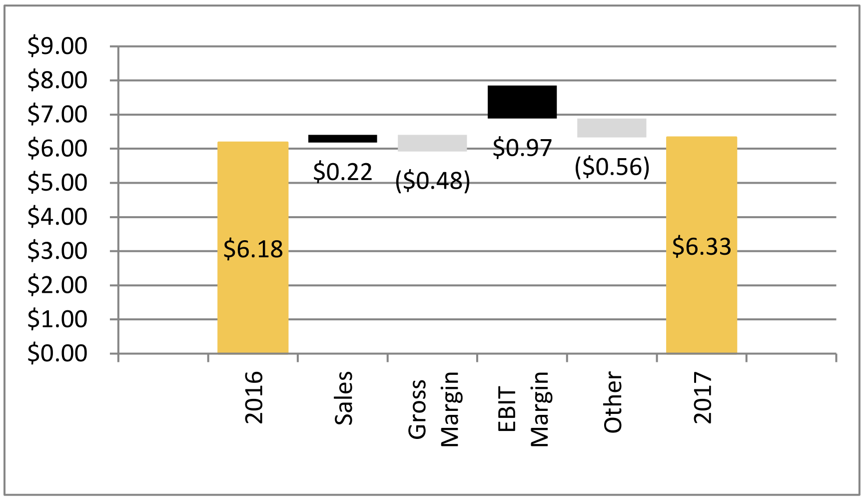
These macroeconomic conditions contributed to the success of the auto industry as a whole. A decrease in the overall rate of unemployment paired with decreasing gasoline prices incentivizes consumers to purchase new vehicles. General Motors has thrived among its competitors due to its variety of brands and models that concentrates on a higher margin light-truck portfolio. Pick-up trucks, SUVs and crossovers were the vehicle of choice amongst the North American car buyer for the past five years helping push GM unit sales and revenue above the rest. The trend is expected to continue through 2020. Gasoline prices pose both a benefit and a threat to the General Motors' future success.

Financial Analysis

Quantification of Drivers

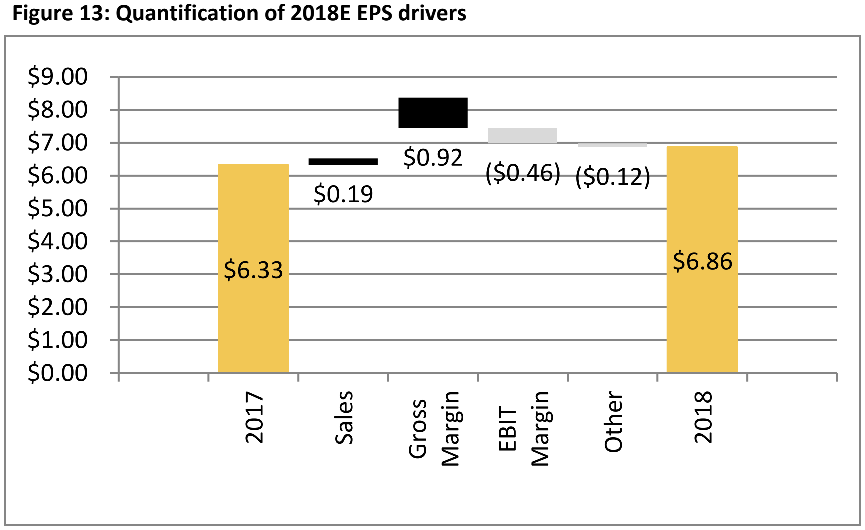
General Motors will end 2016 with record sales driven by sales of higher margin pick-up trucks, SUVs and Crossovers in its North American segment (GMNA) with an estimated 3.9 million units sold, of which more than 3.3 million are estimated to be from the United States. As sales in China continue to grow, Europe settles from the Brexit and South America begins to come out of its recession, sales in General Motors' respective segments should help to offset a slight decrease in sales in North America as the economy there begins to stabilize from expansion. I expect GM to continue to show profitability in all segments and for EPS to rise from $6.18 in 2016 to $6.86 in 2018. This is assuming gasoline prices do not rise significantly as the US increases its production to offset OPEC's reduction.

Figure 12: Quantification of 2017E EPS drivers



From 2016 to 2017, I expect sales growth to add $0.22 to EPS, but gross margins will decline and detract $0.48. An improvement in SG&A as a percent of sales will add $0.97 to EPS as plants are temporarily closed in 2017 to reduced inventory build-up. Higher interest expense and a higher tax rate more than offset the benefit of share buybacks ($0.47 benefit) and net subtract $0.56 from EPS.

Figure 13: Quantification of 2018E EPS drivers



In 2018, EPS rises $0.19 due to higher sales and $0.92 due to a higher gross margin (I expect GME and GMSA to become profitable and higher margin trucks and other vehicles to continue to grow as a percent of units). Higher SG&A as a percent of sales will follow the drop the prior year and detract $0.46 from EPS. Higher interest and other income more than offset the benefit of share buybacks and hurts EPS by $0.12.

Figure 14: EPS and YoY growth estimates in thousands

	FY 2017E	FY 2018E
Estimate	$ 170,604	$ 175,346
Consensus	$ 163,263	$ 167,558

Figure 15: EPS and YoY growth estimates

	FY 2017E	FY 2018E
Estimate	$ 6.33	$ 6.86
Consensus	$ 5.76	$ 5.80

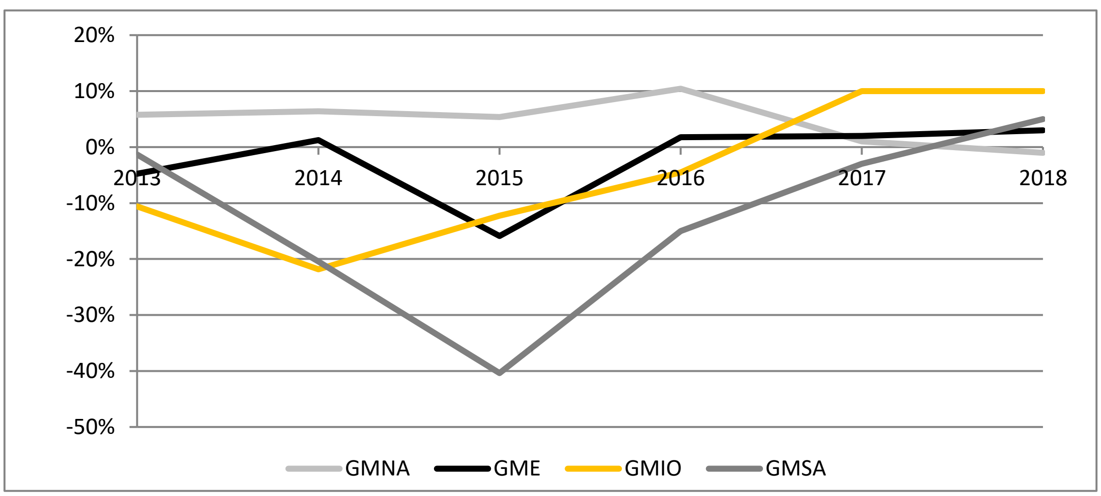
Source: FactSet, IMCP

Figures 14 and 15 illustrate my annual expectations for Sales and EPS. My expectations are more bullish than consensus. The difference is due to sales growth. For the years 2017 and 2018, my estimates show flat sales for North America (GMNA), and declining sales for South America (GMSA), while growth in the remaining three segments: 2% and 3% in Europe (GME), 10% and 10% in International Operations (GMIO), 33% and 30% in GM Financial (GMF). I don't expect sales in GMNA, primarily the US, to grow much more as we've seen record highs in the past few years. In regards to Europe, I see the Opel and Vauxhall brand gaining ground amongst competitors as the overall political climate settles and the economy expands. South America will bottom -3% in 2017 and in 2018 I estimate it will begin with growth of 5%. I estimate International Operations (GMIO), led by China, will continue to grow in unit sales as the Buick, Cadillac and Chevrolet brands gain further appeal.

<u>GMIO: Focus on Chinese Markets</u>

The Asia/Pacific, Middle East and Africa region is the largest region by retail vehicle sales volume and represented over 40% of global retail vehicle sales volume in 2015. Strong growth in Cadillac, Buick and Baojun passenger vehicles, including SUVs, were partially offset by lower Chevrolet sales because of model changeover and lower Wuling sales from a continued segment shift from mini commercial vehicles. Still, I expect the segment to sustain an estimated 10% YOY growth through 2018.

Figure 16 illustrates the decline and rise of GMIO's sales growth and estimates



Source: Company Reports, 10-K

Note: Retail vehicle sales data, which represents sales to the end customers based upon the good faith estimates of management, including fleets, does not correlate directly to the revenue recognized during the period. However, retail vehicle sales data is indicative of the underlying demand for GM vehicles. Market share information is based primarily on retail vehicle sales volume.

DuPont Analysis

Figures 17: 5 stage DuPont Analysis

Dupont Analysis	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
ROE							
5-stage							
EBIT / sales		5.0%	3.0%	5.4%	7.0%	7.5%	8.0%
Sales / avg assets		0.98	0.91	0.82	0.79	0.74	0.71
EBT / EBIT		95.7%	91.3%	94.6%	93.6%	92.9%	92.0%
Net income /EBT		50.5%	66.0%	125.5%	87.9%	75.8%	72.7%
ROA		2.4%	1.6%	5.2%	4.5%	3.9%	3.8%
Avg assets / avg equity		4.00	4.40	4.94	4.90	4.94	4.91
ROE		9.6%	7.2%	25.7%	22.3%	19.3%	18.7%

Source: Company Reports, IMCP

GM has had a volatile ROE in the past two years, but ROE should settle around the 18-22% range within the next two years. DuPont analysis for GM reveals that ROE is driven by the tax burden ratio (net income/EBT), which could decrease if the new presidential administration lowers corporate taxes. The company had negative taxes in 2015 as a result (Note 16 2015 10K) of a release of valuation allowances for GME. In 2014, US federal taxes were negative. I assume taxes will normalize in the future. ROE also benefits by consistently rising operating margin in the past and projected years; although, lower asset turns hurts ROE. Asset turns are falling because of the growth in the financial segment, which has also boosted leverage (helps ROE).

Free Cash Flow

Figure 18: Free Cash Flow 2012-2018E

Free Cash Flow	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
NOPAT	$6,031	$5,570	$4,399	$10,167	$10,046	$9,596	$10,521
Growth		*-7.7%*	*-21.0%*	*131.1%*	*-1.2%*	*-4.5%*	*9.6%*
NWC*	17,420	28,887	32,921	30,544	29,692	29,002	28,055
Net fixed assets	79,426	84,843	93,875	116,513	141,231	156,516	166,996
Total net operating capital*	$96,846	$113,730	$126,796	$147,057	$170,924	$185,519	$195,052
Growth		*17.4%*	*11.5%*	*16.0%*	*16.2%*	*8.5%*	*5.1%*
- Change in NWC*		11,467	4,034	(2,377)	(852)	(690)	(947)
- Change in NFA		5,417	9,032	22,638	24,718	15,285	10,480
FCFF*		($11,314)	($8,667)	($10,094)	(13,821)	($4,999)	$988
Growth			*-23.4%*	*16.5%*	*36.9%*	*-63.8%*	*-119.8%*
- After-tax interest expense	(105)	239	381	552	639	684	837
FCFE**		($11,553)	($9,048)	($10,646)	($14,459)	($5,683)	$151
Growth			*-21.7%*	*17.7%*	*35.8%*	*-60.7%*	*-102.7%*

Source: Company Reports, IMCP

The firm generates negative free cash flow. While NOPAT has risen significantly and is expected to stay somewhat stable through 2018, it has not been sufficient to fund significant growth in net fixed assets (this includes the loans for the finance business). The short-fall has been financed through additional debt. Debt has risen from $5 billion in 2012 to a projected $84 billion in 2016. I forecast it to rise over $30 billion more through 2018. $43 billion of the new debt from 2012 through 2015 was to fund growth in GM Financial, so the rise is less alarming as it was not necessarily to fund the main auto business. LTM debt/equity is 120%, less than that of domestic competitors (figure 20). FCFE if we include debt was over $9 billion in 2015, and is projected at $5 billion in 2016, over $10 billion in 2017, and over $13 billion in 2018. Some of this FCFE is being returned to shareholders in stock buybacks which I forecast at $4 billion in 2017 and $3 billion in 2018. Dividends are about $2.5 billion.

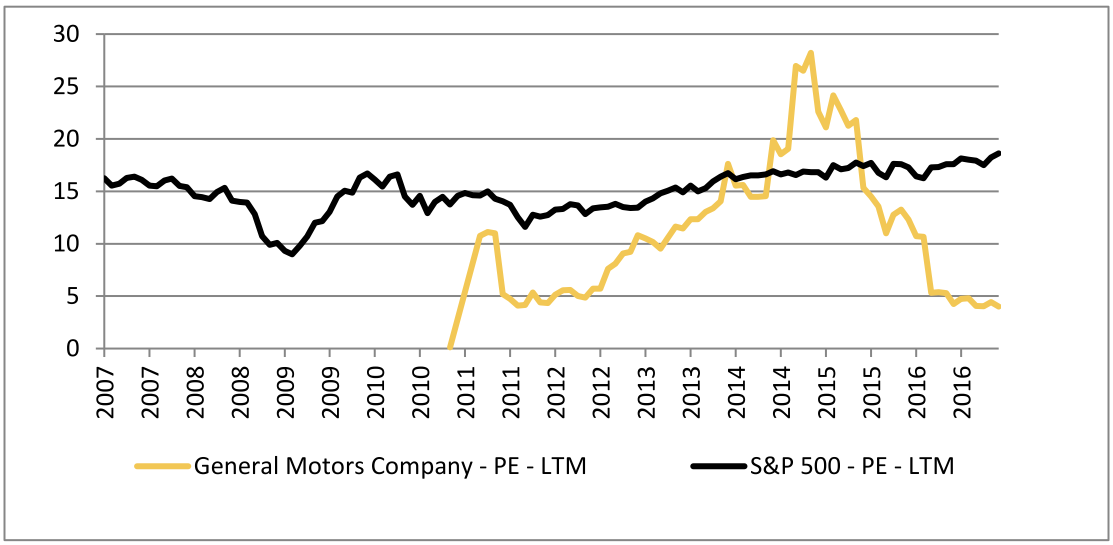
Valuation

GM was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is expensive relative to other firms and is worth $27; however, due to the volatility of GM's earnings the past few years, as well as the effect of recent nonrecurring expenses, this metric may be unreliable. This also relies on using today's P/E that implies low expect growth by other investors, and I disagree with this market expectation. Relative valuation shows GM to be slightly undervalued based on its fundamentals versus those of its peers in the auto industry. Price to book valuation yielded a price of $40. A detailed DCF analysis values GM at $46; I give this value a bit more weight because it incorporates assumptions that reflect GM's ability to continue to grow. I value the stock at $46.

<u>Trading History</u>

GM is currently trading relatively low to the S&P 500. This is the result of recent earnings increase and the fact GM has beat most analysts estimates for the past few years. GM's current LTM P/E is at 4.3, which is relatively low compared to industry median of 9.4 and its average of 11.6 since it emerged from bankruptcy.

Figure 19: GM LTM P/E relative to S&P 500



Source: FactSet

Assuming the firm maintains a 4.3 LTM P/E at the end of 2017, it should trade at $27.22 at the end of 2017. Discounting this value at 11.8% cost of equity yields a value of $24.35 today.

- Price = P/E x EPS = 4.3 x $6.33 = $27.22

Given GM's potential for earnings growth and continued profitability, this seems to be an unusually low valuation. This implies investors believe EPS is peaking. Still, GM posted records sales in the Unites States and China, its two biggest markets in 2016. I expect P/E to increase over time as investors gain confidence in GM as it reestablishes itself post-bankruptcy and begin to believe the current level of auto sales can still rise. Still, the P/E would have to rise to 6.2 to justify today's stock price.

Figure 20: GM comparable companies

Ticker	Name	Current Price	Market Value	Price Change 1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	Earnings Growth LTG	NTM	2015	2016	2017	2018	Pst 5yr	Beta	LT Debt/ Equity	S&P Rating	LTM Dividend Yield	Payout
GM	GENERAL MOTORS CO	$37.95	$57,849	1.6	0.8	19.0	26.0	25.5	8.9	16.1	-34.8%	64.6%	19.9%	-5.1%	0.2%	0.9%	1.69	120.1%		4.36%	17.2%
F	FORD MOTOR CO	$12.67	$50,349	(1.4)	(3.8)	5.7	(4.5)	(0.8)	4.5	-5.6	-18.1%	66.4%	-6.2%	-9.4%	3.7%	3.0%	1.33	285.7%	B	4.95%	29.9%
FCAU	FIAT CHRYSLER AUTOMOBILES NV	$11.09	$14,295	2.6	31.9	70.6	73.6	37.5	21.6	17.6	122.1%	107.4%	36.6%	13.1%	9.2%	-10.0%	1.42	146.8%		0.12%	
TM	TOYOTA MOTOR CORP	$119.91	$195,633	0.1	(2.5)	4.0	13.5	4.4	2.3	5.6	-8.9%	4.8%	7.4%	-18.5%	12.0%	32.1%	0.74	53.1%		2.87%	28.9%
HMC	HONDA MOTOR CO LTD	$30.18	$54,393	0.3	(1.5)	3.5	17.1	2.8	3.4	18.4	31.3%	-20.1%	-34.3%	66.0%	9.1%	-14.5%	1.10	53.2%		2.49%	36.8%
NSANY	NISSAN MOTOR CO LTD	$20.09	$39,252	(0.9)	3.8	4.9	6.6	3.3	(0.3)	8.5	28.8%	2.8%	14.3%	18.3%	13.0%	2.9%	1.04	97.4%		1.64%	15.6%
VLKAY	VOLKSWAGEN AG	$32.07	$47,310	1.9	12.5	9.8	17.6	15.1	11.8	-1.0	2113.7%	-113.2%	-664.3%	19.7%	7.2%		1.63	91.6%		0.06%	
005380-K	HYUNDAI MOTOR CO	$124.12	$33,346	(2.3)	3.1	10.4	13.4	6.1	1.7	1.3	10.4%	-17.5%	-6.0%	4.4%	5.6%	3.5%	1.28	71.1%		2.74%	17.8%
Average			$61,553	0.2	5.5	16.0	20.4	11.7	6.7	7.6	280.6%	11.9%	-79.1%	11.1%	7.5%	2.6%	1.28	114.9%		2.40%	24.4%
Median			$48,830	0.2	1.9	7.7	15.3	5.3	3.9	7.1	19.6%	3.8%	0.7%	8.7%	8.1%	2.9%	1.31	94.5%		2.62%	23.3%
SPX	S&P 500 INDEX	$2,275		0.3	0.7	6.5	6.5	18.3	1.6			0.2%	2.4%	6.5%	8.2%						

Ticker	Website	2016 ROE	P/B	P/E 2014	2015	2016	TTM	NTM	2017	2017E	2016 NPM	2016 P/S	OM	ROIC	EV/ EBIT	P/CF Current	P/CF 5-yr	Sales Growth NTM	STM	Pst 5yr	Book Equity
GM	http://www.gm.com	20.2%	1.27	12.4	7.6	6.3	4.3	6.7	6.6	6.6	5.6%	0.35	6.5%	12.9%	11.3	3.2	4.5	-3.9%	4.1%	2.4%	$29.81
F	http://www.ford.com	23.3%	1.63	10.9	6.6	7.0	6.3	7.7	7.7	7.5	5.1%	0.36	5.2%	6.6%	20.3			-7.7%	7.8%	3.0%	$7.78
FCAU	http://www.chrysler.com	10.2%	0.74	20.5	9.9	7.2	9.2	4.2	6.4	5.9	1.7%	0.12	3.4%	0.2%	9.1	1.5	1.4	5.0%		25.3%	$15.02
TM	http://www.toyota.co.jp	11.4%	1.11	11.0	10.4	9.7	10.3	11.3	11.9	10.6	8.5%	0.83	8.7%	8.3%	12.8	5.8	6.6	-1.5%	3.2%	1.1%	$107.80
HMC	http://www.honda.co.jp	4.4%	0.84	10.0	12.5	19.0	15.3	11.6	11.4	10.5	2.4%	0.45	4.2%	3.1%	22.4	5.2	5.6	0.2%	5.2%	2.9%	$35.97
NSANY	http://www.nissan.co.jp	9.9%	0.96	11.4	11.0	9.7	9.5	7.4	8.2	7.2	4.3%	0.41	6.4%	5.9%	14.5	3.4	3.3	2.5%	3.9%	-0.4%	$21.03
VLKAY	http://www.volkswagenag.com	10.6%	0.86	6.1	-45.8	8.1	151.9	6.9	6.8	6.3	2.6%	0.21	4.4%	-1.0%	30.9	3.6		5.3%	-0.9%	7.0%	$37.27
005380-K	https://www.hyundaiusa.com	9.7%	0.63	5.0	6.1	6.5	6.4	5.8	6.2	5.9	6.6%	0.43	6.1%	6.3%	13.4	2.9	4.1	-0.6%		-4.0%	$198.05
Average		12.5%	1.00	10.9	2.3	9.2	26.7	7.7	8.2	7.6	4.6%	0.40	5.6%	5.3%	16.9	3.6	4.3	-0.1%	3.9%	4.7%	
Median		10.4%	0.91	10.9	8.7	7.7	9.4	7.1	7.3	6.9	4.7%	0.39	5.6%	6.1%	14.0	3.4	4.3	-0.2%	4.0%	2.6%	
SPX	S&P 500 INDEX			19.2	19.2	18.7			17.6	16.3											

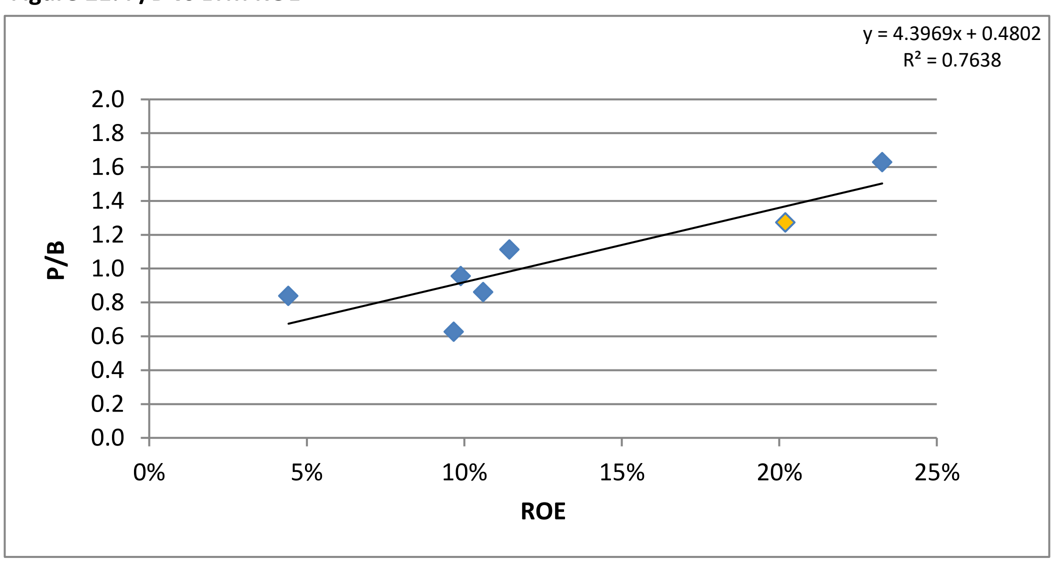
Source: FactSet

Relative Valuation

A more thorough analysis of P/B and ROE is shown in figure 20. The calculated R-squared of the regression indicates that over 76% of a sampled firm's P/B is explained by its 2016 ROE. The target price is $40.45.

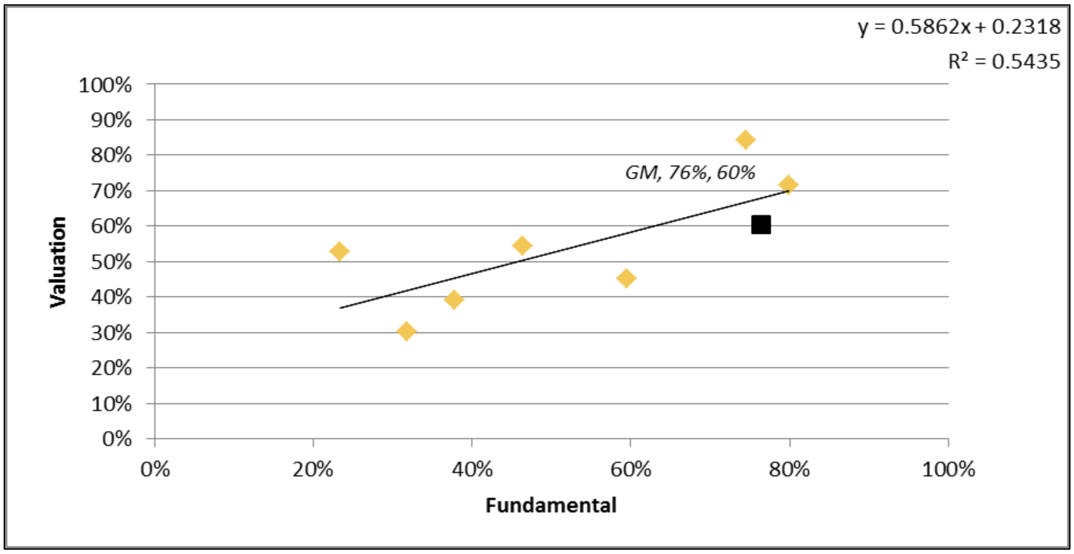
- Estimated P/B = Estimated 2016 ROE (20.2%) x 4.3969 + 0.4802 = 1.368
- Target Price = Estimated P/B (1.368) x 2016E BVPS (29.57) = $40.45

Figure 21: P/B vs LTM ROE



Source: IMCP

Figure 21: P/B vs NTM ROE



Source: IMCP

For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. An equal weighting of 2016 ROE and 2016 net profit margin was compared to an equal weighting of P/B and P/S. The resulting R-squared is .54. As you can see, GM is below the line so it is undervalued.

Figure 23: Composite valuation, % of

						Fundamental		Value	
					Weight	50%	50%	50%	50%
Name	Rank Diff	Diff	Target Value	Weighted Fund	Value	2016 ROE	2016 NPM	P/B	P/S
GENERAL MOTORS CO	8	14%	75%	76%	60%	87%	66%	78%	43%
FORD MOTOR CO	6	7%	79%	80%	72%	100%	60%	100%	43%
FIAT CHRYSLER AUTOMOBILES NV	5	-8%	22%	32%	30%	44%	20%	45%	15%
TOYOTA MOTOR CORP	3	-12%	72%	75%	84%	49%	100%	68%	100%
HONDA MOTOR CO LTD	1	-40%	12%	23%	53%	19%	28%	52%	54%
NISSAN MOTOR CO LTD	2	-15%	39%	46%	54%	43%	50%	59%	50%
VOLKSWAGEN AG	4	-10%	29%	38%	39%	46%	30%	53%	25%
HYUNDAI MOTOR CO	7	10%	55%	59%	45%	42%	77%	38%	52%

Source: IMCP

Discounted Cash Flow Analysis

A three stage discounted cash flow model was also used to value GM.

For the purpose of this analysis, the company's cost of equity was calculated to be 11.8% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

- The risk free rate, as represented by the ten-year Treasury bond yield, is 2.33%.
- A ten-year beta of 1.23 was utilized since the company has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 11.8% (2.33 + 1.23 (10.0 – 2.33)).

Stage One - The model's first stage simply discounts fiscal years 2017 and 2018 free cash flow to equity (FCFE). These per share cash flows are forecasted to be ($3.99) and $0.11, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of ($3.48) per share. Thus, stage one of this discounted cash flow analysis contributes ($3.48) to value.

Stage Two - Stage two of the model focuses on fiscal years 2019 to 2023. During this period, FCFE is calculated based on revenue growth, NOPAT margin and capital growth assumptions. The resulting cash flows are then discounted using the company's 11.8% cost of equity. I assume 2.0% sales growth in 2019, and fluctuating between 1% and 3% before returning to 2% by 2023. Margins are expected to stay at the 2018 levels. The ratio of NWC to sales will remain at 2018 levels. NFA turnover will remain constant as well as NFA grows at the same rate of sales. The firm is also projected to decrease shares by 3% per year.

Figure 24: FCFE and discounted, 2017 - 2022

	2017	2018	2019	2020	2021	2022	2023
FCFE	(3.99)	0.11	4.48	3.22	6.50	6.73	5.28
Discounted FCFE	($3.57)	$0.09	$3.21	$2.06	$3.73	$3.45	$2.42

Added together, these discounted cash flows total $14.87.

Stage Three – Net income for the years 2017 – 2021 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from $6.63 in 2017 to $8.84 in 2023. At least half of this growth is due to share buybacks and the other 1% to 3% per year is due to sales growth. It is important to note that the model does not forecast a recession, and instead continued modest growth from high levels of auto unit sales.

Figure 25: Estimates for 2017-2023

	2017	2018	2019	2020	2021	2022	2023
EPS	$6.33	$6.86	$7.42	$7.86	$8.14	$8.44	$8.84

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. The average P/E since the firm emerged from bankruptcy is 11.6, which includes both recession and recovery periods. Given that I am growing EPS off of a high level, a below average P/E of 8.5 is utilized which reflects the fact that EPS may be above "normal" in 2023.

Given the assumed terminal earnings per share of $8.84 and a price to earnings ratio of 8.5, a terminal value of $75.10 per share is calculated. Using the 11.8% cost of equity, this number is discounted back to a present value of $34.48.

Total Present Value – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $45.87 is calculated (-3.48 + 14.87 + 34.48). Given GM's current price of $35.15, this model indicates that the stock is quite undervalued.

<u>Scenario Analysis</u>

When evaluating a company, it is important to consider the different scenarios the economy might hold. Currently, the United States has made a strong recovery from the recession of 2008. Trends in unemployment, consumer confidence, interest rates and oil prices have been at ideal levels to support economic expansion in the United States. With the transition of power in The White House, the future has become uncertain. Below is a bull and bear case of what may happen in the next years. I expect a slow but steady growth with a probability of 50%.

Bull Case

Bull Case	FY 2017E	FY 2018E
EPS	$6.74	$8.05
Dividends	$1.64	$1.90

Oil prices remain between $50 and $60 per barrel, unemployment remains under 5%, interest rates rise slowly enough to lengthen economic expansion as opposed to causing contraction and consumer confidence remains optimistic. Europe settles and auto sales soar. South America rebounds from recession and China continues to boom. I would expect GM sales to reach $170 billion worldwide and EPS to rise around above $7.00 with a quarterly dividend of $0.50. I give this a probability of 25%.

Bear Case

Bear Case	FY 2017E	FY 2018E
EPS	$6.09	$6.55
Dividends	$0.00	$0.00

Oil prices rise above $80 per barrel, causing consumers to rush to small, low-margin vehicles, essentially cutting GM's margins in half. If Interest rates rise too quickly, this would limit credit affordability and availability. EPS would return to the lows of 2013 at about $3.00 and no quarterly dividend. I expect the chances of this happening to have a probability 25%.

Business Risks

Although I believe the stock is a buy, there are many business risks:

<u>Profits dependent on sale of full-size pick-up trucks and SUVs</u>

General Motors offers a variety of small, mid-size and large cars, crossovers, SUVs and trucks. It generally recognizes higher profit margins on full-size pick-up trucks and SUVs. GM's success is strongly dependent upon consumer preferences and its ability to sell higher margin vehicles in sufficient volumes.

<u>Fuel Prices</u>

In 2016, an estimated 60% of General Motors' sales were from light truck type vehicles. Any increases in the price of oil or any sustained shortage of oil, including as a result of global political instability, could cause a shift in consumer demand towards smaller, more fuel efficient vehicles, and weaken the demand for higher margin full-size pick-up trucks and SUV's.

<u>Changes in foreign currency exchange rates and interest rates:</u>

General Motors lost a substantial amount due to increasing sales in countries with weakening currencies. This was especially true for sales in Brazil where the Real depreciated as the overall economy tumbled. Additionally, GM Financial has become an increasingly profitable segment that borrows locally. If the cost of borrowing increases for GMF, this increase in cost would transfer to consumers who might otherwise not to purchase GM vehicles.

<u>Foreign Policy Changes and Tariffs:</u>

Business in China is subject to aggressive competition and is sensitive to economic and market conditions. Changes in international trade and investment policies, especially between the U.S and China.

Appendix 1: Sales Forecast

Sales								Bull Case		Bear Case	
Items	**Dec-12**	**Dec-13**	**Dec-14**	**Dec-15**	**Dec-16E**	**Dec-17E**	**Dec-18E**	**Dec-17E**	**Dec-18E**	**Dec-17E**	**Dec-18E**
Sales	152,256	155,427	155,929	152,356	164,958	170,603	175,346	181,016	198,146	164,458	164,596
Growth		*2.1%*	*0.3%*	*-2.3%*	*8.3%*	*3.4%*	*2.8%*	*9.7%*	*9.5%*	*-0.3%*	*0.1%*
GMNA	89,910	95,099	101,199	106,622	117,743	118,920	117,707	124,866	131,159	115,352	113,011
Growth		*5.8%*	*6.4%*	*5.4%*	*10.4%*	*1.0%*	*-1.0%*	*6.1%*	*5.0%*	*-2.0%*	*-2.0%*
% of sales	*59.1%*	*61.2%*	*64.9%*	*70.0%*	*71.4%*	*69.7%*	*67.1%*	*69.0%*	*66.2%*	*70.1%*	*68.7%*
Units	3,019	3,276	3,413	3,612	3,901	3,940	3,861	4,096	4,260	3,784	3,670
Growth		*8.5%*	*4.2%*	*5.8%*	*8.0%*	*1.0%*	*-2.0%*	*5.0%*	*4.0%*	*-3.0%*	*-3.0%*
Total	17,847	19,092	20,204	21,518	22,594	22,594	22,142	23,046	23,276	22,142	21,699
Growth		*7.0%*	*5.8%*	*6.5%*	*5.0%*	*0.0%*	*-2.0%*	*2.0%*	*1.0%*	*-2.0%*	*-2.0%*
Market share	16.9%	17.2%	16.9%	16.8%	17.3%	17.4%	17.4%	*17.8%*	*18.3%*	*17.1%*	*16.9%*
Avg Price	$29.78	$29.03	$29.65	$29.52	$30.18	$30.18	$30.48	*$30.48*	*$30.79*	*$30.48*	*$30.79*
Growth		*-2.5%*	*2.1%*	*-0.4%*	*2.3%*	*0.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
GME	23,055	21,962	22,235	18,704	19,031	19,412	19,994	20,554	22,198	18,651	18,464
Growth		*-4.7%*	*1.2%*	*-15.9%*	*1.8%*	*2.0%*	*3.0%*	*8.0%*	*8.0%*	*-2.0%*	*-1.0%*
% of sales	*15.1%*	*14.1%*	*14.3%*	*12.3%*	*11.5%*	*11.4%*	*11.4%*	*11.4%*	*11.2%*	*11.3%*	*11.2%*
GMIO	20,588	18,411	14,392	12,626	12,058	13,264	14,590	14,469	17,363	12,661	13,294
Growth		*-10.6%*	*-21.8%*	*-12.3%*	*-4.5%*	*10.0%*	*10.0%*	*20.0%*	*20.0%*	*5.0%*	*5.0%*
% of sales	*13.5%*	*11.8%*	*9.2%*	*8.3%*	*7.3%*	*7.8%*	*6.0%*	*8.0%*	*8.8%*	*7.7%*	*8.1%*
GMSA	16,700	16,478	13,115	7,820	6,647	6,448	6,770	6,979	7,677	5,982	5,683
Growth		*-1.3%*	*-20.4%*	*-40.4%*	*-15.0%*	*-3.0%*	*5.0%*	*5.0%*	*10.0%*	*-10.0%*	*-5.0%*
% of sales	*11.0%*	*10.6%*	*8.4%*	*5.1%*	*4.0%*	*3.8%*	*3.9%*	*3.9%*	*3.9%*	*3.6%*	*3.5%*
Corporate and Elimations	42	142	151	150	150	152	155	153	156	150	150
Growth		*238.1%*	*6.3%*	*-0.7%*	*0.0%*	*1.0%*	*2.0%*	*2.0%*	*2.0%*	*0.0%*	*0.0%*
% of sales	*0.0%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Automotive	150,295	152,092	151,092	145,922	155,358	156,937	155,672	167,022	178,554	152,796	150,602
Growth		*1.2%*	*-0.7%*	*-3.4%*	*6.5%*	*1.0%*	*-0.8%*	*7.5%*	*6.9%*	*-1.6%*	*-1.4%*
% of sales	*98.7%*	*97.9%*	*96.9%*	*95.8%*	*94.2%*	*92.0%*	*88.8%*	*92.3%*	*90.1%*	*92.9%*	*91.5%*
GM Financial	1,961	3,335	4,837	6,434	9,329	12,408	16,130	13,994	19,592	11,662	13,994
Growth		*70.1%*	*45.0%*	*33.0%*	*45.0%*	*33.0%*	*30.0%*	*50.0%*	*40.0%*	*25.0%*	*20.0%*
% of sales	*1.3%*	*2.1%*	*3.1%*	*4.2%*	*5.8%*	*8.0%*	*11.2%*	*7.7%*	*9.9%*	*7.1%*	*8.5%*

Appendix 2: Income Statement

Income Statement	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
Sales	$152,256	$155,427	$155,929	$152,356	$164,958	$170,603	$175,346
Direct costs	141,443	137,373	142,121	134,054	142,689	148,424	150,798
Gross Margin	10,813	18,054	13,808	18,302	22,269	22,178	24,548
SG&A, R&D, and other	39,019	10,262	9,159	10,141	10,722	9,383	10,521
EBIT	(28,206)	7,792	4,649	8,161	11,547	12,795	14,028
Interest	489	334	403	443	734	912	1,116
EBT	(28,695)	7,458	4,246	7,718	10,813	11,883	12,912
Taxes	(34,831)	2,127	228	(1,897)	1,406	2,971	3,228
Income	6,136	5,331	4,018	9,615	9,407	8,912	9,684
Other	1,277	1,561	1,214	(72)	(99)	(100)	300
Net income	4,859	3,770	2,804	9,687	9,506	9,012	9,384
Basic Shares	1,566	1,393	1,605	1,586	1,538	1,424	1,368
EPS	$3.10	$2.71	$1.75	$6.11	$6.18	$6.33	$6.86
Diluted Shares	1675	1676	1687	1640	1578	1464	1408
DPS	$2.90	$2.25	$1.66	$5.91	$6.02	$6.16	$6.66
Growth Statistics							
Sales		*2.1%*	*0.3%*	*-2.3%*	*8.3%*	*3.4%*	*2.8%*
Direct Costs		*-2.9%*	*3.5%*	*-5.7%*	*6.4%*	*4.0%*	*1.6%*
Gross Margin		*67.0%*	*-23.5%*	*32.5%*	*21.7%*	*-0.4%*	*10.7%*
SG&A, R&D, and other		*-73.7%*	*-10.7%*	*10.7%*	*5.7%*	*-12.5%*	*12.1%*
EBIT		*-127.6%*	*-40.3%*	*75.5%*	*41.5%*	*10.8%*	*9.6%*
Interest		*-31.7%*	*20.7%*	*9.9%*	*65.7%*	*24.2%*	*22.3%*
EBT		*-126.0%*	*-43.1%*	*81.8%*	*40.1%*	*9.9%*	*8.7%*
Taxes		*-106.1%*	*-89.3%*	*-932.0%*	*-174.1%*	*111.3%*	*8.7%*
Continuing income		*-13.1%*	*-24.6%*	*139.3%*	*-2.2%*	*-5.3%*	*8.7%*
Other		*22.2%*	*-22.2%*	*-105.9%*	*37.5%*	*1.0%*	*-400.0%*
Net income		*-22.4%*	*-25.6%*	*245.5%*	*-1.9%*	*-5.2%*	*4.1%*
Basic Shares		*-11.0%*	*15.2%*	*-1.2%*	*-3.0%*	*-7.4%*	*-3.9%*
EPS		*-12.8%*	*-35.4%*	*249.6%*	*1.2%*	*2.4%*	*8.4%*
DPS		*-22.5%*	*-26.1%*	*255.4%*	*2.0%*	*2.2%*	*8.3%*
Common Size							
Sales	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Direct Costs	*92.9%*	*88.4%*	*91.1%*	*88.0%*	*86.5%*	*87.0%*	*86.0%*
Gross Margin	*7.1%*	*11.6%*	*8.9%*	*12.0%*	*13.5%*	*13.0%*	*14.0%*
SG&A, R&D, and other	*25.6%*	*6.6%*	*5.9%*	*6.7%*	*6.5%*	*5.5%*	*6.0%*
EBIT	*-18.5%*	*5.0%*	*3.0%*	*5.4%*	*7.0%*	*7.5%*	*8.0%*
Interest	*0.3%*	*0.2%*	*0.3%*	*0.3%*	*0.4%*	*0.5%*	*0.6%*
EBT	*-18.8%*	*4.8%*	*2.7%*	*5.1%*	*6.6%*	*7.0%*	*7.4%*
Taxes	*-22.9%*	*1.4%*	*0.1%*	*-1.2%*	*0.9%*	*1.7%*	*1.8%*
Continuing income	*4.0%*	*3.4%*	*2.6%*	*6.3%*	*5.7%*	*5.2%*	*5.5%*
Other	*0.8%*	*1.0%*	*0.8%*	*0.0%*	*-0.1%*	*-0.1%*	*0.2%*
Net income	*3.2%*	*2.4%*	*1.8%*	*6.4%*	*5.8%*	*5.3%*	*5.4%*

Appendix 3: Balance Sheet

Balance Sheet	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
Cash	18,422	20,021	18,954	15,238	16,201	14,828	18,826
Operating assets ex cash	42,586	52,508	55,450	54,606	57,735	59,711	61,371
Operating assets	61,008	72,529	74,404	69,844	73,936	74,539	80,197
Operating liabilities	25,166	23,621	22,529	24,062	28,043	30,708	33,316
NOWC	35,842	48,908	51,875	45,782	45,893	43,830	46,881
NOWC ex cash (NWC)	17,420	28,887	32,921	30,544	29,692	29,002	28,055
NFA	79,426	84,843	93,875	116,513	141,231	156,516	166,996
Invested capital	*$115,268*	*$133,751*	*$145,750*	*$162,295*	*$187,124*	*$200,347*	*$213,878*
Marketable securities	8,988	8,972	9,222	8,163	8,205	7,205	7,705
Total assets	*$149,422*	*$166,344*	*$177,501*	*$194,520*	*$223,372*	*$238,260*	*$254,898*
Short-term and long-term debt	$5,172	$7,137	$46,665	$63,111	$83,700	$98,700	$115,700
Other liabilities	82,084	92,412	72,283	67,024	66,568	61,568	54,068
Debt/equity-like securities	756	567	567	452	292	102	(48)
Equity	36,244	42,607	35,457	39,871	45,477	47,890	52,571
Total supplied capital	*$124,256*	*$142,723*	*$154,972*	*$170,458*	*$196,037*	*$208,260*	*$222,291*
Total liabilities and equity	*$149,422*	*$166,344*	*$177,501*	*$194,520*	*$224,080*	*$238,968*	*$255,607*

Appendix 4: Ratio Page

Ratios	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18
Profitability							
Gross margin	7.1%	11.6%	8.9%	12.0%	13.5%	13.0%	14.0%
Operating (EBIT) margin	-18.5%	5.0%	3.0%	5.4%	7.0%	7.5%	8.0%
Net profit margin	3.2%	2.4%	1.8%	6.4%	5.8%	5.3%	5.4%
Activity							
NFA (gross) turnover		1.89	1.74	1.45	1.28	1.15	1.08
Total asset turnover		0.98	0.91	0.82	0.79	0.74	0.71
Liquidity							
Op asset / op liab	2.42	3.07	3.30	2.90	2.64	2.43	2.41
NOWC Percent of sales		27.3%	32.3%	32.0%	27.8%	26.3%	25.9%
Solvency							
Debt to assets	3.5%	4.3%	26.3%	32.4%	37.5%	41.4%	45.4%
Debt to equity	14.3%	16.8%	131.6%	158.3%	184.0%	206.1%	220.1%
Other liab to assets	54.9%	55.6%	40.7%	34.5%	29.8%	25.8%	21.2%
Total debt to assets	58.4%	59.8%	67.0%	66.9%	67.3%	67.3%	66.6%
Total liabilities to assets	75.2%	74.0%	79.7%	79.3%	79.8%	80.2%	79.7%
Debt to EBIT	(0.18)	0.92	10.04	7.73	7.25	7.71	8.25
EBIT/interest	(57.68)	23.33	11.54	18.42	15.73	14.03	12.57
Debt to total net op capital	4.5%	5.3%	32.0%	38.9%	44.7%	49.3%	54.1%
ROIC							
NOPAT to sales		3.6%	2.8%	6.7%	6.1%	5.6%	6.0%
Sales to IC		1.25	1.12	0.99	0.94	0.88	0.85
Total		4.5%	3.1%	6.6%	5.8%	5.0%	5.1%
Total using EOY IC	5.2%	4.2%	3.0%	6.3%	5.4%	4.8%	4.9%

Appendix 5: Discounted Cash Flow

3 Stage Discounted Cash Flow							
	Year						
	1	2	3	4	5	6	7
	First Stage		Second Stage				
Cash flows	2017	2018	2019	2020	2021	2022	2023
Sales Growth	*3.4%*	*2.8%*	*2.0%*	*3.0%*	*1.0%*	*1.0%*	*2.0%*
NOPAT / S	*5.6%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
S / NWC	*5.88*	*6.25*	*6.25*	*6.25*	*6.25*	*6.25*	*6.25*
S / NFA (EOY)	*1.09*	*1.05*	*1.05*	*1.05*	*1.05*	*1.05*	*1.05*
S / IC (EOY)	*0.92*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
ROIC (EOY)	*5.2%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*	*5.4%*
ROIC (BOY)		*5.7%*	*5.5%*	*5.6%*	*5.4%*	*5.4%*	*5.5%*
Share Growth		*-3.9%*	*-3.0%*	*-3.0%*	*-3.0%*	*-3.0%*	*-3.0%*
Sales	$170,603	$175,346	$178,853	$184,219	$186,061	$187,922	$191,680
NOPAT	$9,596	$10,521	$10,731	$11,053	$11,164	$11,275	$11,501
Growth		*9.6%*	*2.0%*	*3.0%*	*1.0%*	*1.0%*	*2.0%*
- Change in NWC	-690	-947	561	858	295	298	601
NWC	*29002*	*28055*	*28617*	*29475*	*29770*	*30067*	*30669*
Growth NWC		*-3.3%*	*2.0%*	*3.0%*	*1.0%*	*1.0%*	*2.0%*
- Chg NFA	15285	10480	3340	5110	1754	1772	3579
NFA EOY	*156,516*	*166,996*	*170,336*	*175,446*	*177,201*	*178,973*	*182,552*
Growth NFA		*6.7%*	*2.0%*	*3.0%*	*1.0%*	*1.0%*	*2.0%*
Total inv in op cap	14595	9533	3901	5969	2049	2070	4181
Total net op cap	185519	195052	198953	204921	206971	209040	213221
FCFF	($4,999)	$988	$6,830	$5,085	$9,114	$9,206	$7,320
% of sales	*-2.9%*	*0.6%*	*3.8%*	*2.8%*	*4.9%*	*4.9%*	*3.8%*
Growth		*-119.8%*	*591.5%*	*-25.6%*	*79.3%*	*1.0%*	*-20.5%*
- Interest (1-tax rate)	684	837	887	940	997	1056	1120
Growth		*22.3%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
FCFE w/o debt	($5,683)	$151	$5,943	$4,144	$8,118	$8,149	$6,200
% of sales	*-3.3%*	*0.1%*	*3.3%*	*2.2%*	*4.4%*	*4.3%*	*3.2%*
Growth		*-102.7%*	*3838.2%*	*-30.3%*	*95.9%*	*0.4%*	*-23.9%*
/ No Shares	1423.7	1368.2	1,327.1	1,287.3	1,248.7	1,211.2	1,174.9
FCFE	($3.99)	$0.11	$4.48	$3.22	$6.50	$6.73	$5.28
Growth		*-102.8%*	*3960.0%*	*-28.1%*	*101.9%*	*3.5%*	*-21.6%*
* Discount factor	0.89	0.80	0.72	0.64	0.57	0.51	0.46
Discounted FCFE	($3.57)	$0.09	$3.21	$2.06	$3.73	$3.45	$2.42
		Third Stage					
Terminal value P/E							
Net income	$9,012	$9,384	$9,844	$10,113	$10,167	$10,219	$10,381
% of sales	*5.3%*	*5.4%*	*5.5%*	*5.5%*	*5.5%*	*5.4%*	*5.4%*
EPS	$6.33	$6.86	$7.42	$7.86	$8.14	$8.44	$8.84
Growth		*8.4%*	*8.1%*	*5.9%*	*3.6%*	*3.6%*	*4.7%*
Terminal P/E							8.50
* Terminal EPS							$8.84
Terminal value							$75.10
* Discount factor							0.46
Discounted terminal value							$34.48

Summary		
First stage	($3.48)	Present value of first 2 year cash flow
Second stage	$14.87	Present value of year 3-7 cash flow
Third stage	$34.48	Present value of terminal value P/E
Value (P/E)	**$45.87**	= value at beg of fiscal yr 2017

Appendix 6: Porter's 5 Forces

Threat of New Entrants – Low

Entry into the market is relatively difficult because of capital intense requirements, its competitive nature, as well as needing brand development and commercial successes.

Threat of Substitutes - Moderate

With the introduction of ride-hailing services like Uber and Lyft, personal mobility has changed in the way that the immediate purchase of a vehicle is not the only way to travel. This technology has greatly disrupted the automobile industry as well as the transportation industry as a whole. Many auto manufacturers have invested in this new technology inclduing GM, Toyota and Volkswagen.

Supplier Power - Low

There are many suppliers for automobile parts and components, which decreases their influence over the larger auto manufacturers.

Buyer Power – High

General Motors' faces a market of consumers with low switching cost and a lot of information at their fingertips to see what competitors are offering.

Intensity of Competition – Very High

General Motors' operates in one of the most competitive industries. Other auto manufacturers are doing everything they can to increase their market share through effective marketing and pricing, innovative designs and a variety of models. Many automakers must provide generous incentives that ultimately decrease the bottom line.

Appendix 7: SWOT Analysis

Strengths	Weaknesses
Variety of brands and models High-margin light-truck portfolio GM Financial impact on earnings	Low-margin small cars High EOY inventory
Opportunities	**Threats**
Further expansion in China Emerging markets: Mexico/Brazil Rideshare tech to boost sales	Increase in oil prices Incentives decrease bottom line Currency exchange fluctuations