SKY HARBOR
CAPITAL MANAGEMENT

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Weekly Briefing
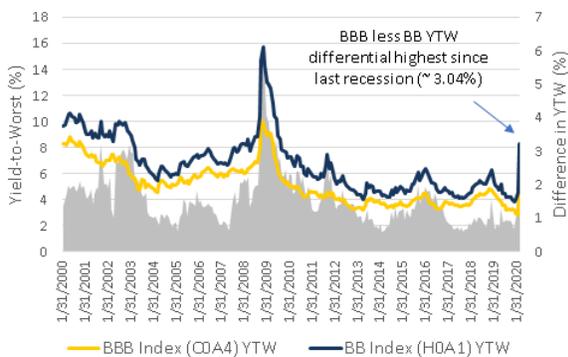
SKYView: Fallen Angels

As the coronavirus and disintegration of OPEC+ continue to hamper economic growth, rating agencies have begun to revisit the outlooks for companies under their coverage. In two prior notes to investors (in 2018 and 2019), we simulated fallen angel volumes in a series of shocks to a rapidly growing BBB market. In this *Weekly Briefing*, we update our analysis given the emergence of a new set of risks, and estimate that **fallen angels could amount to $250bn in 2020 and most negatively impact Energy, Automotive and Utility sectors**.

What Has Changed?

Late in the cycle and seeing initial signs of a slowdown in y/y growth, **the onset of the coronavirus and associated shutdowns created a negative shock to an already fragile global economy**. As businesses face mandatory shutdowns and people all over the globe partake in social distancing, economic growth is grinding to a nearly unprecedented halt. Rating agencies, however, have been active, with over $60bn of debt already downgraded from investment grade to high yield through the time of publication. With some economists projecting US GDP growth of -20% or worse in Q2'20, this year could see the largest shift of debt from BBB to BB indices since the beginning of high yield as an asset class. Still, there are reasons to be optimistic. First, negative GDP growth is expected to be severe but short-lived, with most economists also anticipating a rebound in H2'20. Second, as demonstrated below, the difference in funding costs between BBB and BB markets has rapidly widened (and will likely continue to do so given the Fed's ability to buy low-rated investment grade bonds, but not high yield bonds), a dynamic that should entice management teams to defend current ratings via dividend cuts, a scale-back of capital expenditures and other forms of cost savings. Still, given the near-term expectation of a sharp contraction in corporate profitability, self-help efforts may prove insufficient for many issuers on the cusp of a downgrade.
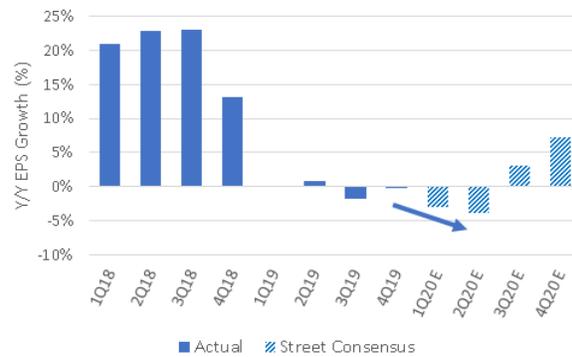
Gap in BBB to BB Funding Costs On the Rise...
based on montly YTW data since 2000, differential shaded grey (RHS)

BBB less BB YTW differential highest since last recession (~ 3.04%)

BBB Index (C0A4) YTW — BB Index (H0A1) YTW

Source: SKY Harbor, ICE BofA Indices, FactSet

...But Corporate Earnings Growth Expected to Fall
S&P 500 EPS y/y growth (%), quarterly data

Actual / Street Consensus

Years in the Making

A clear trend this cycle has been the growth of investment grade debt (+149% as measured by face value), particularly within the more borderline BBB ratings cohort (+225%). The ICE BofA US Corporate BBB Index (C0A4) is now $3.3tn in size, making up ~ 50% of the ICE BofA US Corporate Index (C0A0), relative to ~ 38% of the investment grade index at the start of the current cycle (Q3'09). At its current size, the BBB index is 2.7x the size of the ICE BofA US High Yield Index (H0A0) and 5.4x the size of the ICE BofA BB US High Yield Index (H0A1), well above the relative comparisons a decade ago (~ 1.3x and 3.3x, respectively).

IG Market Growth has Outpaced HY
monthly data, July '09 through November '19

Index	Ticker	Face Value of Debt ($ millions)		
		July '09	Feb '20	Growth
US Corp AAA	C0A1	23,587	97,557	
US Corp AA	C0A2	429,588	525,402	
US Corp A	C0A3	1,210,886	2,732,289	
US Corp BBB	C0A4	1,029,947	3,344,886	+ 225%
US Corp Master	**C0A0**	**2,694,007**	**6,700,133**	**+ 149%**
US High Yield BB	H0A1	313,491	617,033	
US High Yield B	H0A2	230,525	463,783	
US High Yield CCC	H0A3	243,437	174,754	
US High Yield Index	**H0A0**	**787,453**	**1,255,570**	**+ 59%**

	July '09	Feb '20
US Corp BBB Size <u>vs.</u> US High Yield BB Size	3.3x	5.4x
US Corp BBB Size <u>vs.</u> US High Yield Index Size	1.3x	2.7x

Source: SKY Harbor, ICE BofA Indices, FactSet
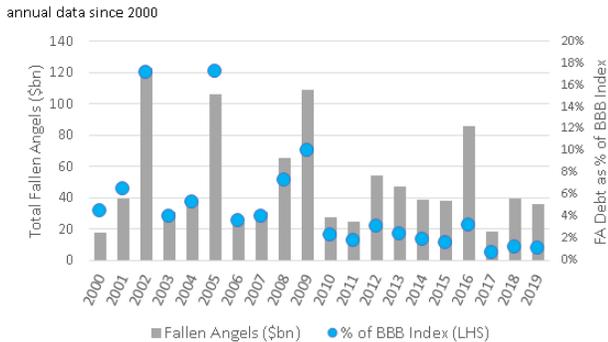
BBB Growth has Outpaced IG Growth
monthly data, current cycle

AAA Debt / AA Debt / A Debt / BBB Debt / BBB as a % of IG Debt (RHS)
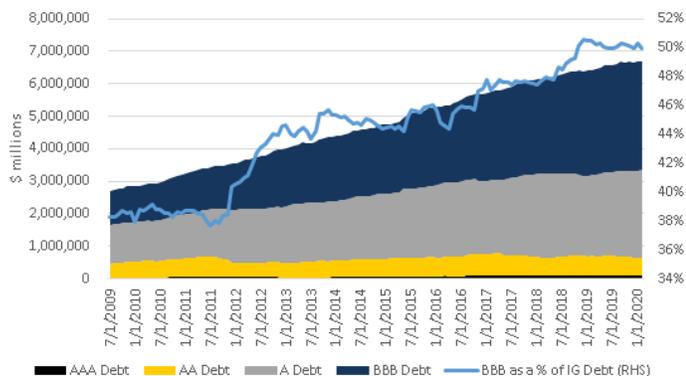
A Turning Tide

Fallen Angel volumes have eclipsed the $100bn mark in only three years over the last twenty ('02, '05 and '09), and equated to ~ 17% of the starting value of BBB debt at its peak ('05). Total Fallen Angel debt has remained below $40bn per annum since the commodity crisis in '16, with Rising Stars outnumbering Fallen Angels in the eight consecutive quarters ended December 31, 2019. However, **through the first two months of 2020, an inflection point was reached**, with the downgrade of Kraft Heinz into the high yield space driving the reversal.

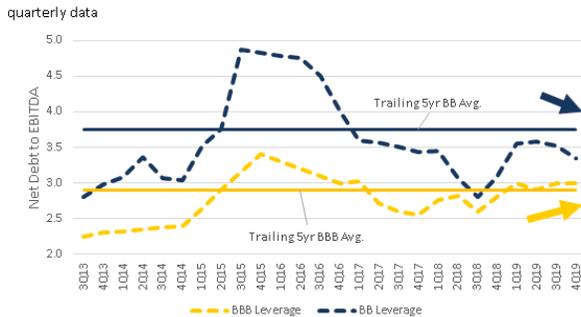**2002 and 2005 Were Peak Fallen Angel Years (Absolute & Relative)**
annual data since 2000

Legend: Fallen Angels ($bn) · % of BBB Index (LHS)

Net Rising Stars in 2018 and 2019; Inflection Reached in 2020
quarterly data

Inflection reached in 2020

Legend: Fallen Angels · Rising Stars · Net

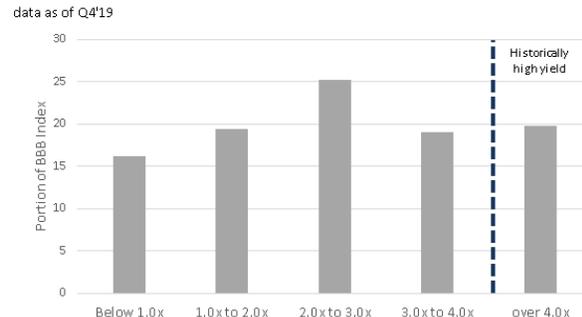Source: SKY Harbor, ICE BofA Indices, BofA Merrill Lynch, Moody's
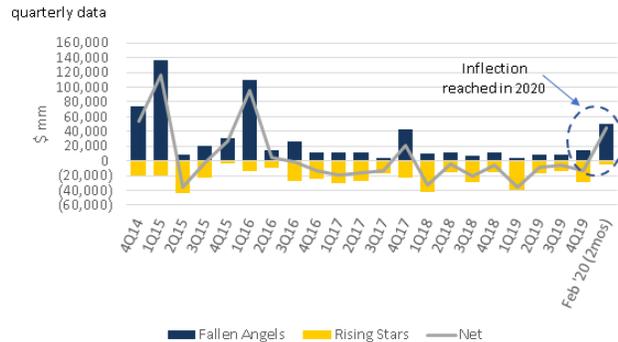
There are additional signs of risk factors building in the market, including higher-than-average leverage in the BBB space. By way of example, average **BB and BBB leverage metrics have historically moved in tandem over longer periods of time, but directionality has diverged over the last several quarters** (note that a change in the handling of operating leases drove modest re-leveraging at the start of 2019). The uptick in BBB leverage to above-average levels (while BB leverage has declined and is tracking to below-average levels) has been attributed to heightened M&A activity in the investment grade space. We highlight that nearly 20% of debt within that rating bucket is issued by entities with leverage in excess of 4.0x at present, typically a level associated with a high yield rating, and above the trailing-5yr-average BB leverage metric, as shown below. While we acknowledge that rating agencies have historically allowed companies to maintain an IG rating post a leveraging transaction (it takes time to realize synergies, reduce costs and de-lever to more normalized levels following an acquisition), an expectedly sharp turn in the corporate earnings growth cycle could provide the necessary impetus to downgrade some of the more "cuspy" BBB credits.

Leverage Metrics: BBB vs. BB
quarterly data

Trailing 5yr BB Avg.
Trailing 5yr BBB Avg.

Legend: BBB Leverage · BB Leverage

BBB Leverage Distribution
data as of Q4'19

Historically high yield

x-axis: Below 1.0x · 1.0 to 2.0x · 2.0 to 3.0x · 3.0 to 4.0x · over 4.0x

Source: SKY Harbor, Bloomberg, Capital IQ, BofA Merrill Lynch, ICE BofA Indices

Gauging Sector Risk

BBB index growth has come from every sector, ranging from Healthcare (+1,140%) to Media (+2%), and comes from both above and below average issue and issuer sizes. Additionally, BBB growth has been driven by both downgrades and net new issuance, the latter driven by an uptick in M&A stemming from favorable market conditions and elevated CEO confidence earlier in the cycle. On a very basic level, we view sectors with the most amount of BBB debt (Energy, followed by Banking and Healthcare) and those with the greatest amount of debt growth this cycle (Healthcare, followed by Leisure and Autos) to be at risk.

BBB Debt by Sector
current cycle (July '09 to Feb '20)
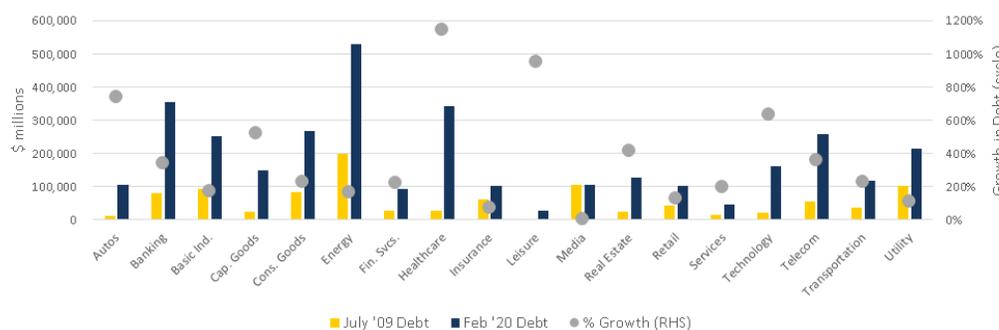
Legend: July '09 Debt · Feb '20 Debt · % Growth (RHS)

Key Outliers
sector growth

Sectors w/ Most BBB Debt O/S

Sector	Size ($mm)
Energy	530,820
Banking	353,624
Healthcare	341,735
Cons. Goods	268,445
Telecom	257,614

Sectors w/ Most BBB Growth

Sector	% growth
Healthcare	1140%
Leisure	949%
Autos	738%
Technology	632%
Cap. Goods	522%

Source: SKY Harbor, ICE BofA Indices

Empirical evidence shows that fallen angels have traded well upon entering the high yield index, likely the result of spread widening while still a BBB index constituent in the months preceding a downgrade, and spread tightening in the months immediately following a downgrade (driven by portfolio selling and then buying due to market technicals). **Stress, however, is often felt by existing BB securities, particularly those within sectors overwhelmed by a wave of downgrades, as they are often liquidated to make room for new index entrants**. For this reason, we believe the relative amount of sector debt that could enter the high yield market is an important metric to track. Among sectors most negatively impacted by COVID-19 related shutdowns and depressed crude prices (highlighted below), we believe the Energy sector will be in the most challenging position.

Energy Screens Worst Among Sectors Most Exposed to Near-Term Pressures

data as of March 2020

BBB Index			BB Index			Full HY Index		
Sector	Face Value ($mm)	% of BBB	Sector	Face Value ($mm)	Relative BBB Sector Size	Sector	Face Value ($mm)	Relative BBB Sector Size
Automotive	108,168	3%	Automotive	11,868	9.1x	Automotive	23,471	4.6x
Banking	349,316	10%	Banking	18,714	18.7x	Banking	19,022	18.4x
Basic Industry	253,008	8%	Basic Industry	71,825	3.5x	Basic Industry	125,289	2.0x
Capital Goods	161,391	5%	Capital Goods	23,293	6.9x	Capital Goods	78,887	2.0x
Consumer Goods	248,119	7%	Consumer Goods	34,560	7.2x	Consumer Goods	64,726	3.8x
Energy	517,984	15%	Energy	76,282	6.8x	Energy	174,503	3.0x
Financial Services	94,919	3%	Financial Services	39,474	2.4x	Financial Services	52,736	1.8x
Healthcare	345,358	10%	Healthcare	56,386	6.1x	Healthcare	126,830	2.7x
Insurance	103,900	3%	Insurance	2,712	38.3x	Insurance	12,555	8.3x
Leisure	28,656	1%	Leisure	31,793	0.9x	Leisure	63,254	0.5x
Media	105,440	3%	Media	74,576	1.4x	Media	129,709	0.8x
Real Estate	127,132	4%	Real Estate	15,750	8.1x	Real Estate	21,097	6.0x
Retail	100,969	3%	Retail	26,989	3.7x	Retail	61,621	1.6x
Services	48,214	1%	Services	31,351	1.5x	Services	71,588	0.7x
Technology & Electronics	163,275	5%	Technology & Electronics	35,772	4.6x	Technology & Electronics	62,365	2.6x
Telecommunications	252,136	8%	Telecommunications	35,037	7.2x	Telecommunications	124,851	2.0x
Transportation	118,126	4%	Transportation	6,042	19.6x	Transportation	12,189	9.7x
Utility	218,775	7%	Utility	24,609	8.9x	Utility	30,878	7.1x
Grand Total	**3,344,886**		**Grand Total**	**617,033**	**5.4x**	**Grand Total**	**1,255,570**	**2.7x**

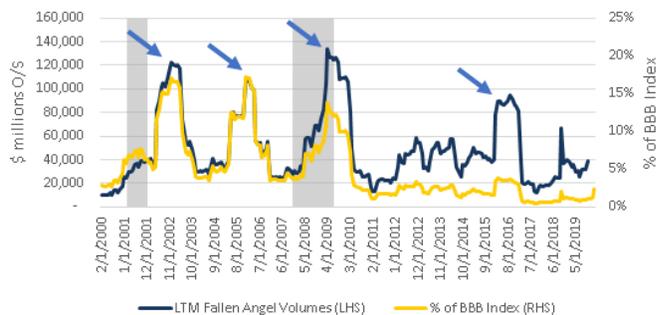Source: SKY Harbor, ICE BofA Indices

Quantifying the Potential

To more realistically estimate the magnitude of debt that could enter the high yield market upon a turn in the cycle, we look back at peak fallen angel periods over the last 20 years. As demonstrated below, **there have been four spikes in fallen angel volumes since the year 2000 (both in and out of recessions), the most recent driven by a wave of commodity downgrades in 2016**. On a cumulative basis (over the span of 24 months), an average of $150bn of fallen angels hit the high yield market during those periods. At the apex of each run-up, 4% to 17% of the then-existing BBB index was downgraded to high yield. An equivalent average percentage applied to today's significantly larger BBB index implies the potential for ~ $450bn of fallen angel volumes to enter the high yield market.

Fallen Angel Size (Absolute and Relative to BBB Debt O/S)

monthly data since 2000, recessions shaded in grey


LTM Fallen Angel Peak Periods

monthly data since 2000

Date (LTM Peak)	2 Year Cumulative Fallen Angel Volume	Peak Fallen Angel Volume (% of BBB Index)	Implied Fallen Angel Volume Today (Peak)
December '02	$158 billion	17%	~$572 billion
December '05	$132 billion	17%	~$575 billion
April '09	$184 billion	14%	~$461 billion
September '16	$109 billion	4%	~$134 billion
4 Peak Average	**~ $150 billion**	**13%**	**~ $450 billion**

Source: SKY Harbor, ICE BofA Indices, BofA Merrill Lynch

This Fallen Angel cycle, in theory, may play out far differently than past periods of stress given the expectation of a sharp but brief contraction. As such, the summation of FA debt over a 24-month period, as was done above, may prove to be a flawed method. In the very near term, economists expect GDP growth to decline rapidly, perhaps as significantly as -20% in Q2'20 alone. It goes without saying that **such pressure on economic growth would likely accelerate an already negatively trending ratings migration rate, an historic precursor to FA stress**.
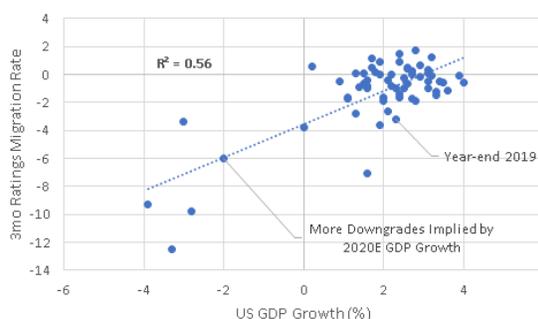
GDP Growth Highly Correlated to Ratings Migration Rates
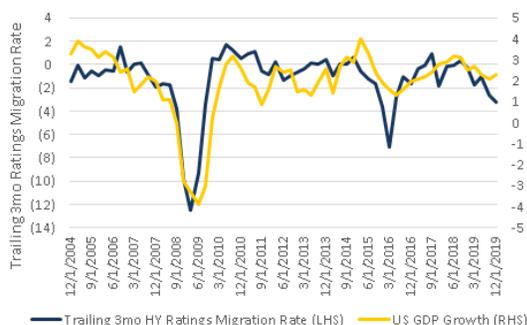
quarterly data, trailing 15 years

2020E GDP Growth Implies Further Downgrade Pressure

quarterly data, trailing 15 years

Source: SKY Harbor, ICE BofA Indices, BofA Merrill Lynch, Bureau of Economic Analysis

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With this in mind, we used the historical relationship between Fallen Angel volumes and both US GDP growth and unemployment to generate downgrade estimates. As demonstrated in the scatterplots below, -2% GDP growth in 2020 would historically coincide with the downgrade of ~ 9.3% of the BBB index to high yield, equating to ~ $300bn (using today's BBB index size). Furthermore, a 6% unemployment rate would coincide with ~ 1.25% of the high grade index being downgraded to high yield, equating to ~ $85bn.
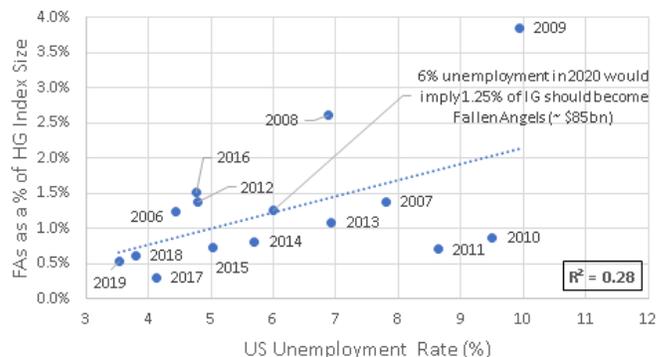
Fallen Angels vs. GDP Growth
annual data since 2006

Fallen Angels vs. Unemployment Rate
annual data since 2006
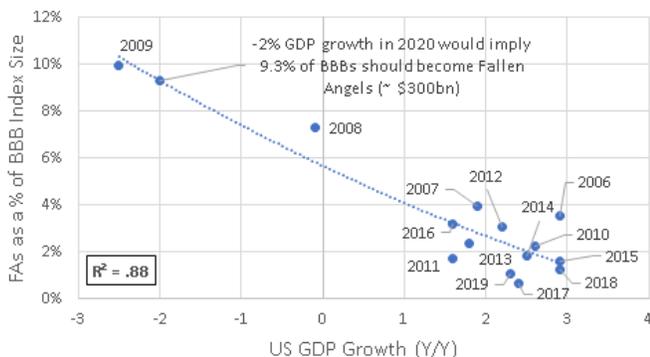
Source: SKY Harbor, ICE BofA Indices, BofA Merrill Lynch, Bureau of Economic Analysis, Bloomberg

Calculating an average of methods (cumulative FA volume in prior peak stress periods, peak FA volume as a % of BBB debt, US GDP growth derived, and US Unemployment Rate derived) **we arrive at a 2020 Fallen Angel volume estimate of ~ $250bn**. If this were to occur, it would be twice the total of the next highest year (~ $123bn in 2002), but well below record levels when normalized by the amount of BBB debt outstanding (2020 FAs would be ~ 7% of the BBB index size, well below the 17% registered in 2005).

Rating Bucket Positioning

Turning to market performance, we examine the three periods in the last two decades in which LTM fallen angel volumes, normalized by the size of the BB market, peaked at a standard deviation above the set average ('02/'03, '05/'06, and '09/'10, shaded grey in the chart at left below). Returns were orderly in the latter two periods (i.e., Single-B returns exceeded BB returns, which exceeded BBB returns), giving credence to the aforementioned dynamic of fallen angel bonds changing hands ahead of a downgrade (and, therefore, not causing a BB performance drag upon entering high yield). An exception, however, occurred in the May '02 to June '03 period, when the BB index trailed Single-Bs and BBBs. While the relatively limited history of the high yield market leaves us with a set of test periods that is far from robust, we speculate that BB returns may have been muted given the need to absorb a relatively higher amount of fallen angel debt (fallen angel debt to BB market size was greatest in this period). Importantly, **these results support our view that the relative amount of fallen angel debt (as a % of existing debt in the constituency the downgraded bonds are entering), not the absolute amount, is the key risk factor to monitor**.
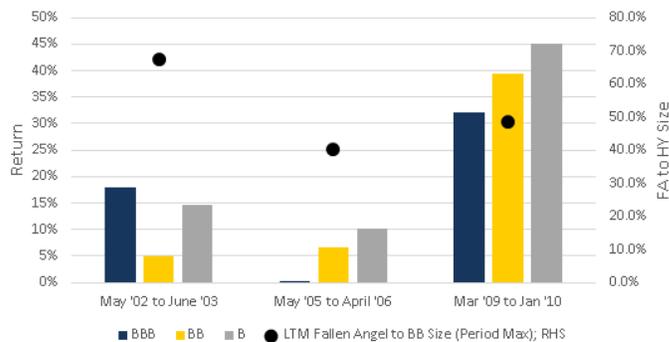
LTM Fallen Angel Volumes as a % of BB Market Size
monthly data, periods exceeding a standard deviation above the average shaded grey
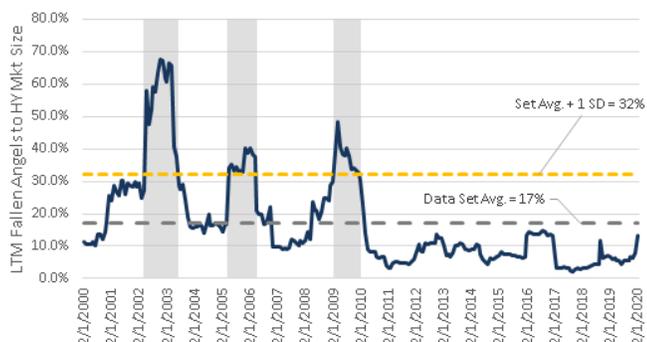
Returns in Elevated Fallen Angel Periods
high fallen angel periods
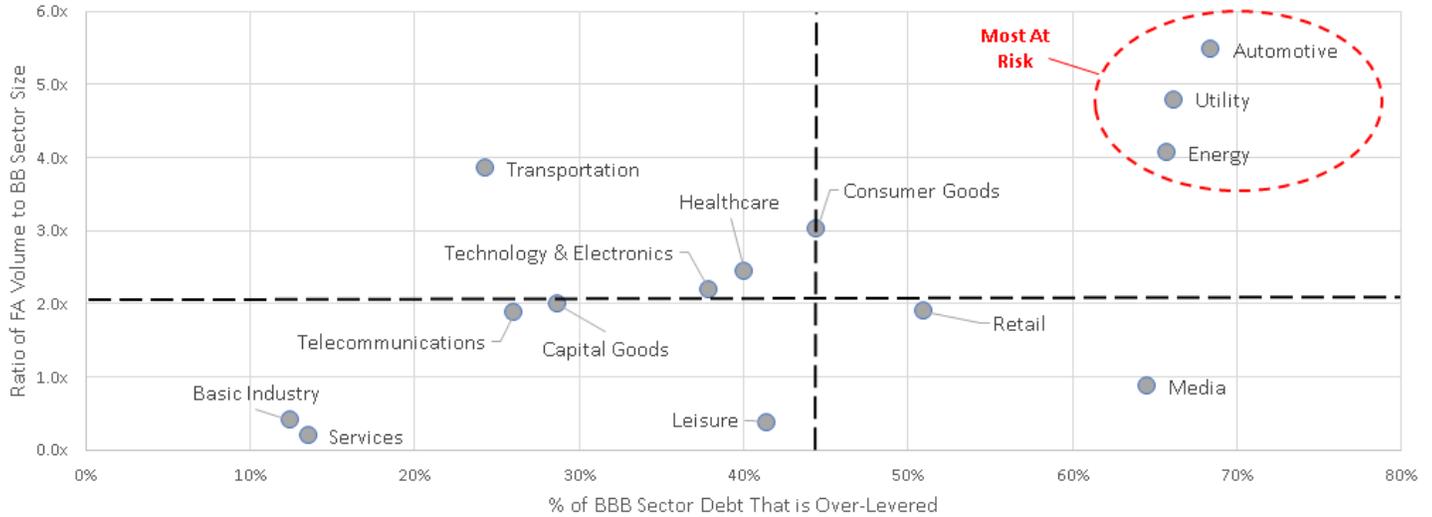

Source: SKY Harbor, ICE BofA Indices

Sector Positioning

To develop a more practical gauge of fallen angel risk by sector, we created a data set of non-financial BBB issues (> 3,000 line items) and assigned each a net debt-to-EBITDA metric by leveraging publicly available financials through Bloomberg and Capital IQ. We then assigned each line item a sector-specific leverage threshold most often utilized by rating agencies as the cutoff for BB ratings. Our analysis further assumes the cycle turns immediately, deleveraging ceases and rating agencies downgrade credits based solely on LTM leverage relative to sector-specific historical BB thresholds (i.e., no leniency for credits with elevated leverage following an acquisition or temporary earnings degradation, and no consideration of non-leverage factors in the rating process). We plot the percentage of BBB sector debt that would fail this leverage simulation (assumed to get downgraded) along the x-axis in the scatterplot below. Across the y-axis, we calculate the size of our assumed downgrade universe (using the leverage simulation above) relative to the size of the BB sector in which it would enter. **In this manner, sectors that perform poorly on both measures (i.e., sectors FA debt would likely come from and those with inflows that are large relative to the existing BB sector base) appear in the upper right portion of the chart below (Energy, Automotive and Utility).**

Leverage-Based Sector Risk Profile
dotted lines mark index averages

Source: SKY Harbor, ICE BofA Indices, Bloomberg, Capital IQ, Morgan Stanley, Moody's

Concluding Points

- A clear trend this cycle has been the growth of investment grade debt (+149% as measured by face value), particularly within the more borderline BBB ratings cohort (+225%).
- BBB index growth has come from every sector, ranging from Healthcare (+1,140%) to Media (+2%), and includes both above and below average issue and issuer sizes.
- Risk factors have been building, including the anticipation that COVID-19 disruptions and oil price wars will weigh on corporate earnings in the near term; however, this sharp contraction may prove temporary in nature.
- There have been four spikes in fallen angel volumes since the year 2000 (both in and out of recessions), the most recent driven by a wave of commodity downgrades in 2016; our analysis suggests that the next "wave of fallen angels" could exceed prior peaks at ~ $250bn (average of methods).
- Empirical evidence, however, shows that fallen angels have traded well upon entering the high yield index.
- We find that the relative amount of fallen angel debt, not the absolute amount, to be a key risk factor to monitor.
- Putting together all of our simulations, we find Energy, Automotive and Utility sectors have the greatest fallen angel risk, followed by Retail and Consumer Goods.

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