UPDATE

Corporate Credit Research | North America

The Nature of the BBBeast

A consistent rule of thumb that we live by when looking for problems in credit cycles: Follow the debt growth. BBB IG debt outstanding has grown to ~\$2.5trn today, a 227% increase since 2009. Along these lines, we see elevated downgrade activity as a "stress point" when the cycle eventually turns.

What has driven the growth? The majority of the increase in BBB debt in this cycle stems from net issuance (\$1.2 trillion), followed by downgraded debt (\$745 billion). Notably, the growth in BBB debt outstanding is not being skewed by a single sector or a small part of the market. Yes, large issuers have grown significantly. For example, the top 25 non-financial BBB names have a total of \$685 billion in index debt (up from \$257 billion in 1Q09). But the number of BBB issuers has also increased by 60% since 2009, while all sectors have increased BBB debt, large and small companies alike.

High debt growth has translated to high leverage: BBBs not surprisingly make up the majority of the leverage "tail" in the IG market, with 31% of BBB debt in our universe now leveraged at or above 4.0x. Our implied ratings analysis tells a similar story, where ~55% of BBB debt would have a HY rating if rated based on leverage alone. Meanwhile, interest coverage has declined steadily since 2014, particularly for BBB issuers, vs. some recent improvement in interest coverage for the A-rated universe.

Sizing up downgrades: In the last three broad downgrade cycles (1989-91, 2000-03, and 2007-09) 7-15% of the starting IG index size was downgraded to HY over the full period. Based on the size of the market today, that would equate to roughly \$350-750 billion of total downgrades this time over a multi-year period. But remember, half the market is already BBB rated, compared to just 27% before the 2000-03 downgrade cycle. Adjusting for the size of the BBB index over time, downgrade volumes in the next cycle could be even larger, moving the range to \$550 billion-\$1.1 trillion.

Downgrades lag the market: The good news is that this is not a story for today in that the big wave of downgrades will likely not come until credit spreads are much wider than they are right now, which will take time to play out. What matters today, in our view, is that valuations are pricing in very few long-term fundamental risks, with the BBB/A non-fin spread basis still near cycle tights. And lastly, when thinking about other markets that could feel the effect as these risks materialize down the line, remember that the BBB part of the IG index is now ~2.5x as large as the entire HY index, with this ratio near record highs.

MORGAN STANLEY & CO. LLC

Adam S Richmond

STRATEGIST

Adam.Richmond@morganstanley.com +1 212 761-1485

Felician G Stratmann

STRATEGIST

Felician.Stratmann@morganstanley.com +1 212 761-1353

Vishwas Patkar

STRATEGIST

Vishwas.Patkar@morganstanley.com +1 212 761-8041

Frederick T Fuchs

STRATEGIST

Frederick.Fuchs@morganstanley.com +1 212 761-4839

Exhibit 1: Downgrades and net issuance have added most to the BBB total



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 2: Supply from above when the cycle turns: BBB par outstanding now ~2.5x as large as the full HY index



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Due to the nature of the fixed income market, the issuers or bonds of the issuers recommended or discussed in this report may not be continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers or bonds of the issuers.

Morgan Stanley does and seeks to do business with companies covered in Morgan Stanley Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Research. Investors should consider Morgan Stanley Research as only a single factor in making their investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.



Introduction

BBB IG debt outstanding has grown significantly in this cycle, a story most IG credit investors know quite well. For example, at ~\$2.5 trillion outstanding, BBB par has increased 227% since the beginning of 2009. The majority of the increase in BBB debt stems from net issuance (\$1.2 trillion), followed by downgraded debt (\$745 billion). Notably, the growth in BBB debt outstanding is not being skewed by a single sector or a small part of the market. Yes, large issuers have grown significantly. For example, the top 25 non-financial BBB names have a total of \$685 billion in index debt (up from \$257 billion in 1Q09). But the number of BBB issuers has also increased by 60% since 2009, while all sectors have increased BBB debt, large and small companies alike. In other words, the increase has been broad-based across the market.

So what does this mean big picture? Credit cycles are always different from one to the next. But a consistent rule of thumb over time that we live by when looking for problems down the line: Follow the debt growth. Very simply, applying to the current cycle, we think BBBs will be one (of a few) stress points when the cycle does turn. Downgrade activity will likely be meaningful. And when thinking about other markets that could feel the effect, remember the BBB part of the IG index is now ~2.5x as large as the entire HY index.

The good news is that this is not a story for today, in that ratings downgrades tend to lag the market. In other words, the big wave of downgrades will likely not come until credit spreads are much wider than they are right now, which will take time to play out. But more importantly, valuations are pricing in very few fundamental risks, in our view, with the BBB/A spread basis still near cycle tights. Hence we remain up-in-quality.

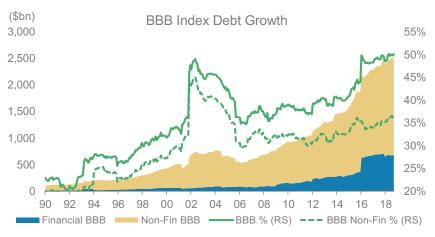
In the report that follows, we walk through the drivers of the growth in BBBs in this cycle and think about implications for credit markets when the cycle ultimately turns.

The Growth in BBBs

We start by walking through what has driven the increase in BBB debt in this cycle. First, after substantial growth for many years, BBBs now represent \$2.5 trillion in par value (or just over 50% of the IG index). Downgrades in the Financial space have helped to propel this figure to all-time highs, a factor that we (and most investors) are not too concerned about, given very healthy Financial credit quality this time around. But Financials are only a small part of the story. Non-financial BBBs have also grown rapidly in this cycle (+181% since 2009), now totaling \$1.84 trillion, or 52% of the total non-financial market (37% of the overall index).



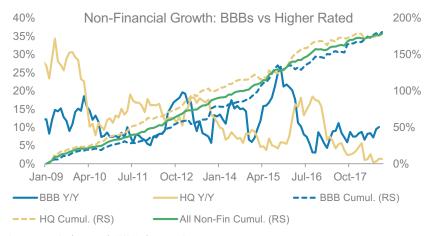
Exhibit 3: IG BBBs now total \$2.5tn; 50% of IG index



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Over the last few years, the growth in non-financial BBBs relative to the full index has been moderated by strong issuance from companies with trapped cash overseas – a cohort that tended towards highly rated names such as Apple, Microsoft, Cisco, and the like. In other words, BBB non-financial debt was growing rapidly over this period, but so was higher-rated non-financial debt. However, with these companies now issuing less debt on account of repatriation reform, BBBs are once again growing faster than their high-quality counterparts (Exhibit 2). For example, non-financial BBBs grew nearly 7% y/y vs. only 1% growth in higher-quality names. Looking ahead, we expect this trend to persist, with non-financial BBBs continuing to increase as a portion of the overall market.

Exhibit 4: Higher-quality debt growth has recently trailed given repatriation, as BBB issuance continues



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Taking a step back, since the beginning of 2009, BBB par has more than tripled (3.3x), while the index has more than doubled (2.4x) – a shift in ratings composition that we can't ignore. Breaking down this growth (Exhibit 5), we note that the majority of the increase stems from net issuance (\$1.2 trillion), followed by downgraded debt (\$745 billion). Rising stars brought in less than \$300 billion of new index debt, offset by approximately \$300 billion of fallen angels. For a full breakdown of this analysis by sector, see Appendix: BBB Debt Growth by Sector.

(\$bn)
3,500
3,000
2,500
2,000
1,500
1,000
770
745

282

1,1155

282

1,1155

282

1,1155

282

1,1155

1,1155

282

1,1155

1,1155

282

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,1155

1,115

Exhibit 5: Downgrades and net issuance have added most to the BBB total

Source: Morgan Stanley Research, FTSE Fixed Income LLC; Note: Downgrades / upgrades counted for debt outstanding in year of downgrade; issuance in subsequent years, less maturities, included in "net" BBB issuance.

Within the "net issuance" cohort, a large portion actually comes from previously downgraded issuers. In other words, after these companies get downgraded, in most cases, they continue growing index debt outstanding. In particular, we find the largest BBB capital structures in the market today, which have increased debt significantly in this cycle, in many cases used to be higher rated. For example, \$991 billion of BBB debt in the index (40% of total BBB par) is associated with ~90 companies that were downgraded into BBB since 2009. As we show in Exhibit 6, after Financials, Telecom and Healthcare have the most BBB debt (which was previously higher rated), followed by a combination of Consumer sectors.

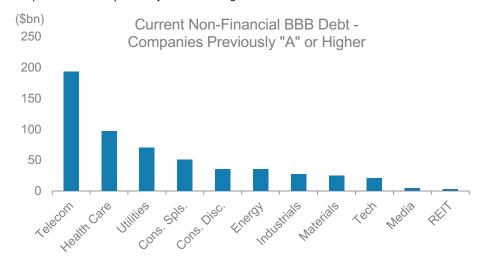


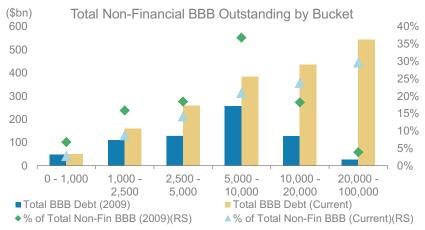
Exhibit 6: Outside of Financials, Telecom and Healthcare have largest BBB debt loads at companies that were previously "A" rated or higher

Source: Morgan Stanley Research, FTSE Fixed Income LLC

Looking again at all issuers (not just the formerly high-rated ones), we note that the growth in BBB index debt is fairly widespread, not just coming from a handful of issuers. First, while the largest BBB issuers are much bigger today vs. earlier in this cycle, there is more BBB par in every debt-outstanding bucket (Exhibit 7).



Exhibit 7: The biggest BBB issuers have gotten much bigger, but more BBB par in all debtoutstanding buckets today



Source: Morgan Stanley Research, FTSE Fixed Income LLC; Note: Debt outstanding bucket measures the total BBB par outstanding today and in 2009 from issuers with total index debt outstanding in each respective range.

Second, the number of BBB issuers in the IG index has risen by about 60% since 1Q09 (Exhibit 8). Third, Exhibit 9 shows significant growth in non-financial BBB debt from the Telecom, Healthcare, Tech, Consumer and Energy sectors, but all sectors have increased BBB debt outstanding in this cycle. Fourth, at the median, non-financial BBB issuers have seen their index debt load grow 56% since 1Q09, which would not be the case if only a handful of largest issuers accounted for the full increase.

Exhibit 8: The number of BBB issuers has grown the most in Financials and Tech...



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 9: ...But all sectors have seen an increase in BBB par outstanding in this cycle



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Lastly, we also examined the top 25 non-financial BBB names in the index to help to gauge how the market has evolved over time. As Exhibit 10 shows, the top 25 names have a total of \$685 billion in index debt (up from \$257 billion in 1Q09) and median debt of \$20 billion (up from \$9 billion in 1Q09) – growth rates in line with the broader non-financial BBB universe. Additionally, the top 25 still represent about a third of the total non-fin BBB universe, the same level as in 2009. However, the composition has changed significantly. For example, only 6 of the top 25 issuers from 2009 are still in the top 25 today and 7 of the names in today's list have resulted from downgrades. TMT and Healthcare are again well-represented at the top, totaling \$351 billion, or 51% of the top 25 names, up from \$104 billion in 1Q09. And we note that many of these issuers have seen debt loads grow as a result of M&A, as we previously discussed in detail (see Corporate Credit Research: M&Aking a Leveraged Balance Sheet, 2018.08.10).

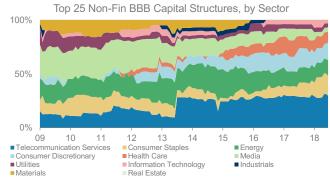


Exhibit 10: The top 25 non-financial BBB capital structures – today vs. 2009

1Q09				Curre	nt		
Rank	Ticker	Sector	BBB Par in Current 1Q09 Rat ng	Rank	Ticker	Sector	BBB Par Rat ng n Current 1Q09
1	CMCSA	Media	25,540 A	1	T	Telecommunication Services	81,912 A
2	TWC	Media	17,154 BBB	2	VZ	Telecommunication Services	75,772 A
3	TWX	Media	14,952 BBB	3	CVS	Consumer Staples	58,682 BBB
4	MDLZ	Consumer Staples	13,800 BBB	4	GM	Consumer Discretionary	37,848 Rising Star
5	EXC	Utilities	12,484 BBB	5	F	Consumer Discretionary	35,285 Rising Star
3	MO	Consumer Staples	11,900 A	6	KMI	Energy	29,360 BBB
7	DT	Telecommunication Services	11,250 BBB	7	ETP	Energy	27,294 BBB
3	TITIM	Telecommunication Services	11,071 Fallen Angel	8	BATSLN	Consumer Staples	24,959 BBB
9	FE	Utilities	10,291 BBB	9	CHTR	Media	23,839 New
10	KMI	Energy	10,011 BBB	10	KHC	Consumer Staples	22,445 BBB
11	FOXA	Media	9,396 BBB	11	D	Utilities	21,344 BBB
12	HD	Consumer Discretionary	9,250 A	12	WMB	Energy	20,781 BBB
13	BRKHEC	Utilities	8,867 A	13	AGN	Health Care	20,057 A
14	RIOLN	Materials	8,850 A	14	EPD	Energy	20,050 BBB
15	APC	Energy	8,275 BBB	15	CELG	Health Care	19,850 New
16	CTL	Telecommunication Services	8,160 BBB	16	ABT	Health Care	19,535 AA
17	XOM	Energy	7,997 AA	17	VOD	Telecommunication Services	17,945 A
18	PCG	Utilities	7,980 BBB	18	MCD	Consumer Discretionary	17,900 A
19	SUCN	Energy	7,675 A	19	AVGO	Information Technology	17,506 New
20	ARNC	Industrials	7,639 BBB	20	PCG	Utilities	17,505 BBB
21	WMB	Energy	7,203 BBB	21	DELL	Information Technology	16,250 A
22	EPD	Energy	7,200 BBB	22	TWX	Media	15,041 BBB
23	BRITEL	Telecommunication Services	7,000 BBB	23	BDX	Health Care	14,994 New
24	UNP	Industrials	6,950 A	24	FOXA	Media	14,989 BBB
25	AEP	Utilities	6,950 BBB	25	DISCA	Media	14,086 New
Total			257.845				685,229

Source: Morgan Stanley Research, FTSE Fixed Income LLC; Note: New entrants defined as those with no HY debt prior to joining the IG index.

Exhibit 11: Sector composition of the top 25 non-financial BBB names over time

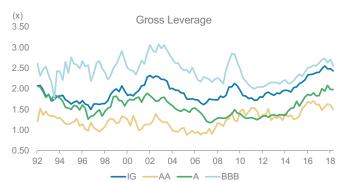


Source: Morgan Stanley Research, FTSE Fixed Income LLC

BBB Fundamentals

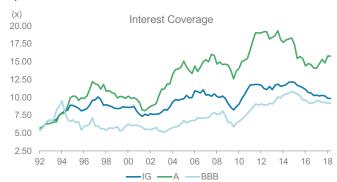
The growth in BBB debt outstanding has naturally coincided with weaker fundamentals, as one would expect. For example, in our IG fundamental universe of non-financial US names, median BBB gross leverage is 2.55x, vs. 1.98x for As (Exhibit 12). Gross leverage has ticked modestly lower very recently, as strong earnings growth and slowing debt growth have helped at the margin, but absolute leverage levels remain quite elevated, especially compared to past late-cycle environments. Meanwhile, interest coverage has declined steadily since 2014, particularly for BBB issuers, vs. some recent improvement in interest coverage for the A-rated universe (Exhibit 13).

Exhibit 12: Gross leverage elevated across the board, including for BBBs



Source: Morgan Stanley Research, FTSE Fixed Income LLC, Bloomberg

Exhibit 13: BBB interest coverage continues to weaken as As improve

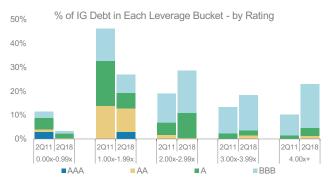


Source: Morgan Stanley Research, FTSE Fixed Income LLC, Bloomberg

Additionally, BBBs not surprisingly make up the majority of the leverage "tail", with 31% of BBB debt in our universe now leveraged at or above 4.0x.

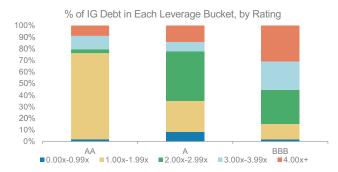


Exhibit 14: 18% of IG debt has a BBB rating and is levered 4.0x or more



Source: Morgan Stanley Research, FTSE Fixed Income LLC, Bloomberg

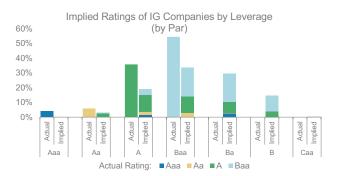
Exhibit 15: 31% of BBB debt, by par, has leverage of 4.0x or more



Source: Morgan Stanley Research, FTSE Fixed Income LLC, Bloomberg

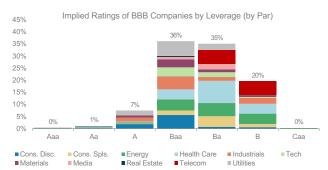
Our implied ratings analysis tells a similar story (for details of this analysis, see Corporate Credit Research: M&Aking a Leveraged Balance Sheet, 2018.08.10), where ~55% of BBB debt would have a HY rating if rated based on leverage alone (Exhibit 16). Breaking down the implied ratings of BBB companies only, we again see that Healthcare, Telecom, and Consumer Staples (along with Energy) account for a large portion of the debt with implied HY ratings (Exhibit 17).

Exhibit 16: 55% of BBB debt would have a HY rating based on leverage alone



Source: Morgan Stanley Research, Moody's, FTSE Fixed Income LLC

Exhibit 17: Healthcare, Telecom, and Staples have a lot of BBB debt with an "implied" HY rating



Source: Morgan Stanley Research, Moody's, FTSE Fixed Income LLC

Downgrade Risks Down the Line

It is important to remember that credit cycles are always different from one to the next. But a consistent rule of thumb over time that we live by when looking for problems down the line: Follow the debt growth. Very simply, applying to the current cycle, we think BBBs will be one (of a few) stress points when the cycle does turn. Downgrade activity will likely be meaningful.

Looking at the past three cycles as a guide, we note that broad downgrade waves tend to last 2-4 years and tend to coincide with a recession at some point as well as with elevated high yield defaults. Credit markets have also experienced "mini" downgrade waves outside of recessions, but those have typically been narrower, concentrated around just one or two sectors, such as Autos in 2005 and Energy/Materials in 2016.



Sizing up the potential risk this time around, in the last three broad downgrade cycles (1989-91, 2000-03, and 2007-09) 7-15% of the IG index was downgraded to HY over the full period (see Corporate Credit Insights: Revenge of the Fallen, 2016.02.26). Based on the size of the market today, that would equate to roughly \$350-750 billion of total downgrades this time over a multi-year period. But remember, half the market is already BBB rated, compared to just 27% before the 2000-03 downgrade wave. Taking from a prior analysis of ours (see Corporate Credit Research: Living the HY-Life, 2017.07.28) where we adjust for the size of the BBB index over time, downgrade volumes in the next cycle could be even larger, as we show in Exhibit 18.

Exhibit 18: Assuming the downgrade rate remains the same as in the past, downgrade volumes will be significant

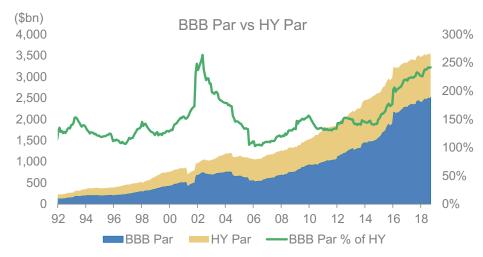
	Statistics for Fallen Angels During Previous Credit Cycles						
Start	End	Length (Qtrs)	Net Fallen Angel Volume (\$Bn)	% of BBB Index	Fallen Angels for this cycle* (\$Bn)		
					850		
	1,132						
					587		

Source: Morgan Stanley Research, Bloomberg, FTSE Fixed Income LLC, Moody's; Note: For the 2007 downgrade cycle, we estimate net fallen angels using actual index data. For prior cycles, we use Moody's data for fallen angels with a haircut for index-eligible debt relative to market size. *Implied fallen angels are calculated by multiplying the proportion of fallen angels seen in previous cycles as a percentage of the BBB index, park.

What are the specific implications for markets? At the least, the liquidity issues experienced in early 2016, when Energy/Materials companies were getting downgraded at a rapid rate, will come back at some point – pushing credit markets (both IG and HY) to valuations that don't make sense fundamentally for short periods of time, as we saw back then. In our view, those liquidity challenges come from four drivers: 1) Credit markets have grown significantly in this cycle. 2) A large volume of bonds will have to change hands at some point, discussed in the downgrade analysis above. As we show in Exhibit 19, the BBB par outstanding in the IG index is now ~2.5x as large as the full HY index. 3) The buyer base of US credit has shifted in this cycle, with a greater percentage of bonds now held by mutual funds/ETFs and by foreign investors, which may impact the stickiness of the flows into or out of US credit as spreads are widening (a topic for another time). And lastly 4) the capacity to absorb risk on the way down is modest, with dealer balance sheets much smaller than pre-crisis levels.



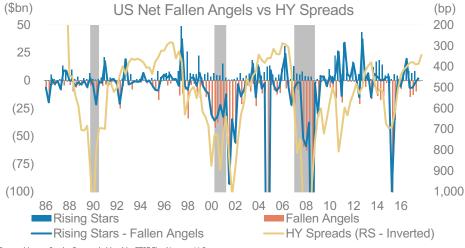
Exhibit 19: Supply from above when the cycle turns: BBB par outstanding now \sim 2.5x as large as the full HY index



Source: Morgan Stanley Research, FTSE Fixed Income LLC

The good news is that this is not a story for today in that ratings downgrades tend to lag the market. In other words, the big wave of downgrades will likely not come until credit spreads are much wider than they are today, which will take time to play out. Again, the mini downgrade cycle in 2016 provides a good example, where spreads began widening in the middle of 2014 and the big wave of Energy downgrades didn't peak until early 2016 almost two years later.

Exhibit 20: Downgrades lag the market - expect spreads to move first



Source: Morgan Stanley Research, Moody's, FTSE Fixed Income LLC



Addressing the Pushback

Lastly, we finish by addressing two points of pushback that we often get to this analysis.

First, and most importantly, we hear that better earnings growth will drive lower leverage and help to alleviate these BBB risks. In our view, better earnings growth helps at the margin, without a doubt. And leverage has ticked modestly lower over the past two quarters along these lines. But as we have seen in past cycles, companies won't delever in a big way until they are forced to through a credit cycle, especially when confidence is booming. More importantly, regardless of small changes in credit metrics at the margin, we believe the damage is already done. IG leverage is at unprecedented levels vs. past non-recessionary environments, and we now have ~\$2.5 trillion of BBB rated IG debt, built up over nearly a decade. These dynamics won't change dramatically on the back of a year of strong earnings growth.

Second, we often hear that the risk in IG is in higher-rated credits, which have more of an incentive to increase leverage. While we don't disagree that the incentive to move from A to BBB may be higher than the desire to move from BBB to BB, leverage has risen across ratings buckets in this cycle. For example, we recently wrote about how M&A has driven big increases in leverage and BBB debt outstanding. And while these companies may pledge to delever over time, those promises often don't materialize even in a healthy economy. In a downturn, when earnings roll over, the ability to maintain an IG rating for 3 and 4x+ levered companies will be even tougher, regardless of the desire to remain IG.

Fundamental risks aside, our preference for As over BBBs is more about what is in the price. In short, as we show in Exhibit 21, the basis between BBB and A industrials is basically at cycle tights. Hence the cost of moving up-in-quality is still quite low.

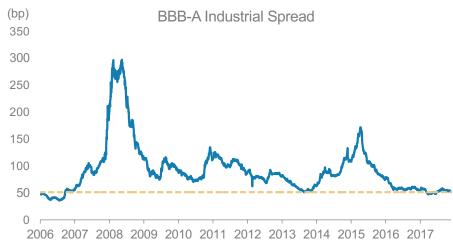


Exhibit 21: The market is still not paying investors appropriately to own beta

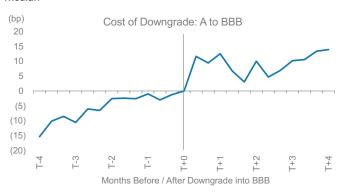
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Additionally, as we show in Exhibit 22 and Exhibit 23, even if one could make the case that downgrades from A to BBB will be larger in magnitude than the volume of



downgrades from BBB to BB, the cost of the former is much lower than the cost of the latter. As we show in Exhibit 22, leading up to and shortly after a downgrade within IG, spreads often widen by ~25bp. Leading up to a downgrade from IG to HY, on the other hand, spreads have historically widened by ~300bp. And as a sidenote, this chart also shows that most of the spread widening around a downgrade (especially a fallen angel) is done by the time the downgrade actually happens.

Exhibit 22: The cost of a downgrade from A to BBB is \sim 25bp at the median



Source: Morgan Stanley Research, Bloomberg

Exhibit 23: The cost of a downgrade from IG to HY is \sim 300bp at the median

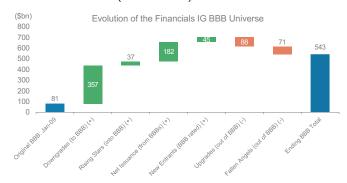


Source: Morgan Stanley Research, Bloomberg



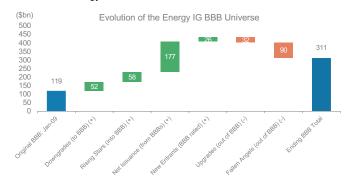
Appendix: BBB Debt Growth by Sector

Exhibit 24: Financials (ex-Real Estate)



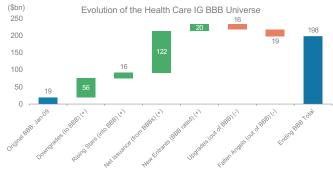
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 25: Energy



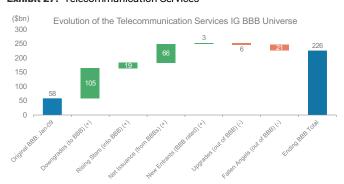
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 26: Healthcare



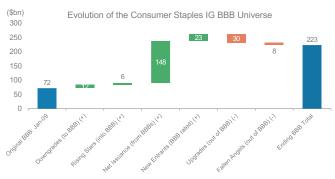
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 27: Telecommunication Services



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 28: Consumer Staples



Source: Morgan Stanley Research, FTSE Fixed Income LLC

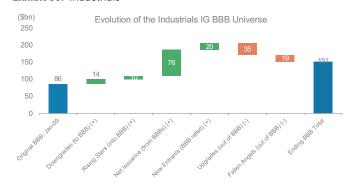
Exhibit 29: Consumer Discretionary



Source: Morgan Stanley Research, FTSE Fixed Income LLC

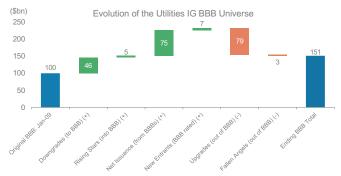


Exhibit 30: Industrials



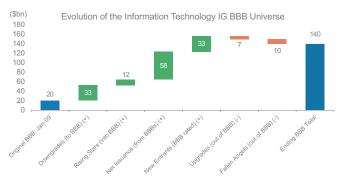
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 31: Utilities



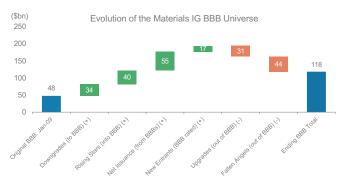
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 32: Information Technology



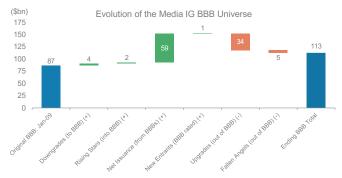
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 33: Materials



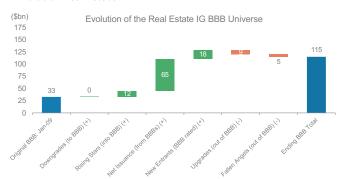
Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 34: Media



Source: Morgan Stanley Research, FTSE Fixed Income LLC

Exhibit 35: Real Estate



Source: Morgan Stanley Research, FTSE Fixed Income LLC



Disclosure Section

The information and opinions in Morgan Stanley Research were prepared by Morgan Stanley & Co. LLC, and/or Morgan Stanley C.T.V.M. S.A., and/or Morgan Stanley Mexico, Casa de Bolsa, S.A. de C.V., and/or Morgan Stanley Canada Limited. As used in this disclosure section, "Morgan Stanley" includes Morgan Stanley & Co. LLC, Morgan Stanley C.T.V.M. S.A., Morgan Stanley Mexico, Casa de Bolsa, S.A. de C.V., Morgan Stanley Canada Limited and their affiliates as necessary.

For important disclosures, stock price charts and equity rating histories regarding companies that are the subject of this report, please see the Morgan Stanley Research Disclosure Website at www.morganstanley.com/researchdisclosures, or contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY, 10036 USA.

For valuation methodology and risks associated with any recommendation, rating or price target referenced in this research report, please contact the Client Support Team as follows: US/Canada +1 800 303-2495; Hong Kong +852 2848-5999; Latin America +1 718 754-5444 (U.S.); London +44 (0)20-7425-8169; Singapore +65 6834-6860; Sydney +61 (0)2-9770-1505; Tokyo +81 (0)3-6836-9000. Alternatively you may contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY 10036 USA.

Analyst Certification

The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report: Frederick T Fuchs; Vishwas Patkar; Adam S Richmond; Felician G Stratmann.

Unless otherwise stated, the individuals listed on the cover page of this report are research analysts.

Global Research Conflict Management Policy

Morgan Stanley Research has been published in accordance with our conflict management policy, which is available at www.morganstanley.com/institutional/research/conflictpolicies.

Important US Regulatory Disclosures on Subject Companies

The equity research analysts or strategists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and overall investment banking revenues. Equity Research analysts' or strategists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

Morgan Stanley and its affiliates do business that relates to companies/instruments covered in Morgan Stanley Research, including market making, providing liquidity, fund management, commercial banking, extension of credit, investment services and investment banking. Morgan Stanley sells to and buys from customers the securities/instruments of companies covered in Morgan Stanley Research on a principal basis. Morgan Stanley may have a position in the debt of the Company or instruments discussed in this report. Morgan Stanley trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of the debt research report.

Certain disclosures listed above are also for compliance with applicable regulations in non-US jurisdictions.

STOCK RATINGS

Morgan Stanley uses a relative rating system using terms such as Overweight, Equal-weight, Not-Rated or Underweight (see definitions below). Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold and sell. Investors should carefully read the definitions of all ratings used in Morgan Stanley Research. In addition, since Morgan Stanley Research contains more complete information concerning the analyst's views, investors should carefully read Morgan Stanley Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Global Stock Ratings Distribution

(as of September 30, 2018)

The Stock Ratings described below apply to Morgan Stanley's Fundamental Equity Research and do not apply to Debt Research produced by the Firm. For disclosure purposes only (in accordance with NASD and NYSE requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

	COVERAGE UN	NIVERSE	RSE INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL	
					INVESTMENT	SERVICES	
				CLIENTS (MISC)		
STOCK RATING	COUNT	% OF	COUNT	% OF	% OF	COUNT	% OF
CATEGORY		TOTAL		TOTAL IBC	RATING		TOTAL
			CATEGOR		CATEGORY		OTHER
							MISC
Overweight/Buy	1178	37%	308	42%	26%	562	40%
Equal-weight/Hold	1378	44%	343	46%	25%	625	44%
Not-Rated/Hold	49	2%	5	1%	10%	7	0%
Underweight/Sell	554	18%	83	11%	15%	224	16%
TOTAL	3,159		739			1418	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.



Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Important Disclosures for Morgan Stanley Smith Barney LLC Customers

Important disclosures regarding the relationship between the companies that are the subject of Morgan Stanley Research and Morgan Stanley Smith Barney LLC or Morgan Stanley or any of their affiliates, are available on the Morgan Stanley Wealth Management disclosure website at www.morganstanley.com/online/researchdisclosures. For Morgan Stanley specific disclosures, you may refer to www.morganstanley.com/researchdisclosures.

Each Morgan Stanley Equity Research report is reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval is conducted by the same person who reviews the Equity Research report on behalf of Morgan Stanley. This could create a conflict of interest.

Other Important Disclosures

Morgan Stanley Research policy is to update research reports as and when the Research Analyst and Research Management deem appropriate, based on developments with the issuer, the sector, or the market that may have a material impact on the research views or opinions stated therein. In addition, certain Research publications are intended to be updated on a regular periodic basis (weekly/monthly/quarterly/annual) and will ordinarily be updated with that frequency, unless the Research Analyst and Research Management determine that a different publication schedule is appropriate based on current conditions. Morgan Stanley is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Morgan Stanley produces an equity research product called a "Tactical Idea." Views contained in a "Tactical Idea" on a particular stock may be contrary to the recommendations or views expressed in research on the same stock. This may be the result of differing time horizons, methodologies, market events, or other factors. For all research available on a particular stock, please contact your sales representative or go to Matrix at http://www.morganstanley.com/matrix. Morgan Stanley Research is provided to our clients through our proprietary research portal on Matrix and also distributed electronically by Morgan Stanley to clients. Certain, but not all, Morgan Stanley Research products are also made available to clients through third-party vendors or redistributed to clients through alternate electronic means as a convenience. For access to all available Morgan Stanley Research, please contact your sales representative or go to Matrix at http://www.morganstanley.com/matrix.

Any access and/or use of Morgan Stanley Research is subject to Morgan Stanley's Terms of Use (http://www.morganstanley.com/terms.html). By accessing and/or using Morgan Stanley Research, you are indicating that you have read and agree to be bound by our Terms of Use

(http://www.morganstanley.com/terms.html). In addition you consent to Morgan Stanley processing your personal data and using cookies in accordance with our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html), including for the purposes of setting your preferences and to collect readership data so that we can deliver better and more personalized service and products to you. To find out more information about how Morgan Stanley processes personal data, how we use cookies and how to reject cookies see our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html).

If you do not agree to our Terms of Use and/or if you do not wish to provide your consent to Morgan Stanley processing your personal data or using cookies please do not access our research.

Morgan Stanley Research does not provide individually tailored investment advice. Morgan Stanley Research has been prepared without regard to the circumstances and objectives of those who receive it. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of an investment or strategy will depend on an investor's circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Research may not be suitable for all investors, and certain investors may not be eligible to purchase or participate in some or all of them. Morgan Stanley Research is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy. The value of and income from your investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities/instruments prices, market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in securities/instruments transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. If provided, and unless otherwise stated, the closing price on the cover page is that of the primary exchange for the subject company's securities/instruments.

The fixed income research analysts, strategists or economists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues (which include fixed income trading and capital markets profitability or revenues), client feedback and competitive factors. Fixed Income Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

The "Important US Regulatory Disclosures on Subject Companies" section in Morgan Stanley Research lists all companies mentioned where Morgan Stanley owns 1% or more of a class of common equity securities of the companies. For all other companies mentioned in Morgan Stanley Research, Morgan Stanley may have an investment of less than 1% in securities/instruments or derivatives of securities/instruments of companies and may trade them in ways different from those discussed in Morgan Stanley Research. Employees of Morgan Stanley not involved in the preparation of Morgan Stanley Research may have investments in securities/instruments or derivatives of securities/instruments of companies mentioned and may trade them in ways different from those discussed in Morgan Stanley Research. Derivatives may be issued by Morgan Stanley or associated persons.

With the exception of information regarding Morgan Stanley, Morgan Stanley Research is based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete. We have no obligation to tell you when opinions or



information in Morgan Stanley Research change apart from when we intend to discontinue equity research coverage of a subject company. Facts and views presented in Morgan Stanley Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

Morgan Stanley Research personnel may participate in company events such as site visits and are generally prohibited from accepting payment by the company of associated expenses unless pre-approved by authorized members of Research management.

Morgan Stanley may make investment decisions that are inconsistent with the recommendations or views in this report.

To our readers based in Taiwan or trading in Taiwan securities/instruments: Information on securities/instruments that trade in Taiwan is distributed by Morgan Stanley Taiwan Limited ("MSTL"). Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decisions. Morgan Stanley Research may not be distributed to the public media or quoted or used by the public media without the express written consent of Morgan Stanley. Any non-customer reader within the scope of Article 7-1 of the Taiwan Stock Exchange Recommendation Regulations accessing and/or receiving Morgan Stanley Research is not permitted to provide Morgan Stanley Research to any third party (including but not limited to related parties, affiliated companies and any other third parties) or engage in any activities regarding Morgan Stanley Research which may create or give the appearance of creating a conflict of interest. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities/instruments. MSTL may not execute transactions for clients in these securities/instruments.

Morgan Stanley is not incorporated under PRC law and the research in relation to this report is conducted outside the PRC. Morgan Stanley Research does not constitute an offer to sell or the solicitation of an offer to buy any securities in the PRC. PRC investors shall have the relevant qualifications to invest in such securities and shall be responsible for obtaining all relevant approvals, licenses, verifications and/or registrations from the relevant governmental authorities themselves. Neither this report nor any part of it is intended as, or shall constitute, provision of any consultancy or advisory service of securities investment as defined under PRC law. Such information is provided for your reference only.

Morgan Stanley Research is disseminated in Brazil by Morgan Stanley C.T.V.M. S.A.; in Mexico by Morgan Stanley México, Casa de Bolsa, S.A. de C.V which is regulated by Comision Nacional Bancaria y de Valores. Paseo de los Tamarindos 90, Torre 1, Col. Bosques de las Lomas Floor 29, 05120 Mexico City; in Japan by Morgan Stanley MUFG Securities Co., Ltd. and, for Commodities related research reports only, Morgan Stanley Capital Group Japan Co., Ltd; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents) and by Morgan Stanley Asia International Limited, Hong Kong Branch, in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 1992/06298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and by Morgan Stanley Asia International Limited, Singapore Branch (Registration number T11FC0207F); in Australia to "wholesale clients" within the meaning of the Australian Corporations Act by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents; in Australia to "wholesale clients" and "retail clients" within the meaning of the Australian Corporations Act by Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited; in Indonesia by PT. Morgan Stanley Sekuritas Indonesia; in Canada by Morgan Stanley Canada Limited, which has approved of and takes responsibility for its contents in Canada; in Germany by Morgan Stanley Bank AG, Frankfurt am Main and Morgan Stanley Private Wealth Management Limited, Niederlassung Deutschland, regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin); in Spain by Morgan Stanley, S.V., S.A., a Morgan Stanley group company, which is supervised by the Spanish Securities Markets Commission (CNMV) and states that Morgan Stanley Research has been written and distributed in accordance with the rules of conduct applicable to financial research as established under Spanish regulations; in the US by Morgan Stanley & Co. LLC, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized by the Prudential Regulatory Authority and regulated by the Financial Conduct Authority and the Prudential Regulatory Authority, disseminates in the UK research that it has prepared, and approves solely for the purposes of section 21 of the Financial Services and Markets Act 2000, research which has been prepared by any of its affiliates. RMB Morgan Stanley Proprietary Limited is a member of the JSE Limited and regulated by the Financial Services Board in South Africa. RMB Morgan Stanley Proprietary Limited is a joint venture owned equally by Morgan Stanley International Holdings Inc. and RMB Investment Advisory (Proprietary) Limited, which is wholly owned by FirstRand Limited. The information in Morgan Stanley Research is being disseminated by Morgan Stanley Saudi Arabia, regulated by the Capital Market Authority in the Kingdom of Saudi Arabia, and is directed at Sophisticated investors only.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (DIFC Branch), regulated by the Dubai Financial Services Authority (the DFSA), and is directed at Professional Clients only, as defined by the DFSA. The financial products or financial services to which this research relates will only be made available to a customer who we are satisfied meets the regulatory criteria to be a Professional Client. The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (QFC Branch), regulated by the Qatar Financial Centre Regulatory Authority (the QFCRA), and is directed at business customers and market counterparties only and is not intended for Retail Customers as defined by the QFCRA.

As required by the Capital Markets Board of Turkey, investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Investment advisory service is provided exclusively to persons based on their risk and income preferences by the authorized firms. Comments and recommendations stated here are general in nature. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations. The trademarks and service marks contained in Morgan Stanley Research are the property of their respective owners. Third-party data providers make no warranties or representations relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages relating to such data. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P.

Morgan Stanley Research, or any portion thereof may not be reprinted, sold or redistributed without the written consent of Morgan Stanley.

© 2018 Morgan Stanley