Session 5: Market Discussion on Interest Rates and Market

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2019 SOA Life & Annuity Symposium

May 2019

WESTERN ASSET

2019 Outlook

Global growth has downshifted but should remain sturdy

US growth and inflation to moderate

Central bank policy will be focused on accommodation

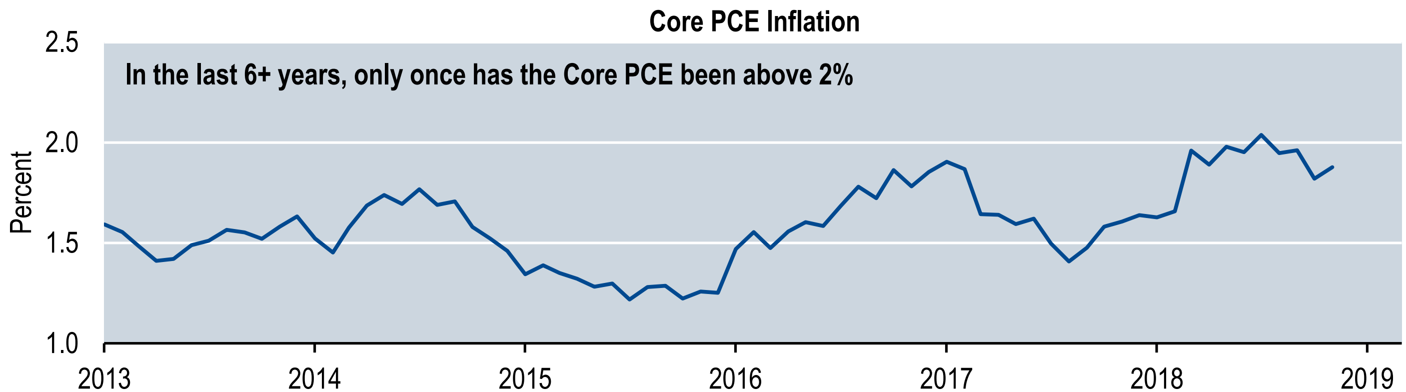
Trade policy poses substantial risks

Spread products should recover relative to Treasuries and sovereign bonds

Emerging markets, though volatile, should outperform

As of 31 Mar 19

Inflation Refuses to Follow the Script



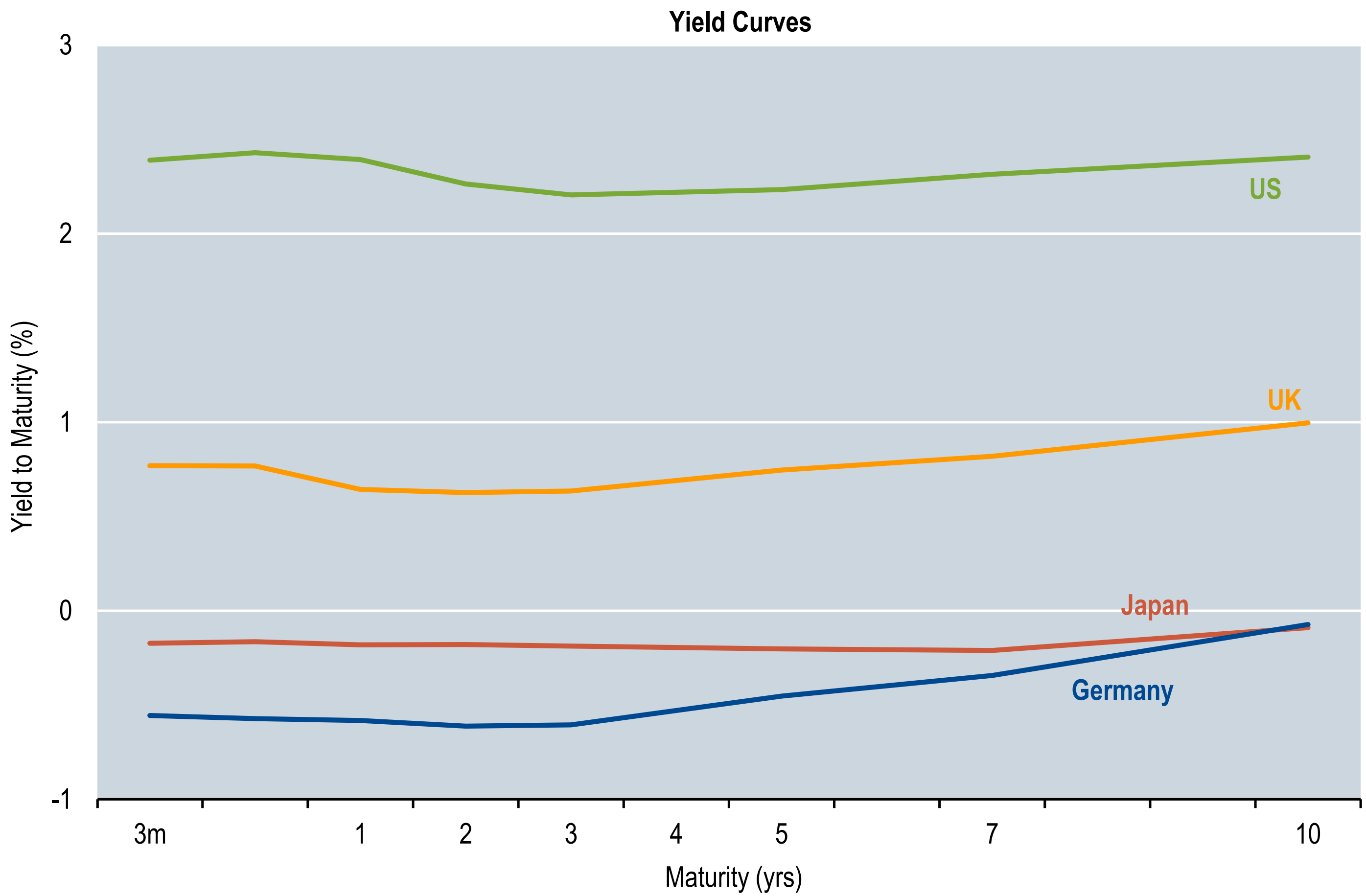
Source: Bureau of Economic Analysis. As of 30 Nov 18

"Ironically, the problem we need to solve these days is the risk of *inflation that is persistently too low*, rather than too high."

– John Williams

President, NY Fed
December 6, 2018

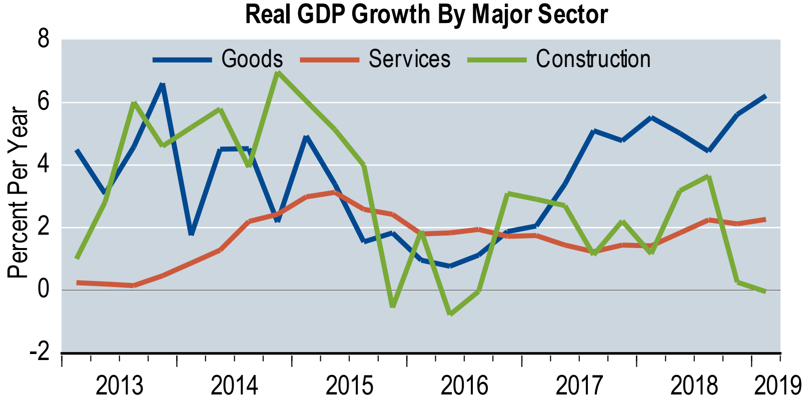
US Interest Rates Remain Attractive Relative to Most of the Developed World



Source: Bloomberg. As of 31 Mar 19

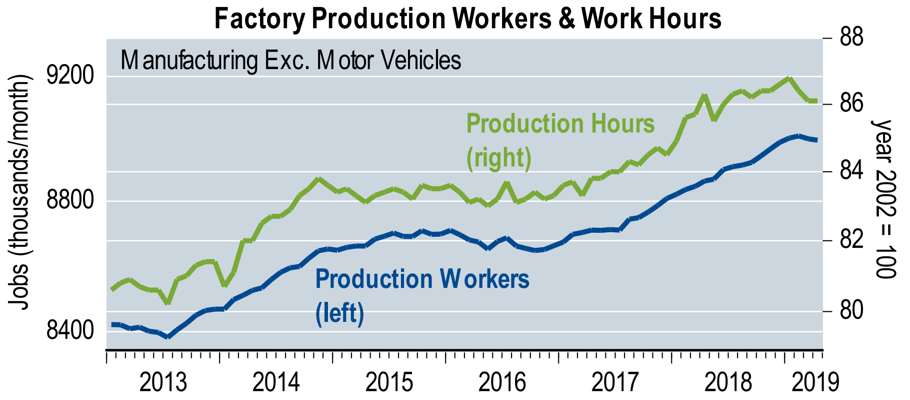
Moderate US Economic Growth to Continue (2.0% – 2.25%)

Better US growth in last two years has been wholly contained in goods-producing sectors: manufacturing and mining (oil).



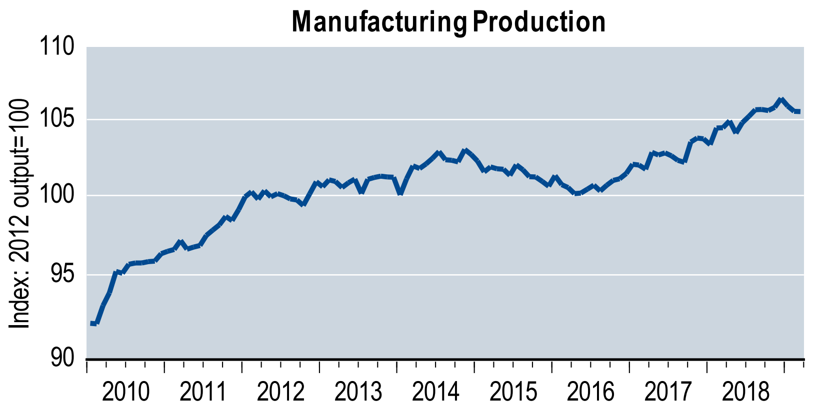
Source: Bureau of Economic Analysis. As of 31 Mar 19
Note: 4-Quarter Growth Rates in Real GDP By Major Sector

While manufacturing and oil have slowed some recently, they are still performing better than they did in 2015-16, which was NOT a recession.



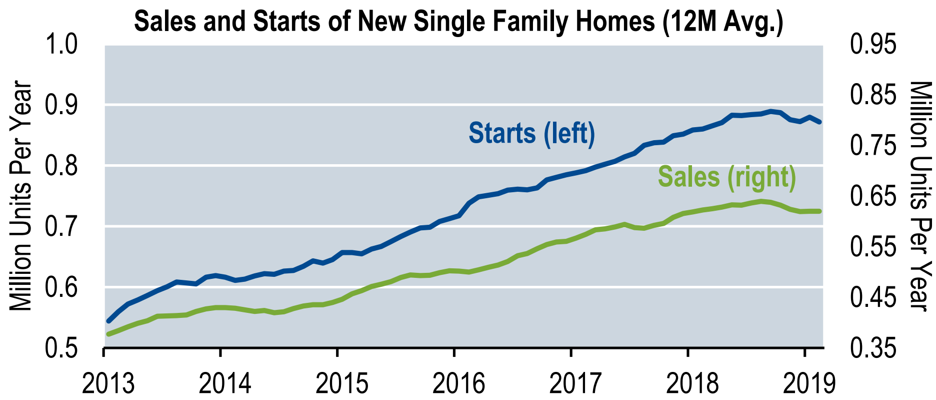
Source: Bureau of Labor Statistics. As of 31 Apr 19

Factory sector rebounding recently after five years of stagnation, so the "late cycle" story is not applicable/relevant.



Source: Federal Reserve Board. As of 31 Mar 19

Declines in homebuilding are also holding down US growth, but here too, the declines look like an inventory correction, not a rout (starts declining only mildly, sales holding up relatively well).



Source: Census Bureau. As of 28 Feb 19

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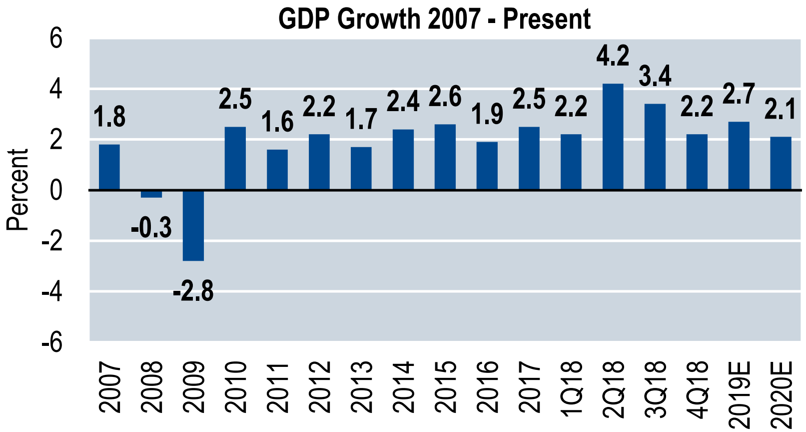
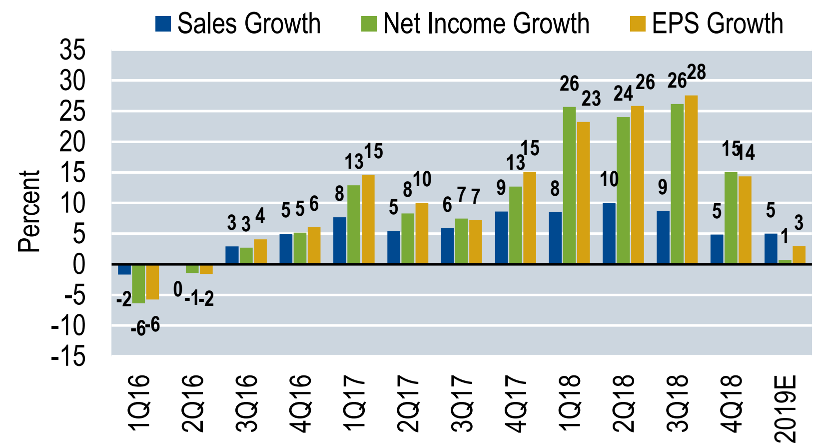
Credit Cycle Has Continued Runway

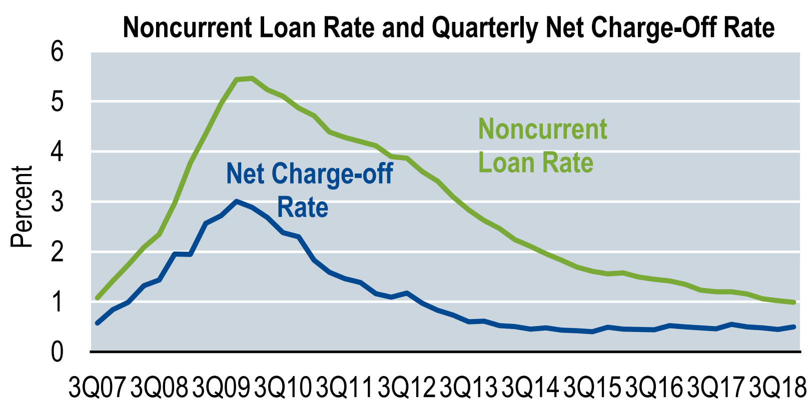
Economic growth, corporate earnings, bank asset quality and lending standards all remain supportive



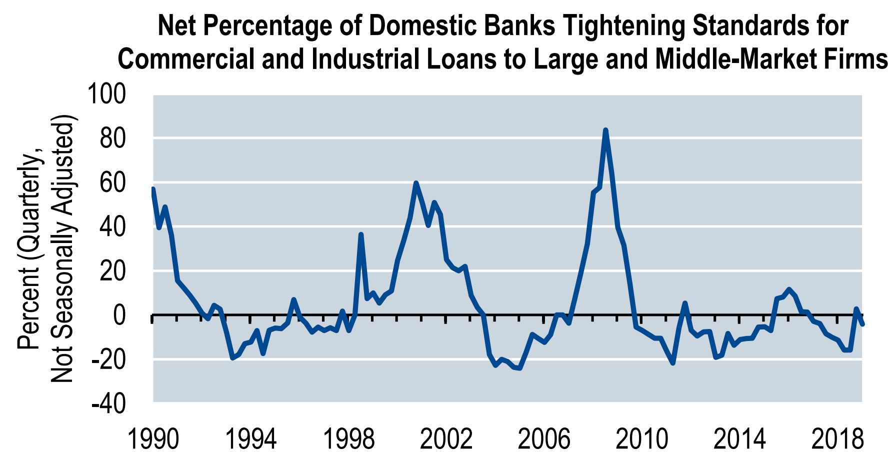
Source: Bureau of Economic Analysis (BEA), World Bank, The Conference Board. As of 31 Mar 19



Source: J.P. Morgan. As of 31 Mar 19



Source: FDIC. As of 31 Dec 18



Source: Federal Reserve Bank of St. Louis. As of 01 Apr 19

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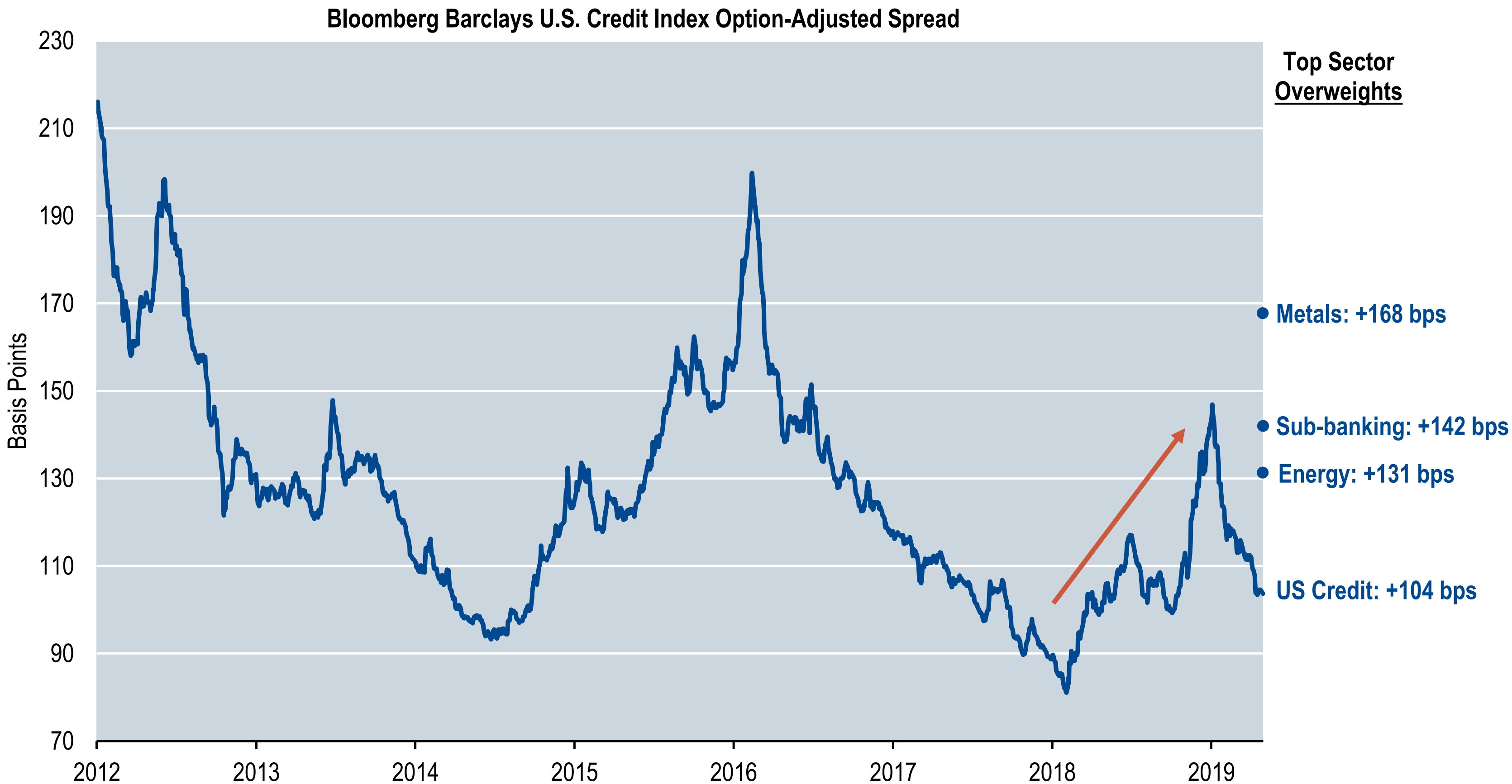
Investment-Grade Credit

Spreads 54 bps wider in 2018 provided an opportunity. Subsector overweights still have room to run.

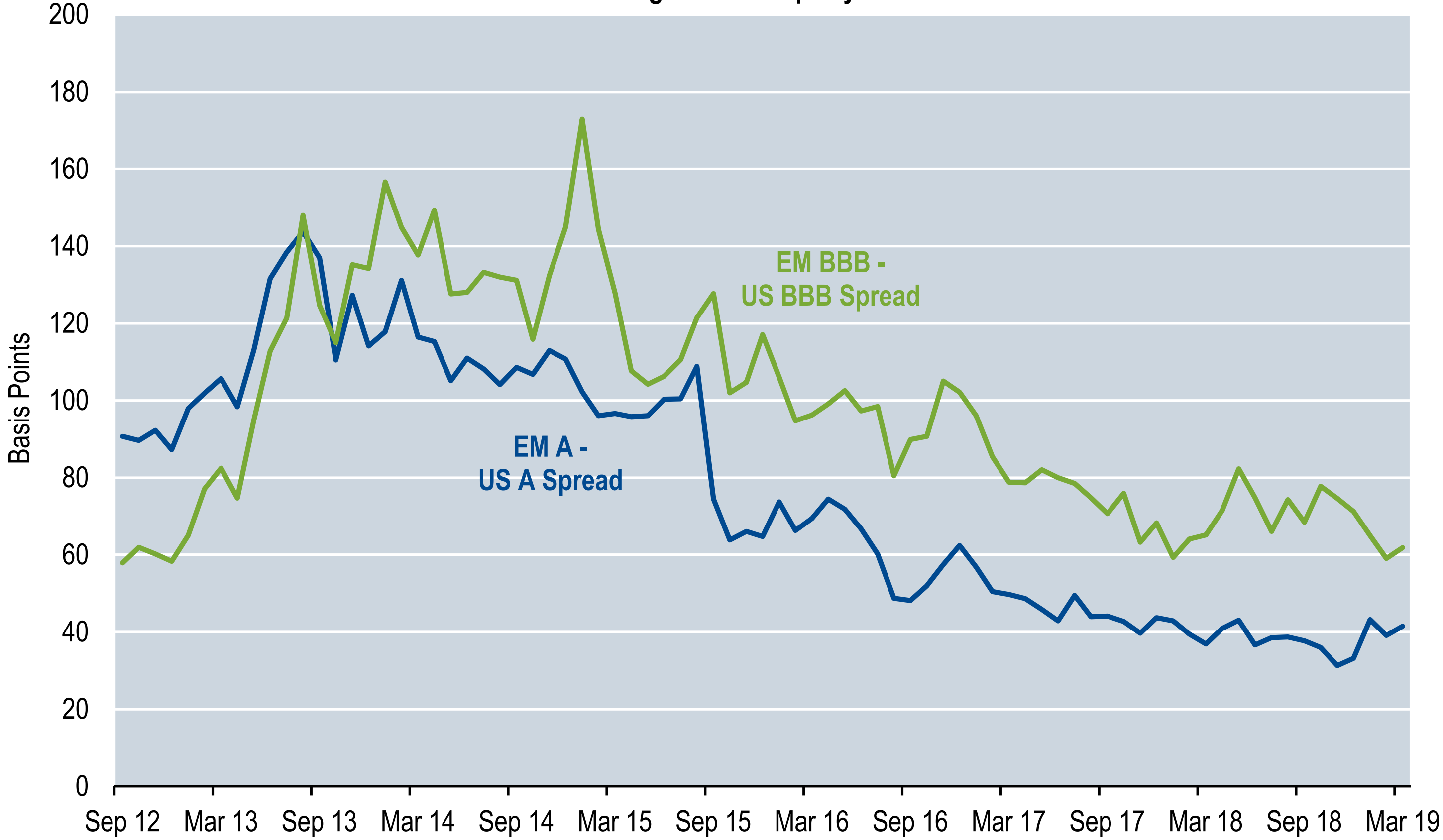


Source: Bloomberg Barclays. As of 29 Apr 19
Excess return is the difference between total returns of the security and an implied Treasury portfolio matching the term-structure profile of that security.

Dollar-Denominated Emerging Markets

Wider spread per rating provide a compelling value proposition for insurance companies

EM Yields Are Higher Than Equally Rated US Yields



Source: Bloomberg Barclays, J.P. Morgan. As of 31 Mar 19

Outlook for Fixed-Income Spread Sectors

- **Pessimism and fear held markets hostage for most of 2018. After a strong rebound year to date, what's next?**
- **Global growth and credit cycle prospects are not as dire as some would suggest**
- **In our view, "carry" will be the theme in 2019**
- **We are maintaining our overweight to spread products and looking to take advantage of relative value opportunities across:**
  - Bank loans and collateralized loan obligations (CLOs)
  - BBB rated investment-grade credit
  - USD emerging markets

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Moody's Analytics

Managing Credit Risk at the Tail End of a Credit Cycle

Brett Manning

Preamble

Rising level of corporate debt a risk to global economy - OECD

Companies around world need to repay or refinance as much as $4tn over next three years

WHAT COULD GO WRONG?

The $1.3 trillion loan market that's spooking everyone right now

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Finance

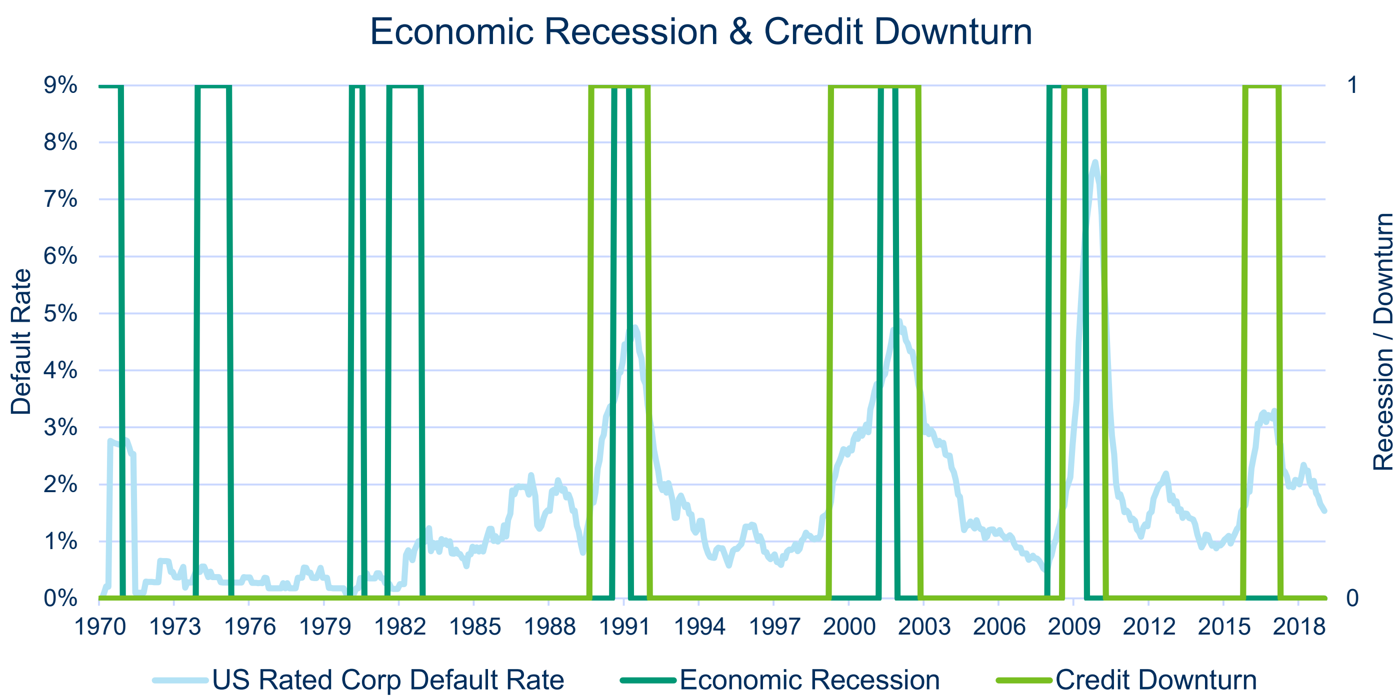
The Bomb That Blew Up in 2008? We're Planting Another One

Collateralized loan obligations may look safe, but they pose risks that are poorly appreciated.

- » Real risk or fear mongering?
- » Implications for credit risk management?

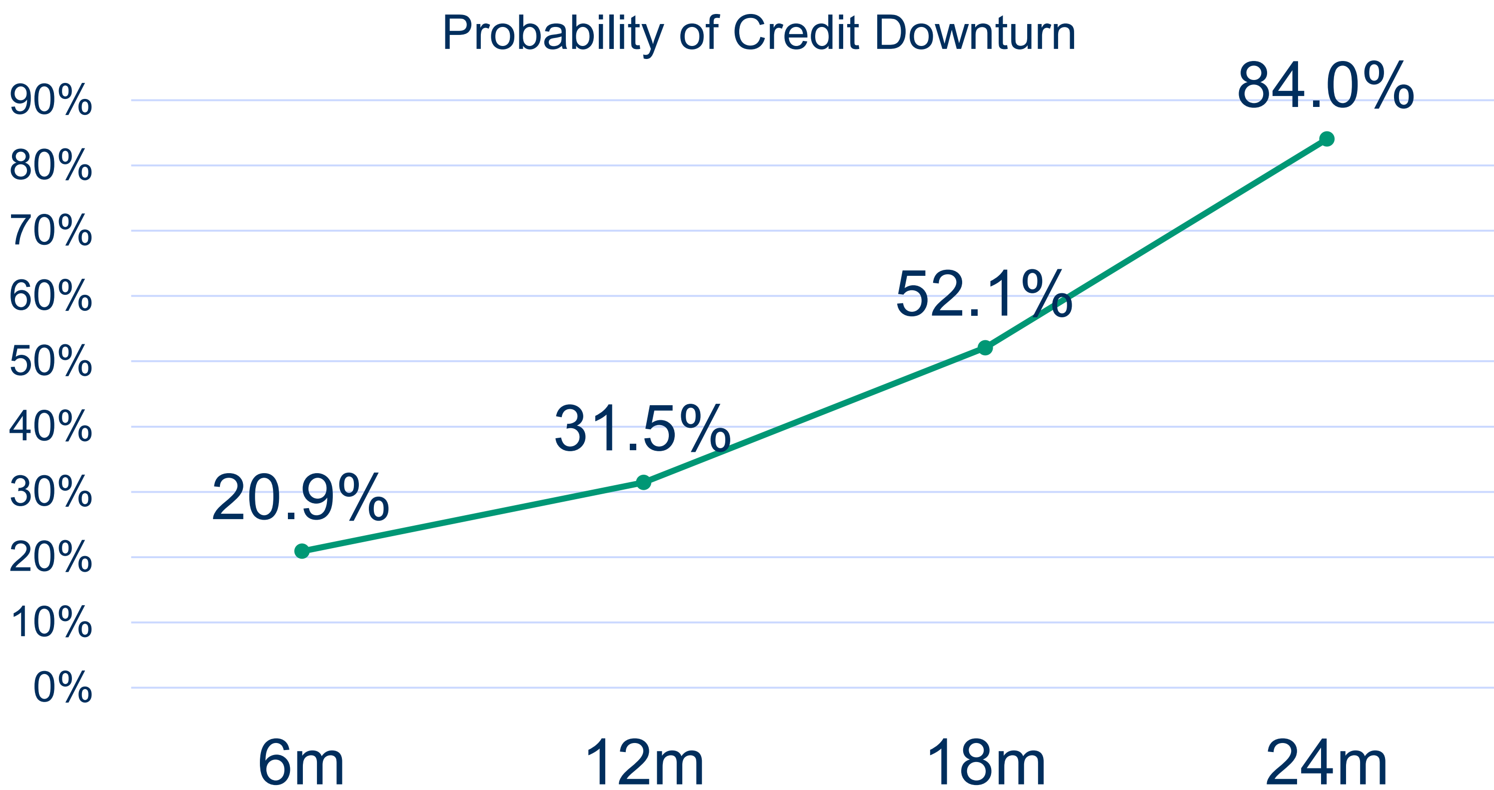
Economic Recessions & Credit Downturns

- 7 Economic Recessions and 4 Credit Downturns since 1970
- Credit Downturns led Economic Recessions in 1989 and 1999.
- The 2015 mild Credit Downturn was industry specific - Energy.

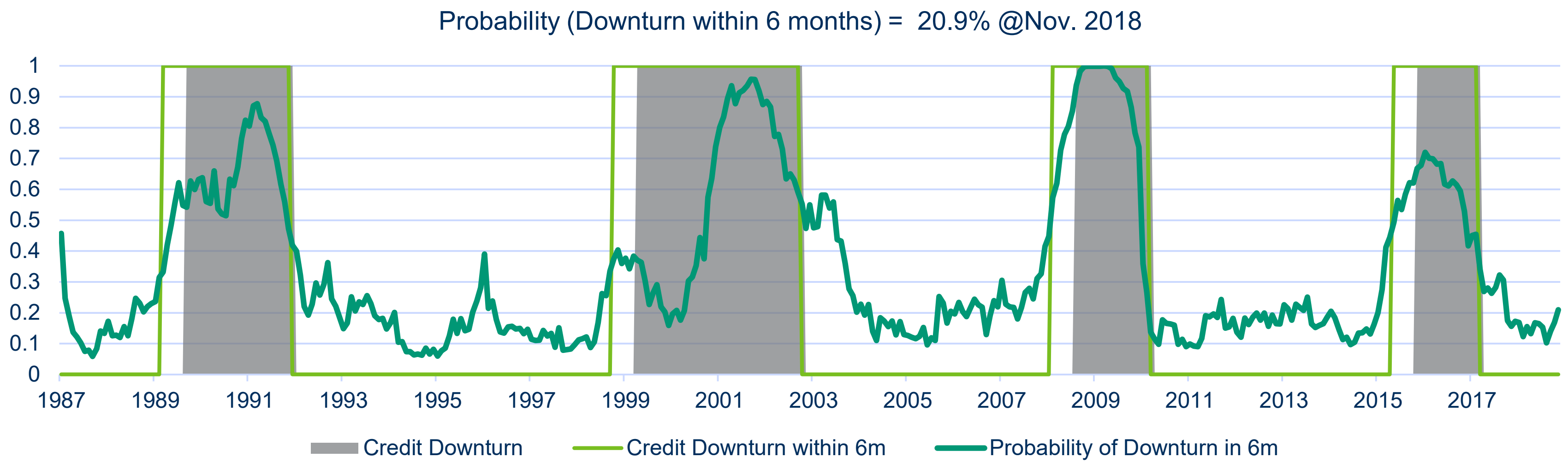


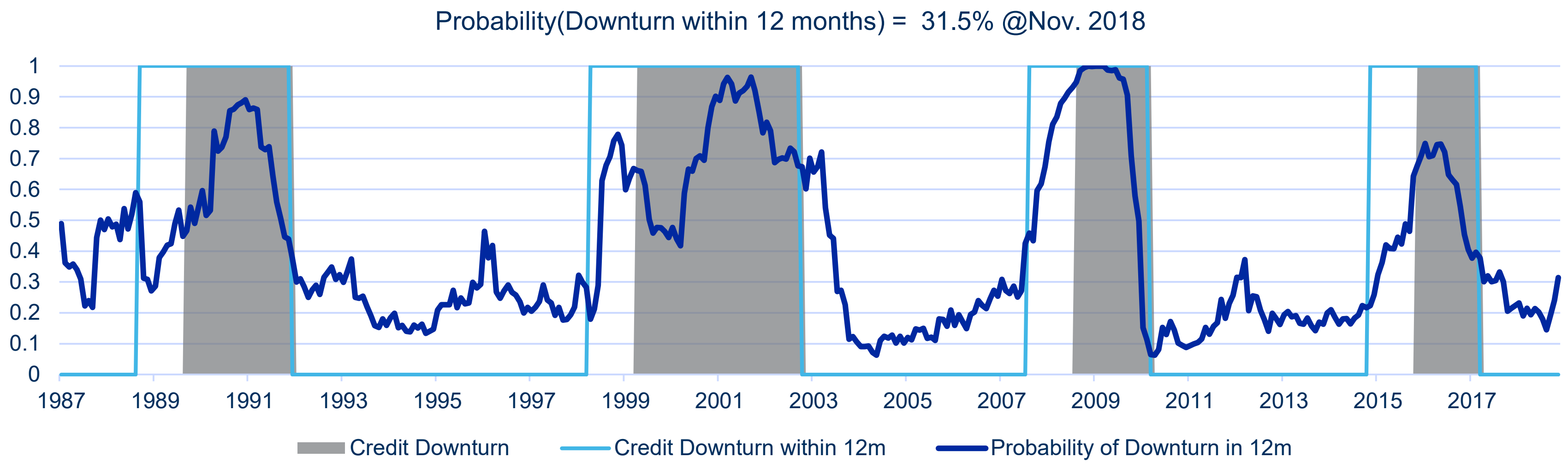
Probability of Credit Downturn

Downturn in 6, 12, 18 and 24 months

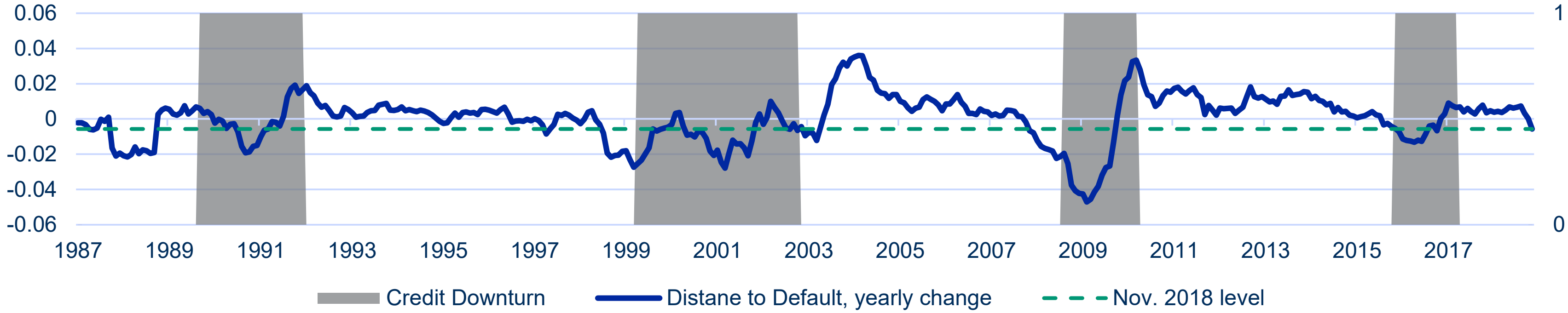


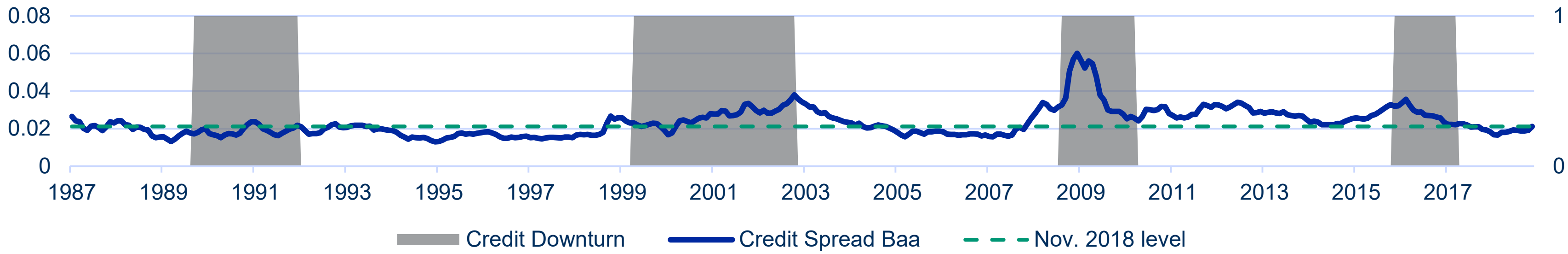
Credit Downturn Probabilities in 6 &12 months

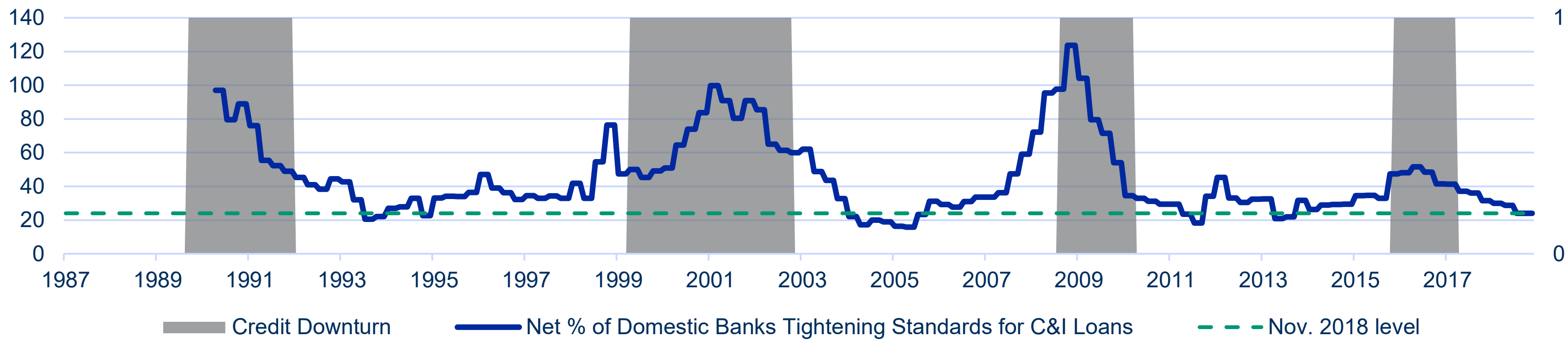




Credit Downturn indicators—a Few Examples

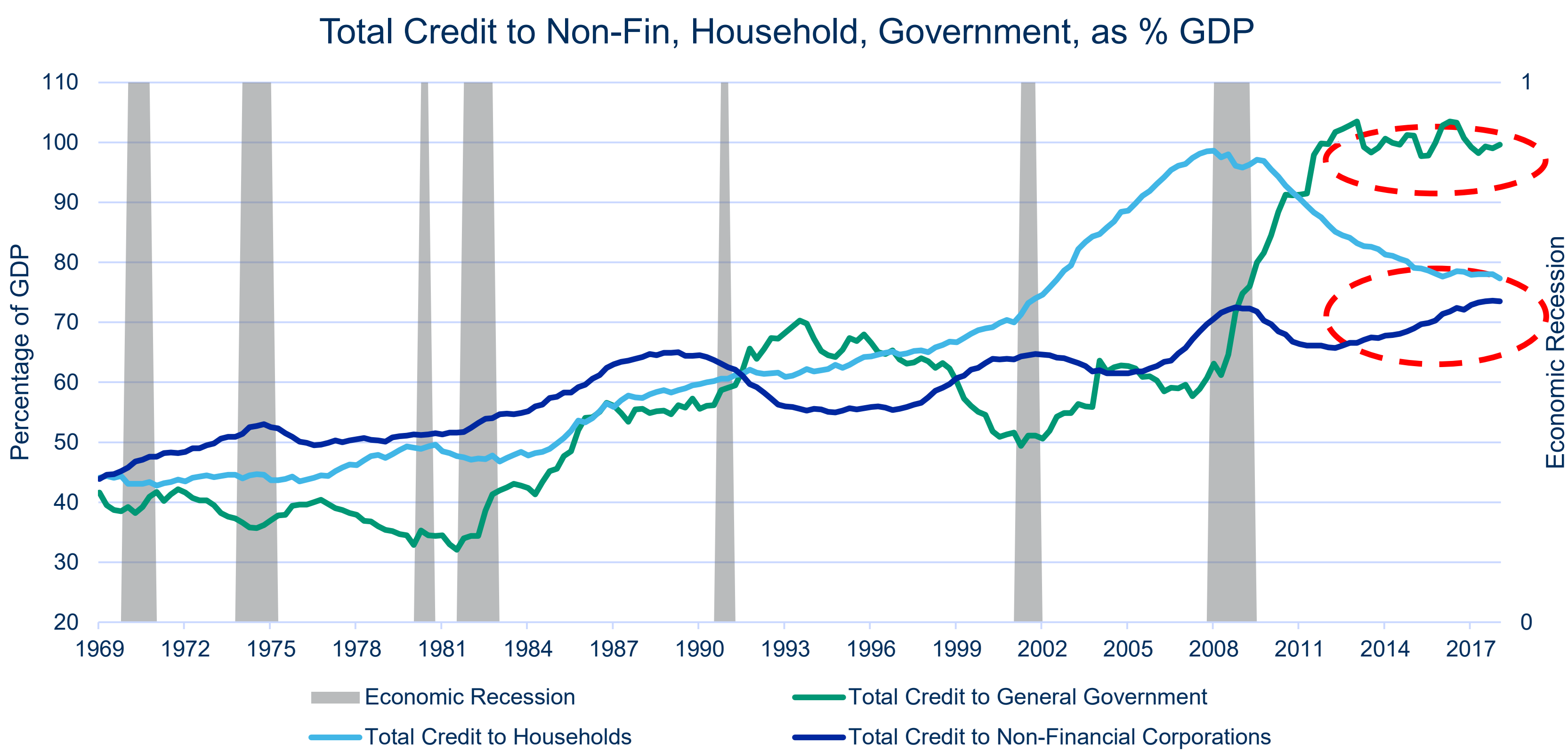






Rising Debt Levels

Total Credit to Non-Fin, Household, Government, as %GDP



Total Credit to Government and Non-Financial Corporations are at historical high.

Source: Fed

Widely Cited Vulnerabilities in Corporate Credit

- **Significant rise in non-financial corporate credit**
  - At over 70% of GDP, credit to US U.S. non-financial business is higher than it was at the onset of the great financial crisis
- **Prolonged decline in overall borrower quality**
  - Increasing the borrowers are of lower credit quality, for both the investment grade and non investment grade
  - Widely cited concerns about leveraged loans
- **Decrease in covenant protection**
- **Record level of repayment and debt rollover ahead, especially in the next 2 to 3 years**
- **Rising borrowing costs could do serious damage**

Sources: Fed, OECD, IIF, OFR, BIS, IMF, Moody's Analytics

More Context Is Needed Here…

Questions to ponder

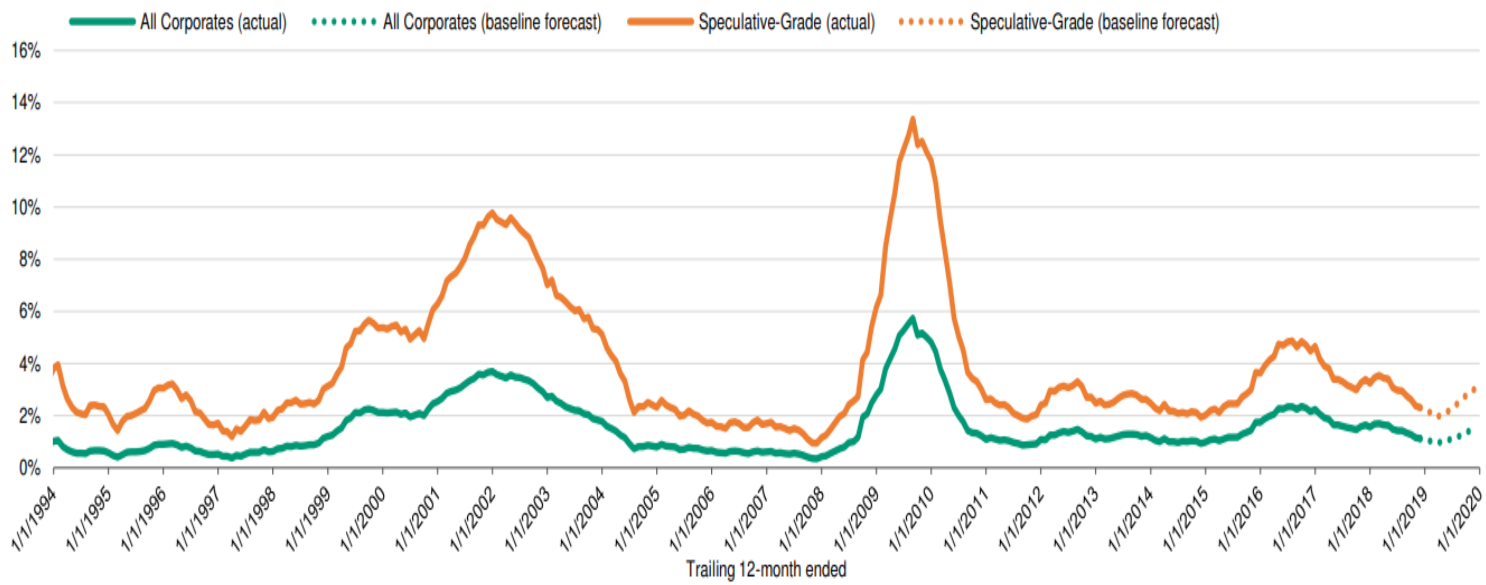
- What do realized default rates and forward looking measure say about the level of credit risk now?
- What drives the significant expansion of corporate credit?
- Have the borrowers been putting debt into productive use?
- Can the borrowers service and repay the debt, in both current and stressed economic conditions?

To put some perspectives around these questions, we examine the universe of publically traded firms in US

Speculative Grade Default Rates Are Still Low by Historical Standard

Exhibit 11

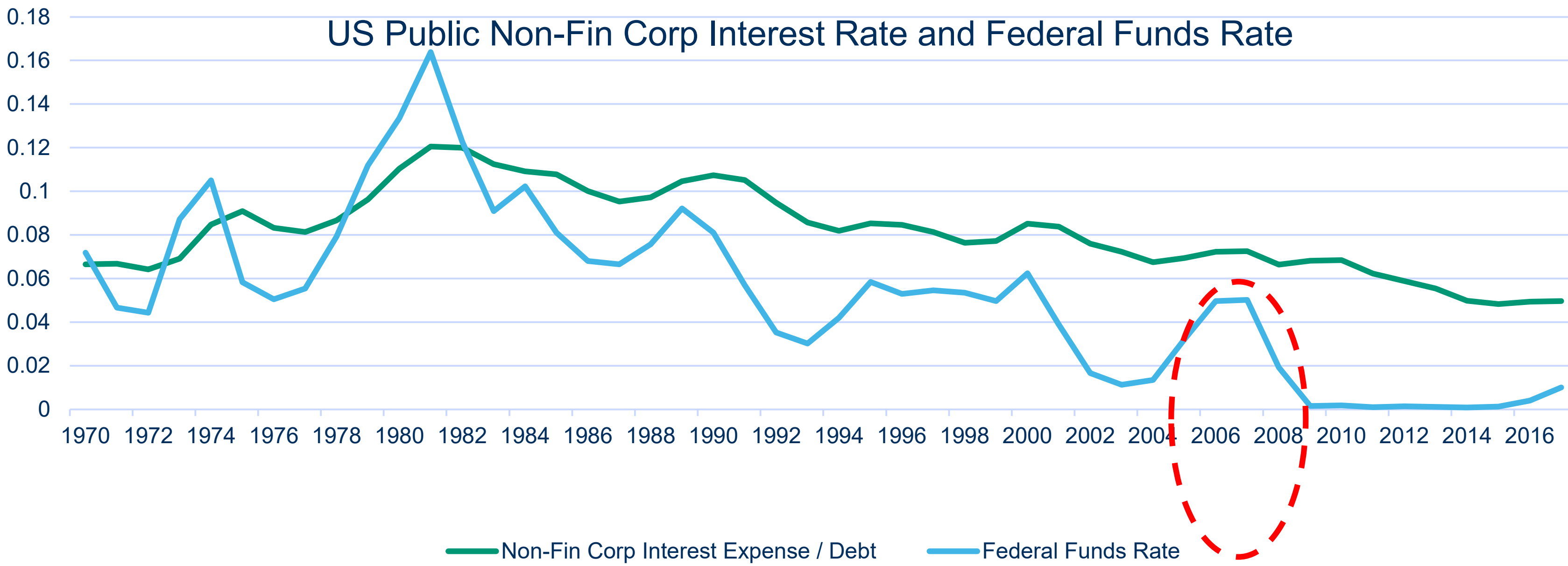
Default rates to trend up in the second half of 2019



Source: Moody's Investors Service

Persistently Low Interest Rate

Interest expense/Debt and Federal Funds Rate



- Fed Funds Rate is at 2.5%, close to that in 2004. With 8 hikes in 2005 and 4 hikes in 2006, the actual interest rate on corporate debts changed little.
- For the current interest expense to reach 2008 level, Fed fund rate needs to increase by 200bps, by our calculation

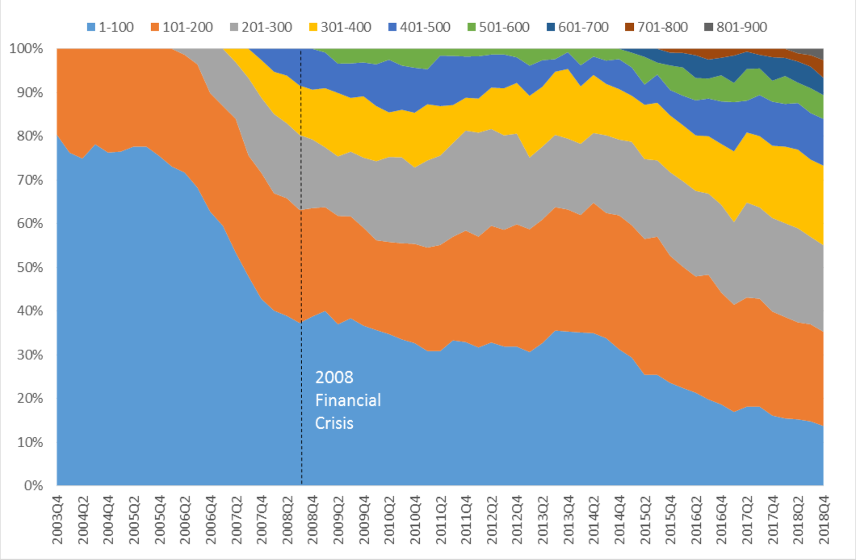
Cross-deal Concentration Rises

Deals referencing the same borrowers/loans increases

- The same borrows/loans are referenced by more deals leading to potentially higher systematic risk because a failing borrower could affect many more deals.

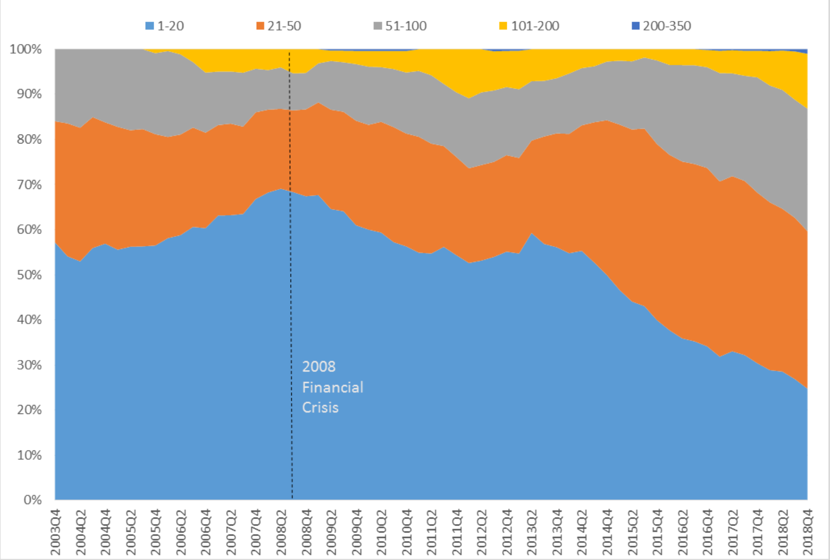
Borrower Group % CLO Collateral Balance

Groups correspond to the number of deals referencing the same borrower



Loan Group % CLO Collateral Balance

Groups correspond to the number of deals referencing he same loan



Each group represents the number of deals referencing the same borrower/loan. e.g. for the 1-100 group, each borrower is referenced by 1-100 deals. The proportion is computed based on collateral balance owed by the borrowers. Data Source: Moody's SAV

Additional Questions to Ponder

» How will the post crisis financial system and market infrastructure respond and absorb a major shock?

» How will central banks, regulators and governments respond to a major shock or crisis?

3

Managing Credit Risk At the Tail End of a Credit Cycle

The Implications of Previous Analyses

- We are probably at the tail end of the credit cycle, even with the current low level of credit risk
  - There are flashing signs
  - Timing a market downturn is extremely difficult

- There is a number of significant vulnerabilities in corporate credit, especially in leveraged lending and CLOs
  - However, some perspectives are needed here
  - The key question is whether the borrowers can service and repay the debt in a stressed environment

- Perhaps the most critical questions are how a major shock will propagate through the financial system and real economy, and how (well) it will get absorbed

Managing Risk At the Tail End of the Cycle

Discussions Points

- How to socialize the concept of credit cycle and take a long term view
  - "As long as the music is playing…."
- Dynamic, cycle-sensitive risk appetite framework
- Dynamic and cycle-sensitive limiting setting
- Stress testing and scenario analysis
  - CCAR type of framework may be inadequate
  - Measuring correlation and contagion is critical
- How to build and leverage early warning system/indicators
- Proper trade-off between risk and return, avoiding excess on both ends

Moody's ANALYTICS

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