Credit Cycle Outlook

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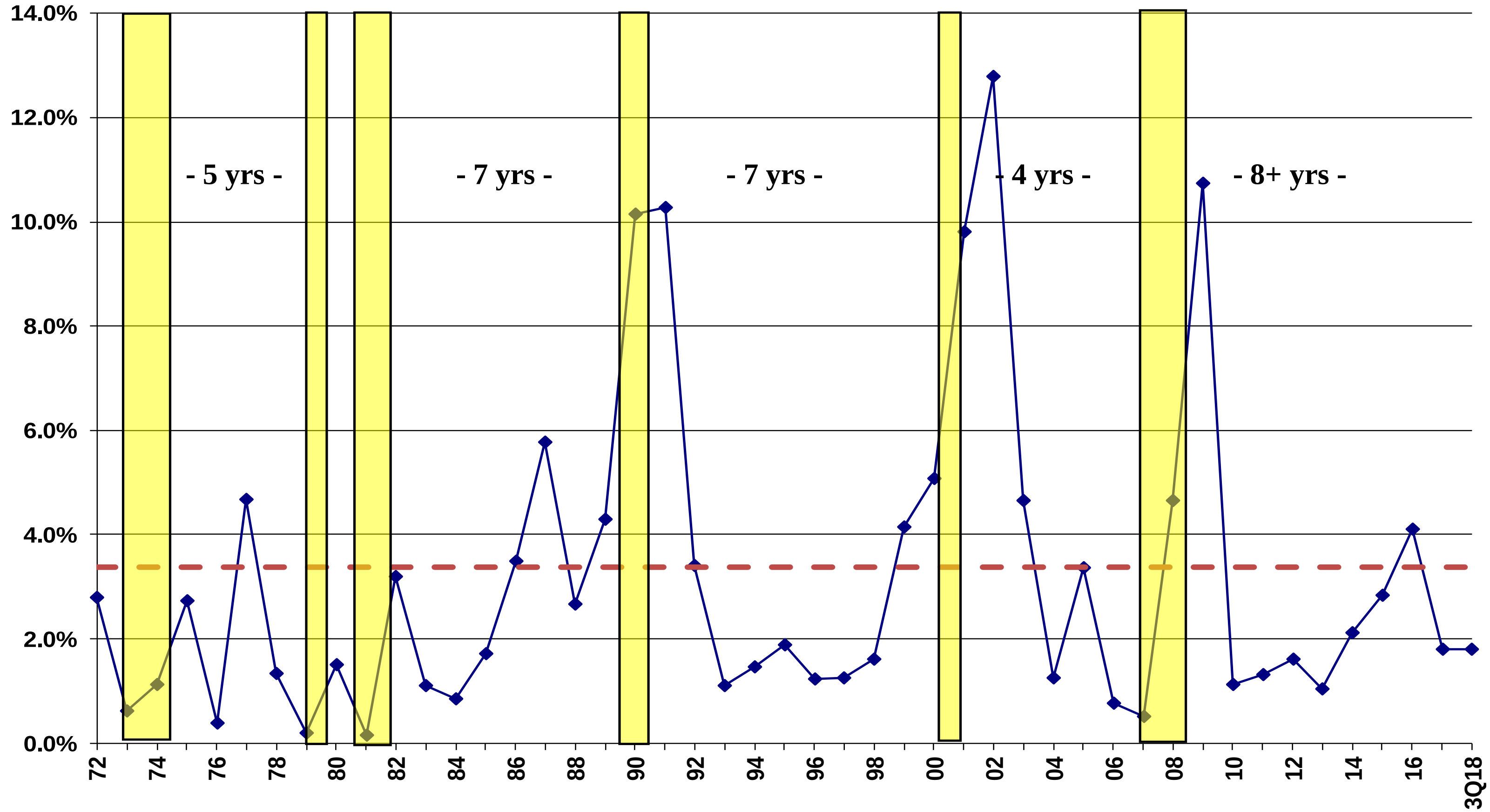
Benign Credit Cycle? Is It Over?

- **Length of Benign Credit Cycles: Is the Current Cycle Over? No.**
- **Default Rates (no), but Rising**
- **Default Forecast (no)**
- **Recovery Rates (no)**
- **Yields (no)**
- **Liquidity (no)**

Historical Default Rates, Benign Credit Cycles and Recession Periods in the U.S.*

High-Yield Bond Market (1972 – 3Q18)



Periods of Recession: 11/73 - 3/75, 1/80 - 7/80, 7/81 - 11/82, 7/90 - 3/91, 4/01 – 12/01, 12/07 - 6/09

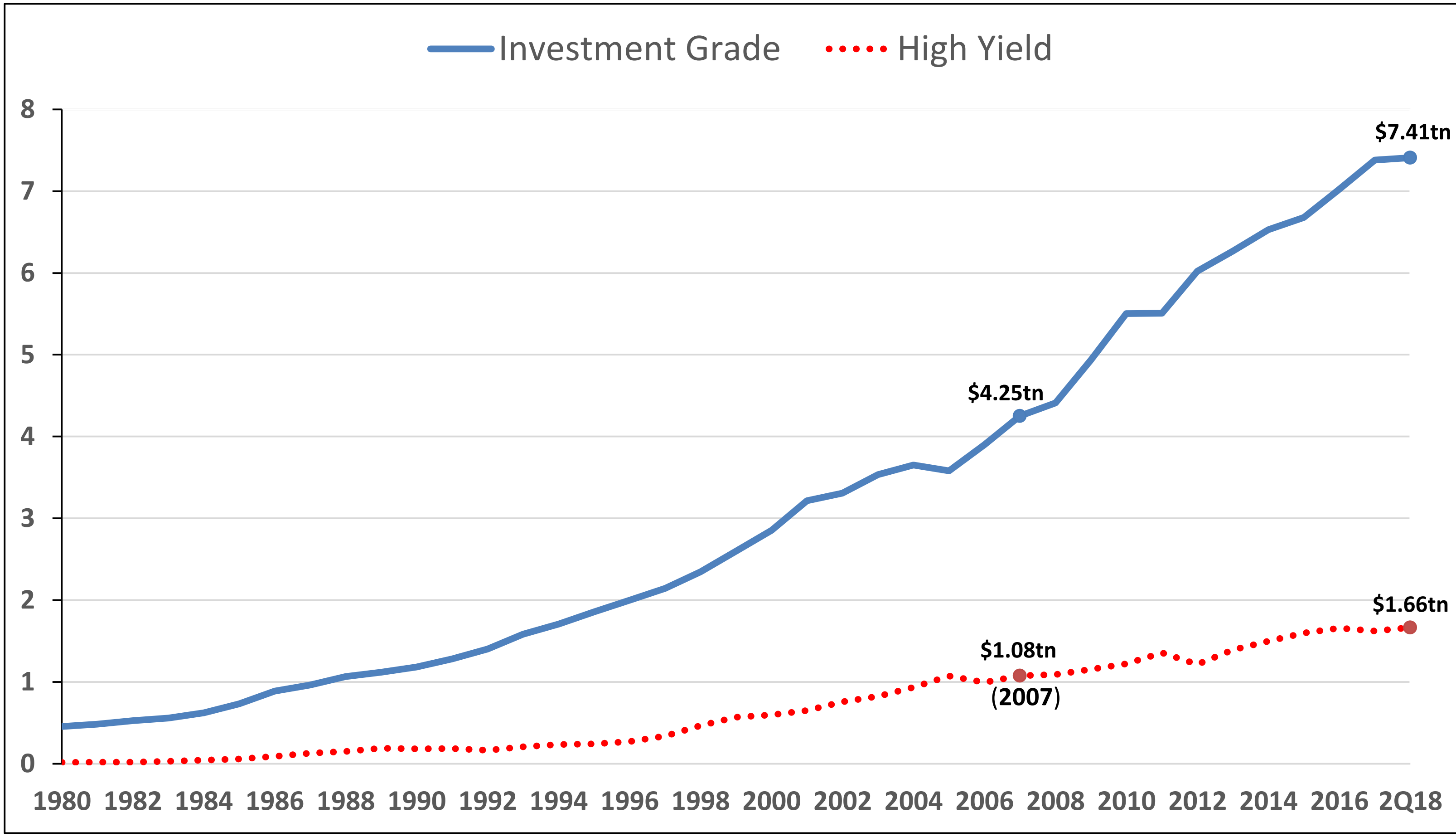
***Benign credit cycles are approximated. All rates annual, except for 3Q18, which is the LTM**

Source: E. Altman (NYU Salomon Center) & National Bureau of Economic Research

Some Concerns About the Benign Credit Cycle

U.S. Corporate Leverage Surges to Almost $10 Trillion

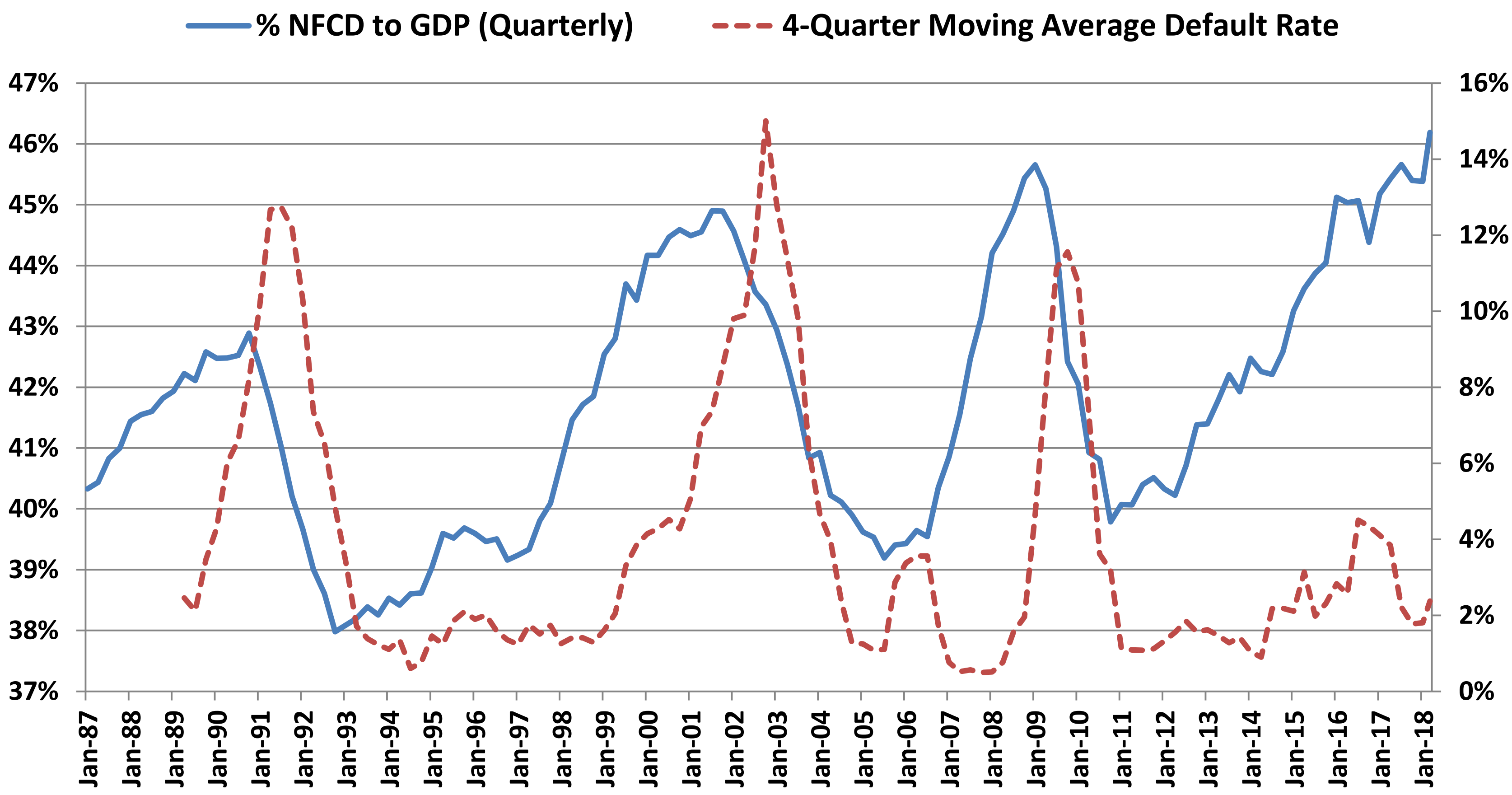
Outstanding Corporate Bonds, by Rating ($tn)



Sources: SIFMA and NYU Salomon Center.

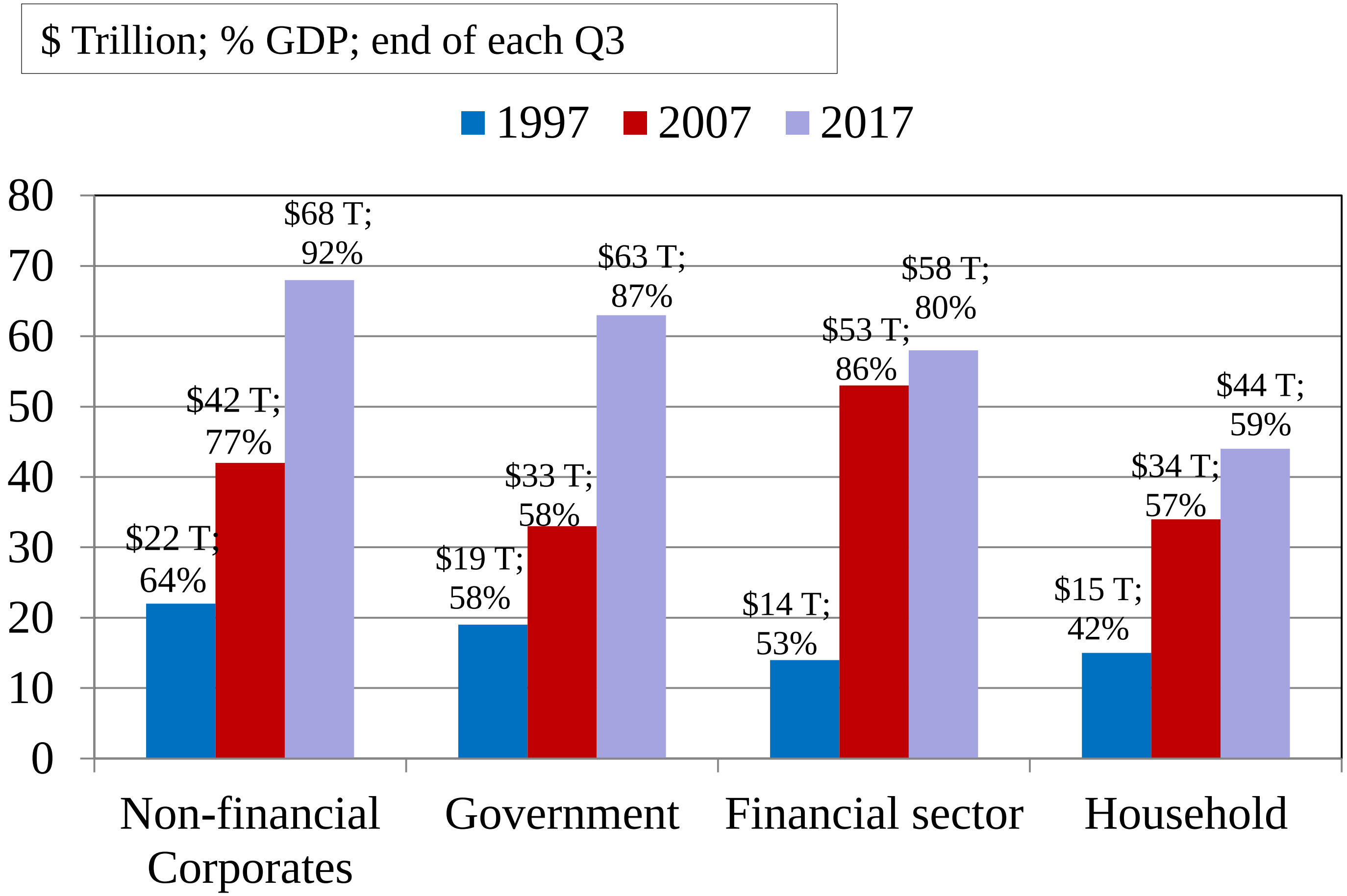
U.S. Non-financial Corporate Debt (Credit Market Instruments) to GDP: Comparison to 4-Quarter Moving Average Default Rate

January 1, 1987 – March 31, 2018



Sources: FRED, Federal Reserve Bank of St. Louis and Altman/Kuehne High-Yield Default Rate data.

Global Sectoral Indebtedness



Year	% of GDP	Total $ Amt. ($ T)
1997	217%	70
2007	278%	162
2017	318%	233

Sources: Chart from *Independent UK* using IIF, BIS, IMF and Haver data.

Comparative Health of High-Yield Firms (2007 vs. 2017)

Comparing Financial Strength of High-Yield Bond Issuers in 2007& 2012/2014/2017

Number of Firms		
	Z-Score	Z”-Score
2007	294	378
2012	396	486
2014	577	741
2017	529	583

Year	Average Z-Score/ (BRE)*	Median Z-Score/ (BRE)*	Average Z”-Score/ (BRE)*	Median Z”-Score/ (BRE)*
2007	1.95 (B+)	1.84 (B+)	4.68 (B+)	4.82 (B+)
2012	1.76 (B)	1.73 (B)	4.54 (B)	4.63 (B)
2014	2.03 (B+)	1.85 (B+)	4.66 (B+)	4.74 (B+)
2017	2.08 (B+)	1.98 (B+)	5.08 (BB-)	5.09 (BB-)

*Bond Rating Equivalent

Source: Authors’ calculations, data from Altman and Hotchkiss (2006) and S&P Global Market Intelligence’s S&P *Capital IQ platform/Compustat database.*

Major Risks Going Forward

- Global Economic Performance – Primarily U.S., China and Europe: Impact on Default Rates, Credit Availability and Quality (No Current Major Concern)
- Falling Oil Prices (No Current Major Concern)
- Global Debt Excess and Increasing Interest Rates
- High-Yield Fundamentals Still Fairly Weak
- Contagion Between Markets – Risky Debt and Equity
- Interest Rates and Inflation – Reduced Importance of the Search-for-Yield
- LBO, Covenant-Lite and CCC New Issuance
- Sovereign Debt Crisis – Asia (1997), Europe (2009-13), Emerging Markets?
- Uncertainties (non-quantifiable) – e.g. Political, Trade, Other