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thinking outside the box
Predicting Bonds

**Figure 1.**

**US TREASURY 10-YEAR BOND YIELD: 1965-1989**

(percent, daily)

Source: Federal Reserve Board.

**Figure 2.**

**US CONSUMER PRICE INDEX: 1965-1989**

(yearly percent change, monthly)

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Figure 3.

FEDERAL FUNDS RATE: 1965-1989
(percent, weekly)

Source: Federal Reserve Board.

Figure 4.

US BANK PRIME LOAN RATE: 1965-1989
(percent, weekly)

Source: Federal Reserve Board.
Predicting Bonds

Figure 5.
US UNEMPLOYMENT RATE: 1965-1989
(percent, monthly)


Figure 6.
REAL GDP: 1965-1989
(trillion 2012 dollars, saar, quarterly, ratio scale)

Source: Bureau of Economic Analysis.
Figure 7.

US TREASURY BOND YIELD & NOMINAL GDP GROWTH

- US Treasury 10-Year Bond Yield (percent)
- Nominal GDP (yearly percent change)

Source: Bureau of Economic Analysis and Federal Reserve Board.

Figure 8.

SPREAD BETWEEN US TREASURY BOND YIELD & NOMINAL GDP GROWTH*

(percentage points)

* US Treasury 10-year bond yield minus yearly percent change in nominal GDP.
Source: Bureau of Economic Analysis and Federal Reserve Board.
Figure 9.

WEST TEXAS INTERMEDIATE CRUDE OIL PRICE: 1980-2000
(dollars per barrel, monthly, ratio scale)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Haver Analytics.

Figure 10.

HOUSING STARTS: 1980-2000
(million units, saar, monthly)

Source: Census Bureau.
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Figure 11.
(percent, daily)

Source: Federal Reserve Board.

Figure 12.
DOW JONES INDUSTRIALS AVERAGE: 1987-2000
(daily)

Source: Dow Jones Inc.
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Figure 13.

THE AGE WAVE, INFLATION, and BOND YIELD IN THE US (percent)

- Age Wave*
- Inflation Trend**
- US Treasury 10-Year Bond Yield***

* Percent of labor force 16-34 years old.
** Five-year moving average of yearly percent change in CPI.
*** Five-year moving average of ten-year government bond yield.
Source: Bureau of Labor Statistics and Federal Reserve Board.

Figure 14.

EQUITY & BOND MUTUAL FUNDS (cumulative flows since 1990, trillion dollars)

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Figure 15.

US TREASURY 10-YEAR BOND & TIPS YIELDS
(percent, daily)

Source: Federal Reserve Board.

Figure 16.

EXPECTED INFLATION IN 10-YEAR TIPS*
(percent, daily)

* Nominal minus TIPS yield.
Source: Federal Reserve Board.
EXPECTED INFLATION: SURVEY OF PROFESSIONAL FORECASTERS

* Median forecast of year-over-year CPI inflation rate over the next 10 years using Philadelphia Fed Survey of Professional Forecasters data.

MEASURES OF EXPECTED INFLATION (percent)

* Median forecast of year-over-year CPI inflation rate over the next 10 years using Philadelphia Fed Survey of Professional Forecasters data.
** Nominal US Treasury 10-year minus 10-year TIPS yields.
Source: Federal Reserve Board and Federal Reserve Bank of Philadelphia.
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Figure 19.

US CONSUMER PRICE INDEX & US TREASURY 10-YEAR BOND YIELD

- Yearly percent change.

Figure 20.

US CONSUMER PRICE INDEX & US TREASURY 10-YEAR BOND YIELD
(percent)

- Yearly percent change.
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**Figure 21.**

REAL FEDERAL FUNDS RATE*
(percent)

* Federal funds rate minus median forecast of year-over-year CPI inflation rate over the next 10 years using Philadelphia Fed Survey of Professional Forecasters data (monthly series interpolated from quarterly data starting as two quarters per year during Q4-1979 until Q4-1991 when the data continue with four quarters a year).


**Figure 22.**

REAL BOND YIELD*

* US Treasury 10-year bond yield minus median forecast of year-over-year CPI inflation rate over the next 10 years using Philadelphia Fed Survey of Professional Forecasters data (monthly series interpolated from quarterly data starting as two quarters per year during Q4-1979 until Q4-1991 when the data continue with four quarters a year).

Figure 23.

FEDERAL FUNDS RATE and US TREASURY 10-YEAR BOND YIELD
(percent, monthly)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Federal Reserve Board.

Figure 24.

US YIELD CURVE* & THE BUSINESS CYCLE
(basis points, monthly)

* 10-year US Treasury bond yield minus federal funds rate.
Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Federal Reserve Board.
Figure 25.

US CONSUMER PRICE INDEX & MONETARY POLICY CYCLE  
(Yearly percent change)

Note: Blue shaded areas denote periods of monetary easing between cyclical peaks and troughs in the federal funds rate. Red shaded areas denote monetary tightening periods.

Figure 26.

US YIELD CURVE* & MONETARY POLICY CYCLE  
(basis points)

Note: Blue shaded areas denote periods of monetary easing between cyclical peaks and troughs in the federal funds rate. Red shaded areas denote monetary tightening periods.
* US Treasury 10-year bond yield less federal funds rate. Monthly through 1987, then weekly.
Source: Federal Reserve Board.
Figure 27.

FED’S ASSETS: 2008-2015*
(trillion dollars)

QE3 expanded (12/12/12) = Fed starts buying $45bn/month in Treasuries.
* Average of daily figures for weeks ending Wednesday.
Source: Federal Reserve Board.

Figure 28.

FED’S ASSETS: 2008-2015*
(trillion dollars)

* Average of daily figures for weeks ending Wednesday.
QE3 expanded (12/12/12) = Fed starts buying $45bn/month in Treasuries.
Source: Federal Reserve Board.
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Figure 29.

US TREASURY 10-YEAR BOND YIELD (percent)


Source: Federal Reserve Board.

Figure 30.

S&P 500 INDEX


Source: Standard & Poor’s.
EUROZONE: GOVERNMENT 10-YEAR BOND YIELDS
(percent)

Source: Financial Times.

Note: D (7/26/12) = ECB President Mario Draghi pledged to do "whatever it takes" to defend the euro. NIRP (6/5/2014) = negative interest-rate policy. QE (1/22/15) = quantitative easing. QEE (3/10/16) = expansion and extension of QE with corporate bond purchases started 6/1/16. QT (12/31/2018).

Figure 31.

GREECE: GOVERNMENT 10-YEAR BOND YIELD
(percent, daily)

Source: Financial Times.
Figure 33.

EUROZONE: GOVERNMENT 10-YEAR BOND YIELDS (percent, daily)

Source: Financial Times.

Note: D (7/26/12) = ECB President Mario Draghi pledged to do "whatever it takes" to defend the euro. NIRP (6/5/2014) = negative interest-rate policy. QE (1/22/15) = quantitative easing. QEE (3/10/16) = expansion and extension of QE with corporate bond purchases started 6/1/16.

Figure 34.

ECB DEPOSIT RATE & GERMAN GOVERNMENT 10-YEAR BOND YIELD (percent, daily)

Source: European Central Bank and Haver Analytics.
Note: D (7/26/12) = ECB President Mario Draghi pledged to do "whatever it takes" to defend the euro. NIRP (6/5/2014) = negative interest-rate policy. QE (1/22/15) = quantitative easing. QEE (3/10/16) = expansion and extension of QE with corporate bond purchases started 6/1/16.

Source: European Central Bank.
Figure 37.

JAPAN: MONETARY BASE*
(trillion yen, sa, ratio scale)

* Adjusted for change in reserve requirements.
Note: Z = Zero Interest Rate Policy. A = Markets start to anticipate Abenomics. QQE (4/4/13) = Quantitative and Qualitative Easing. QQEE (10/31/14) = QQE expanded and extended version. NIRP (1/29/16) = Negative interest rate policy. YC (9/21/16) = Yield curve targeting.
Source: Bank of Japan.

Figure 38.

JAPAN: US$ / 100YEN
(daily)

Note: A = Markets start to anticipate Abenomics. QQE is Quantitative and Qualitative Easing. QQEE is the expanded and extended version of QQE. NIRP = negative interest rates. YC = Yield curve targeting.
Source: Haver Analytics.
Figure 39.
GOVERNMENT 10-YEAR BOND YIELDS
(percent, daily)

Source: Haver Analytics.

Figure 40.
CORPORATE & US TREASURY 10-YEAR BOND YIELDS
(percent, monthly)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.


Source: Federal Reserve Board.
YIELD SPREAD CORPORATE* & US TREASURY 10-YEAR BONDS
(basis points, monthly)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Federal Reserve Board.

S&P 500 VIX & HIGH YIELD CORPORATE BOND SPREAD

* US high-yield corporate bond yield less US Treasury 10-year bond yield (basis points).
Source: Chicago Board Options Exchange, Bank of America Merrill Lynch, and Federal Reserve Board.
Figure 43.

FIBER WEEKLY LEADING INDEX & HIGH YIELD CORPORATE SPREAD
(basis points, inverted scale)

* High yield corporate less US Treasury 10-year bond yield.
Note: Shaded areas denote recessions according to the National Bureau of Economic Research.

Figure 44.

US FEDERAL GOVERNMENT BUDGET DEFICIT
(as a percent of nominal GDP)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Bureau of Economic Analysis.
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Figure 45.

US FEDERAL GOVERNMENT EXPENDITURES & RECEIPTS
(as a percent of nominal GDP)

Note: Shaded areas denote recessions according to the National Bureau of Economic Research.
Source: Bureau of Economic Analysis.

Figure 46.

US AGENCY & GSE-BACKED BONDS: NET PURCHASES BY REST OF WORLD
(billion dollars, 4-quarter sum)

Source: Federal Reserve Board Financial Accounts of the United States.
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Figure 47.
US TREASURY BONDS: NET PURCHASES BY REST OF WORLD
(billion dollars, 4-quarter sum)

Source: Federal Reserve Board Financial Accounts of the United States.

Figure 48.
US DEBT
(trillion dollars)

Source: Federal Reserve Board Financial Accounts of the United States.
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Figure 49.
US DEBT
(as a percent of nominal GDP)

Debt/GDP
- Total
- Nonfinancial
- Financial

Source: Federal Reserve Board Financial Accounts of the United States.

Figure 50.
US DEBT OF NONFINANCIAL DOMESTIC SECTORS
(trillion dollars, nsa)

Nonfinancial Debt
- Total*
- Total Less Treasury
- Treasury

* Includes mortgage, consumer, business, and US Treasury debt. 
Source: Federal Reserve Board Financial Accounts of the United States.
Figure 51.

US DEBT OF NONFINANCIAL DOMESTIC SECTORS
(as a percent of nominal GDP)

- **Nonfinancial Debt/GDP**
  - **Total**
  - **Total Less Treasury**
  - **Treasury**

* Includes mortgage, consumer, business, and government debt.
Source: Federal Reserve Board Financial Accounts of the United States.

Figure 52.

US TOTAL HOUSEHOLD DEBT BALANCE
(trillion dollars)

Source: New York Fed Credit Panel.
US HOUSEHOLD DEBT SERVICE RATIO*

* Ratio of debt service payments to disposable personal income.
Source: Federal Reserve Board.
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