



Large Budget Deficits, High Levels of Government Debt - A Force for Lower Interest Rates

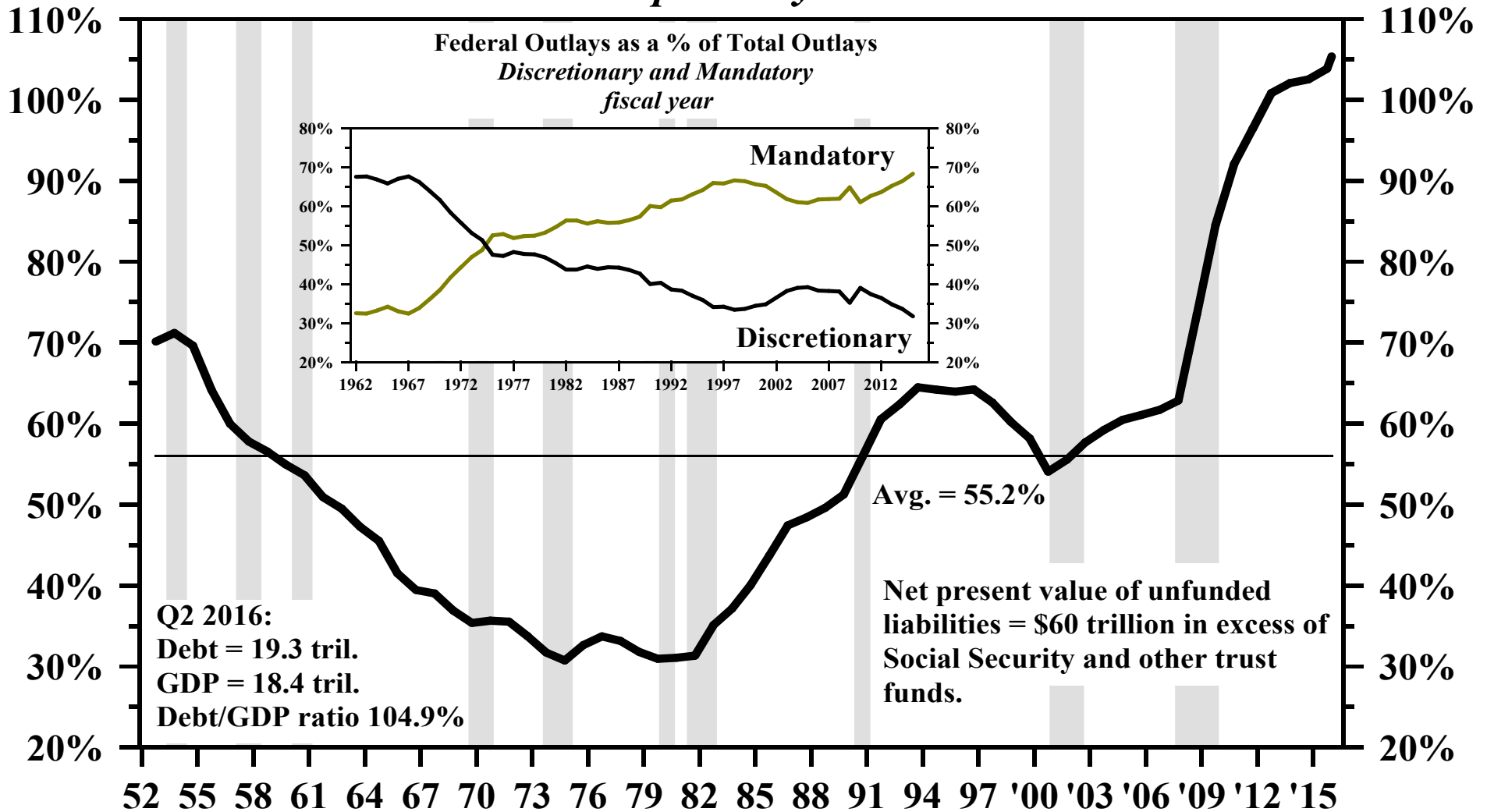
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Gross Federal Debt as a % of GDP (Excluding Off Balance Sheet Liabilities)

quarterly



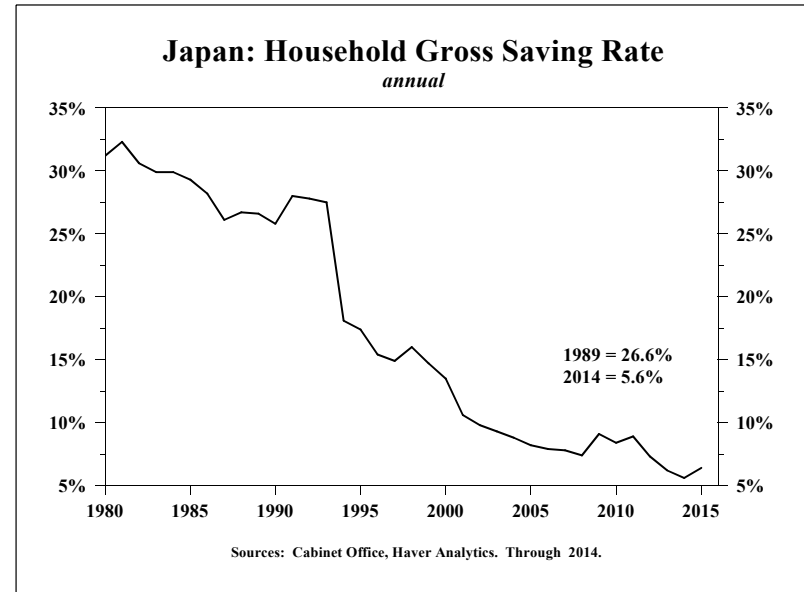
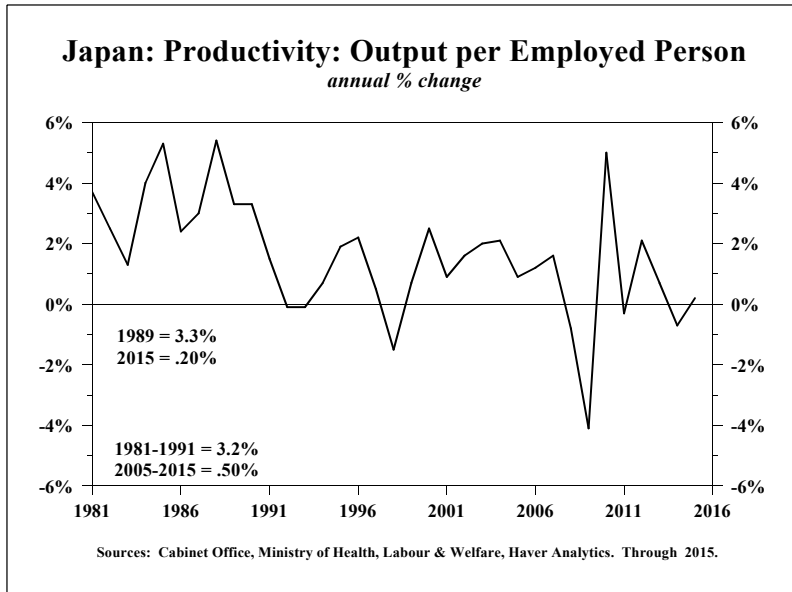
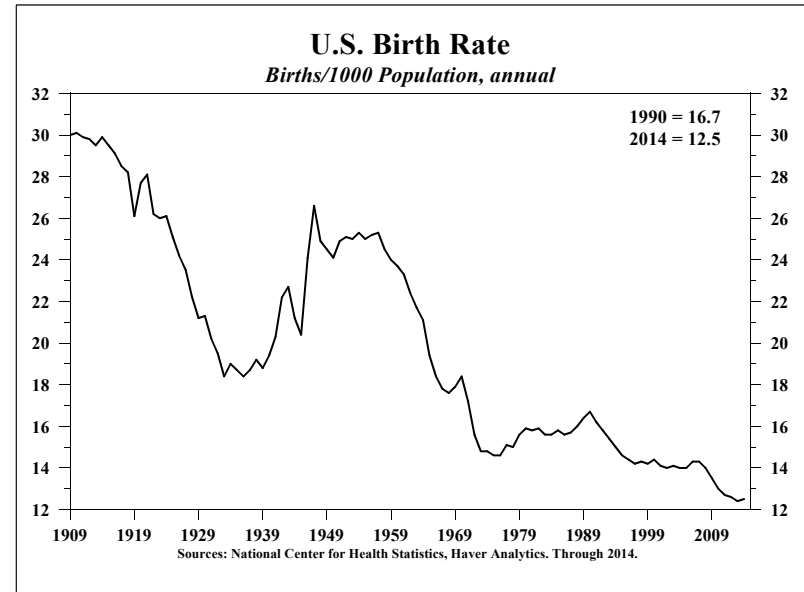
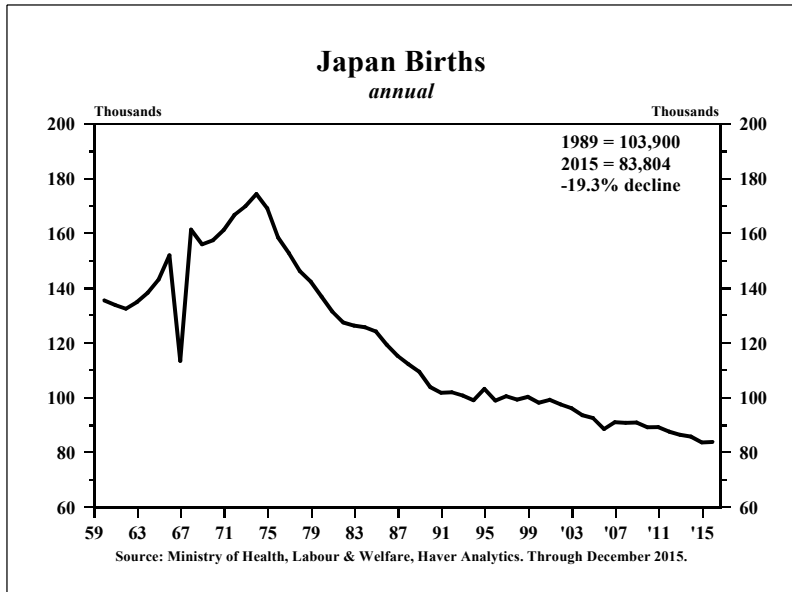
Source: Federal Reserve Board, Bureau of Economic Analysis. Office Management and Budget.
Through Q2 2016.

Six Considerations Indicate Federal Finance Will Produce Slower Growth

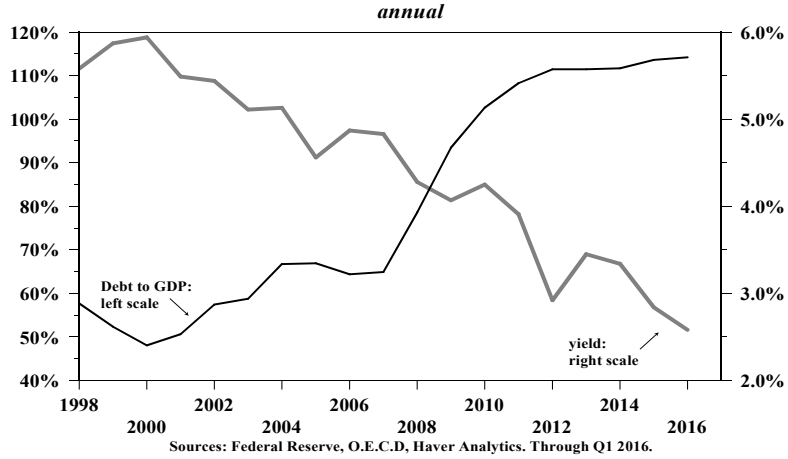
1. The government expenditure *multiplier is already negative*.
2. The composition of the spending suggests the multiplier is likely to *trend even more negative*.
3. The federal debt-to-GDP ratio moved above the deleterious 90% level in 2010 and has stayed above it *for more than five years*, a time span in which research shows the constriction of economic growth to be particularly severe. It will continue to move substantially further above the 90% threshold as debt suppresses the growth rate.
4. Debt is likely to restrain economic growth in an increasingly *nonlinear fashion*.
5. The first four problems produce a *negative spiral* from federal finance to the economy through the allocation of saving, productive investment, productivity growth and eventually to demographics.
6. The policy makers force themselves into a downward spiral when they rely on more debt in order to address poor economic performance. More of the same does not produce better results, only more of the same but worse, a situation we term a *policy trap*.

Bibliography of Government Expenditure Multiplier Studies

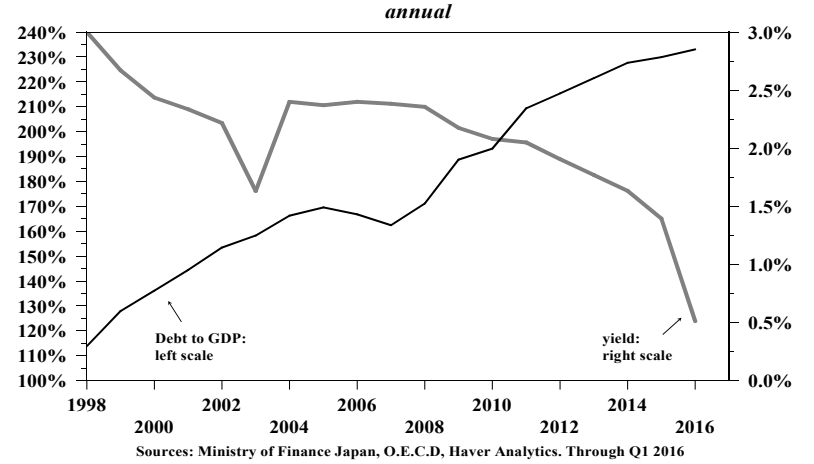
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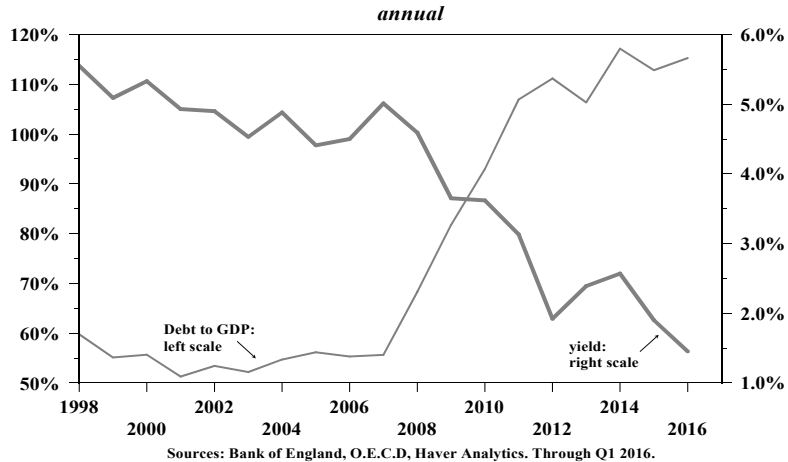
United States: Debt as % of GDP and 30 year Government Bond Yield



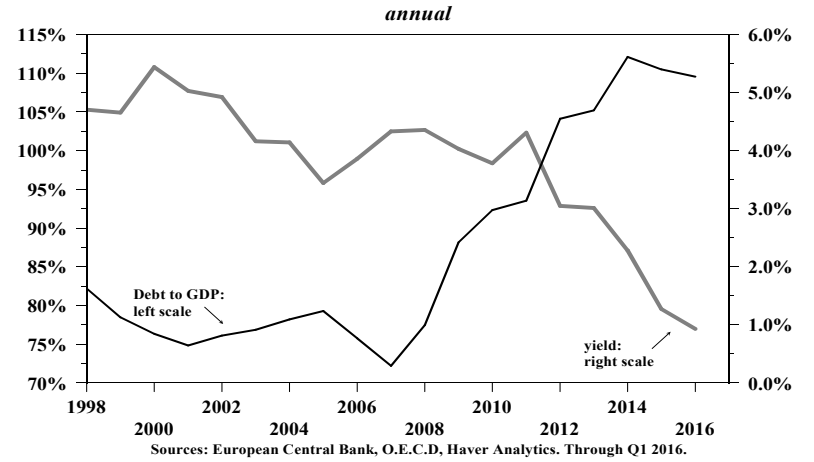
Japan: Debt as % of GDP and 30 year Government Bond Yield



United Kingdom: Debt as % of GDP and 10 year Government Bond Yield



Euro Area: Debt as % of GDP and 10 year Government Bond Yield



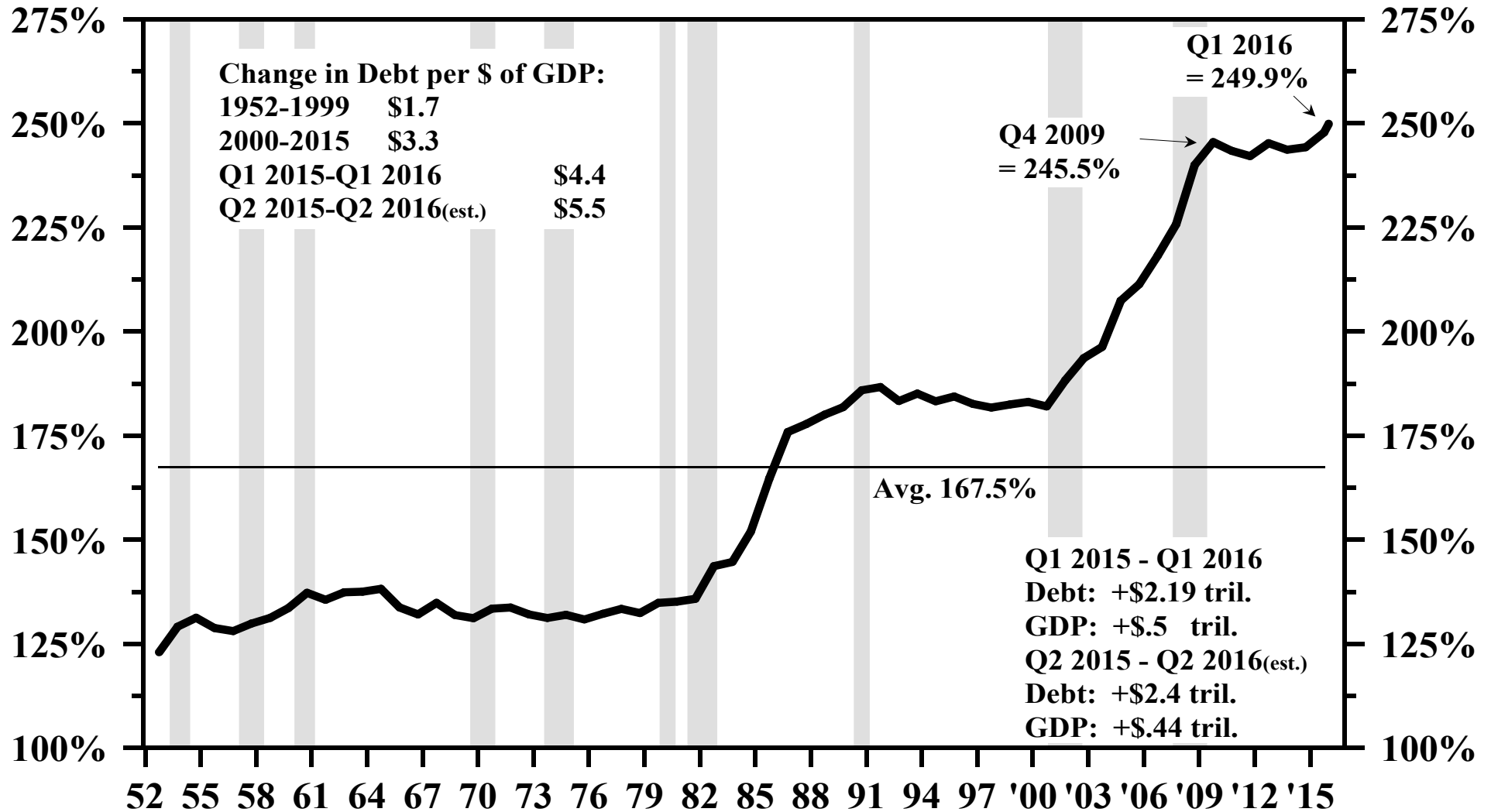
Correlation Coefficients Between Gross Government Debt to GDP and Long Term Government Bond Yields in Four Major Economic Areas 1998-2016

annual

		Correlation Coefficients
	(A)	(B)
1.	U.S.	-0.95
2.	Euro Area	-0.85
3.	Japan	-0.80
4.	United Kingdom	-0.94

Source: HIMCO.

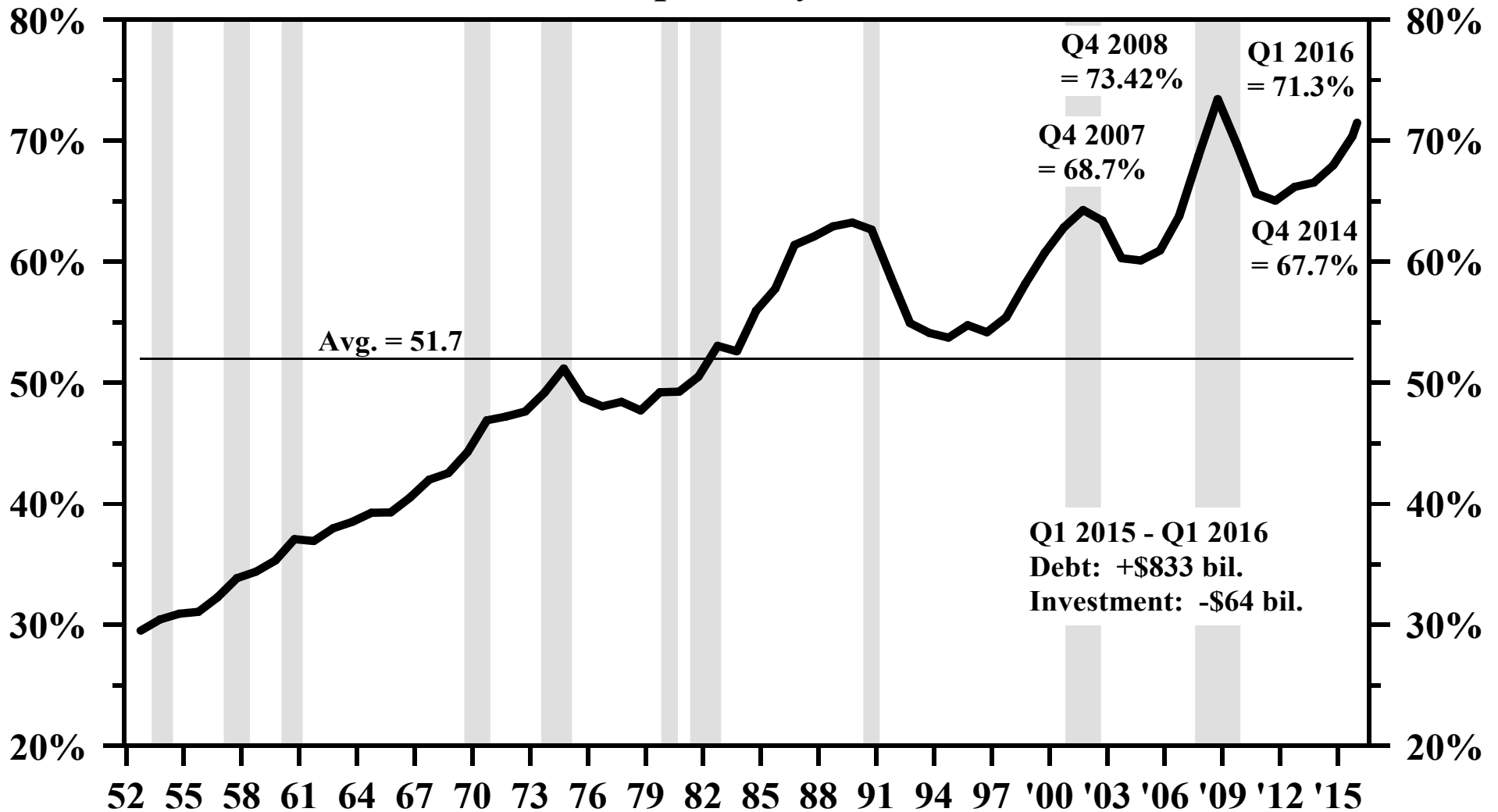
Total Nonfinancial Debt as a % of GDP (Excluding Off Balance Sheet Liabilities) *year ending levels*



Source: Federal Reserve Board, Bureau of Economic Analysis. Through Q1 2016.

Business Debt as a % of GDP (Excluding Off Balance Sheet Liabilities)

quarterly



Source: Federal Reserve Board, Bureau of Economic Analysis. Through Q1 2016.

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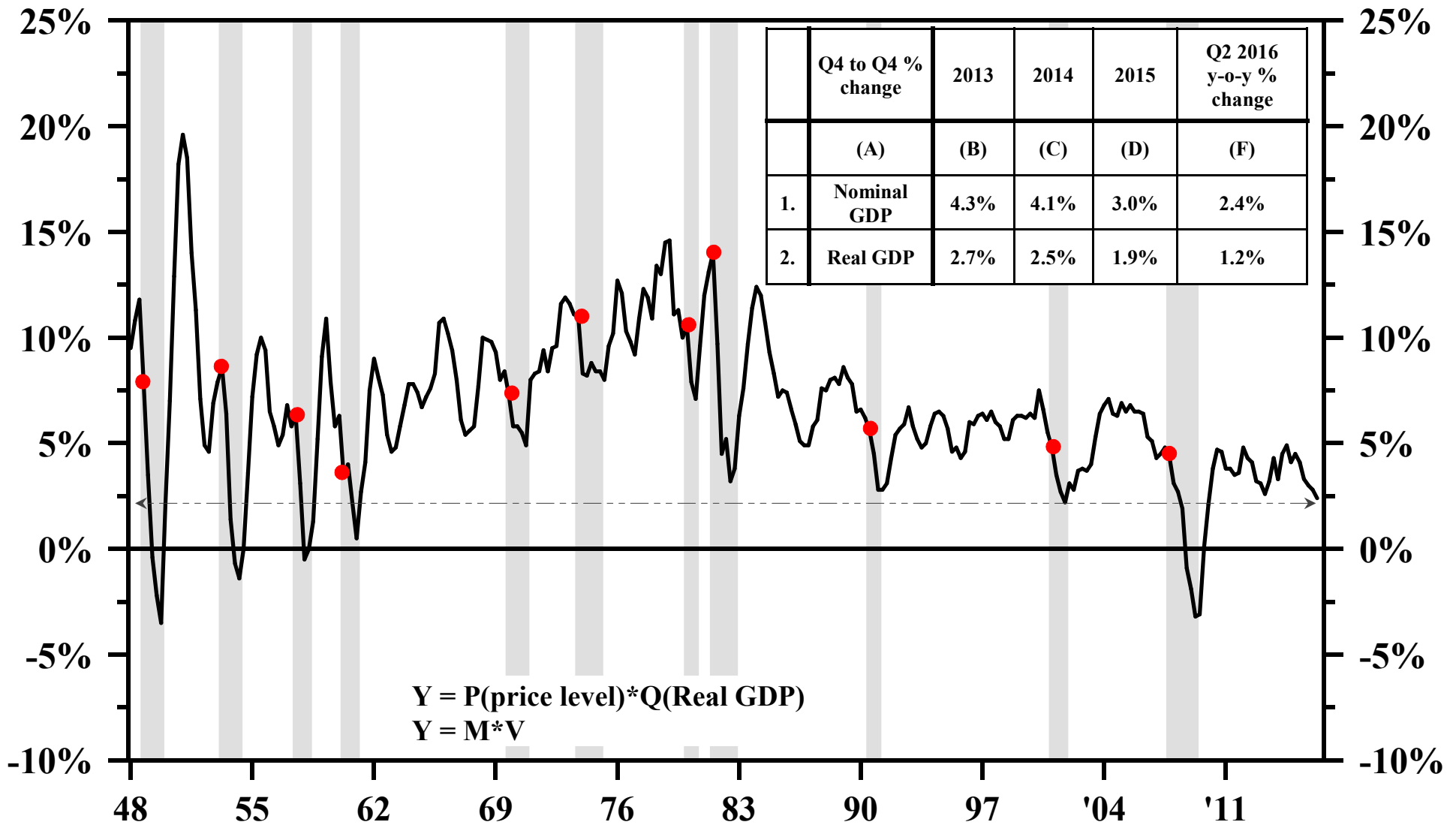
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Characteristics of Extremely Over-Indebted Economies

- 1. Growth is abnormally weak. Transitory spurts in economic growth, inflation and high-grade bond yields cannot be sustained because debt constrains economic activity.**
- 2. Due to debt repayment obligations, economies are subject to structural downturns without the cyclical excesses of rising interest rates and inflation.**
- 3. Deterioration in productivity is not inflationary but just another symptom of the debt overhang.**
- 4. Traditional monetary and fiscal policy actions are asymmetric. They can restrain but not stimulate growth. Fiscal policy options exist provided they do not increase aggregate indebtedness.**
- 5. Inflation falls dramatically, increasing the risk of deflation.**
- 6. Treasury bond yields fall to extremely low levels and remain depressed for an extended period since the Fisher equation (1867-1947) states that the long risk-free yield is equal to the real yield plus expected inflation.**
- 7. When multiple major economies are simultaneously over-indebted, the world lacks an engine of growth.**
- 8. Indebtedness problems cannot be solved with more debt and if that is the course, the first seven symptoms will not only persist, they will worsen. Historically, debt overhangs in major economies have only been cured by a significant multi-year rise in saving of which different ways can achieve this result.**
- 9. During periods of prolonged over-indebtedness, demographics may deteriorate reinforcing the negative influences of the first eight characteristics.**

Nominal GDP, Y

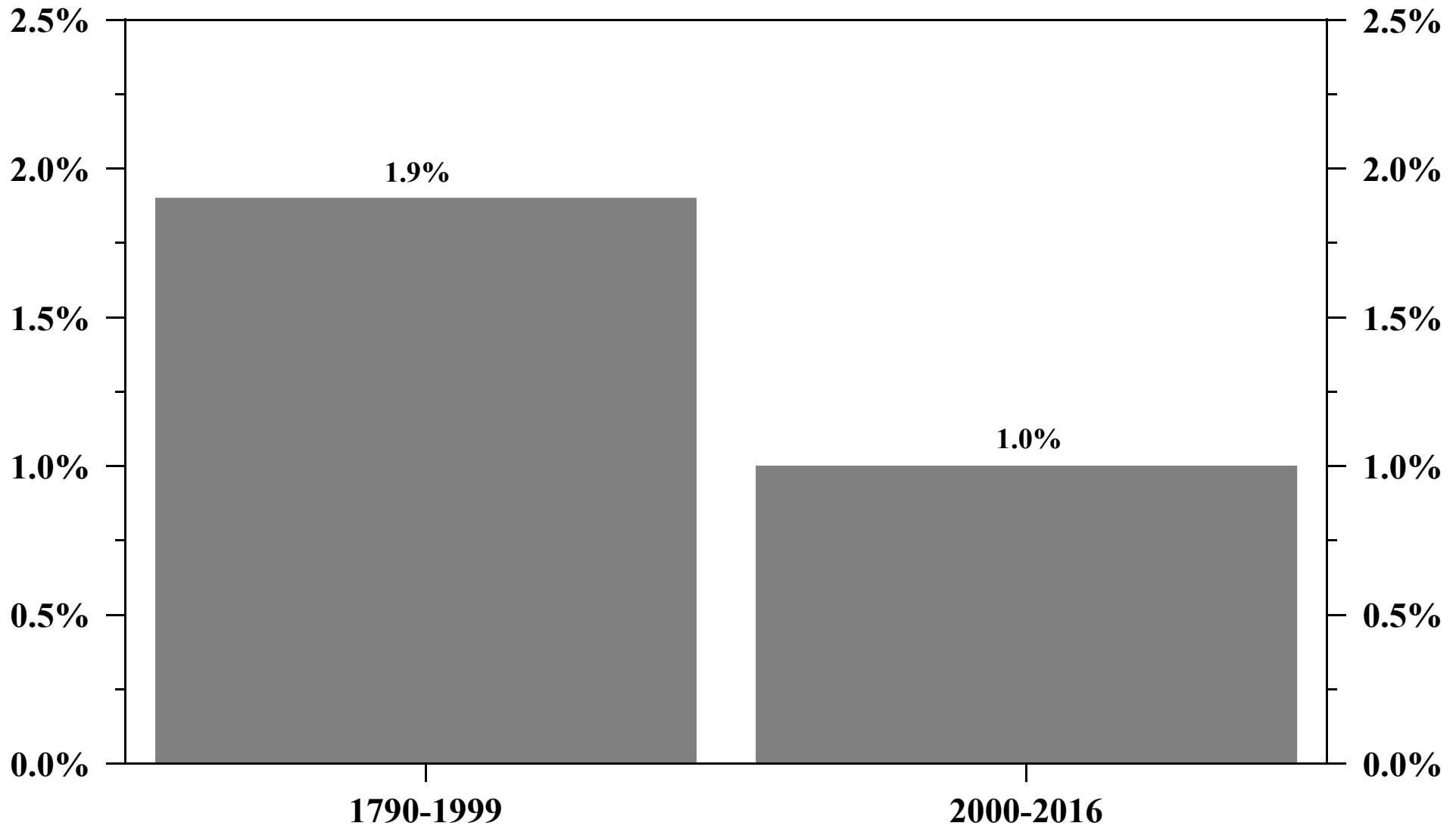
year over year % change, quarterly



Source: Bureau of Economic Analysis. Through Q2 2016.

Real Per Capita GDP Growth, Selected Periods

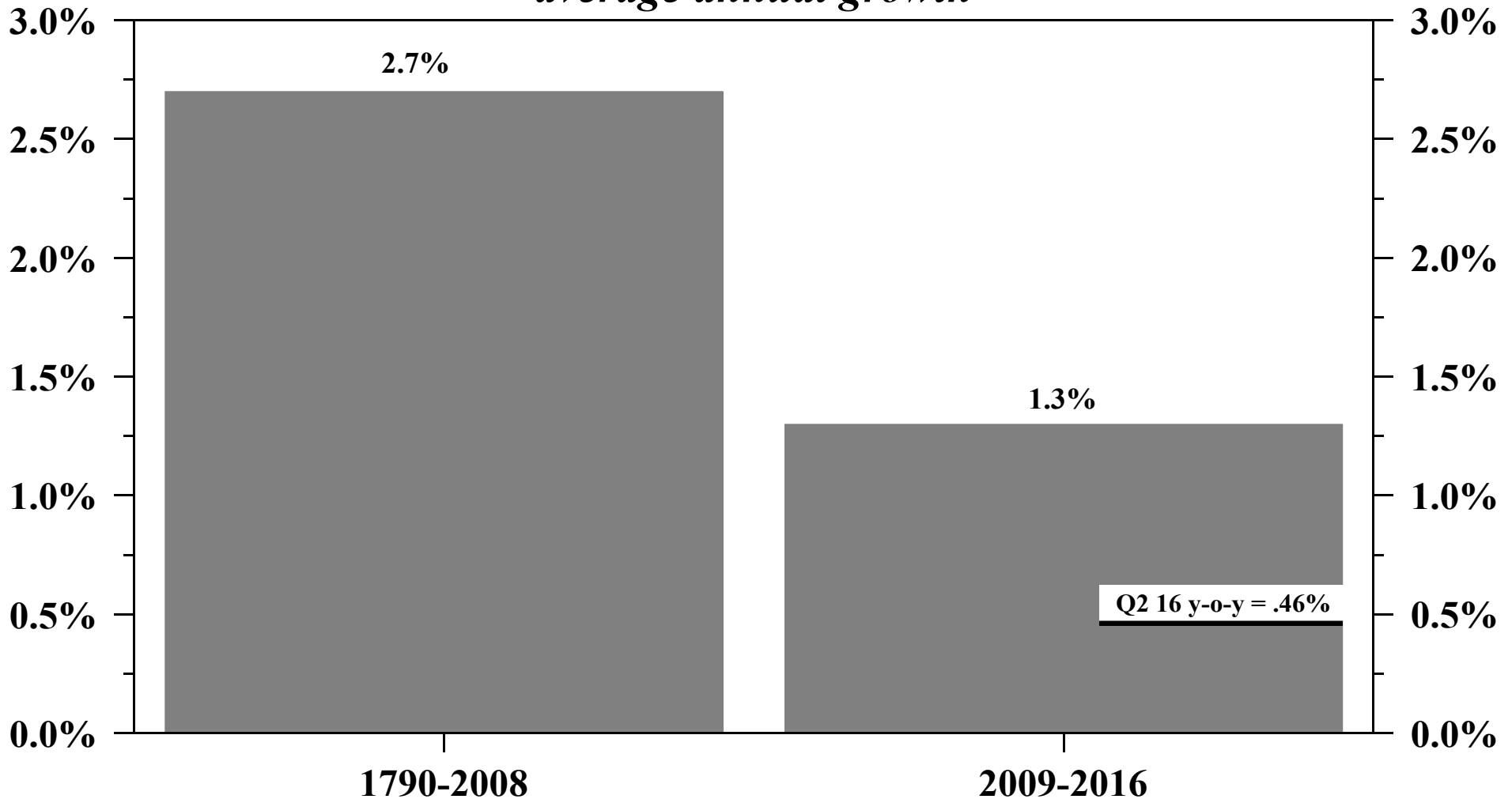
average annual growth



Sources: Bureau of Economic Analysis, Congressional Budget Office, Office of Management and Budget, N.S. Balke & R.J. Gordon, C.D. Romer, Measuring Worth. Through Q2 2016.

Real Per Capita GDP Growth, Current Expansion vs. Prior Expansions

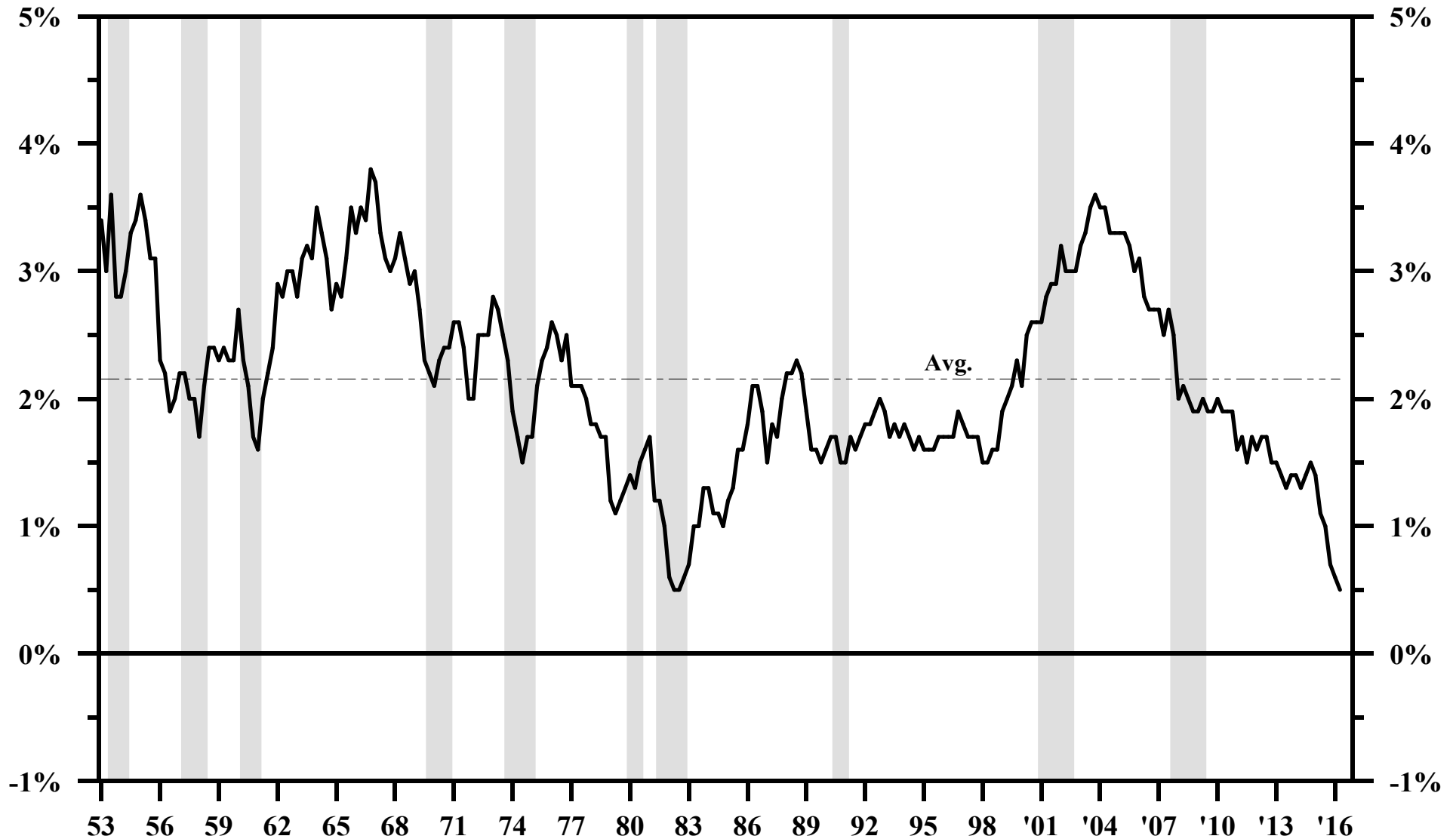
average annual growth



Sources: Bureau of Economic Analysis, Congressional Budget Office, Office of Management and Budget, N.S. Balke & R.J. Gordon, C.D. Romer, Measuring Worth. Through Q2 2016.

Nonfarm Business Sector: Productivity

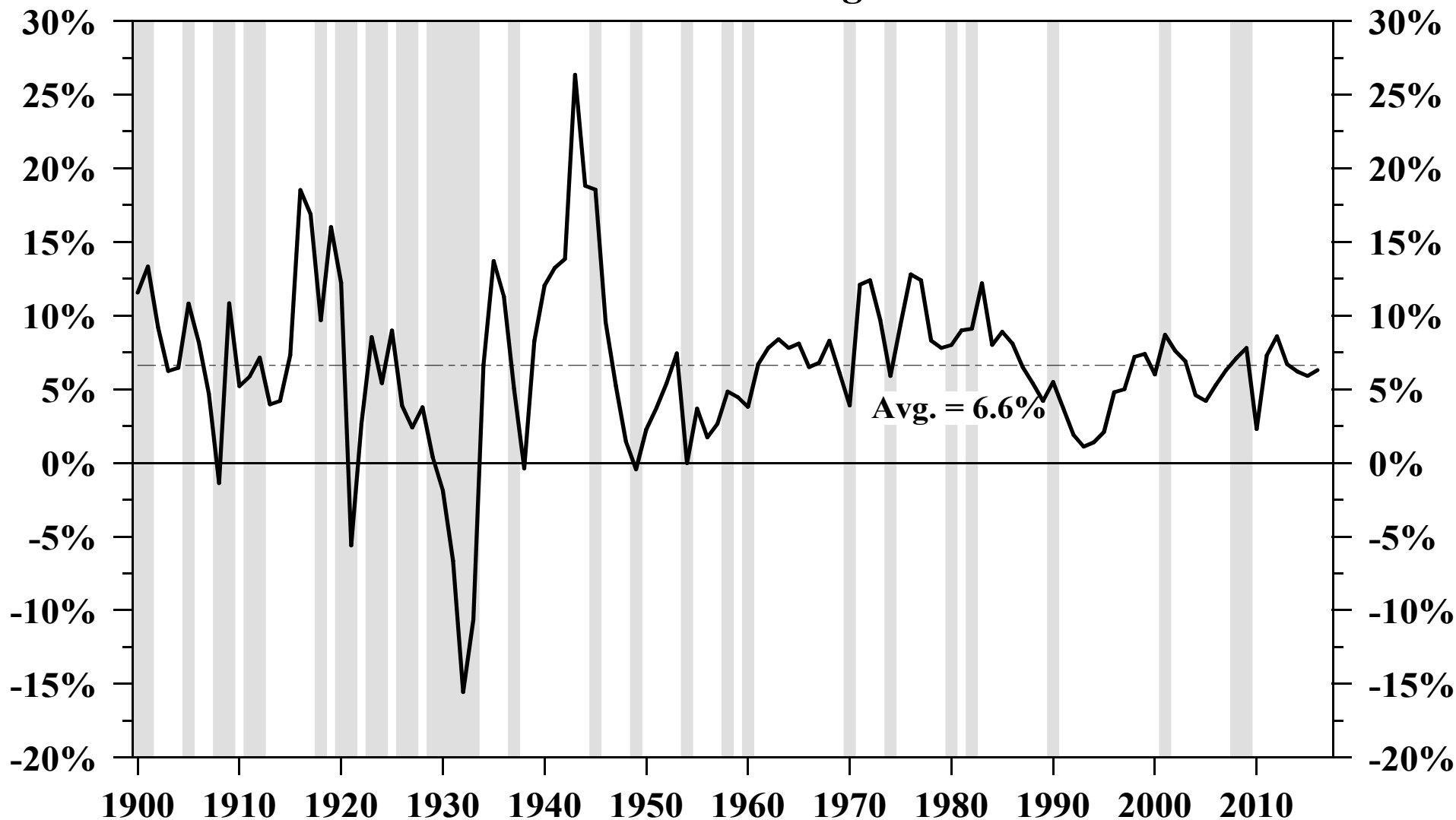
6 year % change a.r., quarterly



Sources: Census Bureau. Bureau of Labor Statistics. Through Q2 2016. Real Median HH Income through 2014.

M2 Money Stock

annual % change

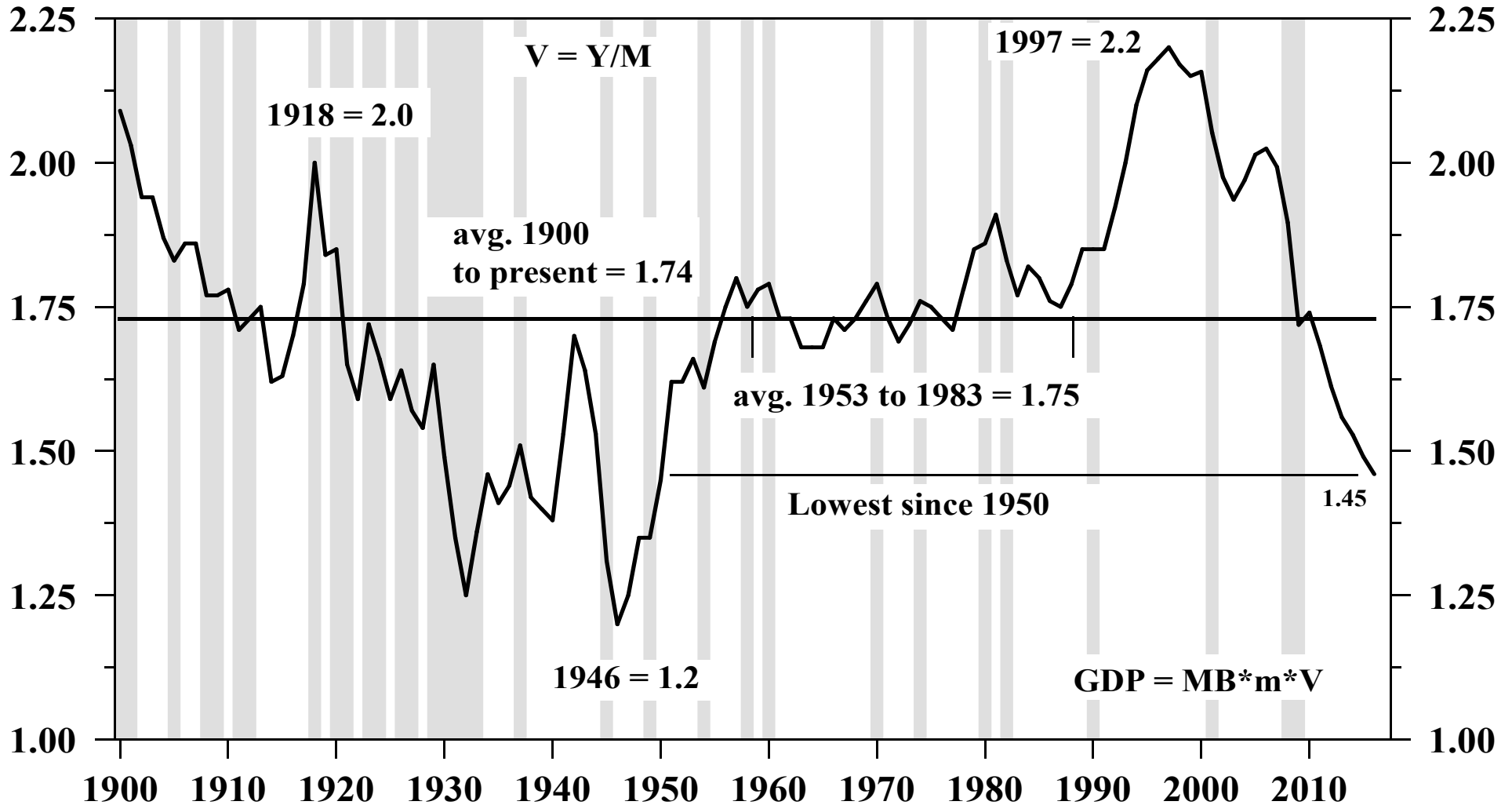


Sources: Federal Reserve Board. Bureau of Labor Statistics;
Monetary Statistics of the United States. Through August 2016. Last plot is 12 months ending August
2016 vs. same period a year ago.

Velocity of Money 1900-2016

Equation of Exchange: $GDP(Y) = M * V$

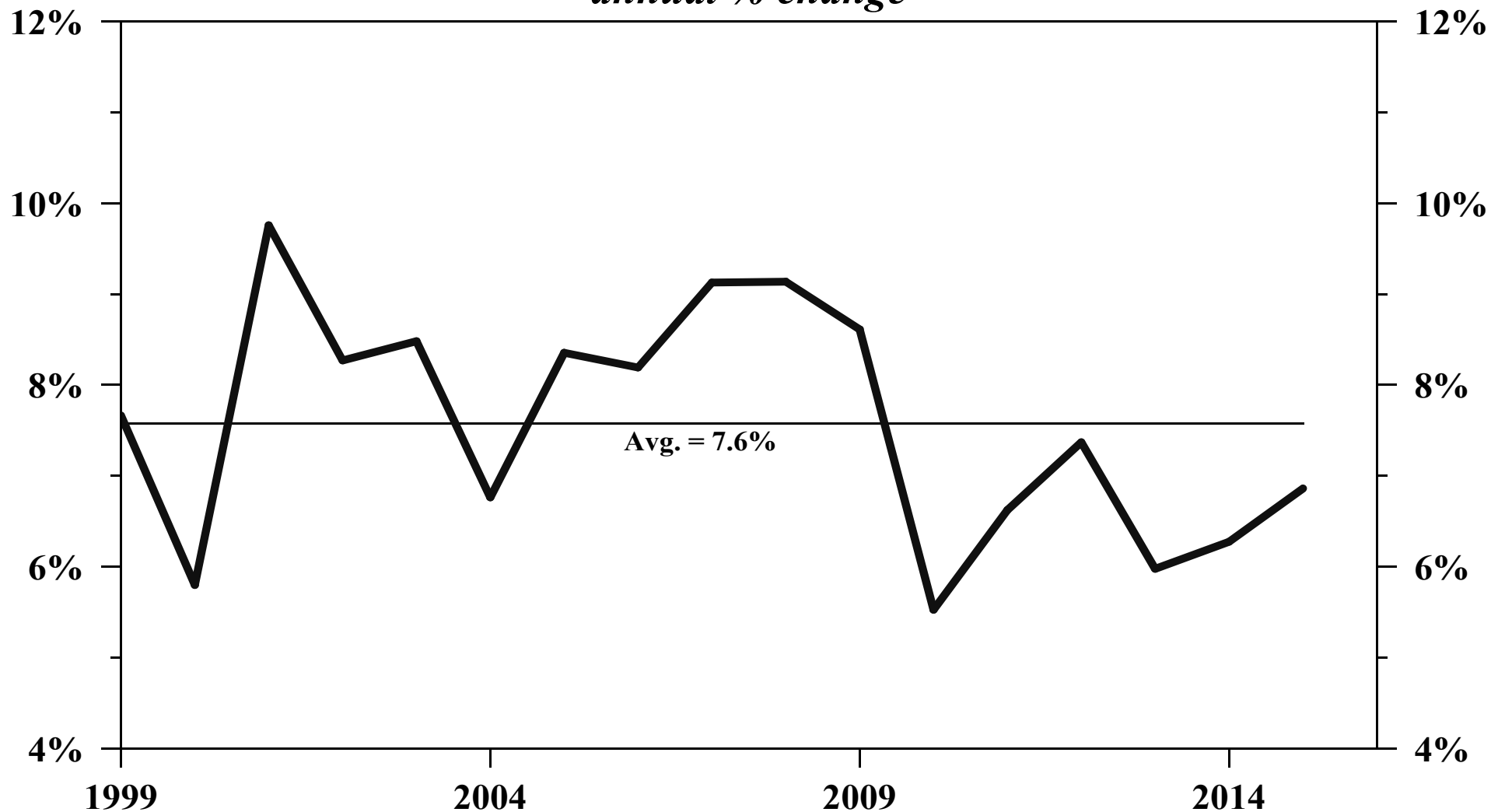
annual



Sources: Federal Reserve Board; Bureau of Economic Analysis;
 Bureau of the Census; The American Business Cycle, Gordon, Balke and Romer. Through Q2 2016.
 Q2 2016; $V = GDP/M$, $GDP = 18.4$ tril, $M2 = 12.7$ tril, $V = 1.46$

Composite M2 Growth for China, U.S., Japan and Europe

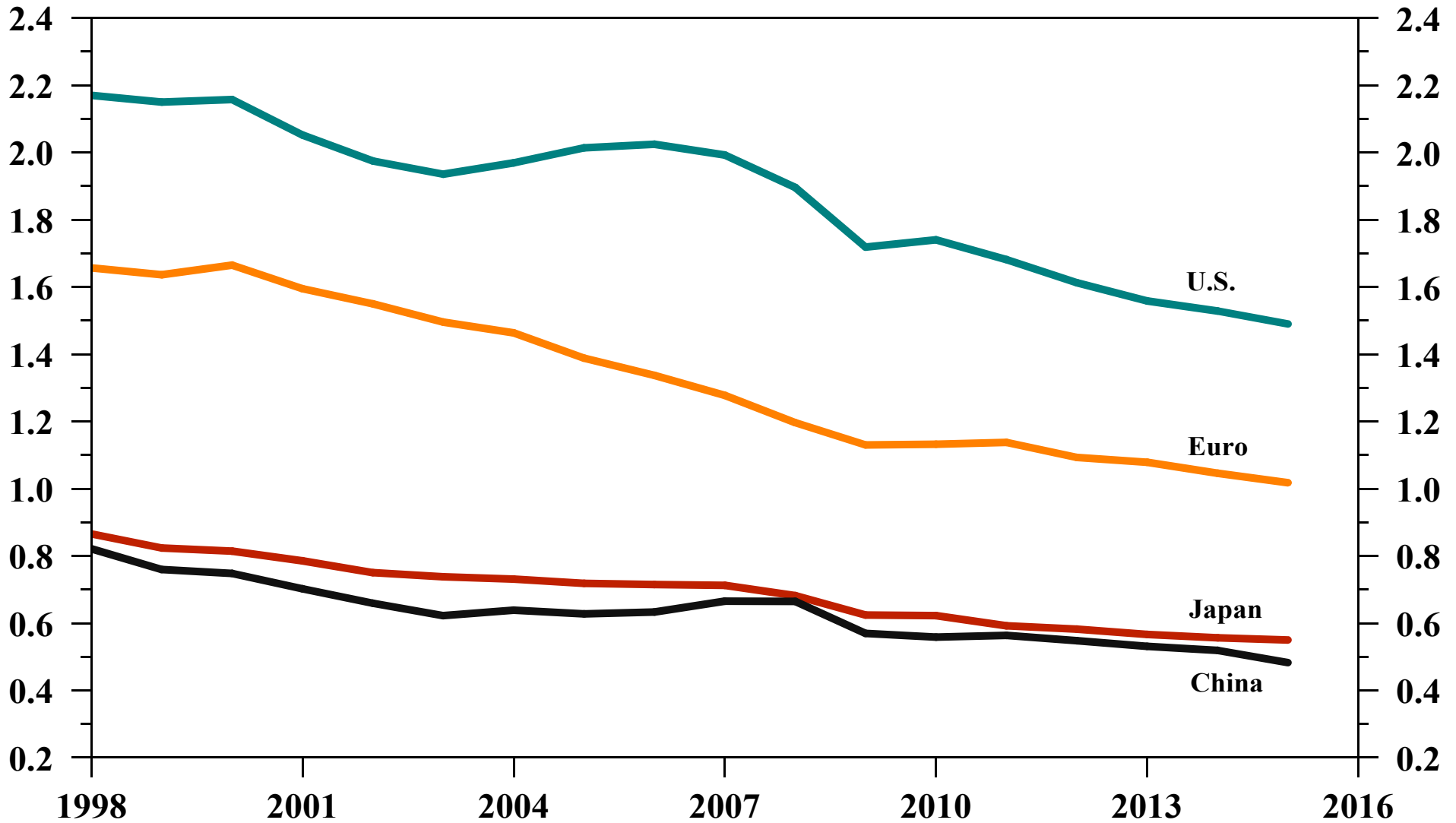
annual % change



Sources: Bureau of Economic Analysis, European Central Bank, Bank of Japan, China National Bureau of Statistics, Haver Analytics. Through Q4 2015.

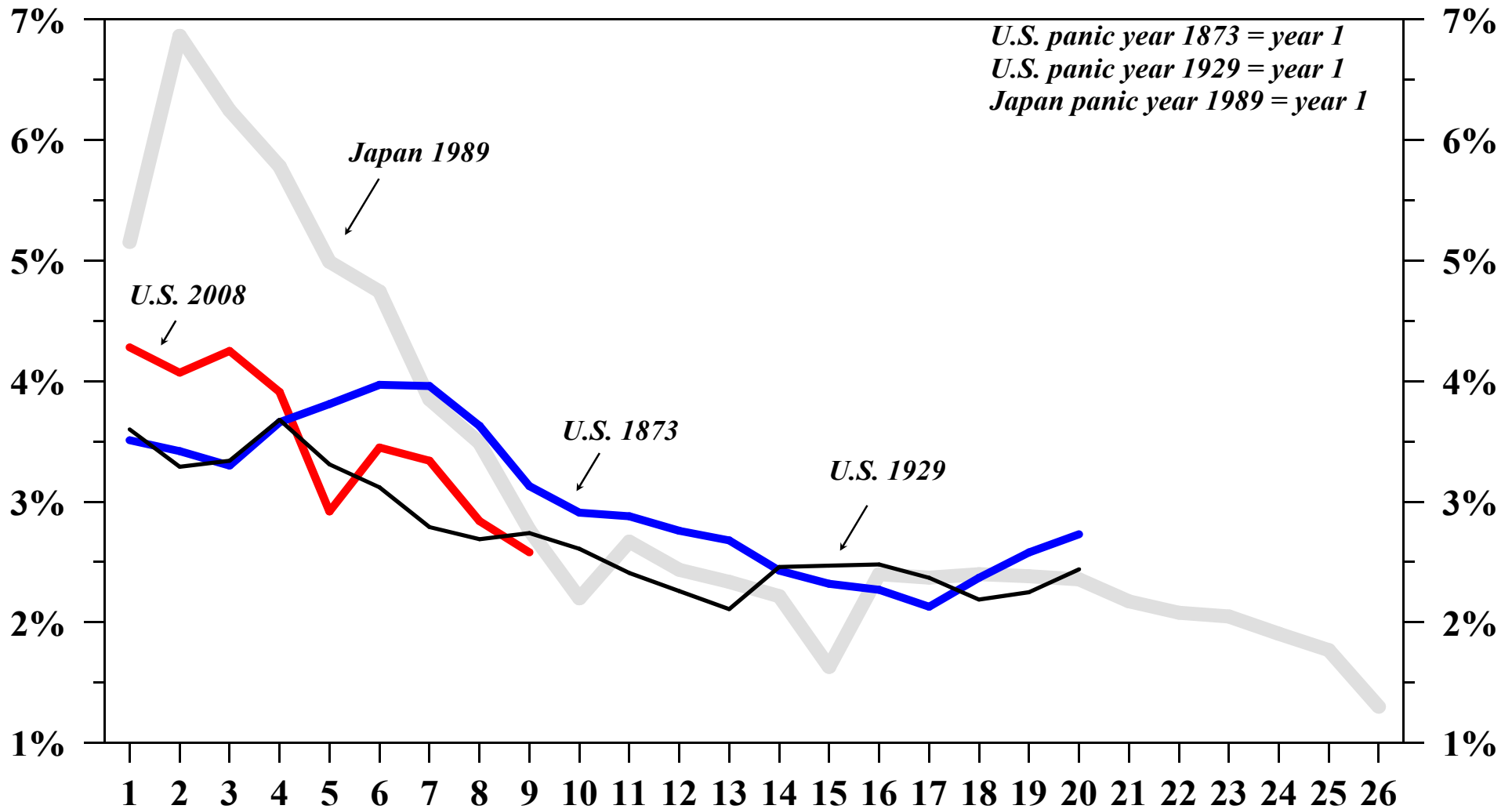
M2 Velocity

annual



Sources: Bureau of Economic Analysis, Federal Reserve, European Central Bank, Bank of Japan, China National Bureau of Statistics, People's Bank of China, Haver Analytics. Through Q4 2015.

Long-Term Government Bond Yields Starting with Historic Panic Years: Japan 1989, U.S. 1873 and 1929 *annual average*



Sources: Federal Reserve Board, Homer & Sylla. Bank of Japan. (U.S. 2016 through July)