

Special Topic

Productivity & Demographics

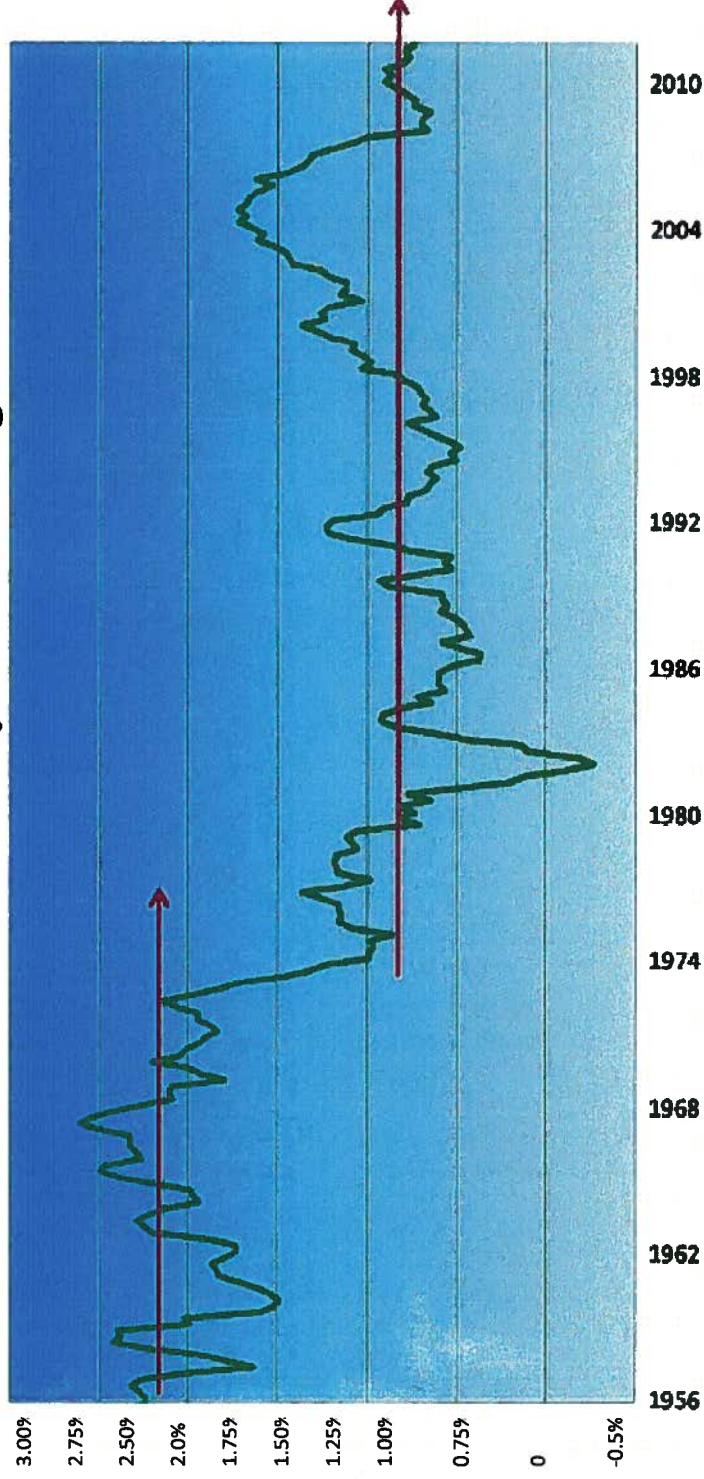
Productivity Determines Hiring, Inflation and National Income

- Productivity is critical at many levels:
 - Inflation is a function of productivity.
 - Potential growth is typically calculated by adding the growth of the labor force and productivity growth; the difference between this level and actual growth creates an “output gap.”

Productivity

- Since 1970, productivity has grown on average 1.0% annually, down from 2.3% in the 1940's-1960's.

Total Factor Productivity 10-Year Average Growth Rate

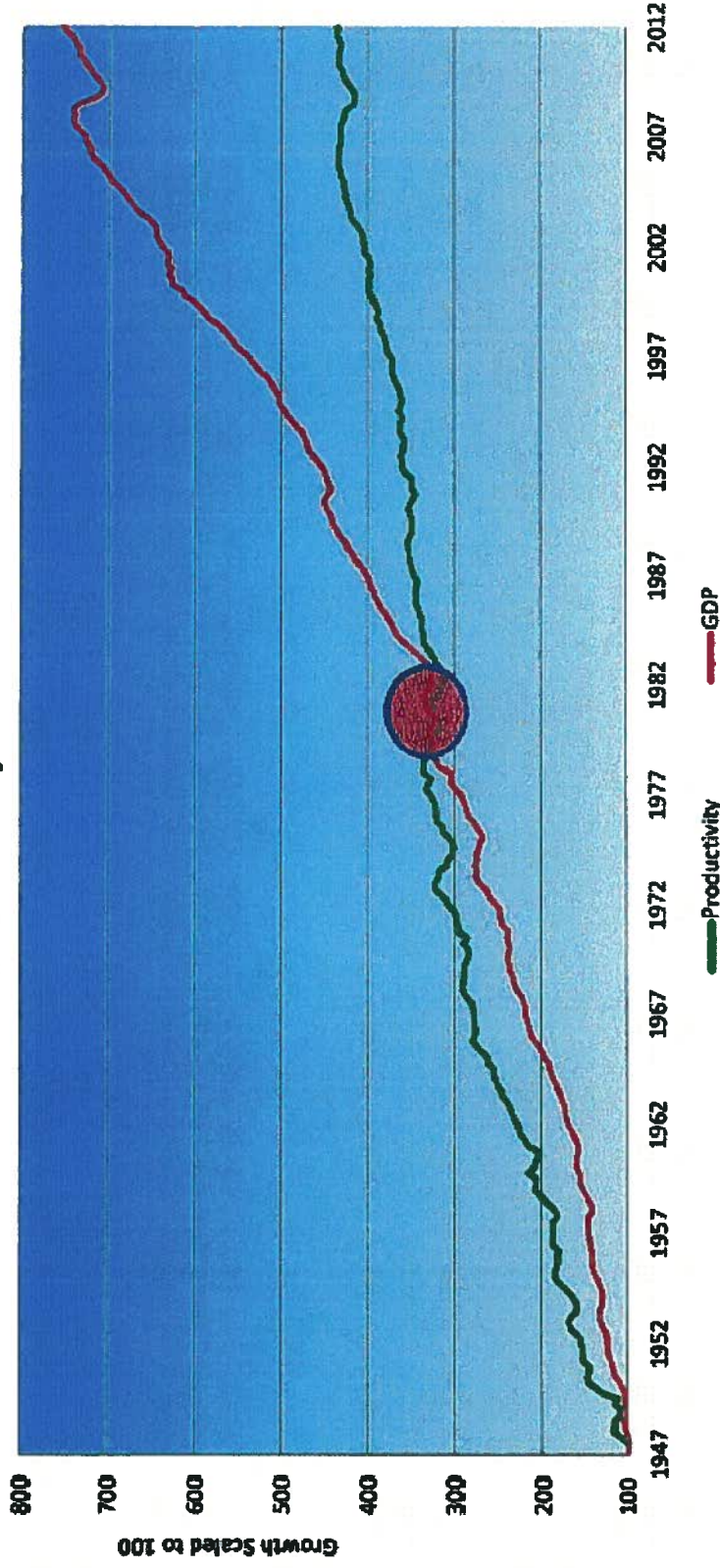


The Productivity Bust

- There are a variety of theories that attempt to explain the apparent productivity “bust.” Many contend that this is exclusively a cyclical problem; global demand has been very soft, so productive resources are not being used to the fullest. The thinking goes that as conditions improve, output can be expanded for a time without a commensurate increase in inputs. This would be the case for heavy industry, which has seen productivity fall drastically of late.
- Others wonder whether recent readings are simply a measurement problem. Productivity in two other American industries – financial services and health care – figured strongly in the new paradigm but has dropped off sharply. Measuring output in service sectors is not the most precise of exercises; therefore, some observers are skeptical about recent readings.
- The worry, though, is that something more permanent is at play. Investments in capital help productivity; levels of this activity have only recently returned to their pre-crisis peaks. Financial stress, especially in Europe, may be limiting funding for invention and the means to capitalize on it. Once a great source of productivity gains, infrastructure of all kinds is aging in many countries, and governments lack the funds to modernize it. Aging populations and the quality of education at some levels may also be hindrances.

Productivity

Productivity vs. GDP



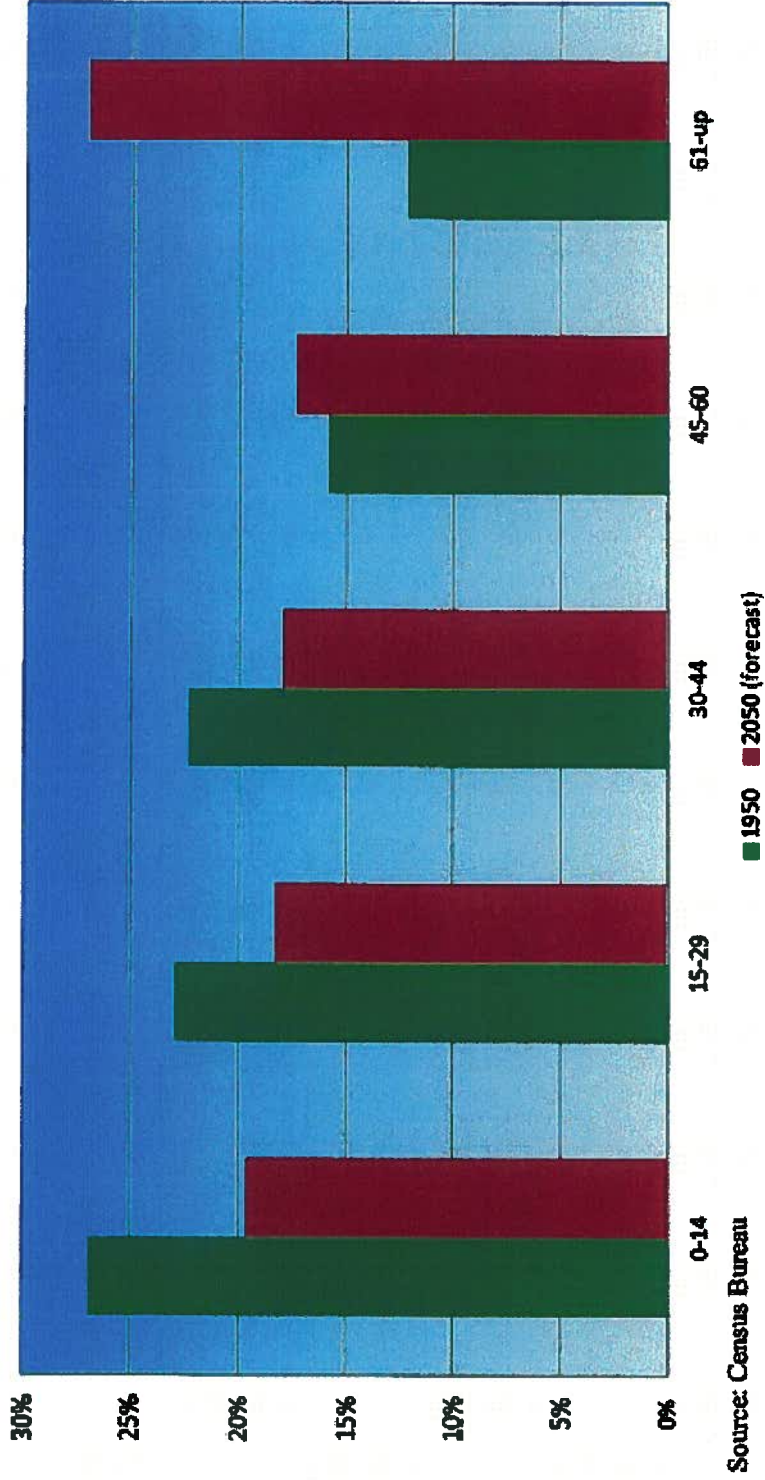
- The chart shows cumulative productivity and GDP growth scaled to 1947 levels. From 1947 to 1982, the growth of productivity (green) and GDP (red) were more or less commensurate. Since then, GDP far outgrew productivity.
- Demographics and debt account for the deviation.

Demographics

- Baby Boomers have boosted economic growth.
- We are now entering a period where boomers will stop producing and become dependents of society.
- This paradigm will have a negative effect on growth.
- This is not just an American phenomena, but one which haunts most industrialized nations.

Demographics

Percentage of US Population per Age Group



- Note the forecasted change in the U.S. age composition from the beginning of the baby boom to 2050. Note specifically, the increase of Americans aged 61 and up. The ratio of workers aged 15-64 to retirees over the age of 65, will drop from 5:1 today to 3:1 by 2030.

Demographics

Here are some interesting facts:

- Life expectancy in developed economies has gone from 65 years in 1955 to 78 years today.
- The world's total fertility rate was 4.95 births per woman in the years 1950-1955. For the years 2005-2010 it was cut in half to 2.36 per woman. Fertility rates are far lower in developed countries.
- Globally, the number of persons aged 60 or over is expected to increase from 737 million in 2009 to 2 billion by 2050.
- Persons aged 80 or over are projected to increase almost four-fold and will reach 295 million in 2050.

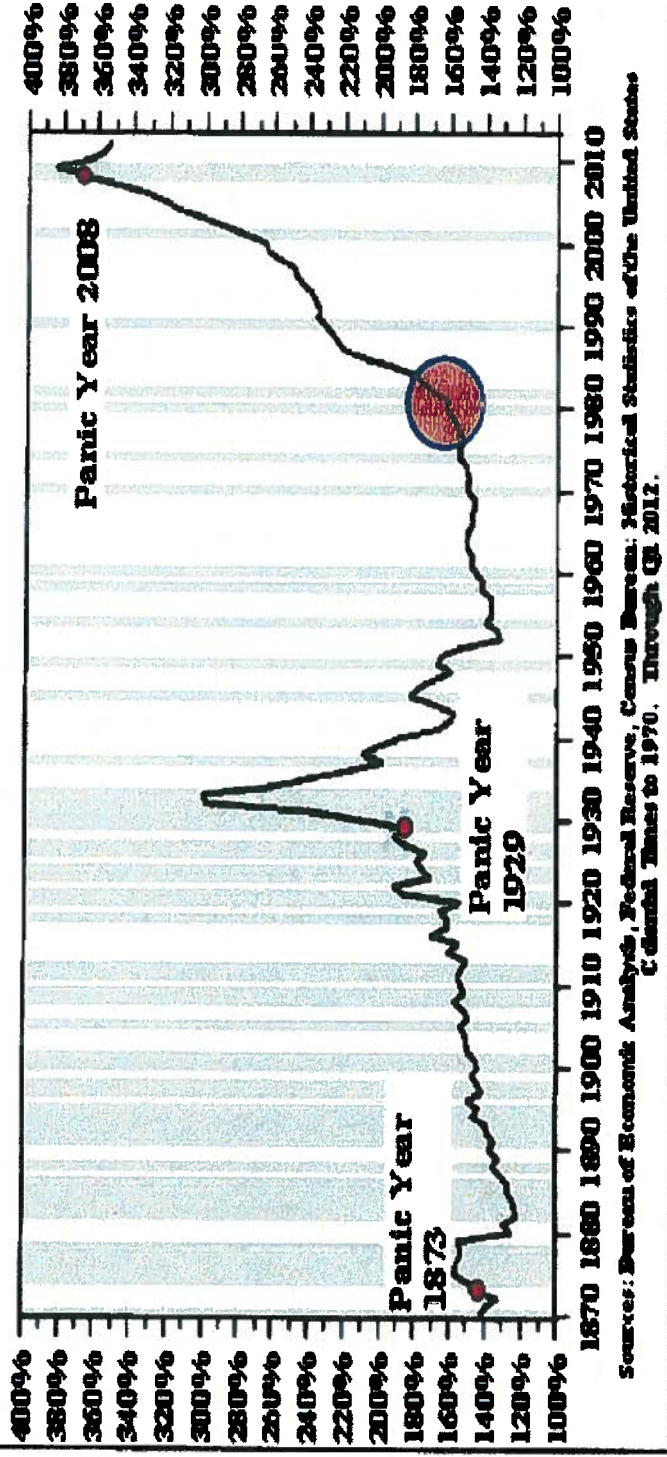
Debt

- Since 1980, debt taken on by US consumers, corporations and the government has been increasingly used to compensate for weaker productivity growth.

Debt

U.S. Debt as a % of GDP

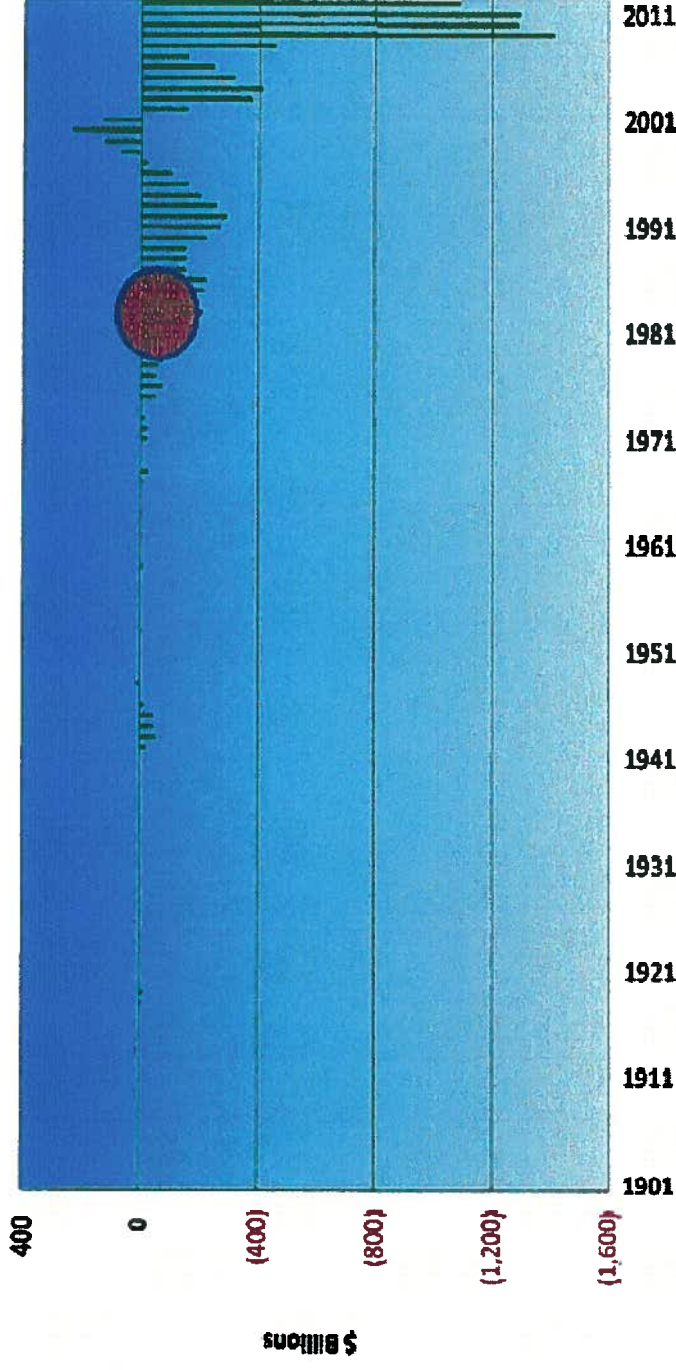
annual



- The chart above shows government, corporate and consumer debt as a percentage of GDP going back to 1870. How long can a nation borrow so much than it makes?

Debt – US Government

Annual Budget Deficits

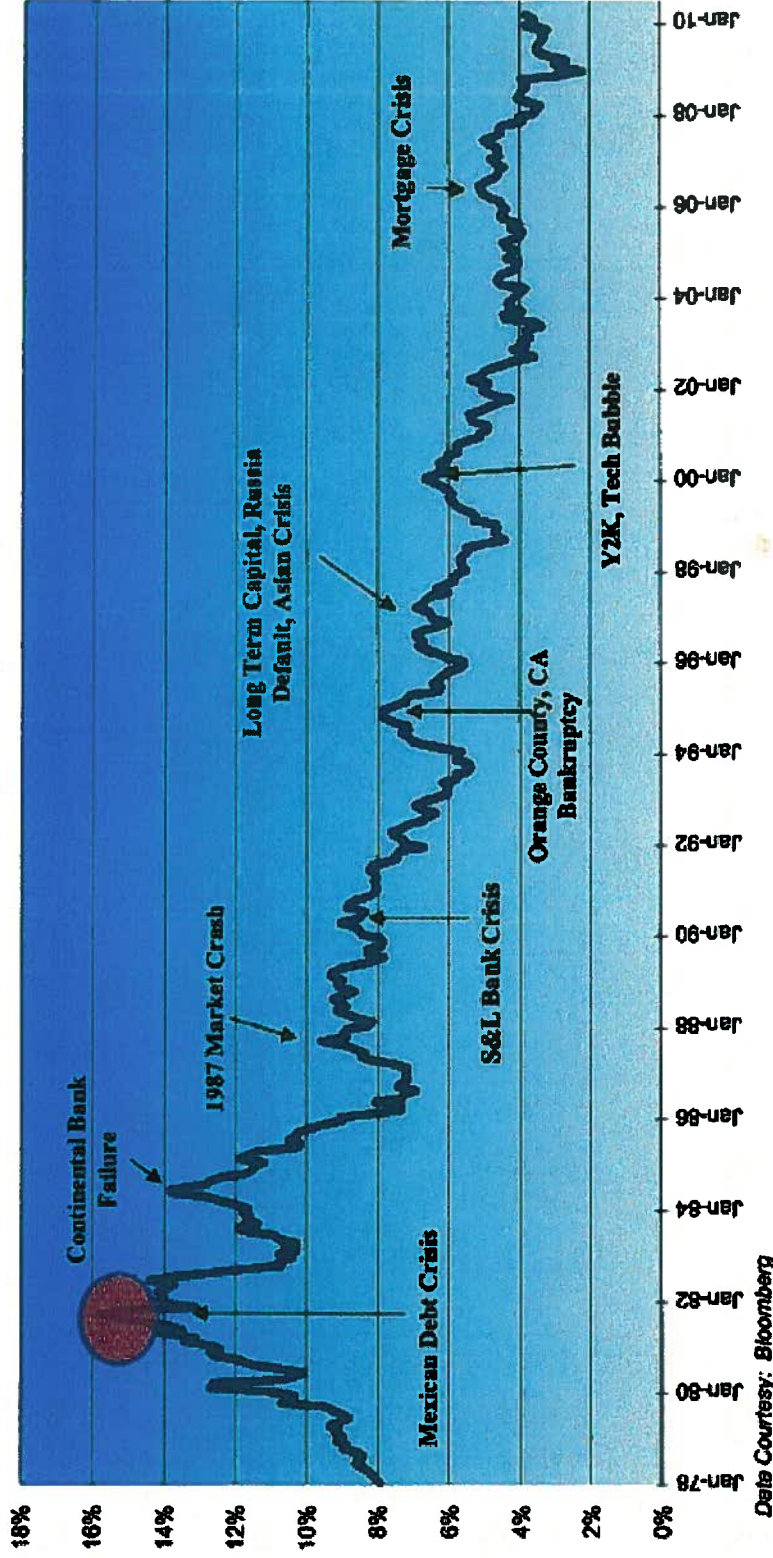


Data Courtesy of OMB

From 1901 to the late 1970's the U.S. ran relatively balanced budgets. This ended after the late 1970's. Since then there have only been four annual surpluses.

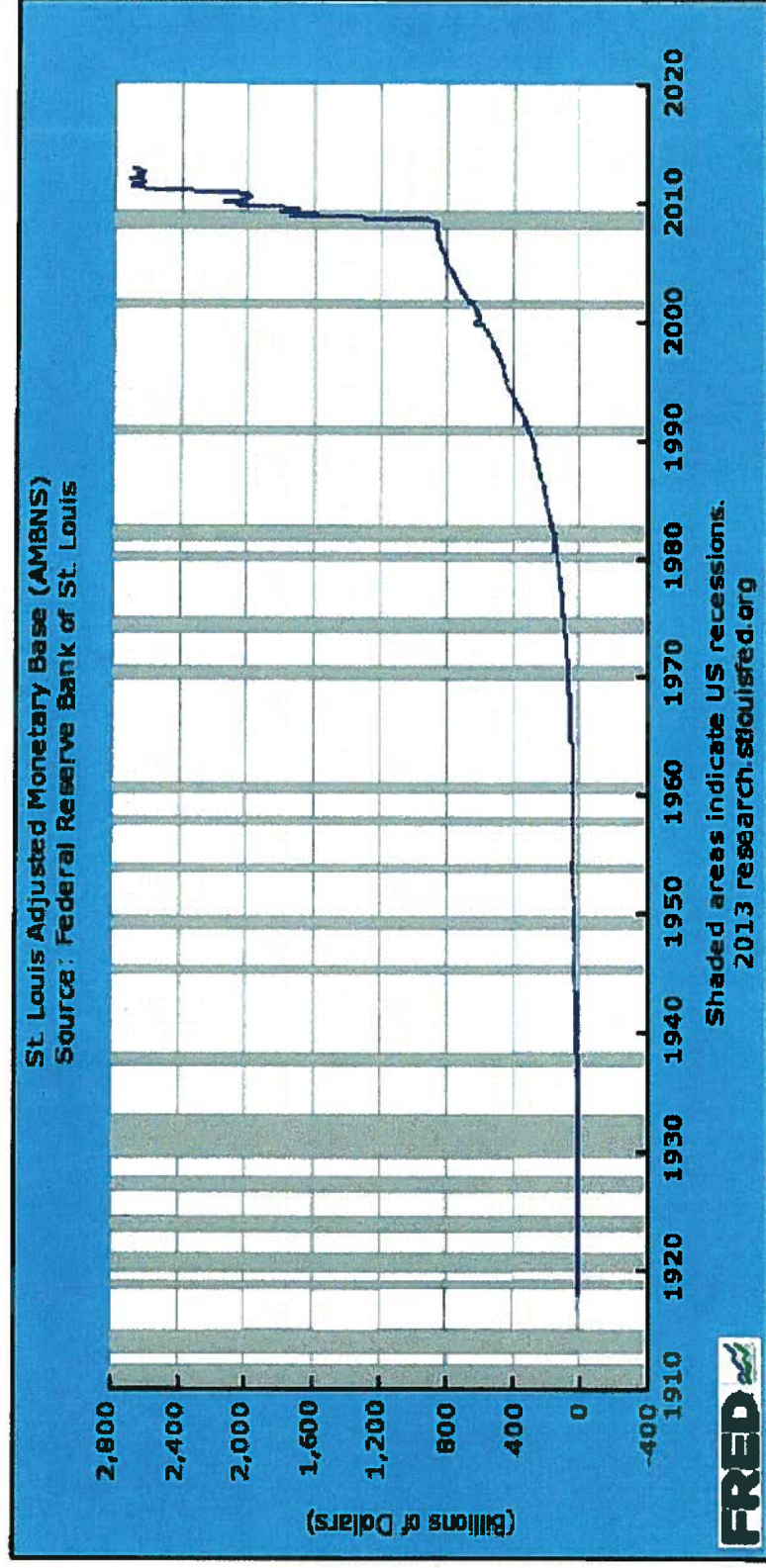
Debt – Interest Rates

10 Year US Government Yields



Every time interest rates markedly increased from the trend since 1982, there was a “crisis” of sorts. Higher rates create untenable interest expenses, which ultimately generate market and economic stress. This is never more true than today and very symptomatic of an unsustainable debt burden.

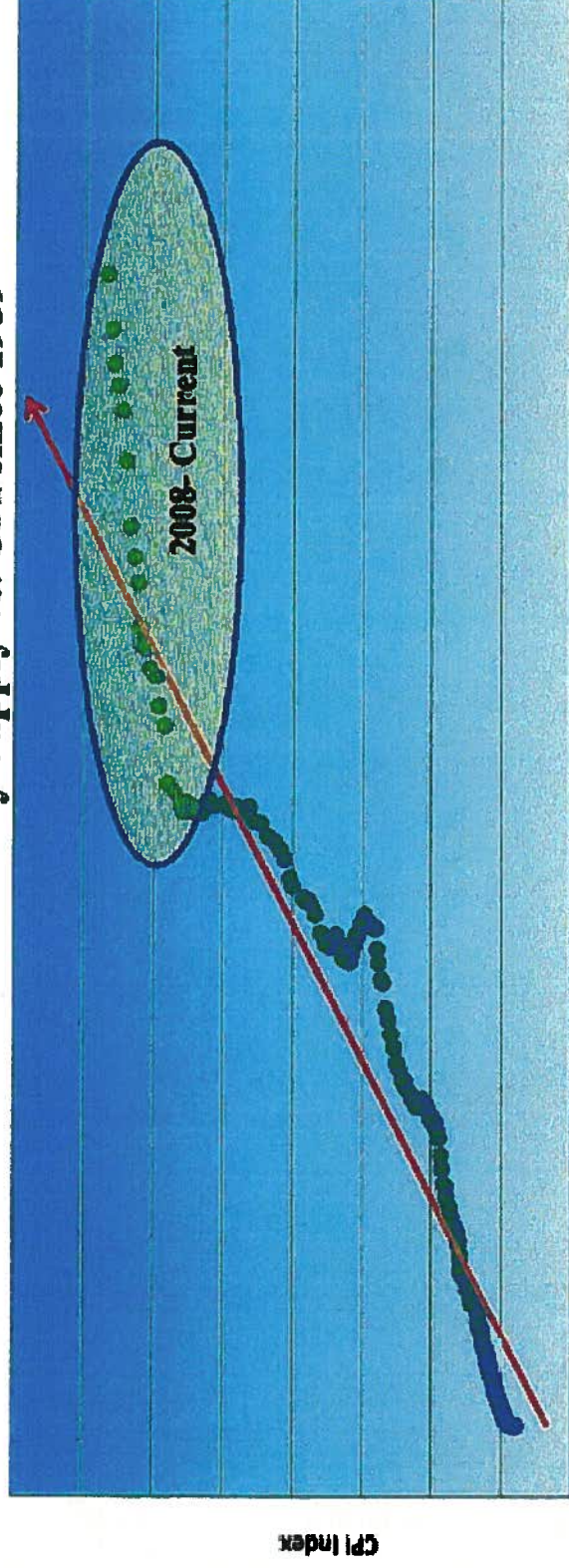
Money Supply (cumulative)



In 2008, the Federal Reserve launched Quantitative Easing (QE), aka money printing. Between 1913 and 2008, the Federal Reserve created a cumulative total of \$850 billion. Since 2008, the Fed created \$2 trillion. The Fed is currently printing an additional \$85 billion per month. **At this pace, the Fed is printing more money annually than was created in total from 1913 to 2008.**

Money Supply and Inflation

Scatter Plot - M1 Money Supply vs. CPI since 1959



- Each dot represents the intersection of money supply and the CPI index for each quarter since 1959. From 1959 to 2008 the statistical correlation between the two was 98%. Since 2008, money supply has tripled while CPI barely budged. Note how the period that is circled has diverged from the historical relationship. Lags between changes in money supply and inflation are common and can take years to resolve.