Bridgewater®
Daily Observations
January 31, 2008

(203) 226-3030

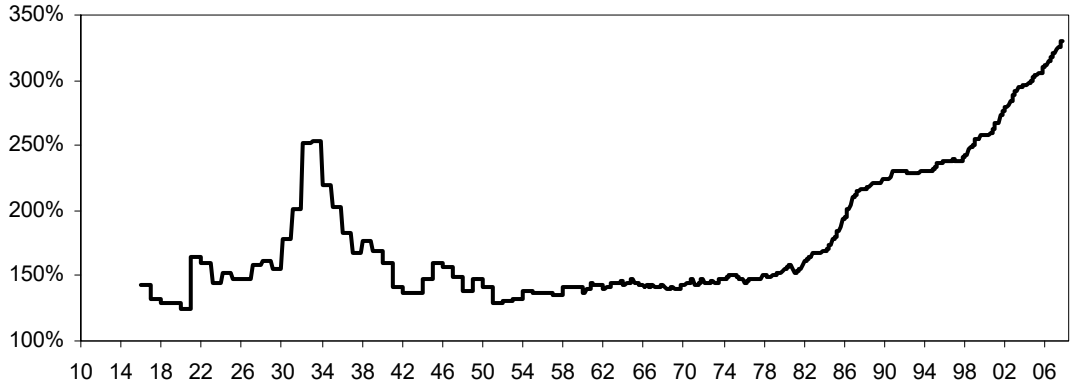
Ray Dalio
Jason Rotenberg

United States

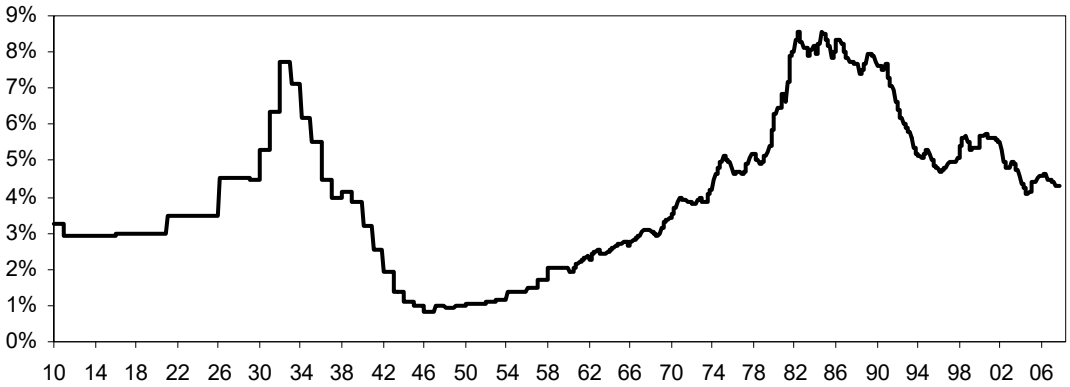
The Really Big Picture; Not Just a Normal Recession

The first chart below shows total debt as a percent of GDP going back to 1918. As shown, the U.S. economy is now more leveraged than ever before, even more so than in the depths of the Great Depression. The second chart shows net interest as a percent of GDP. It reflects that interest rate payments on debt have declined since 1980, even though debts have increased. That's because interest rates have fallen since 1981 (see the 3rd, 4th and 5th charts). Said differently, declining interest rates allowed more debt to be accumulated, which allowed the spending to be higher than it would have been had interest rates not declined. Since it's impossible for interest rates to decline and debt relative to GDP to increase forever, the sustainable growth rate is that which would exist if interest rates did not decline and debts did not rise relative to income. For this reason, we have known for some time that the sustainable economic growth rate is certainly lower than we have experienced over the last three decades – we estimate it to be about 2% per year real. While that doesn't sound bad, to put it in perspective, the last decade to have real GDP growth that low was the 1930's. The problem with low growth and high debt ratios is that the cash flows thrown off by assets that are required to service the debt might be inadequate, which could cause a downward spiral.

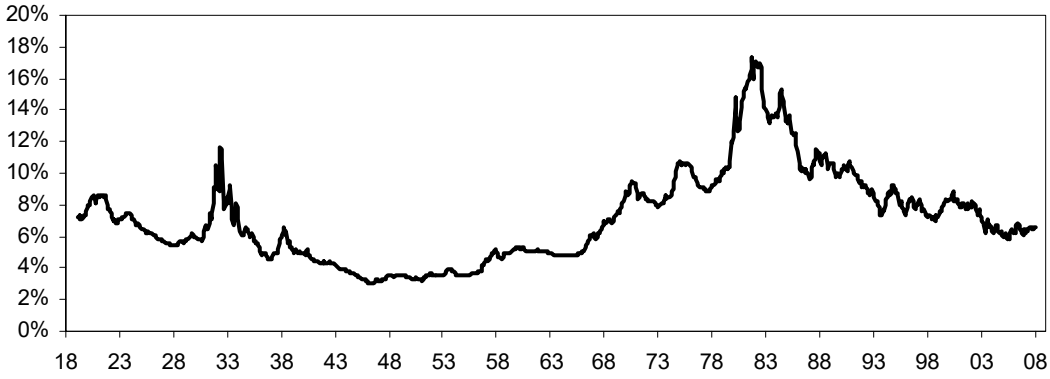
Total Debt as % of GDP



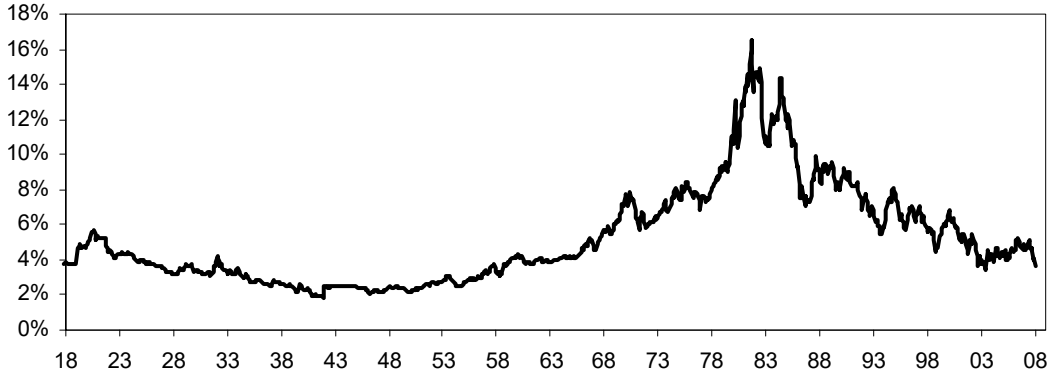
Net Interest as % of GDP

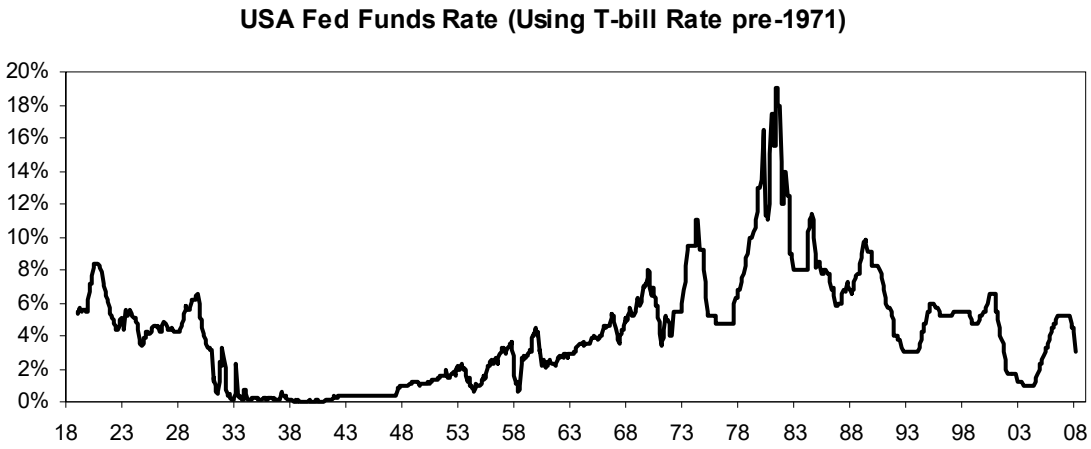


USA BAA Bond Yield



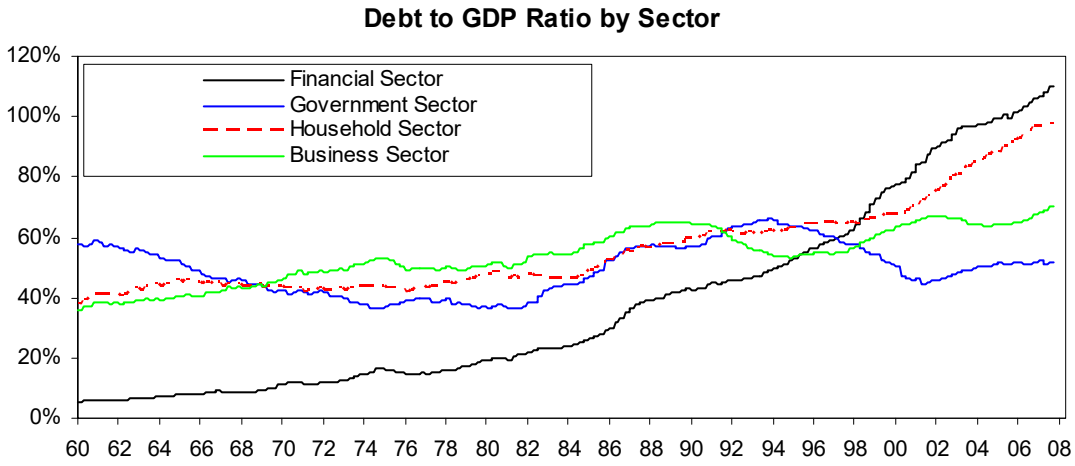
USA 10 yr Bond Yield





The Post-1960 Period

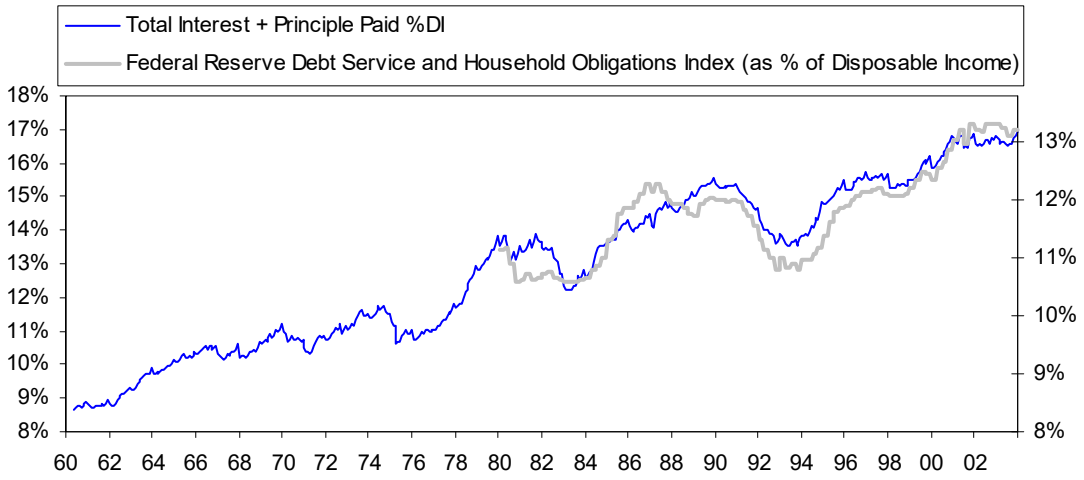
The next chart shows the debt to GDP ratios by sector since 1960. Note that the debt ratios have increased materially for both the household sector and for the financial sector.



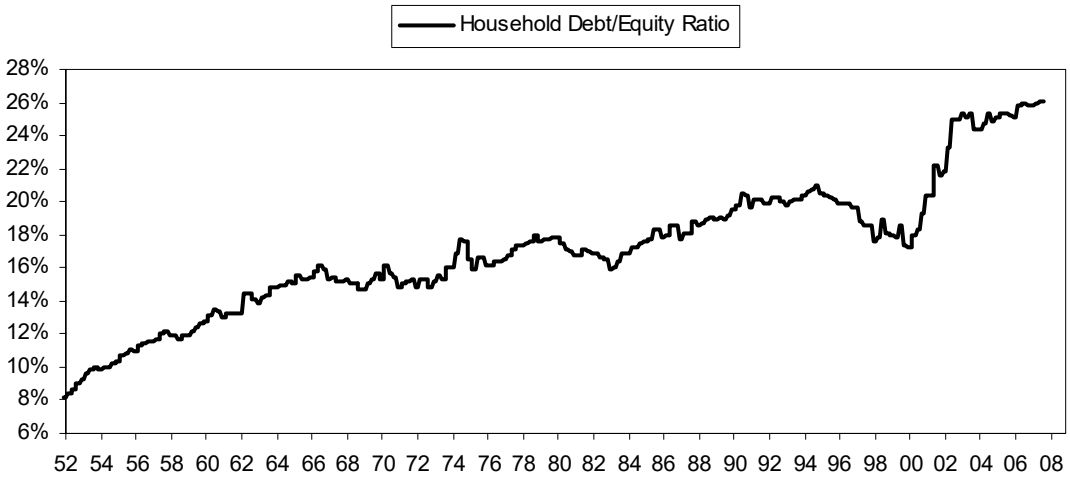
The Household Sector

The household sector is the most important sector for the economy because it is the largest sector and its demand is what businesses do their activities for – i.e., a contracting household sector will cause a contracting business sector.

The household sector is very leveraged and has used increases in its leverage to increase its demand faster than is sustainable. When looking at the household sector and including principle payments, debt service as a percentage of incomes has increased steadily. The chart below shows what we estimate this ratio was going back to 1960 along with the Fed's index of debt service obligations back to 1980. As shown, debt service obligations are at record post-1960 highs. As explained, this obviously cannot rise forever and, to the extent that it has risen, growth has been above that which is sustainable.

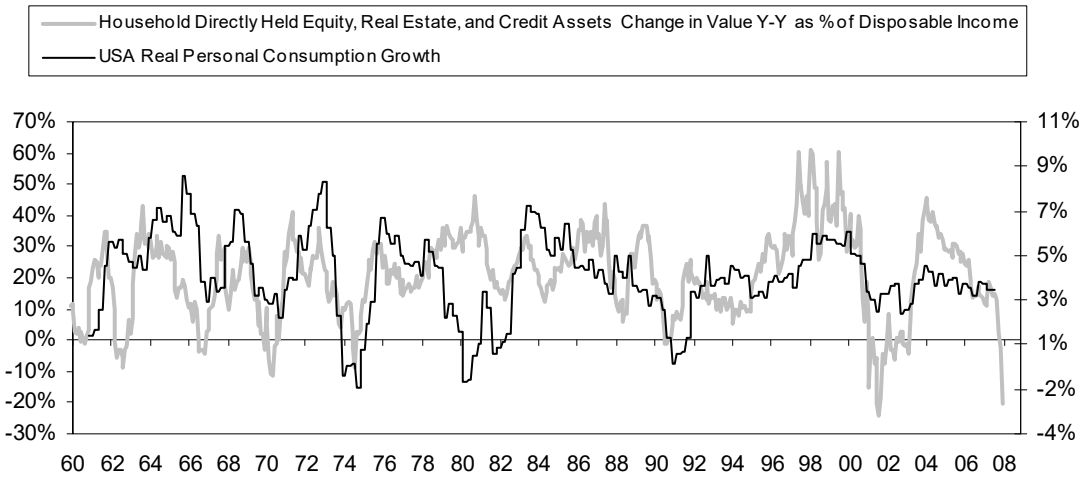


While the last chart shows the household sector's debt/income ratio, the next chart shows the household sector's debt/equity ratio going back to 1960. The equity piece primarily consists of the household sector's equity in their homes and the equity in the stocks they own. So, as shown, the household sector's debt/equity ratios are at record highs. The decline in that ratio from 1995 to 2000 was due to rising prices of stocks and homes during that period, while the surge in the ratio since 2000 was due to both rapidly increased debt and, more recently, falling equities and home prices.



So, we know that the household sector is very leveraged in relation to both incomes and net worth's. Hence, should incomes and/or net worth's decline, there is a significant risk of large and rapidly increasing credit problems.

Recently the household sector's net worth's have fallen at a near record pace. The next chart shows past changes in the household sector's equity going back to 1960. We show it in relation to the household sector's personal consumption expenditures to convey the wealth effect. Note that the most recent decline in the household sector's equity has been comparable to the post-1960 record decline in 2000-2002.



As mentioned, over the last quarter century interest rate declines stimulated increased debt and economic growth, and they contributed to the appreciation of assets through the present value effect, thus sustaining the trends previously shown. The table below shows all of the past cycles in the Fed Funds rate (denoting the cyclical low in the rate, the date of that low, the nominal change in the rate to the cyclical high, the amount of time that increase took, the percentage change in the rate, the cyclical high in the rate, when that occurred, and then the same for the declines). Note that every cyclical peak and every cyclical low in rates was higher than the one before it until 1980/81 (up until inflation peaked), and since then every cyclical peak and every cyclical low was lower than the one before it until now. Also note that the average past cyclical decline was 4.72% with the smallest cyclical decline being 2.3%. The last recession cycle required a 5.5% decline. Since we are starting with a Fed funds rate of 5.25%, it is not a foregone conclusion that the Fed will have enough stimulation left in the bottle to keep the previously described dynamic going. In fact, it seems an inevitability that the Fed will run out of this source of stimulation, if not in this downturn, in the next one – that is, unless inflation is pushed higher, as it was in the 1960-1980 upswing.

Fed Funds Rates[1]

Low	Date	Nominal Change	Move	% Change	High	Date
0.65%	Jun-54	2.94%	40	452%	3.59%	Oct-57
		-2.71%	8	-75%		
0.88%	Jun-58	3.69%	18	419%	4.57%	Dec-59
		-2.30%	19	-50%		
2.27%	Jul-61	3.32%	62	146%	5.59%	Sep-66
		-2.26%	9	-40%		
3.33%	Jun-67	4.75%	30	143%	8.08%	Dec-69
		-4.08%	26	-50%		
4.00%	Feb-72	7.00%	28	175%	11.00%	Jun-74
		-6.25%	30	-57%		
4.75%	Dec-76	11.75%	39	247%	16.50%	Mar-80
		-5.50%	5	-33%		
11.00%	Aug-80	8.00%	9	73%	19.00%	May-81
		-11.00%	18	-58%		
8.00%	Nov-82	3.44%	21	43%	11.44%	Aug-84
		-5.56%	26	-49%		
5.88%	Oct-86	3.87%	31	66%	9.75%	May-89
		-6.75%	40	-69%		
3.00%	Sep-92	3.50%	99	117%	6.50%	Dec-00
		-5.50%	30	-85%		
1.00%	Jun-03	4.25%	50	425%	5.25%	Aug-07
		-2.25%	5	-43%		
3.00%	Jan-08	(Current)				

(1) Prior to 1975, T-Bill used as proxy for Fed Funds target rate

Avg Increases	5.14%	38.8
Range of Increases	2.9% to 11.8%	9 to 99
Avg Decreases	-4.72%	19.64
Range of Decreases	-11.0% to -2.3%	5 to 40

The next table shows the same pattern for T-bond yields.

10yr Bond Yield						
Low	Date	Nominal Change	Move	% Change	High	Date
2.52%	Sep-54	1.21%	37	48%	3.73%	Oct-57
		-0.61%	6	-16%		
3.12%	Apr-58	1.25%	21	40%	4.37%	Jan-60
		-0.58%	7	-13%		
3.79%	Aug-60	1.39%	73	37%	5.18%	Sep-66
		-0.59%	7	-11%		
4.59%	Apr-67	3.32%	37	72%	7.91%	May-70
		-2.21%	10	-28%		
5.70%	Mar-71	2.73%	54	48%	8.43%	Sep-75
		-1.56%	15	-19%		
6.87%	Dec-76	6.25%	38	91%	13.12%	Feb-80
		-2.78%	4	-21%		
10.34%	Jun-80	6.12%	15	59%	16.47%	Sep-81
		-5.93%	17	-36%		
10.53%	Feb-83	3.79%	16	36%	14.32%	Jun-84
		-7.25%	26	-51%		
7.07%	Aug-86	2.79%	13	39%	9.86%	Sep-87
		-4.36%	73	-44%		
5.50%	Oct-93	2.56%	13	47%	8.07%	Nov-94
		-3.60%	46	-45%		
4.46%	Sep-98	2.32%	16	52%	6.78%	Jan-00
		-3.66%	41	-54%		
3.12%	Jun-03	2.24%	48	72%	5.36%	Jun-07
		-1.61%		-30%		
3.75%	Current	(cyclical low earlier in the month: 3.35%)				

Avg Increases	3.00%	32
Range of Increases	1.2% to 6.3%	13 to 73
Avg Decreases	-3.01%	23
Range of Decreases	-7.2% to -0.6%	4 to 73

For the previously stated reasons, we believe that we are approaching the end of an era – i.e. the end of the post-1981 period that was characterized by falling interest rates, falling inflation rates and strong growth.

If the Economy Goes Down, It Will Not Be a Typical Recession

The "R" word has been used a lot to describe the possible contraction in economic activity because all contractions are now called recessions. However, to use that term to describe what's happening would be misleading in that it connotes an economic contraction like those that occurred in the U.S. many times before, as distinct from those that occurred in Japan in the 1990's and in the U.S. in the 1930's, which are better characterized by the "D" word (e.g. deleveraging).

Contrary to popular belief, a "D" is not simply a more severe version of an "R" – it is an entirely different process. More specifically:

An "R" is a contraction in real GDP, brought on by a tight central bank policy (usually to fight inflation) that ends when the central bank eases. It is relatively well managed via interest rate changes. Lower interest rates stimulate demand by lowering the costs of items bought on credit (e.g. cutting interest rates in half has nearly the same effect on the cost of buying a home as cutting the purchase price in half). They also reduce debt service costs. Further, declining interest rates raise the values of income earning assets through the present value effect, thus producing a wealth effect.

A "D" is an economic contraction that results from a financial deleveraging that leads assets (e.g. stocks and real estate) to be sold, causing asset prices to decline, causing equity levels to decline, causing more forced selling of assets, causing a contraction in credit and a contraction in economic activity, which worsens cash flows and increases asset sales in a self-reinforcing cycle. In other words, the financial deleveraging causes a financial crisis that causes an economic crisis. In a "D," equity levels fall relative to debt levels despite interest rates declining while credit spreads widen until risk free interest rates fall to 0%, and monetary policy ceases to work. As a result, the asset sales and cost cuts that occur take place via deflation leading to real interest rate increases. Rising real interest rates raise debt service burdens and lower income producing asset values. This continues until there is a reflation, a currency devaluation and government guarantees of the efficacy of key financial intermediaries.

This has been basically true for the U.S. in the Great Depression, Japan in the 1990's and all other countries that have entered this "D" dynamic. What follows is a brief explanation of what transpired in the U.S. in the Great Depression.

Lessons From the Great Depression

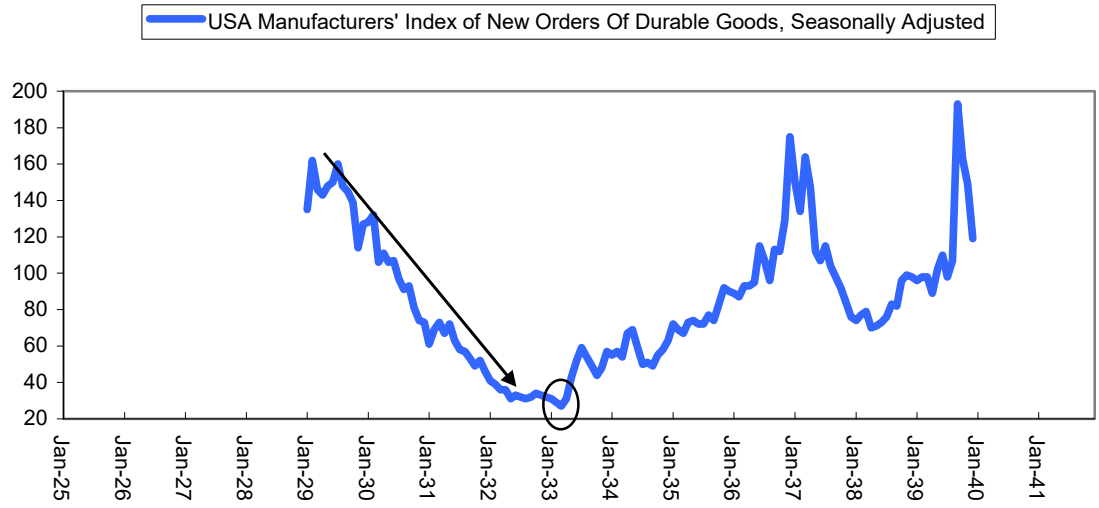
In the late 1920's, there was a debt-financed, investment/consumption bubble (which was very similar to the late 1980's bubble in Japan and the bubble that was created in the U.S. over the last several years) that burst as a result of tight money policies. This tightness was reflected in the one of the most inverted yield curves ever, and led to a bust (i.e. the self-reinforcing depression process that we have described so many times before). In other words, when wealth, economic activity and prices all fell together, debt burdens increased in relation to them. To service these debts with reduced wealth and incomes, assets were liquidated and spending was cut, which caused more contractions in wealth, economic activity and prices, in a vicious cycle. Because interest rates couldn't be cut, the traditional path to debt relief and increased spending didn't exist. This depression process occurred globally from 1929 until 1931.

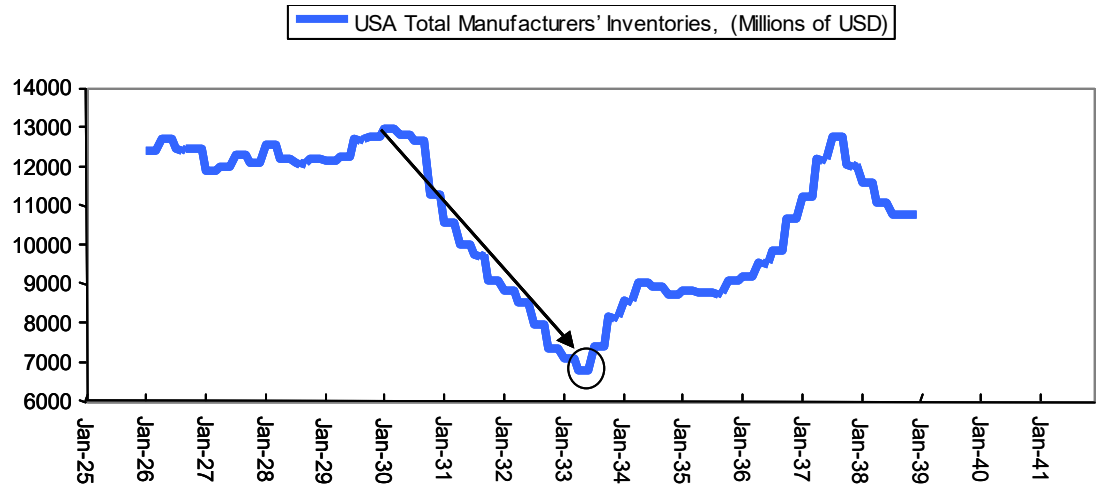
The most fundamental problem of all depressions is too much debt relative to liquidity, so the only way to end them is to rectify this imbalance by either reducing the debts through massive defaults and/or increasing liquidity. In the 1930-32 period, the monetary system (i.e. the tie to gold) formed a constraint against increasing liquidity. The demand for gold was strong for various reasons – bank deposits were considered risky, fears of reflation existed, etc. (i.e. quite similar to the strong private sector demand for gold that we are now seeing from Japan). In any case, the need to increase liquidity and a deteriorating balance of payments forced Britain to end the sterling's tie to gold and

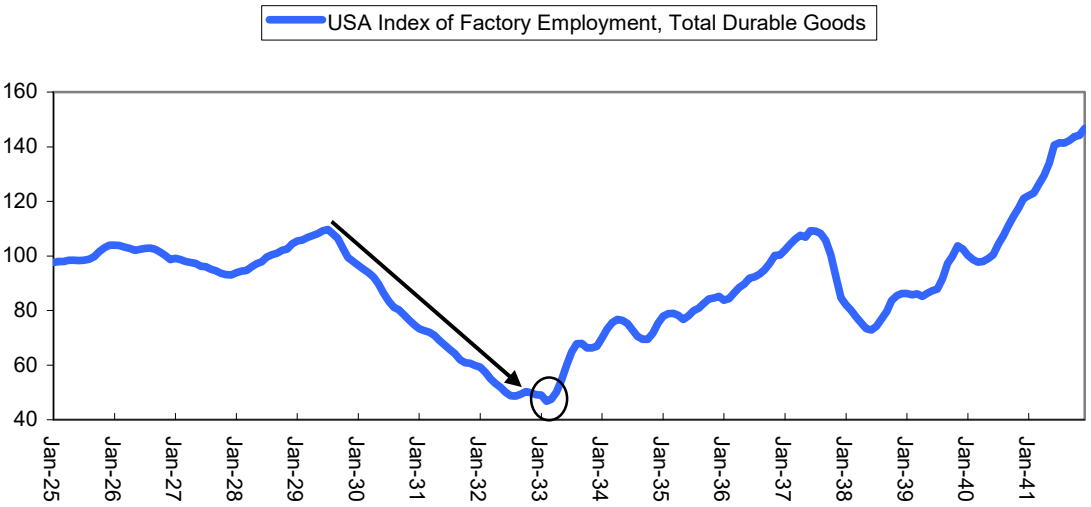
devalue in September 1931 and Japan to do the same in December of 1931. The increases in liquidity that then occurred in Britain and Japan caused their depressions to be much milder than in the U.S. However, their devaluations caused a balance of payments problem (i.e. major gold outflows) for the U.S., which caused the Fed to tighten monetary policy in the depths of the depression (i.e., to defend the dollar's link to gold) in 1931-32. So, in 1931-32, the U.S. economy contracted, unemployment rose to over 25%, prices of everything plunged, bank failures soared – and the Fed tightened!

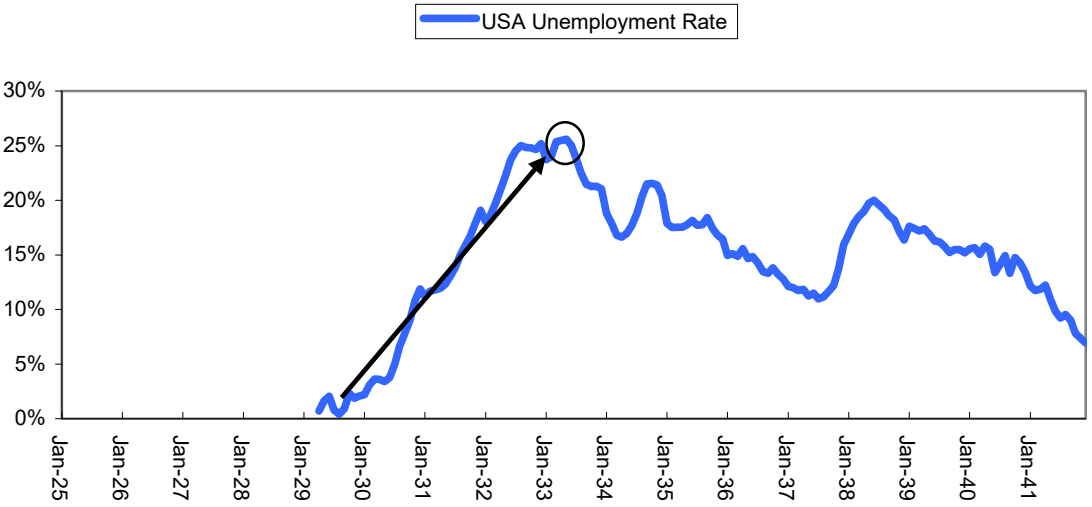
Up until this point, both the Fed and the administration believed the problems in the economy were matters of the free market – (i.e. that their responsibility was to keep the monetary system the same) – and to alter liquidity would be akin to taking a side in the battle between those with liquidity and those seeking it. So the currency link was maintained and interest rates were raised to defend it, resulting in significant pain (like the pain of trying to maintain the Bretton Woods monetary system in 1968-71, or the pain of trying to maintain the ERM in 1991-92, or the pain of emerging countries trying to maintain pegged exchange rates in 1997-98 or the pain of Argentina trying to maintain its currency board in 2001-02). In March 1933, the pain became intolerable and the system was abandoned: a "bank holiday" was announced, the U.S. refused to exchange gold for dollars, and everything changed. When the banks reopened, people could get their money because the government was free to print whatever was demanded. But people were not allowed to own gold; in fact, gold ownership was made illegal. As the supply of dollar liquidity increased, the value of the dollar plunged against most currencies and against gold. In the charts that I will show you, you will see how the directions of everything (e.g. economic activity, deflation, stock prices, commodity prices, unemployment, etc.) changed on a dime in March 1933. The subsequent expansion went from March 1933 until mid-1937 (when another "re"depression, that led to the term "recession", occurred).

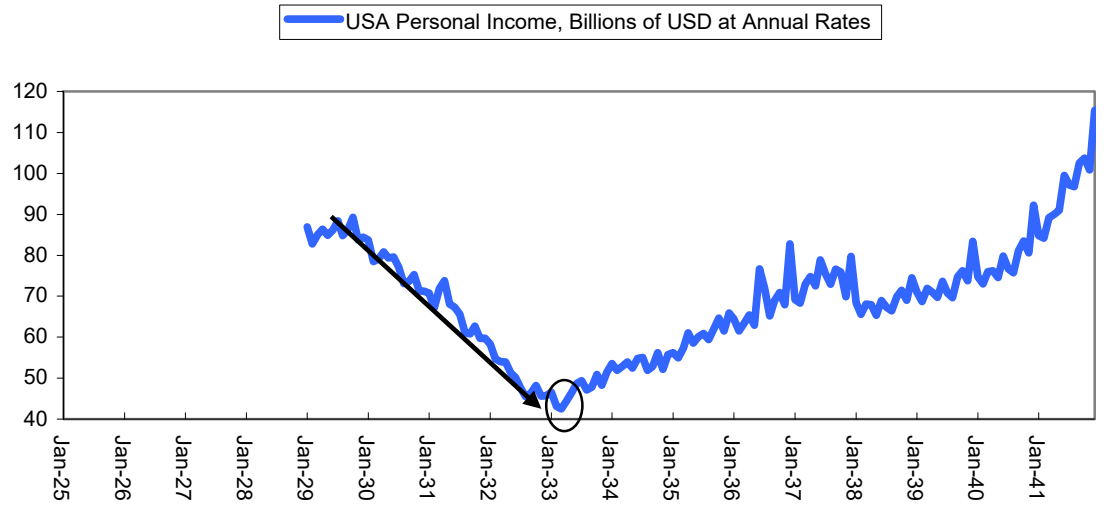
The first batch of charts shows various measures of economic activity and prices. They all convey the 'V' bottom that occurred at the moment when the Fed substantially increased liquidity (which necessitated the dollar's devaluations against gold and other currencies).

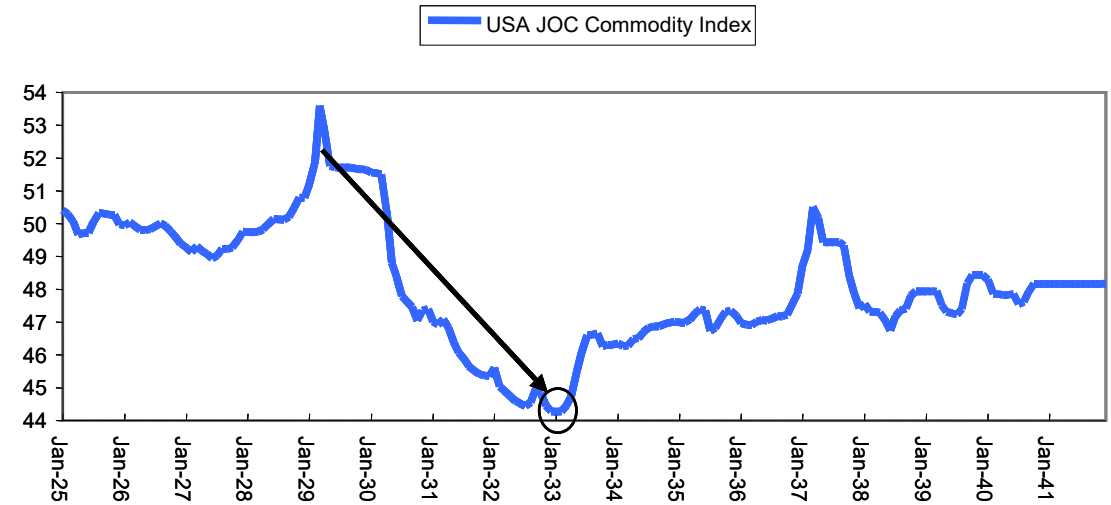


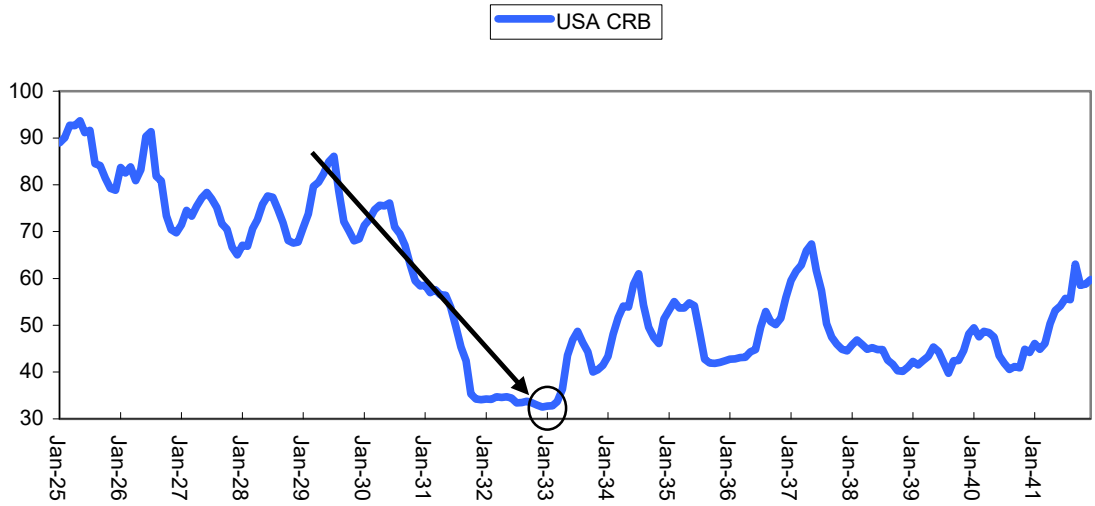

USA Total Manufacturers' Inventories, (Millions of USD)
14000
13000
12000
11000
10000
9000
8000
7000
6000
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41

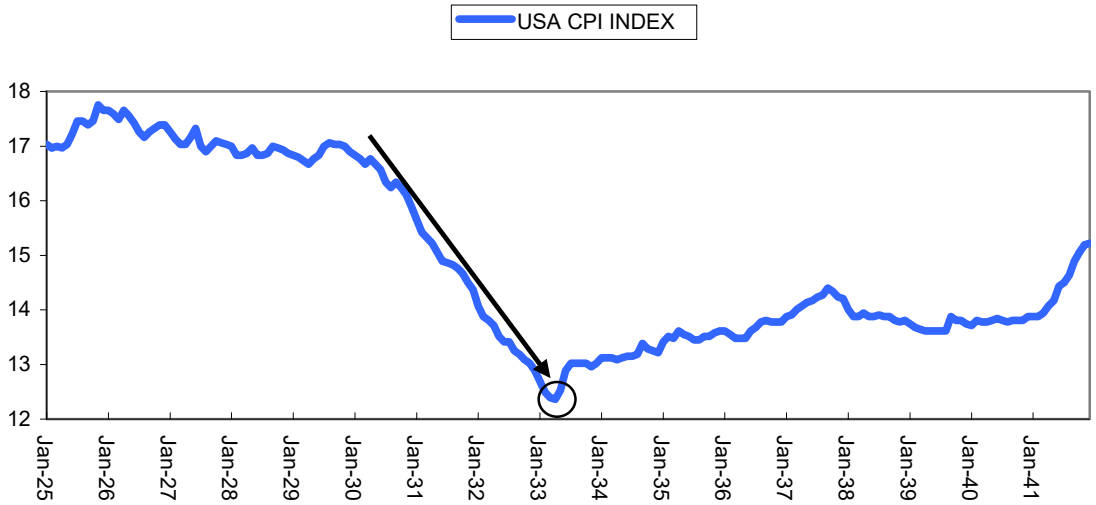

USA Index of Factory Employment, Total Durable Goods
160
140
120
100
80
60
40
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41

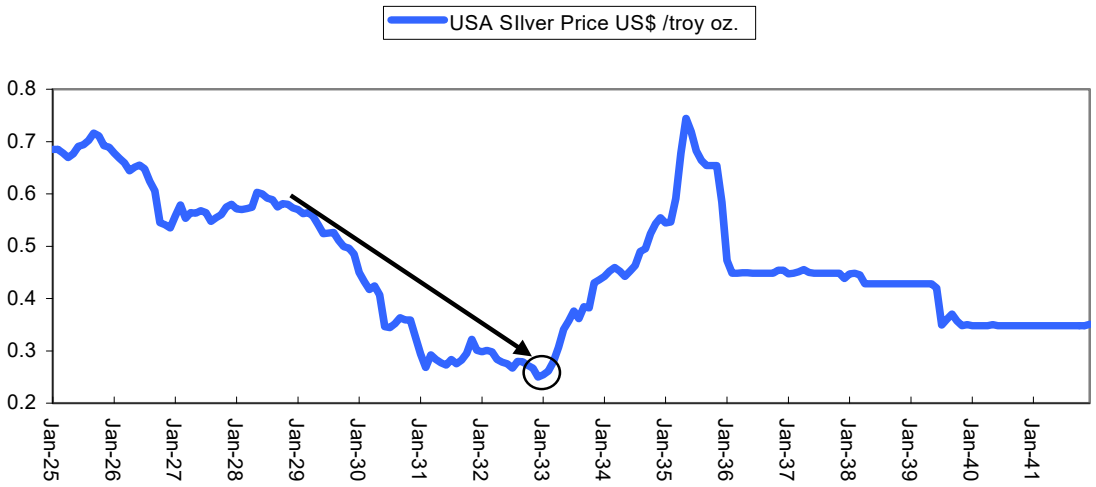

USA Unemployment Rate
30%
25%
20%
15%
10%
5%
0%
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41


USA Personal Income, Billions of USD at Annual Rates
120
110
100
90
80
70
60
50
40
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41

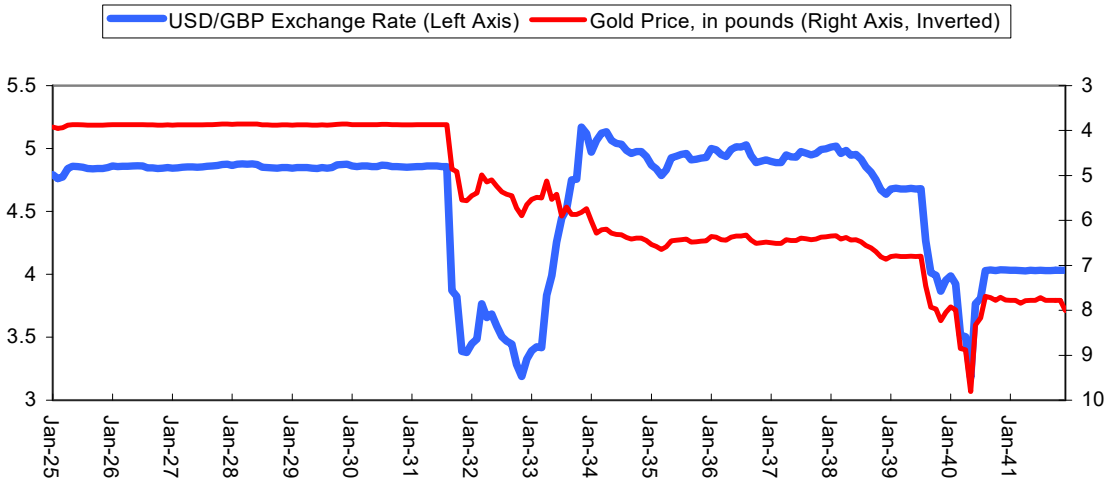

USA JOC Commodity Index
54
53
52
51
50
49
48
47
46
45
44
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41

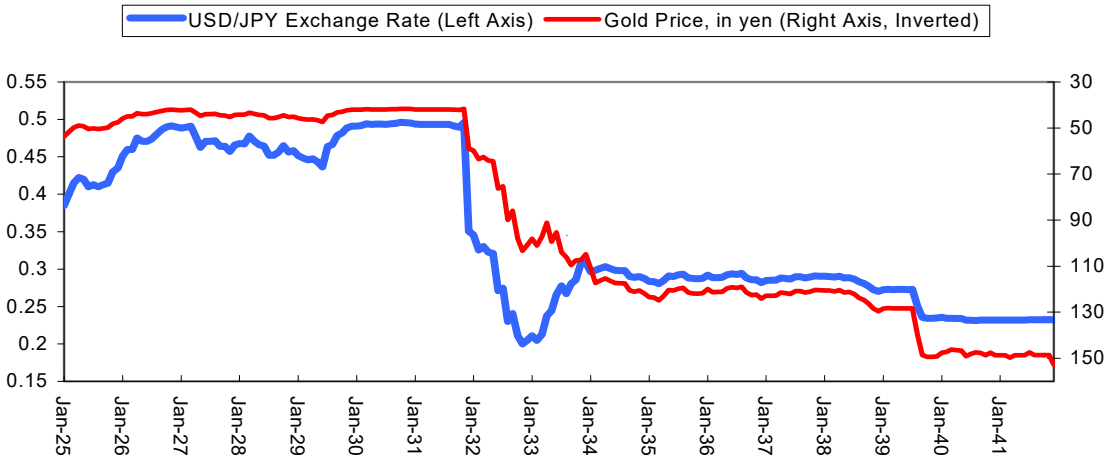

USA CRB
100
90
80
70
60
50
40
30
Jan-25
Jan-26
Jan-27
Jan-28
Jan-29
Jan-30
Jan-31
Jan-32
Jan-33
Jan-34
Jan-35
Jan-36
Jan-37
Jan-38
Jan-39
Jan-40
Jan-41



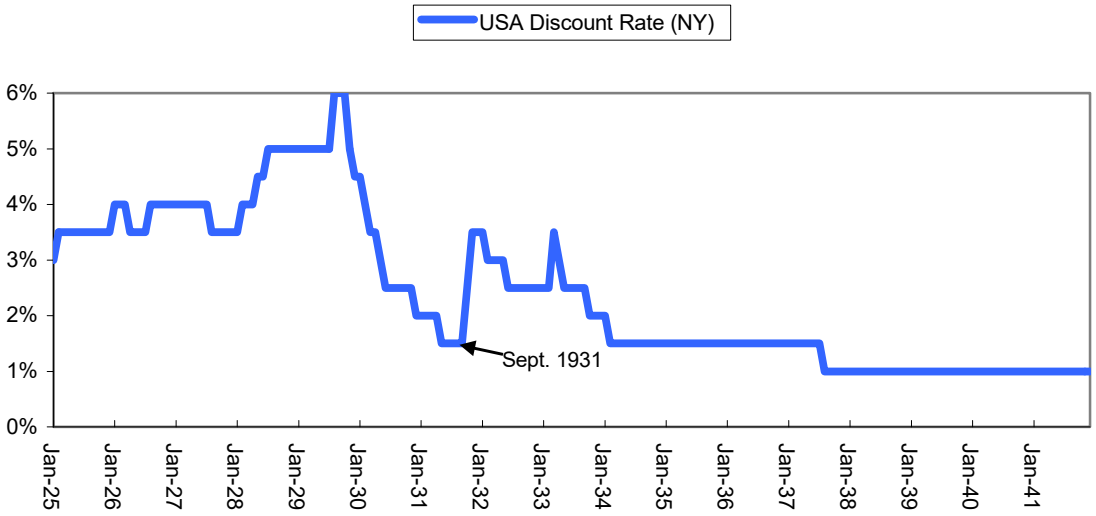


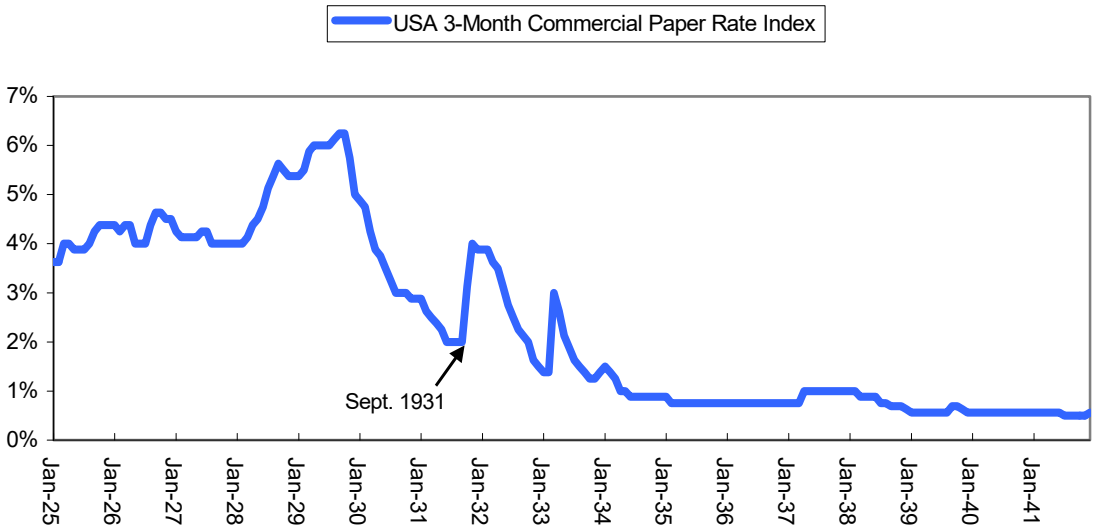
Before showing you the dollar's devaluation and the increase in liquidity that was behind this reversal, we want to point out a few other things. The next two charts show the British and Japanese devaluations (against both gold and the USD).



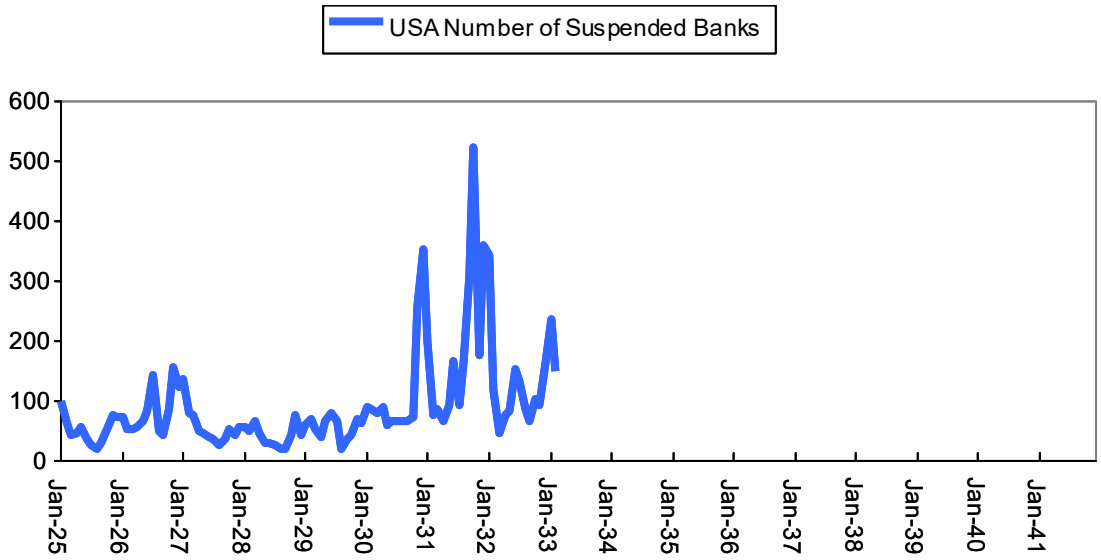


As mentioned before, largely as a result of the dollar becoming overvalued and the credit crisis in the U.S., capital started to run out of the U.S. and the dollar, forcing the U.S. to choose between tightening and devaluing. The next couple of charts shows the Fed's tightenings and associated interest rate changes that occurred in 1928-29 and in 1931-33 (until the devaluation).

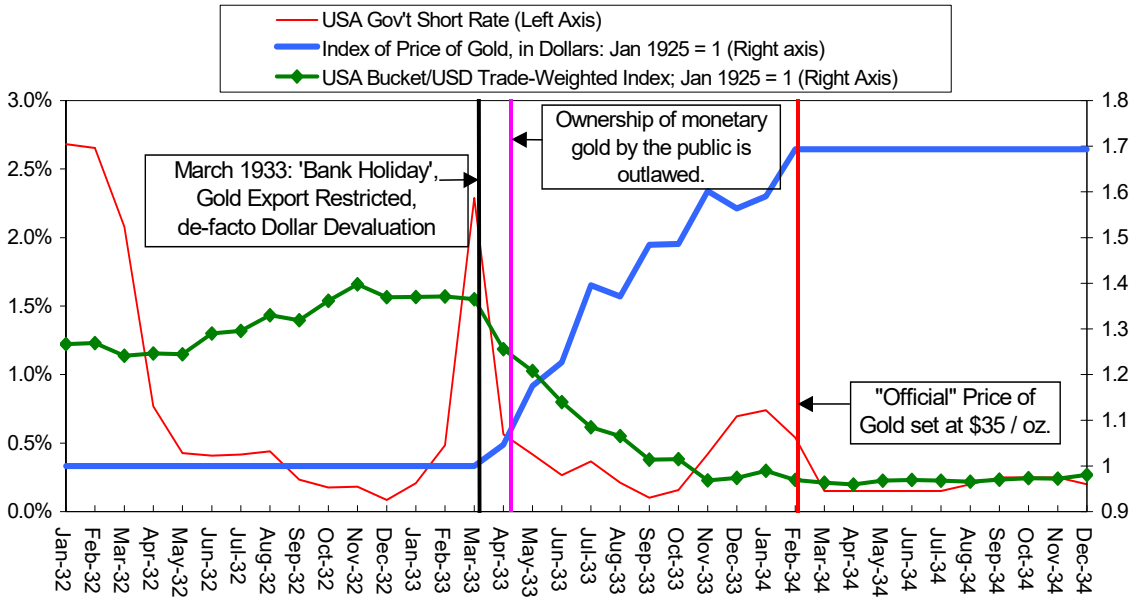




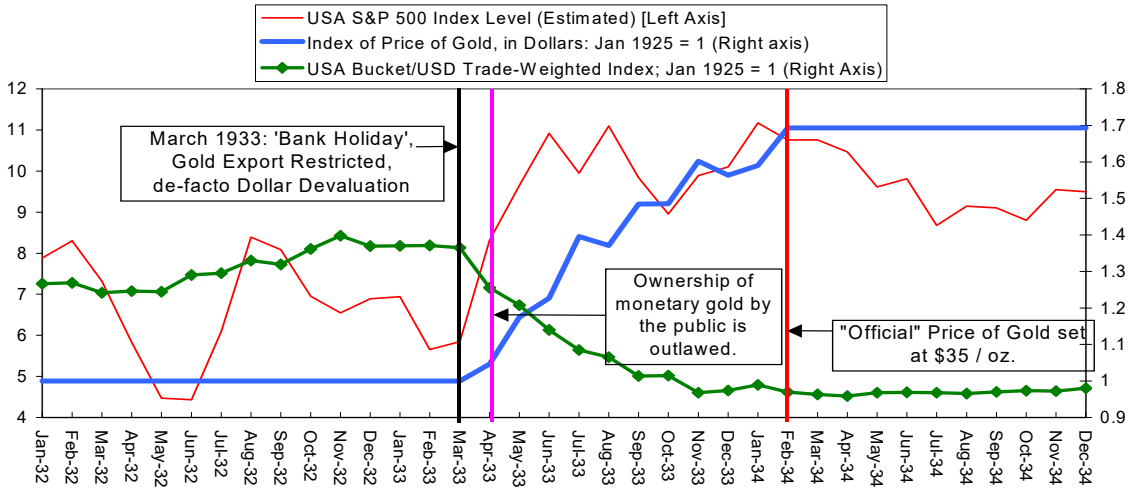
As shown in the first batch of charts, 1932 was a disaster. The next chart shows how this was reflected in bank failures.



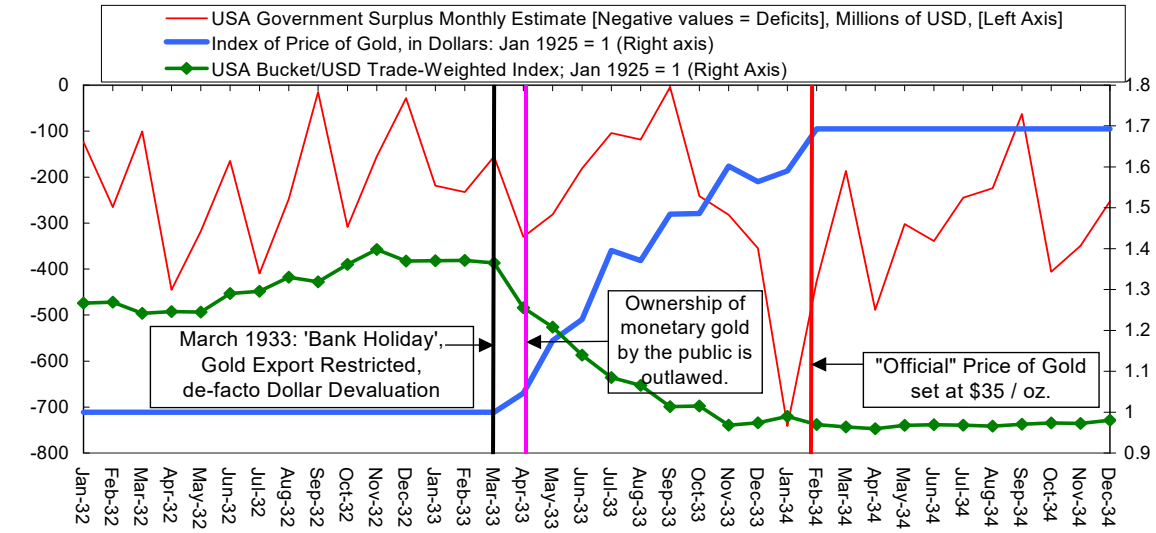
The next batch of charts focuses in on 1932-34 – i.e., to squint at this period, we zoomed in on it (showing monthly numbers). The first chart shows the dollar, gold, and the government short rate. Note in the first chart how the government short rate shot up going into the devaluation (because of the currency defense), as money was being withdrawn from banks and from the U.S., and then how a) the bank "holiday", b) gold exports being disallowed and c) the devaluation occurred together. When the banks opened their doors, everyone could get their money because it was provided freely. In other words, liquidity was increased to help alleviate the debt crisis. Interest rates continued to fall while stocks, the economy, commodity prices, and inflation all rose from 1933 to 1937, which was the same as during other post-liquidity squeeze periods (e.g. post ERM break-up and post 1980).



The next chart is the same as the previous one, except that it inserts a stock price index (S&P 500 estimate) instead of the interest rate.



The next chart is the same except that it shows the budget balance and drops stock prices. As shown, the fiscal stimulation didn't occur until after the liquidity increase and economic recovery were well under way.



There were, of course, many, many more events that occurred during the depression, ranging from the default of the Austrian bank Credit Anstalt (in May 1931) through many secretive moves by central bankers to hide their actions in foreign exchange markets, to confiscatory moves by governments to trap and devalue money. All of these are fascinating and valuable to understand, but they're beyond the scope of these comments. The important thing to know is that the Great Depression ended as a result of a major devaluation, a huge increase in liquidity and government guarantees of key financial intermediaries so that the credit creation process could begin all over again.

Important Disclosures

The information provided within this *Observations* is outdated, does not reflect current market conditions, Bridgewater's current investment strategies, holdings, or marketing views, and is provided for illustrative and educational purposes only. This is intended to provide context on past market trends and is not a prediction, endorsement, or representation of future market outcomes. This material is not investment advice, a recommendation, or an offer to buy or sell any securities. No reliance should be placed on this information for investment purposes.

Bridgewater Daily Observations is prepared by and is the property of Bridgewater Associates, LP and is circulated for informational and educational purposes only. There is no consideration given to the specific investment needs, objectives or tolerances of any of the recipients. Additionally, Bridgewater's actual investment positions may, and often will, vary from its conclusions discussed herein based on any number of factors, such as client investment restrictions, portfolio rebalancing and transactions costs, among others. Recipients should consult their own advisors, including tax advisors, before making any investment decision. This material is for informational and educational purposes only and is not an offer to sell or the solicitation of an offer to buy the securities or other instruments mentioned. Any such offering will be made pursuant to a definitive offering memorandum. This material does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual investors which are necessary considerations before making any investment decision. Investors should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, where appropriate, seek professional advice, including legal, tax, accounting, investment or other advice. No discussion with respect to specific companies should be considered a recommendation to purchase or sell any particular investment. The companies discussed should not be taken to represent holdings in any Bridgewater strategy. It should not be assumed that any of the companies discussed were or will be profitable, or that recommendations made in the future will be profitable.

The information provided herein is not intended to provide a sufficient basis on which to make an investment decision and investment decisions should not be based on simulated, hypothetical, or illustrative information that have inherent limitations. Unlike an actual performance record simulated or hypothetical results do not represent actual trading or the actual costs of management and may have under or overcompensated for the impact of certain market risk factors. Bridgewater makes no representation that any account will or is likely to achieve returns similar to those shown. The price and value of the investments referred to in this research and the income therefrom may fluctuate. Every investment involves risk and in volatile or uncertain market conditions, significant variations in the value or return on that investment may occur. Investments in hedge funds are complex, speculative and carry a high degree of risk, including the risk of a complete loss of an investor's entire investment. Past performance is not a guide to future performance, future returns are not guaranteed, and a complete loss of original capital may occur. Certain transactions, including those involving leverage, futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Fluctuations in exchange rates could have material adverse effects on the value or price of, or income derived from, certain investments.

Bridgewater research utilizes data and information from public, private, and internal sources, including data from actual Bridgewater trades. Sources include BCA, Bloomberg Finance L.P., Bond Radar, Candeal, CEIC Data Company Ltd., Ceras Analytics, China Bull Research, Clarus Financial Technology, CLS Processing Solutions, Conference Board of Canada, Consensus Economics Inc., DTCC Data Repository, Ecoanalitica, Empirical Research Partners, Energy Aspects Corp, Entis (Axioma Qontigo Simcorp), Enverus, EPFR Global, Eurasia Group, Evercore ISI, FactSet Research Systems, Fastmarkets Global Limited, The Financial Times Limited, Finaeon, Inc., FINRA, GaveKal Research Ltd., GlobalSource Partners, Harvard Business Review, Haver Analytics, Inc., Institutional Shareholder Services (ISS), The Investment Funds Institute of Canada, ICE Derived Data (UK), Investment Company Institute, International Institute of Finance, JP Morgan, JTSA Advisors, LSEG Data and Analytics, MarketAxess, Metals Focus Ltd, MSCI, Inc., National Bureau of Economic Research, Neudata, Organisation for Economic Cooperation and Development, Pensions & Investments Research Center, Pitchbook, Political Alpha, Renaissance Capital Research, Rhodium Group, RP Data, Rubinson Research, Rystad Energy, S&P Global Market Intelligence, Sentix GmbH, SGH Macro, Shanghai Metals Market, Smart Insider Ltd., Sustainalytics, Swaps Monitor, Tradeweb, United Nations, US Department of Commerce, Visible Alpha, Wells Bay, Wind Financial Information LLC, With Intelligence, Wood Mackenzie Limited, World Bureau of Metal Statistics, World Economic Forum, and YieldBook. While we consider information from external sources to be reliable, we do not assume responsibility for its accuracy. Data leveraged from third-party providers, related to financial and non-financial characteristics, may not be accurate or complete. The data and factors that Bridgewater considers within its research process may change over time.

This information is not directed at or intended for distribution to or use by any person or entity located in any jurisdiction where such distribution, publication, availability, or use would be contrary to applicable law or regulation, or which would subject Bridgewater to any registration or licensing requirements within such jurisdiction. No part of this material may be (i) copied, photocopied, or duplicated in any form by any means or (ii) redistributed without the prior written consent of Bridgewater® Associates, LP.

The views expressed herein are solely those of Bridgewater as of the date of this report and are subject to change without notice. Bridgewater may have a significant financial interest in one or more of the positions and/or securities or derivatives discussed. Those responsible for preparing this report receive compensation based upon various factors, including, among other things, the quality of their work and firm revenues.