Study of Structural Inflation and Production Indicators with our Predictions for Performance of the Major Financial Asset Classes

Original: May 1991

A Long-Term View: First Published in 1991, Updated in 2021

This study was first published by the author working under Cecogest SA in May 1991, shortly after the shares of Japanese companies, generating just a few percent of world output, exploded to fifty percent of world stock market capitalization before promptly collapsing in a deflationary vortex to erase almost everything. The study attempted to show the measures that had underpinned structural surges and collapses in inflation and production over the past 120 years in the USA, and how shifts in those measures were closely linked to, and may be predictors of, the performance of broad asset classes; equities, precious metals, bonds and cash. The key measures were money supply, commodity prices, interest rates, fiscal policy, and production output, that the study demonstrated had underpinned the evolution of prices and industrial activity, and therefore lay behind the booms and busts in the equity, precious metals and bond markets. The same 1871-1991 historical analysis turned out to be prescient during the 2008-09 Global Financial Crisis and its aftermath.

Thirty years later, we are once again faced with an extraordinary set-up, with booming money supply, surging commodities, imploded interest rates, unchained fiscal expansion and share prices at all-time highs. Clearly it is now time for the author (now at Deuterium) to update the study, recalculate the structural predictions, and show what likely awaits us in terms of absolute performance for equities, precious metals, and long-term bonds out to the end of 2022. Moreover, let the measures indicate which asset classes are likely to perform better than the others. Perhaps unsurprisingly, the 1991 text describing what drives consumer prices, industrial activity, and asset class performance, remains overwhelmingly valid. To demonstrate the accuracy of the 1991 text, we have included it in black font precisely as it was (the original 1991 publication can be viewed on our website) and our 2021 updates are included in blue font. Our conclusions and 2021-2022 predictions are highlighted in blue stripe.

Updated: June 2021

Our predictions for asset class performance out to the end of 2022 rely entirely on our projections for US structural inflation and production and are linked to the same underlying measures and methodology used in the original study.

Introduction

Let us recall that the United States is one of the few countries that have not been totally or partially destroyed by war twice in this century and as such affords reliable long-term data.

In order to measure structural shifts rather than short-term variations in the business cycle, we have concentrated uniquely on four-year rates of change in the macro-economic variables and in the financial markets. In this way we hoped to jump over the so-called 'Presidential' cycle in the United States.

A negative reading for a four-year rate of change means that whatever one is measuring fell below its level of four years earlier. A negative four-year rate of change for the CPI in 1991 would mean that something that cost one dollar in 1987 would cost less than one dollar in 1991. A negative four-year rate of change for industrial production would mean that the goods-producing economy in the United States would be smaller in 1991 than in 1987.

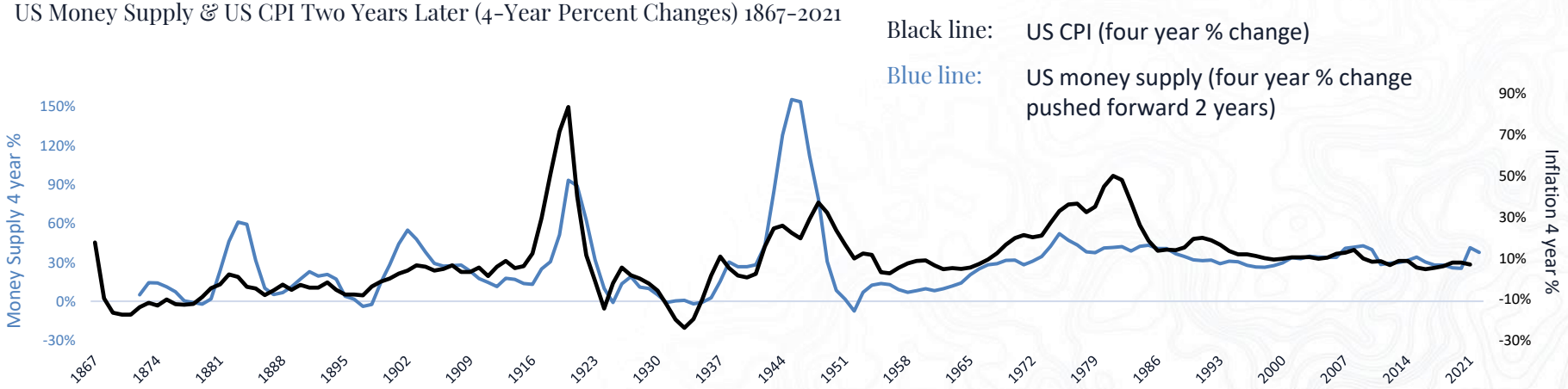
The first part of this study presents indicators that predict the four-year rate of change in inflation, and the four-year rate of change in production.

Our indicators are built upon shifts in US money supply, interest rates, commodity prices, production, external trade, equity prices and fiscal measures.

The research is based on yearly data for the last century to the present, with a minimum of 120 (now 150 in this update) years for each series. We measure velocities and accelerations of major macro-economic variables for the United States economy over four and eight-year periods, beginning in 1870.

Introduction

Chart 1
US Money Supply & US CPI Two Years Later (4-Year Percent Changes) 1867-2021



In charts 1 to 10 we have shown the US inflation index from 1780 to 1990 **(extended to 2021)**, our long-term inflation indicator, and the macro-economic variable readings that comprise it.

In charts 11 to 19 we have shown the US production index from 1860 to 1990 **(extended to 2021)**, our long-term production indicator, and the macro-economic variable readings that comprise it.

The second part of this publication shows how we can use the indicators to predict the structural performance of the four major financial asset classes (equities, bonds, cash and silver). Charts 20 to 30 show relative and absolute performance over four years for each of the major asset classes, and our predictions thereof.

In the chart 1 above, the blue line shows on the left scale, the four-year percentage rate of change of US money supply, pushed forward by two years. The black line shows on the right scale the four-year percentage rate of change of the US inflation index. The relationship between money supply and prices two years later is quite vivid.

In pursuing this research, we looked for consistency: changes in inflation or in production as predicted by our indicators had to be applied in a constant manner over time.

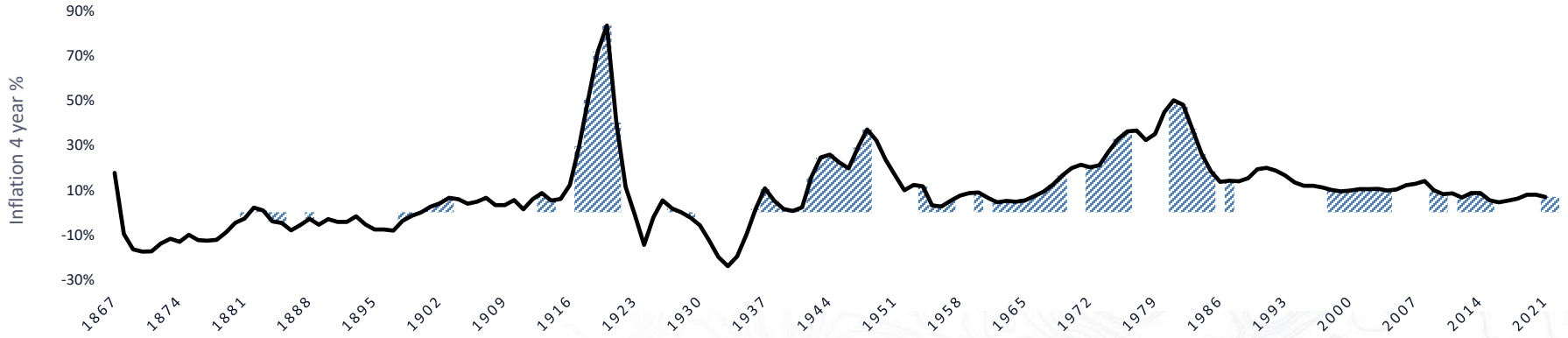
Our predictors in this century had to work as well in the previous century to be retained.

Introduction

Chart 2
US Inflation Shaded When Money Supply Expansionary 1867 – 2021

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when money supply variables are expansionary



As a preliminary to our study, let us show a shading technique we have used to illustrate the influence of variables on inflation, production and on financial markets. This technique is presented on chart 2 above.

In the chart, we have again shown the four-year percentage rate of change of the US inflation index, this time shaded whenever money supply variables are rising.

Using this technique, we can group several macro-economic variables or conditions, and shade when they are positive as a whole, thereby illustrating the effects of the entire group of variables upon prices, production or financial markets.

Part One

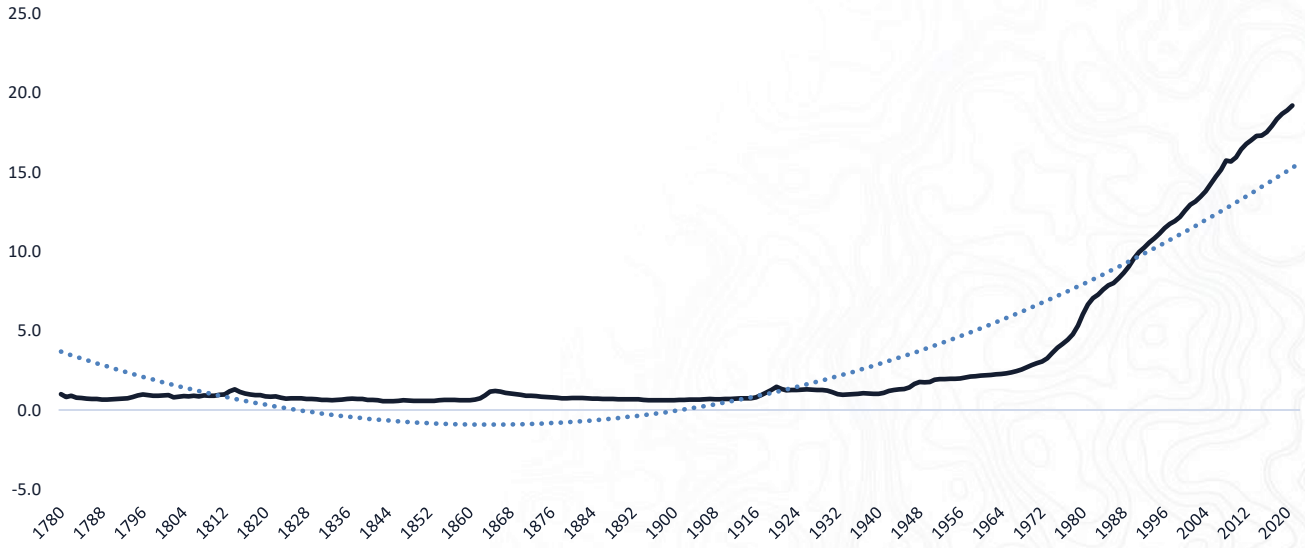
Presentation of our Indicators on Structural Inflation and Growth (1885-2022)

US CPI 1780-2021

Chart 3
US CPI 1780-2021

Black line: The US consumer price index, base 1 in 1780.

Dotted line: Its long-term trend



In 1910, US prices were at the same level as in 1780.

In 1945, prices were 2.5 times the 1780 level and the great inflation had begun. Prices reached 16.5 times the 1780-1910 level in 1990.

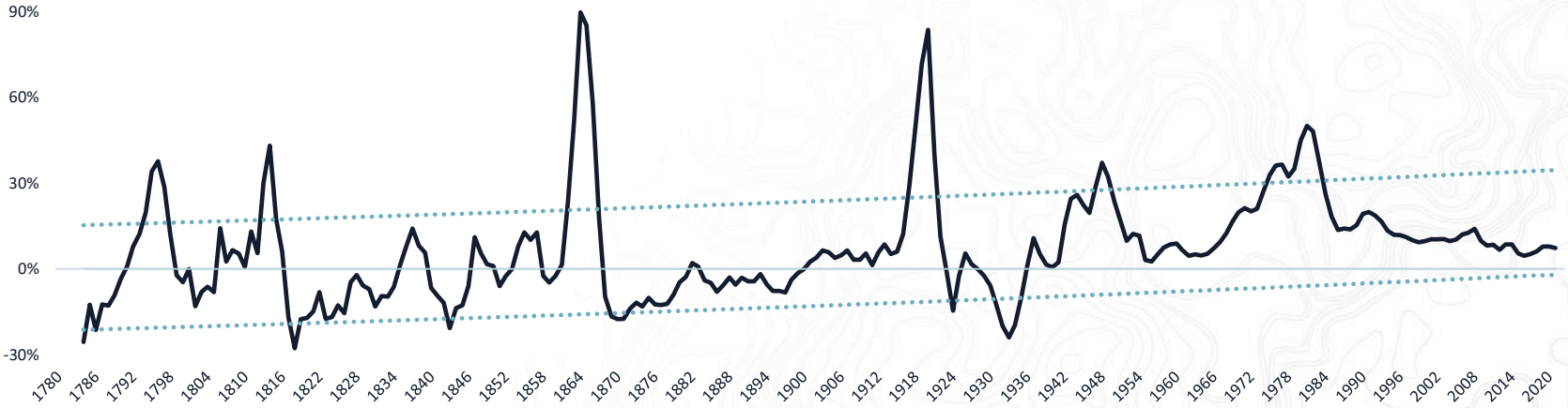
From 1780 to 1900, the average four-year % change in US prices was 0. After each inflationary war there was a deep deflation. **Since 1945 the 4 -year change in prices has always been positive.**

US CPI (four year % changes) 1780-2021

Chart 4
US CPI (Four-Year Percent Changes) 1780-2021

Black line: The four-year percentage rate of change in the US consumer price index.

Dotted lines: The long-term trend in the four-year percentage changes of prices, plus or minus one standard deviation.



There was no inflationary bias at all in the US economy from 1780 to 1900, and only a modest pickup in prices from 1900 to 1945, probably due to the doubling of the US economy in the four years from 1942 to 1945.

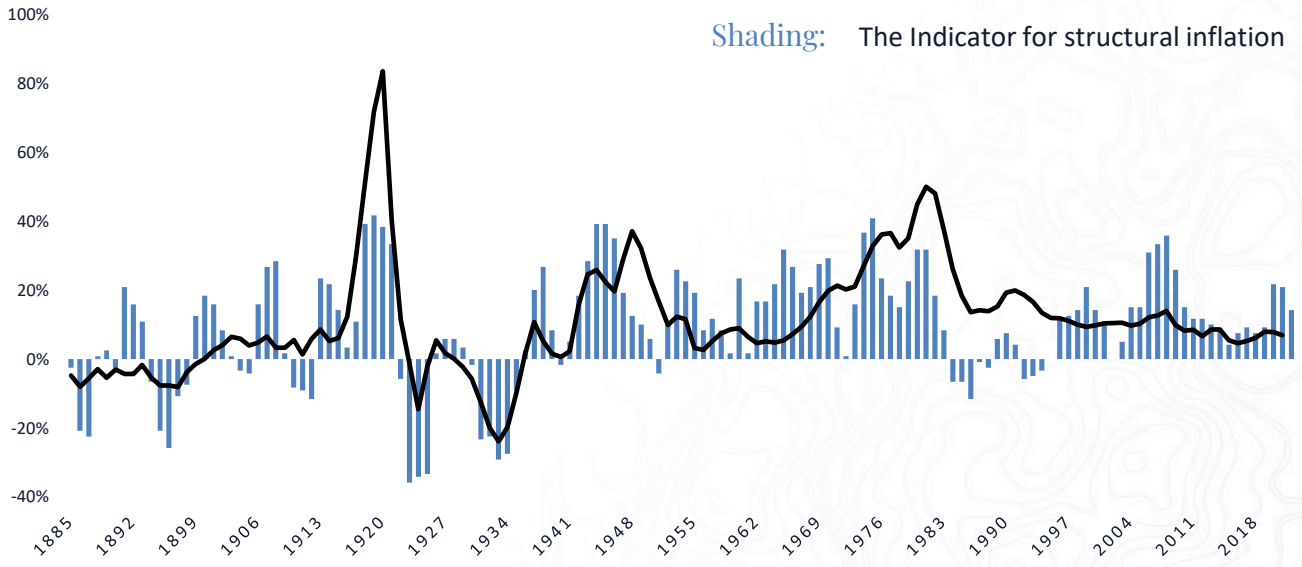
Beginning in the 1940's, the great inflation shifted prices from a flat to a positive trend. Since then, at no time have prices fallen below their level of four years previous.

Our Long-Term Inflation Indicator 1885-2022

Chart 5
Four-Year Inflation & Four-Year Inflation Indicator

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: The Indicator for structural inflation



This chart shows the percentage change over four years of US inflation & our four-year inflation indicator.

At this reading or above, the probability of a sustained expansion in the inflation index over 4 years is high.

The following five charts show the groups of macro-economic measures with which this long-term inflation indicator was built, and whether they are registering positive or negative.

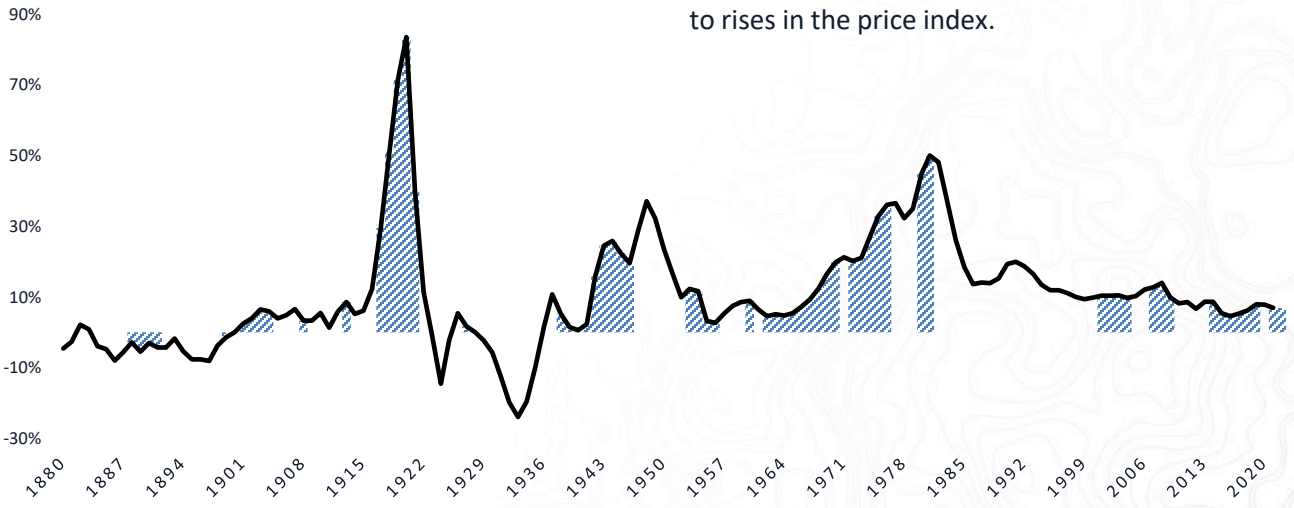
For the first time in nearly ten years, our long-term inflation indicator is registering a significantly positive reading. This last occurred in 2013 and in 2005-07, when the US experienced four year inflation rises of 9% and 14% respectively. To have inflation reach similar levels, the rate of inflation in the US would have to accelerate in 2021, and remain somewhat above the moderate norms of the past decade in 2022.

Inflation Indicator Components 1880-2022
Money Supply

Chart 6
US Inflation Shaded When Money Supply Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when money supply variables are favourable to rises in the price index.



Shaded areas show periods when money supply in the US is expanding at a sufficient rate to support a structural rise in the CPI.

The sum of money supply measures is positive through to end 2022.

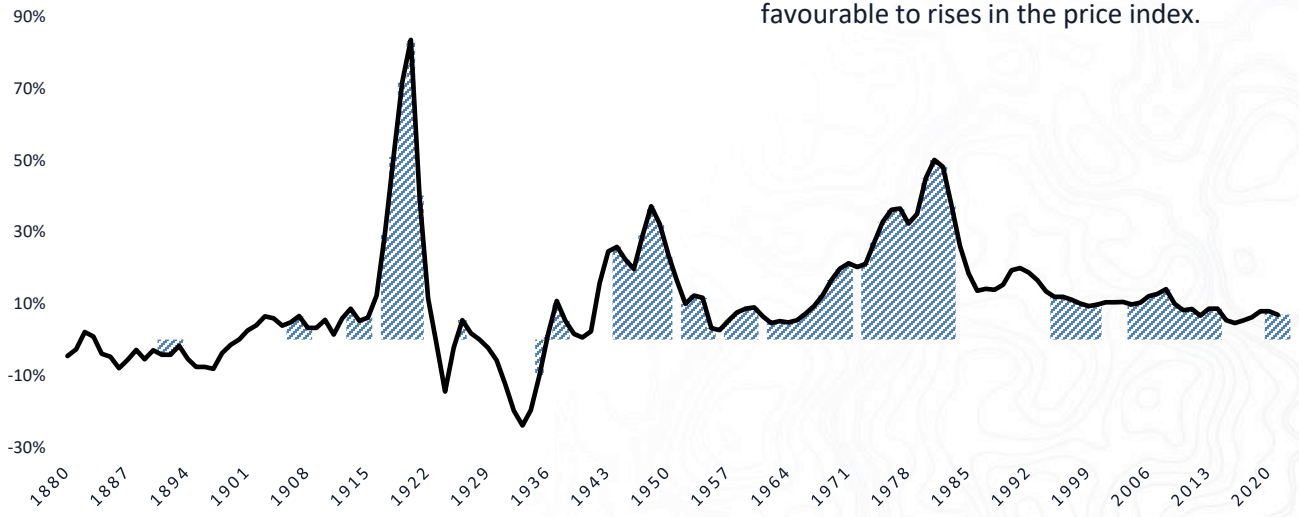
Growth in money supply has been sufficiently high to support the current rate of price increases. The sum of the monetary measures included here is positive. reflecting expansionary trends in M2 and the monetary base, and in their liquidity ratios compared to output and to interest rates.

Inflation Component: Commodity Prices

Chart 7
US Inflation Shaded When Commodity Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when commodity measures are favourable to rises in the price index.



Shaded areas show periods when commodity prices are rising fast enough that there is no danger of structural asset deflation in the US.

Commodity price measures are positive through to end 2022.

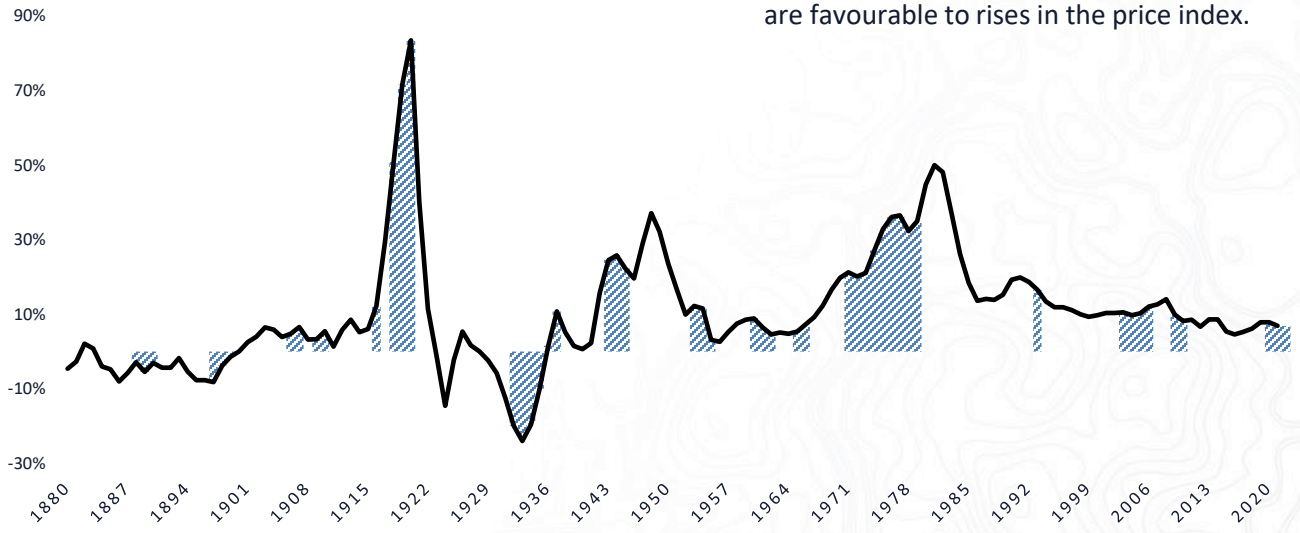
This measure shows that commodity prices are giving today signs of asset inflation.

Inflation Component: Fiscal Policy

Chart 8
US Inflation Shaded When Fiscal Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when federal government fiscal policies are favourable to rises in the price index.



Federal government fiscal policies are helping to prevent a contraction in the inflation index. Government borrowing, in particular, has been extraordinarily expansionary, the contrary of the "Herbert Hoover" lines that contributed to the 1930's deflation.

Shaded areas show periods when US Federal Government fiscal policy is stimulative enough to support a structural increase in the CPI.

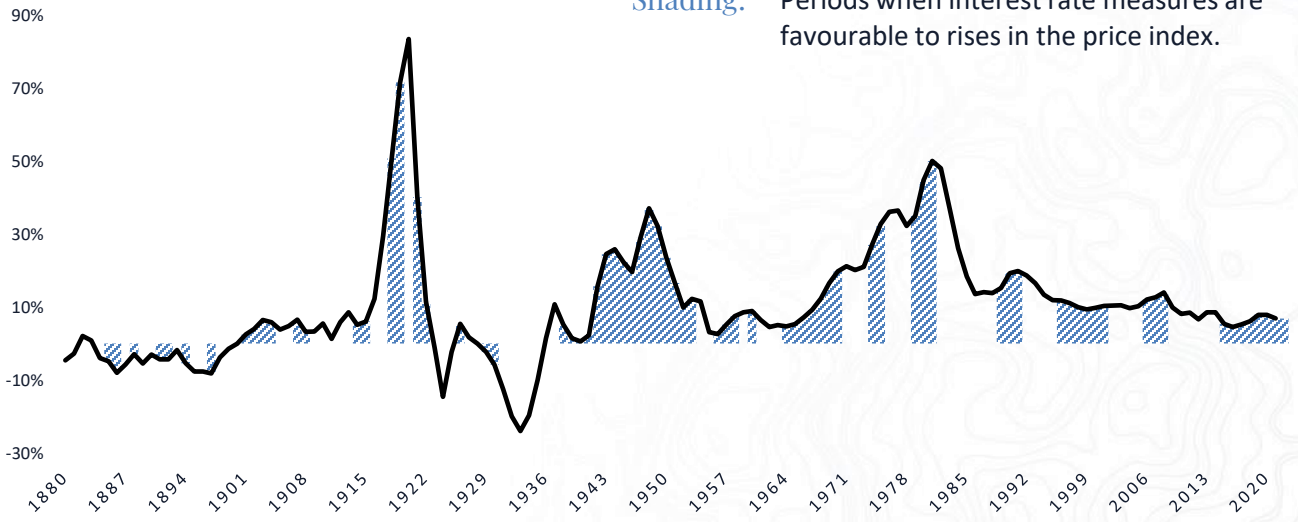
Fiscal policy measures are positive through to end 2022.

Inflation Component: Interest Rates

Chart 9
US Inflation Shaded When Interest Rate Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when interest rate measures are favourable to rises in the price index.



There have been sufficient declines and decelerations in interest rates over the past eight years to avoid further downward pressure on prices, particularly when interest rates are measured in real terms. Within this group of interest rate measures, very low long-term nominal and real yields are lending significant support to US prices, countering last year's deflationary impact.

Shaded areas show periods when interest rates have been declining or decelerating quickly enough to permit a structural increase in the CPI.

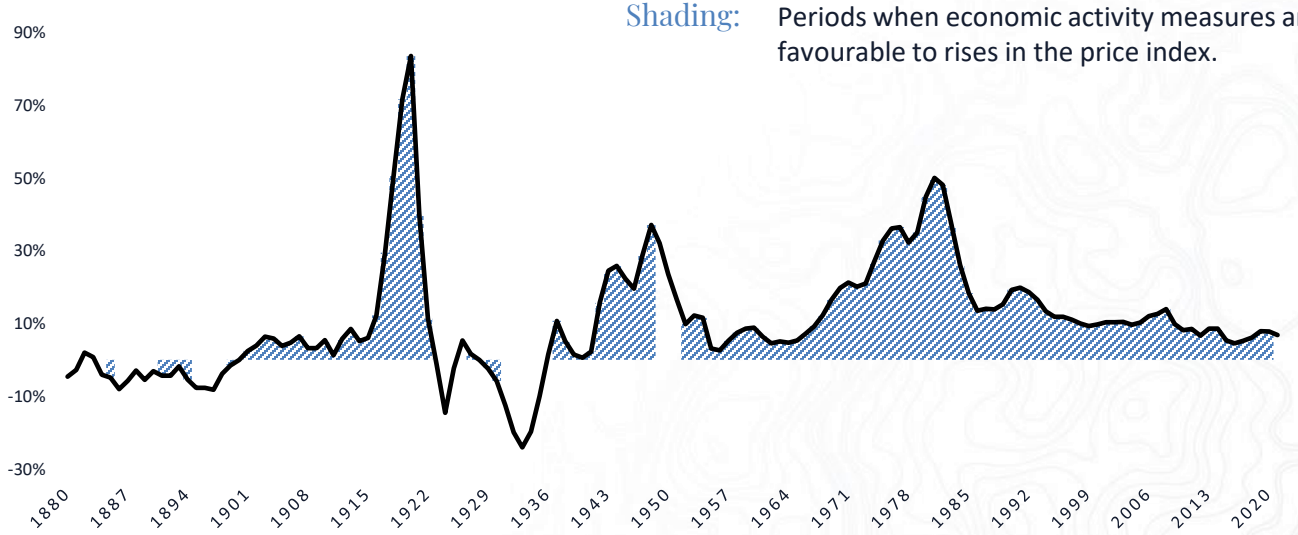
The sum of interest rate measures is positive through to end 2022.

Inflation Component: Economic Activity

Chart 10
US Inflation Shaded When Production Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US consumer price index.

Shading: Periods when economic activity measures are favourable to rises in the price index.



Shaded areas show periods when production has been expanding fast enough in the US to permit a structural rise 1n prices.

This economic activity condition is negative through to end 2022.

The eight-year trend in US industrial production is not strong enough to maintain upward pressure on the US consumer price index. There is no 'cost push' to support the US inflation rate.

Conclusion for Long-Term Inflation

The requirements for structural price rises seem to be the following:

- Maintain an increase in money supply above production and interest rates so that there is no chance of goods and services falling in price to attract a limited quantity of money.
- Avoid asset deflation, where the banking system shrinks loans and money supply because the value of collateral is falling.
- Avoid rises in interest rates that cut off the demand for credit and bring about debt liquidation.
- Maintain competition for productive resources through sustained economic growth.
- Have government fiscal policies that encourage the expansion of credit, particularly if financed by monetary increases.

Money supply growth has been far and away sufficient to support long-term increases in prices, and asset prices have begun to respond accordingly. Our interest rate measures remain positive as a whole, and are convincingly so, given long-term nominal interest rates are barely above record lows. Debt service costs are compounding very slowly compared to the rebound in economic growth. If production continues to recover significantly, and the federal authorities maintain fiscal and monetary ease for some time, our inflation indicator will show further support for consumer price levels to come.

The outlook is for moderately higher inflation pressures in 2021, subsiding in 2022 to subdued price increases somewhat above the low averages of the past decade.

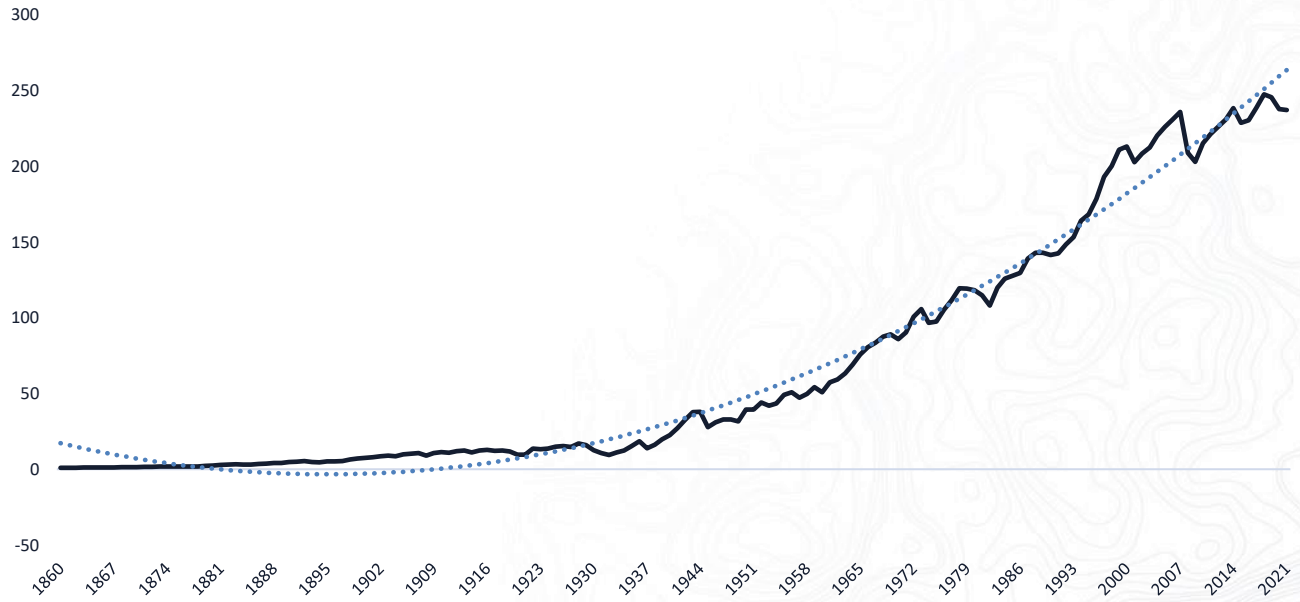
Absent strong rises in nominal long-term interest rates and declines in long-term money supply growth, our structural indicator suggests US consumer price inflation will remain moderately positive, signalling neither a deflation nor a hyperinflation risk.

US industrial production index 1860-2021

Chart 11
US Industrial Production Index 1860-2021

Black line: The US industrial production index, base 1 in 1860

Dotted line: Its long-term trend



In 1900, US production was 4.5 times its size in 1860. From 1900 to 1945 the doubling time remained the same. Since 1945, the rate of growth has slowed by one-third.

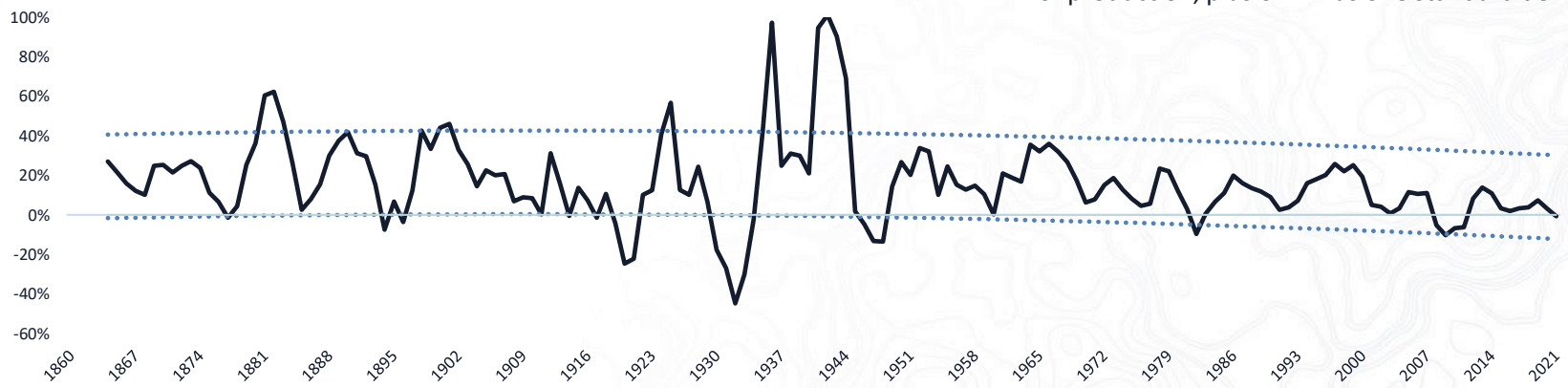
From 1860 to 1900 the average change in US production was about 22% over our years. From 1900 to 1945 the average was the same: the great war compensated for the great depression. **Since 1945 the 4 year rate has slowed by more than 1/3 and to 1991 (2021) is below zero.**

US industrial production index (four year % changes) 1860-2021

Chart 12
US Industrial Production Index (Four-Year Percent Changes) 1860-2021

Black line: The four-year percentage rate of change in the US industrial production index.

Dotted lines: The long-term trend in the four-year percentage changes of production, plus or minus one standard deviation.



The US economy grew at about the same rate over the 1860-1900 and 1900-1945 periods, doubling every 15 years. The fall of the great depression was counterbalanced by the rise of World War II, when the US moved from 25% to 50% of world production (with Europe and South-East Asia in ruins, there was not much competition...).

The great inflation has been oppressive to US economic activity. The growth rate in production fell by one-third for the 1945-1990 period, when capital was drained from the productive system into real assets and inflation hedges.

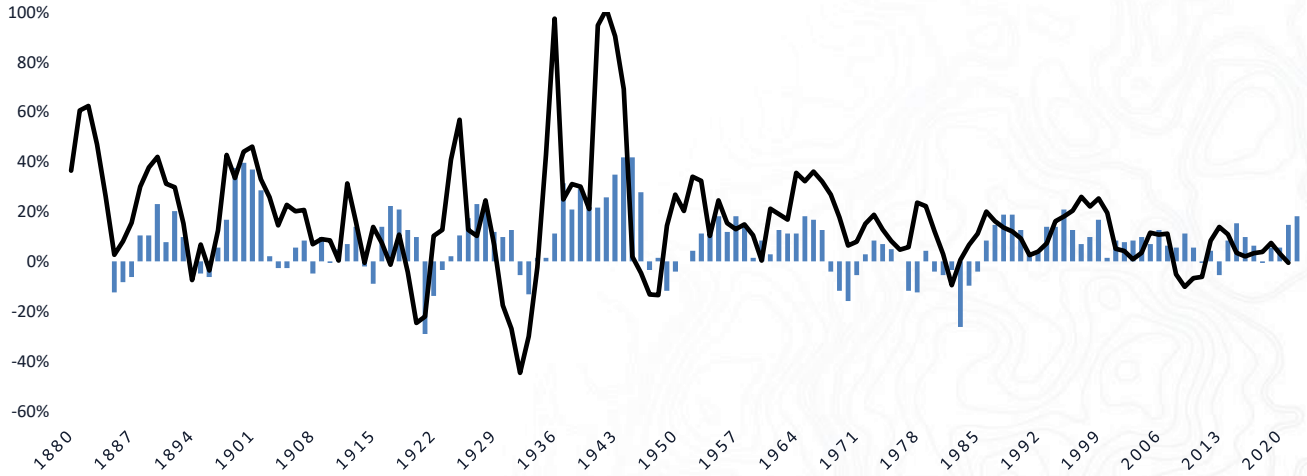
The downward pressures on output were compounded by the 2008 financial crisis onset, from which some negative effects on US production have yet to fade.

Our Long-Term Production Indicator 1885-2022

Chart 13
Four-Year Production & Four-Year Production Indicator 1885-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: The Indicator for structural economic growth.



This chart shows the percent change over four years of US industrial production & over four-year production indicator.

At this indicator level, the probability of an expansion in the production index over four years is high.

The following six charts show the groups of macro-economic measures from which our long-term indicator was built, and whether they are registering positive or negative.

Our long-term indicator for industrial production has remained steady for the coming two years in a signal that last year's contraction was a temporary reaction to the external pandemic shock. Although the 4 year change in output has fallen to its lowest level since the financial crisis, our indicator is well above its reading in the 2008 to 2012 period, when production contracted over a four-year period for only the second time since the end of World War II, and for 2022 is showing its strongest signal in twenty years.

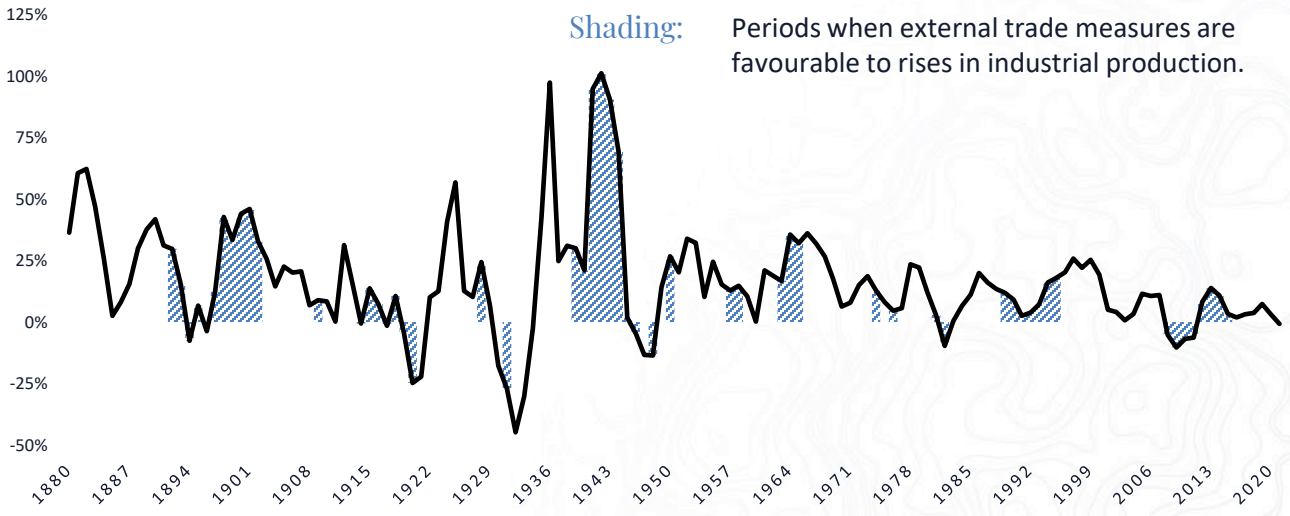
Our indicator is well above the zero line, and its steady rise suggests that, absent excessive external impediments to economic growth, such as major tax hikes, energy price surges, or world trade frictions, then there is a strong probability of a structural resurgence in US industrial activity.

Production Indicator Components 1880-2022
External Trade

Chart 14
US Production Shaded When Trade Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when external trade measures are favourable to rises in industrial production.



Shaded areas show periods when external trade has been expanding fast enough to generate a structural increase in industrial production.

The sum of the external trade measures is negative through to end 2022.

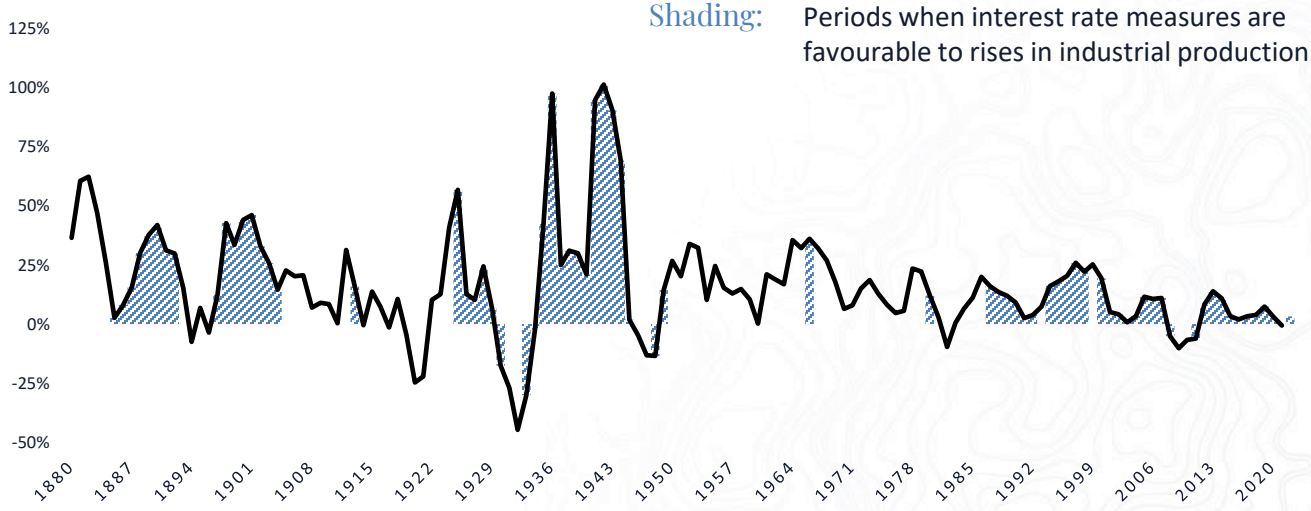
External trade is no longer expanding fast enough to support US industrial activity. US, European, and Chinese recoveries in external trade will be needed for additional support over the next period for a return to positive trends in the US, and in world economic growth.

Production Component: Interest Rates

Chart 15
US Production Shaded When Interest Rate Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when interest rate measures are favourable to rises in industrial production.



Shaded areas show periods when US interest rates have been declining quickly enough to accommodate the credit demand generated by a structural expansion in industrial production.

The sum of the interest rate measures is positive through to end 2022.

The interest rate measures include federal government, municipal and commercial paper yields.

All of these have been shown to be important in determining the direction of US economic activity.

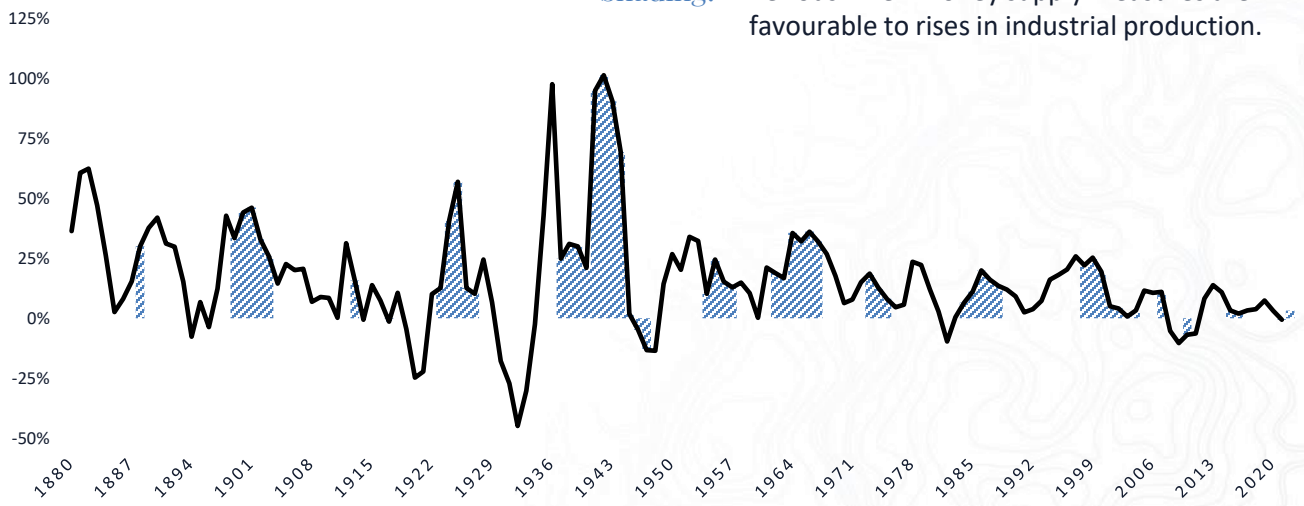
Interest rates have declined or decelerated enough over an eight-year period to give positive readings within our production indicator.

Production Component: Money Supply

Chart 16
US Production Shaded When Money Supply Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when money supply measures are favourable to rises in industrial production.



Shaded areas show periods when US money supply is increasing fast enough to permit a structural expansion in industrial production.

Money supply measures are positive through to end 2022.

Expansionary monetary policies prevent an absolute decline in prices which would put the entire economic system at risk.

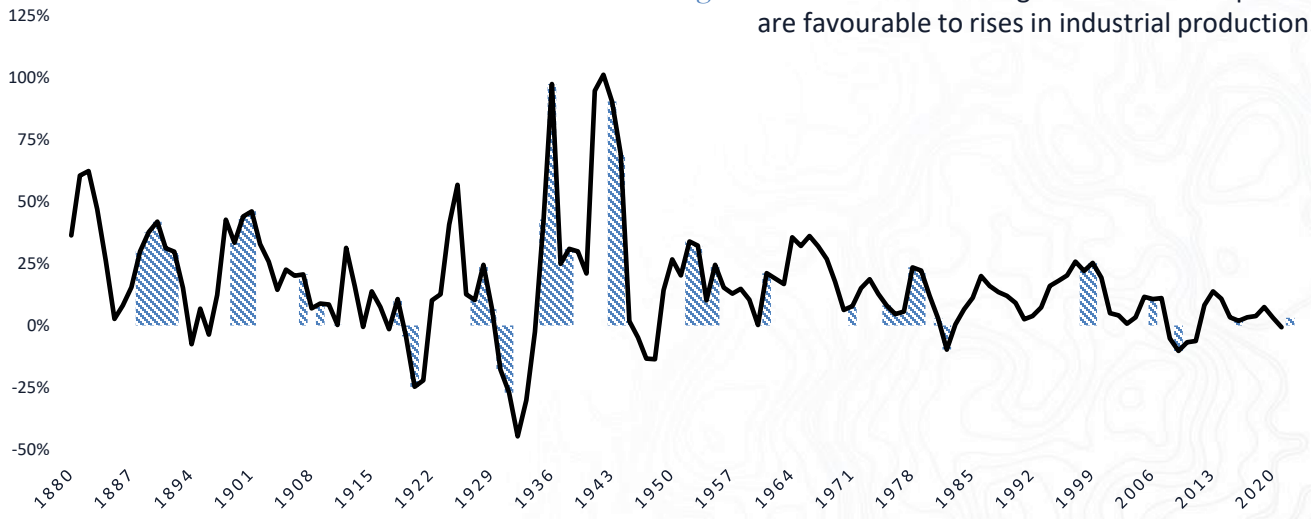
Counter to measures for our long- term inflation indicator, relevant money supply measures through 2020 had yet to record positive readings over four and eight years for US production. This now has shifted in favor of higher production to come.

Production Component: Fiscal Policy

Chart 17
US Production Shaded When Fiscal Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when federal government fiscal policies are favourable to rises in industrial production.



Shaded areas show periods when Federal Government fiscal policy is such that it permits a structural expansion in industrial production.

Fiscal policy measures are positive through to end 2022.

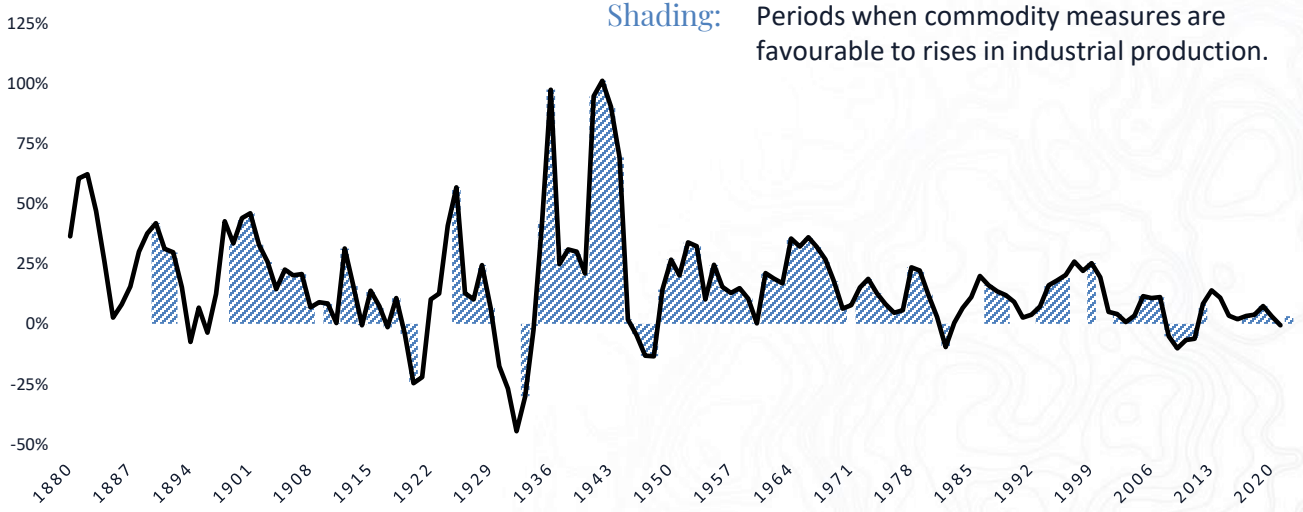
The measures of federal government fiscal policy reflected in this chart have shifted in the past months to provide a positive stimulus to economic activity for next year. The US government's choice to opt for higher deficit spending rather than implementing policies for debt-reduction means that there is significant further support in place for US economic growth.

Production Component: Commodity Prices

Chart 18
US Production Shaded When Commodity Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when commodity measures are favourable to rises in industrial production.



Shaded areas show periods when commodity prices have risen enough that there is no danger of asset deflation preventing a structural expansion in US industrial production.

Commodity measures are positive through to end 2022.

While great surges in real asset prices create severe blockages to economic growth, and asset deflation have just as severe effects on industrial activity because of forced contractions the banking and credit system.

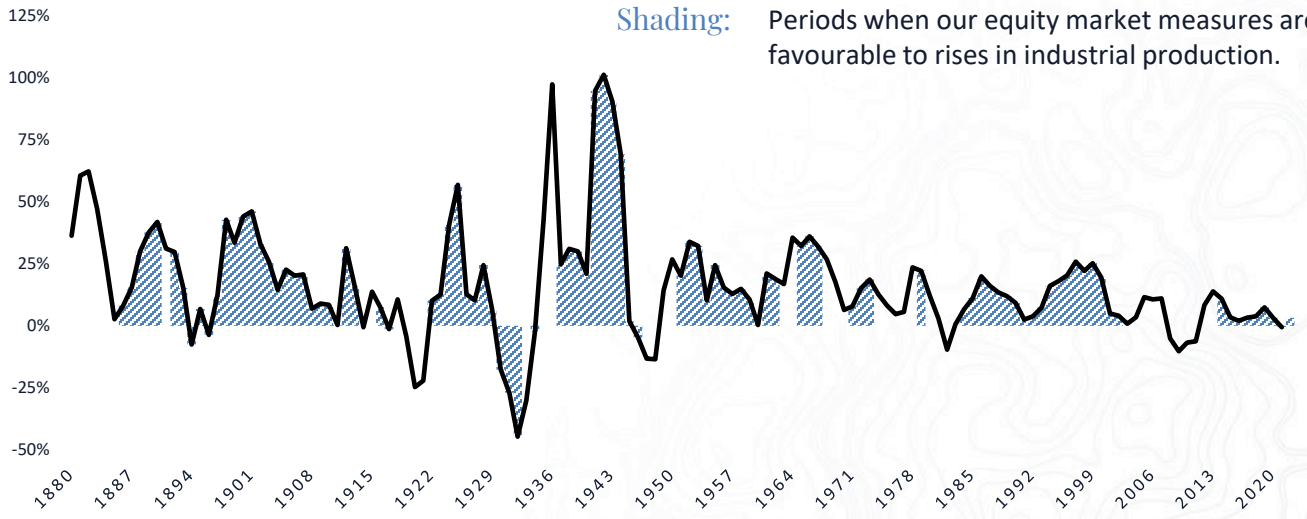
Commodity prices and precious metals prices have now rebounded to the point where their trends are indicating no significant danger of asset deflation in the US economy; these measures so far look to be evolving in a way that underpins a recovery in structural US output.

Production Component: Equity Market

Chart 19
US Production Shaded When Equity Market Measures Favourable 1880-2022

Black line: The four-year percentage rate of change in the US production index.

Shading: Periods when our equity market measures are favourable to rises in industrial production.



Shaded areas show periods when equity prices have risen enough so that the returns from the capitalist system outweigh the risks, attracting enough capital to allow a structural expansion in industrial production.

Equity market measures are positive through to end 2022.

Over long periods, equities consistently outperform all other asset classes. The capitalist system is by far the most productive organisation of human enterprise, as recent events have once again shown. Moreover, within the system, those who participate most fully in the risks, the equity owners, reap the greatest rewards.

Nonetheless, there are significant periods, lasting four or five years, and once or twice as long as ten years, when the risks to the system are too great to withstand. The next chart takes a closer look at those periods.

Conclusion for Industrial Production

The requirements for long-term economic growth seem to be the following:

- Maintain enough money in the system to avoid an absolute fall in prices.
- Expand trade in order to break local monopolies and keep allocation of capital efficient (protectionism is dangerous) but avoid larger and longer external deficits.
- Permit a positive return for equities compared to real assets and to cash, thereby compensating investors for their risk.
- Maintain confidence in the local financial system, allowing declines in commercial paper and municipal bond yields, not just in federal security yields.
- Keep government receipts rising, i.e. the tax burden on the economy light.

Our long-term production indicator shows that these requirements are being met, and quite effectively so. US monetary policy is fully expansionary and unlikely to change soon. Short term interest rates at the zero bound are the main problem, along with a lack of further expansion in external trade. Within the interest rate group, we find strong support from very low nominal long-term government and corporate bond yields, with spreads tight enough to show that investors are well compensated for taking the risk of the capitalist system. Excessive tax rises or a prolonged decline in the equity market would bring down our indicator from its current multi-decade high.

Given an absence of significant, sharp interest rate hikes, a reversal of current supportive fiscal policies, surging energy prices or severe trade tensions affecting international commerce, our production indicator will stay at a level showing sound structural expansions to come in US industrial activity.

Our production indicator suggests that US output will rise to a moderate rate of expansion that nonetheless likely will be the highest structural expansion for more than 20 years.

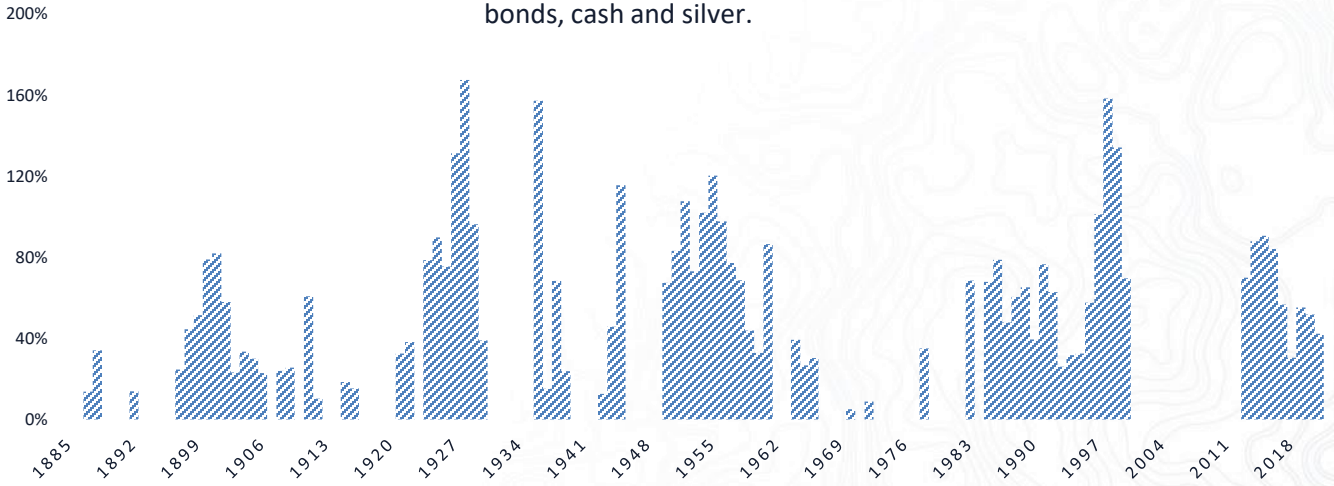
Part Two

Prediction of the Structural Performance of the Major Asset Classes 1885-2022

Equities
Historical Out-Performance 1885-2021

Chart 20
US Equities Outperform Bonds, Cash & Silver (4-Year % Changes) 1885-2021

Bars: Periods when equities have outperformed all of the other three asset classes over the previous four years. The scale shows the average four-year percentage outperformance of equities compared to each of bonds, cash and silver.



Over long periods, equities consistently outperform all other asset classes. The capitalist system is by far the most productive organisation of human enterprise, as recent events have once again shown. Moreover, within the system, those who participate most fully in the risks, the equity owners, reap the greatest rewards.

Nonetheless, there are significant periods, lasting four or five years, and once or twice as long as ten years, when the risks to the system are too great to withstand. The next chart takes a closer look at those periods.

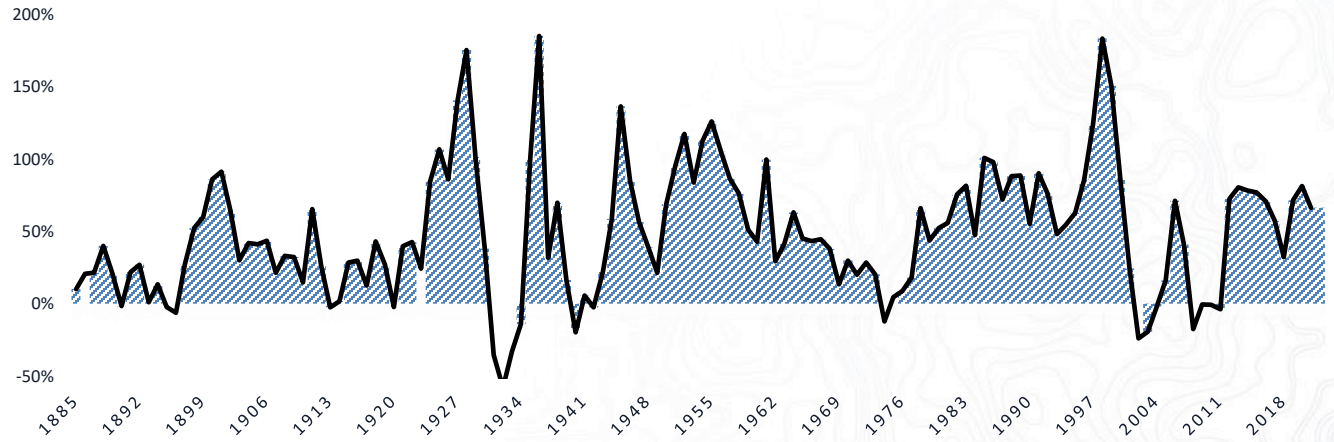
This chart shows periods when US Equities have outperformed the other three broad asset classes. This has been the case over most periods, including the last century.

Equities
Prediction for Positive Performance 1885-2022

Chart 21
US Equities (4-Year % Changes Predicted Positive) 1885-2022

Black line: The four-year percentage total return in equities (absolute performance).

Shading: Periods when our long-term inflation and production indicators show that there is no structural risk that equities fall below their level of four years earlier.



Shaded areas show periods when neither indicator is close to its extreme, and neither has begun to accelerate or decelerate sharply.

This is the case today. Equities are likely to show a structural rise through 2022.

Equities very rarely fall below their level of four years previous. When this has happened, it has been the result of a deflationary collapse in prices and production: 1890's, 1930's, 1940-41, 2008-12 or the result of a hyper-inflationary collapse in production: 1920, 1974-75, 2002.

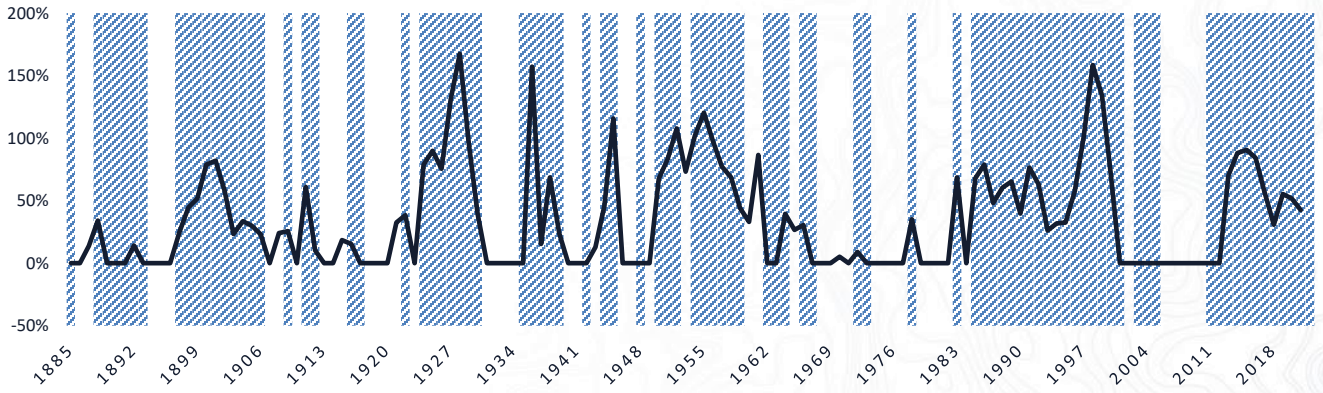
Our long-term production indicator has risen modestly to its highest for years, and our long-term inflation indicator is steadily positive. According to these indicators, for 2021-22 there looks to be strong structural support for US equities.

Equities
Prediction for Out-Performance 1885-2022

Chart 22
US Equities Outperform Bonds, Cash & Silver (Predicted) 1885-2022

Black line: The average four-year percentage outperformance of equities compared to each of bonds, cash and silver in periods when equities have outperformed all of the other three asset classes over four years.

Shading: Periods when our long-term inflation and production indicators show that there is a structural bias towards equities compared to the other asset classes.



Shaded areas show periods where both our indicators are within moderate ranges, showing neither inflationary acceleration or deflationary collapse.

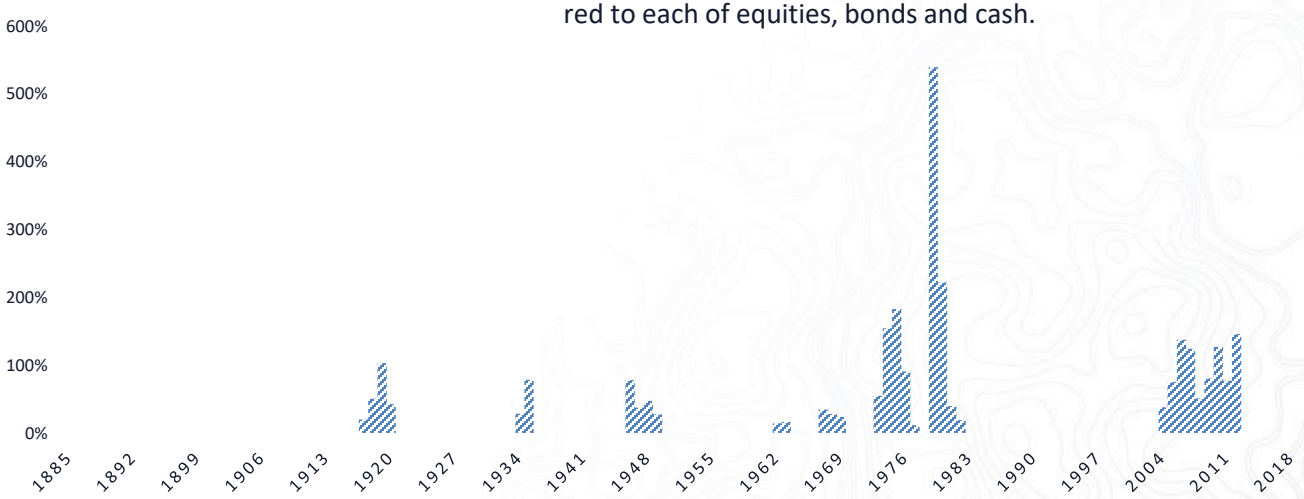
This is the case today. Equities likely will outperform silver, bonds and cash through end 2022.

While equities usually outperform the other asset classes, there have been periods when equities underperform without contracting in absolute terms. To capture periods where equities are not only likely to rise on a structural basis, but also to outperform all other asset classes, our indica tors must show periods where there is not only an absence of the absolute risk of deflationary or inflationary depression, but also an absence of relative risk coming from inflationary surges or sudden financial system collapse such as in 1917-20, 1934-35, 1946-49, 1967-69, 1973-81, and 2004-2010 where real assets outperform.

Silver
Historical Out-Performance 1885-2021

Chart 23
Silver Outperforms US Equities, Bonds & Cash (4-Year % Changes) 1885-2021

Bars: Periods when silver has outperformed all of the other three asset classes over the previous four years. The scale shows the average four-year percentage outperformance of silver compared to each of equities, bonds and cash.



We have chosen silver as a proxy for the precious metals because its price was freer for longer than that of gold.

The price of silver reacts, as could be expected, to inflationary surges, and silver's performance has improved remarkably, again as could be expected, since the great inflation has meant that prices have never returned to negative over four years.

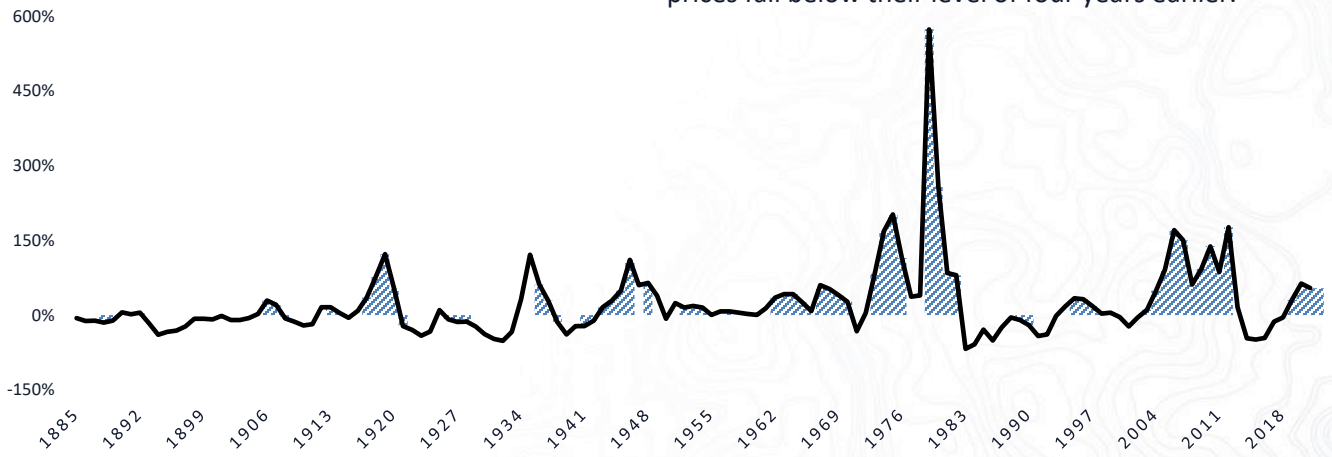
This chart shows periods when silver has outperformed the other three broad asset classes. This has become increasingly common since the Great Inflation began in the 1940's.

Silver
Prediction for Positive Performance 1885-2022

Chart 24
Silver (4-Year % Changes Predicted Positive) 1885-2022

Black line: The four-year percentage return for silver (absolute performance).

Shading: Periods when our long-term inflation and production indicators show that there is no structural risk that silver prices fall below their level of four years earlier.



Shaded areas show periods when our CPI indicator is soundly positive and there has been no sharp fall in our production indicator.

This is the case for end 2022. The change in silver prices likely will be positive.

Any decline in the US inflation index or very rapid deceleration in production that could lead to a sharp deceleration in prices has a negative impact on the absolute performance of silver.

Shaded areas show periods when our long-term inflation indicator is above its trend and when there has been no sharp deceleration in our long-term production indicator.

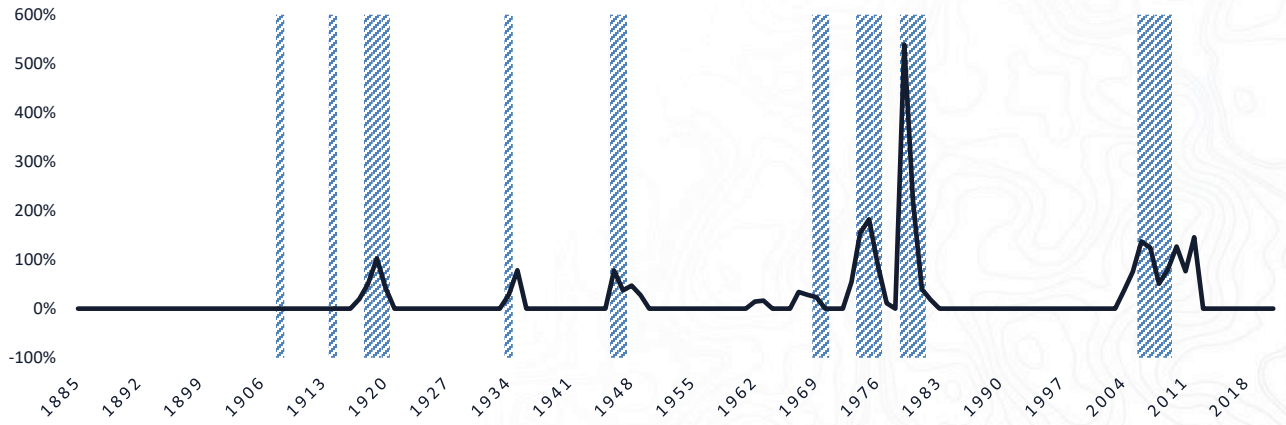
This is the case today, so there is no apparent structural risk for the price of silver.

Silver
Prediction for Out-Performance 1885-2022

Chart 25
Silver Outperforms US Equities, Bonds & Cash (Predicted) 1885-2022

Black line: The average four-year percentage outperformance of silver compared to each of equities, bonds and cash in periods when silver has outperformed all of the other three asset classes over four years.

Shading: Periods when our long-term inflation and production indicators show that there is a structural bias towards silver compared to the other asset classes.



Shaded areas show periods when our inflation indicator is rising sharply above our production indicator.

This is not the case in 2022. Silver likely will not outperform equities.

If silver is to outperform the other asset classes on a structural basis, an inflationary surge is required, but with no collapse in production that puts the upward trend in prices into question.

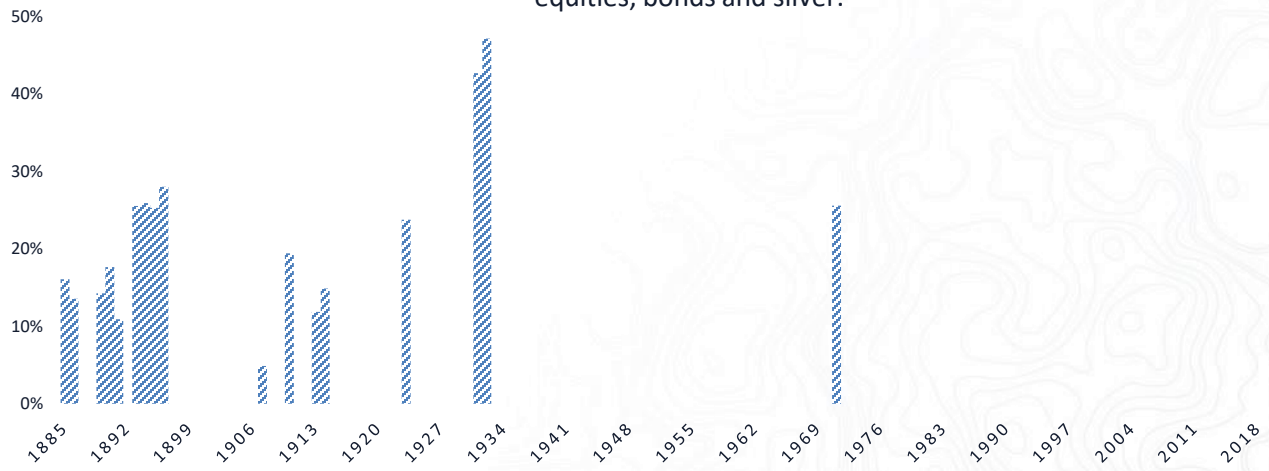
To capture periods when silver outperforms the other three asset classes, our indicators first show periods when there is not only the absence of absolute risk to silver from prices falling or production imploding but a relative advantage from surging inflation.

This is not the case today.

Cash
Historical Out-Performance 1885-2021

Chart 26
US Cash Outperforms Equities, Bonds & Silver (4-Year % Changes) 1885-2021

Bars: Periods when cash has outperformed all of the other three asset classes over the previous four years. The scale shows the average four-year percentage outperformance of cash compared to each of equities, bonds and silver.



Here we have used the yields on US six-month commercial paper to represent the returns on US short-term fixed-income instruments since 1870.

Cash was a very useful deflation hedge in the last century. With the advent of the great inflation, cash has rarely been favoured as an asset class.

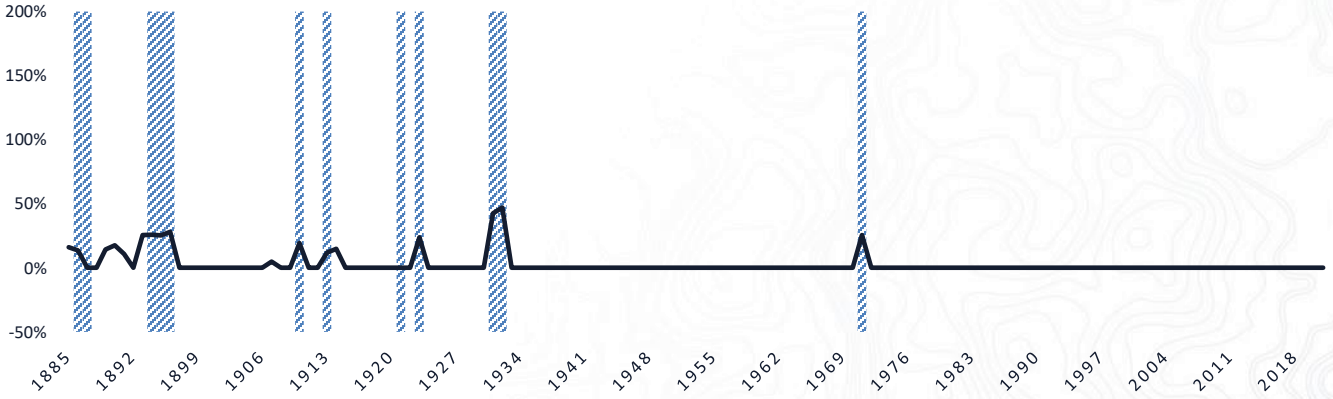
This chart shows periods when cash has outperformed the other three broad asset classes. This was often the case during deflations in the last century and early in this century, but not since the Great Inflation began in the 1940's.

Cash
Prediction for Out-Performance 1885-2022

Chart 27
US Cash Outperforms Equities, Bonds & Silver (Predicted) 1885-2022

Black line: The average four-year percentage out performance of cash compared to each of equities, bonds and silver in periods when cash has outperformed all of the other three asset classes over four years.

Shading: Periods when our long-term inflation and production indicators show that there is a structural bias towards cash compared to the other asset classes.



Shaded areas show periods where our production indicator falls sharply, and our inflation indicator is close to one of its extremes, signalling a fall in production with severe price dislocations.

This is not the case at present. Cash most likely will underperform equities and silver.

There has never been an absolute risk to fixed-income asset classes, cash or bonds, as measured in this study over four years.

The relative advantage to cash seems to emerge when production is coming down very fast, and there are severe dislocations in the price system, either very low prices: 1923-24, 1930-32 or very high prices: 1971-72.

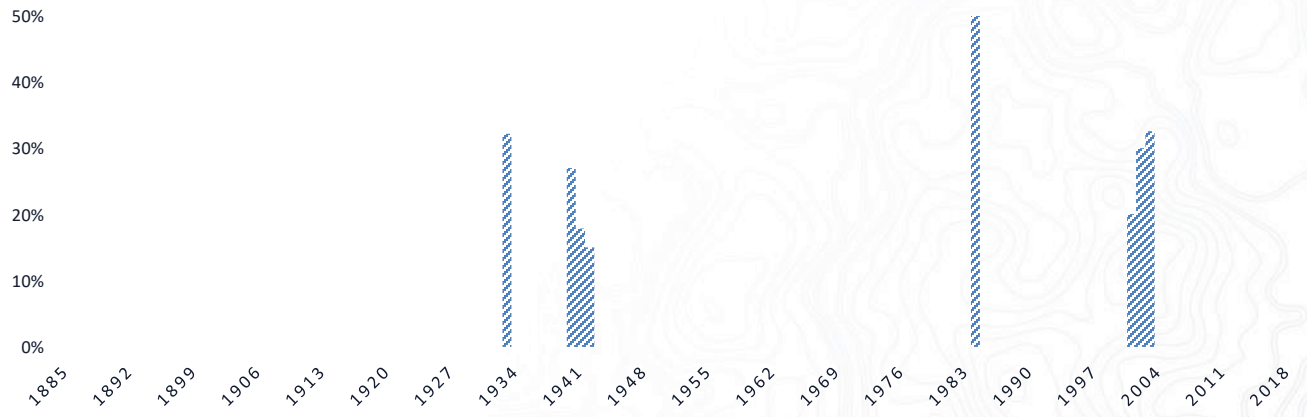
To capture periods when there is a structural bias towards cash, our production indicator must fall sharply with our inflation indicator very high, or very low.

This currently is not the case.

Bonds
Historical Out-Performance 1885-2021

Chart 28
US Bonds Outperform Equities, Cash & Silver (4-Year % Changes) 1885-2021

Bars: Periods where bonds have outperformed all of the other three asset classes over the previous four years. The scale shows the average four-year percentage performance of bonds compared to each of equities, cash and silver.



Rarest of all cases are the periods where government bonds outperform all other asset classes. Almost never, in practical terms.

In the last century, cash was the principal alternative to equities during deflations, and in the latter half of this century silver has been the chief alternative to equities during inflationary surges. Only once or twice in a century have the conditions that allow bonds to outperform been met.

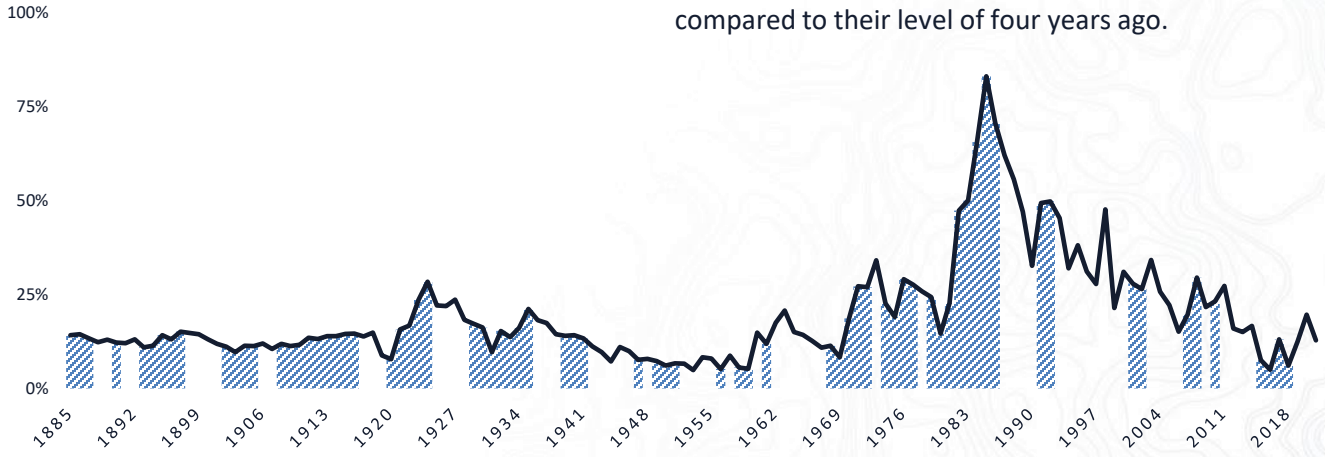
This chart shows periods when bonds have outperformed the other three broad asset classes. This occurred solely during collapses in production or prices during the thirties and the early 1940's, the early 1980's interest rate collapse, and after the 2000 equity bubble and bust.

Bonds
Prediction for Positive Performance 1885-2022

Chart 29
US Bonds (4-Year % Changes Predicted Positive) 1885-2022

Black line: The four-year percentage total return for bonds (absolute performance).

Shading: Periods when our long-term inflation and production indicators show that there is no structural risk that bonds undergo a period of poor performance compared to their level of four years ago.



Shaded areas show periods when neither our inflation indicator or our production indicator is highly positive.

This is not the case in 2022. Bonds are at risk.

Bonds, like cash, do not entail an absolute risk over four years, although 1920 and 1960 came close. Nonetheless, bonds perform better in periods where neither inflation nor production is at high levels. Periods where bonds are likely to perform well in themselves are shown when neither of our long-term indicators is highly positive.

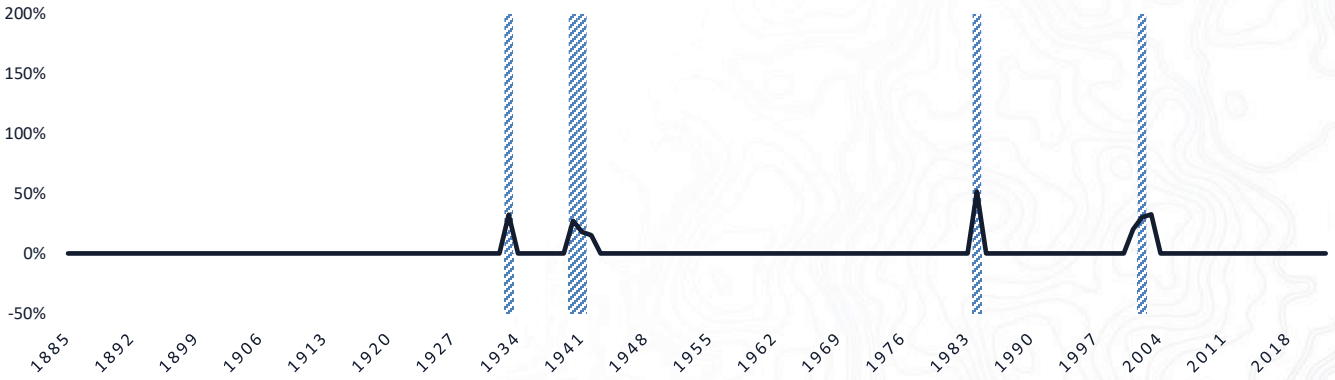
This clearly is not the case today.

Bonds
Prediction for Out-Performance 1885-2022

Chart 30
US Bonds Outperform Equities, Cash & Silver (Predicted) 1885-2022

Black line: The average four-year performance of bonds compared to each of equities, cash and silver in periods when bonds have outperformed all of the other three asset classes over four years.

Shading: Periods when our long-term inflation and production indicators show that there is a structural bias towards bonds compared to the other asset classes.



Shaded areas show periods where our inflation indicator is below trend, and either our inflation indicator or our production indicator declines sharply and suddenly.

This is not the case for end 2022. Bonds likely will underperform, showing negative returns.

Bonds can only outperform all the other asset classes if inflation is heading below trend and if there is a collapse in production.

From the last century to 1940, in all the deflations, bonds outperformed both silver and equities, coming second only to cash. In each of those periods, prices were falling so fast that investors may have preferred to hold the shortest-term instruments possible.

In both periods over the past hundred years, when bonds outperformed not only equities and silver but cash as well: 1933 and 1939-42, 1984, our inflation indicator was well below trend, and both long-term indicators had fallen very far, very fast. For 2004-06, our long-term inflation indicator was below trend, while our long-term production indicator had fallen to zero.

Our research suggests that the present does not resemble those configurations and this will not be one of those rare occasions in which bonds are likely to outperform.

Conclusion for the Four Financial Asset Classes

Equities have given the most consistent outperformance over the other three asset classes since the last century. Equities entail a relative risk when there is an inflation surge, and when there is a collapse in production accompanied by severe price dislocation or deflationary pressures.

Silver has only shown a relative outperformance over the other three asset classes when there is an inflation surge.

Cash outperformed most often in the last century and up to the 1930's when severe deflations were common. In the past (fifty) eighty years, cash has only outperformed when production collapsed and our inflation indicator showed important price dislocations.

The rare occasions when bonds outperformed all the other asset classes occurred over the past one hundred years when the US economy was moving out from a very important secular evolution (in the early 1930's the great depression), or moving into a very important secular trend (in the early 1940's World War II, US global expansion, and the start of the great inflation).

- **Equities are the asset class most likely to outperform out to the end of 2022, given that our indicators show positive inflation and a structural recovery in production to a moderate level not seen in twenty years.**
- **Our inflation and production projections show ongoing support for silver prices, but no hyperinflationary surge. The outlook is positive for silver and precious metals, although they are unlikely to outperform equities through to the end of 2022.**
- **There is no sign of severe deflation nor of production collapse to come, which suggest that cash will continue to be an underperforming asset class in relative terms.**
- **The current environment is not one of the rare times in which bonds have a relative advantage. Given significantly positive structural trends for US inflation and industrial activity, bonds are likely to lose in both absolute and relative terms, underperforming both equities and precious metals through to the end of 2022.**

Data Sources

Timeseries	Latest Sources through May 2021	Historical Sources
Gold Price $/oz	ICE Benchmark Administration Ltd.	Investment Markets (Ibbotson & Brinson) 1800-1985
Silver Price $/oz	Perth Mint	Investment Markets (Ibbotson & Brinson) 1800-1985
Implicit Price Index	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1869-1970, OECD main economic indicators 1971-1991
CPI % Change	Bureau of Labor Statistics, U.S. Department of Labor	Bureau of Labor Statistics, U.S. Department of Labor 1700-1947
Wholesale Price Index	Bureau of Labor Statistics, U.S. Department of Labor	Historical Statistics of US 1785-1970, OECD main economic indicators 1971-1991
Exports - Goods and Services	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1805-1949
Imports - Goods and Services	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1805-1949
Exports - Merchandise Adjusted	U.S. Census Bureau	Historical Statistics of US 1805-1899, IMF 1900-1964, Conference Board 1965-2006
Imports - Merchandise Adjusted	U.S. Census Bureau	Historical Statistics of US 1805-1899, IMF 1900-1964, Conference Board 1965-2006
US Equity Total Return Index	Standard and Poors (S&P)	Investment Markets (Ibbotson & Brinson) 1790-1985
US Equity Dividend Yield	Standard and Poors (S&P)	Investment Markets (Ibbotson & Brinson) 1872-1985
Gross National Product	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1867-1970, OECD main economic indicators 1971-1991
Industrial Production Index	Board of Governors of the Federal Reserve System (US)	Quarterly Journal of Economics (1700-1919)
Total Redsident Population	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1790-1939,Economist Statistics 1940-1982, IMF 1983-1991
Currency held by public	Federal Reserve, United States	Historical Statistics of US 1867-1958
M1	Federal Reserve, United States	Historical Statistics of US 1867-1891,1942-1958, Banking and Monetary Statistics 1892-1941
M2	Federal Reserve, United States	Historical Statistics of US 1867-1891,1942-1958, Banking and Monetary Statistics 1892-1941
M3	Organization for Economic Co-operation and Development	Historical Statistics of US 1867-1891,1942-1958, Banking and Monetary Statistics 1892-1941
Monetary Base	Board of Governors of the Federal Reserve System (US)	Monetary Trends in the US and the UK (Friedman and Schwartz) 1867-1959
Goods and Services Balance	U.S. Census Bureau	Historical Statistics of US 1790-1970, OECD main economic indicators 1971-1991
Long-Term Interest Rate	Federal Reserve, United States	Historical Statistics of US 1798-1899,Economist Statistics 1900-1952
Short-Term Interest Rate	Federal Reserve, United States	Investment Markets (Ibbotson & Brinson) 1926-1971
Municipal Bond Yields	Federal Reserve, United States	History of Interest Rates (Homer) 1798-1975, Conference Board 1976-2006
Prime Rate 4-6 months	Federal Reserve, United States	Historical Statistics of US 1898-1949
Corporate Bonds 10yr	U.S. Department of the Treasury	Historical Statistics of US 1867-1964, Conference Board 1965-1983
Commercial Paper Rate	Board of Governors of the Federal Reserve System (US)	History of Interest Rates (Homer) 1798-1975, Federal Reserve Bulletin 1976-1987
Total Deposits	Board of Governors of the Federal Reserve System (US)	Historical Statistics of US 1867-1891,1942-1958, Banking and Monetary Statistics 1892-1941, Fed 1959-1972
Total Federal Receipts	U.S. Office of Management and Budget	Historical Statistics of US 1791-1964, US Department of Treasury 1965-2006
Government Outlays	U.S. Department of the Treasury. Fiscal Service	Historical Statistics of US 1791-1964, US Department of Treasury 1965-2006
Government Debt	U.S. Department of the Treasury. Fiscal Service	Historical Statistics of US 1791-1964, US Department of Treasury 1965-2006
Loans at CommBanks	Board of Governors of the Federal Reserve System (US)	Historical Statistics of US 1863-1913, Banking and Monetary Statistics 1914-1972
Loans - Real Estate	Federal Reserve, United States	Historical Statistics of US 1896-1946
Government Expenditure	BEA - Bureau of Economic Analysis, U.S. Department of Commerce	Historical Statistics of US 1896-1913, Banking and Monetary Statistics 1914-1948

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Head of Global Asset Allocation, Deuterium Capital Management, LLC

Before joining Deuterium in January 2021, John was the Head of Global Asset Allocation at Merian Global Investors (MGI). John co-founded Kestrel Investment Partners LLP in 2011, whose global asset allocation business was acquired by MGI. Prior to Kestrel, John served as the Head of Asset Allocation at Iveagh Limited between 2006 and 2011, where he launched the Iveagh Wealth Fund.

Earlier in his career, John cofounded Cursitor Management. Cursitor was one of the first firms to offer top-down, global asset allocation solutions for institutions. Cecogest SA was part of the Cursitor Group and it was during his time at Cursitor that John authored this original study in 1991*. Upon the sale of Cursitor to Alliance Capital in 1996, John became the Head of Global Asset Allocation for AllianceBernstein, where he served until 2003. With AllianceBernstein, John also cofounded Bullrun Financial in 2000, a pioneer of quantitative portfolio strategies for institutions and advisers. John chaired the business through to 2010 when it was sold to Quantal International Inc.

* John's partners at Cursitor were Eric Auboyneau, Hugh M Eaton III, Charles Gave, Richard I Morris Jr, and the Monetary Authority of Singapore, all to whom he remains grateful.

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