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Exploring The Four Quadrants: A Wicksellian View

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Presentation outline

In this presentation I will very briefly describe Knut Wicksell's theories about the natural rate, the market rate and the cumulative aspects of their interactions.

(Those who are interested in a more complete analysis can see the research piece *An Attempt To Apply Wicksell's Theories To The US Economy And Financial Markets*, to be published soon)

In the first part of this presentation, I will conduct a brief cyclical analysis of US financial markets using some of the Wicksellian tools I have developed over the years.

In the second part I will try to show that the main reason behind the so-called "great stagnation" is the absurd monetary policy followed by the Federal Reserve. This will be more structural in nature.

Then I will conclude on how to build a portfolio in the world I have been describing.

Part one: The Wicksellian Cycle

Describing the Wicksellian spread

Wicksell's idea is very simple: in an economy, *two* interest rates are present at any given time:

1. **The natural rate**, which is the level at which the marginal demand for capital equals the marginal supply of capital. For all intents and purposes it means that at this level of interest rate, the marginal ROIC equals the marginal incentive to save.
2. **The market rate** is the rate at which companies can borrow long term, and it can be hugely different from the natural rate as described above, because of excess optimism or pessimism in the banking sector, manipulations of short rates by the central banks, external capital flowing into the country, etc...

For Wicksell, the spread between the natural rate and the market rate is the *cause* of the economic and financial cycle.

If the market rate is *too low* vs the natural rate, it will lead to misallocation of capital since the fellows with an ROIC lower than the marginal rate of return can still get their hands on capital, and we will have a succession of booms and busts. These misallocations of capital do not lead to a higher growth rate in the economy but eventually to a lower one. Abnormally low rates lead to the economic growth rate falling.

The Wicksellian spread and the cycle

When the market rate moves *above* the falling natural rate, the economy collapses and we have a recession or a depression *a la* Irving Fischer.

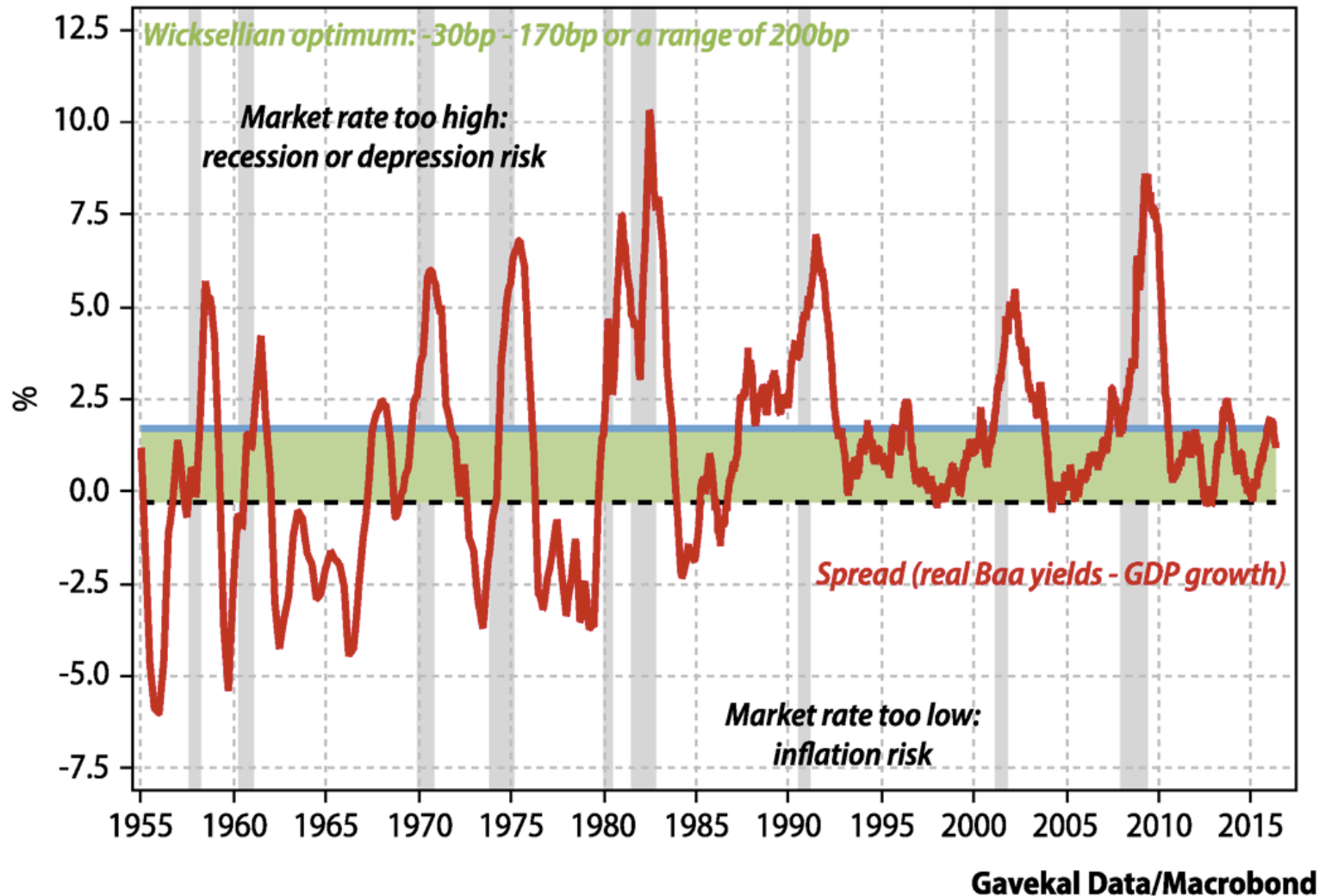
I have explained in the theoretical piece mentioned previously how I “guesstimated” the natural rate and the market rate in the US economy since the 1930s, and those interested in these computations should read that piece.

For me, the “natural” rate is the GDP growth rate for the previous 12 months, while the market rate is the real rate on BAA long dated seasoned industrial bonds deflated by the average inflation of the previous 7 years.

The following slides are a little bit an executive summary of this research.

The Wicksellian spread

The Wicksellian spread in the US



If the market rate is 170 bp or more above the natural rate (marginal cost of capital above the marginal return on capital), then we cannot have growth. At 200 bp or above, we have always had a recession...

If it is too low, i.e. below zero, then we will have inflation one year later.

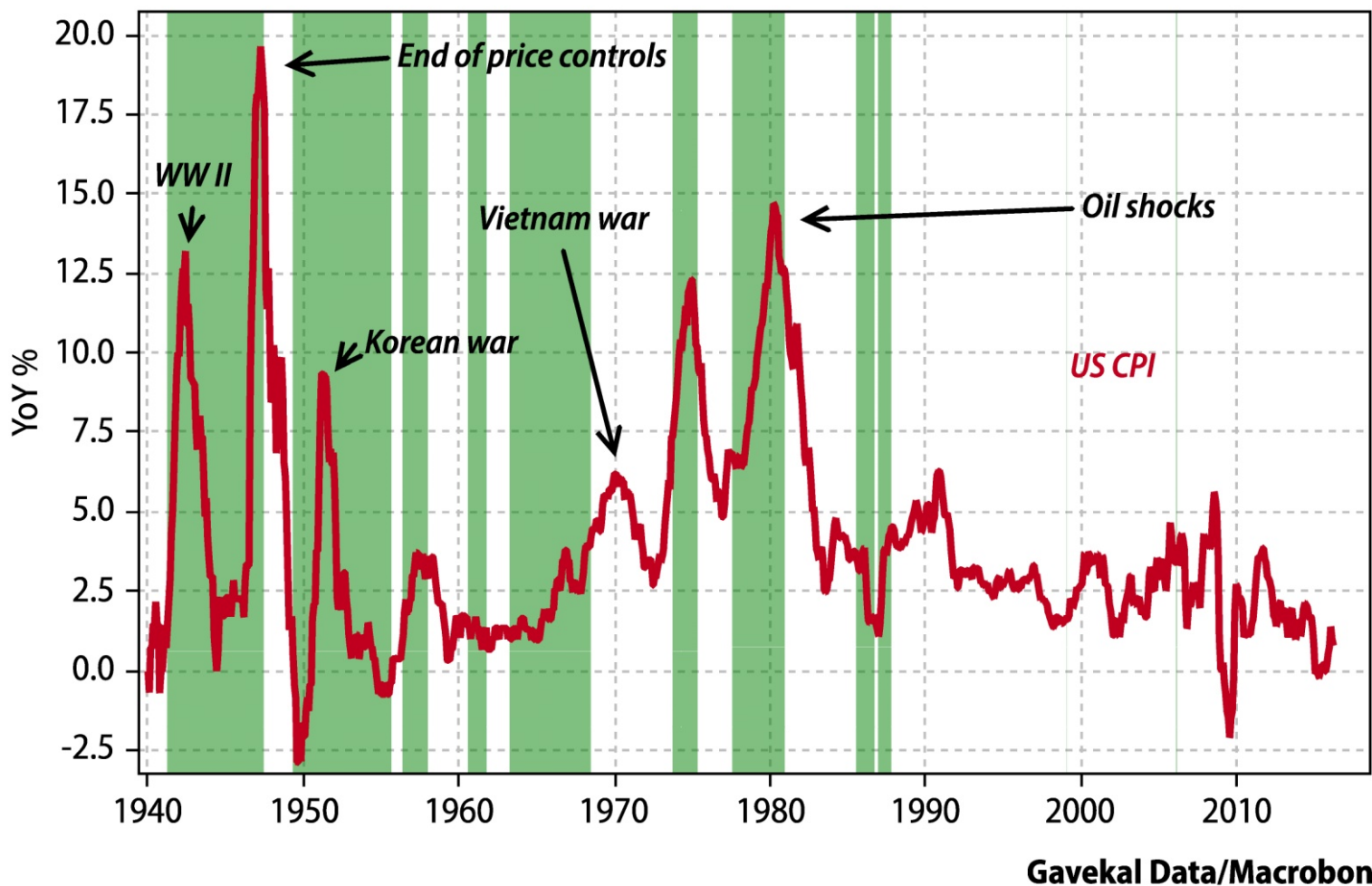
It is only if it stays within the so-called Wicksellian optimum (shaded green in the chart) that we will be in a non-inflationary growth period.

The next charts test the first two propositions.

The decision rule on inflation: no inflation danger whatsoever

When the market rate is low enough to create inflation

Shaded green: market rate more than 30bp below natural rate, pushed forward a year



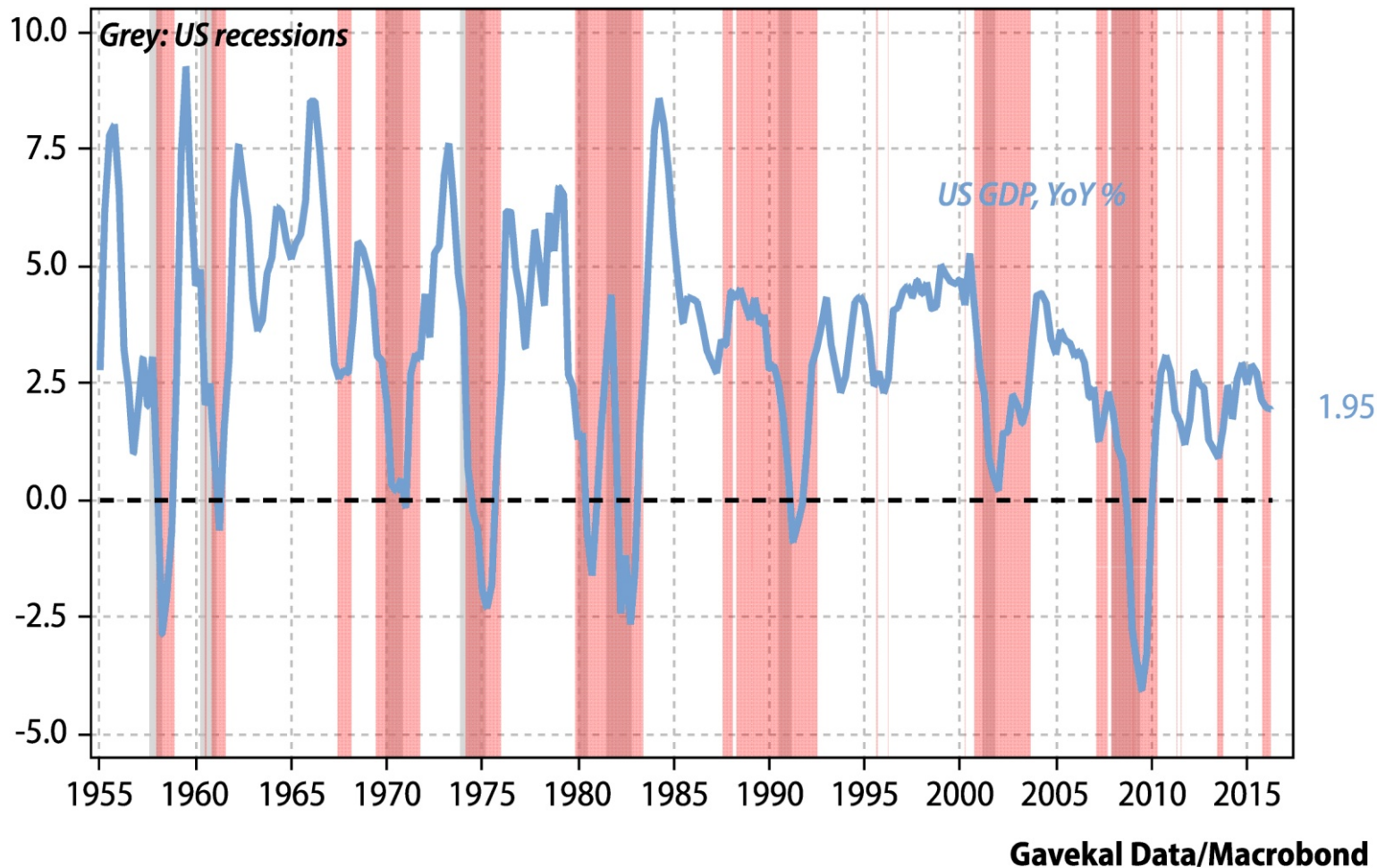
When the market rate is too low in absolute terms (shaded area on the graph, spread below -0.3%) it always leads to the US inflation rate accelerating roughly one year later.

We have not had a sustained period of inflation accelerating since 1987, and given the positioning of the Wicksellian spread right now, it is very unlikely that we will have one in the near future.

The decision rule for economic activity

When the market rate is above the natural rate

Pink: market rate > the natural rate by more than 170bp (slowdown/recessions to be expected)



Where the graph is shaded pink (spread above 170bp), one should expect a slowdown or a recession.

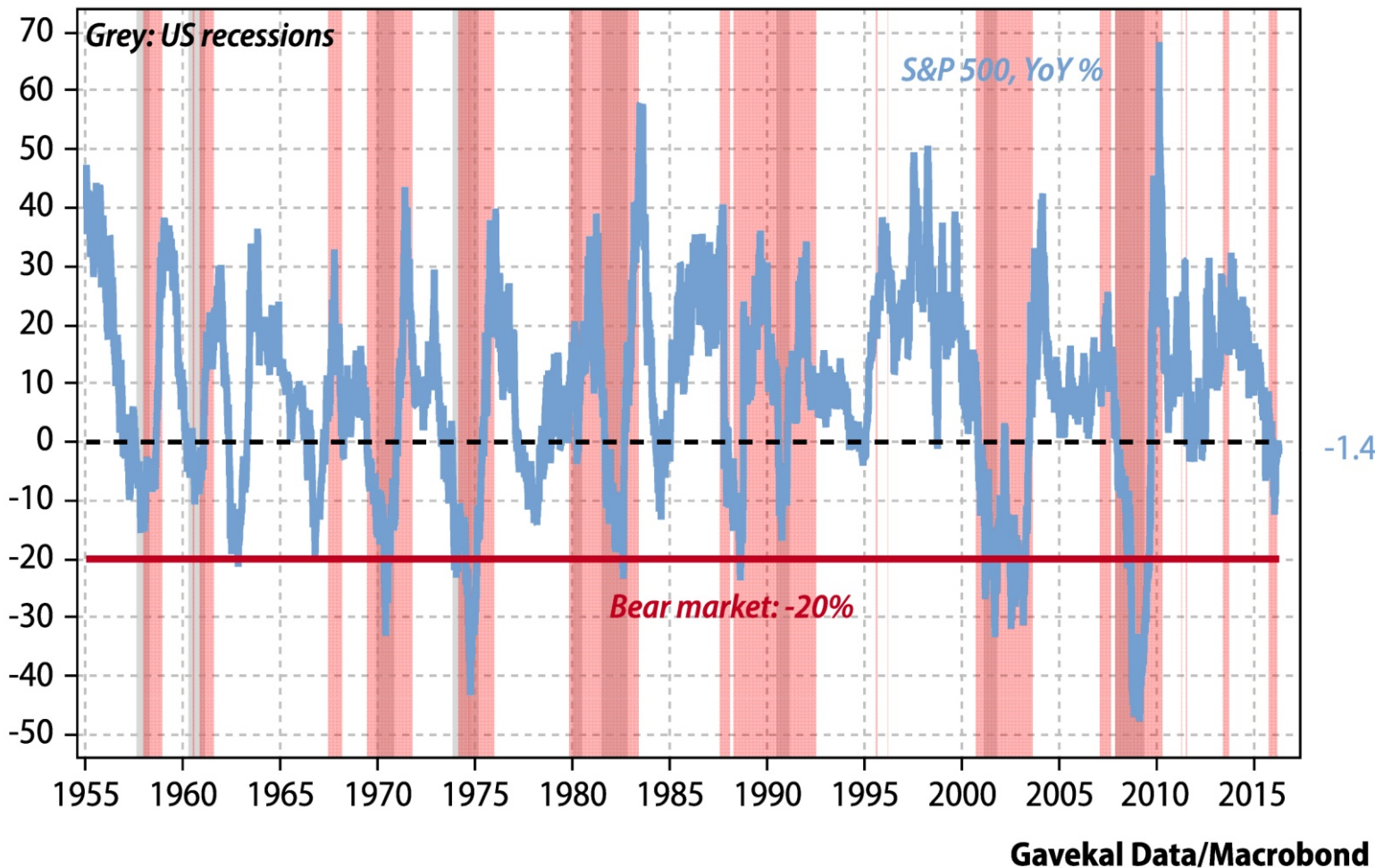
All the previous recessions in the chart have taken place when the graph was shaded pink, but of course not all the pink shaded periods have been followed by a recessions: 1966 and 2012 are examples of this.

We have had a signal lately, but it could be cancelled soon, since BAA rates have been falling since February.

Equities, bear markets and Wicksell

Market rate too high above natural rate & bear markets

Pink: market rate > the natural rate by more than 170bp (slowdown/recessions to be expected)



All the bear markets, defined as a -20% YoY decline in the relevant index (1970, 1974, 1982, 1987, 2000-2003, and 2009) have happened at times when the market rate was too high versus the natural rate (shaded pink on the graph).

In October 2015 we entered a pink shaded period so the probability of moving into a genuine bear market is rising. Finding a hedge for equities is thus becoming more and more important.

The four quadrants, Wicksellian spread, and portfolio diversification

By using the Wicksellian spread I can determine whether or not we will have an accelerating inflation rate one year later or not.

Similarly, by using the WS, without any lag this time, I can determine whether we will have economic growth, a slowdown or a recession.

This allows me to “map” where growth and inflation were *in the past* and where they are *now*, on a real-time basis.

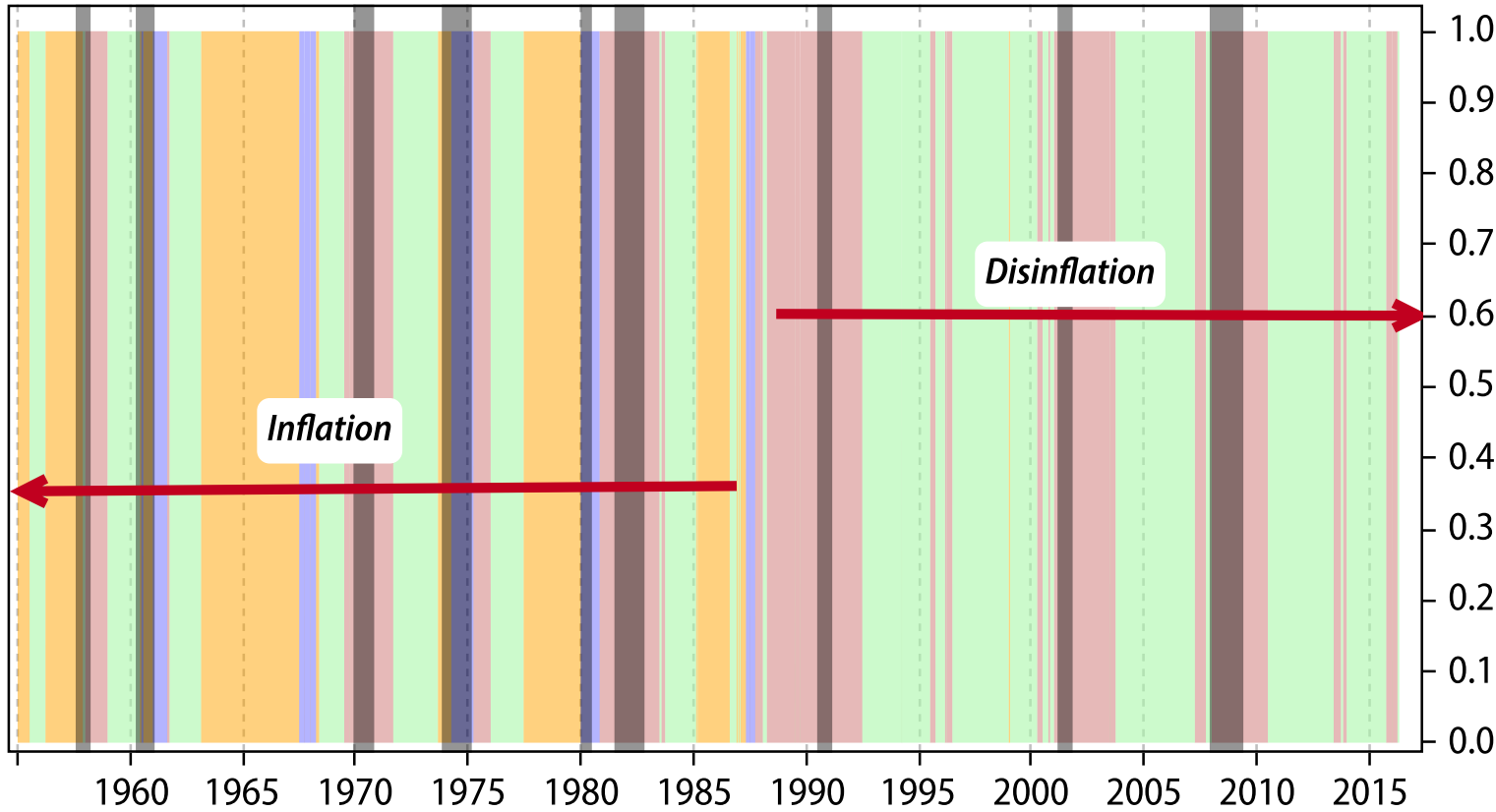
This implies that I can measure if we are right now in an inflationary boom, an inflationary bust, a disinflationary boom or a disinflationary bust.

On the next pages , I show the graph of where in the four quadrants we have been at any given moment since 1955.

And this graph allows me to offer a computed result of which asset to use at any given point in time, and where we are in term of the inflation vs disinflation and growth vs recessions debates.

Mapping the four quadrants

Four quadrants and US economic history



- US recessions
- Inflationary growth (rhs)
- Disinflationary bust (rhs)
- Inflationary bust (rhs)
- Disinflationary growth (rhs)

Gavekal Data/Macrobond

Inflationary booms are coloured in yellow; inflationary busts are blue; disinflationary booms are green; disinflationary busts are red.

All US recessions (shaded grey) have taken place either in a red or in a blue period, as they should have.

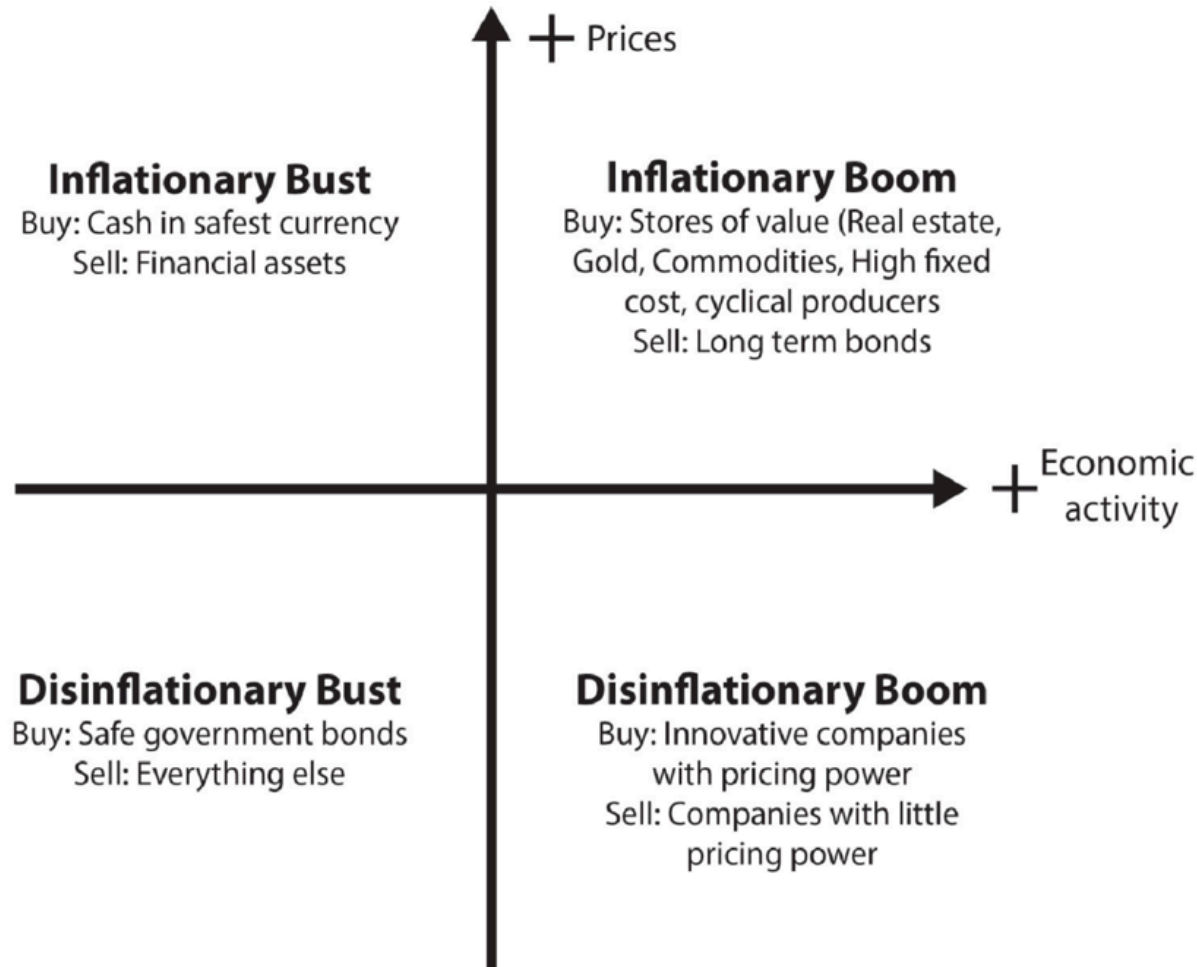
We have not had any genuine inflationary period since 1987, which confirms that we are in the bottom of the quadrant.

So it seems that we were in an inflationary period from 1955 to 1981-1986, and since then in a disinflationary one.

This change has massive implications for portfolios constructions.

Back to the four quadrants & portfolio construction

The Four Quadrants Framework



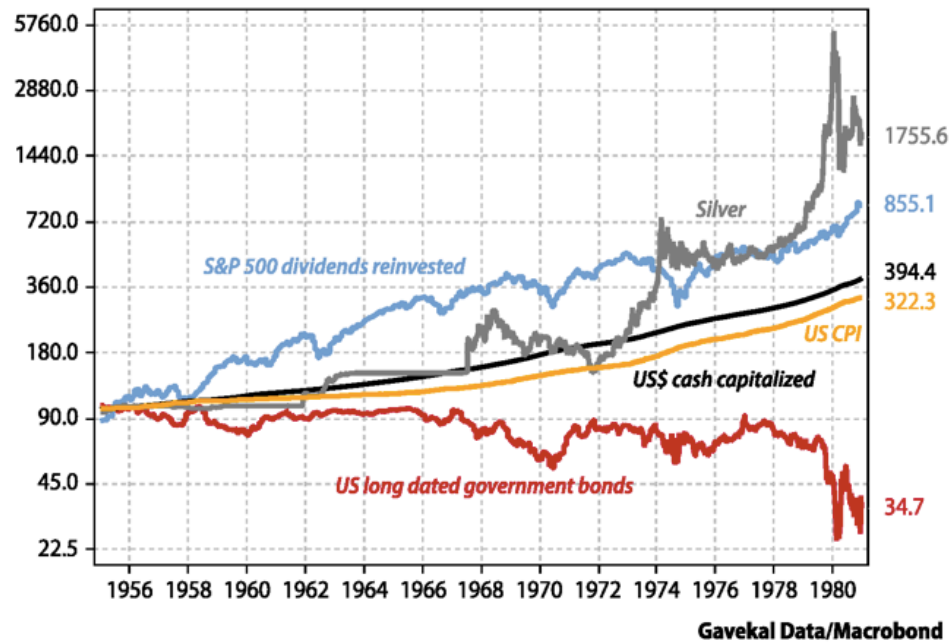
The first question that we have to answer is: where are we when it comes to the structural forces in the economy; at the top of the quadrant (structural inflation) or at the bottom? The answer is, at the bottom.

Then we have to ask: are we to the left (economic activity contracting in volume) or to the right (economic activity expanding)? The answer is, probably still to the right, but moving left.

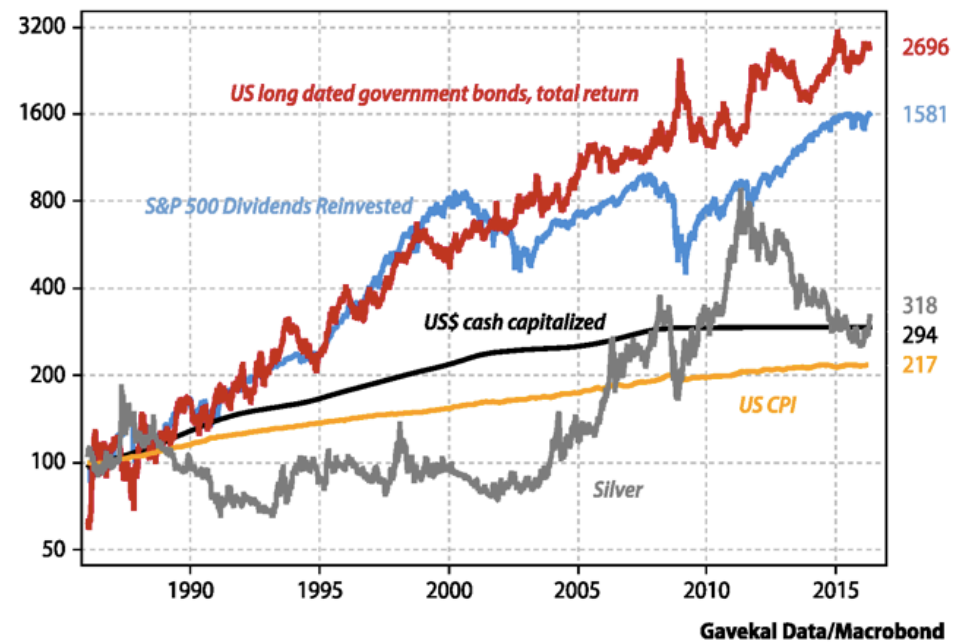
The conclusion is that it would be very dangerous *not* to hedge an equity portfolio with long dated bonds from now on.

Investable assets

The four investable assets in an inflationary period



The four investable assets in a disinflationary period



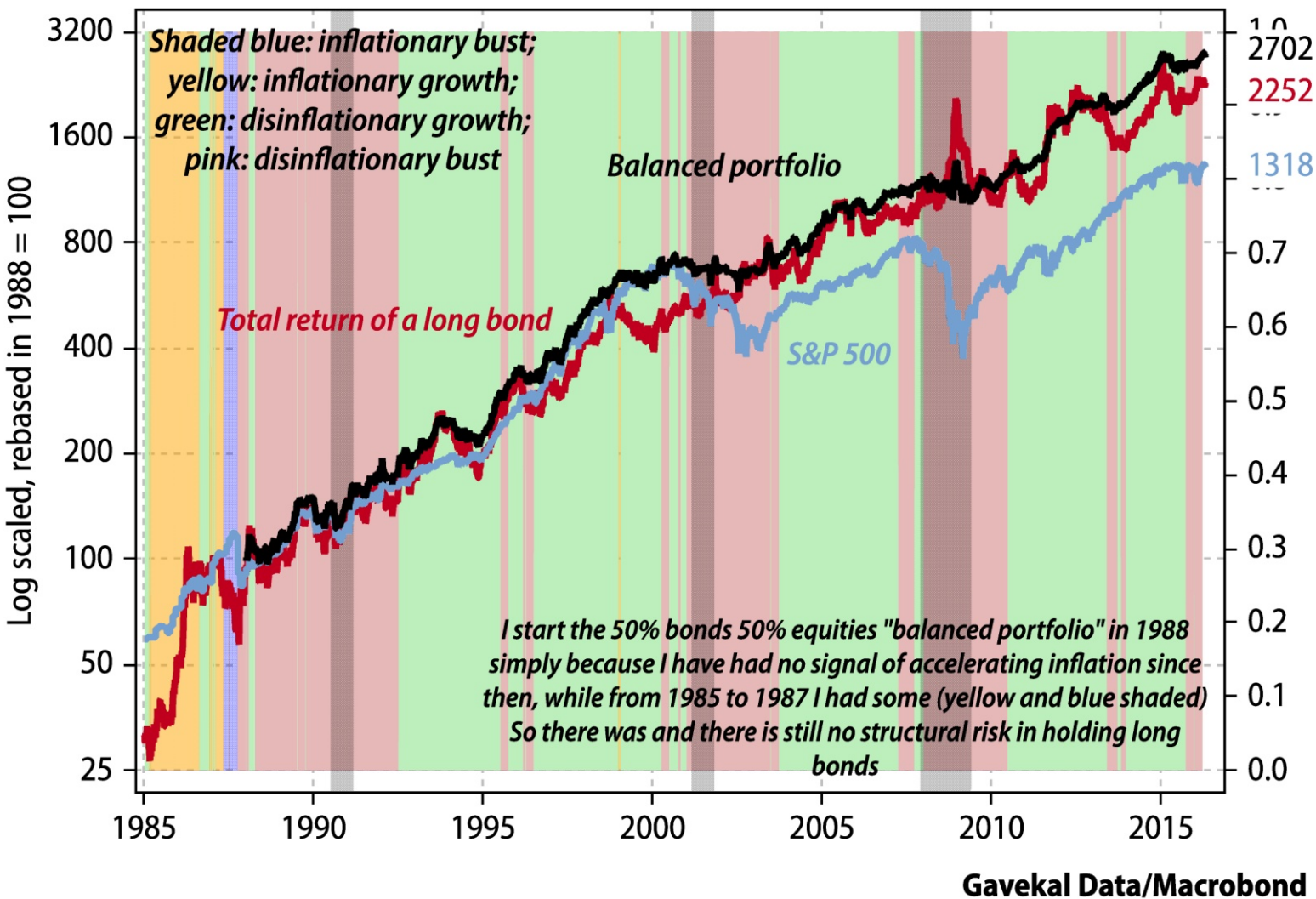
Let us assume that we have *only* four assets to invest in at any given point in time. The S&P 500 is proxy for efficiency value (tools), silver is a proxy for scarcity value (jewels), cash for the riskless assets and long dated bonds is a protection against falling prices.

If I am in an inflationary period such as 1955 to 1983 (left graph), one should be in scarcity value such as precious metals, real estate and in the shares of quoted companies “monetizing” price increases, such as Exxon. This strategy would have worked perfectly from 1955 to 1984 since the best performance was realized by silver, followed by the stock market index. Bonds were literally destroyed.

In a disinflationary period such as from 1985 to today, the order of performance is 1) long dated bonds; 2) equities; 3) cash; 4) silver, barely beating the CPI. So what I should have done since 1988 was to maintain a portfolio in equities, diversifying into long bonds. Let’s look at the results.

A passive portfolio to play the bottom of the four quadrants

Four quadrants historically for the US economy and balanced portfolio



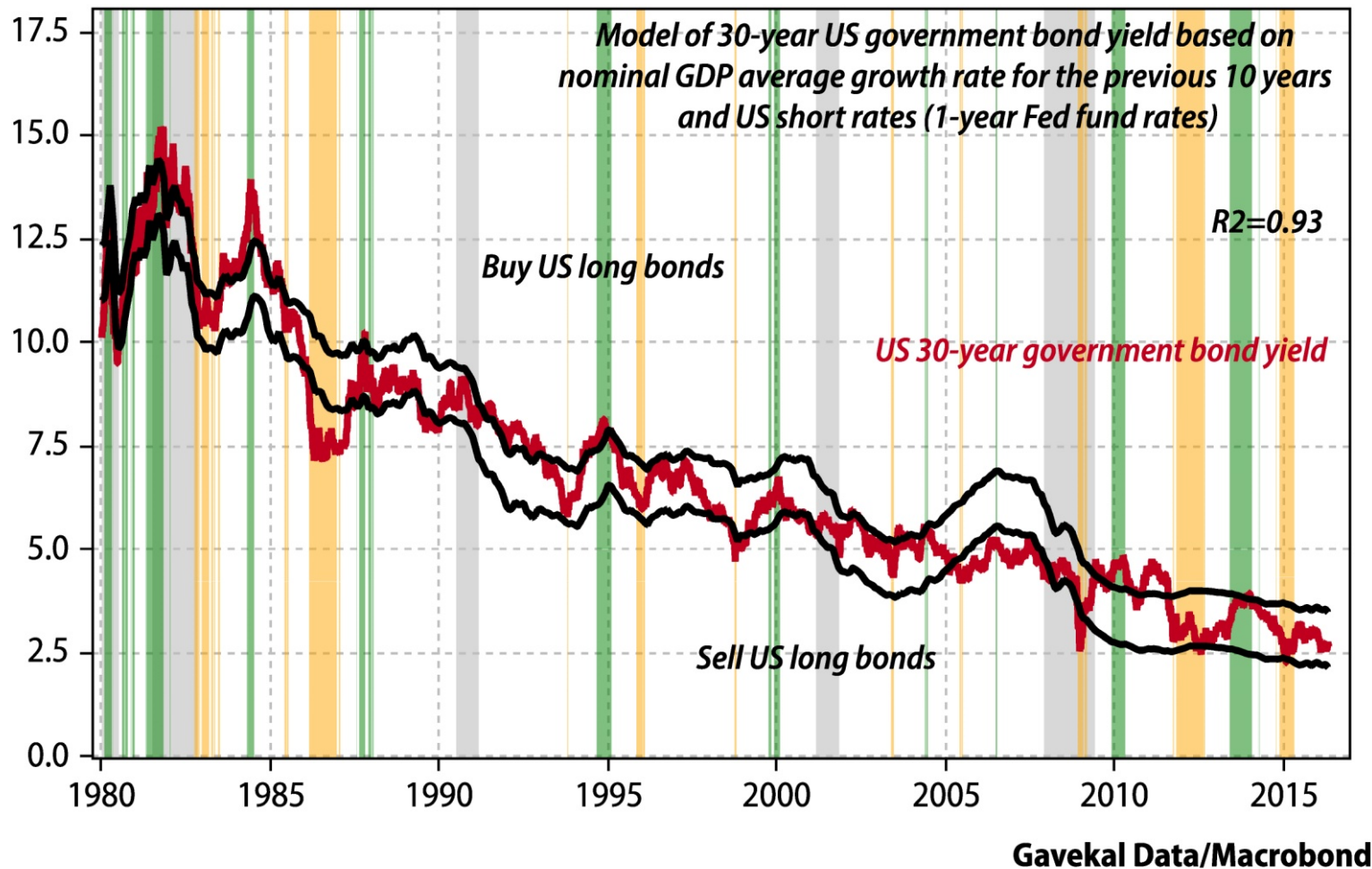
When facing a tactical asset allocation decision, I have the choice between a passive and an active strategy. Since 1988, I can say with confidence that we have been at the bottom of the four quadrants insofar as I have had no signal of a possible inflationary problem.

In such a world a *passive* portfolio means 50% in long bonds, 50% in equities—and it is still valid today. Rebased in 1988, such a portfolio would have gone from 100 to 2702, while a constant duration long US zero would have gone to 2252 and the S&P 500 dividends reinvested to 1318.

But aren't bonds overvalued?

Buying or selling US long bonds in the US

Shaded orange: bond overbought | shaded green: bond oversold | shaded grey: US recessions



Not really.

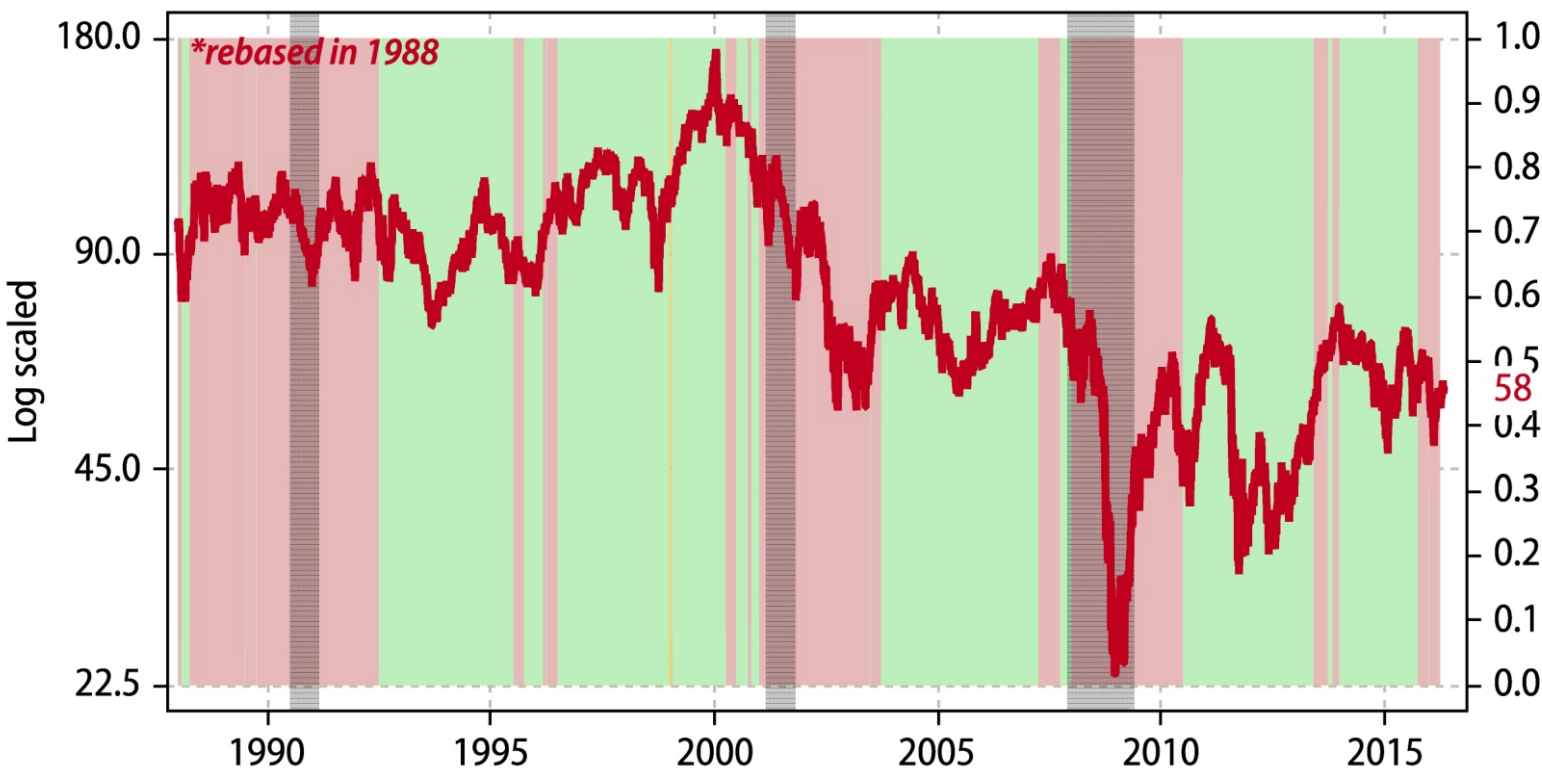
This is the model of the yields on 30-year US government bonds.

It has two components: the structural (10-year) growth rate of the nominal US GDP and short rates, for an R² of 0.936

If we have a recession, then one should expect the yield to fall towards the bottom of the valuation range or even lower. If we were to go from 2.66% to 2.17%. It would amount to a capital gain of 36%, which would be enough to cover some of the losses on the equity side.

An active portfolio to play the bottom of the four quadrants

An active approach to asset allocation using the four quadrants



- Ratio of total returns on shares vs US government long bonds (lhs)
- US recession
- Non-inflationary expansion: 100% invested in equities (rhs)
- Slowdown or recession coming: 100% invested in bonds (rhs)

Gavekal Data/Macrobond

Instead of being 50% in bonds, 50% in equities all the time, one could choose to be 100% in bonds when the graph is shaded red (no growth) and 100% in equities when the graph is shaded green.

Of course, we have had quite a few false signals.

But one should notice that shares on a total return basis have underperformed bonds by a solid 40% since 1988.

On this decision rule, since October 2015 one should have moved 100% into long dated US Government bonds

Since October 2015, shares are flat and the US bond market is up by 2%. So far so good

Part two:
The Structural Analysis

The Wicksellian structural analysis

In addition to his idea of the cycle being created by an abnormal spread between the natural and the market rate, Wicksell had a second insight.

For him, the effect created by abnormal spread was cumulative, which means that as long as the abnormal spread was on, the economy continued to diverge from its long term equilibrium and thus the only way to return to a normal growth pattern was to return to a normal spread.

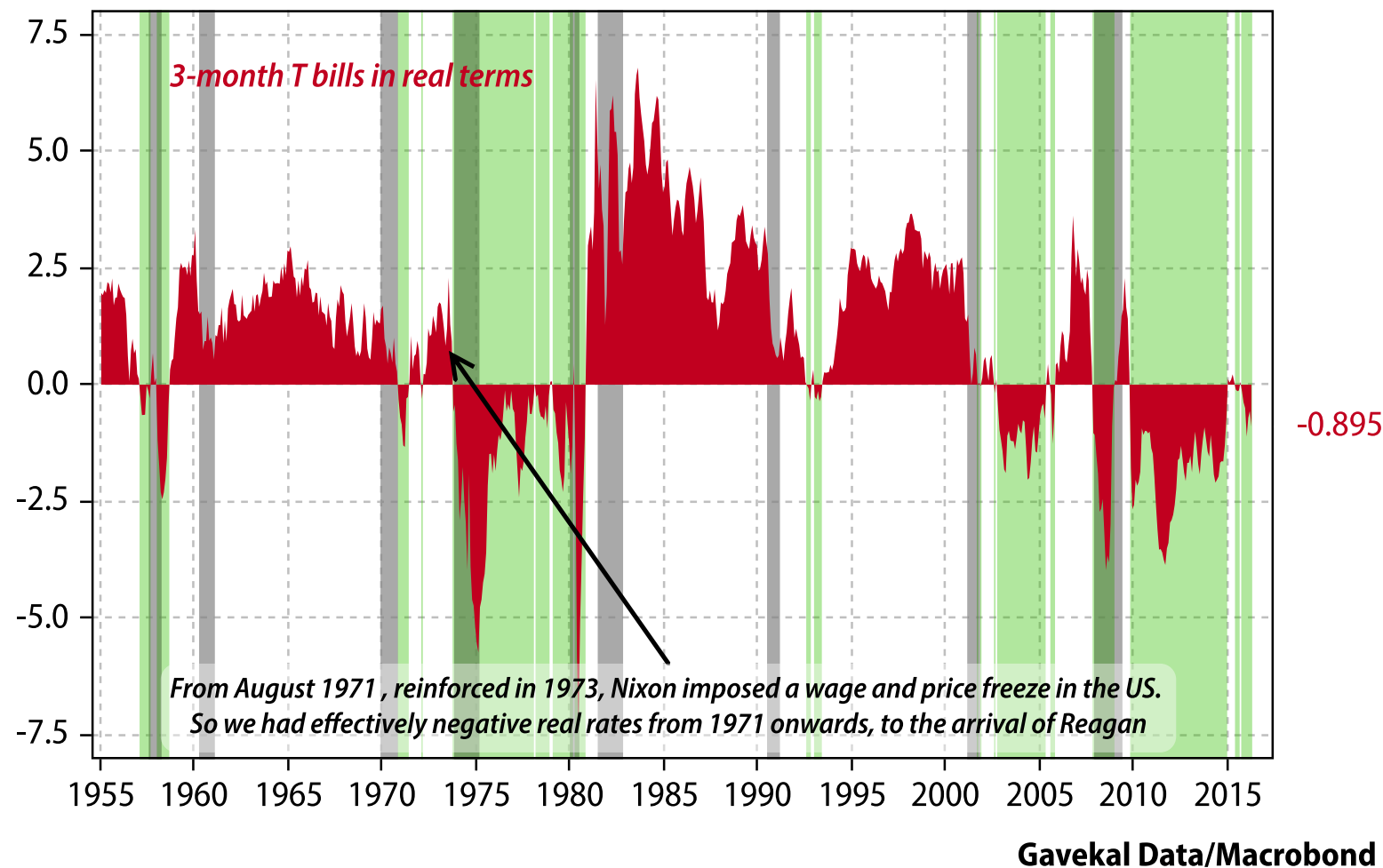
This, however, could be extraordinarily dangerous if a massive amount of debt had been incurred during the period in which we had an abnormally low market rate, since a return to a normal market rate would automatically lead to massive debt liquidations. And these liquidations would take place in a recession or a depression.

A new element has been introduced since Wicksell: central banks can control short rates since we left the Gold exchange standard a long time ago. So today we do not have two interest rates, but *three*: The natural rate, the market rate and the *administered rate*, controlled by central banks according to their beliefs. And this move to an administered rate at the short end of the yield curve is the main reason for the structural slowdown we are going through.

An history of real short rates in the US since 1955

Move to administered rate as a cause of the economy's structural decline

Grey: US recessions; green: negative real rates



The red area represents the arithmetical difference between 3-month T bill yields and the 12-month rate of change of the US CPI.

One can see that since 1955, we have had three periods of negative real rates:

1. A very short one at the end of the 1950s
2. From 1970 to 1980
3. Since 2002

These periods are shaded green on the graph.

The next question is: why would a central bank think that having a false price of money would be a *good thing*?

The Keynes vs Wicksell debate on short rates

Keynes strongly believed that the capitalist system needed constant interventions to perform better.

His analysis was very simple: if the economy was slowing down or not growing it was because of a “lack of final demand” created by an “excess of savings”.

To solve this problem, the government had to create an artificial demand (increase in government spending, not the focus of this presentation) and proceed euthanize the so-called called “rentier” who was saving too much and thus creating the lack of demand.

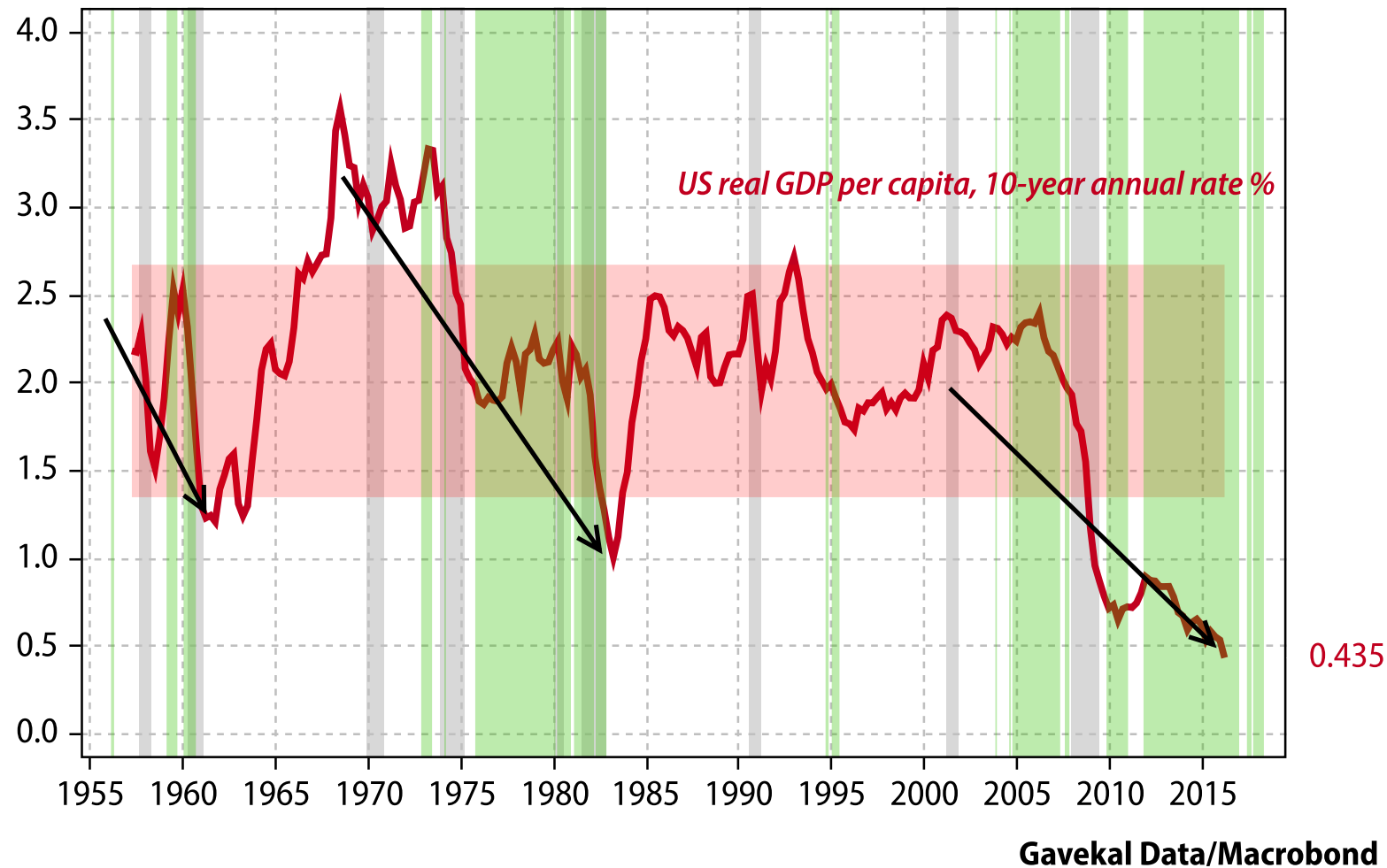
So negative real rates, according to the Keynesian *doxa*, should lead to strong economic activity.

Thus, what Keynes said was the exact opposite of Wicksell: if you maintain an artificially very low interest rate, growth will be stronger. Wicksell said that if you maintain the market rate on the natural rate, growth would then be at its optimum. Let's see who was right.

Negative real rates and GDP per capita

Negative real rates & real GDP per capita

Grey: US recessions; green: negative rates on 3-month T bills, pushed forward 2 years



To take into account the cumulative effect of bad policy, I show here the 10-year rate of change of the US GDP per capita.

The shaded green periods of negative real rates have been pushed forward by two years since it takes two years for the negative effects to start to appear.

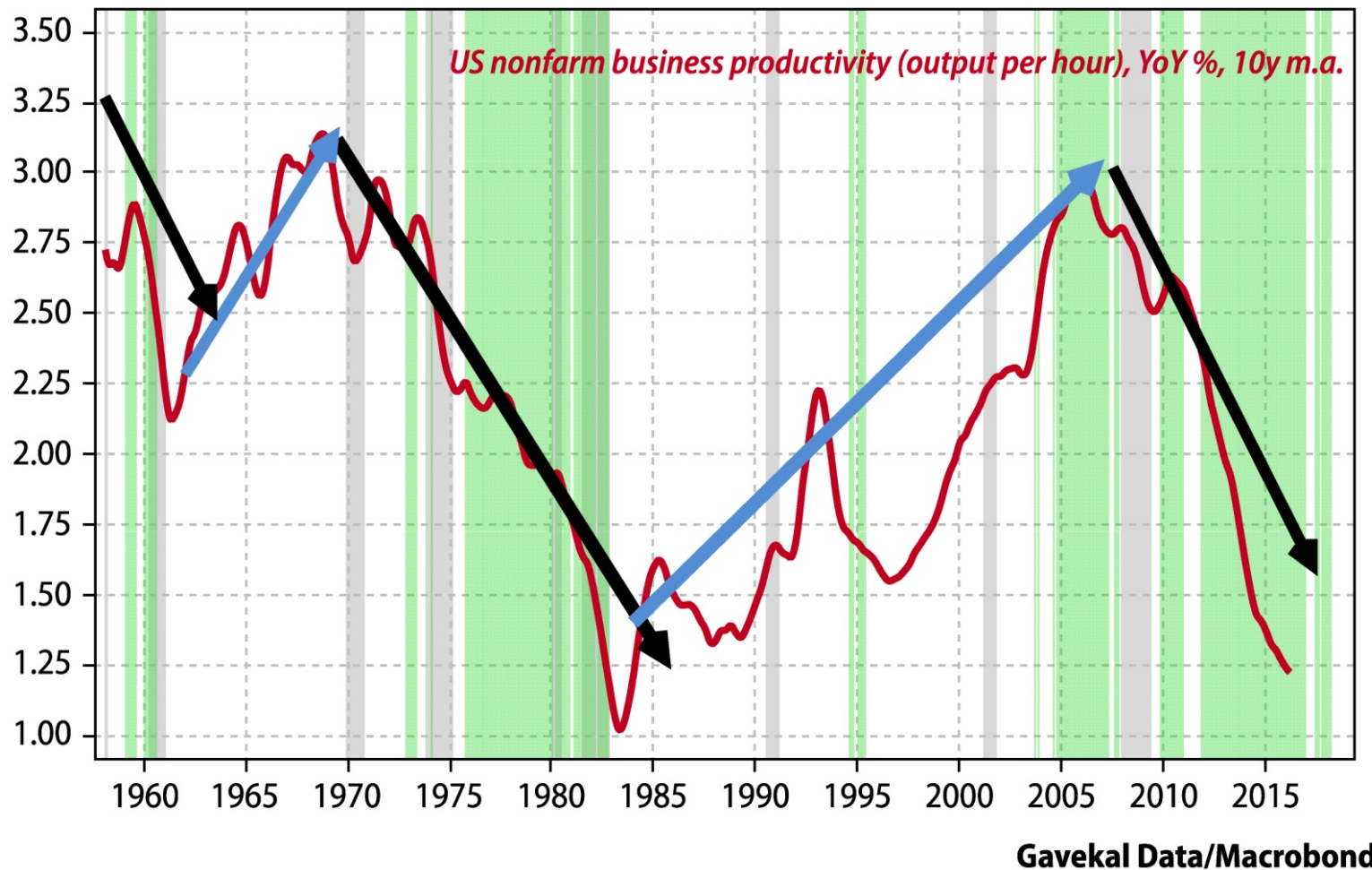
The results are striking: every sustained period of negative real rates has led to a collapse in the GDP per capita growth rate.

The next question is, of course: why?

Negative real rates lead to a collapse in productivity

Negative real rates & US productivity

Grey: US recessions; green: negative rates on 3-month T bills, pushed forward 2 years



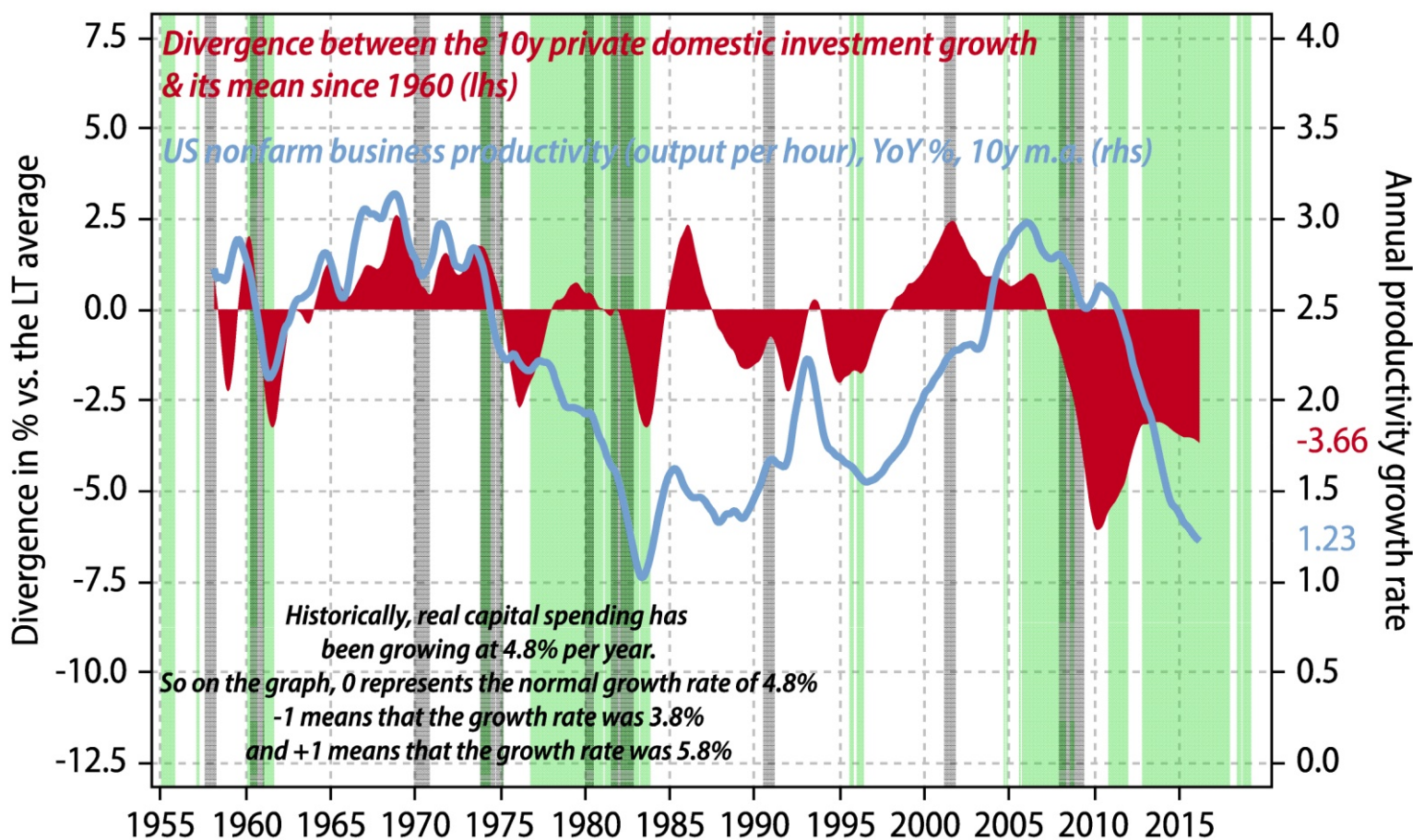
This graph again shows the 10-year moving average of the 12-month rate of change in US productivity.

Once again, we find that the negative real rates have led to a collapse of productivity and that this collapse continues as long as we have negative real rates. So the answer to the question at the end of the previous slide is: GDP per capita has collapsed because productivity has, which leaves me with a new question: why has productivity collapsed?

Productivity is falling because capital spending fell first

Capital spending, real rates and productivity

Grey: US recessions; green: negative rates on 3-month T bills, pushed forward 3 years



Gavekal Data/Macrobond

And once again, we make a remarkable economic discovery: productivity in the US is a function of the capital spending which took place in the years before.

If capital spending goes down, one year later or so productivity starts to go down.

So despite what every central banker seems to believe, negative real rates lead to a collapse in capital spending.

And I will explain on the next slide why this *unavoidable*.

Why low rates have to lead to a collapse in capital spending (I)

Thesis: if capital is allocated according to the ability to leverage, and to an abnormally low administered rate, then the economy will eventually move ex growth

Let us assume that in a given economy, the market rate and the natural rate are at the same level in a perfect Wicksellian equilibrium. This is another way of saying that the ROIC is equal to the ROS (rate of return on savings for the same level of risk).

Let us assume further that this rate is at 5%. Any investor with a ROIC lower than 5% will be denied access to capital and only the projects with 5% returns or higher will be financed. This will prevent at the same time misallocations of capital and excess leverage in the system. And the companies with a lower return will have to disappear over time through so-called creative destruction.

So the mechanism through which the Schumpeterian process of creative destruction takes place is the market rate being at the natural rate or above, which is something that Schumpeter did not see but Wicksell did.

Why low rates have to lead to a collapse in capital spending (II)

Now if the “administered” rate is at 2% vs the natural 5%, two things happen: First, the quantity of savings goes down and second, massive misallocations of capital follow. It pays to borrow at 2% to invest in an existing asset that has a ROIC of 4% and to leverage to do it to attain the magical 5%. As a result, the *prices* of existing assets go up but the *quantity* of new assets does not. Plenty of zombie companies start to borrow massively—not to build new assets but to prop up their shares prices or unearned dividends... Capital spending for new assets is crowded out, all the available money goes to pushing the prices of existing assets higher by using leverage. The resulting declines in capital spending lead to a decline in productivity, itself announcing a decline in GDP per capita, and the natural rate (the economic growth rate) starts *going down* to a point where even the borrowing at 2% cannot be serviced anymore, and we have a deflation depression *a la* Irving Fischer.

And this brings me to my conclusion.

Conclusion

Behaviour of the stock market when we have negative real rates

Negative real rates and structural bear markets

Grey: US recessions; green: negative rates on 3-month T bills



As long as we have negative real rates, the US stock market goes down or is flat, but the declines during recessions tend to be big.

The real question for the stock market is thus simple: are we about to enter a recession, or have we already entered one?

If the answer is yes, then the past is telling me that the US index will go down from 640 to 320 for a -50% decline at least.

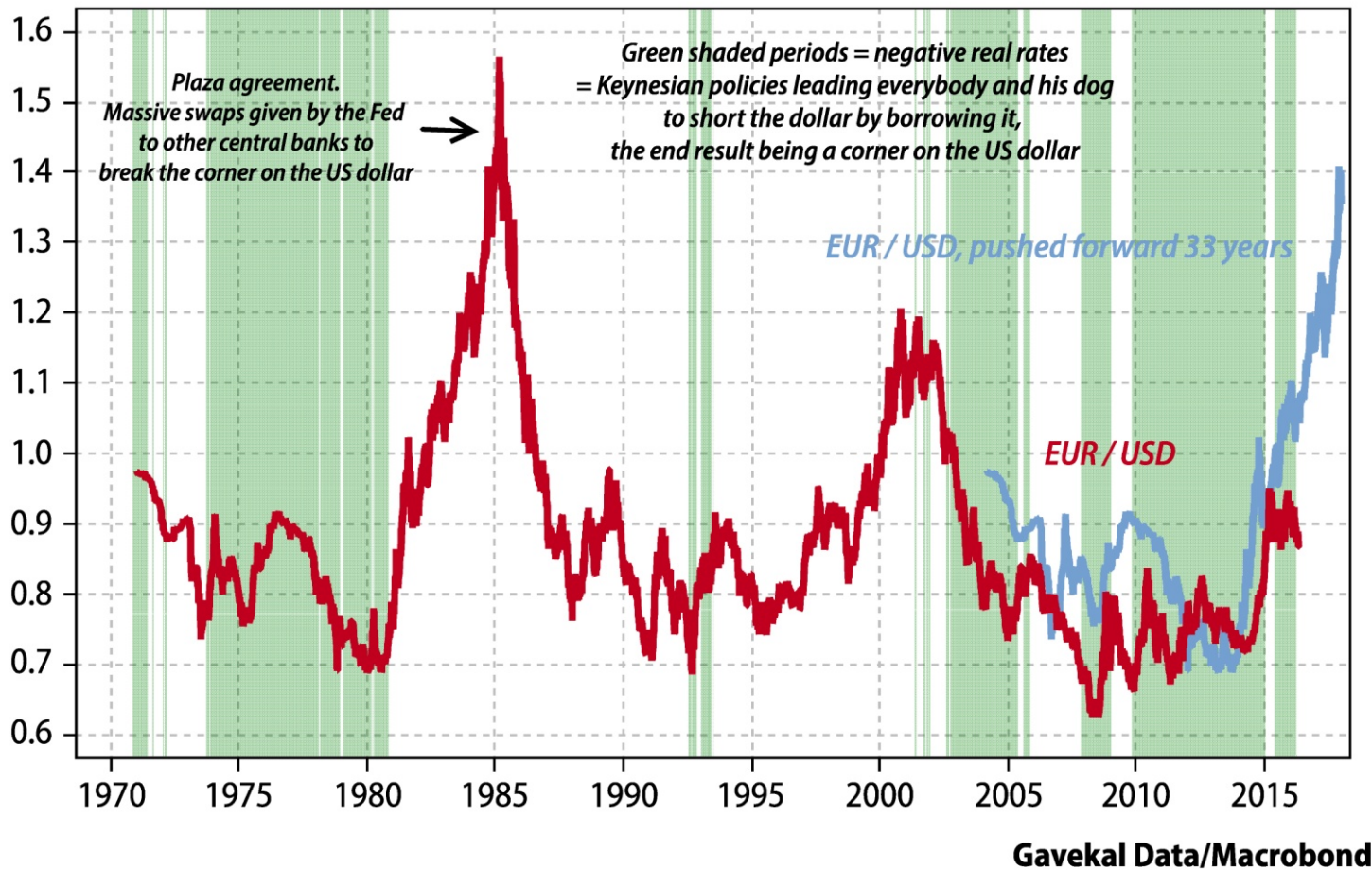
In this case, one could be certain that the CPI would become violently negative and that long bonds will go to a yield around 1%. A 50/50 portfolio would survive quite nicely.

But what about assets outside of the US?

The deflationary tendencies could be exacerbated by a rising US dollar

Will the same causes produce the same effects?

Shaded green: negative real rate in the US



In 1970-80 the Fed followed a policy of negative real rates. The US currency collapsed as everyone borrowed in dollars. Then in 1982-85 the biggest short covering panic in history unfolded.

Very similar policies were followed from 2002 until today. The BIS estimates that US\$10trn have been borrowed since 2000 and quite a few borrowing entities have no cash-flow in dollars.

Let us hope that this time is different, but the advice must be to avoid those who have borrowed dollars but have no means of paying back in the same currency.

If the dollar starts going up for reasons that nobody understands, then one can be certain that we will have an *Ursus Magnus*.

Contact and disclaimer

Thank you!

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