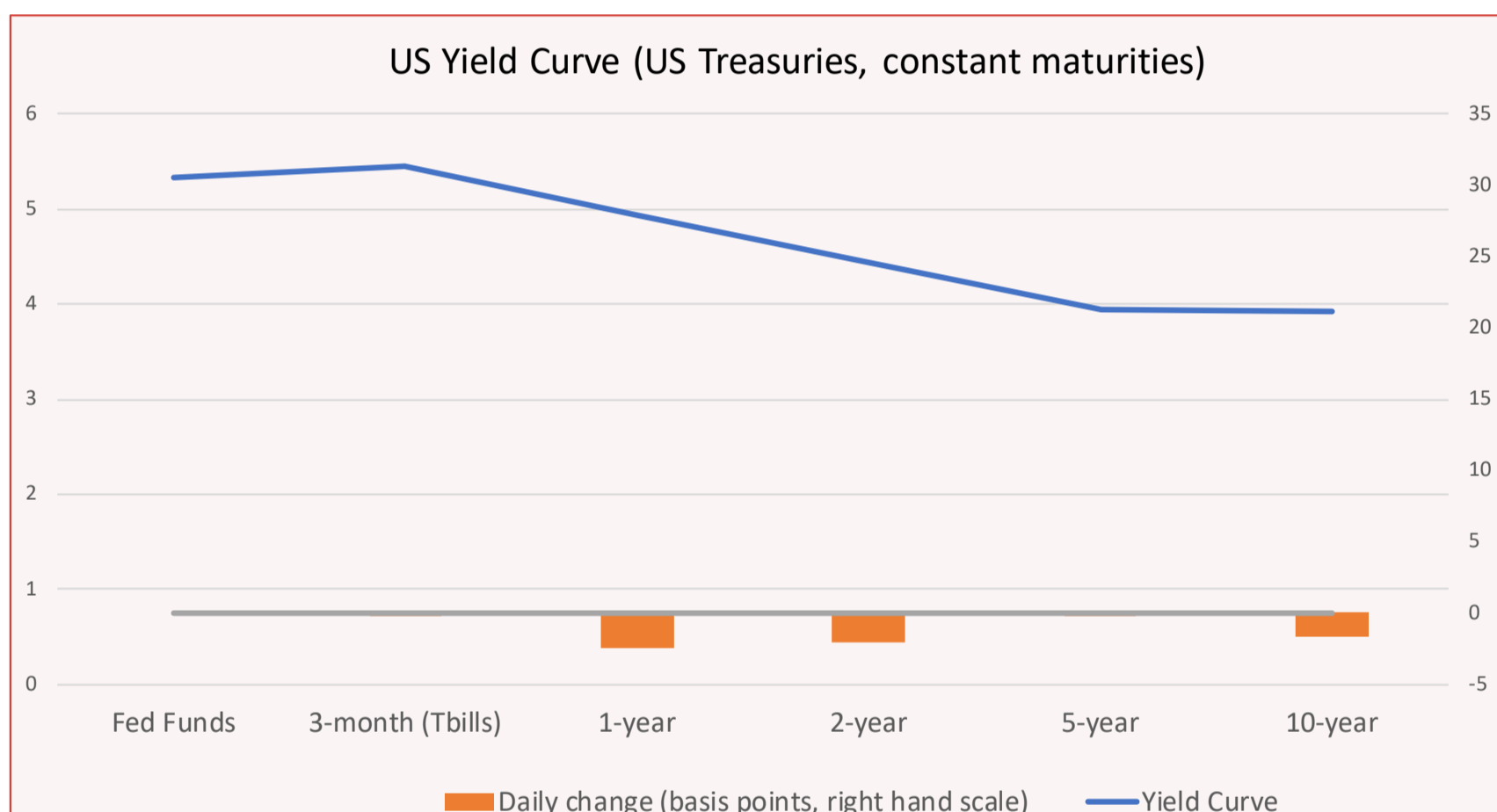


RISK PREMIUM INVEST

Daily analysis of the US Treasuries Market

19 December 2023

| | Fed Funds | 3-month (Tbills) | 1-year | 2-year | 5-year | 10-year |
|--------------------|-----------|------------------|--------|--------|--------|---------|
| Rates | 5.33 | 5.45 | 4.94 | 4.43 | 3.94 | 3.93 |
| Daily changes (bp) | 0 | 0 | -2 | -2 | 0 | -2 |



Source: Federal Reserve, H15. (with small tweaks to smooth out the impact of benchmarks changes).

Highlights:

- US Treasuries yields were broadly stable on Tuesday.
- Regarding expectations for Fed funds rates, the slight rise triggered by stronger-than-expected housing starts was quickly interrupted by a relatively dovish speech from Richmond Fed President Thomas Barkin.

PART I : Changes in expected Fed Funds Rates.

PART II : Risk premia contributions.

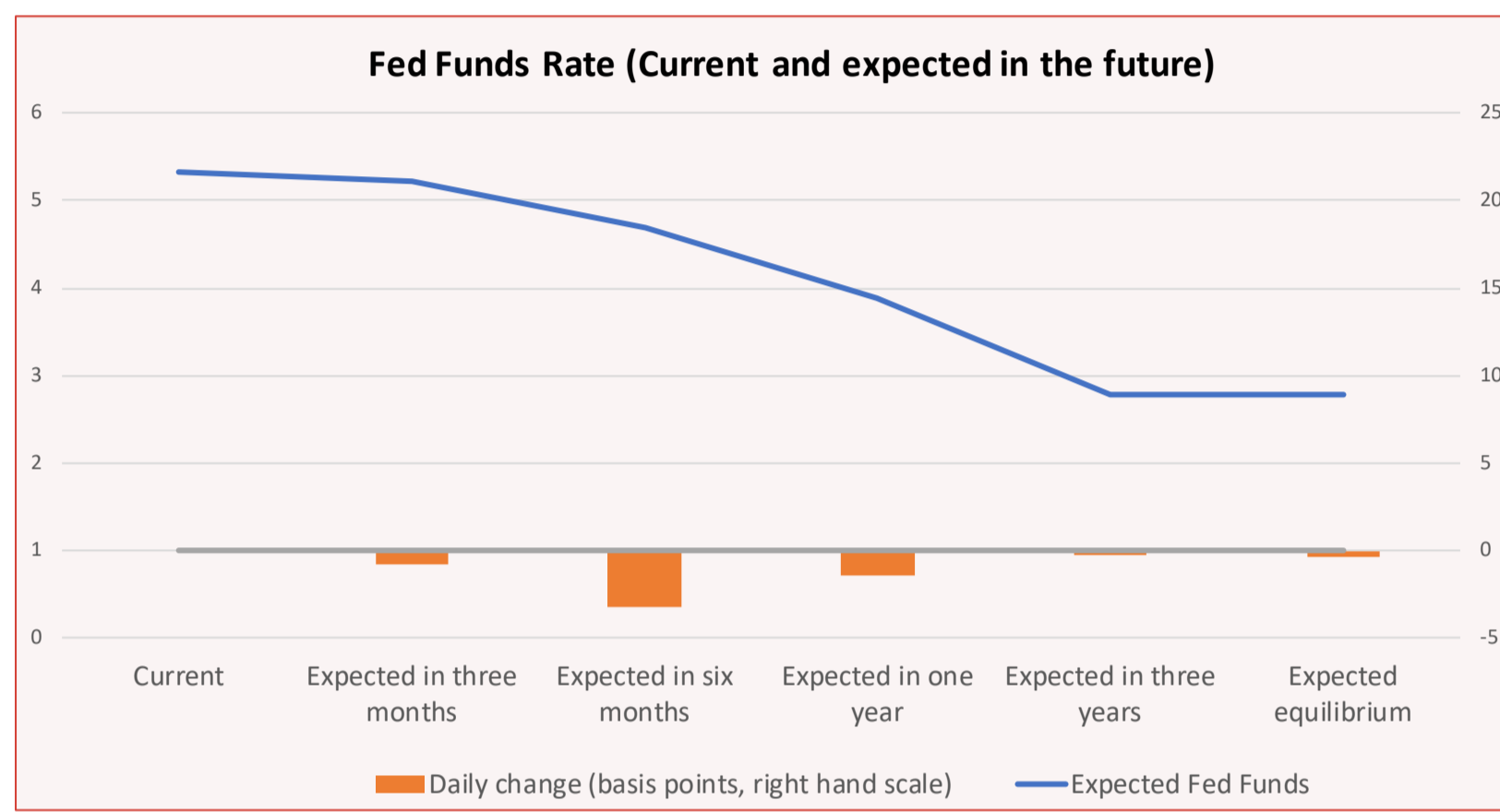
PART III : Methodological annex.

PART I : CHANGES IN EXPECTED FED FUNDS RATES

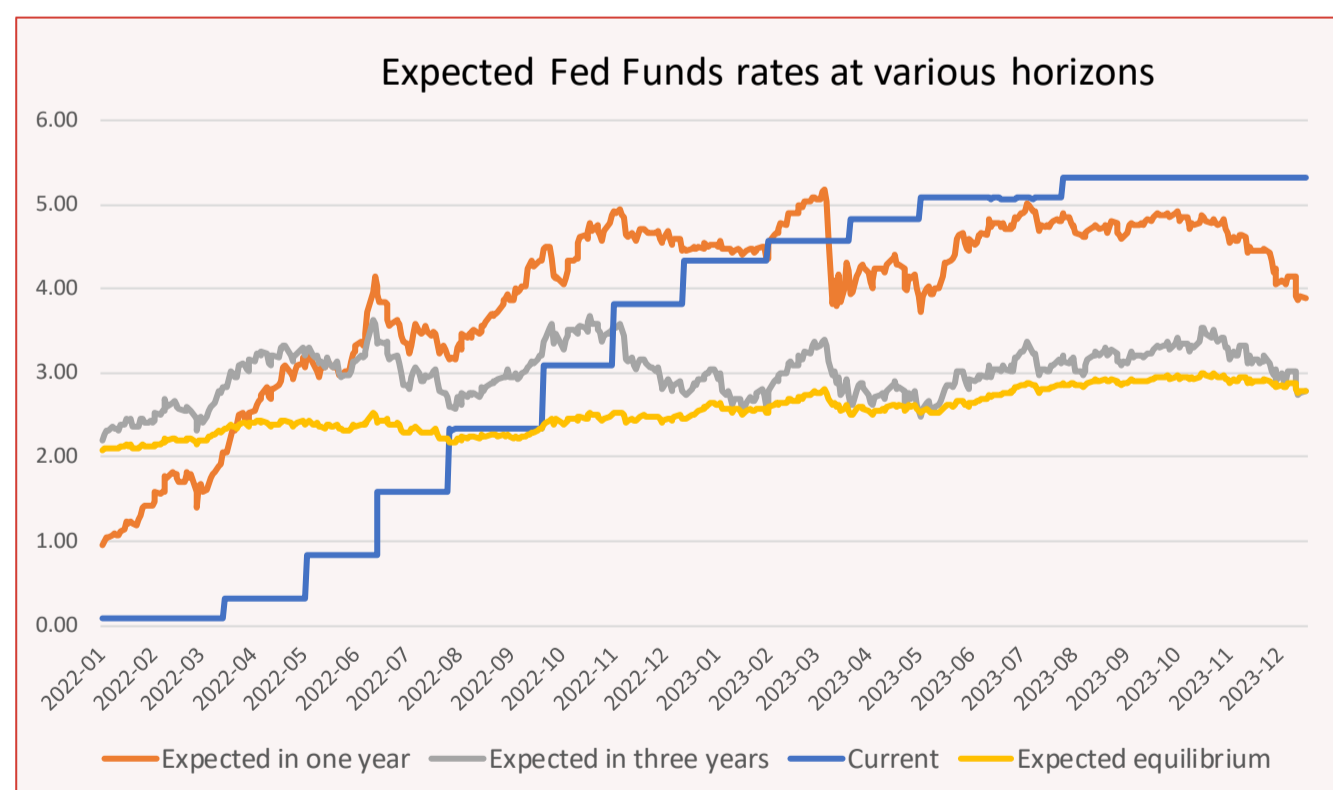
Fed funds futures provide a biased estimate of investors' true expectations, as they are influenced by varying risk premia. The Fed Funds rates expected by investors are here estimated by our proprietary model using both different surveys (the monthly "Consensus Economics" survey and the quarterly "Survey of Professional Forecasters") and the rich information contained in the yield curve (see the methodological annex). Estimates are revised when more recent surveys become available (on December 7, the results of the December "Consensus Economics" survey were introduced).

It was a calm session. Expectations for future Fed funds rates were slightly lower when stronger-than-expected housing starts sparked a slight rebound. But speaking a bit later, unlike most other Fed officials who have spoken out recently, Richmond Fed President Thomas Barkin did nothing to prevent investors from hoping for significant rate cuts next year. He stressed that "we are making good progress on inflation", adding "I think it just justifies balancing the perspective between the two sides of our mandate, inflation and employment". Expectations regarding future Fed funds rates over the next six months ended the day down a few basis points.

| | Current | Expected in three months | Expected in six months | Expected in one year | Expected in three years | Expected equilibrium |
|---------------------------|---------|--------------------------|------------------------|----------------------|-------------------------|----------------------|
| Fed Funds Rates | 5.33 | 5.21 | 4.68 | 3.88 | 2.78 | 2.79 |
| Daily changes (bp) | 0 | -1 | -3 | -1 | 0 | 0 |



At less than 3.90% in one year, expected Fed funds rates are much lower than the Fed's revised median forecast of 4.6%. Most Fed officials try to push back against these expectations, but they are not at odds with the Fed's economic projection: if monetary policy operates with significant lags – as stressed by Chairman Powell - and the neutral rate is 2.5% - as in the Fed's "dot plots" -, why would the Fed stop at 4.6% at the end of 2024 if it estimates that inflation will be only 2.1% a year later? Still, easing of financial conditions may constrain the Fed again in 2024. If the Fed's pivot continues to trigger a "melt-up" in financial markets, the economy may progressively reaccelerate and the room to cut rates could be sharply reduced.



Main market-moving news: 19 December 2023

US Macroeconomics

Housing starts number for November at 1.560 mln (Expected 1.360 mln; Prior 1.372 mln revised at 1.350 mln).

Building permits number for November at 1.460 mln (Expected 1.465 mln; Prior 1.498 mln).

Others

In a relatively dovish speech, Richmond Fed President Thomas Barkin said that "We're making good progress on inflation" adding "I think that just makes the case to balance the perspective between both sides of our mandate, inflation and employment."

Bank of Japan decided to maintain its ultra-loose policy settings, as was widely expected.

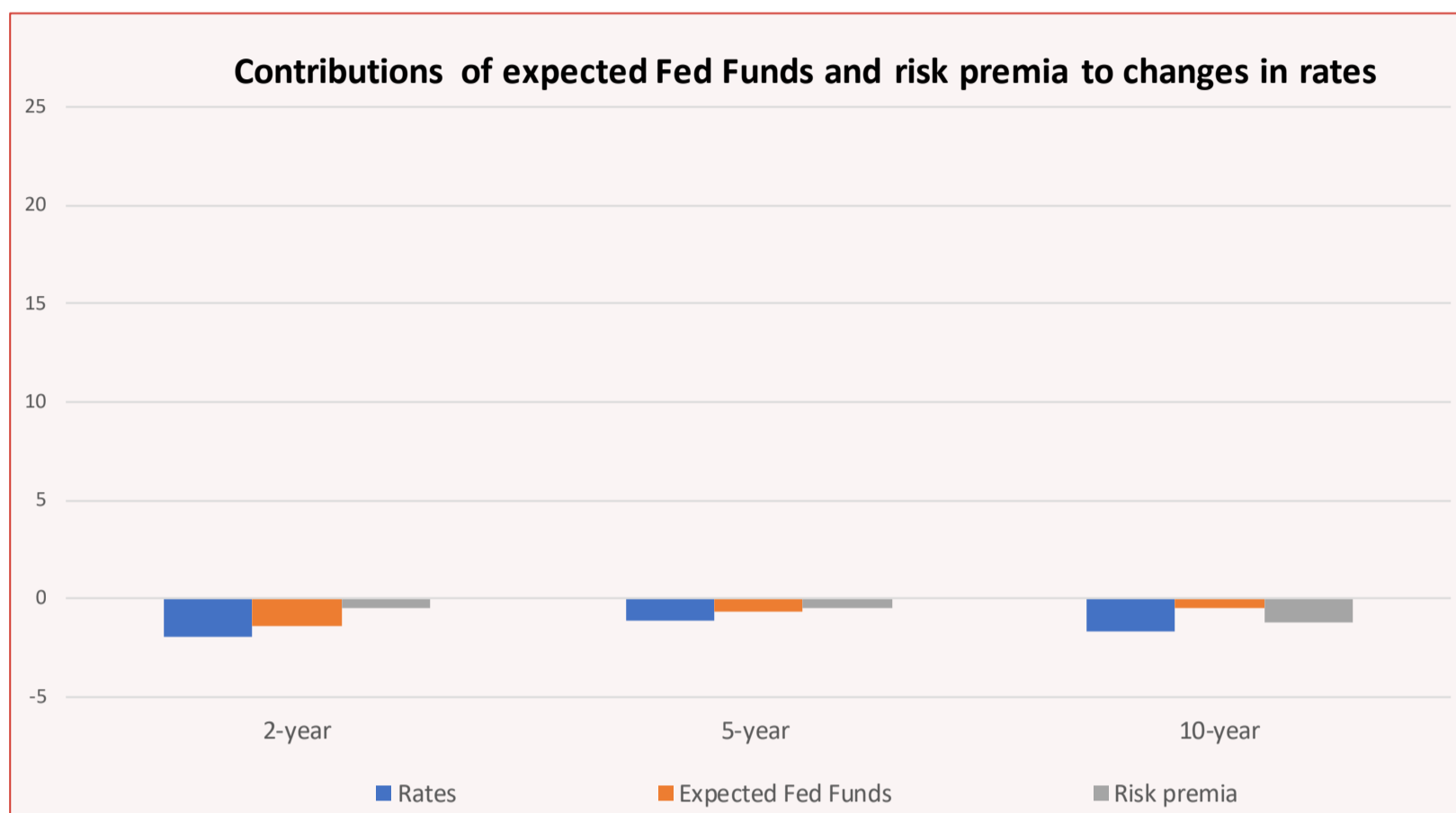
PART II : RISK PREMIA ANALYSIS

For US Treasuries, as for all financial assets, there are two key different types of risk premia:

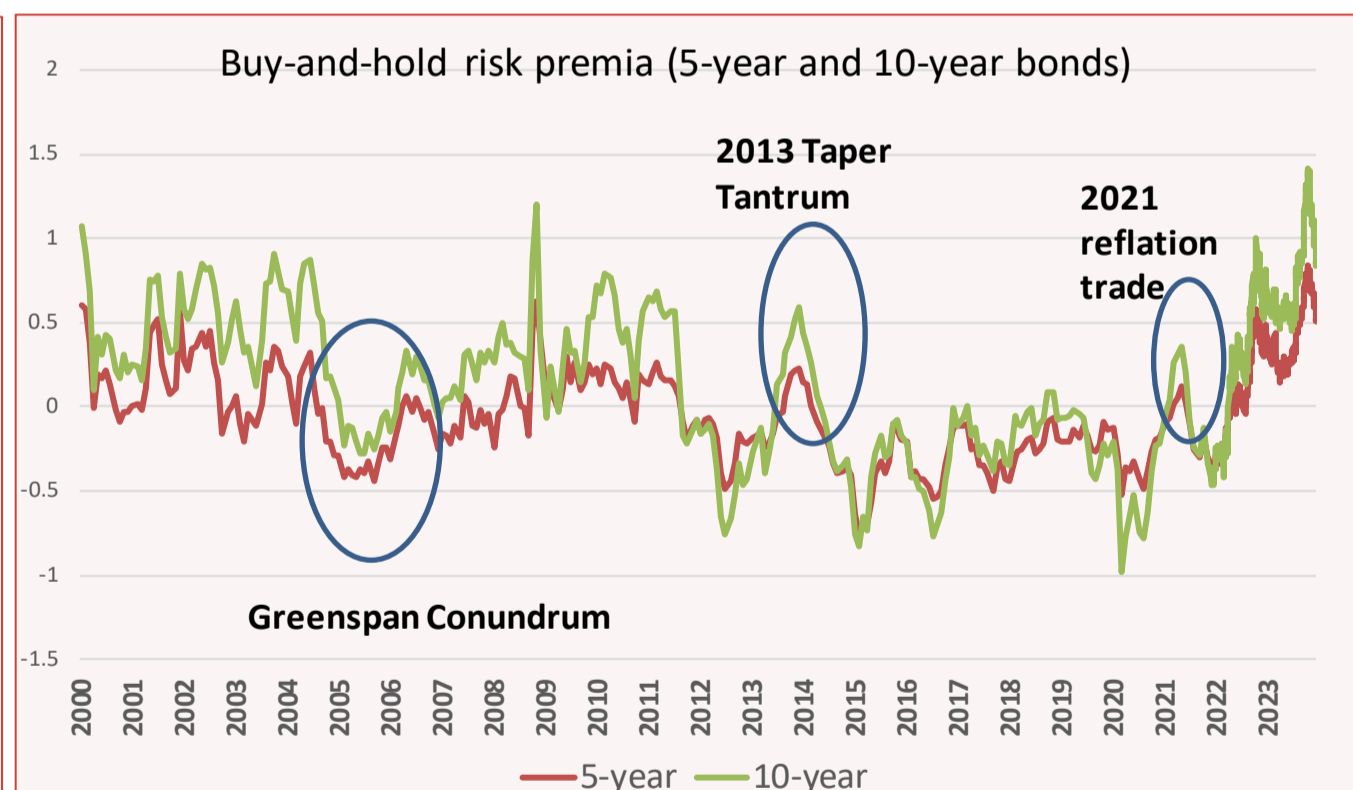
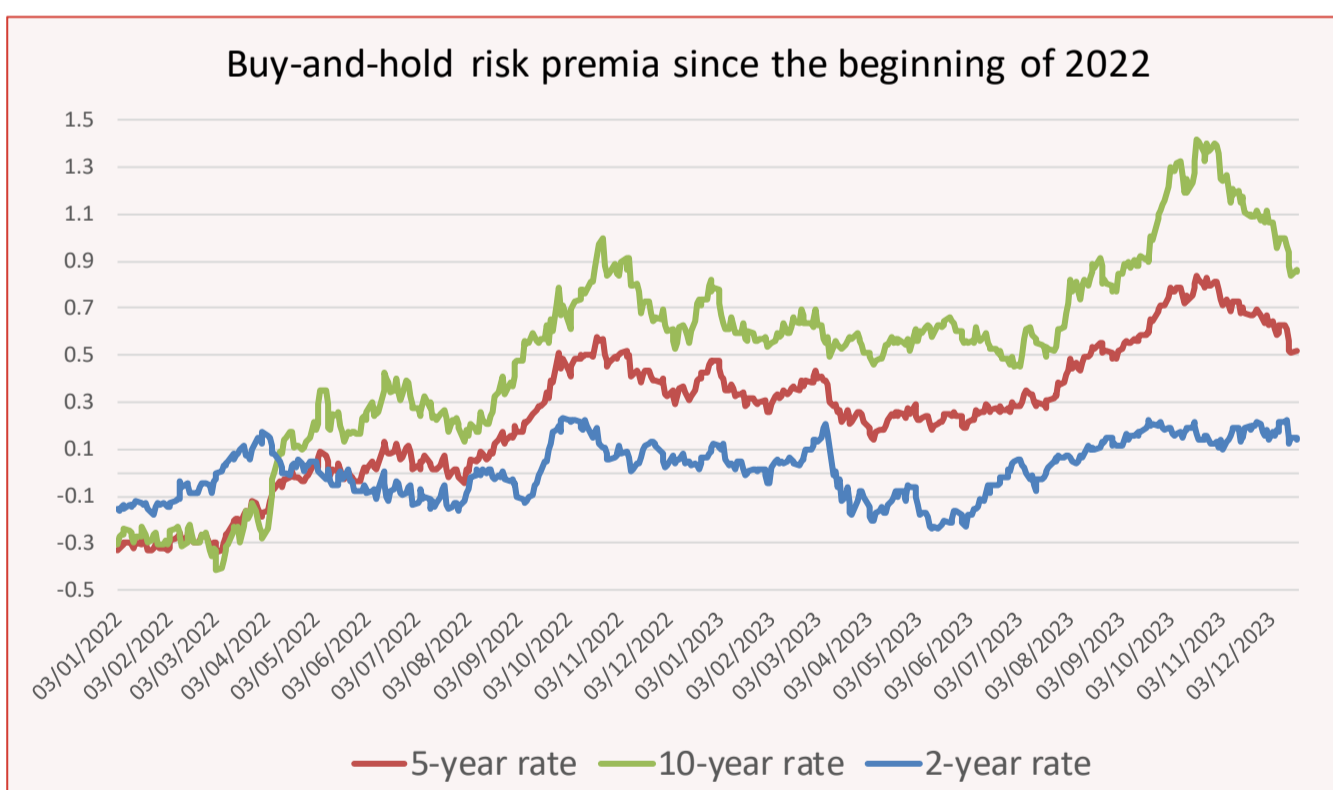
- The short-term **tactical risk premia**: How much excess returns investors require to hold various risky assets at their tactical horizon (which depends on investors, but is often around 3 months)? The tactical positions taken by investors relative to their benchmarks (“neutral”, “short”, “long”) depend on these tactical risk premia.
- The **“buy-and-hold” risk premia**. They are also called “term premium” in the academic literature. How much excess return **long-term investors** expect if they hold risky assets over an extended horizon? In the case of US Treasuries, the buy-and-hold risk premia are the differences between the zero-coupon rates of various maturities and the (annualized) expected return on a fund invested in Fed Funds over the same period.

We estimate both types of risk premia (see the methodological annex and our excel file) but we discuss here only the buy-and-hold risk premia.

Risk premia on US Treasuries were little changed on Tuesday.



| | 2-year | 5-year | 10-year |
|---------------------------------|-------------|-------------|-------------|
| Buy-and-hold risk premia | 0.14 | 0.51 | 0.85 |
| Daily changes (bp) | -1 | 0 | -1 |



From a long-term perspective, it appears that the buy-and-hold risk premia on long-term Treasuries are still relatively high (see the two graphs above), although around 50 basis point lower than their peak on October 20. This is also true for the short-term tactical risk premia that few people discuss, but play an important role in our analysis of the market (see the annex and last month’s analysis of the reasons why long-term rates rose sharply in October in www.riskpremium.com/wp-content/uploads/2023/10/10YT.pdf)

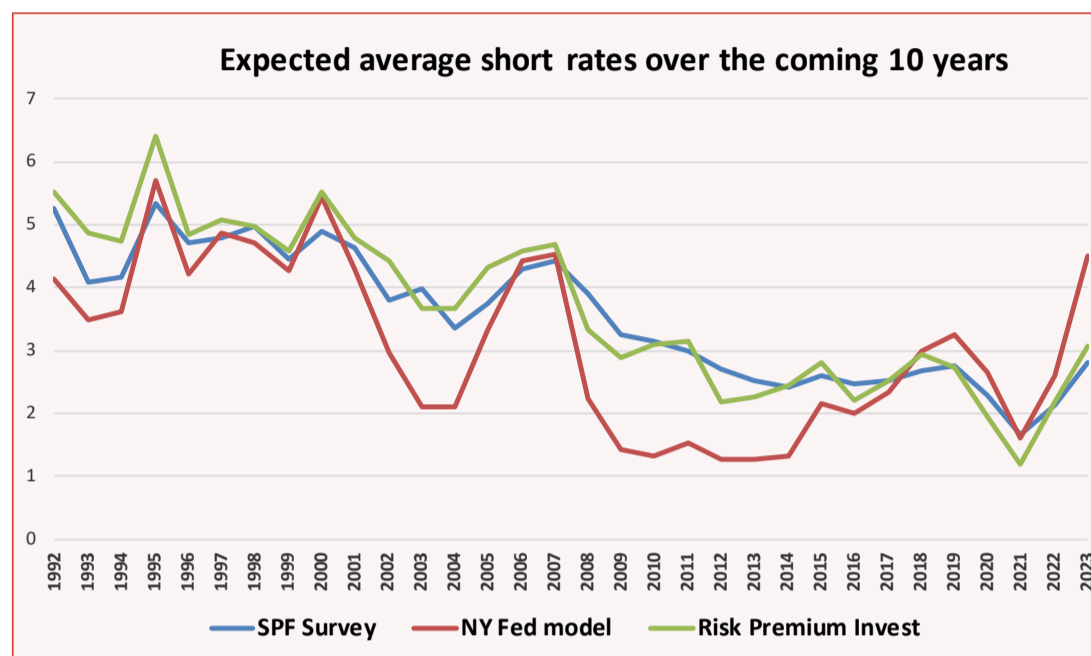
These high risk premia may not come as a surprise with some inflationary risks remaining, a rising public debt and often – but not always - a positive correlation between the price of long-term bonds and equities (i.e. a positive “beta”). Additionally, very high short-term rates may encourage investors to buy short durations bonds rather than long-term bonds. Yet, since the start of Fed’s Quantitative Easing in 2010 and until 2022, there have been few episodes where the buy-and-hold risk premia on 10-year US Treasuries were significantly positive. Generally, positive risk premia proved unsustainable and risk premia came back later on negative territory.

Looking forward, changing buy-and-hold risk premia could continue to introduce a lot of volatility in the US Treasuries market. On the one hand, the lessons of the last 10 years on US Treasuries as “safe haven” securities should not be forgotten. There may be a tendency for risk premia to decline sharply when inflationary risks recede (with lower short-term rates and, probably, the return of negative betas). On the other hand, the market will have in the future to absorb a larger supply with a large deficit to finance and the Fed cutting its holding of bonds.

PART III : METHODOLOGICAL ANNEX

There is an abundant academic literature trying to extract from the yield curve the monetary policy path expected by investors and the risk premia embedded in the observed US Treasuries rates.

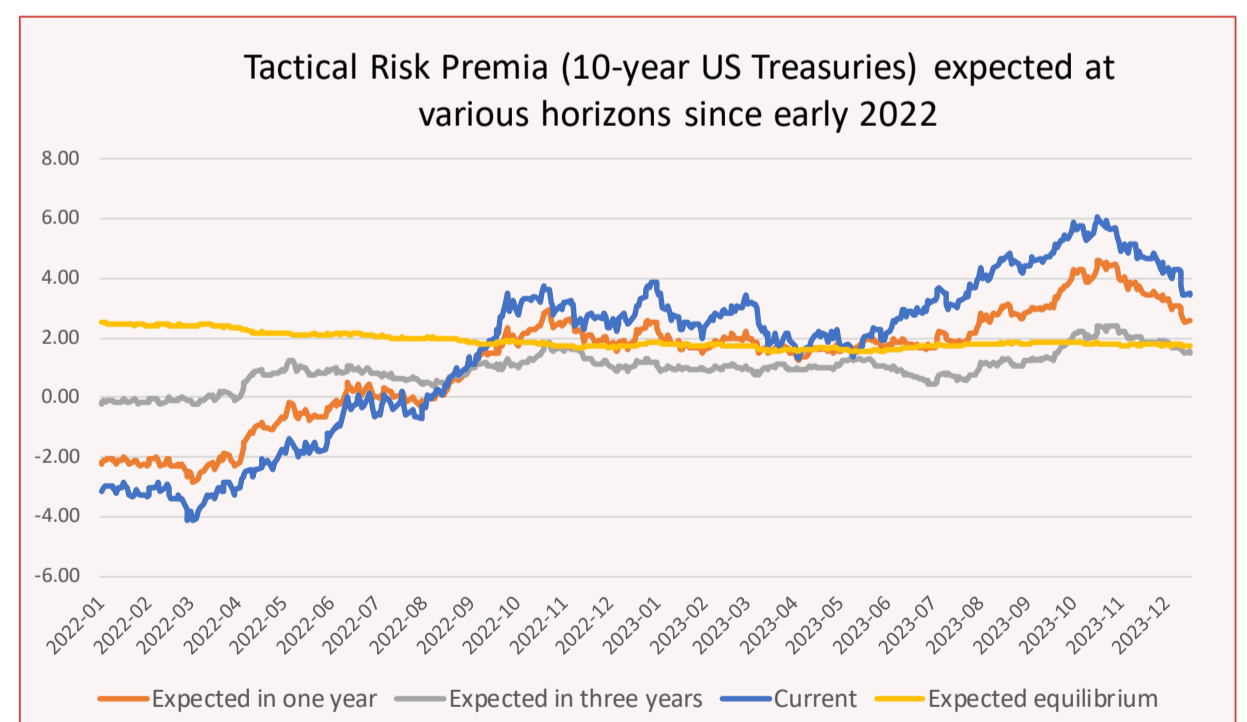
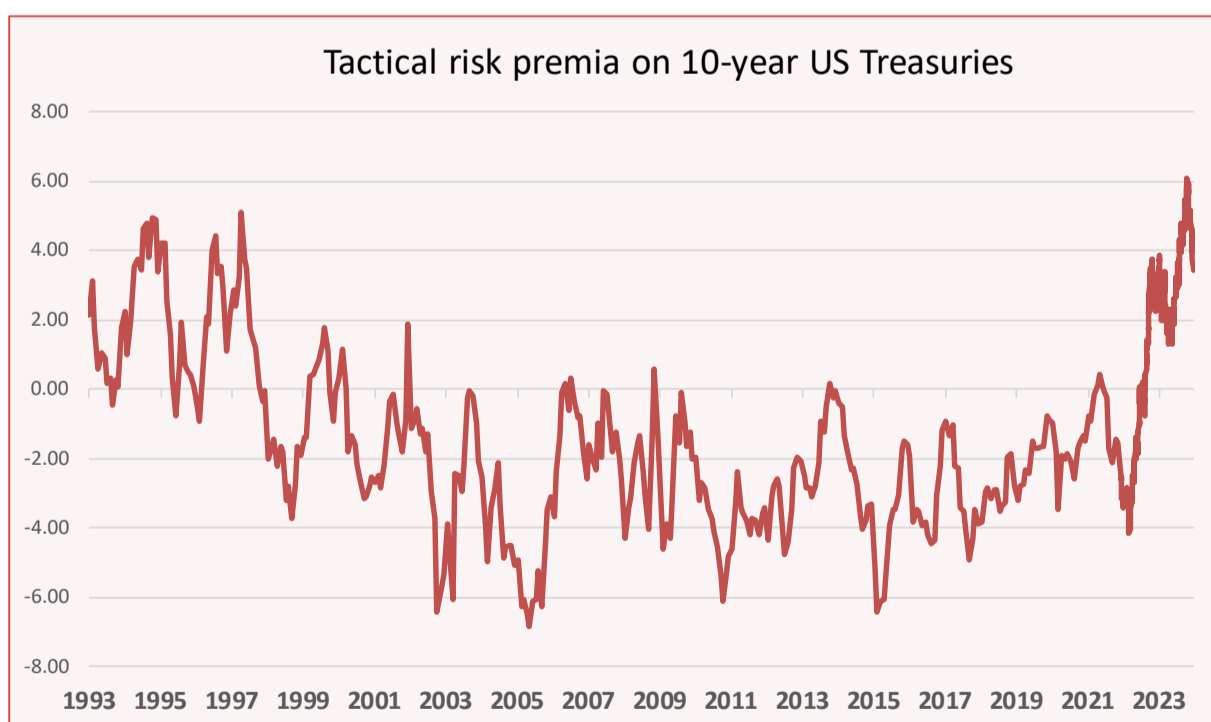
One of the best-known statistical models is the model developed by the Federal Reserve Bank of New-York. Their estimates are published daily on the NY Fed website (see www.newyorkfed.org/research/data_indicators/term-premia-tabs#/overview) and often discussed in newspapers. However, strangely enough, these estimates don't seem to be used by many markets practitioners when they discuss the shape of the yield curve and how it can be explained by short-rates expectations and risk premia. One of the reasons is that the results of the model are often quite unrealistic. To illustrate that observation, we can compare the average short rates expected by investors over the next 10 years according to this model with what professional forecasters expect (answers, once a year in February, to the well-regarded survey managed by the Federal Reserve Bank of Philadelphia. See www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters).



There are many reasons why the average investor's view priced into the market may differ somewhat from the answer given by professional forecasters, but the difference is often much too large to be realistic.

The truth is that the estimates published on the NY Fed website are rather imprecise. There is indeed a large academic literature stressing that the yield curve alone does not contain enough information to extract the investors' underlying views and that the results of surveys should be incorporated in the extraction process (see Kim, Don H., and Athanasios Orphanides, 2012, Term structure estimation with survey data on interest rate forecasts, Journal of Financial and Quantitative Analysis 47).

Our model belongs to this class of models that combine information coming from well-regarded surveys with the observed yield curve. But its key originality is elsewhere. Our model does not extract only the buy-and-hold risk premia, but it also extracts the important short-term tactical risk premia – current and expected in the future - required by investors on bonds of various maturities. These tactical risk premia are very important to understand the shape of the yield curve (see the references at the end of this page). One very important result of our work is that until the recent inflationary fears and the sharp increase in short-term rates these tactical risk premia have been on average negative since the end 90s (the graph on the left represents the annualized excess return expected by investors on 10-year Treasuries over the 3-month horizon).



That means that a long time before the Fed introduced QE there was already an insufficient supply of risk-free Treasuries: tactical positions were on average structurally short in this key market. These tactical risk premia have increased massively since fall 2022, and their future is very uncertain. To keep it simple, this rich information about tactical risk premia – current and expected in the future - is not discussed in this daily comment, but an excel file with the full information is available on our website.

To know more about our modelling of the yield curve, and the key insights it provides on how markets price risks:

For a non-academic description of our modelling, see <https://riskpremium.com/wp-content/uploads/2022/06/USTreasuries-Model-Guide.pdf>

For a short presentation of the indicators we publish and how they can be used to understand the US yield curve, see <https://riskpremium.com/wp-content/uploads/2022/07/RiskPremia-UST-guide-en.pdf>