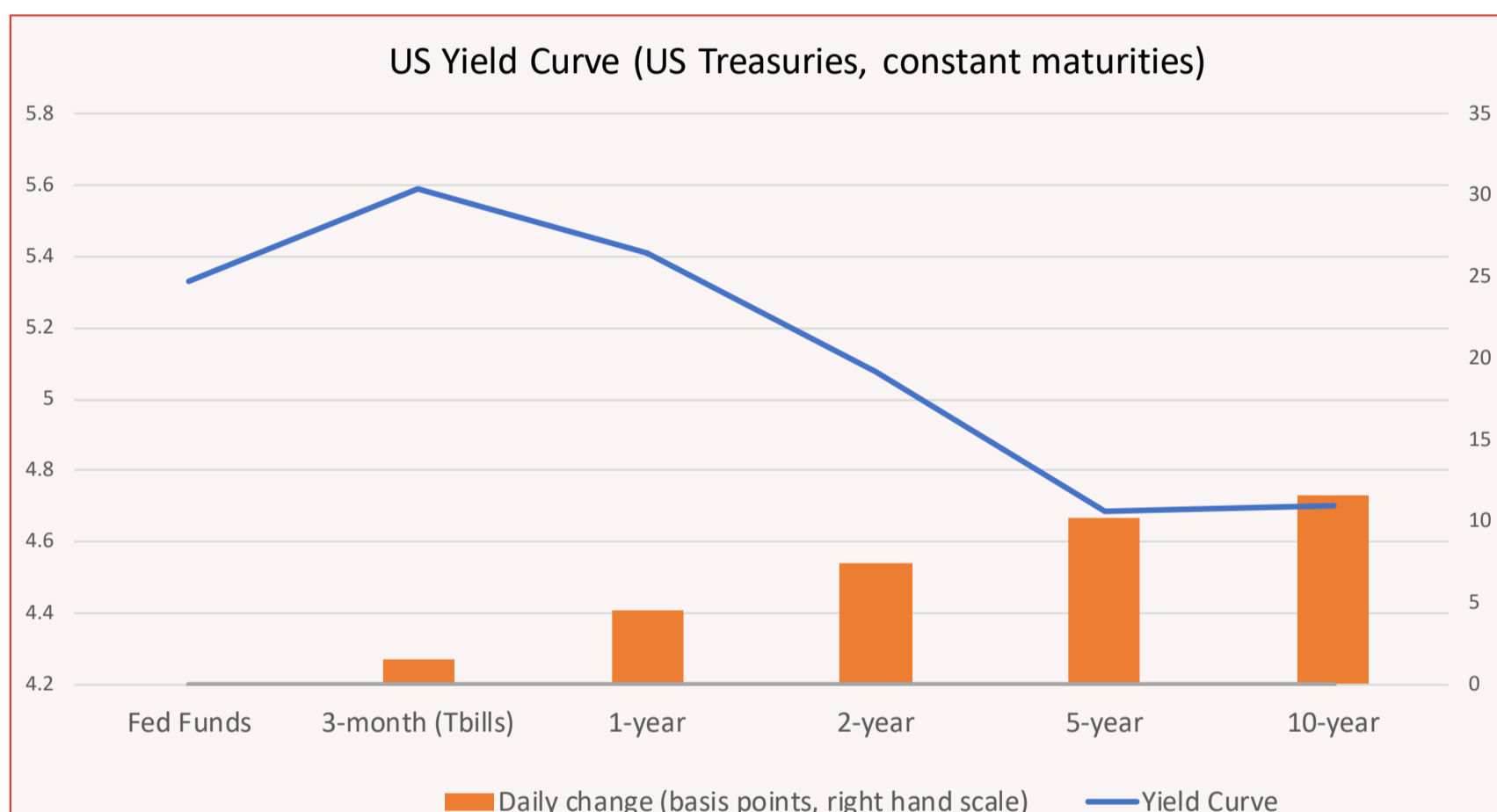


RISK PREMIUM INVEST

Daily analysis of the US Treasuries Market

12 October 2023

| | Fed Funds | 3-month (Tbills) | 1-year | 2-year | 5-year | 10-year |
|--------------------|-----------|------------------|--------|--------|--------|---------|
| Rates | 5.33 | 5.59 | 5.41 | 5.08 | 4.69 | 4.70 |
| Daily changes (bp) | 0 | 2 | 5 | 7 | 10 | 12 |



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

Highlights:

- US Treasuries yields rose significantly on Thursday.
- Expectations for future Fed fund rates appeared to overreact to slightly worse-than-expected inflation numbers, while a weak 30-year bond auction contributed to a rise in risk premia.

PART I : Changes in expected Fed Funds.

PART II : Risk premia contributions.

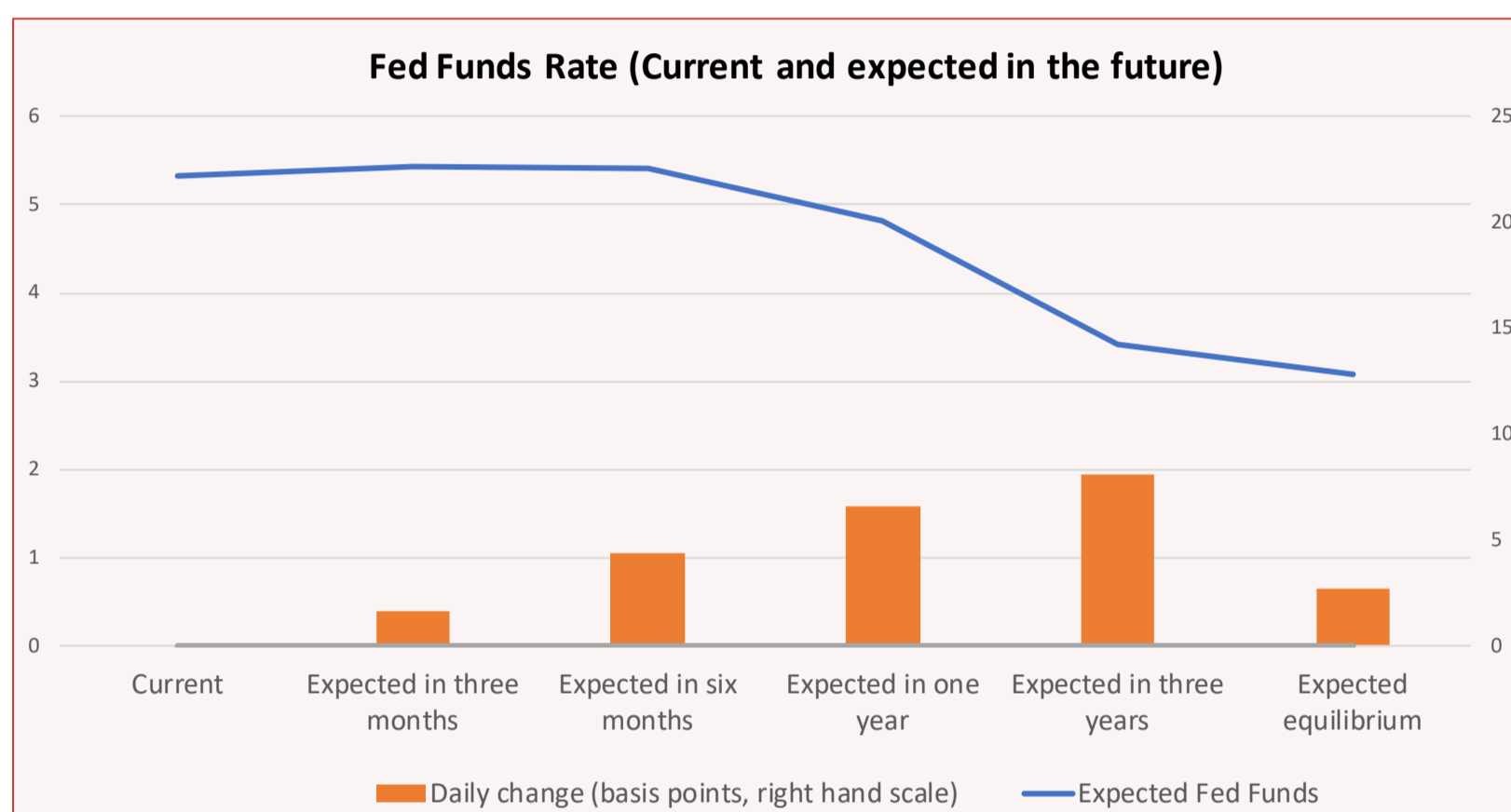
PART III : Methodological annex.

PART I : CHANGES IN EXPECTED FED FUNDS

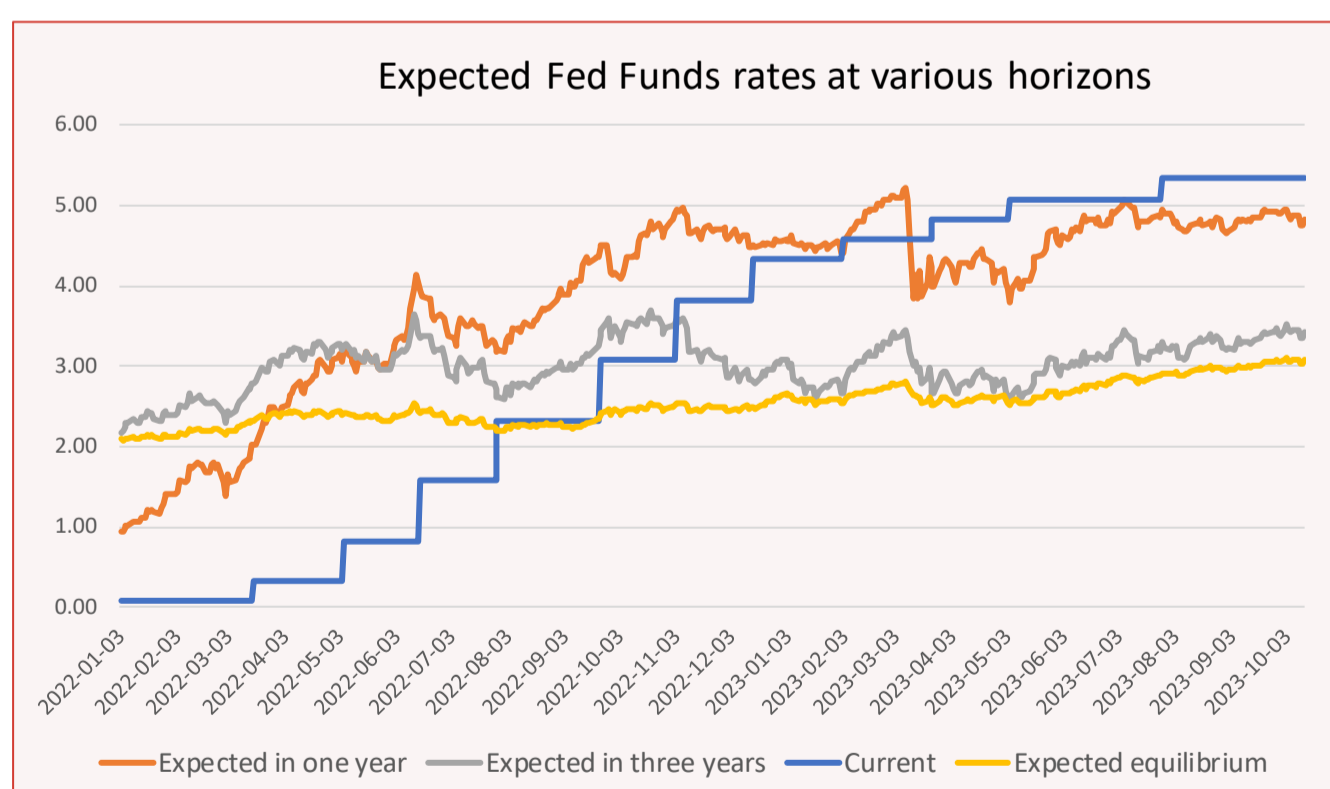
Fed funds futures provide a biased estimate of investors' true expectations, as they are influenced by varying risk premia. The Fed Funds rates expected by investors are here estimated by our proprietary model using both different surveys (the monthly "Consensus Economics" survey and the quarterly "Survey 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 September 18, the September "Consensus Forecast" was introduced).

The September CPI was nervously awaited by markets as the last key indicator released before the next FOMC meeting at the end of the month. Core inflation excluding food and energy was exactly as expected (+0.3% month-on-month) and year-on-year inflation, although still too high, continued to decline (+4.1% year-on-year against +4.3% in August). The details were marginally encouraging: rents were a big contributor and there are signs that they will ease in the future. "Core core" prices (excluding food, energy, shelters and used cars) increased by only 0.2% in September (+2.8% year-on-year). But investors were more concerned by the headline figure that rose more than expected due to energy prices, and expectations for future Fed funds rates rose slightly at all horizons after the data was released.

| | Current | Expected in three months | Expected in six months | Expected in one year | Expected in three years | Expected equilibrium |
|---------------------------|---------|--------------------------|------------------------|----------------------|-------------------------|----------------------|
| Fed Funds | 5.33 | 5.44 | 5.42 | 4.82 | 3.43 | 3.07 |
| Daily changes (bp) | 0 | 2 | 4 | 7 | 8 | 3 |



Even if a majority of FOMC members expect another rate hike before the end of the year, risks seem asymmetric with a significant probability of no hike if core inflation continues to improve despite higher energy prices. As a result, the probability given by investors to a final rate hike is still below 50%. According to our estimates, investors have also in mind a different profile for future rate cuts. They still forecast slightly larger rate cuts in 2024 than expected by the "median" FOMC member, but the gap is not very large. More importantly, at longer horizons, they expect Fed funds rates to plateau at a higher level. Investors facing a very resilient economy have gradually become more pessimistic and have raised their average estimates for the long-term neutral rate from 2% at the start of 2022 to more than 3% currently (against 2.5% in the Fed's dot plots).



Main market-moving news: 12 October 2023

US Macroeconomics

Core CPI for Sept at +0.3% MoM (Expected 0.3%; Prior 0.3%).

Core CPI for Sept at + 4.1% YoY (Expected 4.1%; Prior 4.3%).

CPI for Sept at +0.4% MoM (Expected 0.3%; Prior 0.6%).

CPI for Sept at +3.7% YoY (Expected 3.6%; Prior 3.7%).

Initial Jobless Claims at 209,000 (Expected 210,000; Prior 207,000 revised at 209,000).

Others

A weak 30-year bonds auction followed lackluster sales of 10-year and three-year notes this week.

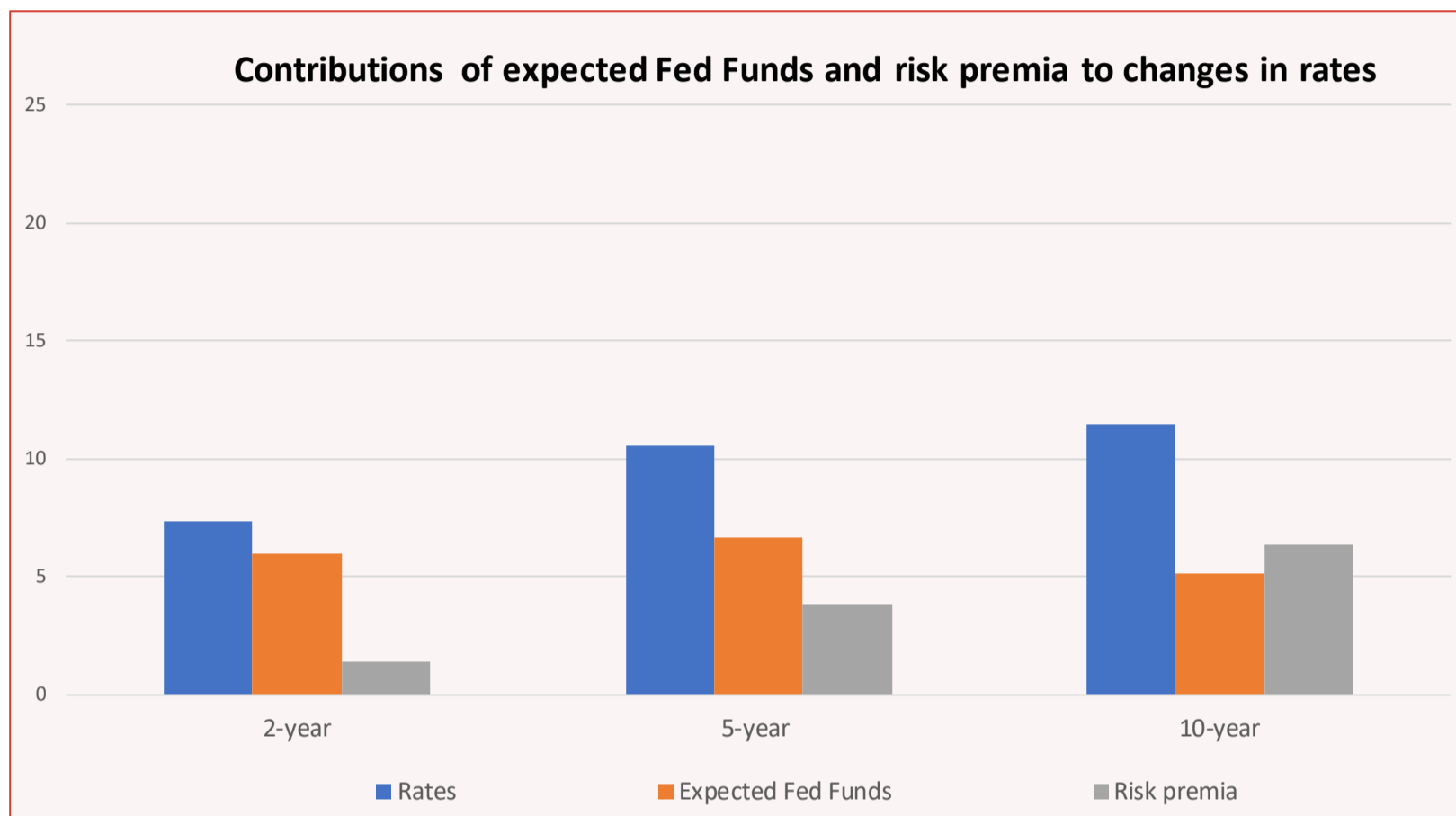
PART II : RISK PREMIA ANALYSIS

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

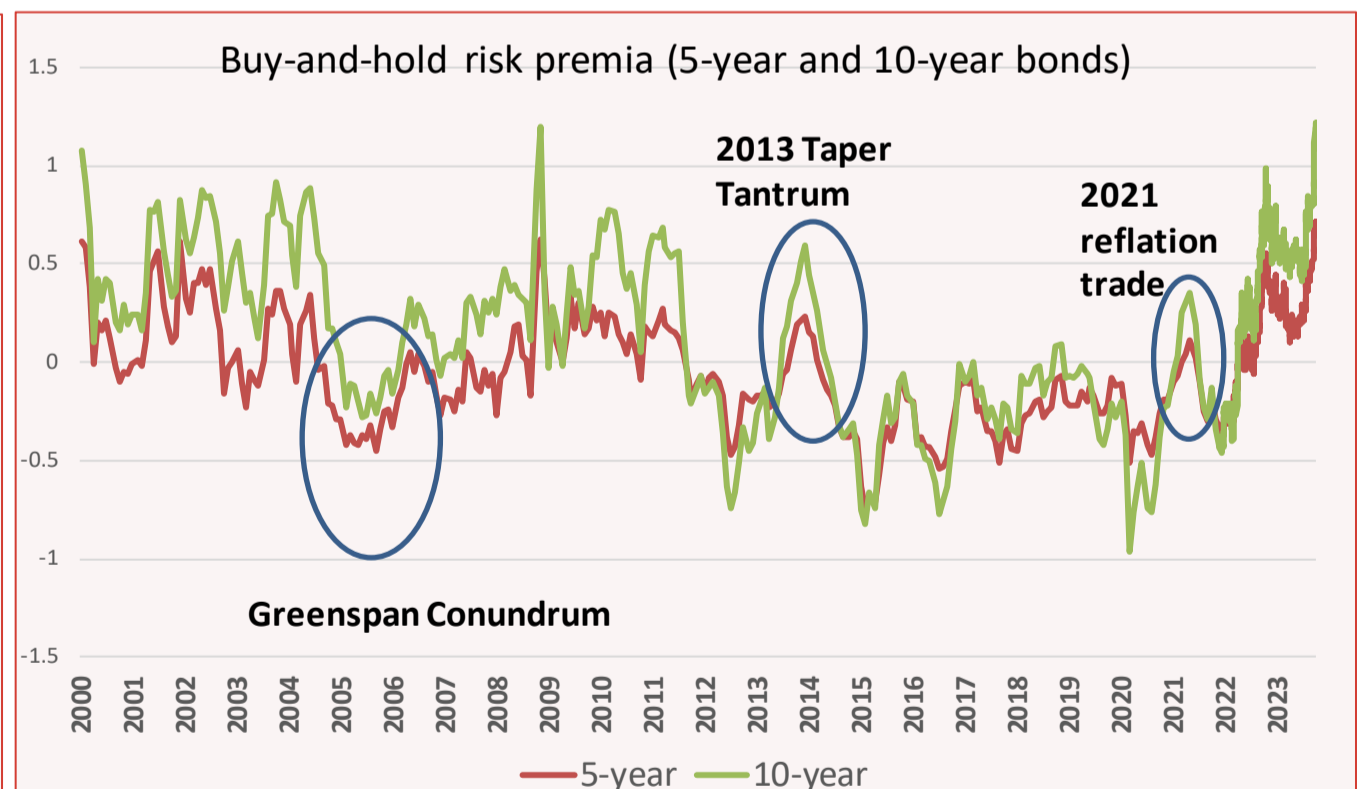
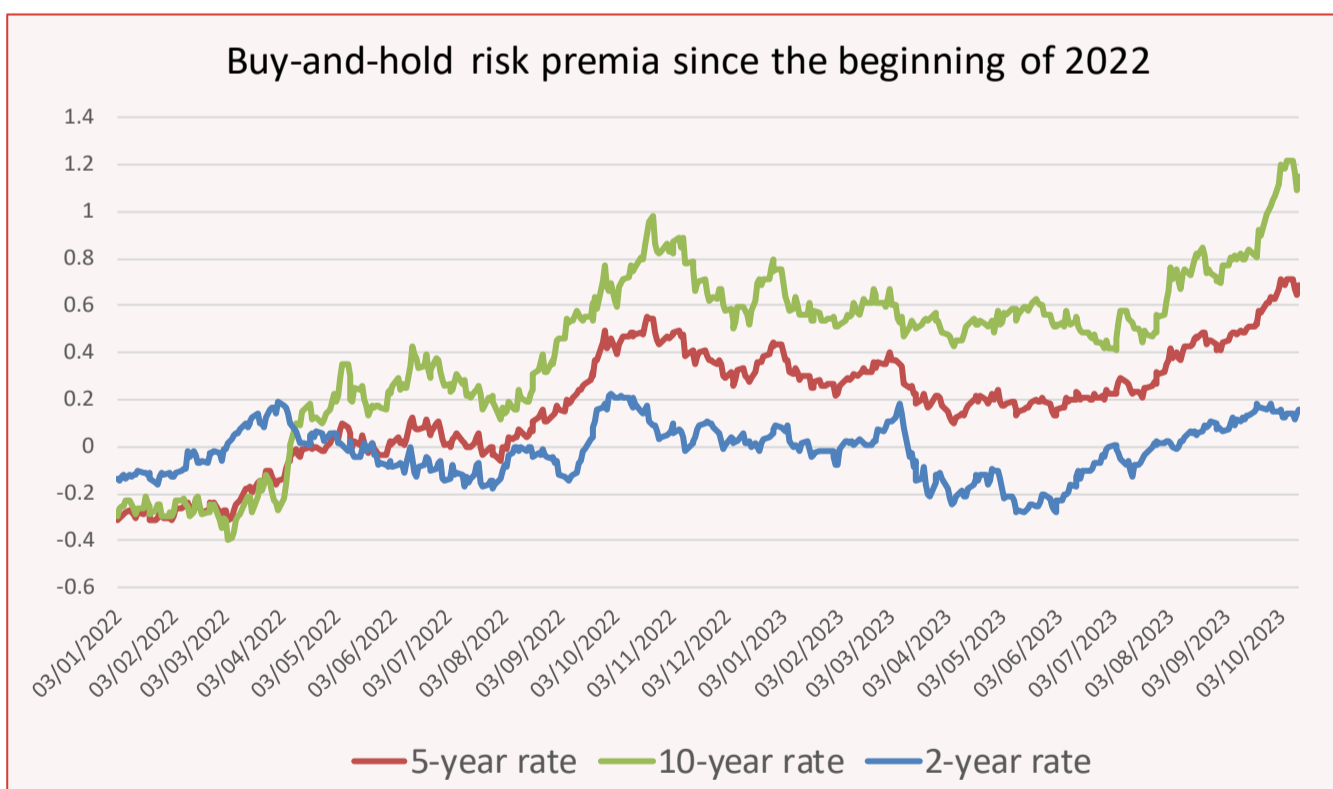
- The short-term **tactical risk premia**: How much excess returns investors require to hold various risky assets at their tactical horizon (which depends on investors, but is often around 3 months)? The tactical positions taken by investors relative to their benchmarks (“neutral”, “short”, “long”) depend on these tactical risk premia.
- The **“buy-and-hold” or “embedded” risk premia**. 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 rose on Friday. Investors were apparently disappointed by the inflation figures and in the afternoon, a weak auction of 30-year bonds amplified the rebound in risk premia.



| | 2-year | 5-year | 10-year |
|---------------------------------|--------|--------|---------|
| Buy-and-hold risk premia | 0.16 | 0.68 | 1.15 |
| Daily changes (bp) | 1 | 4 | 6 |



With a long-term perspective, it appears that the buy-and-hold risk premia on long-term Treasuries are now very high (see the right-hand side graph). This is also true for the short-term tactical risk premia that we don't discuss here, but play an important role in our analysis of the market (see the data in the excel file).

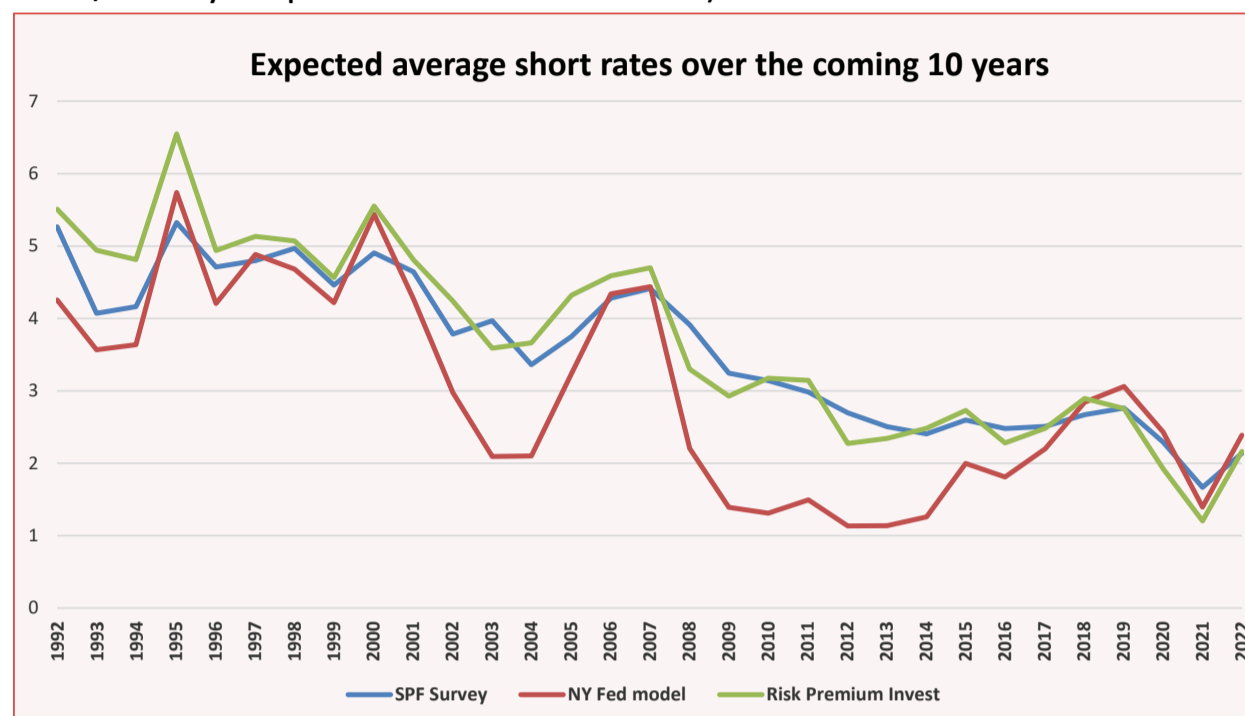
This may not come as a surprise with some inflationary risks remaining and often – but not always - a positive correlation between the price of long-term bonds and equities. Additionally, very high short-term rates may encourage investors to buy short durations bonds rather than long-term bonds. Yet, 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 markets. 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 go back on negative territory as soon as inflationary risks recede (with at some stage lower short-term rates and 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 (“Quantitative Tightening”). This may push many investors to introduce again large short positions in the belief that long-term rates are now on a structural upward trend.

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.

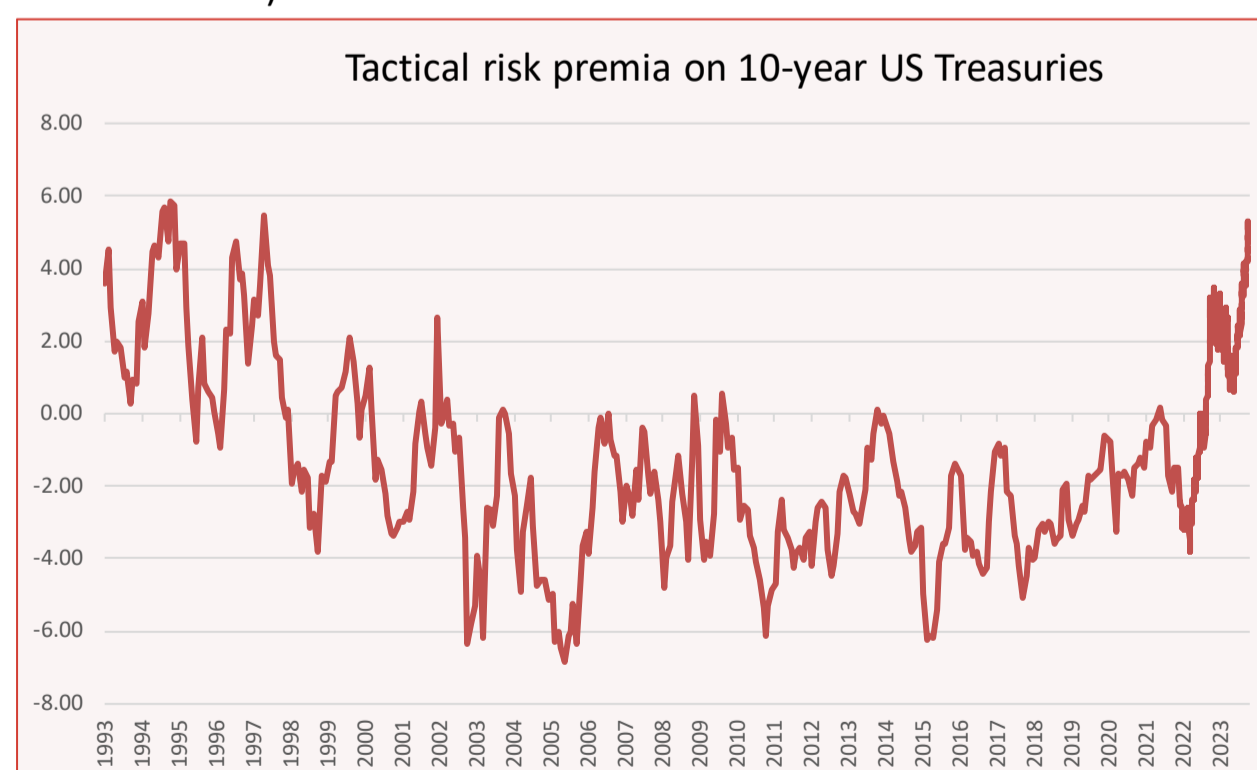
One of the best-known statistical models is the model developed by the Federal Reserve Bank of New-York. Their estimates are published daily on the NY Fed website (see www.newyorkfed.org/research/data_indicators/term-premia-tabs#/overview). Strangely enough, these estimates don't seem to be used by many 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 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 following graph represents the annualized excess return expected by investors on 10-year Treasuries at 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. To keep it simple, this rich information about tactical risk premia is not discussed in this daily comment, but an excel file with the full information is available on our website (see the link on the homepage of www.riskpremium.com)

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

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>

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