

How markets react to CPI surprises

A tick-by-tick analysis using
LSEG Tick History



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Executive summary

US Consumer Price Index (CPI) releases have become one of the most influential macroeconomic events for financial markets. Using [LSEG Tick History](#) data, we analyse seven major CPI surprise events and measure market reactions at the millisecond level.

We define a major CPI surprise as a deviation of at least 0.3% between expected and actual year-on-year CPI. While the analysis spans data over a 12-year timeframe, all such events identified occurred during 2021 and 2022, reflecting heightened inflation volatility and reduced forecast accuracy in the post-pandemic period.

Our analysis shows:

- CPI surprises trigger immediate repricing across asset classes.
- US 10-year Treasury yields react most strongly, rising by an average of 2.8 basis points following upside inflation surprises.
- S&P 500 futures experience an average decline of 0.31% following higher-than-expected inflation releases.
- Larger inflation surprises are generally associated with larger market reactions.

These findings demonstrate the importance of analysing market behaviour at intraday, high-frequency intervals – particularly during macroeconomic events where price formation occurs within seconds. LSEG Tick History enables market participants to analyse and quantify these dynamics with precision, combining Reuters Polls and SmartEconomics to identify inflation surprises, and measure their impact at tick-level resolution.

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Why CPI surprises matter

US CPI releases have become one of the most closely watched economic events for financial markets. Inflation directly influences monetary policy expectations, interest-rate trajectories and asset valuations across fixed income, equities and foreign exchange markets.

CPI measures the evolution of the cost of living based on a basket of goods and services for urban consumers. It plays a central role in monetary policy. The Federal Reserve's mandate implies guaranteeing economic stability through controlled inflation and maximum employment. As inflation volatility increased following the pandemic – driven by supply chain disruptions and the energy shock triggered by Russia's invasion of Ukraine – CPI releases became a major source of market-moving information, often triggering significant repricing within seconds of publication.

The Fed's 'dual mandate' of price stability and maximum employment places inflation considerations at the centre of monetary policy decisions. As a result, even modest deviations between expected and realised CPI figures can alter market expectations for future rate cuts or hikes, generating immediate cross-asset market reactions. Stable prices typically help preserve the value of the currency through sound monetary policy.

Market expectations for CPI are formed through monthly surveys of economists and financial institutions. These are referred to as year-on-year CPI inflation. In this paper, we investigate the market impact of the CPI data releases when there is a significant deviation between expectations and the actual release.

Methodology

Reuters Polls and StarMine SmartEconomics Model

The expected CPI data within this paper is derived from [Reuters Polls](#), and we also leverage the [StarMine SmartEconomics Forecast](#).

Reuters Polls are conducted via electronic questionnaires distributed to a set of respondents who submit their forecasts for the respective indicators included in the questionnaire. The responses are collated and the consensus published based on the median data point for the CPI.

The **StarMine SmartEconomics Forecast model** assesses the historical accuracy of each polling contributor at every point in time in each poll in which the contributor has provided a forecast. The number of forecasts for major US economic releases can approach 100. The SmartEconomics model calculates forecaster accuracy scores based on the forecaster's estimates over the previous one-year period for monthly indicators. The indicator-specific StarMine historical accuracy score for each forecaster determines the weight assigned to their contribution within the SmartEconomics Forecast. Both the Reuters Polls and SmartEconomics Forecasts are used to monitor the size of the economic surprises between the expected inflation level and the actual CPI release.

Measuring market impact with LSEG Tick History

Understanding how markets react in the seconds immediately following an economic surprise requires access to high-frequency historical market data. LSEG Tick History enables analysis of price formation, liquidity dynamics and cross-asset market reactions at millisecond resolution across global markets. For this study, we use LSEG Tick History to examine how major CPI surprises affected US Treasury yields and S&P 500 futures immediately after publication. The analysis demonstrates how high-frequency historical data can reveal market behaviour that is not visible in traditional end-of-day datasets.

LSEG Tick History is a historical market data service, offering global intra-day time and sales, quotes and market depth content dating back to January 1996. The 80PB+ product set covers both OTC and exchange-traded instruments from over 580 exchanges and third-party data contributors, with the majority of data available within two hours after markets close.

When there is a significant delta between the Reuters Polls consensus and the actual CPI data release, significant intra-day moves across financial markets can be observed. Tick History enables detailed post-event analysis of market reactions at millisecond resolution. CPI data releases typically occur at 7.30am US Eastern Time, at a time when the S&P 500 index is closed. Hence, to measure the equity market response impact on the S&P 500, we therefore analyse Tick History data for S&P 500 futures. For Treasury markets, Tick History allows detailed analysis of yield movements during the seconds immediately surrounding the CPI release. The S&P 500 and the US 10-year government bond yields are the respective benchmarks for equity indices and sovereign yields in the US domestic market.

Sample selection

In this paper, we investigate the market impact of CPI data releases when there is a significant deviation between expectations and the actual data. We focus on seven CPI release dates corresponding to the most significant inflation surprises observed during the 2021–2022 inflation cycle, defined as instances where realised CPI deviated from Reuters Poll consensus by 0.3 percentage points or more.

The seven CPI surprise events analysed are:

1. April 2021

2. May 2021
3. June 2021
4. October 2021
5. May 2022
6. June 2022
7. October 2022

No comparable outliers were observed between 2014 and 2020, reflecting the relatively stable inflation environment prior to the pandemic. As such, these events provide a concentrated sample of high-impact macroeconomic surprises, enabling a focused analysis of market reactions during periods of elevated uncertainty.

How markets react to CPI surprises – Findings & analysis

Forecast accuracy deteriorated as inflation volatility increased

Forecast accuracy deteriorated significantly during the inflation cycle that emerged after 2020, as rapidly changing economic conditions challenged traditional forecasting models. Historical data shows a clear deterioration in forecasting accuracy following 2020. Between 2014 and 2020, Reuters Poll consensus forecasts matched the published CPI figure approximately 36% of the time, compared with 22% between 2021 and 2025. Over the same periods, SmartEconomics Forecast accuracy declined from 38% to 25%.

US CPI level and US interest rate level



Source: LSEG Datastream

This deterioration coincided with a significant increase in inflation volatility. US inflation oscillated between -0.2% and 2.9% in the period of 2014 to 2020, compared with a range of 1.4% to 9.1% between 2021 to 2025. Even if the accuracy drops during an inflationary cycle, the number of outliers remained limited.

Upside inflation surprises dominated the 2021–2022 inflation cycle

Outliers exhibiting a significant deviation tend to show economic surprises to the upside. Six out of the seven outliers reflected inflation readings that exceeded market expectations. One explanation is that inflation forecasting models

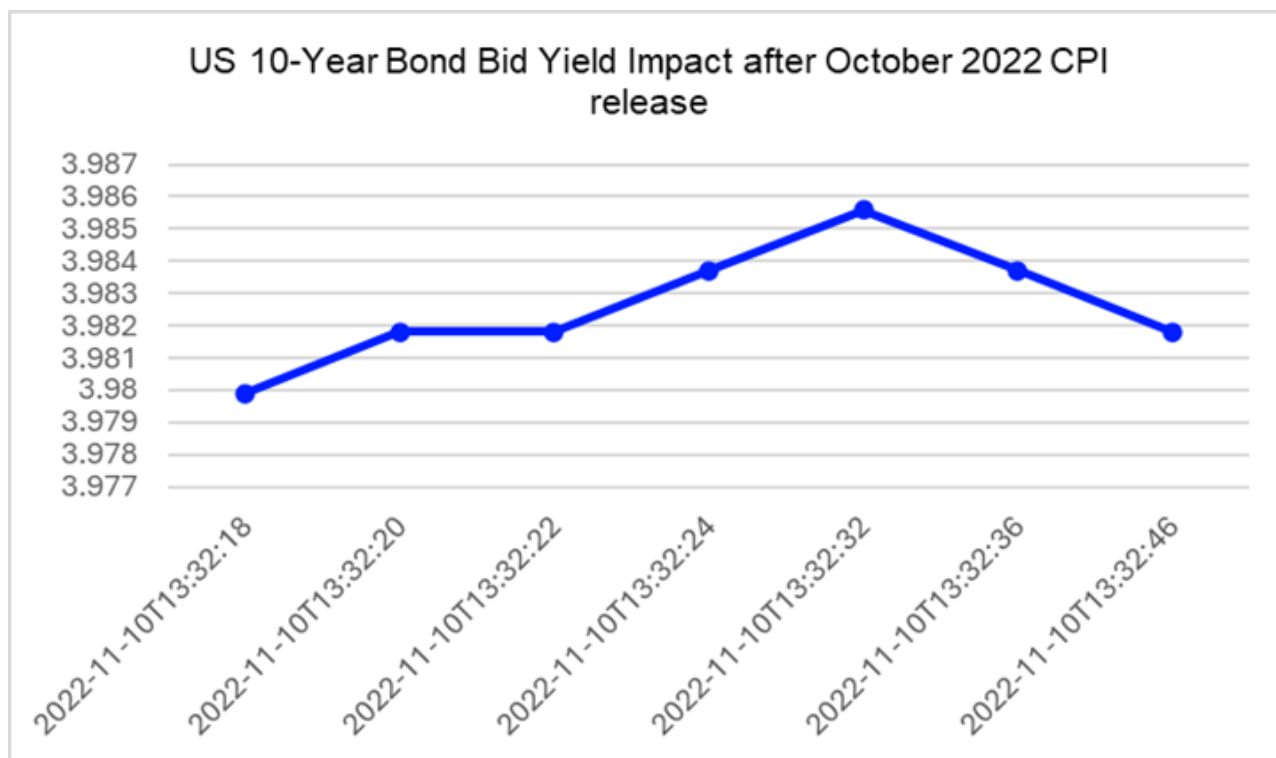
were calibrated using decades of relatively stable inflation dynamics and were therefore less effective in the post-pandemic environment.

These outliers tend to occur during the spring and summer of 2021 and 2022, as year-on-year inflation continuously picked up around that time. As COVID-19 restrictions were relaxed in the spring of 2021, there was an element of consumer-driven “revenge spending”, that was not fully reflected in market expectations. CPI numbers are seasonally adjusted to smooth the distribution through the year for factors such as price movements resulting from weather events, production cycles, model changeovers, holidays, and sales. However, the “revenge spending” phenomenon was not factored in the forecasts.

Vehicle-related components and energy prices were among the primary contributors to the largest inflation surprises observed during the period. Energy volatility was also a key factor, as prices fluctuated significantly in 2022 following Russia’s invasion of Ukraine, contributing to sharp increases in inflation.

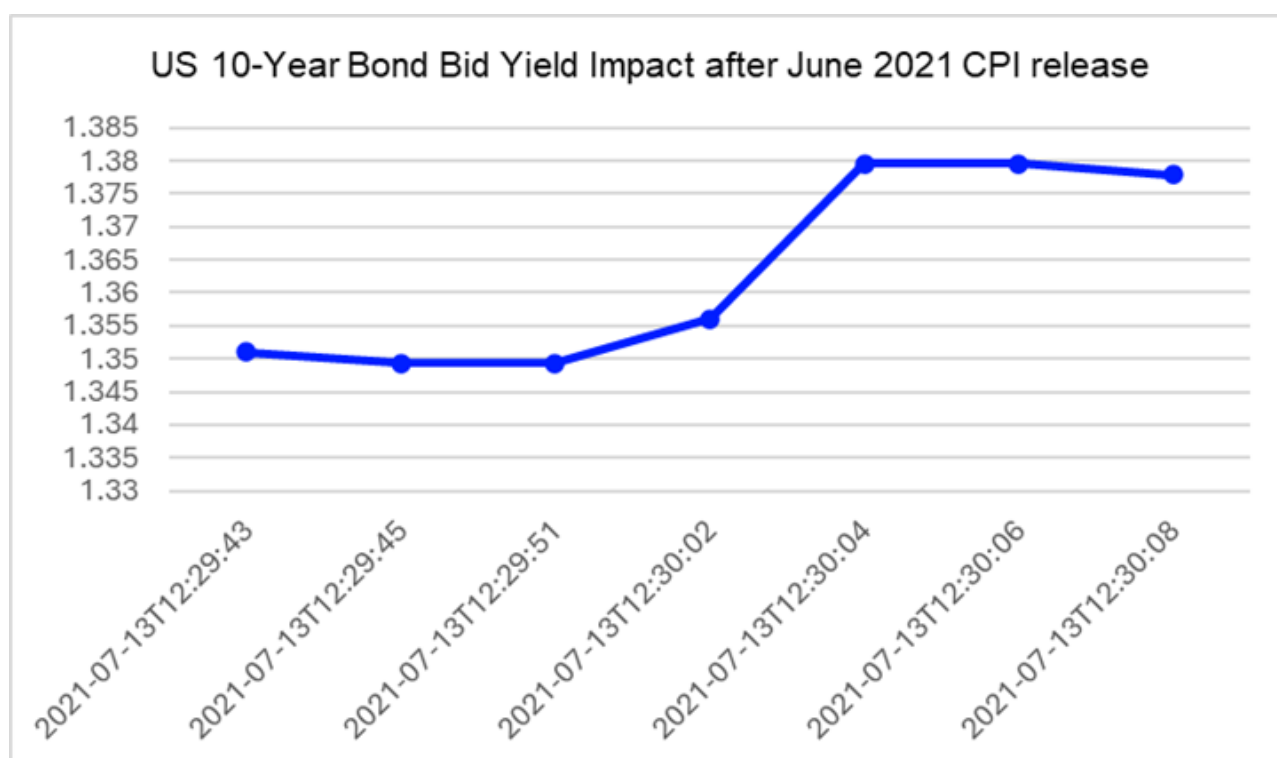
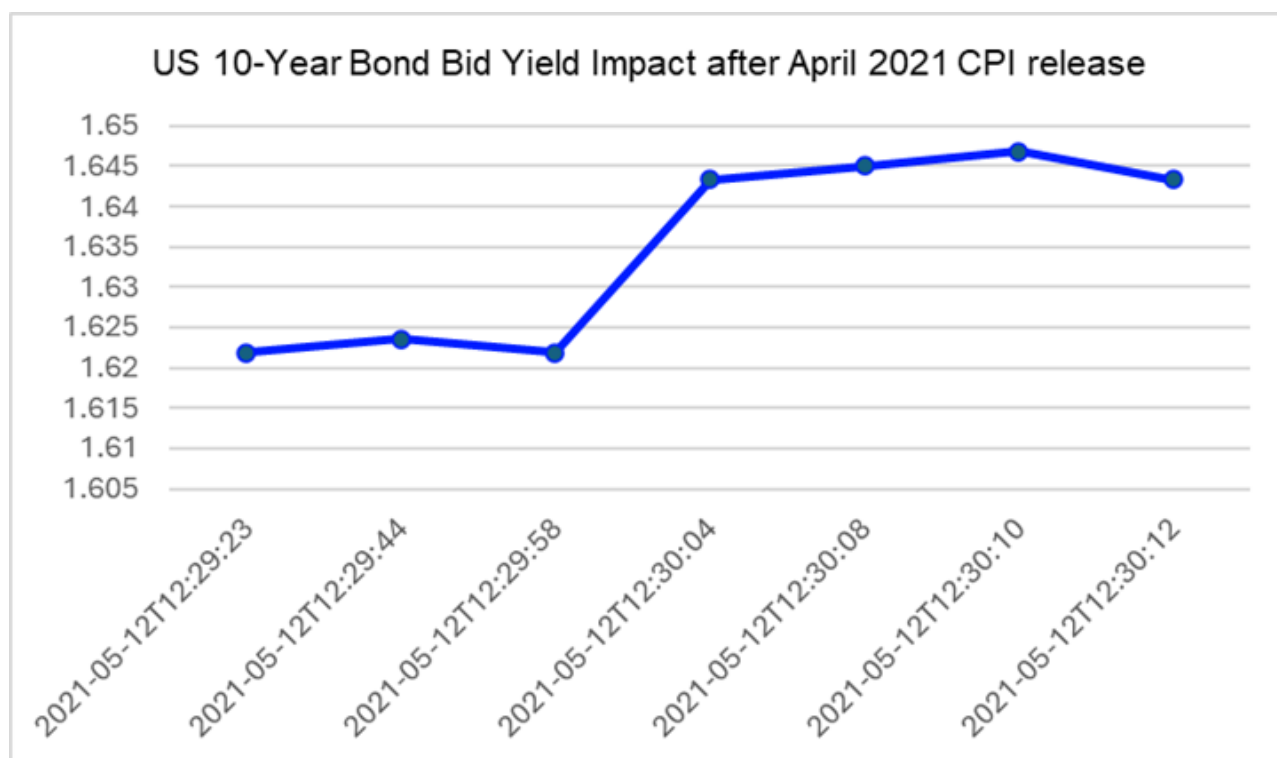
Treasury markets show the strongest response to CPI surprises

In the charts below, we show the movement in the US 10-year government bond yield within seconds of the CPI announcement across the seven dates where there was a significant deviation. Fixed income markets exhibit the most immediate and consistent response to inflation surprises. Across the seven CPI surprise events analysed, US Treasury yields repriced rapidly following the release as investors adjusted expectations for future Federal Reserve policy. The results show a consistent increase in Treasury yields following upside inflation surprises. However, when inflation undershoots expectations (as was the case in October 2022), the impact is muted, with yields rising briefly before flowing back to the initial level prior to the announcement.

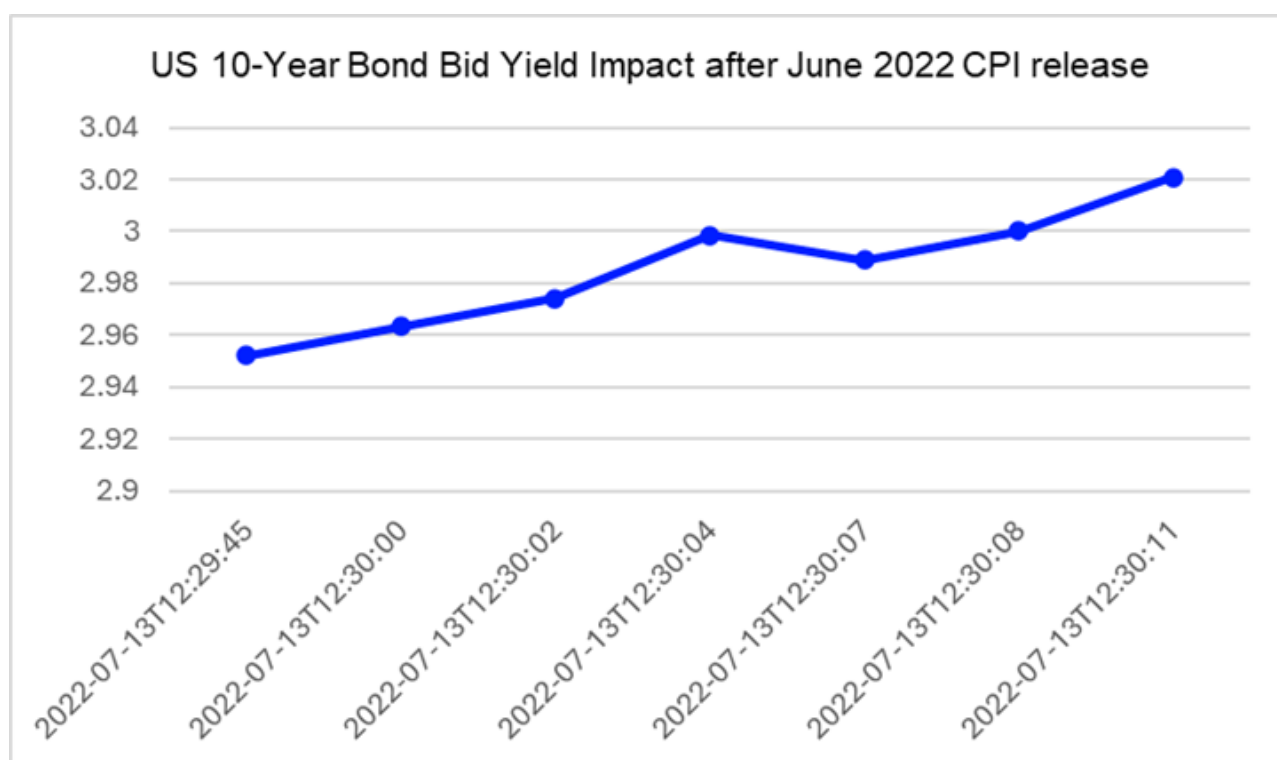
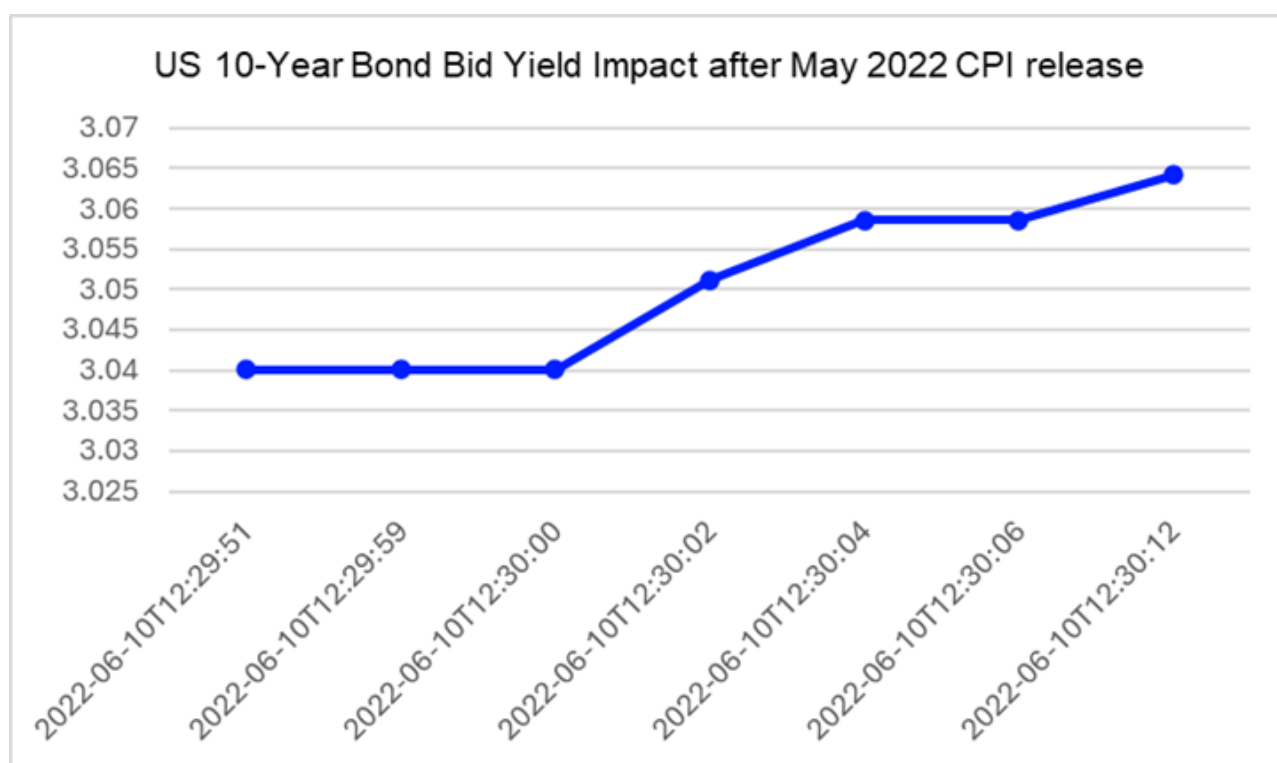


On average, when inflation overshoots, the US 10-year yield rises by 2.8 basis points within a narrow time window as the price of the bond falls. The data shows that this does not necessarily reflect the daily move at market close, as other factors also influence government bond pricing, but it demonstrates the extent of intraday market repricing. The analysis suggests a relationship between the size of the deviation between expected and actual CPI and the

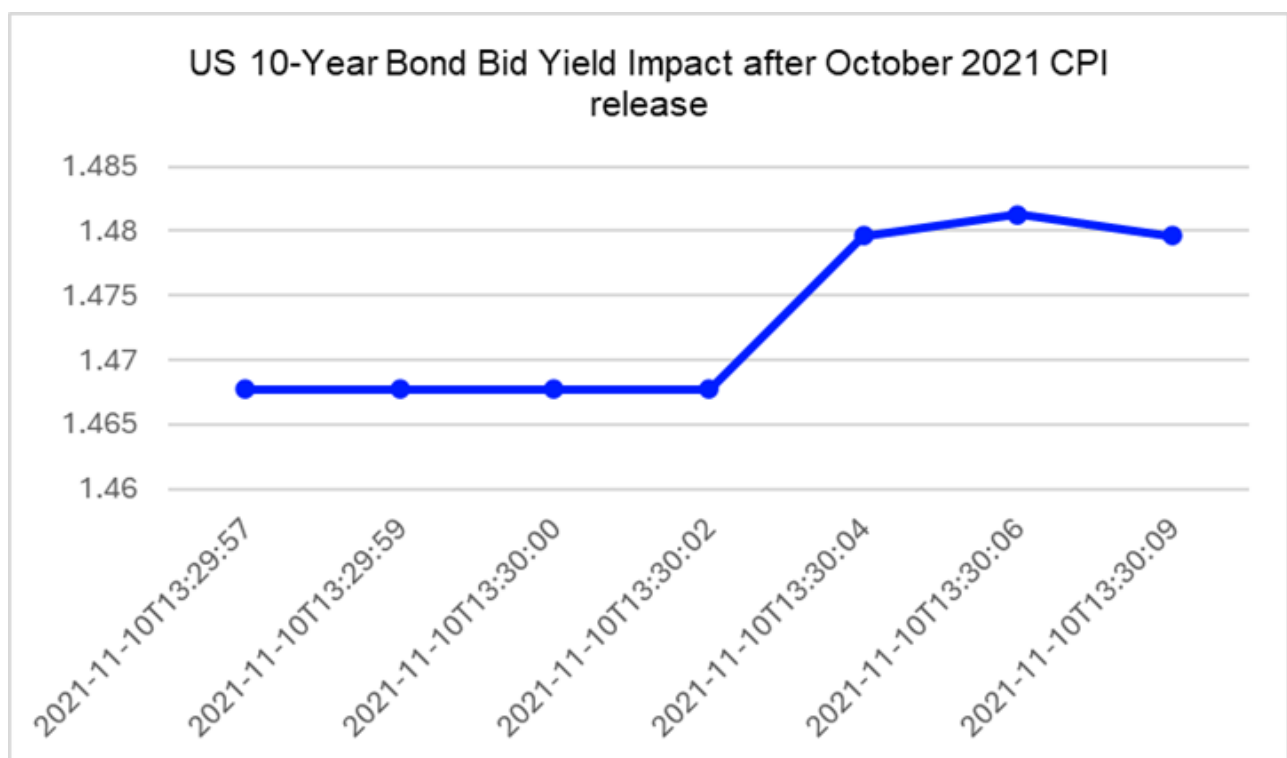
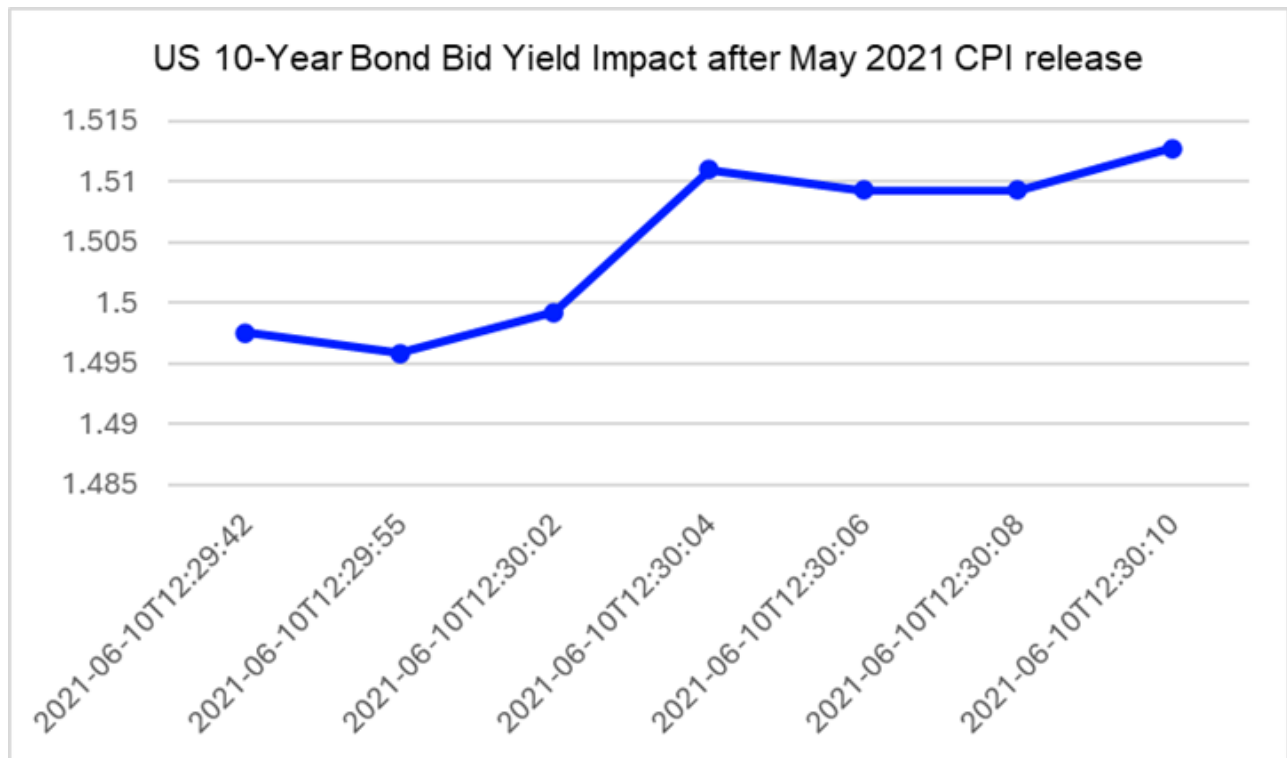
magnitude of the yield response following the announcement. For example, the deviations were 0.6 and 0.5 for April 2021 and June 2021 respectively, with the most pronounced repricing occurring immediately after the release.



Market reactions remained pronounced when large inflation surprises re-emerged after periods of relatively accurate forecasting, as was the case in the spring of 2022, where deviations of 0.3 were recorded in May and June.



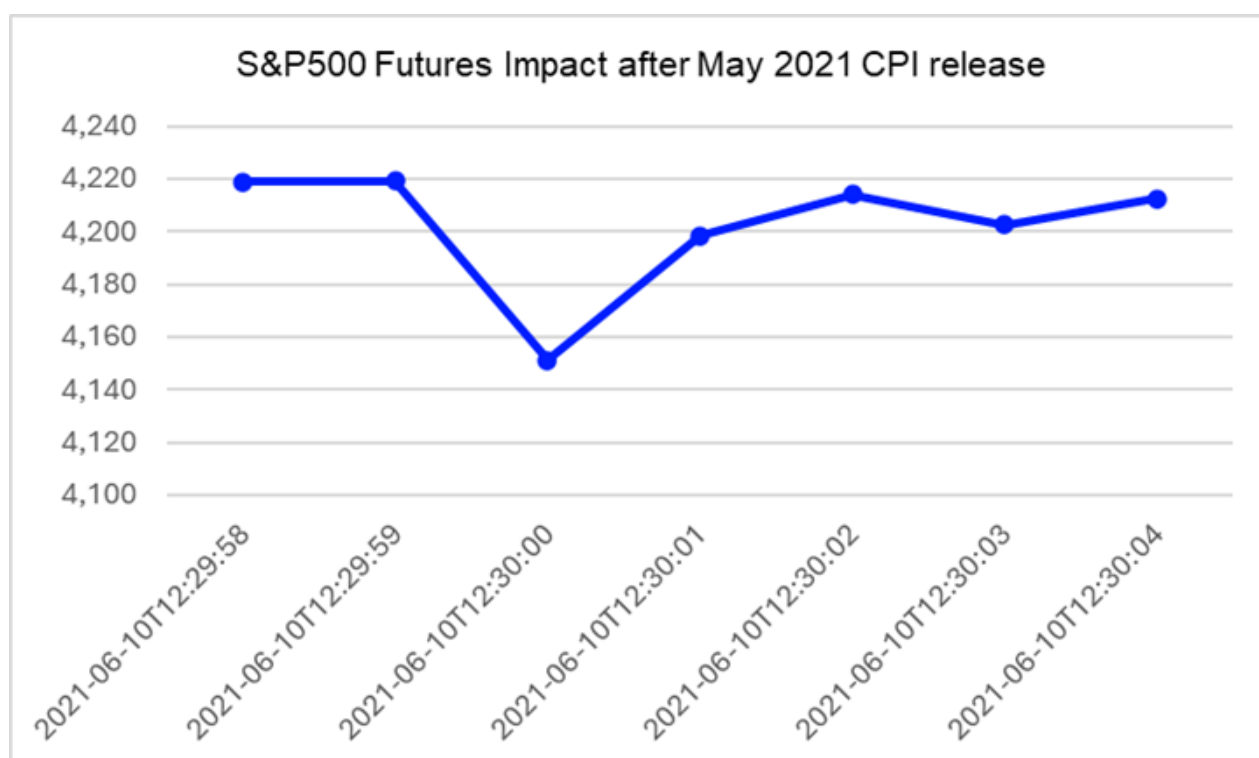
Most significant surprises occurred during 2021, when the inflation cycle was still emerging and forecasting uncertainty was particularly elevated. However, when the surprise was smaller, such as 0.3, the immediate market reaction tended to be less pronounced, as illustrated by the May 2021 and October 2021 releases.

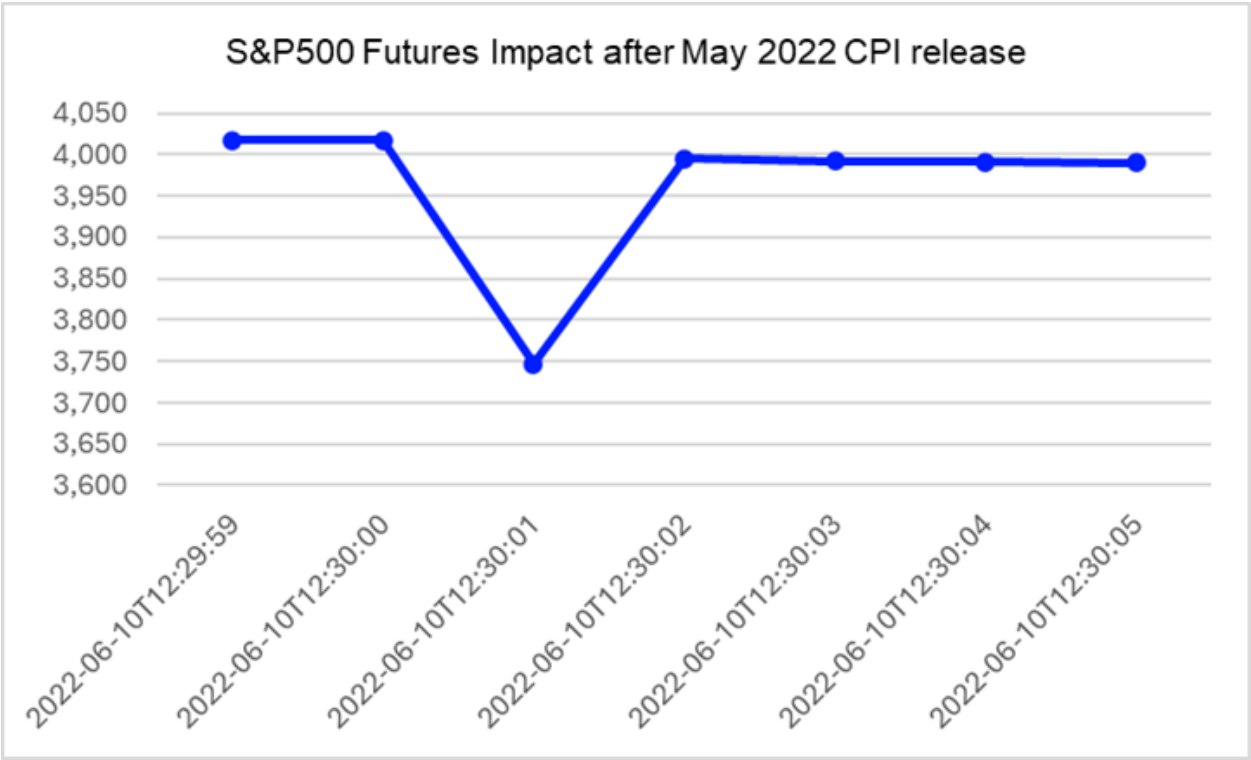


Equity market responses are less pronounced than treasury repricing

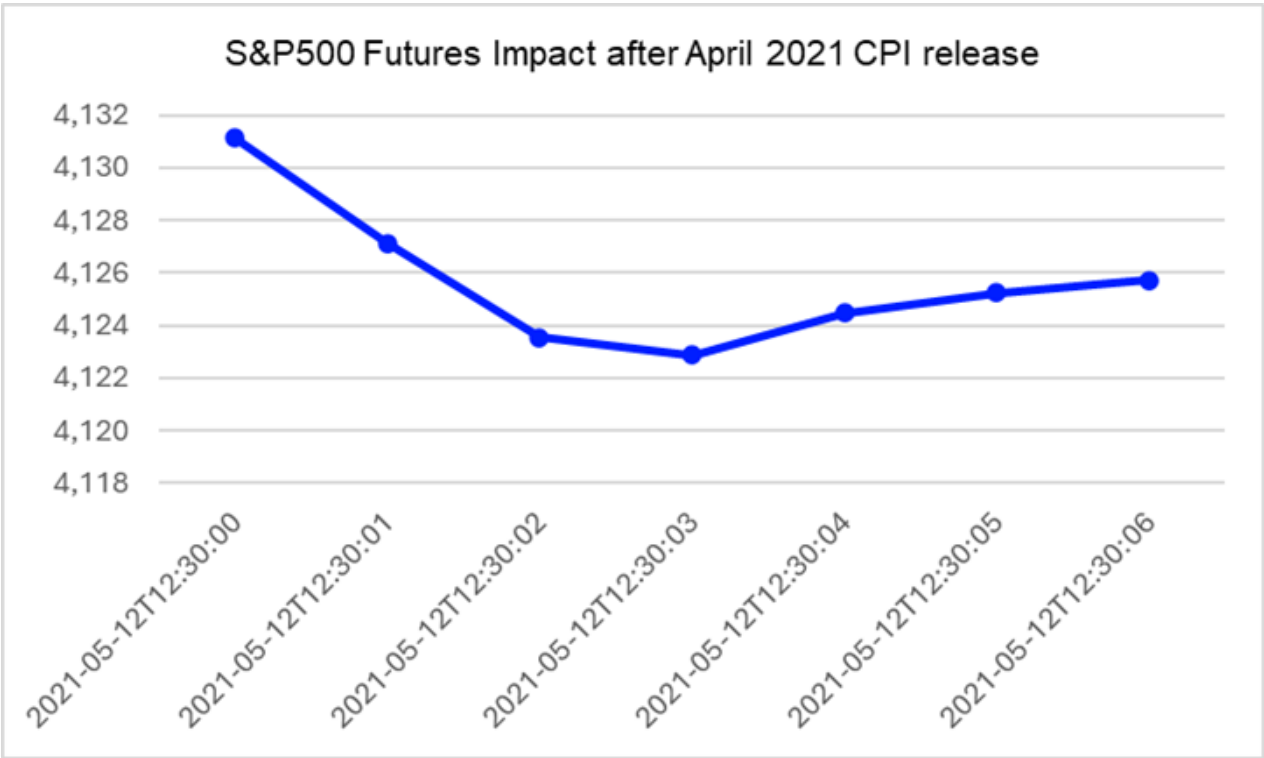
While equity markets also react to inflation surprises, the response is generally less pronounced and less persistent than in fixed income markets. Strong corporate earnings, sector composition and prevailing risk sentiment can partially offset the negative implications of higher-than-expected inflation, resulting in a more nuanced market reaction.

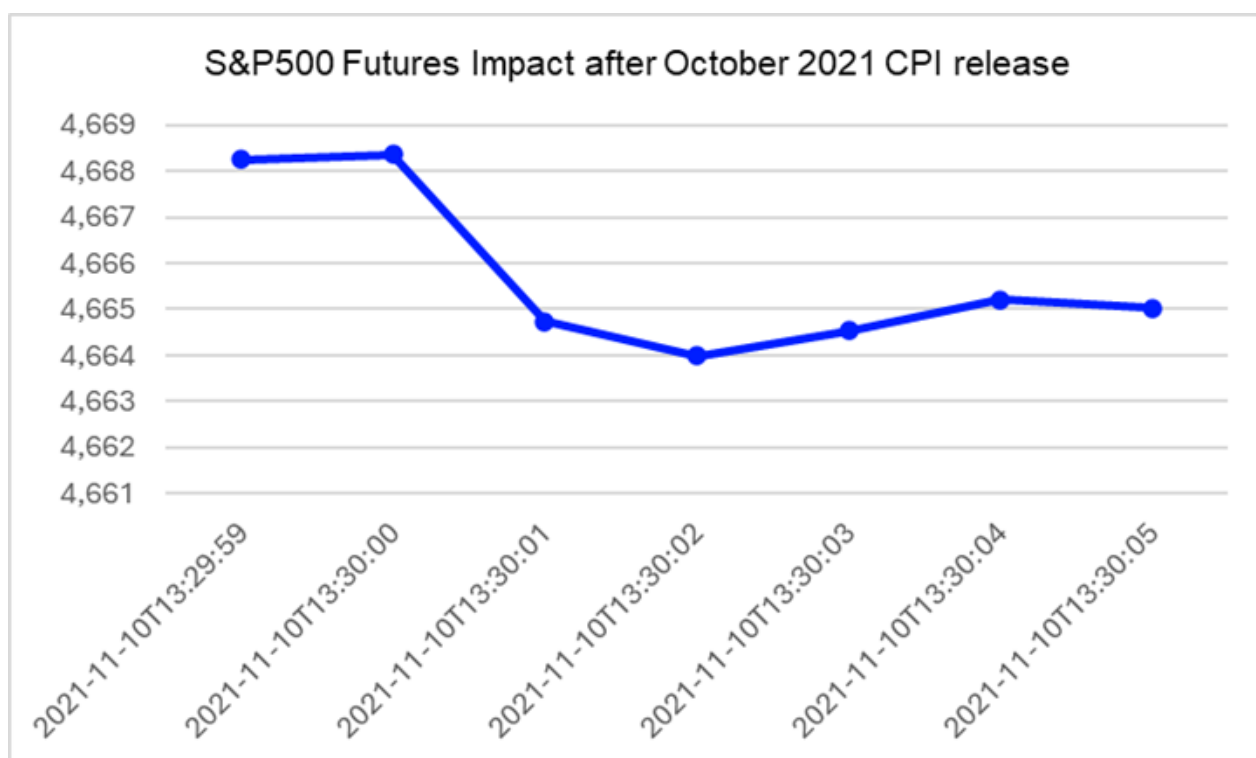
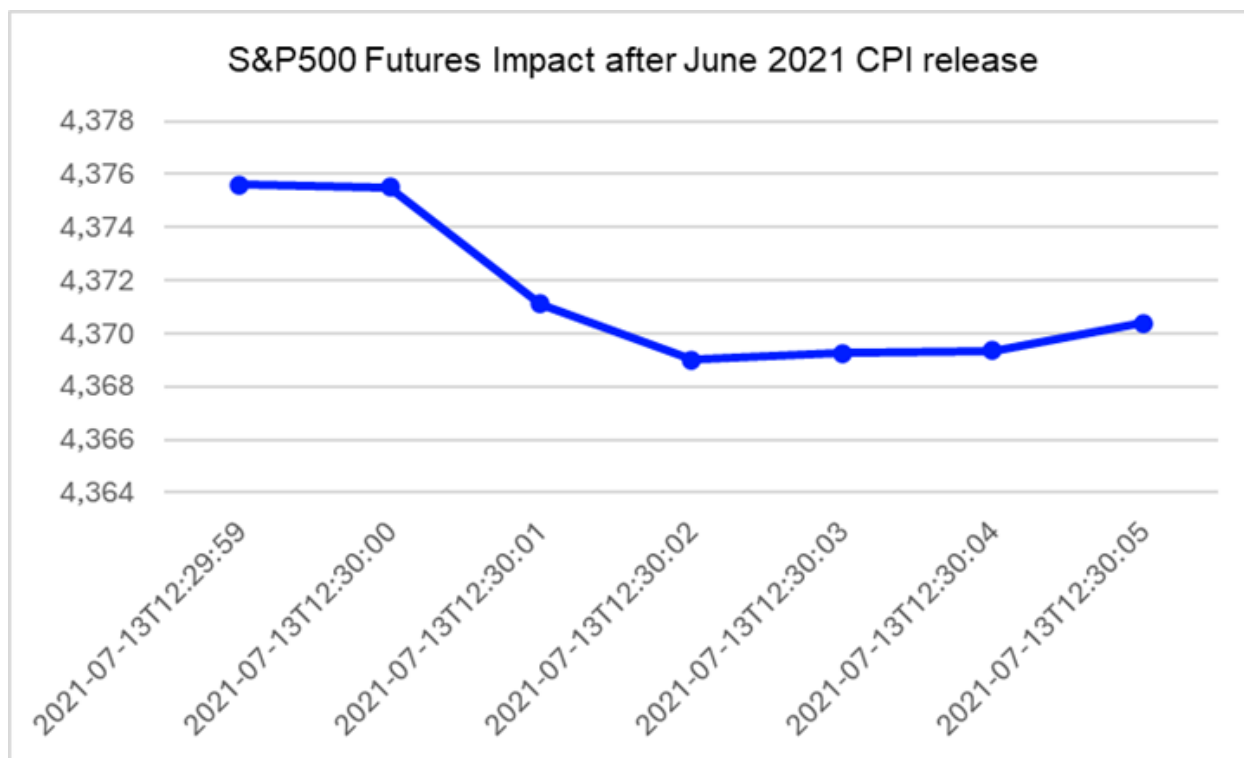
On average, when inflation overshoots, the CPI data releases lead to a 0.31% decline in S&P 500 futures within a few seconds window. By contrast, the impact is negligible when inflation undershoots expectations. In several cases, the initial market reaction was quickly reversed as investors reassessed the broader economic implications of the data release, suggesting that earnings expectations and positive market sentiment partially offset inflation concerns.

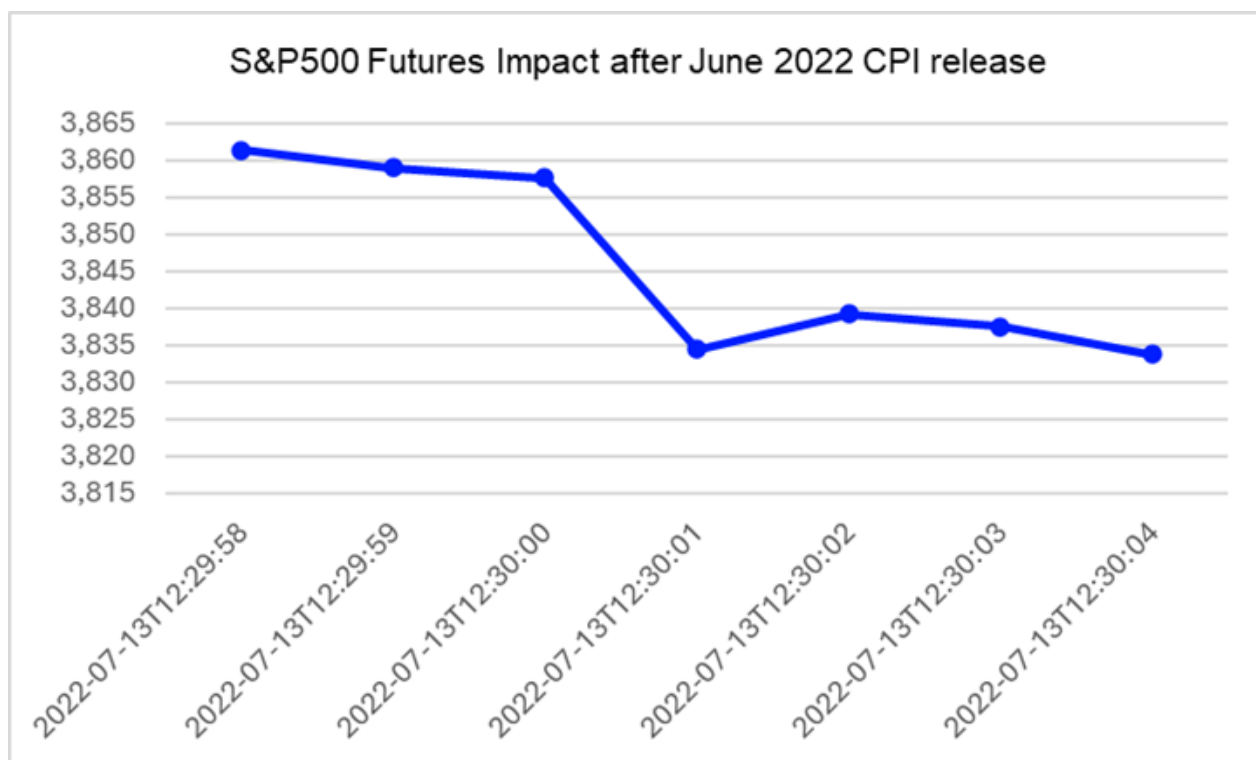




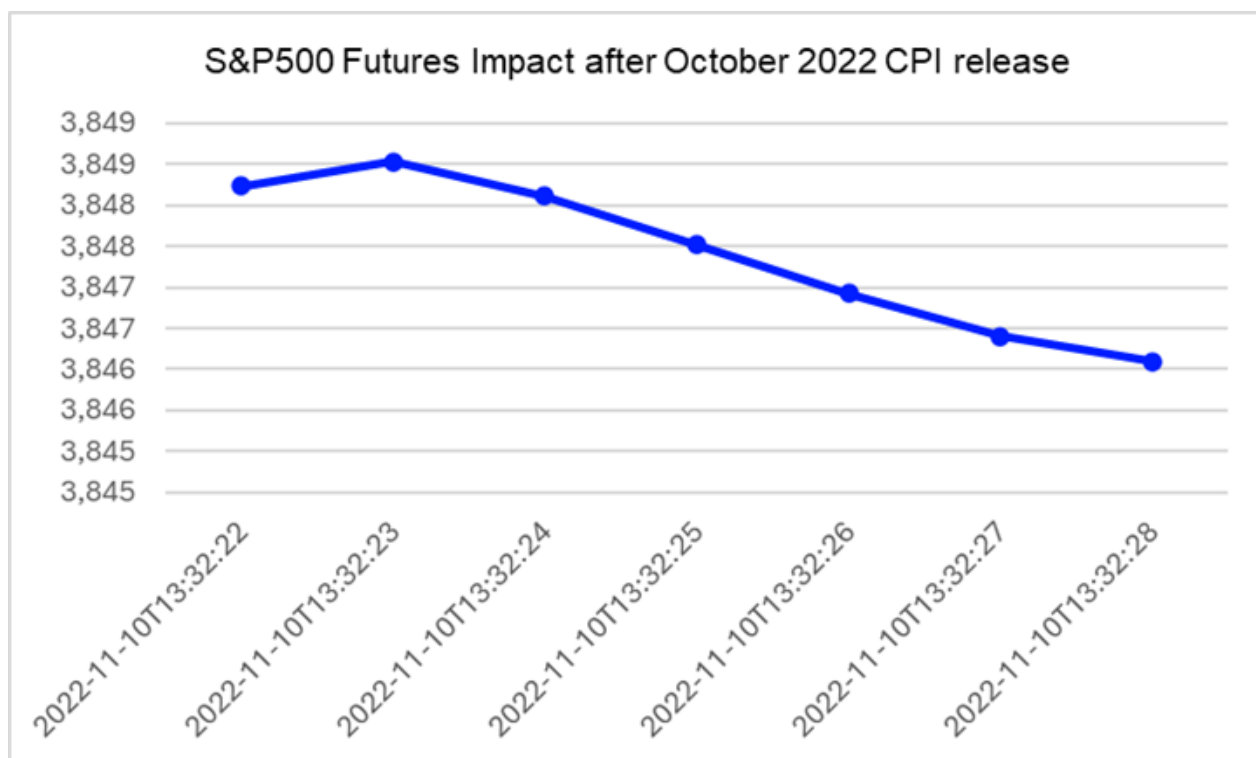
For other dates, prices recovered more gradually as market sentiment was less supportive and the inflation surprises were smaller in magnitude.







The October 2022 downside surprise produced a different market response. Despite inflation coming in below expectations, S&P 500 futures did not experience a sustained rally. This suggests that broader concerns regarding economic growth and consumer demand may have offset the positive implications of easing inflation.



Conclusion

Key takeaways

- CPI surprises continue to be a major driver of intraday market volatility.
- Treasury markets exhibit the fastest and most consistent reaction to inflation surprises.
- The magnitude of market repricing generally increases with the size of the inflation surprise.
- High-frequency historical data provides valuable insight into market behaviour immediately following macroeconomic events.
- LSEG Tick History enables detailed event studies and market microstructure analysis across asset classes.

In summary

The inflation cycle of 2021–2025 exposed the limitations of traditional forecasting models and increased the frequency of economically significant CPI surprises. Using [LSEG Tick History](#), we demonstrate that these surprises trigger immediate and measurable repricing across major asset classes. Treasury markets show the strongest response, while equity markets exhibit a more nuanced reaction. By providing millisecond-level visibility into market behaviour, LSEG Tick History enables users to analyse economic events with a level of precision that is not possible using end-of-day data alone.

In addition, market participants can complement event-based analysis with forward-looking indicators available through LSEG Workspace, including vehicle sales data, energy prices and measures of commodity volatility. Together, LSEG Workspace and LSEG Tick History provide a powerful framework for anticipating, analysing and contextualising the market impact of macroeconomic surprises.

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