Foreigns Wagging the Fed? Exchange Rates and Monetary Policy Meetings

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Abstract

While literature documents the Federal Reserve's outsized influence on global financial markets, we show that foreign central banks play an equally and more important role in shaping exchange rate dynamics around FOMC announcements. We document that exchange rate responses to FOMC meetings depend critically on whether foreign central banks such as Bank of Japan have announced policy decisions in the preceding week. When foreign central banks move first, non-funding currencies depreciate against the dollar by 17 basis points on average, reversing the traditional FOMC uncertainty premium. Funding currencies exhibit the opposite pattern: JPY and CHF appreciate by 13-17 basis points exclusively when foreign central banks precede the Fed, suggesting that FOMC effects on safe-haven currencies are contingent on prior policy signals by BOJ and SNB. These findings challenge the view of unilateral Fed dominance and reveal an informational hierarchy in which foreign central bank communications serve for U.S. monetary policy transmissions.

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1 Introduction

Exchange rates are a critical component of global financial markets, influencing trade, investment, and capital flows. While past research has extensively documented the impact of the Federal Open Market Committee (FOMC) on U.S. financial markets, recent developments suggest that the policy decisions of foreign central banks are equally, if not more, influential. It is not unusual that central bank announcements happen on same weeks. A crucial question arises: how do exchange rates respond when foreign central banks set their policies around the FOMC meeting? This paper aims to unravel the complex interplay between major central banks, exploring how the sequence of policy announcements shapes exchange rate dynamics and changes risk premium.

Prior literature has established that FOMC announcements drive asset prices, including equities, bonds, and foreign exchange markets. For instance, the equity market has the Pre-FOMC Announcement Drift, where U.S. equity markets generate significant returns in the 24 hours leading up to FOMC meetings (Lucca and Moench, 2015). At the same time, the literature stresses the unequal and dominant influence the Fed has, compared to other major central banks (Brusa et al., 2015). This paper fills that gap by leveraging high-frequency tick data to analyze how exchange rates react under different sequencing of monetary policy meetings. Our findings reveal a striking asymmetry: exchange rate responses to FOMC announcements depend significantly on whether foreign central banks, such as the European Central Bank (ECB), the Bank of England (BoE), or the Bank of Japan (BoJ), have already set their policies. We find that the previously documented positive premium of currency returns (Mueller et al., 2017) are primarily earned when foreign central banks do not move before the FOMC.

We first document that, among FOMC days, when major foreign central banks make announcements prior to FOMC meetings within a week a dollar earns positive returns compared to when no foreign central banks move prior to FOMC. For example, British Pound earns negative 18 bps when only the Fed has an announcement, while it earns extra positive 22 bps

when BoE moves prior to the Fed compared to the Fed-only case. Figure 1 shows cumulative currency returns that GBP earns over all the FOMC days throughout years. It shows that FOMC uncertainty premium that the literature documented, foreign currency appreciation, is earned over a subset of FOMC days when only the Fed had announcements and BoE's MPM meetings did not precede FOMC meetings. Australian dollar (AUD) earns negative 20 bps when only the Fed has an announcement, while it earns extra positive 50 bps when Reserve Bank of Australia (RBA) moves prior to the Fed compared to the Fed-only case. These effects when foreign central banks move prior to the Fed are concentrated on the currencies that have large trading volumes and we do not see that in currencies such as Swedish Krona (SEK) and New Zealand Dollar (NZD). We find an opposite effect, foreign currency appreciation, for funding currencies such as the Japanese Yen (JPY) and Swiss Franc (CHF). Surprisingly, those foreign currency appreciation manifests itself only when foreign central bank precedes.

[Insert Figure 1]

Having established the dichotomy in individual currency returns around montetary policy announcements, we study how the nature of monetary policy shocks interact with these conditional FOMC effects. Classifying the sample into growth shock days and rate shock days using high-frequency covariances, we find that the conditional FOMC effects are stronger when the coming announcements are primarily about the growth shock. For non-funding currencies, pre-announcement high frequency returns (5pm to 2pm) earn positive 20 bps for FOMC days on average, while they depreciate by 16 bps on average when foreign central banks precedes prior to the Fed (Foreign-FOMC days) when the growth shock is primary in monetary policy shocks. In contrast, for funding-currencies, foreign currency appreciation of 13 bps on average is not only concentrated in post-announcement returns (2pm to 5pm), but also it is *exclusive* to Foreign-FOMC days. When foreign central banks such as BOJ do not precide, there is no uncertainty premium in funding currencies.

Further, we examine the impacts of uncertainty on exchange rates, interacting with foreign central bank precedence prior to the Fed. While a higher VIX is associated with a dollar ap-

preciation for non-funding currencies, economic magnitude of foreign central bank precedence is stronger. Supplementing with the Move index, we find that higher US stock market uncertainty is associated with a dollar appreciation more strongly on the Foreign-FOMC days, while higher interest rate uncertainty is associated with a foreign currency appreciation more on the Foreign-FOMC days for non-funding currencies.

We then turn our attention to the currency portfolio setting, sorted by forward discounts, and show that the total excess currency return for the mid forward-discount portfolio yield a dollar appreciation of 20 bps when at least two foreign central banks precede the Fed in the portfolio. The baseline FOMC effect is still there, around 20 bps of local currency appreciation, but the effect of foreign central bank precedence is of a larger economic magnitude, 42 bps. Surprisingly, previously documented findings of the carry pattern – a portfolio of higher-yield currencies having linearly stronger foreign currency appreciation – on FOMC days break down once at least two central banks precede. Though foreign currency appreciation on FOMC days is intact, there is no economic difference between the mid forward-discount portfolio and the high forward-dicount portfolio. We also dissect a dollar portfolio return by a number of foreign cental banks preceding FOMC and find that a dollar portfolio return can be improved if we exclude the days with many foreign central banks preceding FOMC.

Finally, for robustness, we take into account pre-FOMC pricing of fed fund rate using intraday futures, monetary policy surprises of preceding foreign central bank meetings, and the incidence of overlapping meetings.

By incorporating the role of sequencing in central bank communications, our study provides a novel perspective on monetary policy impacts in foreign exchange markets. The results of this paper highlight a mechanism of informed trading and information leakage in global currency markets, whereby investors incorporate foreign central bank communications as signals for upcoming U.S. monetary policy decisions. When major foreign central banks announce policy decisions in the days preceding FOMC meetings, exchange rate behavior suggests that investors reposition their portfolios preemptively—implying that foreign

announcements serve as informative conditioning signals. This inference-based behavior parallels findings in Bernile et al. (2016), who document evidence of informed trading ahead of scheduled macro-news releases, raising the question of whether information is ever truly locked up in global financial markets. In our context, the "leak" is not illicit but arises from public yet strategically overlooked information embedded in foreign monetary policy actions. The market's response reflects a form of strategic learning, where investors exploit the informational linkages between central banks. This also echoes the findings of Laarits (2022), showing that pre-FOMC price movements incorporate signals beyond U.S. domestic data. Together, these results suggest that foreign central bank communications function not merely as local policy events but as crucial leading indicators of global macro-financial sentiment.

This mechanism also connects with foundational frameworks in international finance. Exchange rate movements are especially sensitive to the sequence and informational content of macroeconomic shocks. When foreign central bank announcements help forecast that the FOMC shock is growth-driven, we observe that higher expected rate hikes are associated with dollar depreciation. This negative co-movement is consistent with Uncovered Interest Parity (UIP), and contrasts with the well-known empirical violation where interest rate differentials typically predict currency appreciation. In line with Gürkaynak et al. (2021), monetary policy surprises do not uniformly translate into predictable exchange rate changes—their effects depend on the type and interpretation of the policy shock. Our findings reinforce this view by showing that when monetary surprises reflect growth risks, the exchange rate responds in a UIP-consistent direction. Furthermore, we find that the effect of foreign central bank precedence becomes amplified when the shock carries significant informational content. This suggests that investors not only assess the Fed's rate path, but also condition preemptively their expectations based on preceding foreign macro signals—highlighting the informational interdependence that increasingly governs modern monetary transmission across borders.

A large literature studies Federal Open Market Committee (FOMC) meeting. Laarits (2022) provides a model where investors interpret FOMC announcements either as signals

about economic conditions or about the Fed's policy stance, depending on prior macroeconomic news. The pre-FOMC drift arises, as uncertainty about announcement interpretation resolutes. Other works further examine this phenomenon by extending samples and asset classes. Kurov et al. (2021) extend the sample and find that pre-FOMC equity market drift has largely disappeared after 2015, ascribing it to reduced uncertainty and improved communication from the Fed. In the US bond market, Brooks et al. (2018) find the observed excess sensitivity of long-term interest rates to short-term rate changes and the gradual yield adjustment over teh subsequent 50 days following FOMC. Further, Savor and Wilson (2014) document that, on FOMC announcement days, the Capital Asset Pricing Model (CAPM) explains the cross-section of stock returns and the observed beta-return relationship holds across individual stocks, various test portfolios, and extends to bonds and currencies.

This paper also contributes to the monetary policy literature that studies the central bank communication and high-frequency identification. Empirical evidence are documented by Bernanke and Kuttner (2005); Kuttner (2001); Gürkaynak et al. (2005); Nakamura and Steinsson (2018); Bauer and Swanson (2022); Miranda-Agrippino (2016). A recent papers (Laarits, 2022; Cieslak and Schrimpf, 2018; Jarociński and Karadi, 2020) use high-frequency co-movements of asset returns to classify FOMC announcement days into distinct categories based on the nature of information conveyed and the observed financial market reactions.

This paper is organized as follows. Section 2 describes the data. Section 3 presents the main analysis of exchange rates on FOMC and conditional FOMC days, and examines currency portfolios with precedence of foreign central banks. Section 4 provides additional evidence accounting for market expectations of the federal funds rate and foreign monetary policy shocks. Section 5 concludes. In appendix, we also develop a two-country New Keynesian framework where both the Fed and Bank of Japan follow Taylor rules that respond to a common global productivity factor and sequential central bank announcements create an information channel that breaks the standard carry trade (upon request).

2 Data

Foreign Exchange. We use high-frequency intraday data on foreign exchange rates from the LSEG Matching platform, historically one of the major interdealer venues in the FX market and a primary source of price discovery—particularly for Commonwealth currencies. Our analysis focuses on the G9 currencies, namely the Australian dollar (AUD), Canadian dollar (CAD), euro (EUR), Japanese yen (JPY), New Zealand dollar (NZD), Norwegian krone (NOK), Swedish krona (SEK), Swiss franc (CHF), and British pound (GBP), all quoted against the U.S. dollar. This set comprises some of the most liquid and heavily traded currencies globally and, in aggregate, accounts for nearly two-thirds of average daily turnover in foreign exchange markets (BIS, 2022).

The LSEG Matching data include firm (i.e., executable) quotes and transaction prices. However, the starting point of the sample varies by currency: AUD, GBP, CAD, CHF, EUR, and JPY are available from April 2005; NZD from January 2007; and NOK and SEK from January 2011. The sample ends in March 2024 for all currencies.

Since the data are recorded at tick frequency, we observe the full universe of limit and market orders submitted to the platform. Following prior work, we aggregate the data to 5-minute intervals to reduce the influence of market microstructure noise and to ensure uniformly spaced time stamps. We compute mid-prices by linearly interpolating between the best bid and ask prices closest to the end of each 5-minute interval. To measure actual transaction prices, we construct value-weighted average prices (VWAP), using traded volume (denominated in U.S. dollars) as weights.

Central Bank Announcements. Following standard practice in the literature, we obtain central bank announcement dates for all foreign countries from Bloomberg's Economic Calendar. This database provides the date and precise timestamp of each announcement, along with information on the announcement content, the median survey expectation, and the standard deviation of expected values. These data allow us to quantify the surprise component of monetary policy decisions.

The availability of announcement dates for foreign central banks varies across countries but generally aligns with—or precedes—the start date of the intraday currency data. Information on FOMC announcement dates and times is obtained directly from the website of the Federal Reserve Board.

Additional Data. To complement our main data sources on foreign exchange markets and central bank announcements, we incorporate several additional datasets for our analysis.

First, to classify monetary policy shocks, we construct a high-frequency covariance measure between the SPDR SP 500 Exchange Traded Fund (SPY) and the iShares 7–10 Year Treasury ETF (IEF), following the approach in Laarits (2022). This measure is calculated at the one-minute frequency using data from the TAQ database accessed via WRDS. The co-movement between equity and bond returns around announcement windows helps capture the direction and nature of monetary policy surprises.

Second, we construct U.S. monetary policy shocks using several sources. Monetary policy surprises and pre-FOMC pricing are based on Fed funds futures obtained from the CME Group. Following Kuttner (2001), we define monetary policy surprises as the change in futures-implied rates from one minute before to 30 minutes after the FOMC announcement. This window captures the immediate market reaction while minimizing noise.

Third, we obtain monetary policy surprises for foreign central banks from established sources. For the Bank of England, we use the surprises compiled by Miranda-Agrippino (2016), and for the European Central Bank (ECB), we rely on the dataset from Jarociński and Karadi (2020).

Lastly, we include standard measures of financial market uncertainty, such as the VIX and the MOVE index, both of which are downloaded from Bloomberg. These variables serve as controls for risk sentiment and broader financial conditions.

Summary Statistics.

[Insert Table 1]

[Insert Table 2]

3 Empirical Analysis

3.1 FOMC and Conditional FOMC Days

We first show that exchange rates react differently to FOMC announcements when foreign cental banks have their announcements prior to FOMC. Figure 3 below shows the exchange rate reactions of the major currencies during a day for three types of days: Non-FOMC days, FOMC days when no foreign central banks move within 7 days prior to the Fed (FOMC-only days), and FOMC days when a foreign central bank precedes the Fed within 7 days prior to the Fed (Foreign-FOMC days). On non-FOMC days, exchange rate movements are muted. On Fed only days, major foreign currencies appreciate against a dollar on average, earning an uncertainty premium (Mueller et al., 2017). In contrast, on Foreign-FOMC days, major currencies either start depreciating after the market opens in the US or before the market opens in the US. While the strength of this foreign currency depreciation varies and net currency returns can be around zero or positive, the dollar always earns a positive excess return compared to uniform negative returns on Fed-only days.

[Insert Figure **3**]

This pattern — where foreign currencies appreciate on FOMC days due to monetary policy uncertainty, but relatively depreciate (USD appreciates) when foreign central banks announce policy before the FOMC — suggests a shift in market dynamics depending on the nature of global monetary policy uncertainty before the Fed's decision. Table 2 formally tests whether returns differ between Foreign-FOMC and FOMC-only days.

[Insert Table **2**]

First, for major currencies such as Australian dollar (AUD), British Pound (GBP), Canadian dollar (CAD), and Euro (EUR), the average returns are statistically different between Foreign-FOMC days and FOMC-only days. In an extreme case, AUD exhibits daily 50 bps on Foreign-FOMC days comppared to FOMC-only days. Other major currencies, GBP, CAD,

and EUR, exhibit statistically different moderate spread of 12-14 bps. The second group that shows a unique pattern is the funding of currencies such as the Japanese yen (JPY) and Swiss Franc (CHF). The effects of foreign central bank precedence manifest strongly especially post-announcement. In both currencies, they strongly appreciate against the dollar and they are statistically different from non-FOMC days. In contrast, the average returns of those funding currencies on FOMC-only days are not statistically different from the average returns on non-FOMC days. That is, funding currencies earn uncertainty premium of 12-17 bps only when foreign central banks move prior to the Fed. This implies the FOMC announcement effects are hinges on foreign central banks, especially on funding currencies.

The last group is of currencies representing smaller economies. New Zealand dollar (NZD), Norwesian Krona (NOK), and Swedish Krona (SEK) show no statistically different average returns on Foreign-FOMC days, compared to FOMC. For NOK and SEK, average returns on FOMC-only days are also not statistically different from non-FOMC days unlike other currencies.

One possibility for these findings is that investors learn about FOMC announcements prior to actual announcements, based on foreign central bank announcements. Countries of the exchange rates that exhibit strong Foreign-FOMC effects are all major currencies traded or large trading partners. Investors can learn about common information such as a signal about expected growth rates from foreign central bank announcements and extrapolate to the FOMC announcements. For example, they learn about detereorating global growth rates from foreign central bank announcements, they extraporate it to the US economy and buy more the US dollar as a safer reserve currency.

This pattern is unlikely to reflect a simple amplification of the uncertainty premium documented by Mueller et al. (2017). If foreign central bank precedence merely increased uncertainty, we would expect stronger local currency appreciation—the opposite of what we observe. Investors would hedge against risk by reducing exposure to USD-denominated assets and shifting into foreign currencies, which is not what we see on Foreign-FOMC days. On the other hand, foreign central bank precedence can trigger partial resolution of uncertainty

prior to FOMC, but VIX follows a similar pattern of a heightened level two days prior and then a drop on announcement days for both Foreign-FOMC days and Fed-only days.

Another possibility is due to changes in investors positioning ahead of the FOMC. If a foreign central bank eases (cuts rates, dovish signal) before the Fed, investors have incentives to adjust their portfolios by selling that currency and buying USD in anticipation of a widening interest rate differential. Conversely, if a foreign central bank hikes (tightens, hawkish signal), it may strengthen the foreign currency initially around foreign announcements, but this also forces investors to reconsider the Fed's response. If markets perceive a foreign rate hike as increasing the probability of a more hawkish Fed, USD demand rises. Either way, pre-positioning before the FOMC shifts from a "US monetary uncertainty hedge" (favoring foreign currency strength) to an "interest rate differential play" (favoring USD appreciation). When a day of FOMC arrives, market participants are more focused on relative rate differentials. This flips the usual FOMC day pattern, as investors are now more likely to rotate into the dollar rather than hedge against it.

Given these possible explanations, we move our attention to testing in the time-series setting.

3.2 Time-Series Analysis

In this section, we test the impact of foreign central bank precedence on FOMC announcement effects in pooled time-series regressions.

$$R_{i,t,t+h} = \alpha_i + \beta_1 FOMC_t + \beta_2 ForeignMoves_{it} + \epsilon_{it} \tag{1}$$

First, we use three intraday currency returns from 5pm to 5pm, from 5pm to 2pm, and from 2pm to 5pm for $R_{i,t,t+h}$. $FOMC_t$ is an indicator variable that takes the value one if a FOMC meeting takes place and zero otherwise. $Foreign\,Moves_{it}$ is an indicator variable that equals one if a corresponding foreign central bank has an announcement within a week prior to each FOMC meeting, and zero otherwise.

We split currencies into two groups. JPY and CHF are typically considered funding currencies, and investor behavior toward these currencies differs from that for others.

In the 5pm to 5pm sample, non-funding currencies in column (1) show foreign currency appreciation on FOMC days, consistent with the findings in Mueller et al. (2017), amounting to approximately -23.8 basis points. However, when a foreign central bank meeting precedes the FOMC, the dollar appreciates by an additional 16.5 basis points. As a result, the total exchange rate impact on conditional FOMC days, when corresponding foreign central banks have met beforehand, is -7.3 basis points. This is about three times smaller than the effect observed on FOMC-only days. Interestingly, for funding currencies in column (2), neither the baseline FOMC effect nor the foreign central bank precedence effect is statistically significant, which is consistent with Mueller et al. (2017).

In the 5pm to 2pm sample, the appreciation of non-funding currencies on FOMC days remains significant at around -16.4 basis points. Again, the foreign central bank precedence contributes 11.4 basis points of dollar appreciation, reducing the total effect on conditional FOMC days to -5 basis points. This magnitude is, once again, three times smaller than the unconditional FOMC effect.

Turning to the 2pm to 5pm window, non-funding currencies in column (1) exhibit a -7.5 basis point depreciation on FOMC days. Foreign central bank precedence adds 6.7 basis points of dollar appreciation, resulting in a net effect of -0.8 basis points. A novel finding here is that for funding currencies in column (2), the foreign central bank precedence now has a statistically significant effect, whereas the baseline FOMC effect remains insignificant. This implies that for funding currencies, investor behavior is sensitive only when foreign central banks issue new information prior to FOMC meetings. For example, if the Bank of Japan provides no new guidance, investors are unlikely to adjust their short positions in JPY, regardless of U.S. interest rate moves at the FOMC.

We also condition the sample using high-frequency covariance (HFC), motivated by research on flight-to-safety (FTS) episodes (Baele et al., 2010; Baele et al., 2020) and high-frequency identification of monetary policy shocks through stock-bond comovements (Laarits,

2022, Cieslak and Schrimpf, 2018, Jarociński and Karadi, 2020). When HFC is negative, it indicates that bond and stock returns co-move negatively, suggesting the main driver of the monetary policy shock is a growth rate shock, rather than a pure interest rate shock.

With HFC data in hand, we replicate the earlier exercises for non-funding and funding currencies in columns (3) and (4). Overall, the effects of foreign central bank precedence are more pronounced when the monetary policy shock is driven by a growth rate shock. For example, in the 5pm to 5pm sample, the baseline FOMC effect is -20.6 basis points, while the foreign central bank precedence contributes 31.4 basis points, leading to a net effect of 10.8 basis points on conditional FOMC days for non-funding currencies. This suggests that the effect of foreign central bank precedence doubles when HFC is negative.

[Insert Figure 4]

[Insert Figure 5]

[Insert Figure 6]

Furthermore, in the 2pm to 5pm sample, the baseline FOMC effect is neither statistically nor economically significant for both non-funding and funding currencies. However, the foreign central bank precedence effect is strong for both. This implies that when monetary policy shocks are primarily growth-driven, FOMC announcements matter for exchange rates only when preceded by foreign central bank meetings. This points to a strong informational link between growth signals embedded in FOMC communication and prior foreign central bank announcements.

[Insert Table 3]

Next, we focus on the post-announcement sample, 2pm to 5pm, and take account of US monetary policy surprises (MPS), which may trigger a dollar appreciation after announcements. To avoid a look-ahead bias, we focus on the post-announcement sample. In sum,

controlling MPS does not alter the main results and economic magnitudes are much smaller compared to the effect of foreign central bank precedence or the baseline FOMC effect.

$$R_{i,t,t+h} = \alpha_i + \beta_1 FOMC_t + \beta_2 ForeignMoves_{it} + \beta_3 MPS_t + \epsilon_{it} \tag{2}$$

[Insert Table 4]

Similar to the baseline results presented in Table 3, the effect of foreign central bank precedence is found to be twice as large when the main driver of the monetary policy shock pertains to growth expectations, rather than to a pure short-rate adjustment. This reinforces the earlier finding that a link between the foreign central bank announcements and the nature of the shock plays a crucial role in determining exchange rate responses on FOMC days.

The effects are especially pronounced for funding currencies such as JPY and CHF. This is consistent with the findings in Baele et al. (2020), where these "safe-haven" currencies tend to appreciate during FTS episodes. Their status as preferred currencies during periods of elevated uncertainty amplifies their sensitivity to policy signals from major central banks.

One plausible mechanism is that foreign central bank announcements trigger a broader repositioning of currency exposures in global investor portfolios. In particular, when foreign central banks move ahead of the FOMC, investors may begin to unwind carry-trade positions involving funding currencies like the JPY and CHF. This larger-scale portfolio adjustment can generate sharper exchange rate movements relative to scenarios in which the FOMC acts in isolation.

3.3 Uncertainty and Conditional FOMC

In this section, we test the impact of foreign central bank precedence on FOMC announcement effects in conjuncture with uncertainty measures. We modify the baseline specification by adding two uncertainty measures, VIX and MOVE. Both are measured in a form of percentage changes.

$$R_{i,t,t+h} = \alpha_i + \beta_1 FOMC_t + \beta_2 ForeignMoves_{it} + \beta_3 VIX_t + \beta_4 MOVE_t + \beta_5 ForeignMoves_{it}\Delta VIX_t + \beta_6 ForeignMoves_{it}\Delta MOVE_t + \beta_7 MPS_t + \epsilon_{it} \quad (3)$$

[Insert Table 5]

A well-established relationship exists between the VIX index—constructed from implied volatilities of S&P 500 options—and asset returns around central bank announcements (Lucca and Moench, 2015; Laarits, 2022; Hu et al., 2022). Motivated by this literature, we incorporate controls for uncertainty in our analysis. In addition to the VIX, we also include the MOVE index, which is based on implied volatilities in U.S. Treasury options. Notably, controlling for both the VIX and MOVE indices does not change the economic or statistical significance of the foreign central bank precedence effect.

Using data from the previous day's 5pm to 5pm return window (the upper panel), we find that increases in the VIX index are associated with modest dollar appreciation, whereas increases in the MOVE index are linked to dollar depreciation for non-funding currencies. However, the magnitude of these effects is relatively small compared to those observed on FOMC days or due to foreign central bank precedence. Specifically, a one-percentage-point increase in the VIX index results in only a two-basis-point change in currency returns.

We also find interaction effects with the MOVE index. When foreign central bank meetings precede FOMC announcements, larger increases in the MOVE index tend to be associated with foreign currency appreciation. This effect is observed for both non-funding and funding currencies. One possible interpretation is that heightened uncertainty in the U.S. Treasury market triggers a shift in investor preference toward foreign currencies, potentially as a form of safe-haven behavior or portfolio rebalancing.

In the lower panel, which focuses on intraday data from 2pm to 5pm on the FOMC day, the economic influence of both the VIX and MOVE indices is more muted. That said, larger increases in the VIX index are more strongly associated with dollar appreciation when foreign central banks have made announcements prior to the FOMC. This suggests that

equity market volatility may amplify safe-haven flows into the dollar under certain conditions of international monetary sequencing.

3.4 Currency Portfolios

In this section, we examine currency returns in form of currency portfolios, sorted on forward discounts. Following the literature (Lustig et al., 2011; Mueller et al., 2017), we sort 9 currency returns into three portfolios based on their forward discounts at the end of each month. PF1 corresponds to currencies with lowest forward discounts, while PF3 corresponds to currencies with highest forward discounts. Portfolio returns are the average daily excess returns of three currencies in each portfolio. We calculate excess returns for individual currencies by

$$rx_{t+1} = \Delta s_{t+1} - (f_t - s_t) = s_{t+1} - f_t \tag{4}$$

We assume the interest rate differential is linearly earned over a month. A dollar portfolio is a portfolio that is long all other currencies against the US dollar, equally weighted. The summary statistics for these returns are given in Table 6.

[Insert Table 6]

$$rx_{t+1} = \alpha + \beta_1 FOMC_t + \beta_2 \mathbf{1}_t \{\texttt{FCB Precedence}\} + \epsilon_{t+1} \tag{5}$$

$\mathbf{1}_t \{\texttt{FCB Precedence}\}$ is an indicator variable that takes one if a certain number of foreign central banks' meetings precedes FOMC and otherwise zero. We first set this condition to be all the foreign central banks in each portfolio, which is 3, and define $\mathbf{1}_t \{\texttt{All 3FCBs Precede}\}$ in panel A. Then, we replace it by a new condition, at least 2, and define $\mathbf{1}_t \{\texttt{AtLeast 2FCBs Precede}\}$ to test again in panel B. We further test with $\mathbf{1}_t \{\texttt{AtLeast 1FCB Precedes}\}$ in panel C.

[Insert Table 7]

For the first regression specification, Table 7, panel A shows its result. Throughout portfolios 1 to 3, on average they experience negative excess return, meaning foreign currency appreciation, between 7-16 basis points on FOMC days. A dollar portfolio also exhibits 15.5 bps decrease in excess return. However, PF2 and PF3 shows a similar foreign currency appreciation and there is no carry pattern. At the same time, an indicator variable, $\mathbf{1}_t\{\texttt{All 3FCBs Precede}\}$, shows strong dollar appreciation for PF2 and strong foreign currency appreciation for PF1. This implies that, on conditional FOMC days when all foreign central banks in PF2 precede FOMC, on average PF2 exhibits 263 - 15.6 = 247.4 bps foreign currency appreciation. For PF1, it implies that FOMC days matter mostly only when all foreign central banks in PF precede FOMC and there is no dollar appreciation effect for conditional FOMC days. This is in line with all the results for funding currencies in Table 2, 3, 4, 5.

For the second regression specification, panel B shows its result. Portfolio 2 and 3 on average exhibit statistically significant negative excess return, meaning foreign currency appreciation, between around 19 basis points. A dollar portfolio exhibits 14 bps decrease in excess return. For PF1, representing low interest rate currencies, does not show statistical significance. For $\mathbf{1}_t\{\texttt{AtLeast 2FCBs Precede}\}$, PF2 shows economically and statistically strong foreign currency depreciation, 41.7 bps. This implies that, on conditional FOMC days when at least 2 foreign central banks in PF2 precede FOMC, on average PF2 exhibits 41.7 - 19.2 = 22.3 bps dollar appreciation.

For the third regression specification, panel C shows its result. On average all the portfolios experience negative excess return between 10-30 basis points on FOMC days. Further, the carry pattern - the highest interest portfolio exhibits the highest foreign currency appreciation - is regained in this specification. At the same time, albeit statistically weak, negative excess return of PF2 drops to 17.9 - 22.0 = - 4.1 bps on conditional FOMC days when at least 1 foreign central banks in PF2 precede FOMC, implying the carry pattern gets weaker.

Taken together, the previously documented carry pattern (Mueller et al., 2017: Lustig et al., 2011) for forward discount sorted portfolios on FOMC days breaks down or gets weaker

when several foreign central banks' announcements precede FOMC announcements. Further, this deviation is correlated with a number of foreign central banks precedes. At the same time, this Foreign-FOMC effect is concentrated in the mid forward discount portfolio, PF2, which often includes GBP and EUR, currencies of relatively more major economies. While we do not see the same Foreign-FOMC effect in low and high forward discount portfolios, PF1 and PF3, PF1's baseline foreign currency appreciation effect is very statistically weak, and rather it shows statistical significance only when enough number of foreign central banks precedes the Fed. We ascribe this findings to safe-haven currencies, JPY and CHF, which has often also low forward discounts on average and get sorted into PF1.

[Insert Table 8]

Next, we turn our attention to a dollar portfolio to examine how a number of foreign central bank precedence affects its excess return. Table 8 shows that unconditionally a dollar portfolio exhibits 8 bps of foreign currency depreciation on FOMC days. This is of the same economic magnitude as what Mueller et al. (2017) document with an older sample, around 10 bps. Once controlling at least one foreign central bank precedence in column (2), foreign currency appreciation is no longer statistically significant, though economically it still incurs foreign currency appreciation. A number of occurrence for at least one foreign central bank precedence in 9 currencies in a dollar portfolio is 38 times out of 148 FOMC meetings in the sample. In contrast, in column (3) and (4), removing the effeccts of foreign central bank precedence either 2 or 3 improves the baseline effect of foreign currency appreciation on FOMC days, by 3-4 bps. This indicates that, while being exposed to foreign currency risks broadly and equally does not prohibit investors from harvesting foreign currency appreciation on FOMC days, one can improve by taking account of certain foreign central bank precedence.

Based on these currency portfolio excercises, the distinct behavior of currency portfolios in response to foreign central bank announcements reflects meaningful variation in both trading activity and informational relevance across currencies. PF2, which likely includes moderately yielding, highly liquid currencies such as the Euro and British pound, exhibits consistent dollar appreciation when foreign central banks precede the FOMC. These currencies are deeply

integrated into global financial markets, making them more responsive to revisions in expectations about synchronized monetary policy or global growth conditions. In contrast, PF3 does not exhibit comparable dollar appreciation. One key explanation lies in their relatively lower trading volumes and peripheral role in global macro-financial inference. According to the 2022 BIS Triennial Central Bank Survey, the New Zealand dollar accounts for only 2.1% of global daily FX turnover, compared to 30.5% for the Euro, 12.9% for the British pound, and 16.7% for the Japanese yen. Even the Swiss franc, despite Switzerland's small economy, accounts for 5.2% of turnover due to its role as a safe-haven asset. In contrast, monetary policy decisions from the RBNZ tend to reflect regional dynamics and carry limited extrapolative power for forecasting U.S. macroeconomic conditions or the Fed's reaction function. As a result, even though PF3 currencies offer attractive carry trade returns, their muted response likely stems from their lower market centrality and reduced informational salience during episodes of foreign monetary signaling.

PF1, by contrast, consists of traditional funding currencies such as the Japanese yen and Swiss franc. The observed dollar depreciation in this group—particularly when foreign central banks precede the Fed—suggests an unwinding of yen or swiss franc-funded carry trades as investors reposition amid shifting global growth expectations. This behavior is consistent with these currencies' roles as safe havens, which tend to appreciate in response to elevated uncertainty or adverse macro signals. Overall, the asymmetric responses across PF1–PF3 highlight how liquidity, macro-informational relevance, and investor positioning interact to shape exchange rate dynamics around international central bank announcements.

3.5 State Dependent Price of Risk

[Insert Table 9]

Panel A first shows that each carry-sorted portfolio is almost a one-for-one proxy for the broad dollar factor. The estimated loadings on this factor, β_{RX}, hover near 1.0 and are highly significant whether the sample includes ordinary trading days, FOMC-announcement days, or

the narrower set of "Foreign-FOMC" days in which a foreign central-bank decision precedes the FOMC meeting. The lone deviation occurs in portfolio 2 on Foreign-FOMC days, where β_{RX} falls to 0.635. As documented earlier, information flows change when foreign policy news arrives first, so the mid-yield currencies in portfolio 2 hedge less dollar risk in that subsample.

The carry factor tells a more nuanced story. On the full sample and on non-FOMC days, the carry loadings, β_{HML}, increase monotonically from portfolio 1 (low-yield funding currencies) to portfolio 3 (high-yield investment currencies), reproducing the classic pattern in Lustig et al. (2011). Once foreign central banks move ahead of the FOMC, the ordering breaks down. Portfolio 2's carry beta becomes insignificant, its abnormal return plunges to -11.7 bp, and its R^2 collapses from roughly 0.7 to 0.27. Because HML itself reflects foreign-currency appreciation, the vanishing β_{HML} combined with a large negative α means that portfolio 2 experiences a dollar rally that neither the carry factor nor the dollar factor can explain on Foreign-FOMC days.

Panel B turns to the market prices of risk, λ. Most of the time neither factor commands a significant premium, but both prices spike on policy-announcement days. λ_{RX} becomes significant on FOMC days, and both λ_{HML} and λ_{RX} turn large and negative on Foreign-FOMC days; in particular, the carry price plunges to -27.3 bps. Coupled with Panel A's betas, this implies that the high-yield portfolio (PF 3) earns a negative expected excess return—foreign-currency appreciation—while the mid-yield portfolio (PF 2) loses its usual carry exposure and does not appreciate. The usual monotonic pricing relation therefore collapses when foreign policy news precedes the FOMC.

Taken together, the results reveal how currency-market risk factors interact with layered policy announcements. In tranquil periods the two-factor model prices the carry spectrum cleanly, but on FOMC days both risk prices turn sharply negative, so positive carry shocks behave like insurance against U.S. monetary uncertainty. When foreign central-bank surprises come first, the model's explanatory power concentrates in the tails while the mid-yield portfolio picks up large unexplained returns. Foreign policy shocks trigger non-linear FX reactions—safe-haven flows into USD, JPY, CHF, or liquidity squeezes that hit mid-

yield currencies—that lie outside the high-minus-low carry dimension; they surface as large portfolio-specific α's, especially for PF 2.

Discussion and Interpretation

Can these changes in the loadings and prices of risk be related to the changes in aggregate risk premium? To investigate, we estimate the equity beta of currency returns. Specifically, we estimate conditional equity betas of the major currencies in a 30-day rolling window. As Figure 7 below shows, currency pairs that tend to fall in the mid-yield portfolio, PF2, such as GBP and EUR show drops towards zero in equity betas on the Foreign-FOMC days. AUD also shows similar compression of equity betas to a lesser degree. These compression of equity betas coincides with the earlier findings of the broad dollar beta compression and the carry beta becoming zero and insignificant in the mid-yield portfolio (Table 9). This implies that the risks specifically in the currency market are closely related to the broader aggregate risks, especially for the currency pairs that represent countries with high macro-informational relevance to the US.

An interesting case is JPY, where it does not have large changes in its equity beta. We earlier document that JPY, a funding currency, shows the FOMC uncertainty effect only when the foreign central bank precedes it. The fact that the aggregate risk premium does not significantly change, but there is a strong Foreign-FOMC effect implies that JPY's behavior is driven by an unwinding of carry trade positions instead of the changes in premia driven by macro-informational relevance from foreign markets.

[Insert Figure 7]

4 Robustness

4.1 Pre-FOMC Pricing in the Futures Market

Pre-FOMC Fed funds futures pricing of rate hikes or cuts can be influential in analyzing currency returns on FOMC days because it captures market expectations of monetary policy decisions before they are officially announced. Since exchange rates are sensitive to interest rate differentials and expectations, any divergence between the Fed funds futures-implied probability and the actual FOMC decision can lead to sharp currency movements. If a rate hike is fully priced in, the currency impact may be muted unless the Fed surprises the market with non-rate shocks. Conversely, a significant deviation from expectations—such as an unexpected rate cut or a more aggressive tightening—can trigger large FX adjustments as traders quickly reassess future policy paths and global capital flows. Thus, incorporating pre-FOMC pricing helps isolate unpriced monetary policy shocks that are driven by foreign central bank precedences, which can be key drivers of exchange rate fluctuations around FOMC announcements.

The expected rate change is calculated with intra-day data of the fed fund futures contract of a front month, between 9:30 AM and the announcement time around 2pm, and compared to the current fed funds rate in each day. Adjustments were made if necessary, depending on where the FOMC meeting falls within the month to reflect the final settlement price being based on the average of the federal funds effective rate over the contract month. For example,

$$\mathrm{E}_d[FFR_{post-FOMC}] = \frac{E_d[FFR_m] - \left(\frac{d_{FOMC}-d}{D} \times \mathrm{EFFR}_{current}\right)}{\frac{D-d_{FOMC}}{D}}$$

$$\mathrm{E}_d[RateChange] = E_d[FFR_{post-FOMC}] - EFFR_{current}$$

where d_{FOMC} is a date of the FOMC announcement in a month, d is a date of today, D is a number of trading days in a month, $E_d[FFR_m]$ is an implied fed funds rate of a front month futures contract, and $EFFR_{current}$ is a current fed funds rate. With the expected rate change at hand, we run regression as follows. For the 2pm (t) to 5pm (t) sample, expected

rate changes priced between 9:30am to 2pm on the same day are used, while expected rate changes priced in a previous day are used for the 5pm (t-1) to 5pm (t) sample to avoid a look-ahead bias.

$$R_{i,t,t+h} = \alpha_i + \beta_1 FOMC_t + \beta_2 ForeignMoves_{it} + \beta_3 ExpRateChange_{t,t+h} + \epsilon_{it} \quad (6)$$

[Insert Table **10**]

First, controlling for pre-FOMC pricing does not alter the economic or statistical significance of the effects stemming from foreign central bank precedence, relative to the baseline results observed in the full sample. This suggests that the influence of preceding foreign central bank announcements is robust to expectations already priced into the market before the FOMC decision.

A particularly notable finding is that, without conditioning the sample, the expected rate changes priced into fed funds futures prior to FOMC meetings display an opposite sign in relation to exchange rate movements. This holds in both the 5pm to 5pm and 2pm to 5pm return windows. Specifically, a higher expected rate hike relative to the current fed funds rate is paradoxically associated with dollar depreciation—contrary to what traditional interest rate parity would suggest.

This puzzling pattern can be explained by the informational content embedded in monetary policy shocks. Once the sample is conditioned on the high-frequency covariance (HFC) between stock and bond returns, the relationship between fed funds futures pricing and exchange rate movements becomes more coherent. When the monetary policy shock is driven by a growth rate component (HFC < 0), expected rate changes predict exchange rate movements with the previously observed reversed sign, as shown in columns (3) and (4). Conversely, when the shock is primarily a traditional short-rate shock (HFC > 0), as in columns (5) and (6), expected rate changes align with standard theory: a higher anticipated rate decision is associated with dollar appreciation.

Importantly, the economic significance of the expected rate change variable increases under these conditions. For the 5pm to 5pm sample, the coefficient triples in magnitude, and for the

2pm to 5pm sample, it approximately doubles. At the same time, the effect of foreign central bank precedence becomes statistically insignificant for non-funding currencies when the policy shock is driven mainly by a short-rate surprise. This suggests that investor behavior is more responsive to foreign central bank signals when those signals help anticipate growth-related information embedded in upcoming FOMC announcements. In contrast, when the monetary policy surprise is purely about interest rate levels, investors appear to place less weight on foreign central bank precedence.

Taken together, these findings indicate that while the effects of foreign central bank precedence persist after controlling for pre-FOMC rate pricing, the impact is particularly pronounced when monetary policy shocks are growth-driven. In such scenarios, pricing based on fed funds futures is less precise in capturing expectations, thereby amplifying the informational value of foreign central bank announcements.

4.2 Foreign Monetary Policy Shocks

Given we focus on conditional FOMC days when foreign central banks precedes the Fed within a week, it is reasonable to wonder if monetary policy surprises incurred by foreign central banks have prolonging effects on exchange rates up to FOMC announcements. We modify the baseline regression by adding monetary policy surprises from each nearest foreign central bank announcement to each FOMC meeting. Due to the limited data availability in available momentary policy surprises of foreign central banks, we focus on EUR and GBP.

$$R_{t,t+h} = \alpha + \beta_1 FOMC_t + \beta_2 ForeignMoves_t + \beta_3 NearestSurpriseFCB_{t-k} + \epsilon_t \tag{7}$$

[Insert Table 11]

First, for EUR, controlling the nearest monetary policy surprises of ECB overall does not subsume the effect of foreign central bank precedence in the 5pm to 5pm sample. It exihibits around 19 basis points of dollar appreciation, while the effect of FOMC meeitng itself exhibits around 25 basis points of foreign currency depreciation. In the 5pm to 2pm sample, however,

it instead subsume the effect of foreign central bank precedence. In the 2pm to 5pm sample, it does not subsume the effect, but it is statistically weaker.

Second, for GBP, controlling the nearest monetary policy surprises of BoE overall does not subsume the effect of foreign central bank precedence in the 5pm to 5pm sample. Interestingly, compared to individual currency regression results without foreign central bank monetary policy surprises[1], the effect of foreign central bank precedence is larger. Also, a direction in the effect of the nearest monetary policy surprises from foreign central banks is foreign currency appreciation, which is the same as the uncertainty premium of FOMC announcements and is opposite to the effect of foreign central bank precedence. In the 5pm to 2pm sample, again, the effect of foreign central bank precedence remains strong and net effect during that time on that day is 33.8 bps - 22.5bps = 11.3 bps, dollar appreciation. The effect of the nearest monetary policy surprises from foreign central banks is not statistically significant in this sample. At last, in the 2pm to 5pm sample, surprisingly the effect of the nearest monetary policy surprises from foreign central banks is statistically significant even after FOMC announcements.

4.3 Excluding Overlapping Meetings

In this section, we run robustness tests to control overlaps of foreign central bank meetings with FOMC meetings. Such overlaps may contaminate estimation results by saturating information available to the exchange rate markets and changing investor behaviors simultaneously with more than two different central bank announcements. To address that, we exclude a subset of FOMC days when corresponding foreign central banks' meeting fall on the same day as the Fed for each currency. Table 13 shows the results. Overall, excluding meeting overlaps does not alter our baseline results in Table 3, apart from the effect of foreign centrla bank precedence being economically stronger for the 5pm to 2pm sample and being economically weaker for the 2pm to 5pm sample.

[1] See Table 12.

[Insert Table 13]

5 Conclusion

Based on this comprehensive study of central bank meeting timing and exchange rate dynamics, we document a novel and economically significant finding: when major foreign central banks announce policy decisions in the week preceding FOMC meetings, exchange rate behavior fundamentally changes. Non-funding currencies (AUD, GBP, CAD, EUR) that typically appreciate against the dollar on FOMC days instead depreciate by 12-17 basis points when foreign central banks move first, while funding currencies (JPY, CHF) exhibit appreciation of 13-17 basis points exclusively on these conditional FOMC days. This asymmetric response suggests that foreign central bank announcements serve as informative signals that trigger preemptive portfolio repositioning, with investors extracting macro-financial information about upcoming U.S. monetary policy from foreign policy actions. The effect is particularly pronounced when monetary policy shocks are growth-driven rather than pure rate shocks, and is concentrated in highly liquid, informationally-relevant currencies. Moreover, the traditional carry pattern documented in prior literature breaks down when multiple foreign central banks precede the Fed, particularly affecting mid-yield portfolios. These findings reveal a critical mechanism of information transmission in global currency markets, demonstrating that the sequence of policy announcements fundamentally alters risk premia and investor behavior, with important implications for both market participants seeking to optimize currency portfolios and policymakers concerned with international monetary transmission.

Figures

Figure 1: Cumulative Currency Returns over FOMC Days

The figure shows the cumulative currency returns over all the FOMC days throughout years. A red line refers to the cumulative returns over a subset of the FOMC days when a foreign central bank moves within seven days prior to FOMC meetings. A grey line refers to the cumulative returns over a subset of the FOMC days when no foreign central bank precedes FOMC meetings within a week. The sample is from 2000 to January 2024. The frequency is daily. A unit is in a foreign currency per USD.

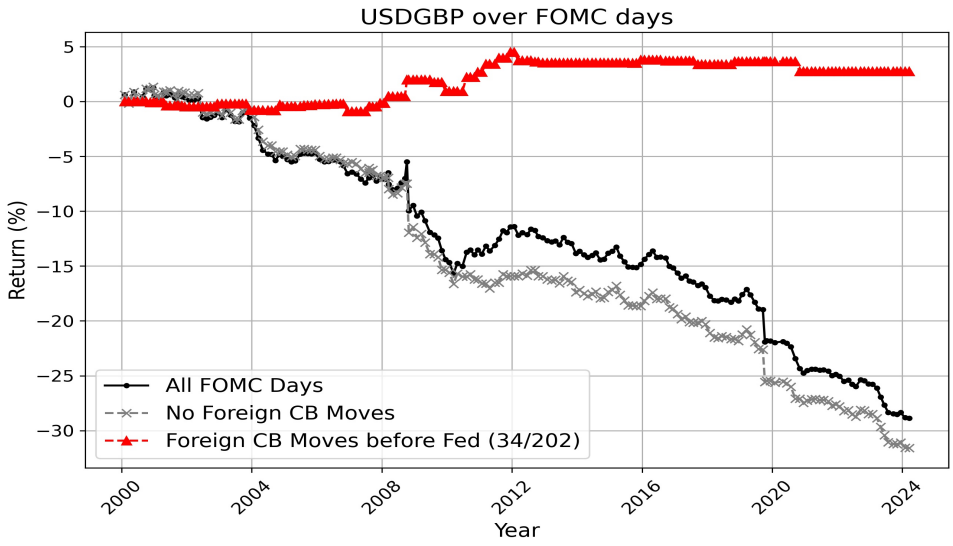
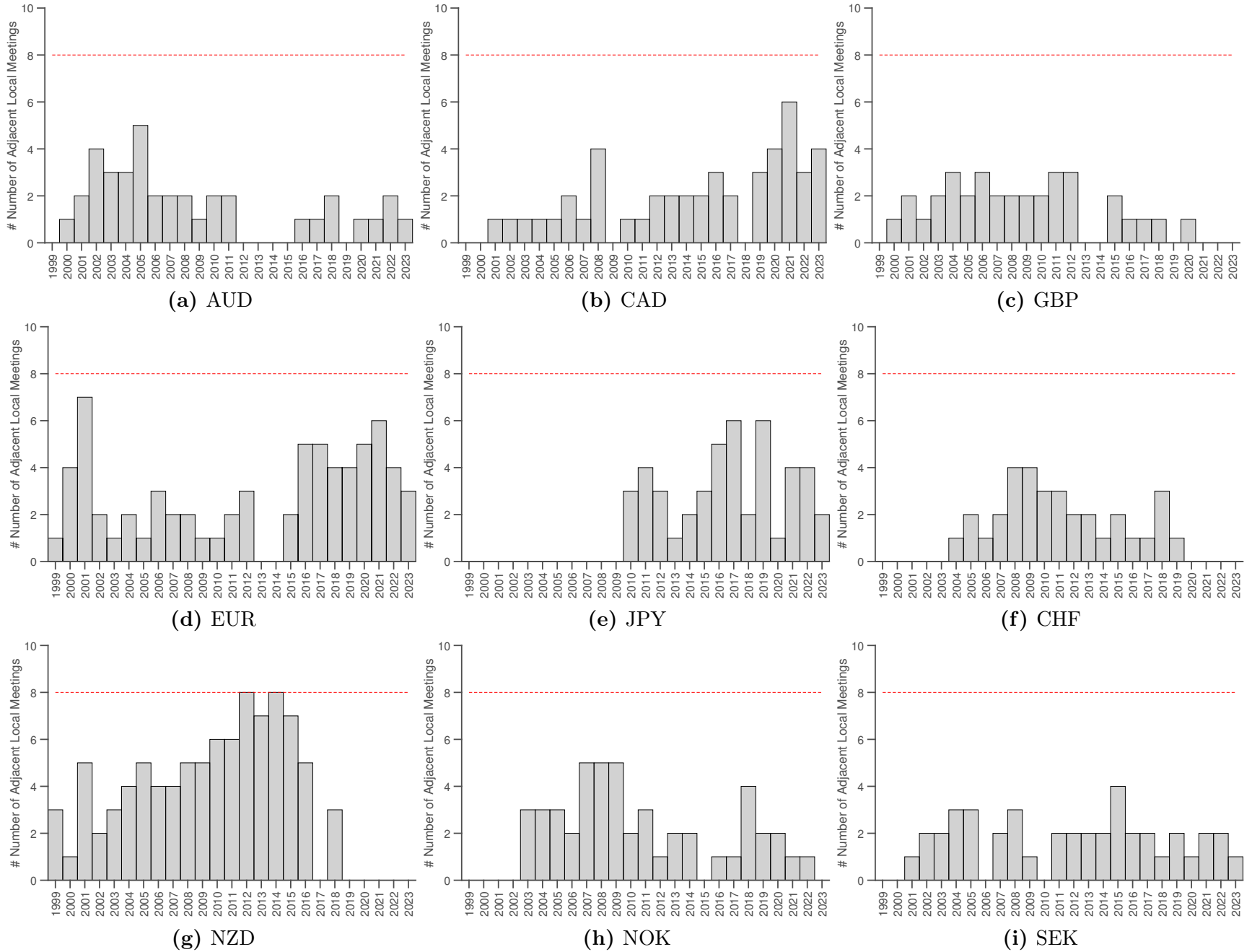


Figure 2: Number of Adjacent Meetings: FOMC and Local CB Meetings

The figure shows the number of adjacent local central bank meetings (by year), i.e., within seven days before the FOMC announcement. The dotted red-line indicates the conventional number of scheduled FOMC meetings per year (8 per year) The sample period is January 1999 to December 2023.



(a) AUD **(b)** CAD **(c)** GBP

(d) EUR **(e)** JPY **(f)** CHF

(g) NZD **(h)** NOK **(i)** SEK

Figure 3: Exchange Rates on Conditional FOMC Days

The figure shows the average intraday returns of major currencies on different types of days. A black line refers to the intraday returns on the FOMC days when no foreign central bank precedes FOMC meetings within a week. A blue line refers to the intraday returns on the FOMC days when a foreign central bank moves within a week prior to FOMC. A green line refers to all the other non-FOMC days.

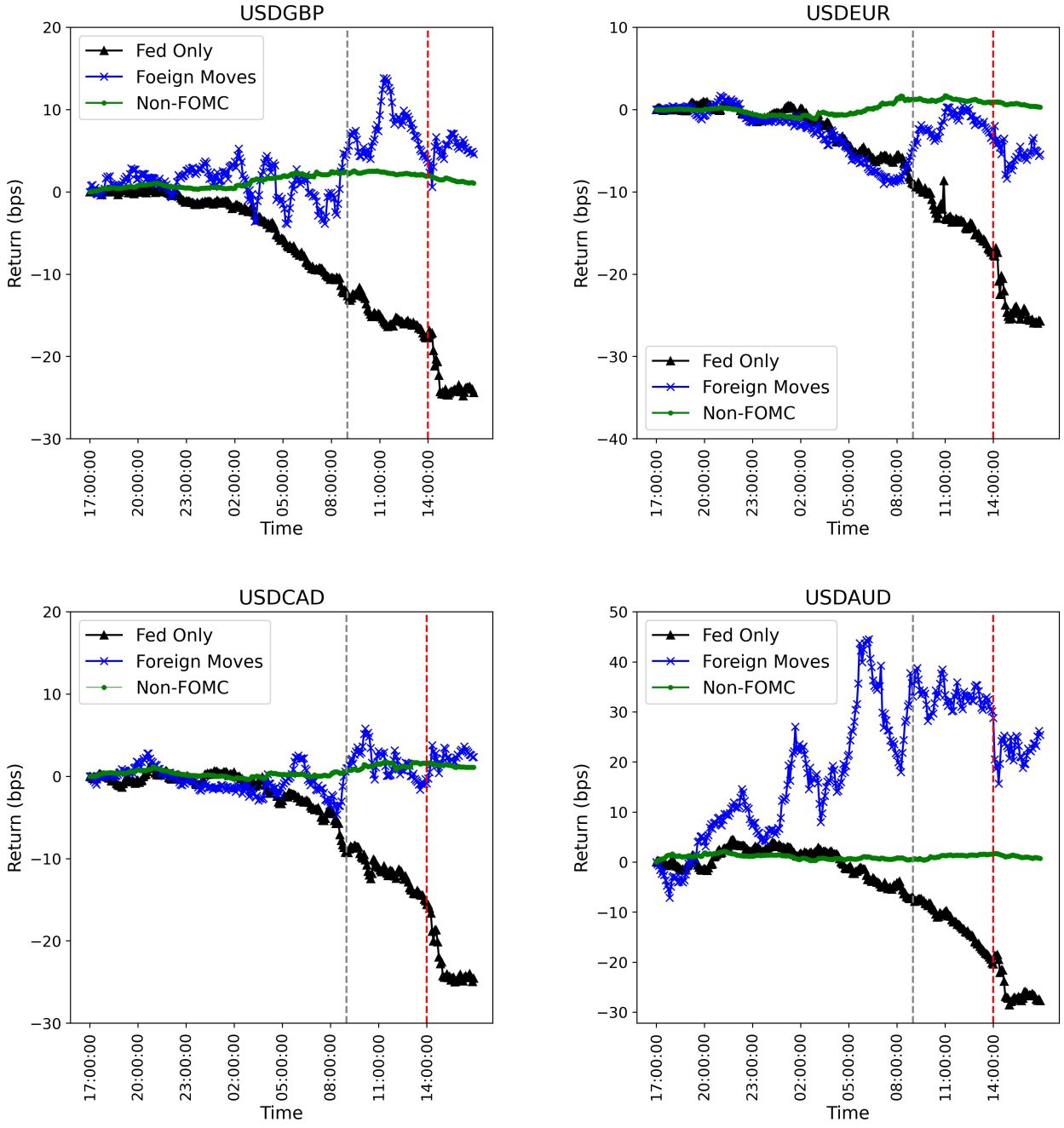


Figure 4: Currency Returns and Growth Shock on FOMC days: GBP

The figure shows the average intraday returns of the British pound sterling on different types of days, subset by the high-frequency covariance (HFC) measure. An upper panel shows when HFC is positive, while a lower panel shows when HFC is negative. A black line refers to the intraday returns on the FOMC days when no foreign central bank precedes FOMC meetings within a week. A blue line refers to the intraday returns on the FOMC days when a foreign central bank moves within a week prior to FOMC. A green line refers to all the other non-FOMC days.

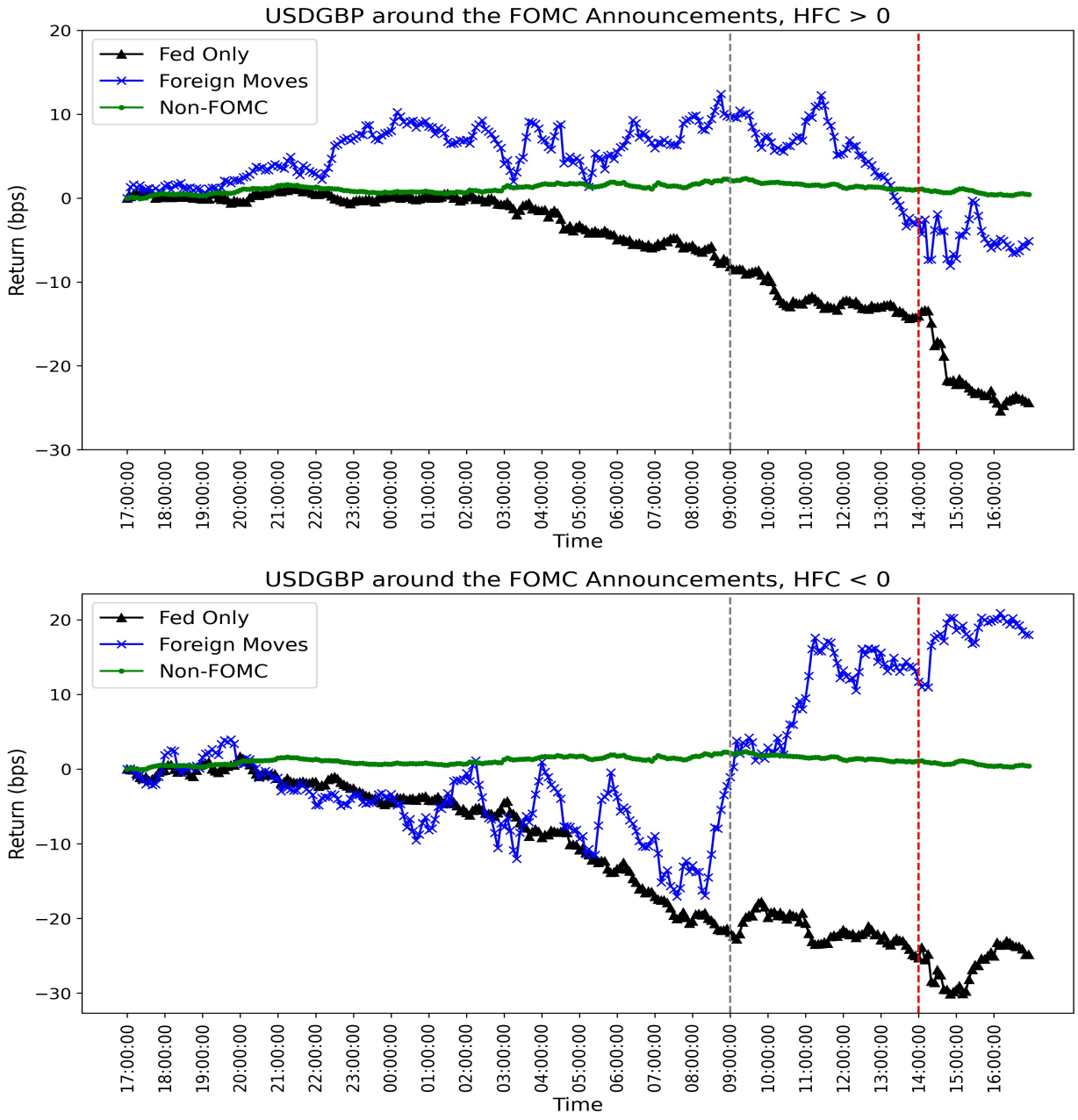


Figure 5: Currency Returns and Growth Shock on FOMC days: EUR

The figure shows the average intraday returns of the Euro on different types of days, subset by the high-frequency covariance (HFC) measure. An upper panel shows when HFC is positive, while a lower panel shows when HFC is negative. A black line refers to the intraday returns on the FOMC days when no foreign central bank precedes FOMC meetings within a week. A blue line refers to the intraday returns on the FOMC days when a foreign central bank moves within a week prior to FOMC. A green line refers to all the other non-FOMC days.

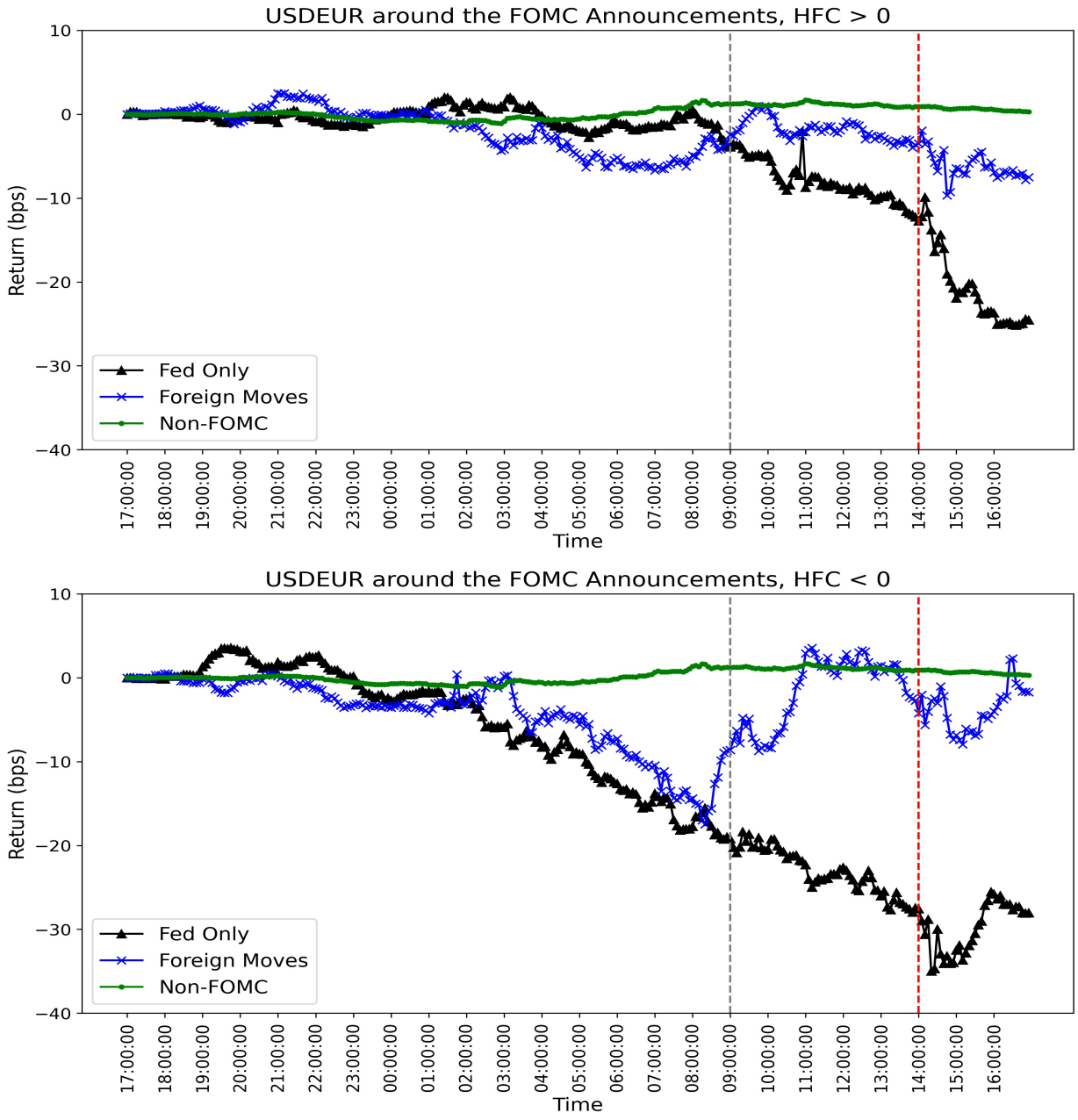


Figure 6: Currency Returns and Growth Shock on FOMC days: CAD

The figure shows the average intraday returns of the Canadian dollar on different types of days, subset by the high-frequency covariance (HFC) measure. An upper panel shows when HFC is positive, while a lower panel shows when HFC is negative. A black line refers to the intraday returns on the FOMC days when no foreign central bank precedes FOMC meetings within a week. A blue line refers to the intraday returns on the FOMC days when a foreign central bank moves within a week prior to FOMC. A green line refers to all the other non-FOMC days.

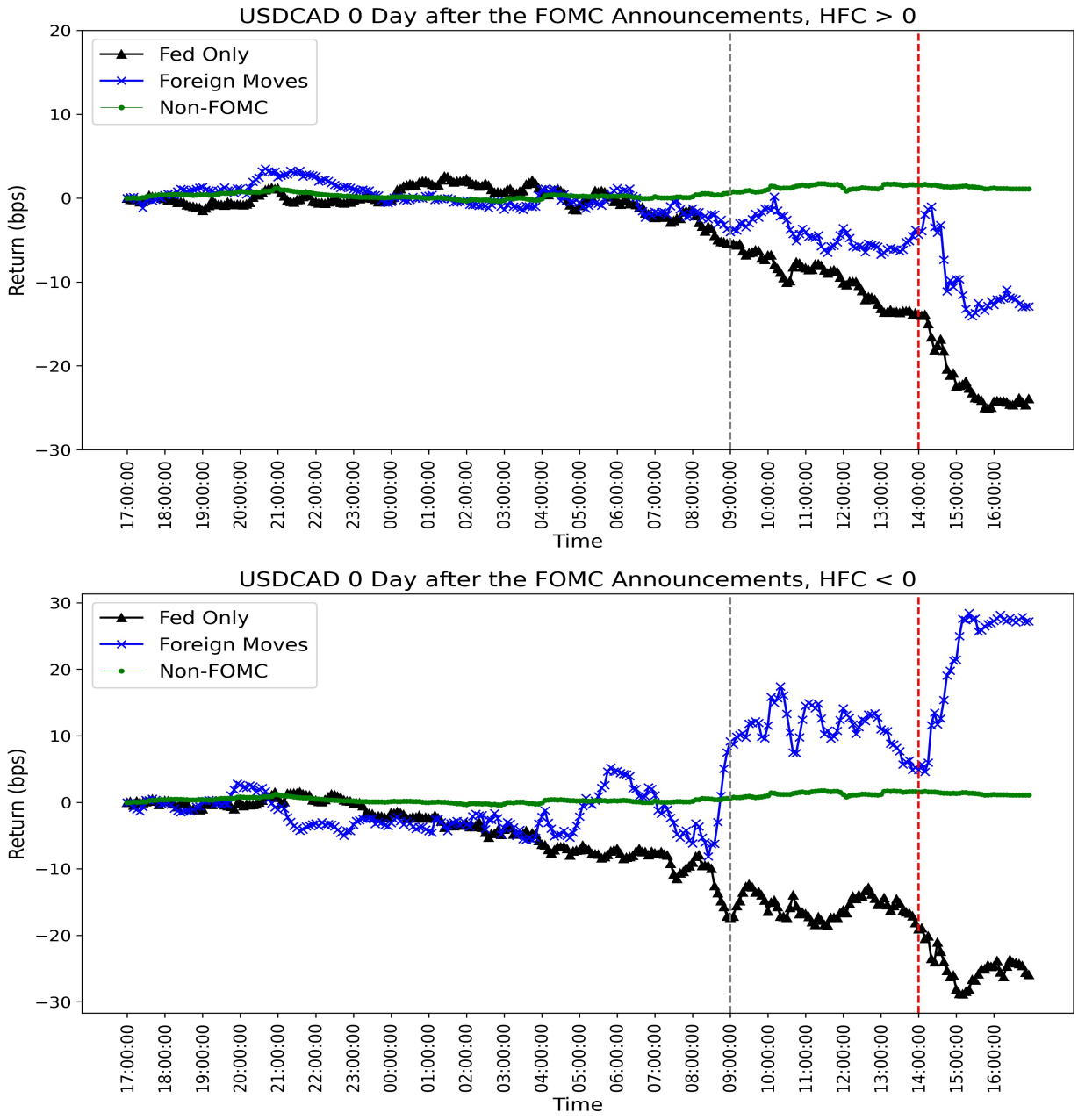


Figure 7: Equity Betas on FOMC days

The figure shows the rolling beta of currency returns relative to the US stock market. A blue bar refers to the rolling beta when FOMC meetings take place without foreign central bank precedence and a light blue bar refers to the rolling beta for FOMC with foreign central bank precedence. All measured in USD.

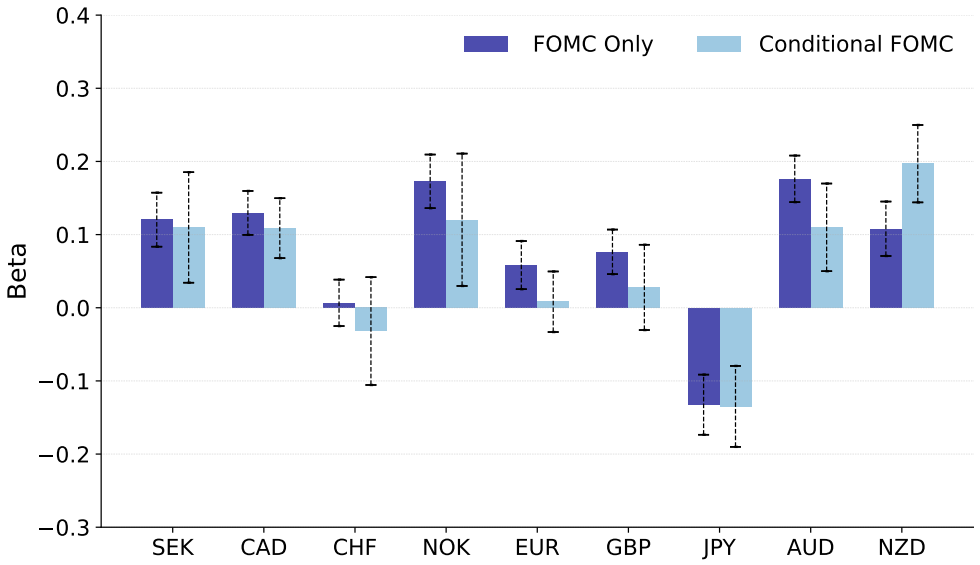
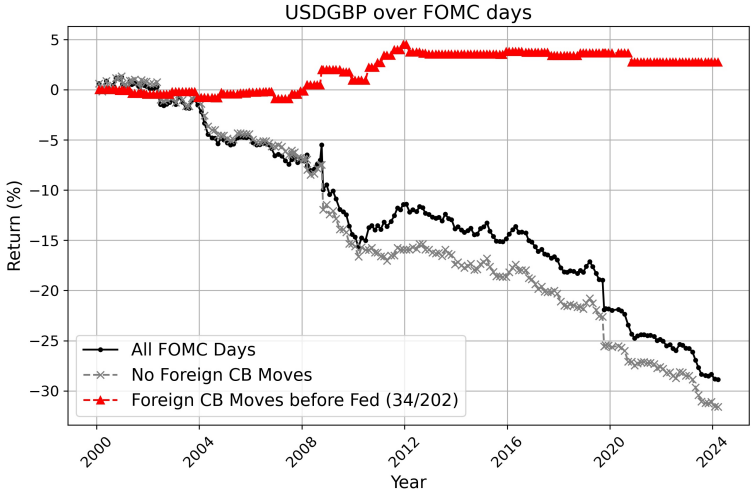
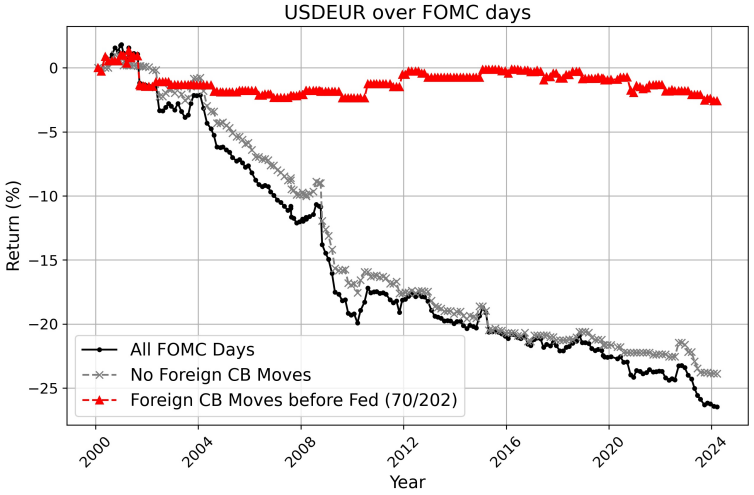


Figure 8: Cumulative Currency Returns over FOMC days

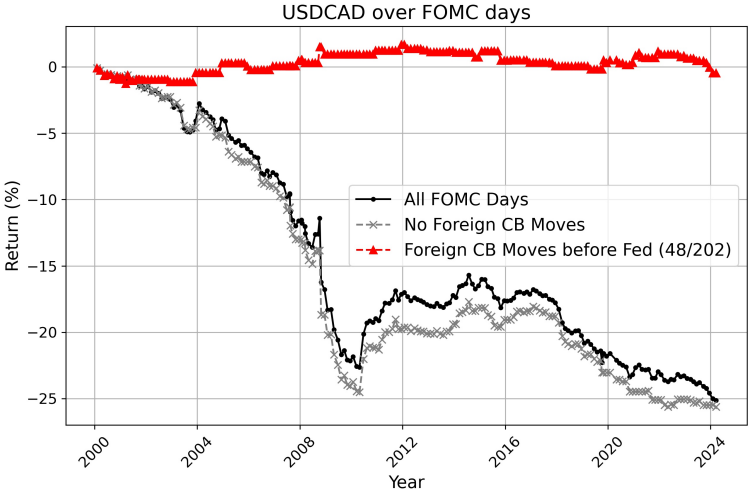
The figure shows the cumulative currency returns over all the FOMC days throughout years. A red line refers to the cumulative returns over a subset of the FOMC days when a foreign central bank moves within seven days prior to FOMC meetings. A grey line refers to the cumulative returns over a subset of the FOMC days when no foreign central bank precedes FOMC meetings within a week. The sample is from January 2000 to January 2024 for GBP, EUR, and CAD. The sample for JPY is from September 2006 to January 2024. The frequency is daily.



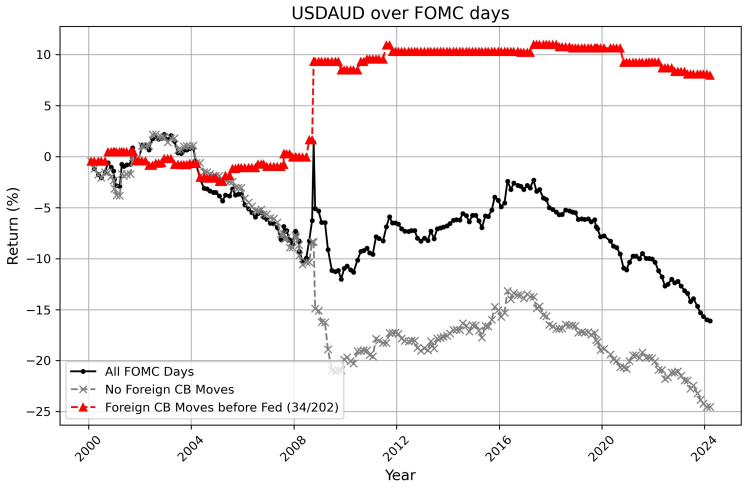
(a) GBP



(b) EUR



(c) CAD



(d) AUD

Tables

Table 1: Summary Statistics

This table reports summary statistics of currency returns for three sets of samples. The first panel is for the full sample including all the days available, the second panel is for all the FOMC days, and the last panel is for a subset of FOMC days when a corresponding foreign central bank moves within a week prior to FOMC meetings. Returns are sampled from 5 pm to 5 pm ET from Reuters high-frequency data. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. AUD, GBP, CAD, CHF, EUR are from 4/1/2006 to 3/21/2024. JPY is from 9/1/2006 to 3/21/2024. NOK and SEK are AUD is from 8/1/2011 to 3/21/2024. NZD is from 8/1/2007 to 3/21/2024. All returns are in bps.

		AUD	**CAD**	**GBP**	**EUR**	**JPY**	**CHF**	**NZD**	**NOK**	**SEK**
All Days	N	4524	4524	4524	4524	4418	4523	4190	3181	3182
	mean	0.05	0.52	0.26	-0.33	0.30	-0.70	0.21	1.92	1.22
	s.d.	78.96	55.96	59.87	56.54	61.09	54.01	79.91	69.08	60.98
	min	-653.87	-367.93	-304.51	-344.00	-428.17	-1580.14	-432.67	-394.73	-267.09
	max	713.51	326.46	829.56	272.47	411.94	795.30	662.14	709.06	426.62
	skew	0.51	0.10	0.75	-0.15	-0.11	-4.95	0.28	0.45	0.06
	kurt	7.79	2.78	10.60	2.38	4.73	176.27	3.02	5.69	2.32
FOMC Days	N	149	149	149	149	146	149	139	102	102
	mean	-19.88	-16.97	-19.99	-18.49	1.28	-15.02	-25.00	-13.86	-11.65
	s.d.	113.19	72.15	64.96	73.22	71.61	70.06	110.04	77.95	75.60
	min	-413.94	-367.93	-282.25	-344.00	-250.45	-465.20	-423.40	-184.57	-228.55
	max	614.50	174.22	153.55	136.38	266.09	287.15	399.83	196.61	167.99
	skew	0.69	-1.05	-0.49	-0.88	0.12	-1.77	-0.17	0.06	-0.18
	kurt	7.11	3.84	1.45	2.80	1.82	14.94	2.47	-0.13	0.63
Foreign Precedes Fed	N	22	42	23	53	60	30	63	19	24
	mean	25.38	2.36	4.91	-5.43	-6.78	-26.28	-22.42	-10.97	-18.01
	s.d.	161.67	70.84	50.55	58.63	66.98	121.37	118.55	63.01	85.03
	min	-222.17	-234.74	-120.85	-131.69	-250.45	-465.20	-353.41	-138.40	-228.55
	max	614.50	174.22	89.96	121.09	166.69	287.15	286.91	126.59	155.98
	skew	2.24	-0.84	-0.57	0.18	-0.58	-1.59	-0.38	0.11	-0.84
	kurt	8.30	3.31	0.19	-0.33	2.42	7.36	0.63	0.45	1.55

Table 2: FOMC Days vs Foreign-FOMC Days

This table reports summary statistics of currency returns for three sets of samples. The first panel is for the full sample including all the days available, the second panel is for all the FOMC days, and the last panel is for a subset of FOMC days when a corresponding foreign central bank moves within a week prior to FOMC meetings. Returns are sampled from 5 pm to 5 pm ET from Reuters high-frequency data. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in bps.

	AUD			**GBP**			**JPY (post)**		
	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC
mean	-20.16	30.12	1.54	-17.74	3.97	1.92	2.83	-12.89	1.11
s.d.	6.76	25.27	1.12	4.52	9.43	0.87	5.56	5.45	0.24
t-stat	-2.98	1.19	1.38	-3.92	0.42	2.20	0.51	-2.37	4.60
N	127	22	4375	126	23	4375	86	60	4272
	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond
t-stat	3.27	-1.81	-2.61	3.78	-0.17	-1.92	-0.92	6.58	1.95
boot	3.10	-1.17	-2.09	4.21	-0.22	-2.13	-0.31	2.61	2.00
	CAD			**EUR**			**CHF (post)**		
	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC
mean	-15.15	-0.33	1.59	-17.32	-3.30	1.11	-4.25	-17.29	-0.34
s.d.	5.54	6.99	0.78	4.50	4.52	0.80	3.11	8.64	0.21
t-stat	-2.74	-0.05	2.04	-3.85	-0.73	1.39	-1.36	-2.00	-1.62
N	107	42	4375	96	53	4375	119	30	4374
	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond
t-stat	3.31	0.24	-1.50	3.39	0.61	-2.02	2.84	6.43	1.73
boot	2.91	0.27	-1.73	3.95	0.98	-2.31	1.25	2.00	1.52
	NZD			**NOK**			**SEK**		
	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC	FOMC	Cond: Foreign Moves	Non-FOMC
mean	-20.07	-10.42	1.73	-4.76	-17.01	3.10	-1.04	-5.59	1.87
s.d.	8.87	11.31	1.19	5.49	11.71	1.21	5.29	14.53	1.05
t-stat	-2.26	-0.92	1.45	-0.87	-1.45	2.57	-0.20	-0.38	1.78
N	76	63	4051	83	19	3079	78	24	3080
	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond	Non-FOMC vs FOMC	Non-FOMC vs Cond	FOMC vs Cond
t-stat	2.48	1.26	-0.68	1.06	1.31	0.96	0.44	0.62	0.37
boot	2.51	1.08	-0.68	1.43	1.86	0.95	0.53	0.52	0.30

Table 3: Currency Returns with FOMC and Foreign CB Moves

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings. The first two columns are of the full sample, while the third and the forth columns of a subsample when high-frequency covariance (HFC) is negative. Non-funding refers to currencies of AUD, GBP, CAD, EUR, NZD, NOK, SEK. Funding currencies refers to JPY and CHF. The first panel uses returns sampled from 5 pm to 5 pm ET, the second panel uses returns sampled from 5 pm to 2 pm ET, and the third panel uses returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return(%)			
	(1)	(2)	(3)	(4)
	All		HFC < 0	
5pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.011***	0.000	0.018***	-0.008
	-0.004	-0.006	-0.005	-0.008
FOMC	-0.238***	-0.041	-0.206***	0.004
	-0.026	-0.041	-0.045	-0.072
Foreign Moves	0.165***	-0.094	0.314***	-0.071
	-0.049	-0.073	-0.082	-0.129
FE	Yes	Yes	Yes	Yes
N	28649	8941	17353	5395
Adj. R^2	0.003	0.001	0.001	0
	All		HFC <0	
5pm-2pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.017***	-0.004	0.024***	-0.011
	-0.004	-0.006	-0.005	-0.008
FOMC	-0.164***	-0.024	-0.203***	-0.02
	-0.024	-0.038	-0.043	-0.068
Foreign Moves	0.114**	0.038	0.162**	0.077
	-0.05	-0.068	-0.079	-0.122
FE	Yes	Yes	Yes	Yes
N	28614	8941	17353	5395
Adj. R^2	0.002	0	0.001	0
	All		HFC < 0	
2pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	-0.007***	0.004**	-0.006***	0.004*
	-0.001	-0.002	-0.002	-0.002
FOMC	-0.075***	-0.017	-0.004	0.024
	-0.009	-0.012	-0.014	-0.021
Foreign Moves	0.067***	-0.132***	0.152***	-0.148***
	-0.017	-0.022	-0.026	-0.037
FE	Yes	Yes	Yes	Yes
N	28649	8941	17353	5395
Adj. R^2	0.003	0.007	0.003	0.003

Table 4: Currency Returns with FOMC and Foreign CB Moves: MPS

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings, along with monetary policy surprise (MPS). The first two columns are of the full sample, while the third and the forth columns of a subsample when high-frequency covariance (HFC) is negative. Non-funding refers to currencies of AUD, GBP, CAD, EUR, NZD, NOK, SEK. Funding currencies refers to JPY and CHF. The panel uses returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return(%)			
	(1)	(2)	(3)	(4)
	All		HFC < 0	
2pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	-0.007***	0.004**	-0.006***	0.004*
	-0.001	-0.002	-0.002	-0.002
FOMC	-0.057***	-0.012	0	0.04**
	-0.009	-0.012	-0.014	-0.021
Foreign Moves	0.065***	-0.124***	0.145***	-0.196***
	-0.017	-0.022	-0.026	-0.037
MPS	0.07***	0.023***	0.059***	0.055***
	-0.003	-0.004	-0.006	-0.008
FE	Yes	Yes	Yes	Yes
N	28649	8941	17353	5395
Adj. R^2	0.022	0.012	0.009	0.012

Table 5: Currency Returns with FOMC and Foreign CB Moves: Uncertainty

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings, along with changes in VIX and MOVE in percentage points. Non-funding refers to currencies of AUD, GBP, CAD, EUR, NZD, NOK, SEK. Funding currencies refers to JPY and CHF. The first panel uses returns sampled from 5 pm to 5 pm ET, and the second panel uses returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects and control MPS. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return(%)			
	(1)	(2)	(3)	(4)
5pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.004	0.006	0.004	0.006
	-0.004	-0.006	-0.004	-0.006
FOMC	-0.162***	-0.058	-0.163***	-0.061
	-0.025	-0.041	-0.025	-0.041
Foreign Moves	0.14***	-0.103	0.141***	-0.047
	-0.048	-0.073	-0.049	-0.075
ΔVIX	0.022***	-0.012***	0.022***	-0.013***
	0	-0.001	0	-0.001
ΔMOVE	-0.002**	0.001	-0.002*	0.002
	-0.001	-0.001	-0.001	-0.001
Foreign Moves : ΔVIX			0.006	0.015**
			-0.004	-0.006
Foreign Moves : ΔMOVE			-0.022***	-0.056***
			-0.008	-0.012
FE	Yes	Yes	Yes	Yes
N	28555	8919	28555	8919
Adj. R^2	0.076	0.029	0.076	0.033
2pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	-0.008***	0.004**	-0.008***	0.004**
	-0.001	-0.002	-0.001	-0.002
FOMC	-0.043***	-0.015	-0.045***	-0.017
	-0.008	-0.012	-0.008	-0.012
Foreign Moves	0.059***	-0.128***	0.073***	-0.111***
	-0.016	-0.022	-0.016	-0.022
ΔVIX	0.006***	-0.002***	0.006***	-0.002***
	0	0	0	0
ΔMOVE	-0.002***	0.001	-0.001***	0.001***
	0	0	0	0
Foreign Moves : ΔVIX			0.016***	0.004**
			-0.001	-0.002
Foreign Moves : ΔMOVE			-0.016***	-0.029***
			-0.003	-0.004
FE	Yes	Yes	Yes	Yes
N	28555	8919	28555	8919
Adj. R^2	0.067	0.021	0.074	0.03

Table 6: Summary Statistics: Currency Portfolios

This table reports summary statistics of excess returns for three sorted currency portfolios and the dollar portfolio. Each portfolios' returns are daily and sampled from the end of day to the end of day. Three portfolios are sorted based on forward discounts at the end of each month. Portfolio 1-3 each represents from the lowest forward discount to the highest forward discount. A dollar portfolio is a portfolio that is long a basket of foreign currencies equally and short the US dollar. The sample period is from September 2006 to April 2024. All returns are in units of foreign currencies per 1 USD and in basis points.

All Days

2006-2024				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	4576	4576	4576	4576
mean	0.03	0.86	-0.03	0.30
tstat	0.04	1.03	-0.03	0.49
SR	0.01	0.29	-0.01	0.14
Skew	-0.37	-0.38	0.16	-0.06
Kurt	4.11	14.53	4.33	2.95
Forward Discount (bps)				
mean	-12.73	-1.01	12.55	-0.32
sd	10.28	6.02	10.87	8.05

2006-2013				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	1909	1909	1909	1909
mean	-1.33	0.15	-1.47	-0.82
tstat	-1.22	0.10	-0.83	-0.76
SR	-0.53	0.05	-0.36	-0.33
Skew	-0.18	-0.80	0.18	-0.09
Kurt	2.78	19.28	2.02	2.47
Forward Discount (bps)				
mean	-8.77	3.49	22.26	5.71
sd	9.25	5.03	7.21	6.00

2014-2024				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	2667	2667	2667	2667
mean	1.00	1.36	1.01	1.11
tstat	1.15	1.39	1.32	1.54
SR	0.42	0.51	0.49	0.57
Skew	-0.53	0.26	0.11	0.03
Kurt	5.30	3.51	3.83	2.84
Forward Discount (bps)				
mean	-15.57	-4.23	5.60	-4.63
sd	10.04	4.39	7.06	6.38

FOMC Days

2006-2024				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	146	146	146	146
mean	-7.83	-12.47	-15.51	-12.39
tstat	-2.23	-2.45	-2.63	-3.66
SR	-3.53	-3.87	-4.16	-5.78
Skew	-0.35	-0.86	-0.49	-0.74
Kurt	1.42	11.10	2.85	2.30
Forward Discount (bps)				
mean	-13.38	-0.94	12.97	-0.56
sd	10.71	6.24	11.15	8.15

2006-2013				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	64	64	64	64
mean	-8.51	-12.56	-29.46	-16.93
tstat	-1.40	-1.38	-2.66	-2.79
SR	-3.34	-3.29	-6.35	-6.67
Skew	-0.52	-1.37	-0.22	-0.93
Kurt	0.45	12.11	1.54	2.19
Forward Discount (bps)				
mean	-9.62	3.60	22.50	5.27
sd	9.91	5.11	7.75	6.13

2014-2024				
Portfolio	1	2	3	dol
Excess Return (bps)				
N	82	82	82	82
mean	-7.29	-12.39	-4.62	-8.83
tstat	-1.79	-2.19	-0.80	-2.37
SR	-3.77	-4.62	-1.70	-5.00
Skew	0.00	0.37	-0.21	0.06
Kurt	2.86	3.34	3.20	-0.47
Forward Discount (bps)				
mean	-16.31	-4.48	5.53	-5.11
sd	10.45	4.51	6.95	6.47

Table 7: Currency Portfolio Returns

This table reports results from regressions of currency portfolio returns on FOMC days and conditioinal FOMC days. Panel A-C each differs by indicator variables for a number of foreign central banks in each PF that move prior to the Fed. For portfolio 1-3, an indicator variable of *All 3 Foreign CBs precede in PF* is equal to one on days when all three foreign central banks in each PF precedes FOMC within a week and zero otherwise. For a dollar portfolio, instead an indicator variable of *At least 3 Foreign CBs precede* is equal to one on days when at least three foreign central banks precedes FOMC within a week and zero otherwise. Portfolio 1-3 each represents from the lowest forward discount to the highest forward discount. A dollar portfolio is a portfolio that is long a basket of foreign currencies equally and short the US dollar. The sample period is from September 2006 to April 2024. All returns are in units of foreign currencies per 1 USD and in percentage points. Newey-West standard errors. *** p<0.01, ** p<0.05, and * p<0.1.

	Excess Return (%)			
	(1)	(2)	(3)	(4)
Panel A	PF 1	PF 2	PF 3	Dollar PF
FOMC	-0.072*	-0.156***	-0.159***	-0.155***
	(0.039)	(0.047)	(0.051)	(0.046)
All 3 Foreign CBs precede in PF	-1.381***	2.630***	-0.018	
	(0.462)	(0.564)	(0.213)	
At least 3 Foreign CBs precede				0.055
				(0.070)
Intercept	0.003	0.013	0.005	0.007
	(0.007)	(0.008)	(0.009)	(0.006)
Observations	4576	4576	4576	4576
Adj. R^2	0.002	0.006	0.002	0.003
	Excess Return (%)			
Panel B	PF 1	PF 2	PF 3	Dollar PF
FOMC	-0.070	-0.192***	-0.188***	-0.143**
	(0.043)	(0.051)	(0.054)	(0.064)
At least 2 Foreign CBs precede in PF	-0.055	0.417***	0.157	
	(0.094)	(0.139)	(0.127)	
At least 2 Foreign CBs precede				0.017
				(0.076)
Intercept	0.003	0.013	0.005	0.007
	(0.007)	(0.008)	(0.009)	(0.006)
Observations	4576	4576	4576	4576
Adj. R^2	0.001	0.003	0.002	0.003
	Excess Return (%)			
Panel C	PF 1	PF 2	PF 3	Dollar PF
FOMC	-0.102*	-0.220***	-0.296***	-0.173
	(0.060)	(0.064)	(0.111)	(0.208)
At least 1 Foreign CB precedes in PF	0.035	0.179*	0.169	
	(0.078)	(0.094)	(0.123)	
At least 1 Foreign CB precedes				0.043
				(0.211)
Intercept	0.003	0.013	0.005	0.007
	(0.007)	(0.008)	(0.009)	(0.006)
Observations	4576	4576	4576	4576
Adj. R^2	0.001	0.002	0.002	0.003

Table 8: Dollar Portfolio Returns with Foreign CBs

This table reports results from regressions of dollar portfolio returns on FOMC days and conditioinal FOMC days. Each indicator variable in column (2)-(5) takes one when a certian number of foreign central banks's meeting precedes FOMC within a week and zero otherwise. A dollar portfolio is a portfolio that is long a basket of foreign currencies equally and short the US dollar. The sample period is from September 2006 to April 2024. All returns are in units of foreign currencies per 1 USD and in percentage points. Newey-West standard errors. *** p<0.01, ** p<0.05, and * p<0.1.

	Excess Return (%)			
	(1)	(2))	(3)	(4))
FOMC	-0.081**	-0.058	-0.115***	-0.120***
	(0.036)	(0.041)	(0.043)	(0.034)
1 FCB precedes FOMC		-0.090		
		(0.080)		
2 FCB precedes FOMC			0.119*	
			(0.071)	
3 FCB precedes FOMC				-0.057
				(0.113)
Intercept	0.003	0.003	0.003	0.007
	(0.007)	(0.007)	(0.007)	(0.006)
Observations	4576	4576	4576	4576
Adjusted R^2	0.001	0.001	0.001	0.003

Table 9: Factor Betas and Price of Risk

This table reports estimates of factor betas for each sorted portfolio and price of risk for each risk factor for each subset of the sample. The estimation uses daily returns sampled from 5 pm to 5 pm ET. The sample period is from September 2006 to April 2024. All returns are in units of foreign currencies per 1 USD and in basis points. $\widetilde{s.e.}$ and $\widetilde{tstat}$ are calculated with Shanken (1992) correction.

Panel A		Factor Betas by Portfolio						
	PF Rank	β_{RX}	s.e.	β_{HML}	s.e.	α	s.e.	R^2
All Days	1	0.921	0.014	-0.506	0.008	-0.277	0.215	0.897
	2	1.160	0.033	-0.029	0.013	0.502	0.423	0.718
	3	0.921	0.014	0.494	0.008	-0.277	0.215	0.936
Non-FOMC Days	1	0.921	0.013	-0.508	0.008	-0.275	0.215	0.900
	2	1.159	0.033	-0.024	0.014	0.463	0.425	0.724
	3	0.921	0.013	0.492	0.008	-0.275	0.215	0.937
FOMC Days	1	0.920	0.080	-0.443	0.028	0.161	1.619	0.789
	2	1.245	0.156	-0.159	0.063	1.729	3.304	0.577
	3	0.920	0.080	0.557	0.028	0.161	1.619	0.925
Foreign-FOMC Days	1	1.175	0.156	-0.467	0.045	5.743	3.272	0.837
	2	0.635	0.310	-0.061	0.090	-11.748	6.603	0.267
	3	1.175	0.156	0.533	0.045	5.743	3.272	0.931

Panel B		Price of Risk and Loading				
		Estimate	s.e.	t stat	$\widetilde{s.e.}$	$\widetilde{tstat}$
All Days	λ_{HML}	-0.077	0.980	-0.079	0.616	-0.126
	λ_{RX}	0.324	0.621	0.522	0.994	0.326
	b_{HML}	0.000	0.001	-0.140	0.000	-0.228
	b_{RX}	0.000	0.000	0.542	0.000	0.377
	R^2	0.851				
Non-FOMC Days	λ_{HML}	0.182	0.990	0.184	0.625	0.292
	λ_{RX}	0.728	0.630	1.156	1.006	0.724
	b_{HML}	0.000	0.001	0.059	0.000	0.095
	b_{RX}	0.000	0.000	0.966	0.000	0.670
	R^2	0.854				
FOMC Days	λ_{HML}	-8.032	6.468	-1.242	3.541	-2.268
	λ_{RX}	-11.640	3.428	-3.395	6.635	-1.754
	b_{HML}	-0.004	0.005	-0.847	0.002	-1.654
	b_{RX}	-0.001	0.001	-0.950	0.001	-0.818
	R^2	0.764				
Foreign-FOMC Days	λ_{HML}	-27.340	8.449	-3.236	5.633	-4.853
	λ_{RX}	-14.037	4.825	-2.909	9.949	-1.411
	b_{HML}	-0.032	0.011	-2.989	0.007	-4.702
	b_{RX}	0.003	0.003	1.084	0.004	0.735
	R^2	0.678				

Table 10: Currency Returns with Foreign CB Moves: Pre-FOMC Pricing

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings. The first two columns are of the full sample, while the third and the forth columns test when high-frequency covariance (HFC) is negative. The fifth and sixth columns test when HFC is posiåtive. Non-funding refers to currencies of AUD, GBP, CAD, EUR, NZD, NOK, SEK. Funding currencies refers to JPY and CHF. The first panel uses returns sampled from 5 pm to 5 pm ET, the second panel uses returns sampled from 5 pm to 2 pm ET, and the third panel uses returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
	All		HFC <0		HFC >0	
5pm-5pm	Non-Funding	Funding	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.01*	0	0.015**	-0.006	0.006	0.006
	-0.005	-0.008	-0.006	-0.01	-0.008	-0.012
FOMC	-0.239***	-0.018	-0.171***	0.048	-0.27***	-0.056
	-0.028	-0.045	-0.049	-0.078	-0.035	-0.052
Foreign Moves	0.164***	-0.137*	0.276***	-0.11	0.072	-0.145
	-0.054	-0.08	-0.088	-0.141	-0.068	-0.091
Exp Rate Change	-0.01*	0.004	-0.024***	0.015	0.061***	-0.044**
	-0.006	-0.009	-0.007	-0.01	-0.014	-0.019
FE	Yes	Yes	Yes	Yes	No	No
N	21054	6572	12824	3996	7675	2393
Adj. R^2	0.004	0.001	0.002	0.001	0.011	0.006
	All		HFC < 0		HFC > 0	
2pm-5pm	Non-Funding	Funding	Non-Funding	Funding	Non-Funding	Funding
Intercept	-0.008***	0.004*	-0.009***	0.004	-0.007**	0.003
	-0.002	-0.002	-0.002	-0.003	-0.003	-0.004
FOMC	-0.083***	-0.014	0.001	0.033	-0.124***	-0.038**
	-0.01	-0.013	-0.015	-0.022	-0.013	-0.018
Foreign Moves	0.063***	-0.142***	0.141***	-0.163***	-0.002	-0.133***
	-0.018	-0.024	-0.027	-0.04	-0.026	-0.031
Exp Rate Change	-0.007***	-0.001	-0.009***	-0.005	0.018***	0.011**
	-0.002	-0.003	-0.002	-0.003	-0.005	-0.006
FE	Yes	Yes	Yes	Yes	No	No
N	21054	6572	12824	3996	7675	2393
Adj. R^2	0.004	0.009	0.004	0.005	0.017	0.02

Table 11: Currency Returns with Foreign CB Moves and Shocks

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days controlling monetary policy shocks of corresponding foreign central banks, which move within a week prior to FOMC meetings. The first two columns use returns sampled from 5 pm to 5 pm ET, the second two columns use returns sampled from 5 pm to 2 pm ET, and the third two columns use returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
	5pm-5pm		**5pm-2pm**		**2pm-5pm**	
	EUR	GBP	EUR	GBP	EUR	GBP
Intercept	0.003	0.006	0.009	0.021*	-0.006**	-0.015***
	(0.009)	(0.013)	(0.008)	(0.012)	(0.003)	(0.004)
FOMC	-0.253***	-0.236***	-0.185***	-0.225***	-0.068***	-0.011
	(0.060)	(0.080)	(0.056)	(0.078)	(0.019)	(0.024)
Foreign Moves	0.194**	0.405**	0.137	0.338**	0.057*	0.068
	(0.099)	(0.162)	(0.093)	(0.157)	(0.032)	(0.049)
Nearest Surprise ECB	-0.590		-0.225		-0.365	
	(1.033)		(0.975)		(0.333)	
Nearest Surprise BOE		-5.303**		-0.224		-5.079***
		(2.095)		(2.031)		(0.638)
Observations	4426	2244	4426	2244	4426	2244
Adj. R^2	0.004	0.007	0.002	0.003	0.003	0.027

Table 12: Currency Returns with FOMC and Foreign CB Moves

This table reports results from regressions of different intraday returns for individual currencies on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return (%)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5pm − 5pm	AUD	CAD	GBP	EUR	JPY	CHF	NZD	NOK	SEK
Intercept	0.007	0.011	0.009	0.003	0.003	-0.002	0.011	0.024**	0.016
	(0.011)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.012)	(0.012)	(0.011)
FOMC	-0.284***	-0.257***	-0.255***	-0.260***	0.066	-0.120***	-0.282**	-0.170*	-0.113
	(0.090)	(0.069)	(0.059)	(0.081)	(0.081)	(0.046)	(0.118)	(0.089)	(0.083)
Foreign Moves	0.531	0.269**	0.295**	0.203*	-0.137	-0.141	0.047	0.036	-0.083
	(0.348)	(0.128)	(0.119)	(0.113)	(0.117)	(0.223)	(0.189)	(0.166)	(0.189)
Observations	4524	4524	4524	4524	4418	4523	4190	3181	3182
Adj. R^2	0.004	0.004	0.004	0.004	-0.000	0.002	0.003	0.001	0.001
5pm − 2pm									
Intercept	0.015	0.016**	0.019**	0.009	-0.009	0.001	0.017	0.031**	0.019*
	(0.011)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.012)	(0.012)	(0.010)
FOMC	-0.217***	-0.172***	-0.197***	-0.182***	0.053	-0.081**	-0.218**	-0.079	-0.029
	(0.068)	(0.055)	(0.046)	(0.045)	(0.050)	(0.033)	(0.089)	(0.056)	(0.053)
Foreign Moves	0.503**	0.147*	0.217**	0.140**	0.015	-0.010	-0.009	-0.123	-0.045
	(0.256)	(0.088)	(0.103)	(0.063)	(0.078)	(0.165)	(0.138)	(0.126)	(0.152)
Observations	4524	4524	4524	4524	4418	4523	4190	3181	3182
Adj. R^2	0.003	0.002	0.003	0.002	-0.000	0.000	0.002	0.000	-0.000
2pm − 5pm									
Intercept	-0.008**	-0.005*	-0.010***	-0.006***	0.011***	-0.003	-0.007	-0.007*	-0.002
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.003)
FOMC	-0.067	-0.089**	-0.058	-0.078	0.013	-0.039	-0.064	-0.091	-0.084
	(0.065)	(0.044)	(0.046)	(0.061)	(0.055)	(0.031)	(0.080)	(0.069)	(0.065)
Foreign Moves	0.028	0.121	0.077	0.063	-0.152**	-0.131	0.056	0.158	-0.038
	(0.181)	(0.096)	(0.076)	(0.093)	(0.077)	(0.090)	(0.141)	(0.104)	(0.181)
Observations	4524	4524	4524	4524	4418	4523	4190	3181	3182
Adj. R^2	0.001	0.004	0.003	0.003	0.007	0.009	0.000	0.005	0.006

Table 13: Currency Returns with Foreign CB Moves: No Overlapping Meetings

This table reports results from regressions of different intraday returns on FOMC days and conditional FOMC days when corresponding foreign central banks move within a week prior to FOMC meetings. The first two columns are of the full sample, while the third and the forth columns of a subsample when high-frequency covariance (HFC) is negative. Non-funding refers to currencies of AUD, GBP, CAD, EUR, NZD, NOK, SEK. Funding currencies refers to JPY and CHF. The first panel uses returns sampled from 5 pm to 5 pm ET, the second panel uses returns sampled from 5 pm to 2 pm ET, and the third panel uses returns sampled from 2 pm to 5 pm ET. All specifications include currency fixed effects. The sample period for each currency depends on the availability of central bank meeting dates and the availability of price data. All returns are in percentage points. *** p<0.01, ** p<0.05, and * p<0.1.

	Return(%)			
	(1)	(2)	(3)	(4)
	All		HFC < 0	
5pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.011***	0	0.018***	-0.008
	-0.004	-0.006	-0.005	-0.008
FOMC	-0.238***	-0.041	-0.206***	0.004
	-0.026	-0.041	-0.045	-0.072
Foreign Moves	0.167***	-0.093	0.362***	-0.03
	-0.052	-0.079	-0.088	-0.134
FE	Yes	Yes	Yes	Yes
N	28614	8923	17337	5392
Adj. R$\hat{2}$	0.003	0.001	0.001	0
	All		HFC < 0	
5pm-2pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	0.017***	-0.004	0.024***	-0.011
	-0.004	-0.006	-0.005	-0.008
FOMC	-0.164***	-0.024	-0.203***	-0.02
	-0.024	-0.038	-0.043	-0.068
Foreign Moves	0.114**	0.058	0.235***	0.129
	-0.05	-0.074	-0.084	-0.126
FE	Yes	Yes	Yes	Yes
N	28614	8923	17337	5392
Adj. R$\hat{2}$	0.002	0	0.001	0
	All		HFC ¿ 0	
2pm-5pm	Non-Funding	Funding	Non-Funding	Funding
Intercept	-0.007***	0.004**	-0.006***	0.004*
	-0.001	-0.002	-0.002	-0.002
FOMC	-0.075***	-0.017	-0.004	0.024
	-0.009	-0.012	-0.014	-0.021
Foreign Moves	0.052***	-0.15***	0.125***	-0.158***
	-0.018	-0.024	-0.028	-0.038
FE	Yes	Yes	Yes	Yes
N	28614	8923	17337	5392
Adj. R$\hat{2}$	0.003	0.008	0.001	0.003

Appendix

A Model

upon request

References

Baele, L., Bekaert, G., and Inghelbrecht, K. (2010). The determinants of stock and bond return comovements. *The Review of Financial Studies*, 23(6):2374–2428.

Baele, L., Bekaert, G., Inghelbrecht, K., and Wei, M. (2020). Flights to safety. *The Review of Financial Studies*, 33(2):689–746.

Bauer, M. D. and Swanson, E. T. (2022). A reassessment of monetary policy surprises and high-frequency identification. *NBER Working Paper No. 29939*.

Bernanke, B. S. and Kuttner, K. N. (2005). What explains the stock market's reaction to federal reserve policy? *The Journal of Finance*, 60(3):1221–1257.

Bernile, G., Hu, J., and Tang, Y. (2016). Can information be locked up? informed trading ahead of macro-news announcements. *Journal of Financial Economics*, 121(3):496–520.

Brooks, J., Katz, M., and Lustig, H. (2018). Post-fomc announcement drift in u.s. bond markets. *NBER Working Paper No. 25127*.

Brusa, F., Savor, P., and Wilson, M. (2015). One central bank to rule them all. *Journal of Finance*, 70(4):1623–1661.

Cieslak, A. and Schrimpf, A. (2018). Non-monetary news in central bank communication. Bis working paper no. 761, Bank for International Settlements.

Gürkaynak, R. S., Kara, A. H., Kısacıkoğlu, B., and Lee, S. S. (2021). Monetary policy surprises and exchange rate behavior. *Journal of International Economics*, 130:103443.

Gürkaynak, R. S., Sack, B., and Swanson, E. (2005). Do actions speak louder than words? the response of asset prices to monetary policy actions and statements. *International Journal of Central Banking*, 1(1):55–93.

Hu, G. X., Pan, J., Wang, J., and Zhu, H. (2022). Premium for heightened uncertainty: Explaining pre-announcement market returns. *Journal of Financial Economics*, 145(3):909–936.

Jarociński, M. and Karadi, P. (2020). Deconstructing monetary policy surprises—the role of information shocks. *American Economic Journal: Macroeconomics*, 12(2):1–43.

Kurov, A., Wolfe, M. H., and Gilbert, T. (2021). The disappearing pre-fomc announcement drift. *Journal of Financial Markets*, 50:100547.

Kuttner, K. N. (2001). Monetary policy surprises and interest rates: Evidence from the fed funds futures market. *Journal of Monetary Economics*, 47(3):523–544.

Laarits, T. (2022). Pre-announcement risk. *NYU Stern School of Business*, Available at SSRN: https://ssrn.com/abstract=3443886.

Lucca, D. O. and Moench, E. (2015). The pre-fomc announcement drift. *The Journal of Finance*, 70(1):329–371.

Lustig, H., Roussanov, N., and Verdelhan, A. (2011). Common risk factors in currency markets. *The Review of Financial Studies*, 24(11):3731–3777.

Miranda-Agrippino, S. (2016). Unsurprising shocks: information, premia, and the monetary transmission. *Bank of England working paper*.

Mueller, P., Tahbaz-Salehi, A., and Vedolin, A. (2017). Exchange rates and monetary policy uncertainty. *Journal of Finance*, 72(3):1213–1252.

Nakamura, E. and Steinsson, J. (2018). High-frequency identification of monetary non-neutrality. *The Quarterly Journal of Economics*, 133(3):1283–1330.

Savor, P. and Wilson, M. (2014). Asset pricing: A tale of two days. *Journal of Financial Economics*, 113(2):171–201.

Shanken, J. (1992). On the estimation of beta-pricing models. *The review of financial studies*, 5(1):1–33.