The Impact of Macroeconomic Announcements on Real Time Foreign Exchange Rates in Emerging Markets

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Abstract

This paper utilizes a unique high-frequency database to measure how exchange rates in nine emerging markets react to macroeconomic news in the U.S. and domestic economies from 2000 to 2006. We find that major U.S. macroeconomic news have a strong impact on the returns and volatilities of emerging market exchange rates, but many domestic news do not. Emerging market currencies have become more sensitive to U.S. news in recent years. We also find that market sentiment could sway the impact of news on these currencies systematically, as good (bad) news seems to matter more when optimism (pessimism) prevails. Market uncertainty also interacts with macroeconomic news in a statistically significant way, but its role varies across currencies and news.

Key words: exchange rate, emerging market, macroeconomic news, high-frequency data

JEL Classification: F31, G14, G15

I. Introduction

Information transmission across foreign exchange markets has become a widely studied topic in the academic literature. One strand of this literature focuses on the impact of macroeconomic data announcements on foreign exchange markets. Andersen et al. (2003) (ABDV (2003) hereafter) finds that news about macroeconomic fundamentals affect both conditional mean returns and volatilities of exchange rates for major currencies. Some other recent papers in this vein include Andersen et al. (2007), Dominguez and Panthaki (2006), Ehrmann and Fratzscher (2005), Fair (2003), Chaboud et al. (2004), Laakkonen (2004), and Faust et al. (2007). Evans and Lyons (2008) connect the impact of news in the FX market to order flows. Most existing studies have however been limited to major currencies exchange rates. The price discovery process and the information transmission mechanism in emerging economy foreign exchange markets have not yet been well understood.

This paper is the first to focus on how U.S. and domestic macroeconomic announcements affect exchange rates in nine emerging markets: Czech Republic, Hungary, Indonesia, Korea, Mexico, Poland, South Africa, Thailand, and Turkey.[1] We construct a unique database that covers high frequency exchange rates for the nine emerging market economies from January 2, 2000 to December 31, 2006. The database is complemented by information from Consensus Forecasts on market expectations for these exchange rates, and data from Bloomberg on market expectations for macroeconomic news and the actual announcement. Although similar databases have been studied for major currencies, this is the first time such data for emerging markets are utilized for economic research.

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[1] Galati (2000) examines the relationship between trading volumes, volatility and bid-ask spreads in foreign exchange markets in 7 emerging economies, but does not measure the impact of news.

We try to address the following questions in this paper: (i) do macro news announcements move emerging market exchange rates? (ii) have emerging market currencies become more sensitive to news as government controls of foreign exchange (FX) markets have reportedly weakened in some of these countries? (iii) how does "market sentiment" affect the way emerging market currencies respond to news? and (iv) does uncertainty in the FX market affect how these currencies react to news?

We find that the answer to the first question depends on whether the news is about the U.S. or the emerging economies and varies across countries. Domestic macro news in emerging markets generally do not have significant effect on exchange rates, with the notable exception for Czech Republic. The set of U.S. macro news that moves major currencies significantly turns out to affect 6 out of 9 emerging market currencies in the same direction in the sample. For the other three currencies, Mexican Peso also reacts to U.S. news significantly but almost always in the opposite direction, while the Thai baht and the Turkish lira rarely respond to U.S. news significantly.

We find evidence that exchange rates in emerging markets have become more sensitive to U.S. news in recent years, probably due to loosened government controls of the FX markets in some of these countries. This pattern is clear for most exchange rates in the sample except for Thailand, where the Thai baht's lack of reaction to news is persistent throughout the sample. The other two Asian currencies, the Korean won and the Indonesian rupiah, used to be nonresponsive foreign and domestic macro news in the early part of the sample, but became more influenced by U.S. news in recent years.

Do macro news have more effect on emerging market currencies when "market sentiment" is strong, i.e., investors expect the currencies to move substantially in one

direction? The answer is yes. We find strong evidence across country and macro news that market reaction is reinforced by investors' conviction on the direction of the emerging market currencies. The magnitude of this reinforcement effect is large. For instance, when investors expect the Indonesian rupiah to appreciate by 5 percent, the effect of news on non-farm payroll in the U.S. on the Indonesian rupiah became twice as much as when investors expect the Korean won to stay unchanged.

Does market uncertainty amplify or dampen the impact of news on exchange rates? The answer is ambiguous. While regressions show that market uncertainty dampens more news than it amplifies, the evidence is not overwhelmingly one-sided. In some special cases, the effect of uncertainty on the same news differs across countries. Further analysis on this issue is necessary.

Our paper complements other studies on the impact of news on asset prices in emerging markets. Wongswan (2006) provides evidence of transmission of information from the U.S. and Japan to Korean and Thai equity markets. Using high-frequency intraday data, he finds a large and significant association between emerging-economy equity volatility and trading volume and developed-economy macroeconomic announcements at short time horizons. Andritzky, Bannister, and Tamirisa (2007) examine how emerging market bonds react to macroeconomic announcements and find that global bond spreads respond to rating actions and changes in U.S. interest rates rather than domestic data and policy announcements. Consistent with their studies, we find a significant impact of major U.S. macroeconomic news on emerging market currencies using high frequency data. Compared with their papers, the innovations of our work are: (a) the longer sample of our data makes it

possible to track the evolution of reactions to news in the emerging currency markets, and (b) the reaction of exchange rates to news is linked to market sentiment and uncertainty.

The rest of the paper proceeds as follows. Section II provides the description of the data. Section III presents the econometric specifications and the estimates of how news surprises affect exchange rate returns and volatility in the nine emerging markets. Section IV shows how market forecasts and uncertainty interact with macro news and affect exchange rates in emerging markets. Section V concludes.

II. Data

Exchange Rate Data

The paper uses high-frequency exchange rate data for nine emerging markets, drawn from Olsen Financial Technologies. The data report exchange rates of the nine EM currencies versus U.S. dollar at 5-minute intervals. The full sample period is from January 2, 2000 to December 31, 2006, covering 2,557 days of bid-ask prices for each currency with two exceptions[2]. It should be noted that the dataset has quite many missing values, in particular for the earlier years. The number of non-missing values for bid and ask price of each country's exchange rate is presented in Appendix 1.[3]

Using bid-ask price quotes from the raw exchange rate data, we take the simple arithmetic average to get the middle price quote. Then we calculate 5-minute currency

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[2] For KRW/USD, January 2004 (31 days) data are not included. For TRY/USD, the sample period is from January 2, 2001 to December 31, 2006. The number of observations of high frequency FX data is 2,557 * 288 = 736,416 for Czech Republic, Hungary, Indonesia, Mexico, Poland, South Africa, and Thailand, 727,488 for Korea, and 631,008 for Turkey.

[3] We also estimate the same model with fully filled data using interpolation for missing values. The estimates with interpolated data show similar but a little bit weaker results compared with the results presented in this paper.

returns by taking log differences. We multiply the log differences of currency returns by 100 to obtain log currency returns. Following ABDV (2003), we exclude data on weekends and national holidays, since the quoted prices may have some bias based on low transaction volumes. First, we drop the period from Friday 21:05 to Sunday 21:00 (local time) for weekends. Second, we drop national holidays in the U.S. and the nine emerging markets.

In order to check how the series of currency returns vary over time, we plot autocorrelations of the currency returns and its absolute value in Figures 1 and 2, respectively. The general pattern of the two figures is similar with what previous studies show for major currencies: the autocorrelations of currency returns are statistically significant in the short term, and decay fast; the autocorrelations of absolute returns are statistically significant in the short term and stay high persistently.

In addition, it should be taken into account that the exchange rate regimes in some emerging markets (such as Hungary, Poland, and Turkey), might have changed within the sample period (Appendix 2). The Hungarian foreign exchange regime changed from a crawling peg to a pegged exchange rate within horizontal band in October 2001, and devalued on June 2003. For the Polish zloty, a crawling peg based on 55% of Euro and 45% of dollar changed into independent floating on April 2000. For the Turkish lira, many changes happened during the sample period due to the financial crisis in 2001. The regime changed from a crawling peg to independent floating on February 2001, and the New Turkish lira was introduced on 2005 and became a sole legal tender from January 1, 2006 with a conversion rate of YTL 1 = TL 1 million. We convert all previous TL quotes into YTL based on the conversion rate when calculating log returns of its exchange rate

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Actual and Predicted Economic Variables

We use economic forecast data from Bloomberg on various actual and predicted economic indices in the U.S. and nine emerging market countries.[4] Many economists and analysts in the financial markets who use Bloomberg submit their own forecasts to Bloomberg. However since such forecast data submission is voluntary, the number of the observations varies for each observation of economic index. For instance, 39 people submitted forecasts of the initial jobless claims in the U.S. that is published by the Department of Labor on January 5, 2008. Based on those forecasts, Bloomberg provides mean, median, maximum, and minimum values for each economic index. In some cases (mostly in emerging markets) the forecasts are based on the views from a small number of economists. We drop all forecasts that are based on views from fewer than 5 economists.

In Table 1, we present the number of the observations for each variable used in the empirical analysis. There are 26 indices for the U.S. news, 13 for Czech Republic, 11 for Mexico and Poland, 9 for Turkey, 8 for South Africa, 7 for Hungary, 6 for Korea, 5 for Thailand, and 4 for Indonesia. Since the unit of each economic index is different, we standardize the time series of each economic index by calculating the surprise as (actual number – forecasts) divided by its sample standard deviation

$$S_{kt} = \frac{A_{kt} - F_{kt}}{\hat{\sigma}_k} \tag{1}$$

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[4] These forecasts of economic indices are obtained from ECO menu in the Bloomberg terminal by the country.

where A_{kt} is the actual announced value for economic index k at time t, F_{kt} is the mean of forecasts, and $\hat{\sigma}_k$ is sample standard deviation of $A_{kt} - F_{kt}$.

Foreign Exchange Forecasts

To measure market expectations on exchange rates, we use forecast data from Consensus Forecasts, which provides a simple arithmetic average of the forecasts for foreign exchange rates over 90 countries as well as major economic indices on a monthly or bimonthly basis.[5] The exact date when the survey is conducted is shown in the published data. We collect information on the survey date, spot rate on the survey date, sample average, maximum, minimum, and standard deviation of each exchange rate for the following 1, 3, 12 and 24 months. A variable is constructed to measure which direction the market anticipates the exchange rates move,

$$FXD_{i,d,t} = \frac{CFX_{i,d,t} - SFX_{i,t}}{SFX_{i,t}} \tag{2}$$

where $CFX_{i,d,t}$ is consensus forecast for country i's exchange rate at day t for the next d months, and $SFX_{i,t}$ is the spot exchange rate on day t. If $FXD_{i,d,t}$ is positive, then market participants expect that local currency i will depreciate for next d months, and vice versa. In Appendix 3a, we provide summary statistics for *FXD*.

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[5] Monthly forecasts for Asian economies are available for the full sample. For Latin American economies, monthly forecasts are available after May 2001, and bimonthly forecasts are available before. For other economies, only bimonthly forecasts are available.

III. Announcements and FX responses

Contemporaneous Effect from OLS Regressions

We start by running an OLS regression

$$R_{i,t} = \beta_{i,k} S_{i,k,t} + \varepsilon_{i,t} \tag{3}$$

where $R_{i,t}$ denotes 5-minute exchange rate returns from time t to time $t+1$ in country i, $S_{i,k,t}$ is the surprise of macroeconomic news k at time t in country i. The estimates are based on only those observations ($R_{i,t}$, $S_{i,k,t}$) such that an announcement was made at time t. This specification has the advantage of simplicity. The drawback is that it does not control for the potential dynamic feature of exchange rates and news, and does not correct for heteroskedastic disturbances in the error terms. We will move to a more sophisticated model in the next subsection that addresses these issues.

Table 2 shows the estimates from these regressions. For comparison, we also examine the impact of U.S. news on the euro/dollar exchange rate. Three features stand out. First, exchange rates for South Africa and emerging markets in Europe react to many U.S. news in a similar way as major currencies do (as documented in previous literature), but many of the same news have little effect on currencies in Asia and Turkey. Second, most domestic macroeconomic news have no impact on EM exchange rates. Finally, the euro exchange rate responds to major U.S. news in a similar way to European emerging market currencies. We elaborate more on these findings before moving to the more sophisticated specification.

In the case of U.S. news, positive surprises on consumer confidence, durable goods order, GDP, non-farm payroll, retail sales and trade balance lead to depreciation of EM currencies in Czech Republic, Hungary, Poland, and South Africa, with a few exceptions. This set of news is also found to be significant in ABDV (2003). New home sales turns out to be highly significant for emerging markets in Europe, reflecting the importance of the U.S. housing sector for the sample we study. On the other hand, very few U.S. news have significant impact on the Mexican, Turkish and Asian currencies. Of the 26 U.S. news we studied, only 3 show up significantly for Korea, 6 for Indonesia, 1 for Thailand, 3 for Mexico, and 2 for Turkey.

In contrast with the large number of significant U.S. news, few domestic news in emerging markets have a significant impact on their exchange rates. For Indonesia, Thailand, and Turkey, no domestic news are significant in the regressions. Even for Hungary and Poland where many U.S. news move exchange rates significantly, only one domestic news is significant in each country. Of the 14 cases where domestic news announcements move the exchange rates, 9 cases are related to domestic growth or external balance: the current account in Czech Republic and Poland, GDP in Czech Republic and Mexico, industrial production in Hungary, and the trade balance in Czech Republic, Mexico, and South Africa.

Given the long sample of the dataset, we can examine if exchange rates in emerging markets have become more sensitive to news in recent years. We estimate equation (3) using a two-year rolling window, and plot the point estimates of $\beta_{i,k}$ over time. Charts in Figure 3 plot the significant estimates from such rolling regressions. Two patterns stand out. First, most EM currencies have become more sensitive to news in recent years than before. For instance, in Korea, few U.S. news had significant impact on the won before late 2002, while

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4 out of 9 news are persistently significant in recent years. Thailand is an exception, where Thai baht barely reacts to any U.S. news throughout the whole sample.

Second, the fact that some news do not affect certain currencies cannot be explained by the lack of observations. In the later part of the sample, the numbers of observations for given U.S. news are fairly equal across countries. Yet, some currencies persistently react to news, while others seem to be irresponsive.

Contemporaneous Effect from Dynamic Regressions with Heteroskedesticity

We follow ABDV (2003) in their econometric specifications to include lag terms of currency returns and news, and control for heteroskedestic errors. First, we estimate a linear regression model based on I lags of 5-minute returns, and J lags for all the news surprises. We choose the lags $I = 5$ and $J = 2$ according to the Akaike Information Criteria and Schwartz Criteria.[6] The number of news surprises in the model is different for each country since that of the domestic news surprises is different.

$$R_t = \beta_0 + \sum_{i=1}^{I}\beta_i R_{t-i} + \sum_{k=1}^{K}\sum_{j=0}^{J}\beta_{kj}S_{k,t-j} + \varepsilon_t \tag{4}$$
$$t = 1,...,T.$$

$$\left|\hat{\varepsilon}_t\right| = c + \psi\frac{\hat{\sigma}_{d(t)}}{\sqrt{288}} + \sum_{k=1}^{K}\sum_{j'=0}^{J'}\beta_{kj'}\left|S_{k,t-j'}\right| + \left(\sum_{q=1}^{Q}\left(\delta_q\cos\left(\frac{q2\pi t}{288}\right) + \phi_q\sin\left(\frac{q2\pi t}{288}\right)\right)\right) + u_t \tag{5}$$

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[6]The exact AIC and BIC show different optimal numbers of lags across countries. However, 6 of the sample countries show that 5 lags of FX returns are good enough, whereas the other countries show relatively small lags for FX returns.

As in ABDV (2003), the absolute value of the residual from equation 1.4 is modeled as the sum of three terms: daily volatility forecast to measure average volatility level during the day; the absolute value of news surprise including lags to assess the impact from the news; and the Fourier flexible form with trigonometric terms for the calendar effect. Equations 1.4 and 1.5 are estimated by 2-stage WLS. First, we run an OLS regression with equation (4). Then we estimate equation (5) to get a linear prediction of the absolute value of the residuals in equation (4). Finally, using the linear prediction from equation (5) as a weight, we perform a weighted least-squares estimation of equation (4).

It is necessary to be more specific on the independent variables used in equation (5). The daily level of volatility in the second term is based on the residual from the regression of GARCH (1,1) model using daily spot exchange rate returns from January 1, 1993 as described above in the data description. GARCH (1,1) models are generally used to extract predictions in high-frequency financial data in a wide variety of papers.

The third term represents the impact of news surprise on the volatility. In order to enhance tractability, we impose a polynomial specification on the response patterns associated with $\beta_{kj'}$, as in ABDV (2003). This ensures that the response patterns related to the news surprise are determined by the restriction we provide on the specifications. Consider the general form of polynomials, $p(\tau) = c_0 + c_1\tau + \ldots + c_p\tau^p$, for $\tau = 0, 1, \ldots, J'$. The restrictions we apply to this equation are $J' = 12$, $p = 3$, and $p(J') = 0$. As a result, we have $p(\tau) = c_0[1-(\tau/12)^3] + c_1\tau[1-(\tau/12)^2] + c_2\tau^2[1-(\tau/12)]$. Using this equation, we estimate three coefficients for each FX returns and each news surprise, and plug the fixed value from the estimation into the disturbance equation (4).

$$\left| \hat{\varepsilon}_t \right| = c + \psi \frac{\hat{\sigma}_{d(t)}}{\sqrt{288}} + \sum_{k=1}^{K} \sum_{j'=0}^{J'} \eta_k \left\{ \hat{c}_0 \left(1 - \left(\frac{j'}{12} \right)^3 \right) + \hat{c}_1 j' \left(1 - \left(\frac{j'}{12} \right)^2 \right) + \hat{c}_2 (j')^2 \left(1 - \left(\frac{j'}{12} \right) \right) \right\} \left| S_{k,t-j'} \right|$$

$$+ \left(\sum_{q=1}^{Q} \left(\delta_q \cos \left(\frac{q 2 \pi t}{288} \right) + \phi_q \sin \left(\frac{q 2 \pi t}{288} \right) \right) \right) + u_t \tag{6}$$

The fourth term of Fourier series covers calendar effects in the model. AIC and Schwartz criteria suggest that $Q = 4$ is appropriate for the model, and it means that the seasonal pattern of intra-day trading quote is relatively smooth.

Table 3 presents the estimates for a selected group of U.S. news. Compared with Table 2, emerging market exchange rates react to U.S. news more consistently across countries. Currencies in Thailand and Turkey remain rather insensitive to most U.S. news. For the other 7 countries, all of the 9 major U.S. news have significant signs in the expected direction, with few exceptions. As in the OLS regressions, the Mexican peso's reaction to U.S. news remains mostly the opposite of those of other currencies.

The dynamic structure of this model allows us to estimate the persistence of news effects on exchange rates. The lagged variables of U.S. news surprises mostly show the same sign as the contemporaneous variables. There are some exceptions for news such as Nonfarm Payroll and Producer Prices, which show mean reversion effects across the time. However, the size of impact seems to decay as time goes by.

A complete table with all U.S. and domestic news is provided in Appendix 4. Among domestic news surprises, the consumer price index and current account balance show significance for the contemporary FX impact across the countries. The trade balance and producer price also seem to be significant when lagged variables are considered. Major domestic macroeconomic news surprises in Eastern European countries also have a

significant impact on their exchange rate returns. For the Czech Republic, the budget deficit, current account, consumer price index, exports, imports, industrial production index, producer price index, retail sales index, and trade balance are all significant in the model. The current account, consumer price index, and industrial production show significance in Hungary. And in Poland, the significant news surprises include current account, GDP, money supply, unemployment, and wholesale sales index. Along with European countries, exchange rate returns in South Africa are strongly responsive to domestic news surprises. Among the 6 domestic macroeconomic announcements we collect, the consumer price index, interest rate, money supply, and trade balance are all statistically significant. In Asian countries, nevertheless, the impact of domestic news surprises on exchange rate returns are somewhat smaller compared with that of the U.S. news surprises. Only one of the domestic news surprises in Thailand is significant in the estimation model. None of the domestic news is significant in Indonesia and Korea.

Announcements and FX Volatility

In order to assess how the news surprises affect FX volatility, we compare contemporaneous coefficients with the sum of those across 12 lags (i.e., 60 minutes of time) used in the regression model suggested in equation (5). In this case, we concentrate on the 9 news surprises that are statistically significant for at least 6 countries in the current terms or more than 13 including additional 2 lags in equation (4).

It should be noted that we use equation (5) for the estimation, so the impact of the news surprise on the volatility should last until the next 60 minutes.[7] Results presented in the middle section of Table 3 suggest that several of the coefficients for news surprises in the volatility equation have statistical significance, although they tend to be smaller compared with the contemporaneous return response coefficients in the top panel. Only 7 of the coefficients for 7 countries excluding Thailand and Turkey are insignificant. Comparing the significance of coefficients in the conditional mean equation (4) with those of volatility equation (5), it can be seen that the news surprises provide more impact on volatility than on conditional mean of exchange rate. To summarize, 87.5% of 9 major economic news surprises in 9 countries which are statistically significant have a more prolonged impact on volatility for 60 minutes. The whole set of coefficients including contemporaneous and cumulated coefficients are presented in Appendix 4.

As shown in the bottom panel of Table 3, the cumulative response of volatility is much larger than the contemporaneous volatility response, which is consistent with ABDV (2003)'s finding that volatility adjusts to news surprises gradually. An alternative possibility is that the announcement itself can influence on FX market rather than the size of the news surprise. To check for this possibility, we include dummy variables that represent the announcement in both equation (4) and (5) such that the lags should be the same as news surprise. Then the equation model changes as follows:

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[7] We can extend the time period for this estimation by assigning a bigger number for the time lag J' than 12, however this may introduce other sources of volatility within the period.

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K} \sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K} \sum_{j=0}^{J} \theta_{kj} D_{k,t-j} + \varepsilon_t \tag{7}$$
$$t = 1,...,T.$$

$$|\hat{\varepsilon}_t| = c + \psi \frac{\hat{\sigma}_{d(t)}}{\sqrt{288}} + \sum_{k=1}^{K} \sum_{j'=0}^{J'} \beta_{kj'} |S_{k,t-j'}| + \sum_{k=1}^{K} \sum_{j'=0}^{J'} \theta_{kj'} D_{k,t-j'} + \left(\sum_{q=1}^{Q} \left(\delta_q \cos\left(\frac{q2\pi t}{288} \right) + \varphi_q \sin\left(\frac{q2\pi t}{288} \right) \right) \right) + u_t \tag{8}$$

As before, we present major 9 economic indices that show significant impact on FX markets across the countries in Table 4. The set of all coefficients can also be found in Appendix 5. In Table 4, many major economic indicators seem to have an announcement effect on FX changes even after taking into account the news surprise impact. Furthermore, the announcement effects exist not only for FX returns but also for the volatility.

Testing for Asymmetry

We test if there is any asymmetry in the impact of the news surprises according to the sign. ABDV (2003) reports asymmetric response of US news in the case of major currencies. The long sample and the large number of currencies in our sample provide a good opportunity to check if such patterns also exist in emerging markets. First, we divide news surprises into two groups based on their signs, and estimating two equations below:

$$R_t = \begin{cases} \beta_{0k} S_{kt} + \beta_{1k} S_{kt}^2 + \varepsilon_t & \text{if } S_t \leq 0 \\ \beta_{2k} S_{kt} + \beta_{3k} S_{kt}^2 + \varepsilon_t & \text{if } S_t > 0 \end{cases} \tag{9}$$

With this estimation, we reconstruct the set of graphs that contain the fitted value on the vertical axis and the standard deviation of the news surprise in horizontal axis in Figure 4

(using the average impact over all news surprises). There appear to be some differences between the two subgroups. To investigate this more formally, we try a modified equation to test if there is any asymmetry across the sign of the news surprise

$$R_t = \beta_{0k} S_{kt} + \beta_{1k} S_{kt}^2 + D_{kt}\left(\beta_{2k} S_{kt} + \beta_{3k} S_{kt}^2\right) + \varepsilon_t \tag{10}$$

where D_{kt} denotes a dummy variable which takes the value 1 if the news surprise is positive, and the value of 0 if negative. To test for asymmetry, we define the null hypothesis such that FX returns have symmetry ($\beta_{2k} = 0$, and $\beta_{3k} = 0$) for major 9 economic indicators. The results of the test are presented below in Table 5. Only 9 cases suggest that the symmetry hypothesis is rejected at 5% significance, while 72 other cases can not reject the symmetric null hypothesis.

This symmetric impact of news surprises on FX returns is in contrast with the findings in ABDV (2003). To look into the source of this difference, we repeat the regression above for euro. As it turns out, the euro responds to most U.S. news in a symmetric way as well in our sample, suggesting that the different findings between ours and ABDV (2003) come from the different sample periods rather than differences between emerging market currencies and major currencies.

IV. Market Sentiment, Uncertainty, and Macroeconomic News

In this section, we examine the interaction between market sentiment on emerging market currencies and the exchange rate response to news surprises. For instance, if market participants expect that Korean won will depreciate in a near future as a consensus, then the

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news surprise that suggests the U.S. economy be stronger than expected may have a greater impact on returns of Korean won by making this currency depreciating more rapidly, and vice versa. Therefore, this case consists of two different expectational errors from market participants: a first error from news expectations, and a second error consisting of an FX forecast error. On the other hand, if we can think that the expectation of future appreciation or depreciation is related to the economic cycle in a country, then this approach may become the alternative way to assess symmetry in the impact described in the above section. We use the median value of 1-month-ahead FX forecasts from Consensus Forecasts as a proxy of market expectation of each currency.

We use an ordinary least square regression with some modification in equation (4), by adding an FX consensus variable multiplied by news surprises. If the hypothesis described above is true, then the coefficients on the interaction variable will be positive. The modified equation is as follows:

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K}\sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K}\sum_{j=0}^{J} \gamma_{kj} FXD_{d,t-j} S_{k,t-j} + \varepsilon_t$$
$$t = 1,...,T.$$
(11)

In Table 6, we focus on 9 U.S. major economic indices discussed earlier. All the coefficients for variables used in this regression are presented in Appendix 6. The first part of the table presents coefficients for news surprises only, and the second part for FX forecasts (FXD) multiplied by the news surprises. Notably, many of the FX forecast-related coefficients show statistically significant and positive values, suggesting that market sentiment plays an important role in how news surprises move EM currencies. It acts as an amplifier when the market is pessimistic (optimistic) about the EM currencies and news

surprises suggest stronger (weaker) U.S. economy. For instance, if market analysts think that

the Czech Republic koruna will depreciate (appreciate) by 10% for next d months and the

durable good orders' data is 1 standard deviation higher (lower) than expected, then

exchange rate returns will depreciate (appreciate) 2.2 basis points more than when no

exchange rate change is expected for next d months.[8] On the other hand,

when the EM currencies are under pressure to appreciate, positive sentiment for these

currencies works as a shock absorber against strong U.S. news. This evidence is consistent

with the findings of Mian and Sankaraguruswamy (2008) that the stock market response to

good (bad) news is greater during a high (low) sentiment period. One explanation for these

results is investor overconfidence as documented in Barberis and Thaler (2003) and

Hirshleifer (2001), i.e., investor are more likely to accept news that is in line with their prior

beliefs and ignore information that is contradictory to their prior beliefs.

The accelerator effect of market sentiment provides a potential explanation why we

find no evidence for asymmetry in EM currencies' reaction to news as in ABDV (2003). EM

currencies experience more ups-and-downs than major currency pairs. The long sample of

our dataset contains both periods of market optimism and pessimism for each EM currency.

Over the market sentiment cycle, this asymmetry might be averaged out. In contrast, ABDV

(2003)'s sample period covers one side of the business cycle, when market sentiment might

be persistently one-sided as well.

We further test the effect of uncertainty on exchange rate response to news. The

specification is

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[8] Since we multiply log difference of FX by 100 to increase the scale of coefficients, we need to divide by 100 again, so that the magnitude of the shock can be measured correctly.

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K} \sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K} \gamma_k DISP_{d,t} S_{k,t} + \varepsilon_t$$

(12)

where *DISP* is a measure of market uncertainty defined by the dispersion of market forecasts

for each EM currency. It is constructed as $DISP_{d,t} = \left| \dfrac{CFX_{d,t}^{high} - CFX_{d,t}^{low}}{SFX_t} \right|$, where $CFX_{d,t}^{high}$

denotes the maximum of FX forecasts at time t, and $CFX_{d,t}^{low}$ denotes the minimum of FX

forecasts at time t (the summary statistics for *DISP* is presented in Appendix 3b).

The role of market uncertainty in these regressions is not conclusive. The estimates

are shown in Table 7. Despite many significant estimates, the signs of the parameters for

market uncertainty vary across country and across news. The diverse set of parameters

leaves the regressions inconclusive. Nonetheless, the fact that market uncertainty shows

significance in many regressions indicates it does have influence on how exchange rates react

to news, but the channel of such influence is not yet well understood.

V. Conclusion

This paper documents some interesting features in the FX market for emerging

market currencies. Except for Thailand and Turkey, whose currencies are not sensitive to

news, the other 7 currencies show consistent reactions to news. First, U.S. news matters

much more than domestic news. Second, currencies have become more sensitive in recent

years than before. Third, market sentiment on these currencies plays an important role by

swaying the impact of news surprises, i.e., good (bad) news matters more when optimism

(pessimism) prevails. These finding are robust across countries and news we studied.

The role of uncertainty in FX market is also studied but is not fully explored. The significant yet inconclusive estimates indicate that its role could be state-dependent, and we are not yet able to capture what is the missing state variable. On the role of market sentiment, although we found significant and consistent results for emerging markets, it is not clear if this is a unique phenomenon for emerging market currencies, or it also exists for major currencies and other financial assets. These are potential topics for future research.

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Table 1. U.S. and National News Announcements

	News Announcements	Source	No of Obs	Start Date	Final Date	Time[9]
	United States					
1	Business Inventories[10]	US treasury	83	14-Jan-00	13-Dec-06	15:00
2	Budget Deficit[11]	BEA	83	21-Jan-00	12-Dec-06	19:00
3	Current Account[12]	Federal reserve	27	15-Mar-00	18-Dec-06	13:30
4	Capacity Utilization[13]	Conference board	70	14-Jan-00	15-Dec-06	14:15
5	Consumer Confidence	Federal reserve	84	25-Jan-00	28-Dec-06	15:00
6	Consumer Credit	Census	84	7-Jan-00	7-Dec-06	20:00
7	Construction Spending	BLS	84	4-Jan-00	1-Dec-06	15:00
8	Consumer Price Index[14]	Census	82	18-Feb-00	15-Dec-06	13:30
9	Durable Goods Orders	Census	84	27-Jan-00	22-Dec-06	13:30
10	Factory Orders	BEA	84	5-Jan-00	5-Dec-06	15:00
11	Gross Domestic Product	dept of commerce	84	28-Jan-00	21-Dec-06	13:30
12	Housing Starts[15]	BLS	83	19-Jan-00	19-Dec-06	13:30
13	Imports[16]	Federal reserve	80	12-Jan-00	14-Dec-06	13:30
14	Interest rate (FOMC)	Federal reserve	56	2-Feb-00	12-Dec-06	19:15
15	Industrial production[17]	ISM	84	14-Jan-00	15-Dec-06	14:15
16	NAPM	Conference board	84	3-Jan-00	1-Dec-06	15:00
17	Leading Indicators[18]	Census	83	2-Feb-00	21-Dec-06	15:00
18	New Home Sales[19]	BLS	84	6-Jan-00	27-Dec-06	15:00
19	Nonfarm Payroll Employment	BEA	84	7-Jan-00	8-Dec-06	13:30
20	Personal Spending	dept of commerce	60	31-Jan-02	22-Dec-06	13:30
21	Personal Income	BLS	84	31-Jan-00	22-Dec-06	13:30
22	Producer Price	Census	84	13-Jan-00	19-Dec-06	13:30
23	Retail Sales[20]	Census	83	13-Jan-00	13-Dec-06	13:30
24	Trade Balance	dept. of Labor	84	20-Jan-00	12-Dec-06	13:30
25	Initial Unemployment[21]	Census	363	6-Jan-00	28-Dec-06	13:30
26	Wholesales	Census	84	11-Jan-00	11-Dec-06	15:00

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[9] The time presented in this table is based on GMT time.

[10] 3/04 is a missing observation.

[11] 3/04 is a missing observation.

[12] 1st Quarter of 04 is a missing observation.

[13] 1/01~11/01, 8/02,3/04, 8/04 are missing observations.

[14] 1/00, 8/04 are missing observations.

[15] 8/04 are missing observation.

[16] 3/00, 4/01, 10/01, and 3/04 are missing observations.

[17] 3/04 and 8/04 are missing observations. 9/06 and 12/06 have revisited observations.

[18] 8/04 is a missing observation.

[19] 1/01 has a revised observation. 1/04 is a missing observation.

[20] 3/04 is a missing observation.

[21] 8/21/2004 and 3/13/2004 are missing observations.

Table 1. Continued

	News Announcements	Source	No. of Obs	Start Date	Final Date	Time
	Czech Republic					
27	Budget Deficit[22]	MoF	15	2-May-00	1-Apr-05	13:00
28	Current Account[23]	CNB	42	16-Jun-03	13-Dec-06	9:00
29	Current Account(US Dollar)[24]	CNB	13	5-Jun-01	6-Sep-05	8:00
30	Consumer Price Index	CSO	84	10-Jan-00	8-Dec-06	8:00
31	Exports[25]	CSO	15	23-Jun-03	3-Jun-05	7:00
32	Gross Domestic Product	CSO	29	22-Mar-00	8-Dec-06	8:00
33	Imports[26]	CSO	31	21-Jan-00	3-Jun-05	7:00
34	Industrial production[27]	CSO	82	11-Jan-00	12-Dec-06	8:00
35	Money Supply	CNB	14	31-Mar-00	30-Apr-01	8:00
36	Producer Price[28]	CSO	81	13-Jan-00	14-Dec-06	8:00
37	Retail Sales[29]	CSO	83	14-Jan-00	18-Dec-06	8:00
38	Trade Balance[30]	CSO	82	21-Jan-00	6-Dec-06	8:00
39	Initial Unemployment[31]	MoL	73	10-Jan-00	12-Jul-06	7:00
	Hungary					
40	Budget Deficit[32]	HFM	25	4-Aug-03	8-Aug-06	15:00
41	Current Account[33]	MNB	53	3-Apr-00	29-Sep-06	6:30
42	Consumer Price Index[34]	HSO	79	14-Jan-00	12-Dec-06	8:00
43	Gross Domestic Product[35]	HSO	28	31-Mar-00	14-Nov-06	8:00
44	Industrial production[36]	HSO	50	4-Feb-00	13-Oct-06	7:00
45	Producer Price[37]	HSO	45	1-Mar-00	30-Nov-06	8:00
46	Trade Balance[38]	HSO	34	10-Oct-02	9-Nov-06	8:00

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[22] 6/01~12/01, 1/04~11/04, 1/05~3/05, and 5/05~12/05 are missing observations.

[23] 3/04 is a missing observation.

[24] 3Q/01, 2Q/03~4Q/03, and 3Q/04 are missing observations.

[25] 7/03, 12/03, 1/04, 6/04, 7/04, 9/04, 10/04, and 1/05~3/05 are missing observations.

[26] 5/01~12/01, 1/02~12/02, 1/03~5/03, 7/03, 12/03, 1/04, 6/04, 7/04, 9/04, 10/04, and 1/05~3/05 are missing observations.

[27] 9/02 and 3/04 are missing observations.

[28] 11/02, 3/04, and 9/04 are missing observations.

[29] 8/04 is a missing observation.

[30] 6/04 and 11/04 are missing observations.

[31] 1/06~6/06 are missing observations.

[32] 9/03~1/04, 3/04~5/04, 1/05, 2/06, 3/06, and 5/06 are missing observations.

[33] Current Account is announced quarterly since 2005. 12/01, 3/02,4/02,8/02,12/02, 3/04, 7/04, 8/04, 10/04, 11/04 and 1Q/06 are missing observations.

[34] 7/00, 11/00, 4/01, 3/03, 3/03 are missing observations.

[35] 4Q/01, 1Q/03, 2Q/03, and 4Q/06 are missing observations.

[36] 1/00, 8/00~11/00, 3/01, 12/01~4/02, 6/02~8/02, 11/02~3/03, 6/03~6/04, 2/05, 2/06 are missing observations.

[37] 1/00, 7/00, 9/00, 10/00, 12/00, 2/01, 9/01, 12 /01, 2/02, 3/02, 11/02, 1/03~3/03, 5/03~3~04, 5/04~7/04, 9/04, 12/04, 3/05, 7/05, 9/05~12/05, 2/06, 5/06, 7/06, 10/06 are missing observations.

[38] 11/02, 12/02, 1/03~3/03, 6/03, 8/03~1/04, 4/04, 5/04, 7/04, 6/06 are missing observations.

Table 1. Continued

	News Announcements	Source	No of Obs	Start Date	Final Date	Time
	Indonesia					
47	Exports[39]	BPS	75	1-Sep-00	1-Dec-06	7:00
48	Gross Domestic Product	BPS	24	15-Nov-00	16-Nov-06	7:00
49	Imports[40]	BPS	72	1-Sep-00	1-Dec-06	7:00
50	Trade Balance[41]	BPS	75	1-Sep-00	1-Dec-06	7:00
	Korea					
51	Consumer Price Index[42]	NSO	62	31-Aug-00	29-Dec-06	4:30
52	Exports[43]	MoC	53	2-Feb-01	1-Dec-06	1:00
53	Gross Domestic Product[44]	BOK	22	22-Aug-00	24-Oct-06	23:00
54	Imports[45]	MoC	53	2-Feb-01	1-Dec-06	1:00
55	Industrial production[46]	NSO	56	31-Jan-01	29-Dec-06	4:30
56	Initial Unemployment	NSO	3	18-Apr-05	13-Sep-06	4:30
	Mexico					
57	Current Account	Banco de Mexico	14	27-Aug-03	24-Nov-06	20:30
58	Consumer Confidence[47]	INEGI	38	4-Aug-03	5-Dec-06	20:30
59	Consumer Price Index[48]	Banco de Mexico	47	7-Jan-00	7-Dec-06	20:30
60	Fixed Invest	INEGI	33	7-Apr-04	7-Dec-06	20:30
61	Gross Domestic Product[49]	INEGI	27	16-Feb-00	22-Nov-06	20:30
62	Industrial production[50]	INEGI	81	11-Jan-00	13-Dec-06	20:30
63	Producer Price[51]	Banco de Mexico	29	7-Jan-00	7-May-04	19:30
64	Retail Sales[52]	INEGI	78	20-Jan-00	19-Dec-06	20:30
65	Trade Balance[53]	INEGI	117	24-Jan-00	26-Dec-06	20:30
66	Unemployment[54]	INEGI	80	19-Jan-00	20-Dec-06	20:30
67	Wholesales	INEGI	31	20-Jan-00	22-Jul-02	19:30

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[39] 1/02 is a missing observation.

[40] 12/01, 6/03, 2/06, 3/06 are missing observations.

[41] 12/01 is a missing observation.

[42] 10/00, 12/00, 1/01, 3/01, 4/01, 6/01, 8/01, 3/02, 4/02, 9/03, 12/03, 12/04, 2/05, 5/05 are missing observations.

[43] 4/01, 1/02, 3/02, 4/02, 6/02, 11/02, 12/02, 1/03, 2/03, 5/03, 6/03, 8/03, 9/03, 12/03, 2/04, 12/04, 1/05, 2/06 are missing observations.

[44] 2Q/01, 3Q/02, 2Q/04 are missing observations.

[45] 4/01, 1/02, 3/02, 4/02, 6/02, 11/02~2/03, 5/03, 6/03, 8/03, 9/03, 12/03, 2/04, 12/04, 2/05, 2/06 are missing observations.

[46] 2/01, 4/01~8/01, 1/02, 3/02, 7/02~10/02, 2/03, 12/03, 12/04, 12/05 are missing observations.

[47] 1/04, 8/04, 11/04 are missing observations.

[48] 12/01 is a missing observation.

[49] 3Q/02, 4Q/02, and 2Q/05 are missing observations.

[50] 11/02, 12/02 and 3/04 are missing observations.

[51] 12/01, 6/02~4/04 are missing observations.

[52] 8/02, 11/02, 12/02, 2/03, 6/03, and 8/04 are missing observations.

[53] 12/01, 9/02, 11/02, 12/02, 1/03, 2/03, 4/03, and 5/03 are missing observations.

[54] 8/02, 11/02, 12/02, and 2/03 are missing observations.

Table 1. Continued

	News Announcements	Source	No of Obs	Start Date	Final Date	Time
	Poland					
68	Budget Deficit[55]	MoF	33	15-Nov-01	15-Dec-06	13:30
69	Current Account[56]	NBP	77	3-Apr-00	13-Dec-06	13:00
70	Consumer Price Index[57]	PSO	79	15-Feb-00	14-Dec-06	13:00
71	Exports[58]	NBP	75	3-Apr-00	13-Dec-06	13:00
72	Gross Domestic Product[59]	Eurostat	25	21-Jun-00	30-Nov-06	9:00
73	Imports[60]	NBP	76	3-Apr-00	13-Dec-06	13:00
74	Money Supply[61]	NBP	72	14-Apr-00	14-Dec-06	13:00
75	Producer Price[62]	PSO	77	18-Apr-00	19-Dec-06	13:00
76	Retail Sales[63]	PSO	48	20-Dec-02	21-Dec-06	9:00
77	Unemployment[64]	PSO	80	26-Apr-00	21-Dec-06	9:00
78	Wholesales[65]	PSO	77	18-Apr-00	19-Dec-06	13:00
	South Africa					
79	Current Account	SARB	2	21-Sep-06	8-Dec-06	9:00
80	Consumer Price Index[66]	SSA	83	18-Jan-00	20-Dec-06	9:30
81	Gross Domestic Product[67]	SSA	26	28-Feb-00	28-Nov-06	9:30
82	Interest rate[68]	SARB	24	15-Nov-01	7-Dec-06	13:20
83	Money Supply[69]	SARB	79	1-Feb-00	29-Dec-06	6:00
84	Producer Price[70]	SSA	82	26-Jan-00	21-Dec-06	9:30
85	Retail Sales	SSA	4	4-Nov-04	6-Dec-06	9:00
86	Trade Balance[71]	SARB	81	31-Jan-00	28-Dec-06	12:00

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[55] 12/01, 1/04, 3/04, 2/06, and 9/06 are missing observations.

[56] 8/03, 10/03, 11/03, 2/04, and 3/04 are missing observations.

[57] 2/01~4/01, and 3/04 are missing observations.

[58] 8/03, 10/03, 11/03, 2/04, 3/04, 11/05, and 12/05 are missing observations.

[59] 2Q/00, 3Q/00, and 4Q03 are missing observations.

[60] 8/03, 10/03, 11/03, 2/04, 3/04, and 12/05 are missing observations.

[61] 10/01, 5/02, 8/02, 3/04, 4/05, 8/05~10/05, 12/05 are missing observations.

[62] 2/01~4/01, and 8/04 are missing observations.

[63] 2/03 is a missing observation.

[64] 10/04 is a missing observation.

[65] 2/01~4/01, and 8/04 are missing observations.

[66] 9/04 is a missing observation.

[67] 4Q/00, and 3Q/02 are missing observations.

[68] Bimonthly announcements. 2/01~2/03 are missing observations.

[69] 7/02, 12/02, 2/03, 3/03, and 2/05 are missing observations.

[70] 5/03 and 8/03 are missing observations.

[71] 12/00, 2/05 and 2/06 are missing observations.

Table 1. Continued

	News Announcements	Source	No of Obs	Start Date	Final Date	Time
	Thailand					
87	Current Account[72]	BOT	27	30-Sep-04	29-Dec-06	7:30
88	Consumer Price Index[73]	Commerce Ministry	31	3-Nov-03	1-Dec-06	3:30
89	Exports[74]	BOT	7	30-Sep-04	31-May-05	8:00
90	Gross Domestic Product[75]	BOT	22	19-Jun-00	4-Dec-06	2:30
91	Interest rate	BOT	9	19-Oct-05	13-Dec-06	7:30
	Turkey					
92	Current Account[76]	CBT	27	24-Jun-04	11-Dec-06	14:35
93	Consumer Price Index[77]	SIS	48	3-Jan-00	4-Dec-06	14:30
94	Exports[78]	SIS	8	31-Mar-05	29-Jul-06	13:30
95	Gross Domestic Product[79]	SIS	24	31-Aug-00	11-Dec-06	8:00
96	Imports[80]	SIS	8	31-Mar-05	29-Jul-06	13:30
97	Industrial production[81]	SIS	71	8-Aug-00	8-Dec-06	8:00
98	Producer Price	SIS	23	3-Feb-05	4-Dec-06	14:30
99	Trade Balance[82]	SIS	32	24-Jun-02	29-Dec-06	14:30
100	Unemployment[83]	SIS	10	9-Dec-04	20-Nov-06	8:00

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[72] 4/05 is a missing observation.

[73] 12/03~6/04 are missing observations.

[74] 2/05, and 4/05 are missing observations.

[75] 3Q/02~2Q/03, 4Q/04 are missing observations.

[76] 8/04, 9/04, 11/04, and 1/06 are missing observations.

[77] 2/01~6/03, and 8/03~2/04 are missing observations.

[78] 10/05~6/06 are missing observations.

[79] 4Q/01, and 3Q02 are missing observations.

[80] 10/05~6/06 are missing observations.

[81] 12/00, 3/01, 4/01, 6/01, 8/01, and 12/02 are missing observations.

[82] 1/04, 2/04, 4/04, 5/04, 8/04 are missing observations.

[83] 1/05~4/05, 7/05, 9/05, 12/05, 2/06~5/06, and 7/06~9/06 are missing observations.

Table 2. U.S. and Domestic News Response and R squares

	Euro		Czech Republic		Hungary		Indonesia		Korea		Mexico		Poland		South Africa		Thailand		Turkey	
	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2
U.S. Announcement																				
Business Inventories	0.00	0.00	0.01	0.00	-0.01	0.00	0.01	0.03	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.03	0.03	0.00	0.00	-0.03	0.02
Budget Deficit	0.00	0.01	-0.01	0.02	0.01	0.00	0.01	0.00	0.17*	0.15	0.00	0.01	0.00	0.00	-0.01	0.01	-0.03	0.02	0.08	0.66
Current Account	0.01	0.06	0.04*	0.15	0.05	0.13	-0.07*	0.21	0.01	0.02	0.00	0.00	0.02	0.10	0.04	0.09	0.03	0.15	0.04	0.04
Capital Utilization	0.01*	0.10	0.01	0.02	0.00	0.00	-0.01	0.01	-0.03	0.04	0.00	0.01	0.00	0.00	0.06**	0.13	0.01	0.02	0.02	0.03
Consumer Confidence	0.06**	0.38	0.11**	0.48	0.10**	0.40	0.01	0.02	0.03	0.07	-0.03**	0.13	0.05**	0.17	0.05**	0.18	0.00	0.00	0.04*	0.09
Consumer Credit	0.00	0.01	0.00	0.00	-0.02*	0.06	-0.01	0.04	-0.01	0.07	-0.01	0.02	0.00	0.00	-0.02	0.02	0.01	0.01	-0.05	0.59
Construction Spending	0.00	0.00	0.04*	0.08	0.04	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.02	0.05	-0.01	0.00	-0.02	0.05	-0.02	0.01
Consumer Price Index	0.01	0.04	0.01	0.00	0.02	0.02	-0.05**	0.13	0.00	0.00	0.03*	0.05	0.02	0.01	0.05	0.04	0.01	0.00	0.06	0.04
Durable Goods Orders	0.02**	0.09	0.06**	0.21	0.07**	0.22	0.05*	0.13	0.02	0.06	-0.01	0.02	0.04**	0.14	0.05**	0.11	-0.01	0.00	-0.02	0.01
Factory Orders	0.00	0.00	0.03	0.05	0.02	0.03	0.00	0.00	-0.01	0.01	0.00	0.00	0.00	0.00	0.03*	0.06	0.01	0.03	0.05**	0.17
Gross Domestic Product	0.05**	0.27	0.11**	0.42	0.11**	0.39	0.06**	0.29	0.02	0.06	0.00	0.00	0.07**	0.37	0.07**	0.16	0.00	0.00	0.01	0.00
Housing Starts	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.00	0.01	0.01	-0.01	0.01	0.01	0.00
Imports	-0.01	0.01	0.03*	0.07	0.02	0.04	0.01	0.01	0.03	0.07	0.02	0.01	0.03	0.04	0.00	0.00	-0.01	0.01	-0.02	0.01
Interest rate	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Industrial production	0.01	0.01	0.02*	0.06	0.02	0.04	0.00	0.00	0.00	0.00	-0.01	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.01	0.00
NAPM	0.17	0.02	1.39**	0.21	1.35**	0.16	0.20	0.01	0.29	0.02	0.04	0.00	0.82**	0.19	0.44	0.03	-0.44*	0.09	-0.28	0.01
Leading Indicators	0.00	0.00	0.00	0.00	0.02	0.04	-0.01	0.02	-0.01	0.01	0.00	0.00	0.00	0.00	-0.01	0.00	0.01	0.01	0.01	0.00
New Home Sales	0.01*	0.05	0.04*	0.07	0.05**	0.13	0.03*	0.14	0.03	0.06	0.01	0.01	0.03**	0.14	0.01	0.00	-0.01	0.02	-0.01	0.00
Nonfarm Payroll	0.09**	0.18	0.22**	0.34	0.24**	0.36	0.06*	0.12	0.09*	0.16	0.03	0.03	0.18**	0.31	0.19**	0.24	0.01	0.01	0.02	0.00
Personal Spending	0.00	0.00	0.01	0.00	0.02	0.02	0.01	0.03	-0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	-0.01	0.02	-0.01	0.00
Personal Income	0.01	0.04	0.00	0.00	0.01	0.00	-0.01	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.01
Producer Price	0.01	0.03	0.02	0.01	0.02	0.01	0.03	0.05	0.01	0.03	0.01	0.01	0.03	0.05	0.03	0.02	0.00	0.00	0.00	0.00
Retail Sales	0.03**	0.20	0.08**	0.22	0.08**	0.24	0.03	0.06	0.03*	0.09	-0.05*	0.08	0.07**	0.23	0.03	0.01	0.01	0.03	0.00	0.00
Trade Balance	0.04**	0.20	0.12**	0.38	0.11**	0.36	0.00	0.00	0.02	0.05	-0.01	0.01	0.10**	0.35	0.08**	0.19	0.01	0.00	0.02	0.01
Initial Unemployment	-0.01**	0.04	-0.03**	0.07	-0.03**	0.06	0.00	0.00	-0.01	0.01	0.00	0.00	-0.01*	0.02	-0.01	0.00	0.00	0.00	-0.01	0.00
Wholesales	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	-0.01	0.01

Table 2. Continued

Domestic Announcement	Euro β	Euro R²	Czech Republic β	Czech Republic R²	Hungary β	Hungary R²	Indonesia β	Indonesia R²	Korea β	Korea R²	Mexico β	Mexico R²	Poland β	Poland R²	South Africa β	South Africa R²	Thailand β	Thailand R²	Turkey β	Turkey R²
Budget Deficit			0.00	0.00	0.04	0.16							0.00	0.00						
Current Account			-0.03**	0.24	-0.02	0.04					0.00	0.02	-0.08**	0.24	0.13	0.11	0.37	0.11	0.03	0.05
Current Account(US)			-0.01	0.02																
Consumer Confidence											0.00	0.00								
Consumer Price Index			-0.02	0.03	0.02	0.03			0.01*	0.16	0.01	0.06	0.01	0.02	-0.07**	0.28	0.00	0.00	-0.01	0.00
Exports			-0.03	0.03			0.00	0.00	0.01	0.04			0.01	0.00			0.00	0.02	0.04	0.04
Fixed Invest											0.00	0.00								
Gross Domestic Product			-0.03*	0.14	0.01	0.01	0.00	0.00	0.01	0.00	-0.03*	0.25	-0.04	0.18	-0.03	0.10	-0.07	0.06	-0.02	0.01
Imports			-0.01	0.01			-0.01	0.03	0.00	0.00			0.04	0.06					-0.14	0.30
Interest rate															-0.26*	0.20	-0.01	0.03		
Industrial production			-0.01	0.04	-0.03*	0.10			0.00	0.00	0.01	0.01							-0.01	0.00
Money Supply			0.00	0.00									-0.01	0.03	0.04	0.07				
Producer Price			-0.02**	0.10	-0.02	0.08					0.01	0.14	0.00	0.00	0.01	0.01			0.15	0.15
Retail Sales			-0.03**	0.10							-0.01	0.05	-0.01	0.01	-0.02	0.05				
Trade Balance			-0.07**	0.33	-0.01	0.00	0.36	0.00			-0.01**	0.10			-0.13**	0.30			0.04	0.03
Initial Unemployment			-0.01	0.02					0.00	0.29	-0.02	0.02	0.02	0.03					-0.01	0.01
Wholesales											-0.03*	0.25	-0.02	0.04						

Notes: We estimate the exchange rate conditional mean model (3) $R_t = \beta_k S_{kt} + \varepsilon_t$, where R_t is the 5-minute return from period t to period $t+1$, and S_{kt} is the standardized news surprise as described in the text. We estimate the regression only using non-missing data for each news surprise. β_k and R^2 are reported for each regression result. Asterisks denote statistical significance (*** at 1-percent level, ** at 5-percent level, and * at 10-percent level).

Table 3. The Impact of Major News Surprises on FX Returns and FX Volatility

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Response of Contemporaneous News Surprises on FX Returns									
Durable Goods Orders	0.05**	0.06**	0.04**	0.03*	-0.01*	0.04**	0.05**	-0.03**	-0.01
Nonfarm Payroll	0.19**	0.21**	0.04**	0.09**	0.02**	0.18**	0.18**	0.00	0.02*
Trade Balance	0.12**	0.12**	0.00	0.02**	-0.02**	0.12**	0.09**	0.00	0.02
Producer Price	0.02**	0.02**	0.04**	0.01	0.01*	0.02**	0.05**	0.00	-0.01
New Home Sales	0.02**	0.03**	0.03**	0.03**	0.01*	0.03**	0.00	-0.01	-0.02
GDP	0.10**	0.11**	0.07**	0.02**	0.00	0.07**	0.07**	-0.01	0.03
Consumer confidence	0.11**	0.10**	0.01	0.02**	-0.03**	0.04**	0.05**	0.00	0.05
Retail Sales	0.07**	0.07**	0.03**	0.03**	-0.07**	0.07**	0.02	0.01	-0.01
Initial Unemployment	-0.03**	-0.03**	-0.01	-0.01**	0.00	-0.02**	-0.02**	0.01	0.01
Impact of Contemporaneous News Surprises on Volatility									
Durable Goods Orders	0.02**	0.05**	0.01*	-0.01**	0.00	0.01**	0.01**	0.02**	0.01
Nonfarm Payroll	0.17**	0.17**	-0.01**	0.09**	0.05**	0.16**	0.18**	0.01**	0.10**
Trade Balance	0.04**	0.04**	0.04**	0.04**	0.00**	0.06**	0.03**	0.00	0.01
Producer Price	0.03**	0.03**	0.02**	-0.01*	0.01**	0.01	0.01**	0.00	0.07**
New Home Sales	0.03**	0.03**	0.02**	0.02**	0.00	0.03**	0.00	0.00	-0.01
GDP	0.05**	0.04**	0.04**	0.04**	0.00	0.04**	0.04**	0.01	0.03**
Consumer confidence	0.03**	0.04**	0.03**	0.03**	0.02**	0.03**	0.00	0.01**	0.00
Retail Sales	0.03**	0.03**	0.03**	0.05**	0.03**	0.04**	0.00*	0.00	0.00
Initial Unemployment	0.01**	0.00	0.01**	0.01**	0.01**	0.02**	0.02**	0.00	0.01**
Cumulated Impact of News Surprises on Volatility									
Durable Goods Orders	0.17**	0.20**	0.05*	0.05**	0.00	0.07**	0.13**	0.02**	0.03
Nonfarm Payroll	0.26**	0.32**	0.16**	0.39**	0.19**	0.37**	0.38**	0.05**	0.16**
Trade Balance	0.05**	0.06**	0.01**	0.25**	0.02**	0.11**	0.11**	-0.03	0.02
Producer Price	0.03**	0.06**	0.04**	0.04*	0.01**	0.01	0.10**	-0.01	0.08**
New Home Sales	0.10**	0.06**	0.05**	0.03**	-0.01	0.08**	0.01	0.00	-0.01
GDP	0.06**	0.02**	0.05**	0.04**	0.00	0.11**	0.08**	0.03	-0.02**
Consumer confidence	0.03**	0.10**	0.13**	0.07**	0.05**	0.12**	0.01	0.02**	-0.04
Retail Sales	0.09**	0.05**	0.06**	0.13**	0.03**	0.16**	0.06*	0.00	0.01
Initial Unemployment	0.03**	0.00	-0.01**	0.01**	0.04**	0.12**	0.07**	0.00	0.01**

Notes: We estimate the exchange rate conditional mean model (4) $R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K} \sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \varepsilon_t$,

and we report estimates of the contemporaneous response of exchange-rate returns to news surprises, β_{k0}. We also estimate the disturbance volatility model (5)

$$|\hat{\varepsilon}_t| = c + \psi \frac{\hat{\sigma}_{d(t)}}{\sqrt{288}} + \sum_{k=1}^{K} \sum_{j'=0}^{J'} \beta_{kj'} |S_{k,t-j'}| + \left(\sum_{q=1}^{Q} \left(\delta_q \cos\left(\frac{q2\pi t}{288}\right) + \phi_q \sin\left(\frac{q2\pi t}{288}\right) \right) \right) + u_t,$$ and we report

estimates of the contemporaneous response of exchange-rate volatility to news surprise, $\beta_{k0} = \eta_k p_k(0)$. In

addition, we report estimates of the cumulative volatility response, $\sum_{j'=0}^{12} \eta_k p_k(j')$, as described in the text.

Asterisks denote statistical significance (*** at 1-percent level, ** at 5-percent level, and * at 10-percent level).

Table 4. Response of Major News Surprises and Announcement Effects on FX returns

Announcements		Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of Major News Surprises on FX Returns										
Durable Goods Orders	B_{k0}	0.06***	0.07***	0.05***	0.02***	-0.02***	0.05***	0.05***	-0.03***	-0.01
	Θ_{k0}	-0.01	-0.02***	0.00	0.01	0.01**	-0.02***	-0.02	0.03***	0.04*
Nonfarm Payroll	B_{k0}	0.22***	0.25***	0.06***	0.09***	0.01***	0.20***	0.18***	0.01	0.05***
	Θ_{k0}	0.05***	0.06***	0.02***	0.04***	-0.05***	0.02***	-0.01	0.01	0.10***
Trade Balance	B_{k0}	0.12***	0.11***	0.00	0.02***	-0.02***	0.11***	0.10***	0.00	0.03*
	Θ_{k0}	0.01	0.00	-0.02**	0.02***	0.00	0.01**	0.01	0.01	0.05**
Producer Price	B_{k0}	0.00	0.01	0.03***	0.02***	0.01**	0.01**	0.04***	0.01	0.00
	Θ_{k0}	-0.02***	-0.03***	-0.02**	-0.01	-0.03***	-0.02***	0.00	0.01	0.09***
New Home Sales	B_{k0}	0.02***	0.03***	0.02***	0.03***	0.01**	0.03***	0.00	-0.01	-0.03
	Θ_{k0}	-0.01**	0.03***	0.01	-0.02***	-0.01**	0.01	0.01	-0.01	0.03
Gross Domestic Product	B_{k0}	0.10***	0.11***	0.06***	0.02***	0.00	0.07***	0.07***	0.00	0.03*
	Θ_{k0}	-0.03***	-0.04***	-0.04***	-0.03***	-0.01**	-0.01	-0.02*	0.01	0.07***
Consumer Confidence	B_{k0}	0.11***	0.10***	0.01	0.01	-0.03***	0.05***	0.05***	0.00	0.05
	Θ_{k0}	0.00	-0.01	-0.01	0.04***	0.01**	-0.02***	0.00	0.00	-0.02
Retail Sales	B_{k0}	0.09***	0.08***	0.03***	0.03***	-0.07***	0.08***	0.03**	0.01	-0.01
	Θ_{k0}	0.00	0.00	0.00	0.00	0.02***	0.00	-0.06***	0.01	-0.04**
Initial Unemployment	B_{k0}	-0.04***	-0.03***	-0.01**	-0.02***	0.00	-0.02***	-0.02***	0.01	0.01
	Θ_{k0}	-0.01***	-0.01**	0.00	0.00	0.00	-0.01***	-0.01	-0.01*	0.01
Impact of Major News Surprises on Volatility										
Durable Goods Orders	B_{k0}	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.03***	0.01
	Θ_{k0}	0.05***	0.05***	0.04***	0.03***	0.02***	0.04***	0.01	0.00	-0.01
Nonfarm Payroll	B_{k0}	0.07***	0.06***	0.00	0.02*	0.02***	0.08***	0.12***	0.01	0.04**
	Θ_{k0}	0.17***	0.16***	0.08***	0.08***	0.06***	0.12***	0.08***	0.00	0.07***
Trade Balance	B_{k0}	0.02***	0.02***	0.01	0.03***	0.00	0.03***	0.03***	-0.01**	-0.03
	Θ_{k0}	0.04***	0.04***	0.05***	0.00	0.02**	0.04***	0.02	0.03***	0.04*
Producer Price	B_{k0}	-0.02***	-0.02***	0.00	0.00	-0.01*	0.00	0.00	0.00	-0.01
	Θ_{k0}	0.06***	0.06***	0.04***	0.02	0.03***	0.03**	0.04***	-0.01	0.08***
New Home Sales	B_{k0}	-0.02***	-0.02***	0.00	-0.01	0.00	0.01	0.00	0.00	0.01
	Θ_{k0}	0.07***	0.05***	0.03**	0.06***	0.01	0.02***	0.03***	0.00	-0.03
Gross Domestic Product	B_{k0}	0.02***	0.03***	0.03***	0.02**	0.00	0.01*	0.03**	0.02***	-0.01
	Θ_{k0}	0.04***	0.03***	0.01	0.01	0.02***	0.03***	0.01	-0.02*	0.06***
Consumer Confidence	B_{k0}	0.02***	0.03***	0.00	0.00	0.01**	0.01	0.00	0.01***	0.00
	Θ_{k0}	0.03***	0.02***	0.03**	0.04**	0.00	0.04***	0.01	-0.01	0.00
Retail Sales	B_{k0}	0.01*	0.01	0.01	0.02	0.03***	0.02***	0.00	0.00	-0.04*
	Θ_{k0}	0.04***	0.04***	0.01	0.02**	0.03***	0.02**	0.06***	0.00	0.04
Initial Unemployment	B_{k0}	0.00	0.00	0.01	0.00	0.00	-0.01	0.00	0.00	0.00
	Θ_{k0}	0.02***	0.02***	0.01	0.02***	0.01***	0.03***	0.01**	0.00	0.01

Notes: We estimate the exchange rate conditional mean model (7)

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K} \sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K} \sum_{j=0}^{J} \theta_{kj} D_{k,t-j} + \varepsilon_t,$$ where $D_{k,t\text{-}j}$ is dummy variable for the

announcement. We report estimates of the contemporaneous response of exchange-rate returns to news surprises, β_{k0}. We also estimate the disturbance volatility model (8)

$$\left|\hat{\varepsilon}_t\right| = c + \psi\frac{\hat{\sigma}_{d(t)}}{\sqrt{288}} + \sum_{k=1}^{K}\sum_{j'=0}^{J'}\left|S_{k,t-j'}\right| + \sum_{k=1}^{K}\sum_{j'=0}^{J'}\theta_{kj'}D_{k,t-j'} + \left(\sum_{q=1}^{Q}\left(\delta_q\cos\left(\frac{q2\pi t}{288}\right) + \phi_q\sin\left(\frac{q2\pi t}{288}\right)\right)\right) + u_t.$$ Asterisks

denote statistical significance (*** at 1-percent level, ** at 5-percent level, and * at 10-percent level).

Table 5. F-Test Results with Symmetric Response between Positive and Negative News Surprises

News		Euro	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Consumer Confidence	Fvalue	1.40	0.83	0.64	1.22	1.67	4.03	2.47	0.56	1.79	2.02
	Pvalue	0.25	0.44	0.53	0.31	0.20	0.02	0.09	0.57	0.18	0.15
Durable Goods Orders	Fvalue	1.26	1.67	2.53	2.43	0.77	1.25	1.33	2.63	6.86	0.35
	Pvalue	0.29	0.20	0.09	0.10	0.47	0.29	0.27	0.08	0.00	0.70
Gross Domestic Product	Fvalue	0.65	3.09	4.48	0.03	0.77	0.01	0.62	0.82	0.15	2.65
	Pvalue	0.52	0.05	0.01	0.97	0.47	0.99	0.54	0.45	0.86	0.08
New Home Sales	Fvalue	2.31	0.23	0.02	0.22	0.43	0.55	1.02	0.20	1.78	0.88
	Pvalue	0.11	0.80	0.98	0.81	0.65	0.58	0.37	0.82	0.18	0.42
Nonfarm Payroll	Fvalue	1.25	1.47	1.05	2.63	1.64	1.62	0.85	1.80	0.18	2.11
	Pvalue	0.29	0.24	0.36	0.08	0.21	0.21	0.43	0.17	0.83	0.13
Producer Price	Fvalue	1.30	1.27	1.51	1.37	0.89	0.31	1.14	0.58	0.38	1.67
	Pvalue	0.28	0.29	0.23	0.26	0.42	0.74	0.33	0.56	0.69	0.20
Retail Sales	Fvalue	0.03	0.93	0.66	0.34	0.29	2.14	2.81	0.34	1.56	0.70
	Pvalue	0.97	0.40	0.52	0.71	0.75	0.13	0.07	0.71	0.22	0.50
Trade Balance	Fvalue	0.21	1.10	0.76	1.14	0.29	3.59	3.25	0.55	0.18	2.60
	Pvalue	0.81	0.34	0.47	0.33	0.75	0.03	0.05	0.58	0.84	0.08
Initial Unemployment	Fvalue	1.60	4.10	3.70	0.06	3.32	0.54	2.41	1.10	1.00	1.83
	Pvalue	0.20	0.02	0.03	0.94	0.04	0.58	0.09	0.33	0.37	0.16

Notes: We estimate the exchange rate conditional mean model (9)

$$R_t = \beta_{0k} S_{kt} + \beta_{1k} S_{kt}^2 + D_{kt}\left(\beta_{2k} S_{kt} + \beta_{3k} S_{kt}^2\right) + \varepsilon_t,$$ where $D_{k,t}$ is dummy variable for that has value 1 if the new surprise is positive, and value of 0 if negative. The null hypothesis used in the test is $\beta_2 = \beta_3 = 0$.

Table 6. Impact of Major News Surprises with FX Forecasts

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of News Surprises Only									
Durable Goods Orders	0.05**	0.07**	0.06**	0.02*	0.01	0.06**	0.06**	-0.02	0.04
Nonfarm Payroll	0.19**	0.21**	0.07**	0.08**	0.11**	0.23**	0.26**	0.01	0.14**
Trade Balance	0.04**	0.06**	-0.01	0.01	-0.01	0.11**	0.09**	0.01	0.03
Producer Price	-0.01	-0.01	0.02*	0.01	0.01	0.01	0.03	0.00	0.02
New Home Sales	-0.02	0.03*	0.04**	0.03**	0.01	0.03**	-0.01	-0.01	-0.04
Gross Domestic Product	0.09**	0.09**	0.06**	0.02	0.01	0.07**	0.09**	0.00	0.00
Consumer confidence	0.12**	0.10**	0.02	0.02	0.02	0.07**	0.05**	0.00	0.10
Retail Sales	0.09**	0.07**	0.04**	0.04**	0.02	0.08**	0.03*	0.01	-0.01
Initial Unemployment	-0.04**	-0.03**	-0.01	-0.02**	-0.02**	-0.02**	-0.02**	0.01	0.01
Impact of News Surprises with FX Forecasts									
Durable Goods Orders	0.22**	0.19**	1.08*	0.39	0.04**	0.10	0.29	-1.04	0.00*
Nonfarm Payroll	0.73**	0.65**	1.36**	1.07*	0.10**	-0.52*	-0.13	-1.80**	0.00**
Trade Balance	0.38**	0.31**	-0.74	1.12*	-0.01	-0.84*	-1.00**	0.06	0.00
Producer Price	0.13**	0.18**	0.50	0.16	0.01	0.24	0.11	0.43	0.00*
New Home Sales	0.18**	-0.01	0.89*	-0.75	0.01	0.00	0.34	0.28	0.00
Gross Domestic Product	0.20**	0.24**	0.87*	0.81*	0.03	0.17	-0.51	-0.18	0.00
Consumer confidence	-0.11*	-0.03	0.52	2.35**	0.05**	-1.02**	0.15	0.65	0.00
Retail Sales	0.06	0.13*	1.85**	-0.29	0.12**	0.30	0.39	-0.49	0.00
Initial Unemployment	-0.01	-0.04	-0.09	-0.16	-0.03**	0.44**	0.14	0.32	0.00

Notes: We estimate the exchange rate conditional mean model (10)

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K}\sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K}\sum_{j=0}^{J} \gamma_{kj} FXD_{d,t-j} S_{k,t-j} + \varepsilon_t,$$ where $FXD_{d,t}$ is the index that

measures the change between consensus and spot price. Asterisks denote statistical significance (*** at 1-percent level, ** at 5-percent level, and * at 10-percent level).

Table 7. Impact of Major News Surprises with FX Forecasts Dispersion

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of News Surprises Only									
Consumer Confidence	0.08**	0.09**	-0.01	0.03	-0.03	0.07**	0.04	-0.01	0.12
Durable Goods Order	0.12**	0.11**	0.13**	0.02	0.01	0.06**	0.03	-0.05	0.12*
Gross Domestic Product	0.19**	0.09**	0.11**	0.01	0.01	0.04	0.03	0.04	0.01
New Home Sales	0.00	0.07**	-0.02	0.01	-0.02	0.01	-0.05	-0.05	-0.05
Nonfarm Payroll	0.25**	0.17**	0.08**	0.19**	0.10**	0.47**	0.16**	0.00	0.17**
Producer Price	0.02	-0.01	0.04*	0.05*	-0.01	0.02	-0.01	0.00	0.12**
Retail Sales	0.16**	0.06**	0.07**	0.02	0.14**	0.14**	0.03	0.02	-0.03
Trade Balance	0.07**	0.17**	-0.03	0.02	-0.04	0.10**	0.02	-0.02	0.03
Initial Jobless Claim	-0.05**	-0.03**	-0.01	0.01	-0.02	-0.02*	-0.01	0.01	0.01
Impact of News Surprises with Dispersions									
Consumer Confidence	0.61*	0.32	0.10	-0.09	0.04	-0.20	0.08	0.16	-0.31
Durable Goods Order	-0.76**	-0.54	-0.60**	0.16	-0.47	-0.02	0.15	0.34	-0.82**
Gross Domestic Product	-1.96**	0.58	-0.51	0.15	-0.31	0.33	0.26	-0.72	0.06
New Home Sales	0.11	-0.75*	0.43	0.28	0.38	0.18	0.28	0.55	0.20
Nonfarm Payroll	0.87**	2.23**	-0.21	-1.59**	-1.36**	-2.02**	0.50*	0.05	-0.76**
Producer Price	-0.16	0.50*	-0.23	-0.57	0.35	-0.02	0.22	0.12	-0.68**
Retail Sales	-0.98**	0.45	-0.28	0.25	-3.42**	-0.45*	0.03	-0.17	0.06
Trade Balance	0.83**	-1.10**	0.31	0.03	0.49	0.05	0.34	0.37	-0.10
Initial Jobless Claim	0.17	-0.03	0.03	-0.47*	0.33	0.00	-0.07	-0.04	0.00

Notes: We estimate the exchange rate conditional mean model (12)

$$R_t = \beta_0 + \sum_{i=1}^{I} \beta_i R_{t-i} + \sum_{k=1}^{K} \sum_{j=0}^{J} \beta_{kj} S_{k,t-j} + \sum_{k=1}^{K} \gamma_k DISP_{d,t} S_{k,t} + \varepsilon_t,$$ where *DISP* is the index that measures

the magnitude of dispersions between consensus and spot price, defined by

$$DISP_{d,t} = \left| \frac{CFX_{d,t}^{high} - CFX_{d,t}^{low}}{SFX_t} \right|,$$ $CFX_{d,t}^{high}$ means the maximum of FX forecasts at time *t*, and

$CFX_{d,t}^{low}$ means the minimum of FX forecasts at time *t*. Asterisks denote statistical significance (*** at 1-percent level, ** at 5-percent level, and * at 10-percent level).

Figure 1. Sample Autocorrelation Graphs of 5-minute Returns across Countries
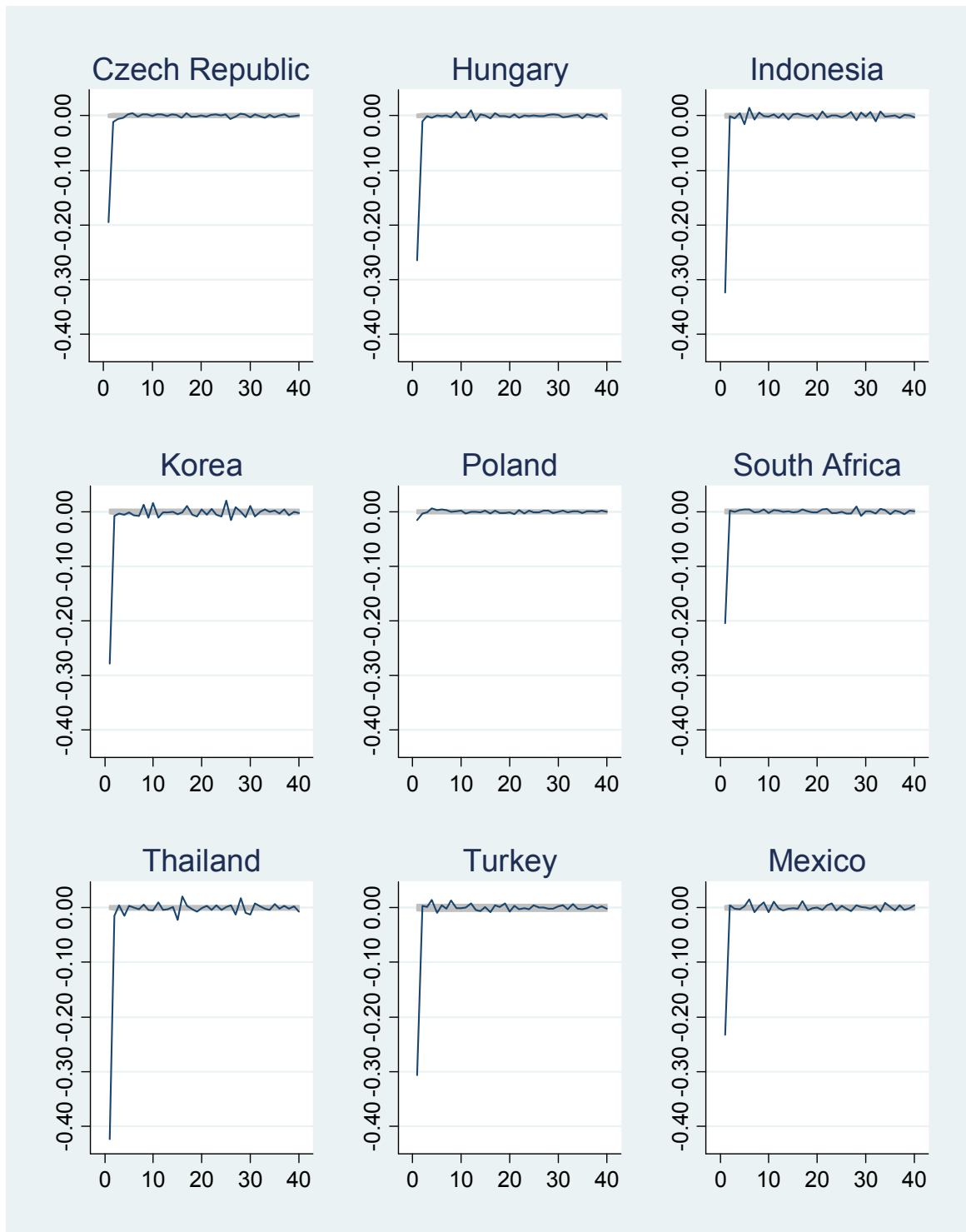
Note: Shaded area in each graph represents Bartlett's formula for MA(q) 95% confidence bands under the null hypothesis of white noise.

Figure 2. Sample Autocorrelation Graphs of 5-minute Absolute Returns across Countries
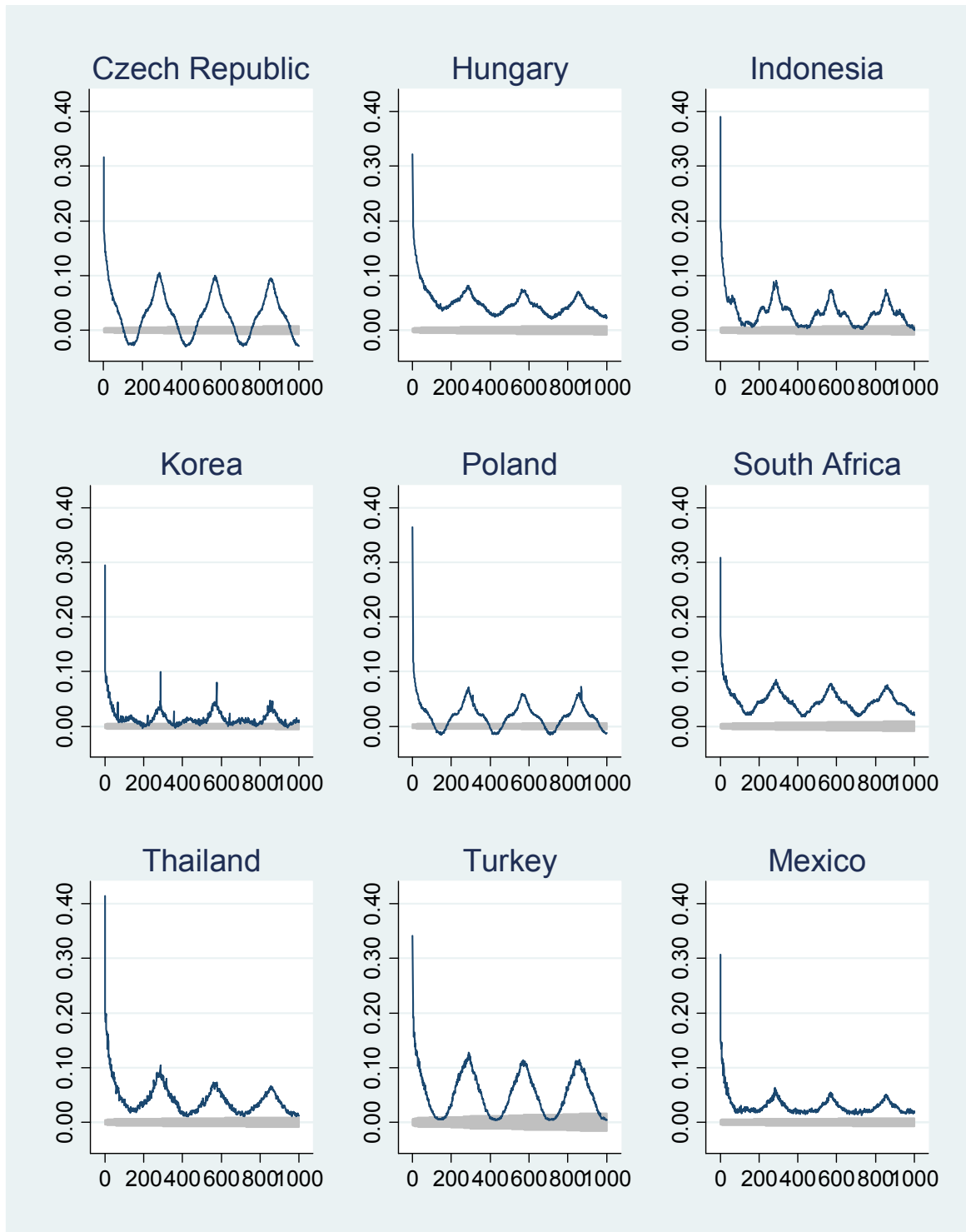
Note: Shaded area in each graph represents Bartlett's formula for MA(q) 95% confidence bands under the null hypothesis of white noise.

Figure 3: Evolution of EM Exchange Rates Responses to U.S. News

We estimate equation (3) using a two-year moving window. In the following charts, bars indicate the significant point estimates from the rolling regressions. Insignificant estimates are left blank. The lines show the number of observations in each regression. As the whole sample covers 2000 – 2007, and the window is for two years, these statistics end at 2005.
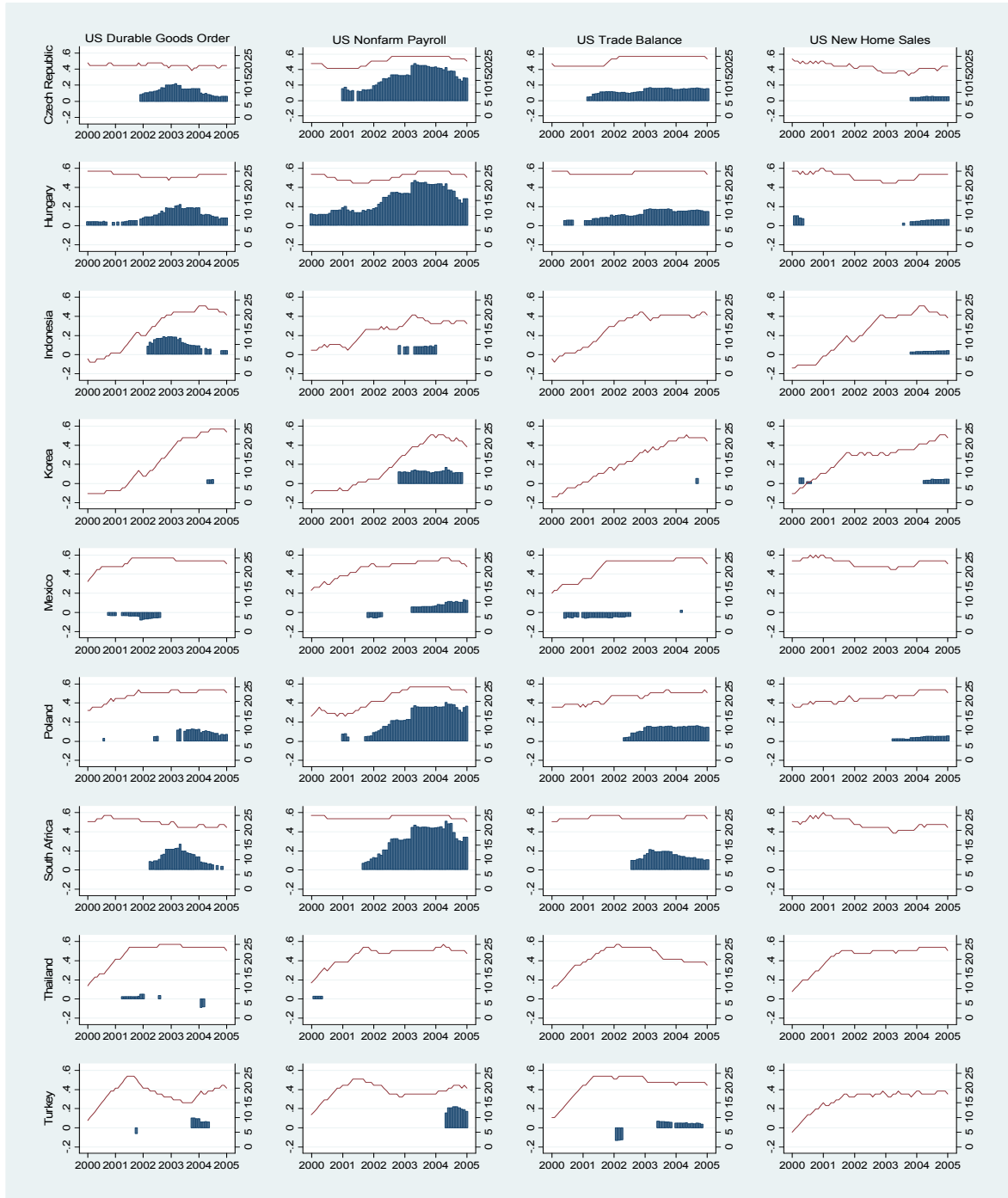
Figure 3: Evolution of EM Exchange Rates Responses to U.S. News (continued)
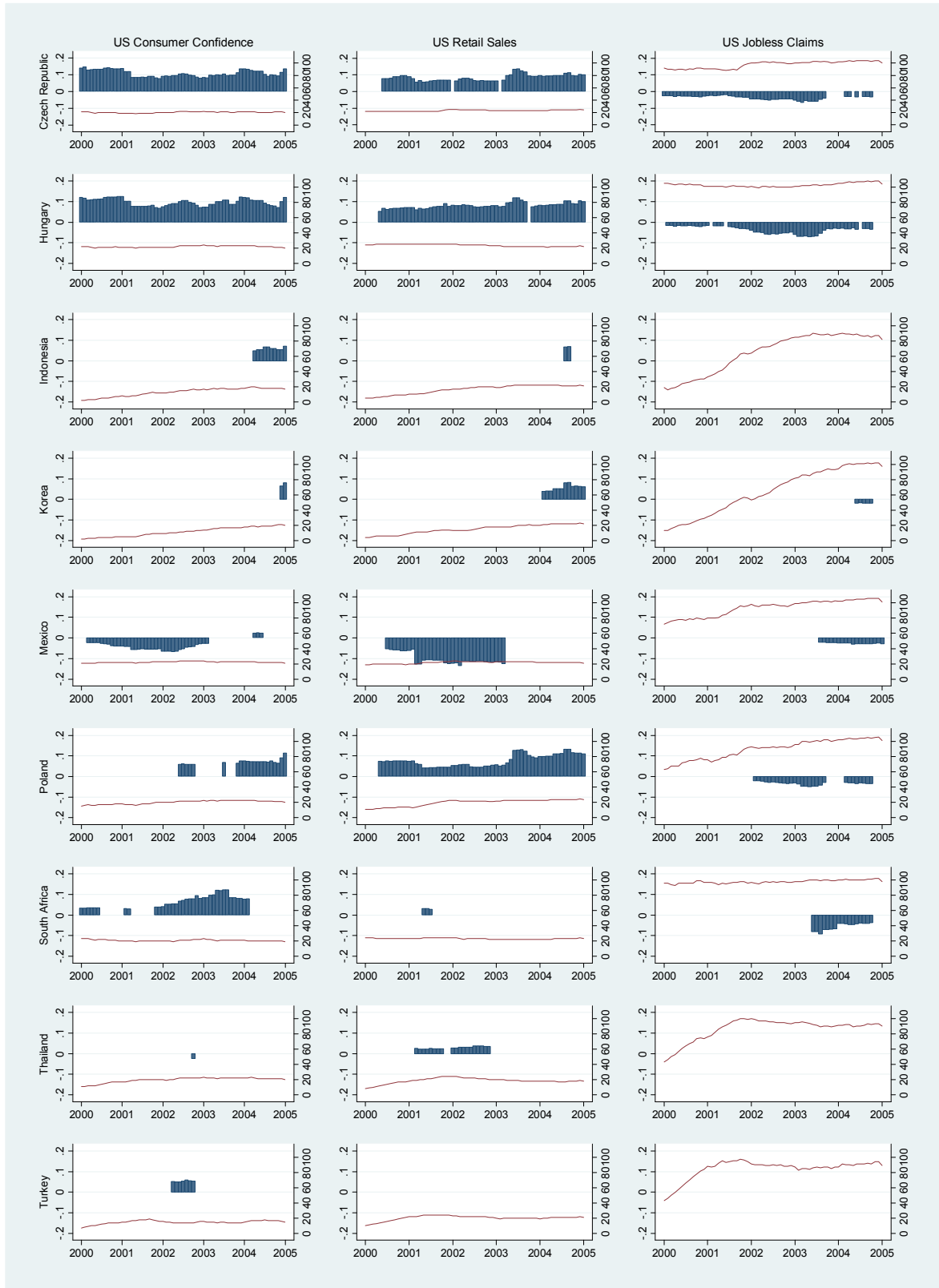
Figure 4. U.S. News Impact Curve

Average Over All Indicators

based on mean values for each 0.01 standard deviation.
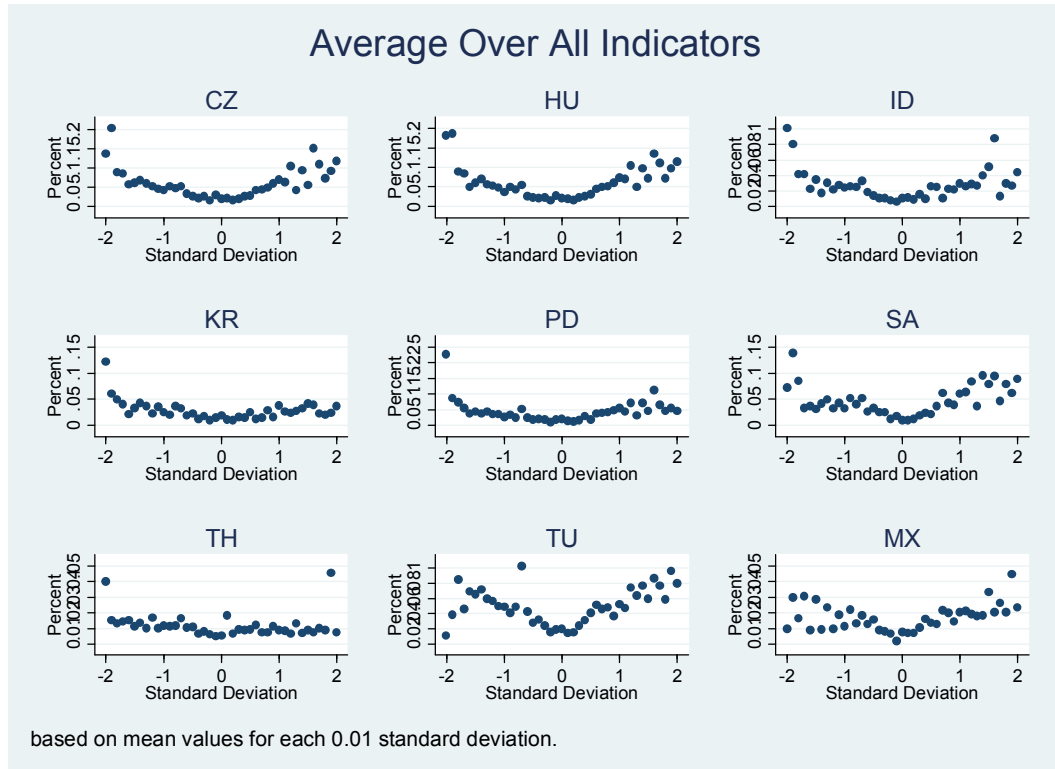
Appendix

Appendix 1. Summary Table for FX Time Series

Country	Number of Observations	Number of Nonmissing Observation	Period
Czech Republic	736,416	479,119	January 2, 2000 ~ December 31, 2006
Hungary	736,416	517,950	January 2, 2000 ~ December 31, 2006
Indonesia	736,416	365,843	January 2, 2000 ~ December 31, 2006
Korea[*]	727,488	341,508	January 2, 2000 ~ December 31, 2006
Mexico	736,416	302,674	January 2, 2000 ~ December 31, 2006
Poland	736,416	409,279	January 2, 2000 ~ December 31, 2006
South Africa	736,416	366,973	January 2, 2000 ~ December 31, 2006
Thailand	736,416	446,514	January 2, 2000 ~ December 31, 2006
Turkey	631,008	175,967	January 2, 2001 ~ December 31, 2006

Source: Olsen Financial Technology (www.olsendata.com)

* For Korea, January 2004 data is not included.

Appendix 2. Exchange Regime Changes from 2000 to 2006

Country	Currency	Period	Classification	Notes
Czech Republic	Czech koruna	full sample	Managed floating with no predetermined path for the exchange rate	The external value of the koruna is determined by supply and demand in the foreign exchange market. The Czech National Bank (CNB) may intervene in the foreign exchange market in order to smooth large intraday volatility swings of the Euro-koruna rate. The CNB publishes daily rates of 29 selected currencies against the koruna for customs and accounting purposes. Commercial banks set their own exchange rate with no limitation.
Hungary	Hungarian forint	6/4/2003 -- current	Pegged exchange rate within horizontal bands	The Hungarian forint trades against the Euro within a band of ±15% around the central parity, which is fixed to the Euro at Ft 282.36 per €1.
		10/1/2001 -- 6/4/2004	Pegged exchange rate within horizontal bands	The crawling peg was abolished and the central parity of the forint was fixed to the Euro at Ft 276.1 per €1. Thus, the exchange arrangement of the forint was reclassified to the category pegged exchange rate within horizontal bands from the category crawling band. (10/1/2001)
		5/4/2001 -- 10/1/2001	Crawling Band	The width of the band within which the forint trades against the Euro was widened to ±15% from ±2.25% around the parity. (5/4/2001)
		4/1/2001--5/4/2001	Crawling Band	The monthly depreciation of the forint was adjusted to 0.2% from 0.3% (4/1/2001)
		4/1/2000 -- 4/1/2001	Crawling Band	The monthly depreciation of the forint was adjusted to 0.3% from 0.4% (4/1/2000)
		1/1/2000 -- 4/1/2000	Crawling Band	The preannounced rate of crawl against the Euro was affected. (1/1/2000)
Indonesia	Indonesian rupiah	full sample	Managed floating with no predetermined path for the exchange rate	The exchange rate is determined by supply and demand conditions in the foreign exchange market. However, the Bank Indonesia (BI) may intervene in the foreign exchange market to maintain stability of the exchange rate.
Korea	Korean won	full sample	Independently floating	The exchange rate of the won is determined on the basis of supply and demand in the foreign exchange market. However, the authorities intervene when necessary to counter disorderly conditions in the market.

Mexico	Mexican peso	full sample	Independently floating	The exchange rate of the peso is determined freely in the foreign exchange market. The Exchange Commission established a rules-based mechanism to reduce the rate of international reserves accumulation. The Bank of Mexico (BOM) sells dollars directly in the foreign exchange market every day according to the following procedure: the BOM announces every quarter the total amount of dollars it will offer to the currency market each day during the following four quarters. The total amount of dollars to be sold will equal 50% of the net international reserves accumulated during the previous quarter, with one-fourth of the established amount being auctioned each quarter, not including the cumulative amount of dollars sold through the auction mechanism during the same period. Based on the total amount of dollars, the BOM auctions on a daily basis a fixed amount of dollars following a preestablished schedule (the daily amount to be sold is determined according to the number of working days in the current quarter).
Poland	Polish zloty	4/12/2000 -- current	Independently floating	The exchange rate of the zloty is determined on the basis of supply and demand in the foreign exchange market, and the zloty is traded freely against all currencies.
		3/24/1999 -- 4/12/2000	Crawling peg	Effective 1/1/1999, the currency basket was changed to 55% Euro and 45% dollar. Effective 3/24/1999, the width of the band was increased to ±15% around the central parity.
South Africa	South African rand	full sample	Independently floating	The exchange rate of the rand is determined by demand and supply in the foreign exchange market.
Thailand	Thai baht	full sample	Managed floating with no predetermined path for the exchange rate	The exchange rate of the baht is determined in the foreign exchange market. The baht-dollar reference exchange rate is announced daily, based on the average exchange rate of the previous day. The authorities intervene in the foreign exchange market as conditions require.

Turkey	New Turkish lira (YTL 1 = TL 1 million, 1/1/2006)	2/21/2001 -- current	Independently floating	The lira was allowed to float. As a consequence, the exchange rate arrangement was reclassified to the category independently floating from the category crawling peg (2/22/2001). The exchange rate of the lira is determined on the basis of supply and demand in the foreign exchange market. The Central Bank of the Republic of Turkey (CBRT) conducts daily auctions to build up reserves hereby it buys a fixed amount of dollars and provides the successful bidders with the option to purchase up to 200% of their successful bid amount at the average auction price. The daily fixed purchase amount was raised to $20 million in 2006. The daily foreign exchange purchase auctions were suspended on May 16, 2006, in response to financial market volatility. On June 26 and June 27, 2006, the CBRT held foreign exchange auctions under which it sold $500 million on each day through multiple price auctions. On November 10, 2006, the CRBT resumed its daily foreign exchange auction program, with a daily fixed purchase amount of $15 million. The CBRT reserves the right to intervene in the foreign exchange market in case of excessive volatility in the foreign exchange rates.
	Turkish Lira	Dec 1999 -- 2/21/2001	Crawling Band	In December 1999, the Central Bank of Turkey (CBT) modified its exchange arrangement by moving to a preannouncement of the exchange rate path of the lira against the current basket comprising the dollar and the Euro (in amounts equivalent to $1 and €0.77).

Appendix 3a. Summary Statistics for Market Forecast

Country	# month ahead	Mean	Median	Max	Min	Std. Dev.
Czech Republic	1	0.004	0.006	0.024	-0.015	0.008
	3	0.004	0.005	0.035	-0.021	0.010
	12	-0.002	-0.005	0.092	-0.040	0.022
	24	-0.004	-0.007	0.053	-0.052	0.026
Hungary	1	0.005	0.006	0.034	-0.037	0.013
	3	0.008	0.010	0.045	-0.034	0.017
	12	0.016	0.013	0.077	-0.040	0.030
	24	0.013	0.016	0.081	-0.070	0.034
Indonesia	1	0.002	-0.001	0.140	-0.043	0.023
	3	0.000	-0.001	0.172	-0.048	0.029
	12	-0.005	-0.002	0.169	-0.071	0.038
	24	-0.008	-0.007	0.133	-0.111	0.040
Korea	1	0.000	0.000	0.032	-0.034	0.013
	3	-0.004	-0.004	0.034	-0.047	0.016
	12	-0.024	-0.023	0.016	-0.067	0.018
	24	-0.030	-0.028	0.019	-0.084	0.023
Mexico	1	0.006	0.006	0.032	-0.028	0.014
	3	0.015	0.017	0.054	-0.023	0.019
	12	0.046	0.045	0.108	-0.011	0.029
	24	0.076	0.073	0.176	0.020	0.035
Poland	1	-0.001	-0.003	0.056	-0.046	0.022
	3	-0.005	-0.007	0.048	-0.058	0.026
	12	-0.015	-0.017	0.071	-0.097	0.042
	24	0.005	0.001	0.115	-0.104	0.052
South Africa	1	0.009	0.009	0.082	-0.051	0.030
	3	0.020	0.016	0.119	-0.056	0.041
	12	0.060	0.063	0.216	-0.061	0.069
	24	0.110	0.111	0.319	-0.043	0.096
Thailand	1	0.000	0.003	0.024	-0.035	0.012
	3	-0.003	-0.001	0.022	-0.045	0.016
	12	-0.014	-0.013	0.030	-0.056	0.020
	24	-0.022	-0.023	0.024	-0.066	0.022
Turkey	1	0.024	0.023	0.097	-0.066	0.033
	3	0.057	0.049	0.165	-0.057	0.048
	12	0.164	0.146	0.378	-0.040	0.107
	24	0.298	0.305	0.652	-0.013	0.186

Appendix 3b. Summary Statistics for Market Forecast Dispersion

Country	# month ahead	Mean	Median	Max	Min	Std. Dev.
Czech Republic	1	0.049	0.042	0.140	0.008	0.029
	3	0.061	0.055	0.210	0.026	0.027
	12	0.122	0.104	0.385	0.043	0.057
	24	0.179	0.157	0.395	0.053	0.071
Hungary	1	0.058	0.055	0.132	0.007	0.031
	3	0.067	0.061	0.145	0.009	0.030
	12	0.120	0.107	0.230	0.047	0.043
	24	0.144	0.150	0.224	0.054	0.039
Indonesia	1	0.121	0.096	0.468	0.045	0.085
	3	0.158	0.142	0.518	0.053	0.083
	12	0.269	0.259	0.540	0.119	0.108
	24	0.346	0.344	0.667	0.154	0.121
Mexico	1	0.063	0.063	0.116	0.022	0.020
	3	0.080	0.079	0.174	0.038	0.025
	12	0.103	0.101	0.168	0.052	0.024
	24	0.110	0.111	0.200	0.030	0.041
Poland	1	0.110	0.098	0.342	0.033	0.053
	3	0.132	0.136	0.242	0.053	0.036
	12	0.202	0.200	0.337	0.101	0.052
	24	0.228	0.216	0.416	0.124	0.071
South Africa	1	0.177	0.171	0.506	0.058	0.074
	3	0.226	0.210	0.575	0.081	0.089
	12	0.315	0.303	0.807	0.135	0.111
	24	0.347	0.323	0.664	0.165	0.120
Korea	1	0.071	0.065	0.183	0.032	0.029
	3	0.103	0.100	0.220	0.047	0.026
	12	0.175	0.178	0.252	0.104	0.035
	24	0.209	0.199	0.324	0.133	0.047
Thailand	1	0.063	0.060	0.206	0.023	0.025
	3	0.089	0.085	0.205	0.046	0.031
	12	0.130	0.127	0.226	0.073	0.031
	24	0.150	0.145	0.369	0.072	0.050
Turkey	1	0.178	0.146	0.449	0.071	0.093
	3	0.227	0.194	0.512	0.095	0.111
	12	0.382	0.334	0.817	0.161	0.170
	24	0.605	0.588	1.320	0.187	0.283

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of News Surprises on FX Returns									
Business Inventories	0.00	-0.01	0.00	-0.01	0.01*	-0.02**	-0.03*	0.00	-0.04**
Budget Deficit	0.00	0.01	0.01	0.14**	0.00	0.00	0.05	0.01	0.00
Current Account	0.07**	0.05**	-0.08**	0.01	-0.01	0.01	0.05	0.03*	0.06
Capital Utilization	0.00	0.00	-0.02	-0.02**	-0.01	0.01	0.13**	0.01	0.04
Consumer Confidence	0.11**	0.10**	0.01	0.02**	-0.03**	0.04**	0.05**	0.00	0.05
Consumer Credit	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.02	0.00	0.00
Construction Spending	0.03**	0.02**	0.02	0.00	0.00	0.01	-0.02	-0.04**	0.00
Consumer Price Index	0.00	0.02**	-0.04**	0.00	0.02**	0.00	0.04**	0.00	0.08**
Durable Goods Orders	0.05**	0.06**	0.04**	0.03*	-0.01*	0.04**	0.05**	-0.03**	-0.01
Factory Orders	0.02**	0.02**	0.00	-0.01	0.00	0.00	0.03*	0.00	0.08**
Gross Domestic Product	0.10**	0.11**	0.07**	0.02**	0.00	0.07**	0.07**	-0.01	0.03
Housing Starts	0.01*	0.01	-0.01	0.01*	-0.01	0.01	0.02	-0.01	0.03
Imports	0.00	-0.01	0.02*	0.03**	0.05**	-0.01*	-0.02	-0.01	-0.05**
Interest rate	0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00
Industrial production	0.02**	0.02*	0.03**	0.01	0.00	0.00	-0.01	-0.01	-0.02
NAPM	1.36**	1.27**	0.07	0.34*	0.00	0.65**	0.31	-0.27	0.00
Leading Indicators	0.00	0.02*	-0.01	-0.01	-0.01	0.00	-0.01	0.01	0.00
New Home Sales	0.02**	0.03**	0.03**	0.03**	0.01*	0.03**	0.00	-0.01	-0.02
Nonfarm Payroll	0.19**	0.21**	0.04**	0.09**	0.02**	0.18**	0.18**	0.00	0.02*
Personal Spending	0.00	0.01	0.01	0.00	0.00	-0.01	0.01	-0.01	0.00
Personal Income	0.00	0.00	-0.01	0.00	0.01	0.00	-0.01	0.00	0.02
Producer Price	0.02**	0.02**	0.04**	0.01	0.01*	0.02**	0.05**	0.00	-0.01
Retail Sales	0.07**	0.07**	0.03**	0.03**	-0.07**	0.07**	0.02	0.01	-0.01
Trade Balance	0.12**	0.12**	0.00	0.02**	-0.02**	0.12**	0.09**	0.00	0.02
Initial Unemployment	-0.03**	-0.03**	-0.01	-0.01**	0.00	-0.02**	-0.02**	0.01	0.01
Wholesales	0.00	0.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.00
Budget Deficit	0.05**	0.03				0.01			
Current Account	-0.03**	-0.02*			-0.01	-0.08**	0.09	0.22**	0.03
Current Account(US)	-0.01								
Consumer Confidence					-0.01				0.00
Consumer Price Index	-0.04**	0.01*		0.01	0.01	0.00	-0.10**	-0.01	0.01
Exports	-0.03**		0.00	0.01		0.02		0.02	0.09
Fixed Invest					0.00				
Gross Domestic Product	-0.02	0.01	-0.02	-0.04	-0.02*	-0.03**	-0.02	-0.04	-0.03
Imports	-0.03**		0.00	0.00		-0.01			-0.19**
Interest rate							-0.30**	-0.01	
Industrial production	-0.01*	-0.03**		0.00	0.01				-0.03
Money Supply	0.00					-0.01*	0.15**		
Producer Price	-0.02**	-0.02			0.01	0.00	0.01		0.14**
Retail Sales	-0.03**				-0.01	-0.01	0.06		
Trade Balance	-0.07**	0.00	0.52		-0.01		-0.16**		0.00
Initial Unemployment	0.07			-0.01	-0.02**	0.02*			-0.01
Wholesales					-0.03	-0.03**			

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of Contemporaneous News Surprises on Volatility									
Business Inventories	0.00	0.02**	0.00	0.00	0.01	0.00	-0.01**	0.00	0.05**
Budget Deficit	-0.01	0.01	0.01	0.11**	0.00	0.00	0.01	-0.01	0.13
Current Account	-0.02**	0.00	0.02**	0.01	0.00	-0.01**	0.01	0.01	0.00
Capital Utilization	0.03**	0.02**	-0.01	0.00	0.00	0.00	-0.02**	-0.01*	-0.02
Consumer Confidence	0.03**	0.04**	0.03**	0.03**	0.02**	0.03**	0.00	0.01**	0.00
Consumer Credit	0.00	0.00	0.01*	0.00	0.00	0.01	0.00	0.00	-0.08
Construction Spending	0.01**	0.01**	-0.02**	0.02*	0.01	0.00	0.01	0.00	0.00
Consumer Price Index	0.05**	0.04**	0.00*	0.00	0.03**	0.04**	0.05**	0.00	0.01
Durable Goods Orders	0.02**	0.05**	0.01*	-0.01**	0.00	0.01**	0.01**	0.02**	0.01
Factory Orders	0.04**	0.02**	0.01	0.00*	0.00	0.00	0.00**	0.01	-0.01
Gross Domestic Product	0.05**	0.04**	0.04**	0.04**	0.00	0.04**	0.04**	0.01	0.03**
Housing Starts	0.01**	0.02**	0.02**	0.01	0.00	0.00	0.00	0.00	0.00
Imports	0.02**	0.01**	0.00	0.02*	0.01*	0.01	0.00	0.00	0.02*
Interest rate	0.00	0.01**	0.00	0.00	0.00	0.00	0.03**	0.00	0.00
Industrial production	0.00	0.00**	0.00	0.00	0.00	0.02**	0.00	-0.01	0.00
NAPM	0.05*	0.05	0.42**	0.10	0.05	0.82**	0.06	0.24	0.02
Leading Indicators	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
New Home Sales	0.03**	0.03**	0.02**	0.02**	0.00	0.03**	0.00	0.00	-0.01
Nonfarm Payroll	0.17**	0.17**	-0.01**	0.09**	0.05**	0.16**	0.18**	0.01**	0.10**
Personal Spending	0.02**	0.01	0.01	0.01	0.00	-0.01	0.00**	-0.01	0.03**
Personal Income	0.01**	0.00	0.00	0.00	0.01**	0.05**	0.01	0.00	0.01
Producer Price	0.03**	0.03**	0.02**	-0.01*	0.01**	0.01	0.01**	0.00	0.07**
Retail Sales	0.03**	0.03**	0.03**	0.05**	0.03**	0.04**	0.00*	0.00	0.00
Trade Balance	0.04**	0.04**	0.04**	0.04**	0.00**	0.06**	0.03**	0.00	0.01
Initial Unemployment	0.01**	0.00	0.01**	0.01**	0.01**	0.02**	0.02**	0.00	0.01**
Wholesales	0.01**	0.01	0.00	0.02**	0.00	-0.01**	0.00	0.00	0.00
Budget Deficit	0.00	-0.01				0.00			
Current Account	0.00	0.01			-0.02*	0.02**	0.06	0.24**	0.00
Current Account(US)	0.03**								
Consumer Confidence					0.00				0.00
Consumer Price Index	0.04**	0.04**		0.00	0.01*	0.00	0.01	0.00	0.00
Exports	0.02		0.00	0.00		0.00		0.00	0.00
Fixed Invest					0.00				
Gross Domestic Product	0.01	-0.01	-0.02	-0.02	0.00	0.02**	0.03*	-0.01	0.00
Imports	0.02**		0.00	0.01		0.02**			0.09*
Interest rate							0.26**	0.00	
Industrial production	0.01**	0.01**		0.00	0.00				0.00
Money Supply	0.00**					0.01*	0.03**		
Producer Price	0.00	-0.01			0.00*	0.01	0.02*		0.19**
Retail Sales	0.00				-0.01**	-0.01	-0.04*		
Trade Balance	0.03**	0.01	0.17		-0.01		0.07**		-0.02
Initial Unemployment	-0.04**			0.00**	0.02**	0.00			0.00
Wholesales					0.00	0.03**			

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of Cumulated news Surprises on volatility									
Business Inventories	0.01	0.04**	-0.01	-0.01	0.01	0.00	0.04**	0.00	0.10**
Budget Deficit	-0.02	0.06	-0.04	0.11**	-0.01	-0.01	0.05	-0.01	-0.12
Current Account	0.03**	0.00	-0.05**	0.03	0.00	0.05**	0.00	0.01	-0.02
Capital Utilization	0.11**	0.05**	0.02	0.01	0.01	0.01	0.08**	-0.07*	-0.02
Consumer Confidence	0.03**	0.10**	0.13**	0.07**	0.05**	0.12**	0.01	0.02**	-0.04
Consumer Credit	0.00	0.00	-0.04*	0.00	-0.01	-0.04	0.01	0.00	0.75
Construction Spending	0.00**	0.00**	0.09**	0.01*	0.02	0.00	0.03	0.00	0.00
Consumer Price Index	0.13**	0.08**	0.06*	0.01	0.09**	0.05**	0.12**	0.00	0.08
Durable Goods Orders	0.17**	0.20**	0.05*	0.05**	0.00	0.07**	0.13**	0.02**	0.03
Factory Orders	0.13**	0.06**	0.02	0.02*	0.01	0.02	0.07**	-0.02	-0.05
Gross Domestic Product	0.06**	0.02**	0.05**	0.04**	0.00	0.11**	0.08**	0.03	-0.02**
Housing Starts	0.02**	0.03**	0.04**	0.00	0.00	0.00	0.01	0.00	0.01
Imports	0.14**	0.06**	-0.01	0.04*	0.02*	0.00	-0.01	-0.01	0.01*
Interest rate	-0.01	0.01**	0.00	0.00	0.01	0.01	-0.09**	-0.01	0.00
Industrial production	0.00	0.04**	0.01	-0.01	0.00	0.06**	0.01	-0.03	-0.03
NAPM	-0.11*	0.08	2.57**	0.10	-0.11	2.43**	0.46	0.03	0.00
Leading Indicators	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.00
New Home Sales	0.10**	0.06**	0.05**	0.03**	-0.01	0.08**	0.01	0.00	-0.01
Nonfarm Payroll	0.26**	0.32**	0.16**	0.39**	0.19**	0.37**	0.38**	0.05**	0.16**
Personal Spending	0.08**	0.00	0.01	0.02	0.00	-0.01	0.09**	-0.02	0.03**
Personal Income	0.03**	0.00	0.00	0.00	0.03**	0.14**	-0.01	0.00	0.02
Producer Price	0.03**	0.06**	0.04**	0.04*	0.01**	0.01	0.10**	-0.01	0.08**
Retail Sales	0.09**	0.05**	0.06**	0.13**	0.03**	0.16**	0.06*	0.00	0.01
Trade Balance	0.05**	0.06**	0.01**	0.25**	0.02**	0.11**	0.11**	-0.03	0.02
Initial Unemployment	0.03**	0.00	-0.01**	0.01**	0.04**	0.12**	0.07**	0.00	0.01**
Wholesales	0.02**	0.00	0.00	0.00**	-0.02	0.04**	0.01	-0.01	-0.02
Budget Deficit	0.00	-0.01				0.03			
Current Account	0.00	-0.01			-0.06*	0.06**	0.09	0.40**	0.01
Current Account(US)	0.11**								
Consumer Confidence					-0.01				0.00
Consumer Price Index	0.14**	0.12**		0.01	-0.01*	0.00	0.00	0.00	0.00
Exports	0.03		0.02	0.00		-0.03		-0.01	0.01
Fixed Invest					0.00				
Gross Domestic Product	-0.01	0.01	-0.03	-0.04	0.00	0.09**	0.07*	0.01	-0.16
Imports	0.12**		0.04	0.01		0.13**			0.23*
Interest rate							0.31**	-0.03	
Industrial production	0.05**	0.07**		0.00	0.01				0.00
Money Supply	0.00**					0.04*	0.07**		
Producer Price	0.00	-0.01			0.07*	0.01	0.02*		0.49**
Retail Sales	0.00				-0.07**	0.01	0.04*		
Trade Balance	0.10**	0.01	1.96		-0.02		0.02**		-0.02
Initial Unemployment	-0.07**			0.19**	0.01**	-0.01			0.01
Wholesales					0.04	0.18**			

Appendix 5. Return and Volatility Response with Announcement Dummy

Announcements	xvar_id	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
U.S. Contemporaneous Announcements in equation (7)										
Business Inventories	B_{k0}	-0.01	-0.01	0.00	-0.01	0.02***	-0.03***	-0.04***	0.00	-0.07***
	θ_{k0}	0.00	0.00	0.01	0.01	-0.02***	0.00	-0.03**	0.01	0.03
Budget Deficit	B_{k0}	0.00	0.02	0.01	0.13***	0.00	0.00	0.05	0.02	0.00
	θ_{k0}	0.01*	0.00	0.00	0.03***	0.00	0.00	0.01	0.00	0.00
Current Account	B_{k0}	0.04***	0.05***	-0.08***	0.01	-0.01	0.03**	0.11***	0.03**	0.07**
	θ_{k0}	0.00	-0.02	-0.03***	0.00	0.01	0.02**	0.09***	0.00	0.02
Capital Utilization	B_{k0}	0.00	-0.01	-0.02**	-0.03***	0.00	0.01	0.12***	0.00	0.05
	θ_{k0}	0.01	-0.02	-0.02	0.03*	0.01	0.02	0.02	-0.01	-0.02
Consumer Confidence	B_{k0}	0.11***	0.10***	0.01	0.01	-0.03***	0.05***	0.05***	0.00	0.05
	θ_{k0}	0.00	-0.01	-0.01	0.04***	0.01**	-0.02***	0.00	0.00	-0.02
Consumer Credit	B_{k0}	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.02	0.00	0.01
	θ_{k0}	0.00	0.01	0.00	0.00	0.01	0.00	0.00	-0.01	0.00
Construction Spending	B_{k0}	0.03***	0.02***	0.01	0.00	0.00	0.02**	-0.01	-0.04***	0.01
	θ_{k0}	-0.03**	-0.01	-0.05**	-0.09***	-0.03**	-0.01	-0.10***	-0.02	0.00
Consumer Price Index	B_{k0}	0.00	0.02***	-0.05***	-0.01	0.02***	0.01**	0.04***	0.00	0.08***
	θ_{k0}	-0.03***	-0.02***	-0.01	0.01	0.01	-0.01	-0.03**	0.01	0.06***
Durable Goods Orders	B_{k0}	0.06***	0.07***	0.05***	0.02***	-0.02***	0.05***	0.05***	-0.03***	-0.01
	θ_{k0}	-0.01	-0.02***	0.00	0.01	0.01**	-0.02***	-0.02	0.03***	0.04*
Factory Orders	B_{k0}	0.03***	0.02***	0.00	-0.01**	0.00	0.00	0.03***	0.00	0.07***
	θ_{k0}	0.00	0.00	-0.02**	0.02***	-0.01**	0.00	0.00	0.01	0.03
Gross Domestic Product	B_{k0}	0.10***	0.11***	0.06***	0.02***	0.00	0.07***	0.07***	0.00	0.03*
	θ_{k0}	-0.03***	-0.04***	-0.04***	-0.03***	-0.01**	-0.01	-0.02*	0.01	0.07***
Housing Starts	B_{k0}	0.02***	0.02***	-0.01	0.02**	0.00	0.01**	0.04***	-0.01	0.03*
	θ_{k0}	0.00	-0.02**	-0.03***	-0.02***	-0.02***	-0.01*	-0.02*	0.00	-0.01
Imports	B_{k0}	0.01	0.00	0.01	0.02***	0.06***	0.00	-0.03***	-0.01	-0.04***
	θ_{k0}	0.03***	0.02***	-0.02***	0.02**	0.03***	0.04***	-0.03***	-0.01	0.10***
Interest rate	B_{k0}	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	θ_{k0}	0.00	0.05*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial production	B_{k0}	0.02***	0.02**	0.03**	0.01**	0.00	0.01	-0.01	0.00	-0.02
	θ_{k0}	-0.02**	-0.01	0.00	-0.03	-0.01	-0.02	0.04	0.00	0.02
NAPM	B_{k0}	1.39***	1.42***	0.12	0.56***	-0.07	0.87***	0.17	-0.31**	0.04
	θ_{k0}	0.04***	0.04***	0.06**	0.09***	0.02	0.01	0.12***	0.05**	0.03
Leading Indicators	B_{k0}	0.01	0.02***	-0.01	-0.01	-0.01	0.00	0.00	0.01	0.00
	θ_{k0}	0.01	0.00	0.01	0.01	0.01	0.01	-0.01	0.00	-0.03
New Home Sales	B_{k0}	0.02***	0.03***	0.02***	0.03***	0.01**	0.03***	0.00	-0.01	-0.03
	θ_{k0}	-0.01**	0.03***	0.01	-0.02***	-0.01**	0.01	0.01	-0.01	0.03
Nonfarm Payroll	B_{k0}	0.22***	0.25***	0.06***	0.09***	0.01***	0.20***	0.18***	0.01	0.05***
	θ_{k0}	0.05***	0.06***	0.02***	0.04***	-0.05***	0.02***	-0.01	0.01	0.10***
Personal Spending	B_{k0}	0.00	0.02*	0.01	0.00	0.00	0.00	0.00	-0.01	0.03
	θ_{k0}	0.00	0.00	0.01	0.03**	0.03***	0.09***	-0.03	0.01	0.15***
Personal Income	B_{k0}	0.00	0.01	-0.02	0.00	0.01	0.01	-0.01	0.00	0.02
	θ_{k0}	-0.03***	-0.03***	0.00	-0.02**	-0.05***	-0.09***	0.04**	0.01	-0.07**
Producer Price	B_{k0}	0.00	0.01	0.03***	0.02***	0.01**	0.01**	0.04***	0.01	0.00
	θ_{k0}	-0.02***	-0.03***	-0.02**	-0.01	-0.03***	-0.02***	0.00	0.01	0.09***

Announcements	xvar_id	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
U.S. Contemporaneous Announcements in equation (7)										
Retail Sales	B_{k0}	0.09***	0.08***	0.03***	0.03***	-0.07***	0.08***	0.03**	0.01	-0.01
	θ_{k0}	0.00	0.00	0.00	0.00	0.02***	0.00	-0.06***	0.01	-0.04**
Trade Balance	B_{k0}	0.12***	0.11***	0.00	0.02***	-0.02***	0.11***	0.10***	0.00	0.03*
	θ_{k0}	0.01	0.00	-0.02**	0.02***	0.00	0.01**	0.01	0.01	0.05**
Initial Unemployment	B_{k0}	-0.04***	-0.03***	-0.01**	-0.02***	0.00	-0.02***	-0.02***	0.01	0.01
	θ_{k0}	-0.01***	-0.01**	0.00	0.00	0.00	-0.01***	-0.01	-0.01*	0.01
Wholesales	B_{k0}	0.00	0.00	0.00	0.01	-0.01	0.00	0.01	0.00	0.01
	θ_{k0}	-0.01***	-0.01*	-0.01	-0.04***	0.00	-0.02**	-0.01	0.00	-0.02
Domestic Contemporaneous Announcements in equation (7)										
Budget Deficit	B_{k0}	0.01	0.02				0.00			
	θ_{k0}	0.11***	0.00				-0.02**			
Current Account	B_{k0}	-0.02**	-0.01**			0.00	-0.08***	0.00	0.18***	0.02
	θ_{k0}	0.01	0.02**			0.00	-0.01	-0.38**	-0.07***	-0.02
Current Account(US)	B_{k0}	-0.01								
	θ_{k0}	0.04***								
Consumer Confidence	B_{k0}					0.00				0.00
	θ_{k0}					0.01				0.00
Consumer Price Index	B_{k0}	-0.01	0.02***		0.01	0.01	-0.01	-0.09***	-0.01	0.03
	θ_{k0}	-0.01	-0.04***		-0.01	0.00	-0.02*	-0.01	0.00	-0.13*
Exports	B_{k0}	-0.01		-0.05***	0.00		0.02**		0.09	-0.01
	θ_{k0}	-0.15		0.00	0.00		0.00		0.01	-0.18***
Fixed Invest	B_{k0}					0.00				
	θ_{k0}					0.00				
Gross Domestic Product	B_{k0}	-0.01	0.01	-0.03	-0.05	-0.02**	-0.03**	-0.03	-0.08***	-0.03
	θ_{k0}	-0.03***	0.00	0.01	-0.01	-0.01	0.00	-0.08**	-0.06***	0.01
Imports	B_{k0}	-0.07		0.04**	0.00		-0.01			-0.10*
	θ_{k0}	0.12		0.22***	0.00		0.00			0.00
Interest rate	B_{k0}							-0.14***	-0.01	
	θ_{k0}							0.58***	0.00	
Industrial production	B_{k0}	-0.01	-0.03***		0.00	0.01				-0.03
	θ_{k0}	-0.01	0.00		0.00	0.01				-0.02
Money Supply	B_{k0}	0.02					-0.01	0.09***		
	θ_{k0}	-0.15					0.00	0.10***		
Producer Price	B_{k0}	-0.02***	0.01			0.01	0.00	0.01		0.17***
	θ_{k0}	-0.01**	-0.02**			-0.01	-0.09***	0.03*		0.24***
Retail Sales	B_{k0}	-0.03***				-0.01	-0.01	0.12		
	θ_{k0}	-0.01				0.01	-0.03***	0.00		
Trade Balance	B_{k0}	-0.07***	-0.01	4.97***		-0.01**		-0.17***		0.03
	θ_{k0}	-0.03***	0.01	-0.21***		0.00		0.04***		0.04
Initial Unemployment	B_{k0}	0.01			-0.01	-0.01***	0.02**			-0.01
	θ_{k0}	0.02***			0.00	-0.01	0.03**			-0.01
Wholesales	B_{k0}					-0.03*	-0.03***			
	θ_{k0}					0.00	0.06***			

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Announcements	xvar_id	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
U.S. Contemporaneous Announcements in equation (8)										
Business Inventories	B_{k0}	0.00	-0.01	0.01	0.01	0.01	0.01	-0.01**	0.00	0.06***
	θ_{k0}	0.03***	0.04***	0.02	0.02	-0.01	0.02	0.02*	-0.01	-0.04
Budget Deficit	B_{k0}	0.00	0.01	0.01	0.15***	0.00	0.00	0.01	0.03	0.11
	θ_{k0}	0.00	0.00	-0.01	-0.01	0.00	-0.01	-0.02	-0.01	0.00
Current Account	B_{k0}	0.01	-0.02	0.03**	-0.02	0.00	-0.02**	0.01	0.02	-0.02
	θ_{k0}	-0.01	0.03*	0.04**	0.03*	0.01	0.03*	0.00	0.00	0.01
Capital Utilization	B_{k0}	-0.01	-0.02	0.01	0.01	-0.01	0.00	-0.02	0.00	-0.01
	θ_{k0}	0.01	0.00	0.01	0.02	0.02	0.01	0.03	0.01	-0.03
Consumer Confidence	B_{k0}	0.02***	0.03***	0.00	0.00	0.01**	0.01	0.00	0.01***	0.00
	θ_{k0}	0.03***	0.02***	0.03**	0.04**	0.00	0.04***	0.01	-0.01	0.00
Consumer Credit	B_{k0}	-0.01	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01
	θ_{k0}	0.01	0.00	-0.01	0.00	0.00	0.00	0.01	0.00	-0.07
Construction Spending	B_{k0}	-0.01*	0.00	0.00	0.01	0.00	0.00	-0.01	0.00	0.00
	θ_{k0}	0.03***	0.03**	0.00	0.01	0.02*	0.01	0.00	0.00	0.02
Consumer Price Index	B_{k0}	0.01	0.00	0.00**	-0.02**	0.00	-0.03*	-0.03	0.00	-0.01*
	θ_{k0}	0.04***	0.05***	0.03***	0.03*	0.05***	0.09***	0.09***	0.01	0.10***
Durable Goods Orders	B_{k0}	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	0.03***	0.01
	θ_{k0}	0.05***	0.05***	0.04***	0.03***	0.02***	0.04***	0.01	0.00	-0.01
Factory Orders	B_{k0}	-0.01	-0.01**	-0.03**	0.00	0.00	0.00	0.00	0.00	0.01
	θ_{k0}	0.06***	0.05***	0.05***	0.05***	0.01	0.03***	0.02*	0.00	-0.03*
Gross Domestic Product	B_{k0}	0.02***	0.03***	0.03***	0.02**	0.00	0.01*	0.03**	0.02***	-0.01
	θ_{k0}	0.04***	0.03***	0.01	0.01	0.02***	0.03***	0.01	-0.02*	0.06***
Housing Starts	B_{k0}	-0.01***	-0.01	0.00	-0.03***	0.00	0.00	-0.01	0.00	0.00
	θ_{k0}	0.04***	0.03***	0.02	0.06***	0.01	0.02**	0.01	0.00	0.02
Imports	B_{k0}	-0.01	0.00	0.00	0.01	-0.01*	0.02**	0.00	0.00	0.01
	θ_{k0}	0.01	0.00	0.03**	0.00	0.02**	0.00	0.04***	0.00	0.03
Interest rate	B_{k0}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	θ_{k0}	-0.03	0.06**	0.00	0.00	-0.03	-0.03	-0.05	-0.04	0.00
Industrial production	B_{k0}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
	θ_{k0}	0.03***	0.03***	-0.01	0.02	0.00	-0.01	0.01	-0.02	0.03
NAPM	B_{k0}	0.08***	-0.03	0.03	-0.46**	0.01	0.06	-0.04	0.17	-0.26
	θ_{k0}	0.03***	0.04***	0.04	0.06**	-0.01	0.03	0.02	0.00	0.01
Leading Indicators	B_{k0}	-0.01*	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.01
	θ_{k0}	0.04***	0.02***	0.01	0.04***	0.01	0.00	0.03	-0.01	-0.04
New Home Sales	B_{k0}	-0.02***	-0.02**	0.00	-0.01	0.00	0.01	0.00	0.00	0.01
	θ_{k0}	0.07***	0.05***	0.03**	0.06***	0.01	0.02***	0.03***	0.00	-0.03
Nonfarm Payroll	B_{k0}	0.07***	0.06***	0.00	0.02*	0.02***	0.08***	0.12***	0.01	0.04**
	θ_{k0}	0.17***	0.16***	0.08***	0.08***	0.06***	0.12***	0.08***	0.00	0.07***
Personal Spending	B_{k0}	0.00	0.00	0.00	0.01	-0.01	-0.01	0.00	-0.01	0.00
	θ_{k0}	-0.01	0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	0.00
Personal Income	B_{k0}	0.00	0.00	-0.01	0.00	-0.01	0.01	0.00	0.01	-0.01
	θ_{k0}	0.04***	0.02**	0.02	0.03**	0.03***	0.05***	0.04**	-0.01	0.05*
Producer Price	B_{k0}	-0.02***	-0.02***	0.00	0.00	-0.01*	0.00	0.00	0.00	-0.01
	θ_{k0}	0.06***	0.06***	0.04***	0.02	0.03***	0.03**	0.04***	-0.01	0.08***

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Announcements	xvar_id	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Retail Sales	B_{k0}	0.01*	0.01	0.01	0.02	0.03***	0.02***	0.00	0.00	-0.04*
	θ_{k0}	0.04***	0.04***	0.01	0.02**	0.03***	0.02**	0.06***	0.00	0.04
Trade Balance	B_{k0}	0.02***	0.02***	0.01	0.03***	0.00	0.03***	0.03***	-0.01**	-0.03
	θ_{k0}	0.04***	0.04***	0.05***	0.00	0.02**	0.04***	0.02	0.03***	0.04*
Initial Unemployment	B_{k0}	0.00	0.00	0.01	0.00	0.00	-0.01	0.00	0.00	0.00
	θ_{k0}	0.02***	0.02***	0.01	0.02***	0.01***	0.03***	0.01**	0.00	0.01
Wholesales	B_{k0}	-0.01	-0.01*	0.00	0.00	0.00	0.01	0.00	-0.01	0.00
	θ_{k0}	0.04***	0.04***	0.02	0.02	0.02***	0.02*	0.03***	0.02	-0.03
Domestic Contemporaneous Announcements in equation (8)										
Budget Deficit	B_{k0}	0.01	-0.02*				0.00			
	θ_{k0}	-0.01	0.03**				0.04***			
Current Account	B_{k0}	-0.01*	0.02***			-0.01	-0.01	-0.11	0.37***	0.00
	θ_{k0}	0.01	0.03***			0.00	-0.04	0.02	-0.05**	0.01
Current Account(US)	B_{k0}	0.01								
	θ_{k0}	0.01								
Consumer Confidence	B_{k0}					0.00				0.00
	θ_{k0}					-0.01				0.00
Consumer Price Index	B_{k0}	-0.02*	0.01		0.00	0.00	-0.01	0.01	0.00	-0.01
	θ_{k0}	0.04***	0.03***		-0.01	0.00	0.02*	0.02	0.00	-0.01
Exports	B_{k0}	0.01		0.00	0.00		0.00		0.00	-0.07
	θ_{k0}	-0.04		0.07***	0.02		0.10*		0.00	0.06
Fixed Invest	B_{k0}					0.00				
	θ_{k0}					-0.01				
Gross Domestic Product	B_{k0}	0.01***	0.00	-0.02	-0.01	0.01	0.02	0.01	-0.08***	0.00
	θ_{k0}	0.02**	0.01	0.00	-0.01	-0.01	0.01	-0.01	0.16***	0.01
Imports	B_{k0}	-0.01		0.00	0.01		0.00			-0.02
	θ_{k0}	0.04		-0.26***	-0.04		0.02			0.00
Interest rate	B_{k0}							0.00	0.00	
	θ_{k0}							0.42***	-0.03	
Industrial production	B_{k0}	0.01**	-0.01*		0.00	0.01***				0.00
	θ_{k0}	0.00	0.03***		-0.01	0.00				-0.01
Money Supply	B_{k0}	0.00					-0.02	0.04***		
	θ_{k0}	0.02					0.01	0.00		
Producer Price	B_{k0}	0.00	-0.01			0.00***	-0.02	0.00		0.16***
	θ_{k0}	0.01	0.02***			0.01	0.04*	0.01		0.02
Retail Sales	B_{k0}	0.01				0.00	0.01	-0.08***		
	θ_{k0}	0.02***				-0.01	0.02*	0.05		
Trade Balance	B_{k0}	0.01*	0.00	0.17		0.01		0.09***		-0.03
	θ_{k0}	0.02***	0.01	0.19***		-0.01		0.00		0.05
Initial Unemployment	B_{k0}	0.01			0.00	0.03***	-0.01			-0.01
	θ_{k0}	0.00			-0.01	-0.01	0.00			-0.02
Wholesales	B_{k0}					0.00	0.01			
	θ_{k0}					0.01	0.00			

Appendix 6. Regression Results with Expected Appreciation

Announcements	Czech Republic	Hungary	Indonesia	Korea	Mexico	Poland	South Africa	Thailand	Turkey
Impact of Contemporaneous News Surprises on FX Return									
Business Inventories	-0.01	-0.01	0.01	-0.01	0.01	-0.01	-0.04**	0.00	-0.03
Budget Deficit	-0.01	0.05	0.01	0.02	-0.01	0.00	0.04	0.02	0.00
Current Account	0.10**	0.10**	-0.06**	0.01	-0.01	0.03*	0.03	0.03	0.03
Capital Utilization	-0.01	-0.02	-0.02	-0.03**	0.01	0.01	0.08**	0.00	0.06*
Consumer Confidence	0.12**	0.10**	0.02	0.02	0.02	0.07**	0.05**	0.00	0.10
Consumer Credit	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.02	-0.01	0.31
Construction Spending	0.06**	0.02	0.01	0.01	0.00	0.03**	-0.02	-0.05**	-0.01
Consumer Price Index	-0.02	0.02	-0.04**	0.01	0.02*	0.01	0.05**	0.00	0.05
Durable Goods Orders	0.05**	0.07**	0.06**	0.02*	0.01	0.06**	0.06**	-0.02	0.04
Factory Orders	0.05**	0.02	0.00	-0.03*	0.01	0.00	0.03*	0.00	0.02
Gross Domestic Product	0.09**	0.09**	0.06**	0.02	0.01	0.07**	0.09**	0.00	0.00
Housing Starts	0.02	0.03*	-0.01	0.02*	0.01	0.01	0.02	-0.01	-0.03
Imports	0.01	0.01	0.03*	0.02	0.00	0.00	-0.02	-0.01	-0.05*
Interest rate	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.00
Industrial production	0.07**	0.04	0.03*	0.02	0.00	0.01	-0.02	0.01	-0.01
NAPM	0.61*	0.83**	0.40	0.72**	0.24	0.78**	0.55	-0.23	0.52
Leading Indicators	-0.01	0.02	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00
New Home Sales	-0.02	0.03*	0.04**	0.03**	0.01	0.03**	-0.01	-0.01	-0.04
Nonfarm Payroll	0.19**	0.21**	0.07**	0.08**	0.11**	0.23**	0.26**	0.01	0.14**
Personal Spending	-0.01	0.01	0.02	0.00	0.01	0.00	-0.01	-0.01	0.00
Personal Income	0.03	0.02	0.00	0.01	0.01	0.00	0.03*	0.00	0.00
Producer Price	-0.01	-0.01	0.02*	0.01	0.01	0.01	0.03	0.00	0.02
Retail Sales	0.09**	0.07**	0.04**	0.04**	0.02	0.08**	0.03*	0.01	-0.01
Trade Balance	0.04**	0.06**	-0.01	0.01	-0.01	0.11**	0.09**	0.01	0.03
Initial Unemployment	-0.04**	-0.03**	-0.01	-0.02**	-0.02**	-0.02**	-0.02**	0.01	0.01
Wholesales	0.00	0.01	0.01	0.01	-0.03	0.00	0.00	0.00	-0.01
Budget Deficit	-0.05	-0.34				0.01			
Current Account	-0.02	-0.04*			-0.07	-0.07**	0.34**	0.03	0.03
Current Account(US)	-0.01								
Consumer Confidence					-0.01				0.00
Consumer Price Index	-0.03*	0.05**		0.01	0.01	0.01	-0.04*	-0.01	1.74**
Exports	-0.41**		-0.01	0.01		0.00		0.01	-0.20
Fixed Invest					0.00				
Gross Domestic Product	0.01	-0.16	-0.01	-0.05	0.00	-0.06**	-0.08	-0.16**	-0.03
Imports	0.08		0.02	0.00		-0.01			0.00
Interest rate							-0.36**	-0.01	
Industrial production	-0.01	-0.02		0.00	-0.02				-0.02
Money Supply	0.00					-0.01	0.00		
Producer Price	-0.02	-0.02*			0.01	0.00	0.02		0.14**
Retail Sales	-0.02				-0.01	-0.01	0.01		
Trade Balance	-0.09**	-0.01	2.03		-0.01		-0.14**		0.06
Initial Unemployment	0.35**			-0.04	-0.01	0.01			0.00
Wholesales					-0.02	-0.03**			

Impact of Contemporaneous News Surprises Multiplied by Appreciation Expectation

Business Inventories	-0.05	-0.05	-1.37*	-0.29	0.00	-0.77*	-0.28	1.05	0.00
Budget Deficit	-0.06	-0.31*	-0.26	7.53**	-0.01	-0.34	0.53	-0.42	0.00
Capital Utilization	0.01	0.11	0.04	-1.88*	0.04*	-0.03	-1.20**	0.22	0.00
Current Account	-0.23*	-0.26	1.41	0.09	-0.02	0.38	0.04	-1.53	0.00
Consumer Credit	-0.02	-0.08	0.23	-0.18	-0.01	-0.15	0.35	0.65	-6.12
Consumer Confidence	-0.11*	-0.03	0.52	2.35**	0.05**	-1.02**	0.15	0.65	0.00
Construction Spending	-0.18*	0.01	-0.06	-1.57*	0.00	0.96*	0.68*	2.34*	0.00
Consumer Price Index	0.18**	0.06	-2.67**	0.23	0.00	-0.46	0.28	0.96	0.00
Durable Goods Orders	0.22**	0.19**	1.08*	0.39	0.04**	0.10	0.29	-1.04	0.00*
Factory Orders	-0.12**	0.02	0.05	1.68*	0.02	-0.03	0.34	0.14	0.00
Gross Domestic Product	0.20**	0.24**	0.87*	0.81*	0.03	0.17	-0.51	-0.18	0.00
Housing Starts	0.02	-0.08	-0.21	-0.93	0.01	0.46	-0.19	-0.47	0.00*
Imports	0.02	-0.04	3.19**	0.39	-0.04**	0.05	-1.26**	-0.59	0.00
Interest rate	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial production	-0.21**	-0.09	0.29	1.62	-0.01	0.24	-0.20	-0.21	0.00
NAPM	2.55*	2.20	12.73	17.15	0.45	3.42	-7.16	12.46	0.00*
Leading Indicators	0.09	0.02	0.39	0.49	0.02	0.40	0.26	0.38	0.00
New Home Sales	0.18**	-0.01	0.89*	-0.75	0.01	0.00	0.34	0.28	0.00
Nonfarm Payroll	0.73**	0.65**	1.36**	1.07*	0.10**	-0.52*	-0.13	-1.80**	0.00**
Personal Spending	0.08	0.00	0.26	0.26	0.01	0.17	0.06	-0.19	0.00
Personal Income	-0.14*	-0.10	0.50	0.93	0.01	-0.43	1.57**	-0.14	0.00
Producer Price	0.13**	0.18**	0.50	0.16	0.01	0.24	0.11	0.43	0.00*
Retail Sales	0.06	0.13*	1.85**	-0.29	0.12**	0.30	0.39	-0.49	0.00
Trade Balance	0.38**	0.31**	-0.74	1.12*	-0.01	-0.84*	-1.00**	0.06	0.00
Initial Unemployment	-0.01	-0.04	-0.09	-0.16	-0.03**	0.44**	0.14	0.32	0.00
Wholesales	-0.01	-0.06	0.34	-1.28*	-0.03	-0.28	0.76**	0.11	0.00
Budget Deficit	0.09	1.52				0.53			
Current Account	-0.03	-0.51**			-0.07	1.32**	-8.49**	11.61**	0.00
Current Account(US)	-0.09								
Consumer Confidence					-0.01				0.00
Consumer Price Index	0.15*	-0.06		0.24	-0.01	-0.40	1.00**	-0.26	0.00**
Exports	1.42**		-0.34	-0.49		-1.07*		-1.64	8.92
Fixed Invest					-0.02				
Gross Domestic Product	-0.38**	0.48	-0.02	-1.84	0.04	2.02*	0.30	-5.16	0.00
Imports	1.29		0.77	0.29		1.99**			9.11**
Interest rate							-7.96**	0.00	
Industrial production	0.00	-0.08		0.11	-0.02				0.00
Money Supply	-0.10					0.10	-2.15**		
Producer Price	-0.06	0.20			0.00	-0.39	-0.83*		-2.74**
Retail Sales	0.05				0.02	-0.21	-0.21		
Trade Balance	0.08	0.05	51.91		0.01		-0.28		0.00
Initial Unemployment	-1.87**			-2.18	0.02	0.22			0.00
Wholesales					0.00	-0.10			