



Cross-border scheduled macroeconomic news impacts: Evidence from high-frequency Asia Pacific currencies[☆]

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ABSTRACT

The current study utilizes a comprehensive set of influential scheduled macroeconomic announcements released from various developed and emerging markets to investigate the speed and persistence of news impacts on major Asia-Pacific currencies sampled at high frequencies. A richly varied set of findings emerge. In general, we document that the responses to economic news released domestically and from the U.S. are rapid, and there is some evidence of persistency concerning U.S. economic news and news related to the China's purchasing manager index. The currency reactions to asymmetric economic news surprises and the states of the U.S. economy are heterogeneous. Finally, we show that macroeconomic announcements have contributed to the sudden increase in realized volatility and trading volumes of the currencies around the time of announcements.

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1. Introduction

Examining asset price reactions to regularly scheduled macroeconomic announcements is crucial to understanding the effect of information flows on price formation and discovery processes. To gain insights into this issue, a plethora of research has studied foreign exchange rates sampled at high frequencies (e.g., Almeida et al., 1998; Andersen et al., 2003, 2007; Faust et al., 2007). These studies predominantly investigate the impacts of macroeconomic announcements released from advanced economies (such as U.S., German and Japan) on frequently traded, developed-market currencies of the German Deutschemark (DEM), Euro, British Pound (GBP) and Japanese Yen (YEN).

Using a comprehensive set of influential scheduled macroeconomic announcements emanating from various advanced and emerging economies, the current study adds to the literature by analyzing the *speed* and *persistence* of news impacts on price changes, realized volatilities and trading volumes of major Asia-Pacific currencies sampled at high frequencies. Three major aspects set our study apart along important dimensions.

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First, unlike most previous work, we focus on five currencies with distinctive characteristics, namely Australian Dollar (AUD), Hong Kong Dollar (HKD), New Zealand Dollar (NZD), Singapore Dollar (SGD) and YEN.¹ These currencies are of especial interest for a variety of reasons. The AUD and NZD are widely regarded as popular target currencies for carry trade (Fung et al., 2013), and they are susceptible to the global market demand for commodities (Chen and Rogoff, 2003). Asset managers are keen on HKD and SGD, primarily because the scale of their corresponding open economies is small, and they have close geographical proximity and economic ties to the increasingly influential markets of China and Japan. In addition, these four foreign exchange markets, together with YEN, are some of the most actively traded currencies in the global market.²

Second, the recent availability of high-frequency data for NZD, SGD and HKD is opportune. This is where most prior work, which considers similar currency data sets, utilizes daily or intraday data but with the price impact measured over a relatively long time interval.³ Early studies that use data sampled at coarser frequencies tend to yield mixed findings. For instance, Simpson et al. (2005) report that only ten out of 23 periodic U.S. macroeconomic announcements significantly affect the daily DEM, GBP and YEN. Andersen et al. (2007) demonstrate that the significant responses of frequently traded currencies such as DEM and GBP to U.S. macroeconomic announcements tend to dissipate almost instantaneously within 5 to 15 min post news release (see also Faust et al., 2007).⁴ However, is this what happens to the commodity and small-open economy currencies considered in the current study? The answer to this question is mostly a 'yes', as we reveal shortly below.

Third, we study the impacts of scheduled macroeconomic announcements released from various advanced economies of U.S., Japan, Hong Kong, Australia and New Zealand, and the emerging economy of China.⁵ To our knowledge, the speed and persistence of reactions to the cross-border macroeconomic announcements released from these countries on major Asia-Pacific currencies sampled at high frequencies have not been explored extensively elsewhere. Regulators and asset managers constantly pay close attention to announcements emanating from U.S., China and Japan, as they are important trading partners for all the countries whose exchange rates are considered in the current study.⁶

The results reveal a richly varied set of findings. We show that unanticipated macroeconomic announcements or news surprises (i.e., the standardized difference between the realized and expected news information), in general, are augmented immediately in the foreign exchange markets that we consider. This finding is consistent with the efficient market paradigm of an extremely rapid exchange rate discovery process. Across the three large and influential economies of U.S., China and Japan, we find that foreign exchange rates in general react significantly to the U.S. economic news, whereas their reactions to the Chinese and Japanese news are somewhat weaker or even insignificant. A recent study by Brusa et al. (2015) reveals that global investors tend to react to the U.S. Federal Open Market Committee's (FOMC) decisions more than the decisions made by other major central banks. Our study reinforces this finding. It is also consistent with the traditional stereotype that the U.S. is a 'Big Brother' who exerts a dominant role in affecting the global financial market returns.

We also demonstrate that the exchange rate responses are heterogeneous with respect to macroeconomic announcements released domestically and internationally.⁷ For example, the commodity currencies of AUD and NZD respond instantaneously and substantially to unemployment and inflation reports released domestically more than to those emanating from foreign economies. In contrast, an unexpected (foreign) U.S. unemployment rate asserts a more instantaneous response on YEN than the domestic Japanese unemployment rate figures.

We subsequently extend the symmetric regression model so that the currency reactions are conditioned to unexpectedly positive and negative news. In the context of the current study, surprisingly positive (negative) news refer to higher-than-expected (lower-than-expected) news.⁸ Barberis et al. (1998) develop a parsimonious model of investor sentiment to demonstrate that 'bad' news surprises tend to generate more future uncertainties than 'good' news surprises. Nonetheless, the theoretical findings on foreign exchange rate reactions to the second-order news surprise are inconclusive (e.g., Faust et al., 2007; Fatum et al., 2012).

¹ All the currencies are quoted per unit of the U.S. Dollar (USD). In our initial experiment, we also explored a broader set of emerging market currencies, ranging from Chinese Renminbi, Indonesian Rupiah, Korean Won, Malaysian Ringgit, Taiwanese Dollar, to Thai Baht. However, the price quotes of these foreign exchange markets are relatively stale considering the high sampling frequency and the sample period that we examine.

² The Bank of International Settlement 2013 triennial survey ranks these five currencies among the top fifteen currencies in terms of average daily global foreign exchange turnover (<http://www.bis.org/publ/rpfx13fx.pdf>).

³ For example, Clifton and Plumb (2008) investigate the macroeconomic announcement impacts on the AUD hourly rate changes, whereas we consider the maximum of 10-minute currency rate changes.

⁴ Andersen et al. (2007) also note the failure of most prior studies to find a significant link between asset market returns sampled at coarser frequencies and unanticipated macroeconomic announcements to subsequent day-to-day asset price changes or fluctuations following the announcements.

⁵ Most prior studies with an Asia-Pacific focus tend to examine the impacts of the U.S. or domestic macroeconomic announcements on financial markets other than the foreign exchange (e.g., Mookerjee and Yu, 1997; Kim and In, 2002; Kim, 2003).

⁶ The World Bank recently ranks these currencies as the top three global economies in terms of Gross Domestic Product (<http://databank.worldbank.org/data/download/GDP.pdf>). Although Australia is crucial to most Asia-Pacific economies in terms of export and import flows, we conjecture that any significant Australian announcement effects are confined to the localized AUD, and/or to the neighboring NZD, as the Australian economy is relatively small compared to U.S., China and Japan.

⁷ The current study assumes that all scheduled macroeconomic news released from the country on its currency is domestic announcements, whereas U.S. macroeconomic announcements, in particular, are regarded as international (i.e., foreign) news.

⁸ In the context of foreign exchange rates, a higher-than-expected (positive) news surprise can be construed as either 'good' or 'bad' news. The same argument applies to lower-than-expected (negative) news. For example, Faust et al. (2007) develop a simple framework to show that lower-than-expected inflation announcements, which are typically perceived as 'good' news to the stock market, could have contrasting effects on the value of USD. In particular, they argue that a lower-than-expected U.S. inflation figure may signal a weak economic demand. This leads to a fall in U.S. interest rates compared to foreign interest rates, and hence, USD depreciates. Alternatively, if a negative inflation news surprise is evidence of better-than-expected productivity growth, the announcement is interpreted as 'good' news, resulting in a rise in U.S. interest rates and accordingly, USD appreciates. Therefore, we refrain from using the terms 'good' or 'bad' news surprises for the remainder of the paper.

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