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The Emerging Market Economies in Times of Taper-Talk and Actual Tapering

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Abstract:
I study the financial distress recently experienced by the emerging market economies (EME). I distinguish two periods: Summer 2013, when there was talk about the Fed tapering monetary policy (the "taper-talk" period), and December 2013–January 2014, when the actual tapering began (the "actual-taper" period). Consistent with previous work, I find that current account deficits and real exchange rate appreciation were key factors in explaining the observed cross-country differences. I also construct market pressure indices to identify crises, and I use leading indicators to find signals of likely crises in the near future. The analysis suggests that the recent events were relatively mild, with only a small number of identified crises.

Keywords: currency crises, exchange rates, emerging markets

JEL Classification: F31, F32, F41, F42

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1 Overview

Early in Winter 2013–2014, the emerging market economies experienced financial difficulties, which the specialized press partly attributed to the Federal Reserve's decision to begin tapering its monthly asset purchases. Specifically, the argument held that a slower pace of asset purchases would reverse the capital flows directed to the EME in recent years as investors searched for higher expected returns. Some months earlier, in Summer 2013, the EME also experienced financial difficulties that were attributed to the "talk" (not "actual") of tapering of the Fed's monetary policy that was expected to begin in the near future. In this paper, I study the EME financial distress by looking for factors that explain the observed cross-country behavior in the data, and I connect the findings from the "actual-taper" period to those from the "taper-talk" period.

As it will become clear throughout the paper, one can distinguish two periods when tapering (or its prospect) affected foreign exchange rates and reserves. In May 2013, talk about the Fed tapering its assets purchases began and, at the same time, the EME experienced financial pressures measured by nominal exchange rate depreciation and loss of international reserves—these pressures subsided by the end of the Summer. However, in December 2013, the actual tapering began and the EME experienced renewed financial distress, although of smaller magnitude compared to the taper-talk period. Despite this aggregate behavior, a closer analysis reveals that there were significant differences across the different countries during both periods. In order to shed some light on these differences, I turn to the large literature on currency crises. The analysis proceeds in three stages that I explain next.

I begin by looking at the changes in nominal exchange rates and international

reserves. Intuitively, a currency crisis can be seen as a contraction in the demand for a country's currency which, in turn, can be observed as a decline in either its value (exchange rate) or its quantity (reserves).[1] Consistent with previous findings in the literature, I identify growing current account deficits and real exchange rate appreciation as key determinants of the observed adjustments in the EME.

Next, I refine the analysis by defining what constitutes an actual currency crisis. That is, in order to impose discipline upon the analysis I need to be precise about what kind of changes in exchange rates and international reserves indeed constitute a crisis. To address this issue, I construct market pressure indices (MPIs) that combine changes in exchange rates with changes in international reserves and, in some cases, are also combined with changes in stock prices. I define a crisis as an episode when the MPI is two (or three) standard deviations above its mean value.[2] Using these MPIs, I identify only a small number of crisis events in the data since January 2013: Argentina, India, Latvia, Lithuania, Peru, and Thailand. These findings suggest that, despite all their difficulties, the EME have generally managed to prevent the unfolding of a large-scale crisis.[3]

Finally, I check for early warnings in macroeconomic and financial indicators to identify possible currency crises in the near future. Specifically, I follow the

[1] See Sachs, Tornell, and Velasco (1996), Kaminsky, Lizondo, and Reinhart (1998), and Frankel and Wei (2004).

[2] Ideally, the currency crisis should be derived from a model of exchange rate determination. However, there is no consensus in the literature about the appropriate models linking macroeconomic variables to the exchange rate (see Meese and Rogoff 1983). This ad-hoc way of defining a crisis as a threshold-crossing event has been widely used in the literature. For example, Frankel and Rose (1996) define a currency crash as a situation where the nominal exchange rate depreciates more than 25 percent and where this depreciation also represents at least a 10 percent increase in the rate of depreciation from the previous year. Similarly, Eichengreen, Rose, and Wyplosz (1995) define a speculative pressure index which combines exchange rates, international reserves, and interest rates.

[3] This is a discrete measure of a crisis, simply defined by the MPI crossing a given cutoff value. Alternatively, there also are continuous measures of crises. See, for example, Edwards (1989), Frankel and Rose (1996), and Rose and Spiegel (2010).

methodology proposed by Kaminsky, Lizondo, and Reinhart (1998) and track the evolution of several macro/financial variables by looking for values that might signal the possibility of an approaching crisis. For most of the countries considered in the analysis, I only find a few signals. The exceptions are Indonesia and Turkey which stand out for their large number of signals. However, even for these two countries the situation is not too worrisome since they made adjustments and I observe no signals during the last part of the time frame considered.

The overall interpretation of these findings is as follows. In May 2013, the taper-talk signaled that the easy-money period was coming to an end. Since then, investors and policymakers in the EME seem to have adjusted accordingly. Consequently, when the actual tapering began in December 2013, the adjustments were not as severe as in May. Moreover, it is important to stress that the paper does not aim to determine the origins of the recent financial distress in the EME but, rather, to look at the local "pull factors" (Frankel and Saravelos 2011) in the context of the monetary policy tapering.

This paper is related to a large literature on currency crises and leading indicators of these crises. For instance, Frankel and Saravelos (2012) first provide a review of this literature and then use leading indicators to explain differences across countries during the 2008–2009 financial crisis.[4] The paper is also closely related to Eichengreen and Gupta (2014) that looks at the EME distress during the taper-talk period. Additionally, the paper is related to Kaminsky, Lizondo, and Reinhart (1998), which develops the methodology for the early warning indicators that I use in the analysis.

The rest of the paper is organized as follows. In Section 2, I present preliminary evidence looking at the EME as a whole. In Section 3, I conduct the cross-country

[4]Abiad (2003) provides another interesting survey of the literature.

regression analysis to identify the main explanatory variables for the EME distress. In Section 4, I introduce the MPIs that I use to identify which countries have indeed faced a crisis. In Section 5, I use the leading indicators' analysis to look for early signals of potential future currency problems. Finally, in Section 6, I conclude.

2 Preliminary Evidence

I begin the analysis by looking at the evolution of the stock exchange price indices and sovereign debt spreads for all the EME considered as a group.

In Figure 1, I plot the evolution of the stock exchange price index for the EME. There are several features worth mentioning. First, it is clear that there was a sharp drop of around 7 percent between late December 2013 and February 2014. Second, this decline has partially reversed since mid-February. Third, it is also clear from the figure that there was a much stronger decline between May and July 2013—that is, the decline was more significant during the "taper-talk" period than during the "actual-taper" period. Finally, this decline was of a similar magnitude to the one experienced in 2012 when the European Sovereign Debt crisis was at its peak.[5]

Figure 2 presents the evolution of the spreads of the EME sovereign debt, measured by the EMBI Global Index from J.P. Morgan. Consistent with the discussion above, there was a significant increase of over half a percentage point in the spreads between December 2013 and February 2014, but this increase subsided by early March 2014. Moreover, this increase in spreads was relatively small when compared to the increases that took place during the taper-talk period and the

[5]Figure 1 also plots the evolution of the U.S. FTSE price index. It is interesting to point out that while both indices are positively correlated, the United States was not as affected in the second half of 2013.

European debt crisis in 2012, when the spreads increased over 1 percentage point.

Figures 1 and 2 suggest that in order to study the effects of the Fed's tapering on the EME I must consider both periods: the taper-talk (April 2013–August 2013) and the actual taper (November 2013–January 2014).

Therefore, I next focus separately on the changes in nominal exchange rates and international reserves for each of these two periods. I follow Eichengreen and Gupta (2014) and Ghosh et al. (2014) in order to determine the set of EME included in the analysis. See Table 1 for the list of countries.

In Figure 3, I plot the percentage change in the nominal exchange rate for the set of countries considered. The exchange rate is expressed in units of local currency per U.S. dollar, so an increase represents a depreciation.[6] The upper panel presents the changes for the taper-talk period while the lower panel presents the changes for the actual-taper period. From the figure, it is clear that the EME experienced a sharp depreciation of its currencies, but the depreciation was significantly stronger during the taper-talk period, with an average depreciation of 3.07 percent relative to the average 1.45 percent depreciation for the actual-taper period. Moreover, among those countries that experienced a depreciation, the averages were 6.55 and 3.06 percent, respectively.

Figure 4 repeats the analysis of Figure 3 but examines the percentage change in international reserves. In this case, however, I find that the average loss of reserves was essentially the same in the taper-talk period as in the actual-taper period (around 1.56 percent). This pattern remains even if I focus only on those countries that lost reserves, with average losses of 6.45 and 6.32 percent for each period respectively.

[6]It should be noted that while I focus on how the EME currencies depreciated against the U.S. dollar, these currencies also depreciated against the other major currencies.

From Figures 3 and 4, I can draw two immediate conclusions. First, I confirm the different magnitudes of the adjustments between the taper-talk and actual-taper period. Second, I also observe that financial markets distinguished among countries. For instance, during the actual-taper period, Argentina and Turkey experienced sharp depreciations, while others like China or India actually had an appreciation of their currencies.

In the next section, I explore which variables are the most relevant in driving these cross-country differences.

3 Cross-Country Regression Analysis

In this section, I focus on the cross-country determinants of the variations in exchange rates and international reserves for both periods. I regress the cumulative change of either variable for the period considered (taper-talk or actual-taper) on a set of explanatory variables intended to capture the degree of the country's competitiveness, its underlying macroeconomic fundamentals, and the size of the local financial market.

I follow closely the specifications considered by Eichengreen and Gupta (2014) that, as already mentioned, looks at the EME during the taper-talk period. Specifically, as the regressors I consider the current account average annual change as a percentage of GDP in 2010–2012 relative to 2007–2009, the annual percentage change in the real exchange rate (RER) over 2010–2012, the log of the stock market capitalization in 2012, the ratio of reserves to M2 in 2012, the real GDP growth in 2012, the debt as a percentage of GDP in 2012, the fiscal balance as a percentage of GDP in 2012, the CPI inflation in 2012, and a governance indicator for 2012.

The data sources I use are the International Financial Statistics (IFS) from

the International Monetary Fund and the World Development Indicators from the World Bank. Table 2 presents the first set of regressions for the exchange rate variations during the taper-talk period. The results indicate that the observed changes in the nominal exchange rates can be explained mostly by four variables: the current account, the real exchange rate, the fiscal deficit, and the inflation rate. In all cases, the observed market outcome is consistent with economic theory. For instance, those countries that ran increasingly large current account deficits during the quantitative easing period experienced the largest exchange rate depreciations during the taper-talk period. Likewise, those countries with the largest real appreciations in 2012 presented the largest nominal exchange rate depreciations in April-August 2013. Moreover, those countries with the largest fiscal deficits or inflation rates were also the ones with the largest nominal depreciations of their currencies. It is interesting to note that when I consider the variation between the same months of the previous year, these same variables are mostly statistically insignificant. Since both periods showed similar nominal exchange rate depreciations, this would suggest that the market participants did not distinguish between countries during the "cheap-money" period but they did discriminate when the financial conditions tightened.[7]

Table 3 presents the same regressions of nominal exchange rates but for the actual-taper period. It is worth noting that most regressors turn out to be statistically insignificant in this case. However, I also find that the changes in the current account have strong explanatory power: once again, those countries that accumulated large deficits were the ones with the largest nominal exchange rate corrections once the actual tapering began.

In Tables 4 and 5 I repeat the same exercise, but use the change in interna-

[7]See Appendix A for the details.

tional reserves instead of the nominal exchange rate as the regressand. As can be seen in the tables, in contrast to the previous analysis, it turns out that most of the variables are not statistically significant. Moreover, the variable for financial market size is the only regressor that has some explanatory power for the taper-talk period. Indeed, I find that those countries with larger financial markets were the ones that suffered the greater reserve losses, a result that is in line with the findings of Eichengreen and Gupta (2014).

After studying the factors explaining the variation in nominal exchange rates and international reserves during the taper-talk and actual-taper periods, I next formalize these changes by constructing indices to identify a crisis and exploiting the longer time-series dimension of the data.

4 Crisis Identification: Market Pressure Indices

In this section, I construct two market pressure indices (MPI) in order to identify when a country is experiencing a crisis. Specifically, I follow the approach presented in Eichengreen, Rose, and Wyplosz (1994, 1995), and construct the first index as the weighted average of the percentage change in the nominal exchange rate and the international reserve losses. The second index includes, in addition, the decline in stock prices. Thus, an increase in the MPI implies a worsening of the economic situation. The data come from the IFS, are at the monthly frequency, and span the period from January 2000 to January 2014.

Eichengreen, Rose, and Wyplosz (1994, 1995) point out that one needs to be careful about the different conditional volatilities of the different components of an index. Thus, I use individual precision weights, dividing each variable by its own standard deviation, in order to equalize the conditional volatility of each

component. This methodology was also used by Eichengreen and Gupta (2014) and by Frankel and Saravelos (2012).[8]

As is usual in the literature, I identify a crisis episode as a month when an MPI takes a value of two standard deviations above its mean. Alternatively, I also use three standard deviations as a more conservative identification choice.

In Figures 5 and 6 I plot the evolution of both indices for selected countries—these countries were chosen either because of their relative importance, like the BRICS, or because they were perceived as particularly fragile. The figures also indicate the mean and the threshold levels mentioned above. Several features are worth mentioning. First, as expected, both indices identify, for all countries, a crisis event during the 2008–2009 financial crisis following the Lehman Brothers collapse. Second, for most of 2013, both MPIs report higher-than-mean values for all countries but no crises, except for India and Argentina when using the threshold of two standard deviations above the mean. Third, these increases are usually greater during the taper-talk period than during the actual taper period; the exceptions being Argentina and Turkey.

Table 6 presents all the events for 2013–2014 that were identified as a crisis by the MPIs using two standard deviations above the mean as a threshold. As can be seen, the first index identified seven crises, all of these occurring during the first half of 2013, with the exception of Argentina and Latvia that have a crisis identified in January 2014. Similarly, the second index identified only five crises throughout the same period, and all of them are also identified by the first index.[9]

The bottom line from this analysis is that, after the talk about the tapering

[8] I also tried alternative weighting methods and the results are in line with the ones presented here. See Appendix B for the details.

[9] If I use the alternative threshold of three standard deviations above the mean, I identify only two crises (Argentina and Latvia).

began, there were some pressures tending towards a crisis situation but, most of the times, these pressures subsided during the second half of 2013. However, what remains to be determined is whether the reasons to be concerned about the EME are over, or if it is still possible that the macroeconomic fundamentals, such as those identified in the previous section, might still be building pressure on the EME throughout the second half of 2014. I address these issues in the next section.

5 Leading Indicators of Currency Crises

As shown in the previous section, most of the EME have not experienced a currency crisis since May 2013. For some of these countries, however, there may be some indicators signaling that a currency crisis may occur in the near future. In this section, I check if this is the case for a set of countries that are closely followed by the international investors and the press. These countries are the so-called "Fragile Five"; that is, Brazil, India, Indonesia, South Africa and Turkey, plus the other two BRICS economies: China and Russia.

I employ the methodology proposed by Kaminsky, Lizondo, and Reinhart (1998) to detect early warning signals of potential currency crises in the near future for each of the economies under consideration. These signals come from several macro-financial variables, ranging from the real exchange rate, to domestic credit-to-GDP ratios, and international reserves-to-M2 ratios.

The selection of the variables is determined by theoretical arguments and the data availability at a relatively high frequency. I consider 12 variables, of which nine can be deemed as informative of future prospective currency crises, as measured by noise-to-signal ratios. This indicator, which is based on statistics akin to the probabilities of type I and type II errors, gauges the ability of a given variable

to issue good signals, as well as to avoid issuing bad signals. Most of these variables are also deemed by Kaminsky, Lizondo, and Reinhart (1998) to be the most informative leading crises indicators in their analysis of the period from 1980 to 1995. There are, however, a couple of exceptions: domestic credit-to-GDP and sovereign bond spreads, which are effective in the analysis for signaling some crises. This paper includes some countries not covered in Kaminsky, Lizondo, and Reinhart (1998).[10]

In the analysis, I consider that a country enters into a currency crisis if I observe a sharp devaluation of its currency, and/or a significant drop in international reserves. Under this methodology, checking for variations in international reserves allows me to analyze countries with fixed-exchange rates or alternative manipulated regimes, which might be successfully defended against speculative attacks, albeit at the cost of losing a significant amount of foreign reserves. Even in countries with presumably floating rate regimes, the exchange rate may be kept under control due to the central banks intervention in the foreign exchange market.

More technically, I use the first of the MPIs defined in the previous section; this measure includes changes in the nominal exchange rate and in the international reserves. A crisis is said to occur when the market pressure index is above three standard deviations of its sample mean.[11] I define the crisis indicator as a discrete variable that takes a value of one if there is a crisis, and is zero otherwise.

Having defined a crisis, I look at a set of 12 relevant macro-financial variables.

[10] In particular, Kaminsky, Lizondo, and Reinhart (1998) exclude from their sample four of the five BRICS economies: Russia, India, South Africa and China. That paper examines five industrial economies (Denmark, Finland, Norway, Spain, and Sweden), and 15 developing economies (Argentina, Bolivia, Brazil, Chile, Colombia, Indonesia, Israel, Malaysia, Mexico, Peru, the Philippines, Thailand, Turkey, Uruguay, and Venezuela).

[11] As already mentioned, I also consider MPI variations greater than two standard deviations above the mean. In this section, however, I use three standard deviations as the default measure to avoid over-signaling.

If a variable exceeds a given cutoff value, I assume that it provides a signal that a crisis might occur in the next 24 months. This signal quality could be good or bad: if I observe a crisis in these following 24 months I label the signal as good; otherwise, I say that it is a bad signal.

I consider are the following variables: (1) the real exchange rate, (2) real exchange rate deviations from the trend,[12] (3) international reserves, (4) international reserves/M2, (5) exports, (6) imports, (7) terms of trade, (8) deposit rate differential, (9) sovereign bond spreads, (10) domestic credit/GDP, (11) stock price deviations from the trend, and (12) GDP.

The data are collected at a monthly frequency, except for GDP, exports, and imports for which quarterly data is available.[13] The main data sources are: the IFS, the Organisation for Economic Co-operation and Development, Haver, and Reuters. The sample period runs from January 1970 to February 2013, conditional on data availability. For the sovereign bond spreads, I consider the EMBI+ index, provided by J.P. Morgan. The deposit rate differential is computed as the difference between a three-month deposit rate in the emerging economy and a three-month deposit rate in the United States. I view this indicator as providing information about the market expectations of nominal exchange rate variations. I work with the percentage changes over the last 12 months for all variables with the exceptions of the deviations from the trend for the real exchange rate and stock prices.

For each variable, the optimal cutoff value is associated with a p-value from its sample histogram, which is the same across countries. The p-values, however, may differ across variables. For example, the p-values for the real exchange rate and exports may be different. To compute the optimal p-value for a given variable, I

[12] A linear trend is used for the real exchange rate and the stock prices. The noise-to-signal ratio for deviations of these variables barely changes if a trend using the HP filter is used instead.

[13] The quarterly time series are transformed into monthly time series using linear interpolation.

construct a grid ranging from 10 to 20 percent. For each grid point, I calculate the associated noise-to-signal ratio, computed as the sample probability that a signal was sent within the 24 months prior to a crisis (a good signal) over the sample probability that a signal was issued and no crisis occurred within the next 24 months (a bad signal).

Mathematically, the noise-to-signal ratio is given by (A/(A+C)) / (B/(B+D)), where A,B,C, and D are the number of months of the events in each category in the following matrix:

	Crisis (within 24 months)	No crisis (within 24 months)
Signal Issued	A	B
No Signal Issued	C	D

The optimal p-value is determined to be the one that minimizes the noise-to-signal ratio, and then the optimal cutoff value is computed for each individual country. In some cases, it may not be clear whether the fact that the variable reaches a peak (trough) or moves downward (upward) after hitting its peak (trough), will results in a signal that a crisis might occur within the next 24 months. A clear example is the real exchange rate. In the 24 months prior to a currency crisis, should one expect to observe a sizable 12-month real appreciation or a sizable 12-month real depreciation of an overvalued currency? Another example is the stock market index: in the 24 months prior to a currency crisis, should one expect to observe sharp increases in stock prices due to massive capital inflows in the emerging economy and excessive domestic credit, or should one start observing the

stock market stumbling after reaching a peak? The answers to these questions will determine whether it is the upper or lower tail of the probability distribution that matters for identifying potential signals coming from these variables.[14] Therefore, for variables such as the real exchange rate, the stock market index, and exports, I consider both probability tails separately, along with the associated cutoff values, and let the data indicate, through the noise-to-signal ratios, which of them is informative of prospective crises.[15]

The effectiveness in predicting currency crises differs significantly across the variables. Table 7 reports the noise-to-signal ratios for all the variables, ranked by their effectiveness in descending order. The values for the noise-to-signal ratio range from 0.31 to 1.34. In the analysis, the stock prices and the real exchange rate deviations from the trend, reserves, reserves/M2, and the bond spreads are the most informative indicators, with a noise-to-signal ratio of around 0.3-0.5.[16] Exports, the terms of trade, the deposit rate differential, and domestic credit/GDP also convey information about future prospective crises in the next 24 months. Kaminsky, Lizondo, and Reinhart (1998) also found that some of these variables performed well for signaling future crises. In contrast, the variables for GDP and imports have noise-to-signal ratios over 1, which implies that these variables are unreliable for predicting future crises.

In Table 7, Column 4 shows the percentage of good signals provided by a

[14]For variables such as reserves, reserves/M2, the terms of trade, and GDP, for which a decline increases the likelihood of a crisis, I use a cutoff value associated with the lower tail of the sample distribution. For the rest of the variables, I consider the cutoff value associated with the upper tail.

[15]I find that the noise-to-signal ratios are lower (and hence the variable is more informative) when I consider the upper tail of the probability distribution for the real exchange rate deviations—that is, when the local currency is overvalued. The opposite occurs for the stock market index. A growing stock market has more predictive power for currency crises occurring in the next 24 months than does a downward stock market.

[16]For the case of the real exchange rate deviations, the noise-to-signal ratio remains almost unchanged if China is excluded from the sample.

variable as a fraction of the total potential good signals that could have been issued prior to the crises. Technically, this percentage is given by the ratio (A/(A+C)). Instead, Column 5 reports the percentage of bad signals conveyed by a variable as a fraction of the total number of bad signals that could potentially have been released in periods when no crises occurred. A perfect signal would have a value of 100 percent in the second column, and a value of zero in the third one.

From Table 7, we observe that all variables have a percentage of good signals ranging between 11 and 22 percent. The percentage of bad signals is slightly lower, ranging from almost 7 to 19 percent. For example, note that the ratio domestic credit/GDP exhibits a high percentage of good signals (21.2 percent) but also displays a high percentage of bad signals (18.97 percent), and therefore it is not a very accurate warning indicator.

Next, I focus on the taper period (including the taper-talk and actual-taper periods), spanning from May 2013 to the present, and I check for early warnings revealed by any of the key variables, with the exception of GDP and imports, as both have poor predicting ability. At the same time, I also look at any signals provided in the eight months prior to May 2013. In doing so, I want to take care of persistent signals that had been already observed before the taper-talk began.

Tables 8 and 9 present the number of signals coming from every variable for each of the seven economies under consideration during the pre-taper and taper periods, respectively. The variables are ordered by their predictive ability in a descending order from left to right. As seen in Table 8, all the emerging economies received at least one warning signaling a currency crisis could erupt in the next 24 months. Below, I briefly describe the individual situation of each country considered.

Indonesia stands out for the large number of signals: 28. Furthermore, if I focus

only on the five most informative indicators (stock prices and real exchange rate deviations, reserves, reserves/M2, bond spreads), I find that 23 signals have been issued for Indonesia. Indeed, there have been at least two warnings coming from each of the four indicators. If I look at the eight months prior to the beginning of the taper-talk period, as shown in Table 9, I find a similar outlook. While no warning was observed through the dynamics of reserves and spreads, each month there were signals associated with a stock market boom and the real appreciation of the Indonesian rupiah. Not surprisingly, during this period some weaker signals in exports and domestic credit/GDP were observed as well. An overvalued rupiah made Indonesian products less competitive in international markets thus causing exports to fall. At the same time, the currency's appreciation attracted capital inflows that contributed to boosting domestic credit. In turn, the significant expansion of domestic credit resulted in a monthly crisis warning being issued. Some (but fewer) signals from this variable were observed since the taper-talk period began. Indonesia's economic outlook, however, does not look so grim. After abandoning its efforts to prop up the rupiah in August 2013 and letting it float, the currency has depreciated over 12 percent against the U.S. dollar. As a result, the export dynamics have reversed leading to the country's largest monthly trade surplus in the last two years. Meanwhile, Indonesia's current account deficit narrowed from 4.4 percent of GDP in 2013:Q2 to less than to 2 percent at the end of the year.[17]

The method also identifies Turkey as another country with a relatively high number of early warning signals. Turkey is one of the emerging economies hit most severely by the shift of capital flows following the taper-talk. Indeed, since May

[17]The last signals received for Indonesia from the domestic credit and from the real exchange rate were in September and December 2013, respectively.

2013, 10 signals have been sent by the dynamics of the bond spreads, reserves/M2, stock prices deviations and exports. The surge in the bond spreads reflects Turkey's big exposure to roll-over risk, as around 30 percent of its total external debt is composed of short-term financial liabilities. In addition, the real appreciation of the Turkish lira and its buoyant stock market contributed with additional six and five signals, respectively, in the pre-taper period. The dynamics of the terms of trade proved to be a warning sign as well. By the end of 2013, Turkey's current account deficit was around 7 percent of GDP. The annual depreciation of the Turkish lira reached 20 percent against the U.S. dollar, as capital flowed out of the country. The central bank was slow to stabilize the currency and react to the higher inflation, running at around a 7 percent annual rate. But on January 29, 2014, it more than doubled the policy rate, given by the benchmark weekly repo rate, from 4.5 to 10 percent. Even though the exchange rate declined first, it resumed its upward trend soon afterwards. Along with the depreciation of the Turkish lira, no signals from the real exchange rate have been issued since April 2013.

In recent years, Brazil, India, and South Africa have run sizable current account deficits along with a real appreciation of their local currencies. In line with this, several signals were observed through both the real exchange rate fluctuations and exports in the two periods considered.[18] Inflation has been running high, exceeding 6 percent for Brazil and South Africa, and 10 percent for India in 2013.[19] As foreign capital started flowing out of these economies, their currencies underwent a sharp

[18]Brazil's results in terms of the real exchange rates might be somewhat distorted due to the hyperinflation experienced in the 1980s and the beginning of the 1990s. Moreover, it is not surprising that there is no signal for an overvalued Brazilian real, given that Brazil started depreciating its currency in mid-2011.

[19]In January 2014, the Reserve Bank of India proposed moving to an inflation-targeting monetary regime.

depreciation.[20] To curb inflation and prop up the local currencies, the central banks in all these economies raised gradually their policy rates.

Finally, the two remaining BRICS economies, Russia and China, showed large current account surpluses in the last three years, in contrast with their peers. At the same time, the yuan has been constantly strengthening against the U.S. dollar, as reflected in the large number of signals received through the real exchange rate deviations both in the pre-taper and taper (talk and actual) periods. In Russia, however, the ruble has lost value against the U.S. dollar, but not as much as the other emerging economies considered.

6 Conclusion

In this paper I looked at the financial distress faced by several EME during Summer 2013 and December 2013–January 2014. Consistent with previous findings in the currency crisis literature, I found that increasing current account deficits and real exchange rate appreciation were key factors in explaining the observed adjustments across the different EME.

The analysis also included the use of market pressure indices and early warning indicators. The findings suggest that the number of events that actually fit the definition of a crisis were quite limited. Further, I found no strong evidence of a crisis being forecasted in the near future, suggesting that policymakers were generally able to make the proper adjustments to prevent financial turmoil.

It is worth pointing out that I do not intend to draw any conclusions on the

[20] Since April 2013, before the tapering discussion was initiated, the Brazilian real, the Indian rupiah and the South African rand depreciated by 18, 13, and 20 percent, respectively, against the U.S. dollar. Two other signals were observed in the case of Brazil from the deposit rate differential, confirming market expectations about the real losing value.

causality of these dynamics in the EME. In other words, I do not assert that the deteriorating of economic conditions and a perceived higher currency risk in some of these emerging economies are necessarily due to the discussion of tapering actions or the undertaking of these policies. From a global perspective, other factors are probably also playing a role. In particular, China's slower economic growth and the resulting reduction in the demand for commodities is bad news for the EME. In addition, from a local viewpoint, the worsening of the economic performance in some of these countries can be attributed to idiosyncratic driving forces in the form of fragile economic fundamentals, government policies, and social and institutional issues.

Nonetheless, based on the evidence provided in this paper, I believe that the fact that the Fed started discussing and implementing a reduction of its asset purchases had an immediate impact on the emerging economies, as capital flowed out to developed countries. The symptoms observed in the data somewhat mimic the dynamics prescribed by the theory on sudden stops, as pioneered by Calvo (1998) and extended in Mendoza (2010). The fact that the impact of Fed tapering has not been the same across emerging economies leaves plenty of room for future research.

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Table 1: Countries Included in the Sample

East Asia and Pacific	**Europe and Central Asia**	**Latin America and Caribbean**
China	Albania	Argentina
Hong Kong	Armenia	Brazil
Indonesia	Bosnia and Herzegovina	Colombia
Malaysia	Bulgaria	Costa Rica
Philippines	Czech Republic	Dominican Republic
Singapore	Croatia	Guatemala
South Korea	Hungary	Jamaica
Thailand	Kazakhstan	Mexico
Vietnam	Latvia	Paraguay
Middle East and North Africa	Lithuania	Peru
	Macedonia	Uruguay
Israel	Poland	**Sub-Saharan Africa**
Jordan	Romania	Ghana
Morocco	Russia	Kenya
Tunisia	Serbia	Mauritius
South Asia	Turkey	South Africa
India	Ukraine	Tanzania
Pakistan		
Sri Lanka		

Table 2: Dependent Variable: Percentage Change in Nominal Exchange Rate between April–August 2013

	(1)	(2)	(3)	(4)	(5)
ΔCA	–0.417*	–0.428*	–0.180	–0.426*	–0.527***
	(–1.99)	(–1.89)	(–0.89)	(–1.97)	(–2.83)
ΔRER	–0.677**	–0.713***	–0.978***	–0.640***	–0.669***
	(–2.41)	(–3.17)	(–4.15)	(–3.18)	(–2.74)
Mkt. Capit.	0.444	0.444	0.822**	0.624*	0.525
	(1.09)	(1.13)	(2.37)	(1.74)	(1.29)
Res/M_2	0.0778	–0.259	7.641*	1.725	1.587
	(0.02)	(–0.07)	(1.97)	(0.52)	(0.53)
ΔGDP	0.281				
	(1.09)				
Debt		0.00525			
		(0.19)			
Deficit			–0.804***		
			(–3.66)		
CPI				0.704***	
				(3.29)	
Governance					–2.573**
					(-2.50)
N	39	40	41	41	41
R^2	0.377	0.336	0.492	0.505	0.416

Notes: t statistics reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. ΔCA is the increase in current account balance 2010–12, over 2007–09. ΔRER is the average annual percentage change in real exchange rate, 2010–2012. *Mkt. Capit.* is the market capitalization (logs), 2012. Res/M_2 are the international reserves as percentage of M2, 2012. ΔGDP is the real GDP growth, 2012. *Debt* is the public debt as a percentage of GDP, 2012. *Deficit* is the fiscal balance as a percentage of GDP, 2012. CPI is the inflation rate (consumer prices), 2012. *Governance* is the average of six governance indicators in Worldwide Governance Indicators database, 2012.

Table 3: Dependent Variable: Percentage Change in Nominal Exchange Rate between November 2013–January 2014

	(1)	(2)	(3)	(4)	(5)
ΔCA	–0.470**	–0.546***	–0.507**	–0.525***	–0.495**
	(–2.60)	(–3.15)	(–2.49)	(–2.95)	(–2.72)
ΔRER	–0.172	–0.120	–0.100	–0.109	–0.119
	(–1.32)	(–1.05)	(–0.72)	(–0.92)	(–1.07)
Mkt. Capit.	0.255	0.165	0.148	0.273	0.217
	(1.42)	(0.92)	(0.80)	(1.33)	(1.38)
Res/M_2	0.137	–2.093	–2.441	–0.630	–0.989
	(0.08)	(–0.81)	(–0.77)	(–0.33)	(–0.42)
ΔGDP	–0.0172				
	(–0.09)				
Debt		–0.00623			
		(–0.54)			
Deficit			0.0778		
			(0.43)		
CPI				0.389	
				(1.15)	
Governance					–0.868
					(–1.22)
N	36	37	38	38	38
R^2	0.266	0.136	0.119	0.197	0.136

Notes: t statistics reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. ΔCA is the increase in current account balance 2010–12, over 2007–09. ΔRER is the average annual percentage change in real exchange rate, 2010–2012. *Mkt. Capit.* is the market capitalization (logs), 2012. Res/M_2 are the international reserves as percentage of M2, 2012. ΔGDP is the real GDP growth, 2012. *Debt* is the public debt as a percentage of GDP, 2012. *Deficit* is the fiscal balance as a percentage of GDP, 2012. CPI is the inflation rate (consumer prices), 2012. *Governance* is the average of six governance indicators in Worldwide Governance Indicators database, 2012.

Table 4: Dependent Variable: Percentage Change in Total Reserves between April–August 2013

	(1)	(2)	(3)	(4)	(5)
ΔCA	0.326	0.187	0.113	0.251	0.418
	(0.66)	(0.38)	(0.21)	(0.55)	(1.03)
ΔRER	0.214	0.0881	0.203	0.00899	–0.0365
	(0.54)	(0.23)	(0.49)	(0.03)	(–0.10)
Mkt. Capit.	–0.686	–0.719*	–0.952**	–0.779*	–0.832**
	(–1.63)	(–1.85)	(–2.35)	(–1.97)	(–2.52)
Res/M_2	6.877	7.572	1.195	6.551	3.936
	(0.70)	(0.82)	(0.15)	(0.76)	(0.54)
ΔGDP	0.475				
	(1.06)				
Debt		–0.00759			
		(–0.22)			
Deficit			0.572		
			(1.11)		
CPI				–0.371	
				(–0.72)	
Governance					4.036**
					(2.30)
N	36	37	38	38	38
R^2	0.171	0.146	0.186	0.172	0.266

Notes: t statistics reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. ΔCA is the increase in current account balance 2010–12, over 2007–09. ΔRER is the average annual percentage change in real exchange rate, 2010–2012. *Mkt. Capit.* is the market capitalization (logs), 2012. Res/M_2 are the international reserves as percentage of M2, 2012. ΔGDP is the real GDP growth, 2012. *Debt* is the public debt as a percentage of GDP, 2012. *Deficit* is the fiscal balance as a percentage of GDP, 2012. CPI is the inflation rate (consumer prices), 2012. *Governance* is the average of six governance indicators in Worldwide Governance Indicators database, 2012.

Table 5: Dependent Variable: Percentage Change in Total Reserves Between November 2013–January 2014

	(1)	(2)	(3)	(4)	(5)
ΔCA	0.424*	0.368	0.358	0.413	0.422
	(1.91)	(1.33)	(1.14)	(1.51)	(1.52)
ΔRER	0.0631	–0.174	–0.167	–0.213	–0.201
	(0.31)	(–1.00)	(–0.86)	(–1.11)	(–1.09)
Mkt. Capit.	–0.251	–0.264	–0.278	–0.260	–0.252
	(–1.09)	(–1.13)	(–1.15)	(–1.11)	(–1.10)
Res/M_2	–6.127*	–3.328	–3.836	–4.360	–3.971
	(–1.76)	(–0.81)	(–0.93)	(–1.15)	(–1.01)
ΔGDP	0.404*				
	(1.81)				
Debt		0.0119			
		(0.57)			
Deficit			0.0522		
			(0.22)		
CPI				-0.296	
				(-0.67)	
Governance					0.891
					(0.85)
N	29	30	30	30	30
R^2	0.239	0.113	0.110	0.147	0.131

Notes: t statistics reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. ΔCA is the increase in current account balance 2010–12, over 2007–09. ΔRER is the average annual percentage change in real exchange rate, 2010–2012. *Mkt. Capit.* is the market capitalization (logs), 2012. Res/M_2 are the international reserves as percentage of M2, 2012. ΔGDP is the real GDP growth, 2012. *Debt* is the public debt as a percentage of GDP, 2012. *Deficit* is the fiscal balance as a percentage of GDP, 2012. CPI is the inflation rate (consumer prices), 2012. *Governance* is the average of six governance indicators in Worldwide Governance Indicators database, 2012.

Table 6: Crises indicated by MPI I and MPI II
(2 Standard Deviations Above the Mean)

Country	Month	MPI I	MPI II
Argentina	2014:M1	1	1
India	2013:M6	1	
Latvia	2014:M1	1	1
Lithuania	2013:M3	1	
Peru	2013:M6	1	1
Thailand	2013:M6	1	1

Table 7: Effectiveness of the Leading Indicators

	Number of Crises	% of Crises Called	Good Signals [A/(A+C)]	Bad Signals [B/(B+D)]	Noise/Signal
Stock	17	35.29	20.85	6.52	0.31
Real exch rate deviation	35	40.00	33.64	14.59	0.43
Reserves/M2	25	68.00	18.48	7.94	0.43
Reserves	40	60.00	18.15	8.16	0.45
Bond Spreads	7	85.71	33.01	17.57	0.53
Exports	41	87.8	21.53	16.40	0.76
Terms of Trade	28	60.71	16.93	14.04	0.83
Deposit Rate Differential	19	52.63	12.45	10.29	0.83
Domestic credit/GDP	17	64.71	21.2	18.97	0.89
GDP	19	21.05	12.08	12.95	1.07
Imports	41	63.41	11.54	12.68	1.10
Real Exchange Rate	34	47.06	11.50	15.40	1.40

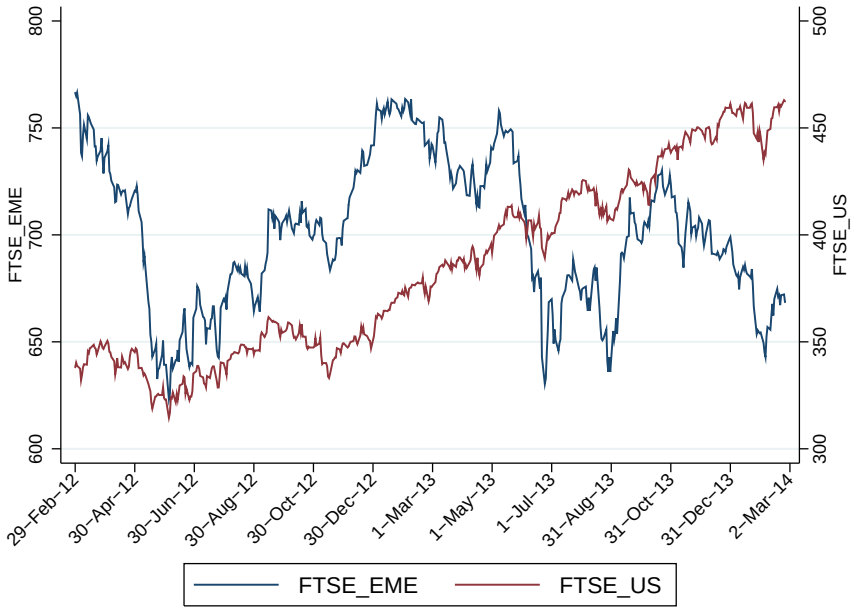
Table 8: Signals during Taper Period (May 2013–Present)

Taper	Stock prices Deviations	RER	Reserves/M2	Reserves	**Bond** Spreads	**Exports**	**Terms of** Trade	**Deposit Rate** Differential	**Domestic** Credit/GDP
Brazil			1		6	1	1	2	
China		8				2			
India	3	8	1			1			
Indonesia	6	8	2	5	2				5
Russia			1			2			4
South Africa	1				4	2			
Turkey	3		1		3	3			

Table 9: Signals in Pre-Taper-Talk Period (September 2012–April 2013)

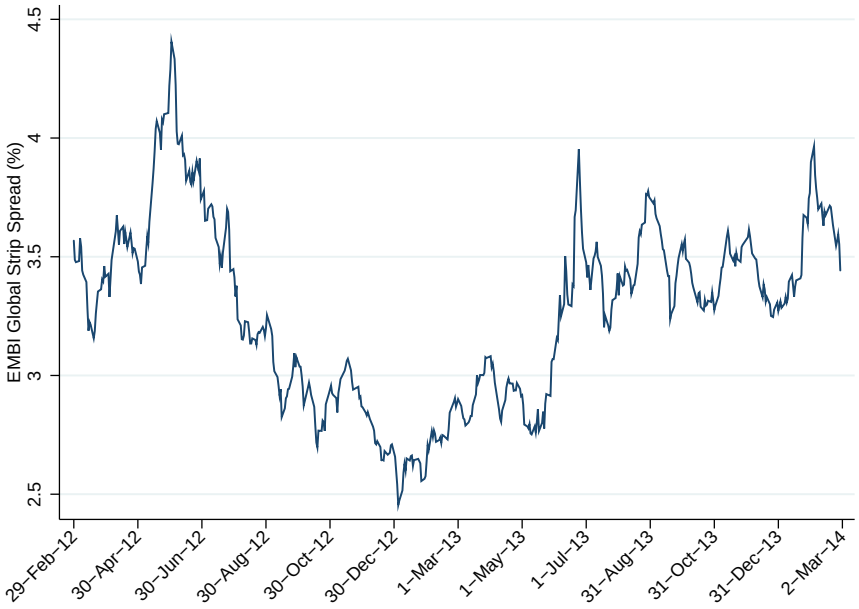
Pre-Taper	Stock Prices Deviations	RER	Reserves/M2	Reserves	Bond Spreads	Exports	Terms of Trade	Deposit Rate Differential	Domestic Credit/GDP
Brazil						5			3
China		6							1
India	1	8				1			
Indonesia	8	8				3			8
Russia						1			1
South Africa		4				3	1		
Turkey	5	6					1		

Figure 1: FTSE All-Cap US$ Stock Price Indices for All Emerging Market Economies and the United States



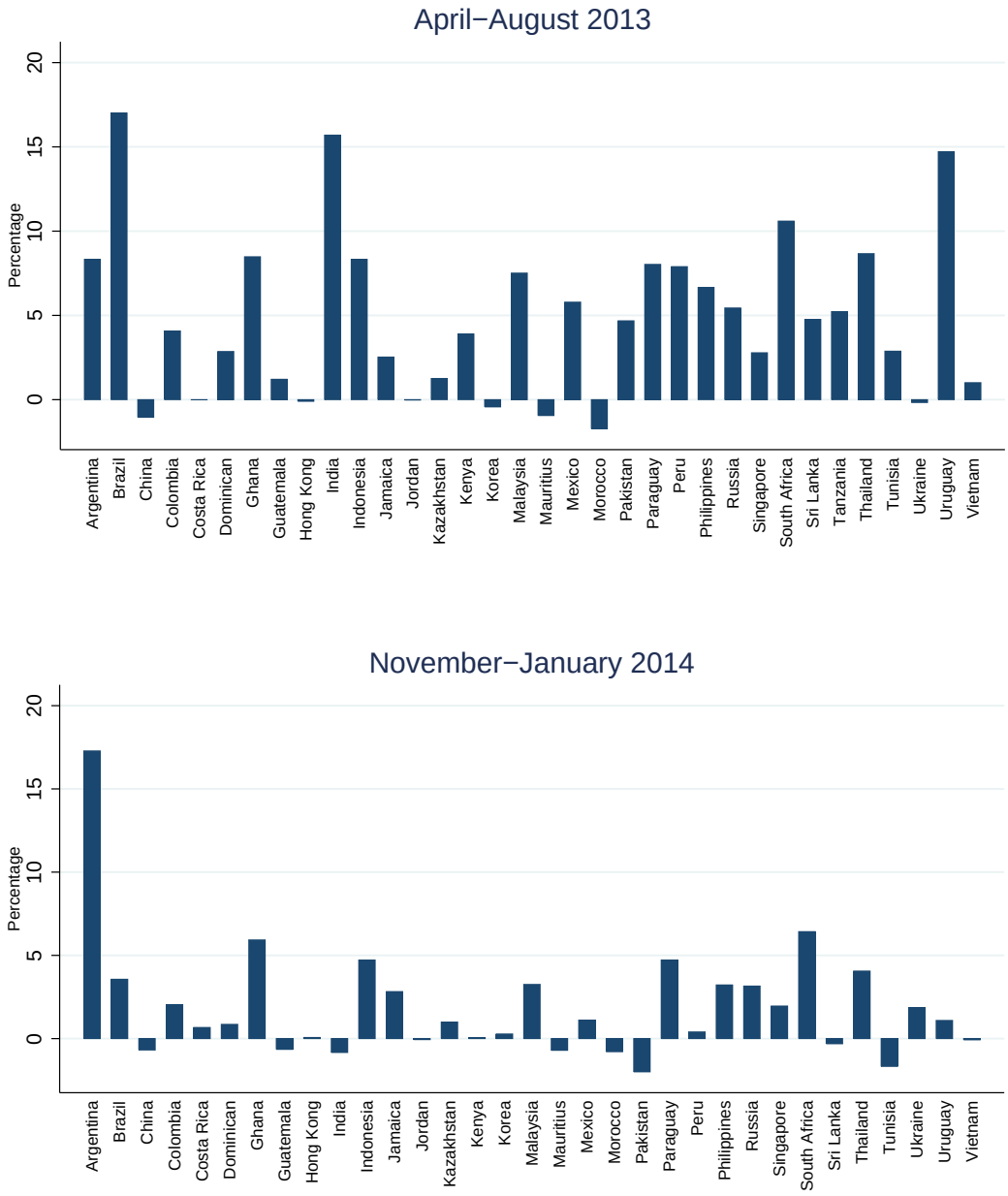
Source: Author's calculations and Haver Analytics.

Figure 2: EMBI Global Index for All Emerging Markets



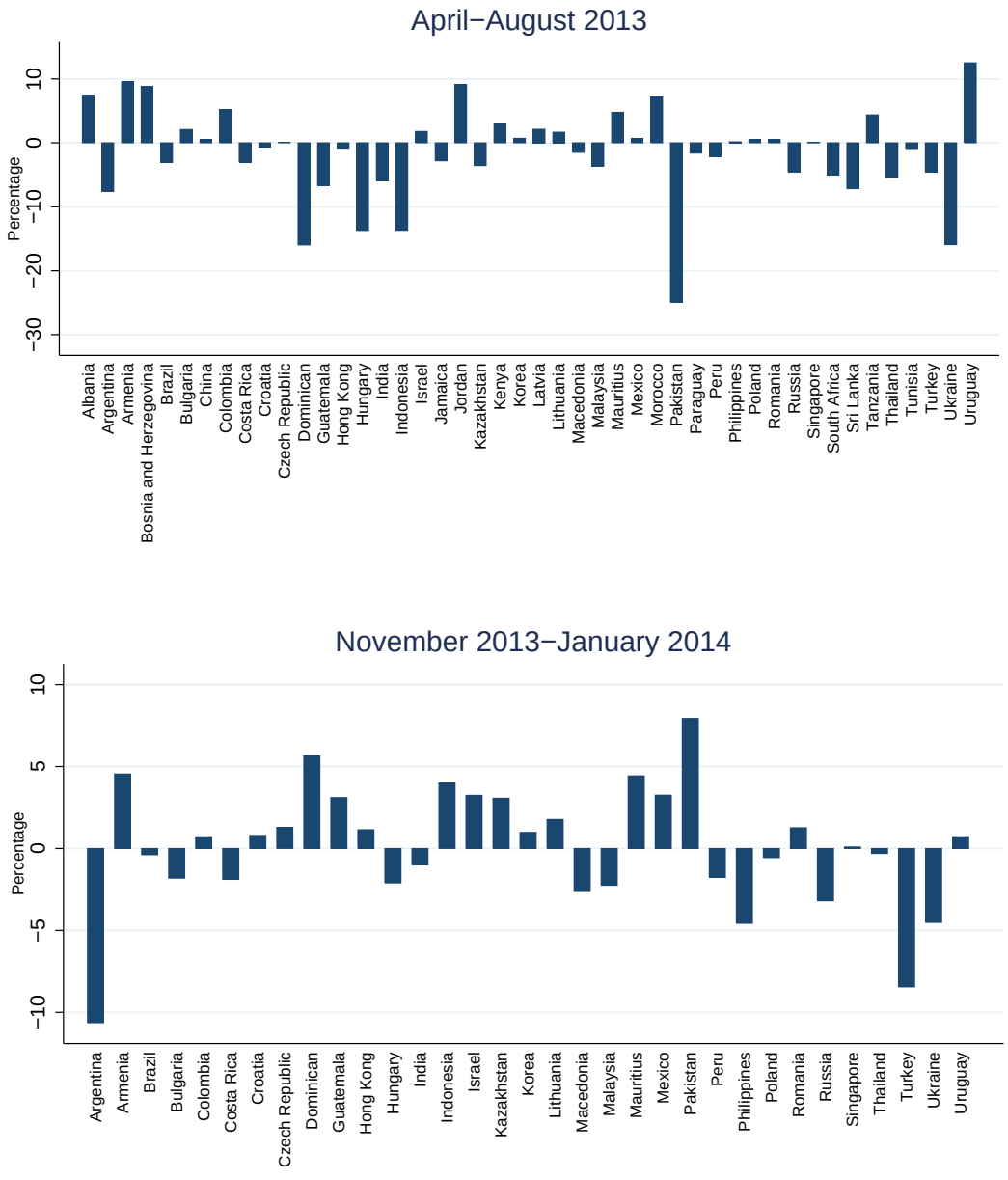
Source: Author's calculations and Haver Analytics.

Figure 3: Percentage Change in Nominal Exchange Rate for Selected Countries



Source: Author's calculations, International Financial Statistics, and Haver.

Figure 4: Percentage Change in International Reserves (Excluding Gold) for Selected Countries



Source: Author's calculations, International Financial Statistics, and Haver.

Figure 5: Market Pressure Index I (Weighted Exchange Rate and Reserves) for Selected Countries

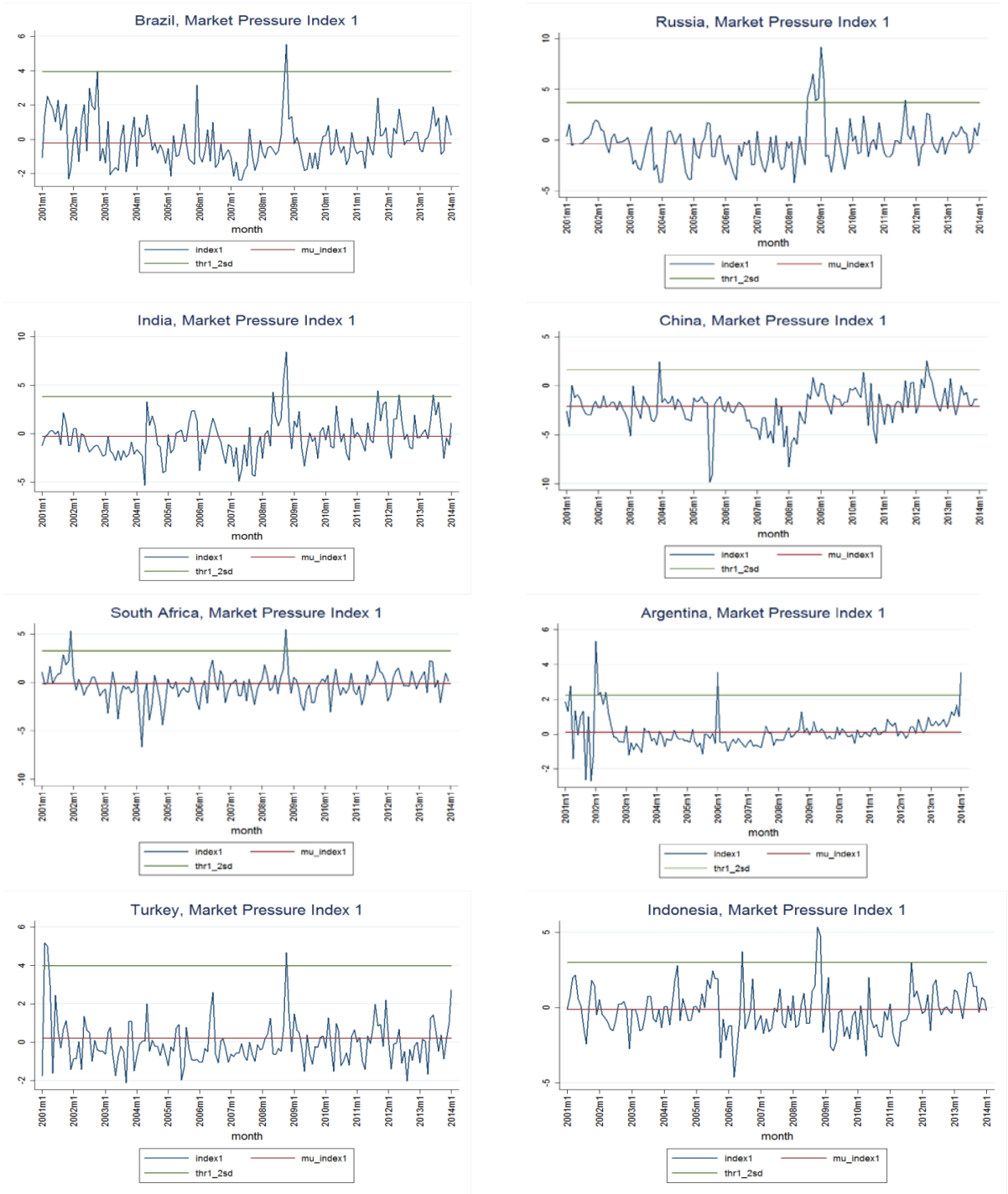
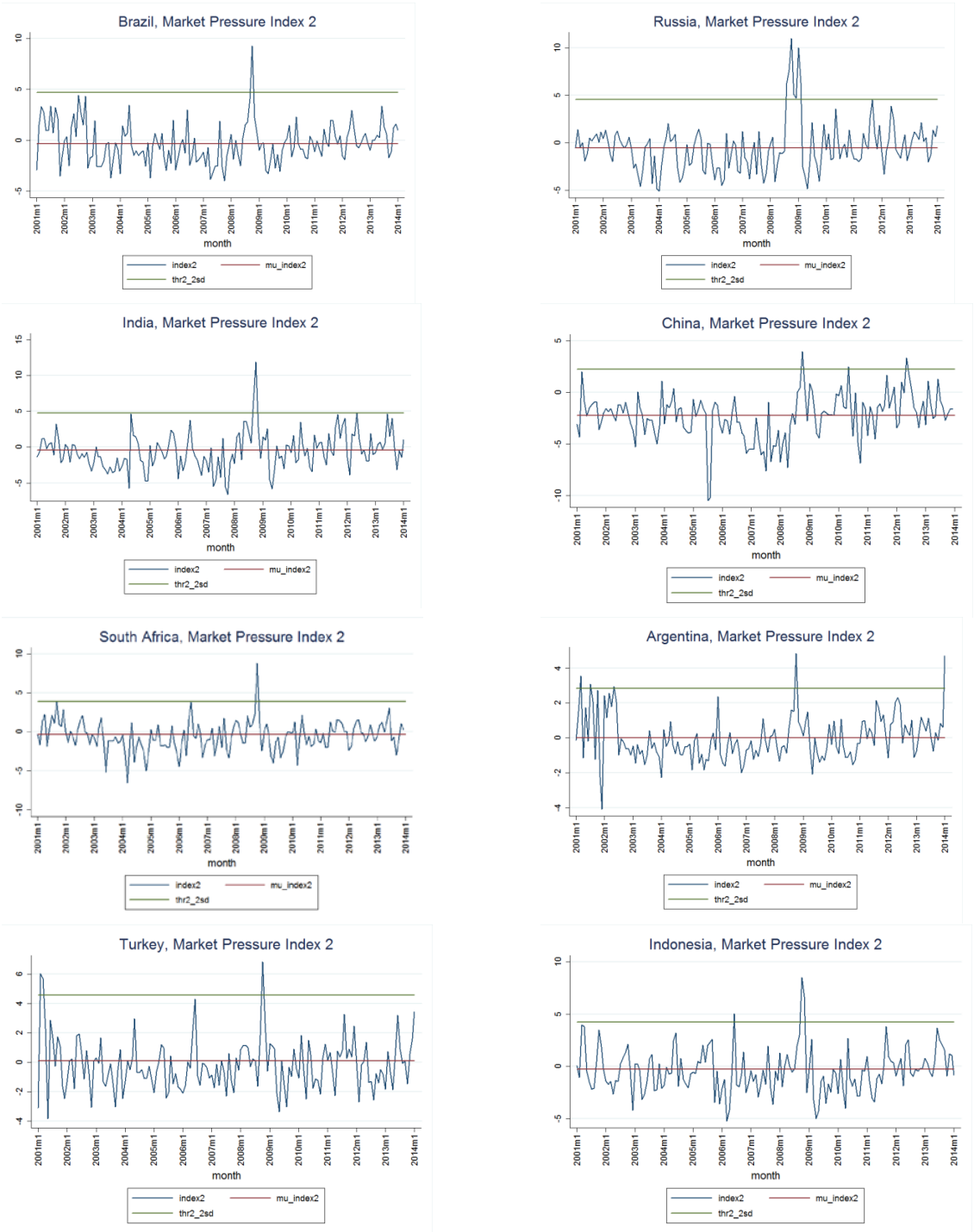


Figure 6: Market Pressure Index II (Weighted Exchange Rate, Reserves, and Stock Price Indices) for Selected Countries



Appendix

A.1 Exchange Rates During Summer 2012

As noted in Section 3, it is interesting to compare the exchange rate variations during the taper-talk period (Summer 2013) with the events from the prior year (Summer 2012) when there was financial turmoil due to the European sovereign debt crisis.

In both periods, the exchange rates of the EME depreciated. However, in contrast to the findings for Summer 2013, when I consider the variation between the same months of 2012, the same regressors (adjusted one year backwards) are statistically insignificant. I present these results in Table A-1. As I mentioned in the main text, since both periods showed similar nominal exchange rate depreciations, this would suggest that the market participants did not discriminate between countries during the "cheap-money" period but they did when the financial conditions tightened.

Table A-1: Dependent Variable: Percentage Change in Nominal Exchange Rates between April–August 2012

	(1)	(2)	(3)	(4)
ΔCA	–0.0538	–0.0535	0.129	–0.0252
	(–0.36)	(–0.34)	(1.09)	(–0.16)
ΔRER	–0.0713	–0.0314	–0.103	–0.0306
	(–0.46)	(–0.21)	(–0.77)	(–0.21)
Mkt. Capit.	–0.245	–0.209	0.0879	–0.222
	(–0.93)	(–0.81)	(0.32)	(–0.79)
Res/M_2	0.846	0.822	6.953	0.727
	(0.18)	(0.17)	(1.49)	(0.14)
ΔGDP	–0.225			
	(–0.93)			
Debt		0.00231		
		(0.11)		
Deficit			–0.579***	
			(–4.96)	
CPI				–0.0471
				(–0.27)
N	40	41	42	42
R^2	0.059	0.026	0.264	0.026

Notes: t statistics reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. ΔCA is the increase in current account balance 2010–11, over 2007–09. ΔRER is the average annual percentage change in real exchange rate, 2010–2011. *Mkt. Capit.* is the market capitalization (logs), 2011. Res/M_2 are the international reserves as percentage of M2, 2011. ΔGDP is the real GDP growth, 2011. *Debt* is the public debt as a percentage of GDP, 2011. *Deficit* is the fiscal balance as a percentage of GDP, 2011. CPI is the inflation rate (consumer prices), 2011.

A.2 Additional Weighting Options for the MPIs

As mentioned in the main text, for the MPI analysis a crucial element is the choice of the weights used for each of the components of a given index. Since each component has a different conditional volatility—for instance, the volatility of exchange rates is order-of-magnitudes greater than the volatility of reserves—an index constructed using a simple average would be mainly driven by the changes in reserves.

Therefore, in the analysis I use the so-called precision weights, in order to equalize the conditional volatilities of each component. These weights are computed by using as the weights the inverse of each component's standard deviation. In the results presented in the main text I used individual precision weights, that is, the standard deviation was computed for each country. Alternatively, I can also use pooled precision weights, where the standard deviations are computed by pooling all countries together. Finally, I also tried a third weighting alternative, where the weight of component X is equal to the inverse of X's standard deviation over the sum of inverse standard deviation of all components (for lack of a better name, I label this third method as simple weights).

In Table A-2 I present all the identified crises with the alternative weighting options.[21] From the table is clear that the findings are robust to the different weighting choices.

[21] In the table, I define a crisis as occurring when the MPI is three standard deviations above the mean.

Table A-2: Identified Crises with Alternative Weights

Country	Month	MPI # / Weights: I Pr	II Pr	I Eq	II Eq	I Pl	II Pl	Country	Month	MPI # / Weights: I Pr	II Pr	I Eq	II Eq	I Pl	II Pl
Albania	Oct-08	1		1				Lithuania	Oct-08		1		1		1
Argentina	Jul-07						1	Lithuania	Nov-08		1		1		1
Argentina	Jan-02	1		1	1	1	1	Lithuania	May-12					1	
Argentina	Feb-02			1		1	1	Lithuania	Mar-13					1	
Argentina	Mar-02			1	1	1	1	Macedonia	Jun-01			1		1	
Argentina	Apr-02					1	1	Macedonia	Oct-08	1	1		1		1
Argentina	May-02			1	1	1	1	Macedonia	Nov-08		1		1		1
Argentina	Jun-02						1	Malaysia	Sep-08			1	1		
Argentina	Jan-06	1		1		1		Mauritius	Mar-00	1	1				
Argentina	Oct-08		1		1		1	Mauritius	May-00	1					
Argentina	Jan-14	1	1		1	1	1	Mauritius	Oct-08		1	1	1		1
Armenia	Mar-09			1				Mauritius	May-10			1			
Bosnia & H.	May-06		1					Mexico	Oct-08	1	1	1	1	1	1
Bosnia & H.	Oct-08	1		1	1	1	1	Morocco	Mar-00	1					
Brazil	Apr-00					1	1	Morocco	Oct-08	1	1	1	1	1	
Brazil	Oct-02			1		1	1	Morocco	May-10			1			
Brazil	Oct-08		1	1	1	1	1	Pakistan	Jan-01					1	
Bulgaria	Mar-00	1	1					Pakistan	May-08	1	1	1	1	1	1
Bulgaria	May-00		1					Pakistan	Jul-08	1	1	1	1		
Bulgaria	Oct-08	1	1	1	1	1	1	Pakistan	Aug-08	1	1	1	1	1	1
C. Rica	May-08			1				Pakistan	Sep-08			1	1	1	1
C. Rica	Jul-08			1				Pakistan	Oct-08			1		1	
Czech R.	Mar-00	1	1					Pakistan	Nov-13					1	
Czech R.	Oct-08		1	1	1	1	1	Paraguay	Jun-02	1		1			
Colombia	Sep-08			1				Paraguay	Jul-02	1		1		1	
Colombia	Oct-08	1	1	1	1		1	Paraguay	Oct-08	1		1		1	
Colombia	Feb-09			1				Peru	Oct-08	1	1	1	1		1
Croatia	Oct-08	1	1	1	1	1	1	Philippines	Mar-00		1				
Dominican	Mar-00	1						Philippines	Oct-00			1	1		
Dominican	Aug-00					1		Poland	Oct-08	1	1	1	1	1	1
Dominican	May-00	1				1		Poland	Feb-09						1
Dominican	Jun-03					1		Poland	May-10					1	
Dominican	Jul-03	1		1		1		Romania	May-00	1					
Dominican	Oct-03					1		Romania	Aug-00	1					
Dominican	Jan-04	1		1		1		Romania	Oct-08		1	1	1	1	1
Egypt	Oct-00		1					Romania	Jan-09			1	1	1	1
Egypt	Feb-03			1		1		Romania	Feb-09						1
Egypt	Jan-13	1		1				Romania	May-10			1	1	1	1
Ghana	Mar-00	1	1					Russia	Sep-08		1				
Ghana	Apr-00	1				1	1	Russia	Oct-08	1	1		1		1
Ghana	Jul-00	1		1	1	1	1	Russia	Jan-09	1	1	1	1	1	1
Ghana	Feb-01					1		Russia	Feb-09	1		1	1		
Ghana	May-01					1		S. Africa	Apr-00	1	1				
Ghana	Feb-02					1		S. Africa	Dec-01	1				1	
Ghana	Jul-08					1		S. Africa	Oct-08	1	1	1	1	1	1

Table A-2: Identified Crises (continued)

Country	Month	MPI # / Weights: I Pr	II Pr	I Eq	II Eq	I Pl	II Pl	Country	Month	MPI # / Weights: I Pr	II Pr	I Eq	II Eq	I Pl	II Pl
Ghana	Feb-09		1		1	1	1	Singapore	Mar-00		1				
H. Kong	Mar-00	1						Singapore	Oct-08	1		1	1		
H. Kong	Apr-00	1	1					Singapore	Sep-11	1		1	1		
H. Kong	May-00	1						Tanzania	Oct-08	1		1			
H. Kong	Jan-00	1						Tunisia	Apr-00	1	1				
H. Kong	Jul-00	1						Tunisia	Oct-08		1		1		
H. Kong	Aug-00	1						Turkey	Mar-00	1	1				
Hungary	Oct-08	1	1	1	1	1	1	Turkey	Apr-00	1	1				
Hungary	May-10					1	1	Turkey	May-00	1	1				
India	Sep-08			1				Turkey	Feb-01			1	1	1	1
India	Oct-08	1	1	1	1	1	1	Turkey	Mar-01			1	1	1	1
Indonesia	Oct-08	1	1	1	1		1	Turkey	Apr-01			1		1	1
Indonesia	Nov-08	1	1	1	1	1	1	Turkey	Jun-01					1	1
Israel	Oct-08				1			Turkey	May-04						1
Jamaica	Feb-03	1						Turkey	Jun-06					1	1
Jamaica	May-00	1	1	1	1			Turkey	Oct-08		1	1	1	1	1
Jamaica	Feb-09	1	1	1	1	1	1	Ukraine	Sep-08	1	1				1
Jordan	Sep-02			1	1			Ukraine	Oct-08	1	1	1	1	1	1
Jordan	Mar-08	1		1				Ukraine	Dec-12	1	1	1	1	1	1
Kazakhstan	Oct-08						1	Uruguay	Feb-02					1	
Kazakhstan	Feb-09	1	1	1	1	1		Uruguay	Apr-02	1					
Kenya	Oct-08	1	1	1	1		1	Uruguay	Jun-02					1	
Korea	Oct-08	1	1	1	1	1	1	Uruguay	Jul-02	1		1		1	
Korea	Nov-08			1	1			Uruguay	Aug-02					1	
Sri Lanka	May-00		1					Uruguay	Feb-03					1	
Sri Lanka	Jan-01			1				Uruguay	Oct-08					1	
Sri Lanka	Jan-09	1		1		1	1	Vietnam	Jun-08	1					
Sri Lanka	Mar-09					1	1	Vietnam	Dec-09	1		1			
Sri Lanka	Mar-12	1		1	1			Vietnam	Feb-11	1		1			
Latvia	Oct-08	1	1	1	1	1	1								
Latvia	Nov-08	1		1		1									
Latvia	Jan-14	1		1	1	1	1								

Total Number of Identified Crises:	
MPI I, Precision Weights:	77
MPI II, Precision Weights:	56
MPI I, Simple Weights:	78
MPI II, Simple Weights:	58
MPI I, Pooled Weights:	75
MPI II, Pooled Weights:	62