Political stability and the effectiveness of currency based macro prudential measures

Abstract:

The use of multiple currency based macroprudential tools by Reserve Bank of India, India's central bank, has helped create resilience in the economy, especially during financial turmoil. However, in a democratic set-up like India, the analysis of capital based macroprudential reforms needs to incorporate the political stability, as there is increasing evidence that macroprudential policy effectiveness is closely linked to political conditions. This study incorporates the role of political stability is understanding the effectiveness of currency based macroprudential policies, by using the years of election as a proxy for political uncertainty. I develop an index of capital based macroprudential policies (CMPP) using the notifications on capital flows and risk management guidelines on foreign exchange exposures from Reserve Bank of India. Using a GARCH model, the impact of CMPP on the net capital inflows is analyzed for the period from January, 1997 to March, 2018. I find that while the presence of CMPP leads to a fall in capital flow volatility, such policies in the years of election are ineffective in curbing capital flow volatility. The paper adds to the increasing evidence coming in recent years of the link between political cycles, interest groups and macroprudential policies.

I. Introduction

India, like other emerging market economies, have stood at the fore-front in the use of capital based macroprudential policies. The use of multiple currency based macroprudential tools by Reserve Bank of India, India's central bank, has helped create resilience in the economy, especially during financial turmoil. However, capital based macroprudential policies are not just any policies

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but play an important role in electoral politics. For most emerging market economies including India, liberalization or controls on the capital account are as much a political question as an economic one. That said, there are very few studies on which incorporate the role of political stability in study of macroprudential policy effectiveness. This paper incorporates the role of political stability in the study of capital based macroprudential policy effectiveness. I find that political instability (proxied by the year of election) hampers the effectiveness of currency based macroprudential policies.

Emerging market nations, intensely vulnerable in a global stage of financially developed economies with free capital accounts, have always used some form of macro prudential measures to safeguard their economies. This is not surprising given the set-backs experienced by these economies from financial crises and they can be called 'pioneers' of macroprudential policies (Aguire and Repetto, 2017). Capital and currency based policies form an important part of macro prudential policies. The role of capital based macro prudential policies in creating resilience in emerging market economies is widely acknowledged in literature (Jeane, 2012, Korneik, 2013, Erten & Ocampo, 2017, Aguirre and Repetto, 2017).

The importance of capital controls for an emerging economies like India and its effectiveness have come up in speeches (Rajan, 2016), discussion papers (Patnaik & Shah, 2012), and select empirical studies (for example, Pandey et al., 2015, Hutchison et al., 2012). In 1999-2000, with the incorporation of FEMA, India took important steps towards freeing up the capital account. However, concern with sharp surges or declines of capital flows led to the legal framework for re-imposing controls being maintained (Patnaik & Shah, 2012). India's capital account management framework emphasized non-debt creating long term capital inflows and discouraging debt flows,

with a use of both price and quantity based controls, as well as direct administrative measures (Chakrabarty, 2014, BIS, 2017)

While emerging market nations use capital controls frequently the effectiveness of such policies depends on the political process and stability in emerging market nations. There is evidence in economic literature on political business cycles influencing policies (Alesina et al, 1992; Chauvet and Collier, 2009), as well as the impact of political instability on economic variables, like aid effectiveness (Chauvet and Guillaumont, 2003). Müller (2019) show macroprudential policy is lax in the run-up to elections, especially those which are likely to have uncertain outcomes. Thus the successful implementation of macroprudential policies not only require the early knowledge of systemic risk, and tools but also strong political support and 'reputation for impartiality' , which can make the tools effective (Danielsson and Macrae, 2016).

For currency based macroprudential measures this is all the more pertinent. In India, like other emerging market economies, political parties remain divided on how much of capital controls (or opening up) is required and may frequently change stance on the same, depending on whether they are the incumbent government or in opposition (Suri, 2004). Capital controls may lose weightage in an atmosphere of uncertainty. Additionally, the foreign investors are likely to more jerky to signals of political uncertainty than domestic players. Especially, in years of election neither the continuation of same set of policies in near future nor the stance of the Government to capital controls is certain. The incumbent Government is likely to be tentative with new policies and /or untested measures as well as keen to avoid volatility of capital flows in the years of election. It is likely therefore that effectiveness of capital account policies will be closely related to the political stability in the country.

However, to the best of our knowledge, there has been no consideration of the impact of political stability on effectiveness of macroprudential policies, especially capital based macro potential measures (CMPP). Using a GARCH framework this paper studies the effectiveness of capital based macro prudential measures for the Indian economy for the period January, 1997- March, 2017, incorporating political conditions.

One of the major challenges in the studying the impact of CMPP is to quantify the macro prudential policies for empirical modelling (Pandey et al., 2015). In this paper, I develop an index of CMPP, based on the notifications from Reserve Bank of India, India's central bank, covering outward flows of capital, inward flows of capital and risk management guidelines on foreign exchange exposures. These measures have not previously been considered in framing a CMPP index for India. Further acknowledging the role of political stability in influencing the effectiveness of such macro prudential measures, I introduce an interaction variable to reflect the strength of policies in the years of new government formation. The year of the election is taken as the dummy variable and the interaction of this variable with CMPP forms an independent variable reflecting the strength of macro prudential policies in the year of new government formation, CMPPOL.

I find a statistically significant negative impact of capital based macro prudential policies, CMPP, on net capital inflows. There is a strong statistically significant negative impact of tightening policies on net capital inflows. Looking at the impact of the interaction variable, CMPPOL, on volatility of capital flows, it is seen that the presence of macro prudential measures in the years of new government formation leads to increase in net capital inflows. Further, while the presence of macroprudential measures lead to a fall in capital flow volatility (though I do not find the impact to be statistically significant) and presence of such policies in years of election lead to a sharp,

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statistically significant increase in volatility of capital flows. The findings imply that while currency based macroprudential policies are effective in curbing capital flow volatility, a close look at the political stability is necessary. We find that the effectiveness of capital based macroprudential policies is hampered by the political instability in the country.

The rest of the paper is organized as follows. Section II discusses the existing literature and theoretical construct for the study. Section III details the methodology and Section IV discusses the findings and its implications.

II.   Theoretical construct and Review of Literature

The term "macroprudential" goes back in history: as pointed out by Galati & Moessner (2010) the term came up with reference to regulation and supervision linked to macro economy in the 1970s in unpublished documents of the Cooke Committee (seen as a predecessor to the Basel guidelines). By 1980s public references to macroprudential policies became frequent, seen as policy aimed at safety and soundness of the financial system as well as its payments mechanism (BIS, 1986, Galati & Moessner, 2010).

Macroprudential regulation address the systemic risks brought about by independent individual risk-taking by financial institutions. Essentially then such measures go beyond the individual financial institution risk perspective to address the system wide impact and spillovers to rest of the economy (Aguirre & Repetto, 2017). The role of macroprudential policies is important as monetary policy alone cannot address instability. Interlinkages in the macro economy makes it imperative that the economy wide regulations are put in place to stem excessive credit growth. These policies address financial instability by resorting to countercyclical ability of credit growth. Systematic risk buildup comes from financial institutions becoming aggressive risk-taking leading

to buildup of leverage as well as the interconnectedness of financial institutions leading to the spread of counterparty risk and liquidity crunch (Verma, 2018).

Macro prudential policies are important as they prevent financial instability which is wasteful, given that it can adversely impact the consumption and investment decisions and lead to misallocation of funds (Crockett, Ibid). These regulations aim at the stable provision of "financial intermediation services – payment services, credit intermediation and insurance against risk – to the economy" to prevent the debilitating impact of credit and liquidity crunches that accompany typical boom-bust cycles (Bank of England, 2009).

The importance of the use of macroprudential regulation in addition to micro-regulation of banks and financial institutions was brought home by the Global Financial Crises (Nachane, 2014).With the global economic crisis there has also been growing understanding of the role of macro prudential policies for emerging market nations and how it has helped emerging market nations remain resilient in the face of crisis (Metzger & Taube, 2010, Aguirre and Repetto, 2017). Emerging market nations have been active in use of macro prudential measures to safeguard their economies. This is not surprising given the evidence of volatility of capital flows to EMEs. Globally, the volatility of capital flows mean that EMEs with thin markets face flows which far exceed their absorptive capacity, leading to a major systemic threat to these nations (Turner, 2012, Ghosh et al, 2017).

Capital and currency based policies form an important part of macro prudential policies (Aguirre & Rebetto, 2017). Capital controls have played a role in creating a resilience in the emerging markets' financial system (Jeane, 2012, Korneik, 2013, Erten & Ocampo, Ibid) and the central bank supervision framework in existence in EMEs like Brazil, India and South Africa have

contributed to effective crisis mitigation (Metzger & Taube, 2010). The positive role of capital-based restrictions for emerging market economies is also reflected in the changing stance of IMF on capital controls (Erten & Ocampo, 2017). Again, while capital flows are often seen as another tool in the entire macroprudential policy regulation kit, Korneik, (2013) shows that Macro Prudential Policies and Capital Based Policies are indeed complementary. While capital controls differentiate on the basis of residency in financial transactions, macroprudential policies constrain borrowing by domestic entities irrespective of whether such credit is provided by domestic or foreign creditors.

While India has been tepid in its opening up of the economy, the 1999 liberalization measures, following IMF guidelines, saw restrictions on current and capital account being eased. As part of the structural reforms, while the current account was made fully convertible, the restrictions on capital account continued (Patnaik & Shah, 2012). In 2000, with incorporation of FEMA, the capital account liberalisation started. However, restrictions remained within the modified framework. The reason for having capital controls came from the concerns over the vulnerabilities of 'market determined rate' as well as sharp capital movement (Patnaik & Shah 2012, Reddy, 2004). India has been seen to be more conservative on the capital account openness than other EMEs (Pattaniak & Shah, Ibid). India's capital account management framework has rested on encouraging non-debt creating long term capital inflows while discouraging debt flows, limiting of excessive dollarization of balance sheet of banks while opening up for outward investments (Chakrabarty, 2014).

While controls were eased further after 2006, India did not eliminate them altogether. The caution with regard to the capital flows have remained in the last ten years and have helped India to be

resilient even during the global financial crisis (BIS, 2017). For example, while important controls like those on sector specific limits on foreign investment, entity specific caps and restrictions on External Commercial Borrowing have been eased over time, regulation have been enhanced ('tightened') or decreased ('loosened') depending on the particular situation. For example in response to the constrained credit conditions post the onset of the global downturn in 2008-09, the all-in-cost ceilings under the approval route were removed for greater ease in accessing ECBs. The ceilings were re-imposed when credit market conditions improved (BIS, Ibid).

In this context, the then Governor of RBI, Dr. Rajan's speech sums up the policy stance and concerns carefully. Speaking at the Columbia Law School (New York, April 2016), Dr. Raghuram Rajan, emphasized while RBI allows capital inflows, it intervenes to curb excess volatility associated with capital flows, which also has a destabilizing impact on the exchange rate. While caps in place for different sectors receiving foreign investment have been liberalized over time, during taper tantrums "soft capital account measures" were used as needed. During the taper tantrums capital flow measures included direct administrative measures for reducing external outflows (by raising limits on outward investment), and incentivizing inflows (through Foreign Currency Non-Resident deposits) (BIS, 2017).

However, there are few quantitative studies on the effectiveness of macroprudential measures for India. Patnaik & Shah (Ibid) show that restrictions, in early 2000, reduced to an extent the surge in capital flows, but it could not prevent real exchange rate appreciation, ensure monetary policy autonomy or prevent a credit boom. Pandey et al. (2015) examined the impact of capital controls on exchange rate movement and variables reflecting macroprudential objectives like money supply, gross capital flows, stock price return, private bank credit growth and foreign borrowing.

The paper finds no evidence of any impact of capital controls on most of the variables under study, including capital flows.

Given the breadth of the macroprudential policies, there is a paucity of empirical studies on quantitative analysis of the effectiveness of these policies. I add to the evidence on effectiveness of capital based macroprudential measures but with an added dimension of political stability. In emerging economies like India, liberalization measures need to be considered alongside the political economy. Since the 1990s, when liberalization or economic reforms were started, elections have had reforms as an agenda both at center and state (Suri, 2014). Suri (2014) points out that parties differ on the how liberalization measures or reforms would be implemented or extent of controls. Moreover, parties in opposition criticize policies of the incumbent government, even when they have followed the same policies when in power (Suri, Ibid). This is also underscored by evidence of election year targeting of special-interest groups in India (Khemani, 2004).

An essential feature of democracies is the close interaction between political processes and economic polices (Alesina et al, 1992). 'Political business cycles' suggest that economic policies may be influenced by political process, especially elections in a country (Alesina et al, 1992; Chauvet and Collier, 2009). Elections can be events that disrupt policies as they bring about 'frictions' in the process (Chauvet and Collier, Ibid). Political business cycles, in fact, strongly impact macroprudential policies: changes in macroprudential tools exhibit a systematic electoral cycle (Müller, 2019). Such electoral cycles are more influential during economic booms, as during economic booms the crisis period seem distant to the collective memory of the nation. This can jeopardize macroprudential tools which are required to be countercyclical. This effectiveness of

macroprudential policies may be dampened just prior to elections especially if the outcomes of the elections are uncertain (Müller, Ibid), as is the case majorly in democratic set-ups.

Thus strong political support base of the Government, may be a necessary condition for successful implementation of macroprudential policies (Danielsson and Macrae, 2016). In this context, Bengtsson (2019) shows that political pressure and interest groups severely undermined the impact of macroprudential policy in European Union (EU). The paper finds that in countries where banking systems are dependent on domestic banks, there is weakened policy stance from the government, as opposed to countries with financial systems characterized by greater market shares of other financial intermediaries.

A stable political front means more certainty and therefore policy decisions are likely to be more effective. While policy stability is an ambiguous term, it can be proxied by the year of elections in a democratic country. The years of election, I argue, are likely to be years of more political uncertainty and uncertainty in policy decision. As the prior government is unsure of the outcome of the election, they will be cautious in bringing in new policies and the new government that comes in, will be eager to implement policies according to the political agenda set by the election process. As it is difficult to know who would form the government and whether or not such government will be stable, the year would be marked by policy uncertainty, in the best of times, and policy paralysis, in the worst of times. The year of election may also see appeasement and lax policies by the incumbent government contributing to policy uncertainty. This means that considering macroprudential policies without paying heed to the political conditions at that point of time is misleading. While the impact of political instability on economic variables has remained in focus in economic literature (Burnside and Dollar, 2000; Chauvet and Guillaumont, 2003), to

the best of our knowledge, there has been no consideration of the impact of political stability or policy decisions on effectiveness of capital based macro potential measures (CMPP).

The gap in existing literature thus comes from the lack of consideration of political conditions in the analysis of macroprudential policies. The paper adds on to the existing literature in two important ways. First I introduce political stability as a factor which impacts effectiveness of capital based macroprudential policies, not so far attempted in the Indian context. For an emerging market nation like India, the signals of political strength from the incumbent Government are likely to be important to foreign investors and in determining the effectiveness of currency based policies in containing financial flow volatility.

Secondly, I use an index for CMPP derived from the policies given by the India's central bank, not attempted previously, to the best of our understanding. The notifications on various aspects of capital based macroprudential policies coming from the Foreign Exchange Department, RBI, has been used to construct the quantitative index.

III. **Data and Methodology**

This paper explores the impact of Capital Based Macro Prudential Policies on the movement and volatility of capital flows. One of the major issues with studies on the impact of Macro Prudential policies is the quantification of such policies (Pandey et al. 2015). Zhang and Zoli (2016) construct aggregate indices of macroprudential policies and capital flow measures summarizing all different policies over the period of study. The IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) has been primarily used by Forbes et al. (2015) to document changes in capital flow measures. Pasricha (2012) and Pandey at al. (2015) improves upon this methodology by incorporating information on capital controls from regulator's website and

looking at the legal aspects of regulations for better interpretations (Pandey at al., 2015). Pandey et al (Ibid) focuses on foreign borrowing related capital controls, and do not cover all aspects of capital based macroprudential policies in their paper.

A. **Data Source:** I have used the notifications from Reserve bank of India to build the database for this paper. While the data on the capital based policies is available from the Reserve Bank of India in the form of notifications, the framing of quantitative index requires going through the notifications individually to understand the direction and accordingly quantifying them. I look at the notifications of RBI for over a period of 20 years to build up the capital based macro prudential policies index, CMPP representing three aspects of such policies: outward flow of capital, inward flows of capital and risk management guidelines.

For the entire time period considered, I go through all the notifications that are given by the Foreign Exchange Department of the Reserve Bank of India with reference to the above mentioned three categories. The presence of one or more notifications in a month in any category is assigned the value of -1 or +1, according to whether they are meant to curb capital flows or encourage capital flows respectively. Thus any *change* in degree of tightening or loosening of capital flow measures in a particular period with reference to each of these categories is captured by the index. This represents a better methodology than looking at the presence or absence of regulations. In case of presence of both kinds of policies, that is curbing capital flows and encouraging capital flows, I categorize based on the strength of each type of policy. If the policies have an overall impact of 'loosening', the dummy variable assigned is -1, while if they have an overall impact of 'tightening', the dummy variable assigned is +1. The index, CMPP, therefore is a categorical variable has a

range from -3 (when loosening policies have been brought in by RBI in all the three areas) to 3 (where tightening policies in all three areas have been imposed by RBI).

To incorporate the role of political stability I introduce a dummy variable for election years. In a democratic country like India, years in which elections are held are marked by heightened political uncertainty as a new government may differ substantially from the previous one in terms of their agenda on encouraging foreign capital flows. India's tepid steps towards liberalizing its capital account and the political concerns with the liberalization add credence to this idea. Our model therefore has an interaction term, CMPPOL, obtained by multiplying the dummy for election years (one for the year of central government election and zero for the year of no election) with the CMPP. The resulting variable represents Capital-Based Macro Prudential policies in the years of political uncertainty.

B. Variables and Econometric techniques: I explore how capital-based macro prudential measures (CMPP) impact capital flows. I analyze the impact of CMPP and CMPPOL on net capital inflows with variables inflation, interest rate, industrial production index, and exchange rate taken as controls.

For analyzing the impact of CMPP on net capital inflows and its volatility, I use the GARCH framework. As data on select control variables is not available at daily frequency, I use monthly data for the study.

The basic regression model with GARCH (1, 1) errors is

$$CAP_t = \alpha_0 + \alpha_1 CMPP_t + \alpha_2 \text{CMPPOL}_t + \alpha_3 \overline{VAR}_t + \varepsilon_t \quad \text{...................... (1)}$$

$$\varepsilon_t | I_{t-1} \sim N(0, h_t) \quad \text{....... (2)}$$

$$h_t = \delta_0 + \delta_1 CMPP_t + \delta_2 CMPPOL_t + \delta_3 \overline{VAR}_t + \varphi\varepsilon_{t-1}^2 + \delta h_{t-1} \ldots\ldots\ldots\ldots \ (3)$$

Where,

CAP= Capital flows measured by Net Investments By FIIs in the Indian Capital Market as a proportion of the Total turnover in NSE (National Stock Exchange) and BSE (Bombay Stock Exchange)

CMPP= Currency based macro prudential policy (categorical variable)

CMPPOL= Interaction term CMPPOL, obtained by multiplying the dummy for election years (one for the year of central government election and zero for the year of no election) with the CMPP

$\overline{VAR}$ is a set of control variables consisting of Inflation (INF), Interest rate (INT), Industrial Production Index (IIP) and Exchange rate (EXR).

Equation (1) measures the effect of CMPP on capital flows movement; equation (2) states that regression residuals will be modeled as a GARCH process; and equation (3) describes the conditional variance.

IV.   Findings and Conclusion

To understand the impact of capital-based macro prudential policies and political stability on capital flows, the paper uses the GARCH framework to analyze net capital inflows. The monthly time series data was subject to unit root tests [Augmented Dickey-Fuller (ADF]. The results are presented in Table 1. The hypothesis of presence of unit root cannot be rejected in case of the control variables (EXR, IIP, INF) and the first differenced series is used for the said variables. For other variables the hypothesis of unit root is rejected as shown in Table 1. Before running the GARCH model, the appropriateness of using GARCH is tested. I regress FII on the set of

independent variables and test for ARCH effects, rejecting the null hypothesis of no ARCH effects at 5 % level of significance, as shown in Table 2 a & b and Graph 1.

Table 2 (c) reports the coefficients of the conditional mean and conditional variance equations for the GARCH model with robust standard errors. I see that the GARCH model is significant and the WALD statistic is significant. The conditional mean equation for monthly data shows that the presence of Capital-Based Macro Prudential Policies leads to a fall in net capital inflows, as targeted by such policies. The impact, as we can see from the table is statistically significant. Moreover it is also seen that the presence of such policies in years of election lead to an increase in net capital inflows. The seemingly opposite impact for the years of election can be easily understood in the context of the new policy initiatives taken by the government that comes to power in the election year. It means that tightening measures do not have the expected reduction in capital flows and policies initiatives attract more capital. As expected it is seen that depreciation of exchange rate is negatively link to net capital inflows, and index of industrial production is linked positively to net capital inflows. It is seen that interest rates are linked negatively to net capital inflows, which may in fact reflect the discount of exchange rate in the forward market. Interest differential would lead to an increase in capital flows only when it exceeds the premium on the foreign currency. Given the sharp negative impact of depreciation on capital flows, the explanation for the lack of responsiveness of capital flows to interest rate lies in the significant premium on the US dollar in the USD/INR forward market. It can be seen that exchange rate and interest rates have a statistically significant impact on net capital inflows.

The het equation shows that volatility is modelled well by the variables. It can be seen that the presence of Capital Based Macro Prudential Policies in the years of election lead to an increase in

capital flows volatility. The impact is statistically significant. Thus, while years of election make the tightening of CMPP measures not so effective and lead to an increase in capital flows, the volatility of such capital flows is also much higher, as global investors lack the confidence in the political stability of the country. CMPP is ineffective in years of election in curbing volatility due to the increase in political instability. It may be noted here that the sign of the coefficient of CMPP is negative (but not statistically significant), suggesting that the impact of tightening measures on capital flow volatility is negative. It can also be seen that exchange rate depreciation leads to a fall in capital flows volatility which implies that depreciation leads to sharp falls in the capital flows, and the heterogeneity of movement of capital flows is also reduced. The sum of the ARCH and GARCH coefficients is positive, significant, it satisfies standard tests of robustness.

The findings in this paper are in line with findings of earlier research, in the international context, which have shown capital based macroprudential measures can be an effective policy for emerging market nations (Zhang & Zoli, 2016, Erten & Ocampo, 2017, Aguirre and Repetto, 2017). However, the findings underline the importance of considering the political conditions for understanding the efficacy of Capital Based Macro Prudential Measures. The paper thus adds to the increasing evidence coming in recent years on the link between political cycles, interest groups an macroprudential polities (Danielsson and Macrae, 2016; Müller, 2019; Bengtsson, 2019) Our results suggest Capital Based Macro Prudential Policies fails to be effective in the years of election. The explanation as to why that should be, lies in the political uncertainty that is brought about by the years of election in a democratic setup.

In the Indian context, an important role is played by its central bank, Reserve Bank of India, in building resilience in the economy through use of macroprudential tools. In fact, the strength of

the Indian economy in the yeas of global financial crisis underline the effectiveness of using multiple macroprudential tools and closely monitoring the macroprudential policy impact. However the efforts of the central bank can be undermined by instability in the years of election, given the strong signaling impact of political uncertainties on foreign investors. The findings suggests that the central banks can opt for tools like direct administrative measures for such difficult years. Once the problem of uncertainties with change in government is identified, it becomes easy for the central bank to devise newer policies and tweak existing ones for years characterized by political instability.

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Tables
Table 1: Results of Unit Root Tests

Variable	Test	Test statistic value	Decision : Null Hypothesis
IIP	ADF		NOT REJECT*
	Trend	-11.329	
	Drift	-1.621	
INF	Non-constant	0.936	NOT REJECT*
	Trend	-1.142	
	Drift	0.054	
INT	Non-constant	9.932	REJECT
	Trend	-6.51	
	Drift	-6.524	
EXR	Non-constant	-1.065	NOT REJECT*
	Trend	-1.444	
	Drift	-0.937	
CMP	Non-constant	2.234	REJECT
	Trend	-13.776	
	Drift	-13.599	
CMPPOL	Non-constant	-9.461	REJECT
	Trend	-11.127	
	Drift	-11.146	
FII	Non-constant	-10.551	REJECT
	Trend	-10.481	
	Drift	-10.43	

Source: Authors' estimates

Critical values for the tests:

Test		1% critical value	5% critical value	10% critical value
ADF	Trend	-2.589	-1.950	-1.616
	Drift	-4.011	-3.439	-3.139
	Non-constant	-2.347	-1.653	-1.286

Table 2: **Results of GARCH estimation**

Table 2 (a): Results of linear regression					
FII	Coef.	Std. Err	z	P>|z|	
CMP	-0.005	0.002	-3.150	0.002	**
CMPPOL	0.004	0.003	1.370	0.172	
IIP	0.033	0.018	1.830	0.068	

Published version:
Roy Trivedi, S (2020), Political Stability and the Effectiveness of Currency Based Macro Prudential Measure, *Asia-Pacific Financial Markets* (29th September, 2020)
https://link.springer.com/article/10.1007/s10690-020-09323-3

INF	0.087	0.146	0.590	0.554	
INT	-0.656	0.075	-8.720	0.000	*
EXR	-0.003	0.004	-0.830	0.408	
_cons	0.016	0.007	2.420	0.016	

Source: Authors' estimates

Table 2 (b):			
LM test for autoregressive conditional heteroskedasticity (ARCH)			
lags(p)	chi2	df	Prob > chi2
1	19.053	1	0.000*
H0: no ARCH effects vs. H1:ARCH(p)			

Table 2 (c): Results of GARCH estimation					
FII	Coef.	Std. Err	z	P>|z|	
CMP	-0.003	0.001	-2.030	0.042	**
CMPPOL	0.005	0.002	2.130	0.034	**
IIP	0.021	0.015	1.420	0.154	
INF	-0.049	0.091	-0.540	0.592	
INT	-0.547	0.071	-7.660	0.000	*
EXR	-0.008	0.002	-3.280	0.001	*
_cons	0.024	0.005	4.980	0.000	
HET					
CMP	-0.473	0.497	-0.950	0.341	
CMPPOL	3.853	1.389	2.770	0.006	**
IIP	2.876	1.948	1.480	0.140	
INF	-35.297	51.351	-0.690	0.492	
INT	-81.390	30.011	-2.710	0.007	**
EXR	-0.268	0.681	-0.390	0.694	
_cons	-11.212	1.518	-7.390	0.000	
arch	0.090	0.041	2.210	0.027	**
garch	0.856	0.035	24.580	0.000	*

Source: Authors' estimates

Graph 1: Standardized residuals

Source: Authors' estimates