The Practice of Cross-Border Capital Flow Management Framework in Emerging Market Economies and Its Implications for China's Financial Opening-Up

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Abstract: After entering the era of globalization, the procyclical fluctuation characteristics of cross-border capital flows have brought great challenges to the macroeconomic and financial stability of various countries. However, there is still a lack of quantitative research support on how to design and implement more effective cross-border capital flow management policies for emerging market economies and the international community. This paper selected panel data samples of 16 emerging market economies from the first quarter of 2001 to the fourth quarter of 2012, incorporated panel data fixed effect model and Logit fixed effect model, and found through empirical analysis based on the research of Ghosh et al. (2017), Emerging market economies have been actively using policy tools to manage capital flows counter-cyclically after the financial crisis. At the same time, the intensity of implementation of traditional macroeconomic policies and non-traditional instruments is different due to capital flow, capital type and national income level.

Keywords: Cross-Border Capital Flow; Macroprudential; Capital Control

Introduction and literature review

Large fluctuations in capital flows can increase systemic risks in the financial system (Furceri et al., 2011; Caballero, 2012) and the possibility of economic crisis (Reinhart, 2008). Emerging market economies have two traditional macroeconomic policy tools: monetary policy and fiscal policy, and two non-traditional tools: prudential policy and capital controls. Existing literature studies a single policy tool, this paper comprehensively analyzes policy practice. Existing studies are based on samples of countries at different stages of development or samples of individual countries. This paper chooses to study emerging market economies. Ghosh and Qureshi (2016) found that prudential policies intervened more heavily in portfolio flows and other investment flows than FDI flows. Capital inflow management is conducive to improving the independent effectiveness of monetary policy and alleviating the pressure of exchange rate appreciation. Existing literatures are mostly based on the inflow perspective. Subsequently, in the crisis era, the net outflow of capital from emerging market economies has been increasingly active in the outflow perspective. For prudential measures and capital controls, two discrete policy variables, the existing literature mostly uses annual data, and high-frequency data analysis has begun to capture the subtle changes of policies in recent years. Domestic and foreign studies differ in model setting, data frequency selection and policy variable measurement, and no consensus has been reached. Therefore, it is necessary to further verify how emerging market economies practice various cross-border capital flow management policies.

Study design and data description

In this paper, quarterly data samples of 16 emerging market economies from Q1 2001 to Q4 2012 were obtained and processed

from multiple sources. Including: Argentina, Brazil, Chile, China, Colombia, Indonesia, India, South Korea, Mexico, Malaysia, Peru, the Philippines, Russia, Thailand, Turkey, South Africa. Data include key variables, global macroeconomic variables, and domestic control variables. Refer to Ghosh et al. (2017) to incorporate the fixed-effect model and Logit fixed-effect model respectively according to the types of policy variables to study the policy response. The empirical analysis model is set as follows:

1. Traditional macroeconomic policy tools: fixed-effect models

$$Y_{it} = \alpha + \beta_1 CF_{it-1} + \sum_{j=1}^{J} \delta_j G_{jt} + \sum_{k=1}^{K} \gamma_k C_{kit} + \beta_2 D_n + \mu_i + \varepsilon_{it} \qquad (1)$$

Is the macroeconomic policy response of country i in period t (exchange rate policy: foreign exchange reserves /GDP, monetary policy: interest rate spread); Refers to the capital flows in the previous period (net capital inflow, total capital inflow and total capital outflow, including foreign direct investment, portfolio investment, derivative investment and other investment capital flows). Are macroeconomic global factors (Federal Reserve interest rate, US economic growth rate, global economic volatility (VIX index), US dollar index); Is the domestic control variable (bank credit growth rate); Is the dummy variable of financial crisis, is the fixed effect of economy; Is the random error term.

2. Non-traditional measures: Logit fixed effect model

$$Pr(PC = 1)_{it} = F\left(\alpha + \beta_1 CF_{it-1} + \sum_{j=1}^{J} \delta_j G_{jt} + \sum_{k=1}^{K} \gamma_k C_{kit} + \beta_2 D_n + \mu_i + \varepsilon_{it}\right) \quad (2)$$

Is a binary variable of the intensity change of non-traditional measures. The tightening of prudential measures is based on changes in the seven types of prudential measures provided by Akinci and Olmstead-Rumsey (2015). If the seven types of prudential measures are tightened or implemented cumulatively in a given quarter, the tightening variable of prudential measures is 1, and the rest is 0. The tightening of control over net capital inflow is based on the weighted control data of capital inflow and outflow in Pasricha et al. (2015). If the weighted control is tightened or implemented in a quarter, the tightening variable of control over net capital inflow is set as 1, and the other variables are set as 0. Other variables are defined as in Model (1).

Measurement results and analysis

Based on Formula (1) and (2), the measurement results are shown in Table 1.

Table 1 Regression results of fixed effect model of traditional macro policy and Logit model of fixed effect of non-traditional measures

	Foreign exchange intervention			Monetary policy			Tightening of macroprudential measures		Tightening of capital controls	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Net capital inflow	0.70***			-0.19***			0.06*		0.05**	
	(0.06)			(0.05)			(0.03)		(0.02)	
Total capital inflow		0.68***			-0.20***			0.04		0.07*
		(0.07)			(0.06)			(0.03)		(0.04)
Total capital outflow		-0.69***			0.15**			-0.09**		
		(0.07)			(0.06)			(0.04)		
Net inflow of direct investment			0.62***			-0.14				
			(0.11)			(0.09)				
Net inflow of portfolio investment			0.57***			-0.12				
			(0.11)			(0.09)				
Net inflow of derivatives investment			0.62			0.94				
			(1.15)			(0.95)				
Net inflows of other investments			0.71***			-0.13**				
			(0.08)			(0.06)				
Us short-term interest rate	0.07	0.06	0.01	-1.03***	-1.00***	-1.14***	0.19	0.23	0.10	-0.20

	Foreign exchange intervention			Monetary policy			Tightening of macroprudential measures		Tightening of capital controls	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	(0.19)	(0.20)	(0.27)	(0.17)	(0.18)	(0.22)	(0.15)	(0.16)	(0.09)	(0.17)
Us economic growth rate	-0.01	-0.03	0.00	-0.17	-0.17	-0.20	0.20	0.22	0.15	0.06
	(0.18)	(0.18)	(0.23)	(0.16)	(0.16)	(0.19)	(0.14)	(0.14)	(0.10)	(0.15)
Global economic fluctuation	-1.56*	-1.67*	-2.04	0.77	0.75	0.81	0.42	0.47	0.63	-1.22
	(0.91)	(0.92)	(1.23)	(0.82)	(0.83)	(1.02)	(0.68)	(0.68)	(0.45)	(0.79)
Dollar index	-0.08**	-0.08**	-0.05	0.05*	0.05	0.12***	-0.03	-0.04	1.15	13.94
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)	(0.02)	(0.03)	(9.26)	(15.31)
During the financial crisis	2.08*	1.96*	1.92	1.28	1.23	2.12*	-1.06	-1.26	0.09	0.79
	(1.12)	(1.14)	(1.50)	(1.01)	(1.02)	(1.25)	(0.95)	(0.98)	(0.58)	(0.92)
Pre-financial crisis	3.82***	3.87***	3.65**	3.06***	3.00***	4.65***	-1.18	-1.29	-0.13	0.06
	(1.09)	(1.10)	(1.46)	(0.98)	(0.98)	(1.21)	(0.79)	(0.80)	(0.43)	(0.76)
Bank credit growth	-0.04*	-0.04	-0.03	-0.04*	-0.04*	-0.09***	0.00	0.01	0.01	0.05**
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)
Constant term	13.00***	13.59***	11.95**	-0.08	0.42	-6.70				
	(3.86)	(4.00)	(5.34)	(3.48)	(3.58)	(4.44)				
N	236	236	164	236	236	164	586	586	740	512

In terms of traditional macro policies, the central bank reserves about 70% of the capital inflows, and foreign exchange intervention responds to capital outflows slightly more than inflows, which is relatively symmetrical. Intervention in other investments was the biggest, reflecting the risk of currency overvaluation brought by debt flows. The macroeconomic global factor coefficient significantly indicates that in the face of severe global market fluctuations, the US dollar liquidity is insufficient, and the central bank faces capital flight and depreciation pressure to sell reserves. During the expansion of domestic credit scale, foreign exchange intervention countercyclical regulation. During the expansion of capital inflows, central banks reduce interest rate differentials to offset overheating and prevent inflation, intervening more in inflows than outflows. The macroeconomic global factor coefficient significantly indicates that central banks actively adjust interest rates to the Fed rate after the financial crisis. For unconventional measures, prudential tightening increases the odds by 6 per cent when net inflows surge and decreases by 9 per cent when outflows tighten. In contrast to Fernandez et al. (2015) 's view that capital controls have little macro impact in the long run, quarterly data are used to capture more subtle changes in the degree of policy intervention, and emerging market economies respond to policy responses in the face of volatile capital flows during the sample period.

Conclusion and enlightenment

In the aftermath of the 2008 financial crisis, emerging market economies have attempted to construct a unified framework that combines foreign exchange intervention and interest rate policy with macroprudential and capital control measures to manage cross-border capital flows counter-cyclically. The priority depends on the channel of flow, and the effective tool is selected according to the actual situation of the country. This study shows that the intervention intensity of most national policies on the inflow is greater than that on the outflow, and the response to the types of securities investment and other investment flows that have a strong impact on financial stability is stronger. Traditional policies are stronger than the sample average in Asia and BRICS, and capital controls are stronger in Latin America. Since 1998, we have gradually implemented capital account liberalization. This paper considers that it is not suitable to remove capital flow restriction quickly and greatly. The net capital outflow and exchange rate instability after 2015 indicate that the impact of outflow is no less than that of inflow. Therefore, China should further explore the integrated management of capital inflow and outflow. In the long run, it is imperative to promote the establishment of a macro-prudential management framework for cross-border capital flows in China to prevent systemic risks in a timely and proactive manner.

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