

The Effect of Financial Globalization on Monetary Policy Discipline: The Evidence from 22 Developing Countries

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Abstract

The literature on the benefits and costs of financial globalization for developing countries has exploded in recent years. There seems to be a consensus that financial globalization has had a "discipline effect" on monetary policy, because it has reduced the returns from using monetary policy to stabilize the output. As a result, monetary policy over recent years has placed more emphasis on stabilizing inflation, leading to lower inflation and higher output stability. However, this consensus has not been accompanied by convincing empirical evidence that such a relationship exists.

In this article, we study the relationship between financial globalization and monetary policy regulation in a sample of 22 developing countries over the period of 1990 to 2006 using panel data approach. Our results confirm a negative relationship between financial openness and median inflation rates. It therefore appears to be the case that financial openness is one of a number of characteristics of those countries exhibiting monetary policy stability. The result is consistent with those in Kose et al. (2006) who concluded that the primary benefits

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of financial globalization may precisely be "collateral benefits" such as the possibility of enhanced monetary policy outcomes.

However, the recent "sub-prime" financial turmoil has highlighted the possibility of the increased sophistication as a result of financial globalization. As asset bundles became more diversified, it appeared to be more difficult to assess the underlying asset quality of investment positions. The crisis does raise the question of whether losses incurred from investment vehicles increasingly used in the globalization period will force investors to avoid these types of vehicles in the future, and in the meantime lower the pace of financial globalization. Examining this issue is beyond the scope of this study and awaits future research.

Key words: *financial globalization; financial openness; monetary policy discipline; inflation*

JEL: *F36; F41*

1. Introduction

Economic theory leaves no doubt about the potential advantages of global financial trading. International financial markets let residents of different countries take various risks and achieve more effective insurance than purely domestic arrangements would allow. Developing countries with little capital can borrow it to finance investment, thereby promoting economic growth without experiencing sharp increases in saving rates. At the global terms, the international capital market directs world savings to their most productive uses, irrespective of their location. The resulting economic gains are difficult to be quantified, as I discuss at the moment, and may work through subtle mechanisms. For example, producers who can diversify risks in financial markets may make more high-yield but risky investments, thereby increasing average rates of economic growth. In that case, the welfare gains can be enormous (Obstfeld, 1994).

The other main potential positive role of international capital markets is the disciplining of those policymakers who might be tempted to exploit a captive domestic capital market. Wrong policies – such as excessive government borrowings or inadequate banking regulations - would spark speculative capital outflows and higher domestic interest rates.

Empirical evidence for the disciplining effect of financial openness on monetary policy is relatively limited. One notable exception is Tytell and Wei (2005) who examine the relationship between the de facto financial openness and the monetary and fiscal discipline. They found out that financial openness is negatively linked to the average inflation, but has no measurable effect on the government budget deficit.

In this article, we investigate the disciplining effect of financial integration on monetary policy in a panel of 22 developing economies from Middle East, South Africa and Asia.

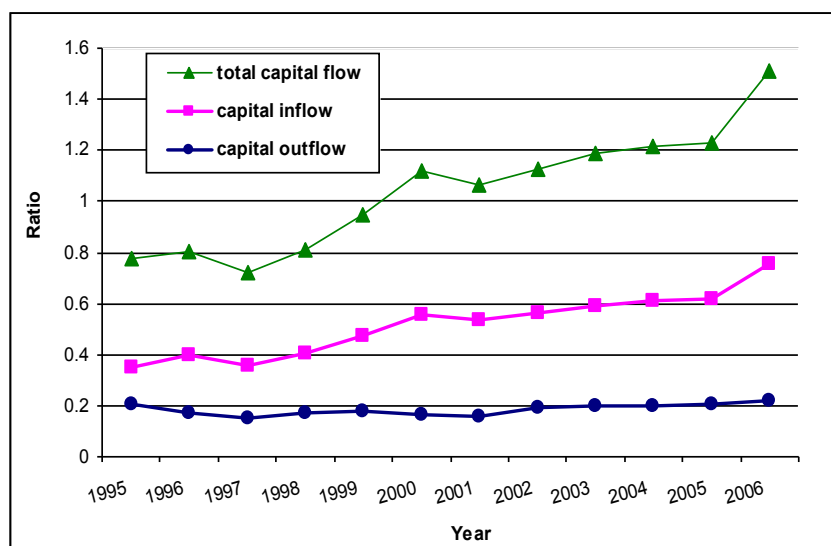
2. Financial Globalization: stylized facts

Financial openness - the sum of the stocks of external assets, liabilities of foreign direct investment (FDI) and portfolio investment as a ratio of GDP- has raised in emerging market economies since the second half of the 1990s (see: Figure 1). Several reasons motivate these increases in capital movements, including financial innovations which have lowered the cost of holding foreign assets, thereby increasing investors' demands for internationally diversified portfolios, as well as the proliferation of sophisticated vehicles for hedging foreign risk exposure that has let investors reduce the riskiness of a given level of foreign exposure (Spiegel, 2007).

Although there are differences in the quality of financial intermediation between developed and emerging market economies where portfolio capital usually moves from south to north to return as FDI (e.g., Mendoza et al., 2007), yet, as shown in figure1, the emerging market economies have succeeded in being net borrowers, being allowed to finance current and capital account imbalances at the relatively favorable rates.

The increased volume of trade in financial assets has had a significant impact on the international borrowing terms. Spreads on emerging market bonds have decreased remarkably over time, with the EMBI index yield falling from over 16% in 1998 to just over 6% in 2006 [Spiegel (2007)]. While this decline reflects a benign decrease in the cost of borrowing for emerging market economies, it also highlights the fact that currently debt commitments across countries are being treated as more substitutable than the past. This convergence in yield curves has been accompanied by convergence in other types of asset returns. For example, convergence in cross-country equity returns has also been documented [e.g. Ferguson (2005) and Rogoff (2006)].

Figure 1: Capital inflow and outflow in a sample of 22 emerging market economies



3. Monetary policy in a financially globalized environment

As mentioned in the previous section, the increased volume of trade in financial assets has led to the convergence of asset returns. Now the question is: how does monetary policy work in this environment? If assets are close substitutes world-wide, domestic interest rates are likely to be influenced by global factors. A "savings glut" in Asia can be influential in reducing real interest rates in the United States. In this type of environment, the case might be that longer-term interest rates be less sensitive to transitory movements in the Federal Funds rate - the interest rate targeted by the United States Federal Reserve- leaving the impression that financial globalization has currently left interest rates less sensitive to monetary policy than in the past. Does this mean that monetary policy loses its effectiveness by financial globalization?

Rogofi (2006) argues that in the wake of the increased financial globalization, even the largest central banks have less direct impact on medium and long-term interest rates than might once have had.

As noted by Rogoff (2004), the fact that an individual central bank has lost some of its short-term influence over real interest rates does not imply that central banks, as a group, have lost the ability to act in concert to influence rates in the short-term. Central banks acting in concert, such as the recent move by a number of banks to inject liquidity into the financial system, can still have a substantial influence.

Woodford (2007) examines the implications of the increased international financial integration for the monetary transmission mechanism in a simple version of the Clarida et al. (2002) model in which real interest rates are equal across countries. He demonstrates that in the special (but by no means extreme) case of unitary elasticity of domestic and foreign goods substitution, the degree of financial openness has no impact on domestic aggregate demands for a given monetary policy. This increases the possibility that the impact of changes in openness needs not to be large. However, Woodford (2007) demonstrates that in an environment of equalized real interest rates, it is still possible for monetary policy to control both nominal expenditure and inflation. In contrast, foreign monetary policy can only influence domestic demands and inflation through its impact on foreign output levels. Hence, we conclude that even under financial globalization conditions, the standard theory suggests that the monetary authority should retain the capability of controlling the domestic price level.

Obstfeld (1998) and Rogoff (2004) argue that increased international capital mobility could have a "disciplining effect" on monetary policy.¹ Increased international asset substitutability reduces the effectiveness of using inflation as a source of government revenues. Holding all else equal, this should reduce the inflationary pressure on central banks and result in lower average levels of inflation. Therefore, it would appear to be the case that globalization raises the sensitivity of inflation to the changes in the monetary policy regime. This heightened sensitivity stems from the increased international substitutability of

1-The disciplining effect has been recently noted in a number of speeches by monetary policy-makers [e.g. (Ferguson, 2005) and Kroszner (2007)].

assets. With increased asset substitutability, global investors can avoid financial markets with excessive exposure to currency risk or the risk of the imposition of capital account restrictions, as they did to Malaysia subsequent to its imposition of capital controls following the 1997 crisis.

As such, in contrast to the "disciplining effect" noted above, some believe that financial globalization hinders the ability of emerging markets' central banks to pursue price stability, or even formal inflation targets, so as to leave them open to exchange rate volatility. The intuition behind this concern is the so-called "inconsistent trinity" which notes that a country can not simultaneously pursue price and exchange rate targets while maintaining open capital accounts. In other words, a country cannot simultaneously maintain fixed exchange rates and an open capital market while pursuing monetary policy towards domestically oriented goals. Governments may choose only two of the above cases. If monetary policy is geared towards domestic considerations, either capital mobility or the exchange rate target must be lost. If fixed exchange rates and integration into the global capital market be the priority for the policymakers, monetary policy must be adapted to those ends.

The choice between fixed and floating exchange rates should not be viewed as a dichotomy. In reality, the degree of exchange-rate flexibility lies on a continuum, with exchange-rate target zones, crawling pegs, crawling zones, and managed floats of various other kinds residing between the extremes of floating and irrevocably fixed status. Indeed, the notion of a "free" float is an abstract idea with little empirical content, as few governments are willing to set monetary policy without any consideration of its exchange-rate effects. However, the greater the attention given to the exchange rate, the more constrained monetary policy will be in pursuing other objectives

However, Rose (2007) have found that countries which target inflation, experience no more exchange rate volatility on average than do countries which do not target inflation. The increased prevalence of global shocks may also make it more difficult for emerging market economies to implement domestic monetary policy, as increases in the

difficulty of assessing the value of the domestic output gap may be more severe in these types of economies. Furthermore, they often find it more difficult to assess domestic economic conditions than their industrial counterparts [Wagner (2004)].

4. Monetary policy responses to financial globalization

The discipline hypothesis contends that financial globalization reduces the optimal reliance on the inflation tax as investors can more easily flee a currency compared with the past. It also reduces the optimal intensity of output stabilization as the increased international substitutability of assets increases the relative desirability of targeting inflation.

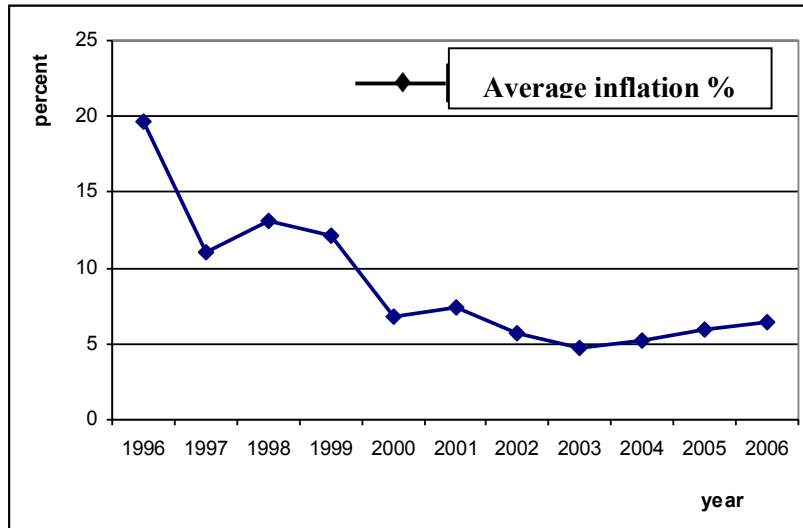
Recent experience concerning monetary policy appears to be consistent with this hypothesis: The additional regulation imposed on monetary authorities from enhanced financial integration has led to global advances in monetary policy. Countries are now paying more attention to targeting the inflation rate, formally or informally, as their policy goal. Indeed, formal inflation targeting is now a common policy.

The increased focus on price stability has not been limited to formal inflation targeting regimes. Inflation rates in emerging market economies have declined dramatically since ten years ago. As shown in Figure 2, in 1998 the average inflation rates for a sample group of 22 emerging market economies stood at 14%. By 2006, it had decreased down to 7%. This indicates a decrease in inflation gap between the developing and developed countries. This also shows an achievement resulted by the countries' higher attention paid to keeping the monetary policy focused on maintaining price stability.

Inflation targeting regimes also tend to exhibit capital account openness. With monetary policy concentrated on fixing the price level, most of those targeting inflation have abandoned conflicting exchange rate targets and allowed free international capital movements. This has on some occasions led to the increased exchange rate volatility. Yet, on the whole it became clear that capital movements have not been as

disruptive as the observed speculative attacks on pegged exchange rate regimes.

Figure 2: Average inflation rate in a sample of 22 emerging market economies



5. Evidence on globalization and monetary policy

5-1. Model Specification

In this section, we will examine the evidence on financial integration and monetary policy outcomes which is measured as median inflation rates. It should be noted that much of the literature, the analysis is not structural and the measurement of a number of key variables is almost certainly done with some errors. As a result, we examine the reduced form specification of the determinants of inflation that includes my variable of concern and then subject the analysis to a battery of robustness tests.

Following Spiegel (2008), here we use the following model:

$$\log(\pi_{it}) = \alpha + \beta \text{FinOpen}_{it} + \gamma X_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

where $\log(\pi_{it})$ is an index of price stability which is measured by the log of the absolute value of median inflation of country i at time t .

FinOpen_{it} represents financial integration level. In this paper, we use the de facto measure of financial integration used by Tytell and Wei (2005), the sum of stocks of external assets and liabilities of FDI, portfolio investment and debt as a share of GDP. Kose, Prasad, Rogoff, and Wei (2006) argue that this provides the best indicator of financial integration, as gross flows are less volatile than net flows and are particularly regarded as measures of risk sharing.

X includes a vector of conditioning variables such as TrdOpen_{it}, GOV_{it}, INST_{it}, POP_{it}. TrdOpen_{it} represents trade openness measured as the average of exports plus total imports as a share of GDP. I includes this variable because countries that are open on their capital account are likely to be open on their trade account as well. Therefore, there is the danger that the variable of interest, i.e., financial openness, would be actually raising the trade openness effect if one did not adapt to this characteristic.

GOV_{it} represents the government expenditure measured as the average of government spending, as a share of GDP. Likewise, one would expect a positive coefficient on government spending as a nation's central bank may be induced to resort to the inflation tax to some degrees with increases in government expenditures.

INST_{it} represents the quality of domestic institutions. One would probably expect a negative coefficient on this variable as nations with superior domestic institutions should be less susceptible to timing-inconsistency-based inflationary biases. We control the country size via POP_{it} which measures average population levels. It is unclear what sign one should expect on this variable.

η_t represents the country effect as each country has its specific characteristics which is different among countries. It is also invariant within a country. Finally, ε_{it} represents an error term assumed to be i.i.d.

5-2. Empirical Results and discussions

We estimate the above specification using panel data of the averages

over a 5-year period from 1990 to 2006.¹

The results of the estimates are reported in Table 1. In this case, several models were estimated. Model 1 is a basic model specified in the previous section (eq. 1). It can be seen that in Model 1, the variable of concern, *FinOpen*, enters with its predicted negative sign at a highly statistically significant level. Moreover, the estimated coefficient suggests a one unit increase in financial integration which is measured by the ratio of financial assets and liabilities to total stock, while a ratio of nominal GDP would result in a decrease in expected median log inflation of 0.052, an economically significant decline.

We developed our basic model and introduced some conditioning variables. For example, in Model 2, we introduced *PSCrd* which measures private sector credit held by domestic commercial banks, as a share of GDP. This variable is introduced as an indicator of development rate of the domestic banking sector. The intuition behind adding this variable is that the more developed the domestic financial sector is, the international financial integration will likely to have a weaker impact on domestic macroeconomic performance. It can be seen that the variable of concern is critical in the inclusion of this conditioning variable, as it continues to enter with its expected negative effect at statistically significant levels.

Model 3 introduces a conditioning variable for country wealth, GDPP, which measures GDP per capita in constant price in 2000. As was the case for the domestic credit variable, this variable also enters negatively and is statistically of high significance, suggesting that wealthier countries exhibit lower average inflation. In Model 4, we use both the country wealth and financial sector variable level. Both variables enter negatively and statistically significant at 5% level.

1- Data for calculating measures of financial openness were obtained from the IMF International Financial Statistics. Other variables, except institutional quality, were taken from the World Development Indicator CD. Data on institutional quality was obtained from international country risk guide (ICRG) database.

Table 1: Panel evidence on financial openness and inflation volatility

Random Effect Estimation

Dependent Variable: $\log(\pi_{it})$

Period 1990-2006

	Model 1	Model 2	Model 3	Model 4
<i>FinOpen</i>	-0.0521*** (0.0140)	-0.0710*** (0.0178)	-0.0374*** (0.0126)	-0.0558*** (0.0164)
<i>TrdOpen</i>	-0.0057* (0.0032)	-0.0031 (0.0061)	-0.0027 (0.0031)	-0.0028 (0.0045)
<i>Gov</i>	0.0033 (0.0519)	0.0071 (0.0452)	0.0520 (0.0575)	0.0346 (0.0489)
<i>INST</i>	-0.0295 (0.0330)	-0.0228 (0.0315)	-0.0301 (0.0324)	-0.0226 (0.0310)
<i>Pop</i>	-5.17e-10 (4.8e-10)	6.06e-11 (4.9e-10)	-	-
<i>PSCrd</i>	-	-0.0118*** (0.0046)	-	-0.0103*** (0.0040)
<i>GDPP</i>	-	-	-0.00004*** (0.00001)	-0.00002* (0.00001)
<i>Const</i>	3.9611*** (0.15126)	3.313*** (1.410)	3.289*** (1.498)	3.067*** (1.458)
R^2	0.23	0.39	0.31	0.43

*** Significant at 1 percent confidence level. ** Significant at 5 percent confidence level.

* Significant at 10 percent confidence level.

Figures in the parenthesis indicate standard deviation.

Concerning other conditioning variables, the only one that enters significantly is INST which enters with a negative coefficient, suggesting that inflation levels are on average lower in countries with institutions of higher quality in our sample.

All in all, our results confirm a negative relationship between financial openness and median inflation rates in our basic specification. However, the performance of the financial openness variable was shown to be sensitive to either adding variables such as income differences or the sophistication of the domestic financial sector. This raises the troublesome possibility that financial openness may be just one of a number of the features of the countries with low inflation, leaving it difficult to assess empirically which of the features are crucial to achieving monetary stability.

5-1. Concluding remarks

The relatively large body of literature reviewed above suggests that financial openness, while increasing the exposure of nations to foreign shocks, has provided an additional source of market discipline and encouraged central banks to place greater emphasis on stabilizing prices than output.

This change in policy appears to have contributed to the benign conditions observed in financial markets over the past fifteen years, as nations have experienced decreased output volatility, lower inflation rates, and reduced borrowing costs worldwide.

This article examined the relationship between inflation rates and financial globalization in a panel of 22 developing countries. Our results confirm the findings in the previous literature on a negative relationship between financial openness and median inflation levels. It therefore appears to be the case that financial openness is one of a number of characteristics of the countries exhibiting monetary policy stability and that it would be difficult to isolate the "crucial" policy characteristic in this framework. Indeed, Kose, Prasad, Rogoff and Wei (2006) have recently concluded that the primary benefits of financial globalization may be exactly "collateral benefits" such as the possibility of enhanced monetary policy outcomes examined here.

In the end, it should be noted that the recent "sub-prime" financial turmoil warrants reassessment of the relatively benign characterization of the impact of financial globalization in the literature reviewed above.

One of the primary causes of the rapid increase in financial globalization over the past years has been the innovations in financial vehicles hedging global investment positions. The recent sub-prime crisis has highlighted the downside of this increased sophistication: As asset bundles became more diversified, it turned more difficult to assess underlying asset quality of investment positions. The crisis does raise the question of whether losses incurred from investment vehicles, increasingly used in the globalization period, will make investors avoid these types of vehicles in the future and in the meantime reduce the pace of financial globalization. Examining these issues is beyond the scope of this study and awaits future research.

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