

Gochoco-Bautista, Maria Socorro; Francisco, Ruth H.

Working Paper

Effectiveness of Capital Restrictions: Do Regional and Income Differences Matter?

ADB Economics Working Paper Series, No. 261

Provided in Cooperation with:

Asian Development Bank (ADB), Manila

Suggested Citation: Gochoco-Bautista, Maria Socorro; Francisco, Ruth H. (2011) : Effectiveness of Capital Restrictions: Do Regional and Income Differences Matter?, ADB Economics Working Paper Series, No. 261, Asian Development Bank (ADB), Manila, <https://hdl.handle.net/11540/2020>

This Version is available at:

<https://hdl.handle.net/10419/109401>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/3.0/igo>

ADB Economics Working Paper Series



Effectiveness of Capital Restrictions: Do Regional and Income Differences Matter?

Maria Socorro Gochoco-Bautista and Ruth H. Francisco

No. 261 | June 2011



ADB Economics Working Paper Series No. 261

Effectiveness of Capital Restrictions: Do Regional and Income Differences Matter?

Maria Socorro Gochoco-Bautista and Ruth H. Francisco

June 2011

Maria Socorro Gochoco-Bautista is Senior Economic Advisor, Economics and Research Department, Asian Development Bank. Ruth H. Francisco is a Ph.D. Candidate at the University of the Philippines. The authors accept responsibility for any errors in the paper.

Asian Development Bank

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org/economics

©2011 by Asian Development Bank
June 2011
ISSN 1655-5252
Publication Stock No. WPS113713

The views expressed in this paper
are those of the author(s) and do not
necessarily reflect the views or policies
of the Asian Development Bank.

The ADB Economics Working Paper Series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed research and policy studies undertaken by the Asian Development Bank (ADB) staff, consultants, or resource persons. The series deals with key economic and development problems, particularly those facing the Asia and Pacific region; as well as conceptual, analytical, or methodological issues relating to project/program economic analysis, and statistical data and measurement. The series aims to enhance the knowledge on Asia's development and policy challenges; strengthen analytical rigor and quality of ADB's country partnership strategies, and its subregional and country operations; and improve the quality and availability of statistical data and development indicators for monitoring development effectiveness.

The ADB Economics Working Paper Series is a quick-disseminating, informal publication whose titles could subsequently be revised for publication as articles in professional journals or chapters in books. The series is maintained by the Economics and Research Department.

Contents

Abstract	v
I. Introduction	1
II. Capital Restrictions Indexes	2
III. Empirical Methodology	6
IV. Results and Discussion	7
A. Effectiveness of Capital Restrictions in Asian versus Non-Asian Emerging Market Economies	7
B. Effectiveness of Capital Restrictions Based on Different Levels of Income	8
V. Conclusions	9
Appendix	11
References	12

Abstract

This study examines the differences in the effectiveness of *de jure* capital restrictions across economies in different regions (Asia versus non-Asia) and with varying income levels. It uses a panel of 45 economies over the period 1995–2007. The results show that differences in regional and income levels matter for the effectiveness of capital restrictions.

I. Introduction

With increasing financial globalization, emerging market economies (EMEs) have become important players in international banking and capital markets. Over the past 2 decades, global capital flows have become highly sensitive to the risk appetite of investors in developed economies. As a consequence, EMEs have become more vulnerable to the vicissitudes of capital flows that can reverse, stop, or start suddenly, regardless of a recipient economy's structural soundness and efficiency of financial intermediation.

Distortions present in EMEs, both structural and artificial, also complicate the realization of welfare-improving outcomes from more unfettered trade in financial assets. As unfettered trade in financial assets is not necessarily welfare-improving, the use of some restrictions over capital account transactions may be needed. The International Monetary Fund (IMF) Articles of Agreement under Article VIII granted member economies the right to maintain controls over capital transactions. Indeed, the IMF's plan to amend Article VIII and allow full capital account convertibility was only set aside because of the occurrence of the Asian financial crisis in 1997.

The rapid and sustained recovery of EMEs in Asia following the global financial crisis of 2008–2009, together with measures adopted by developed economies in attempts to restore the health of their economies such as “quantitative easing 2” in the United States (US), have raised the prospects of a tsunami of pro-cyclical capital inflows inundating Asian shores. Indeed, many EMEs in Asia have recently been receiving large capital inflows. These inflows are not necessarily regarded as a boon by these economies. There are numerous fears associated with capital flows, including the fear of domestic currency appreciation, the fear of “hot money”, the fear of large inflows, and the fear of loss of monetary authority (Magud and Reinhart 2007, 647). These have recently led economies such as Indonesia, the Republic of Korea, and Thailand to reimpose various types of capital restrictions unilaterally.

Capital restrictions have been resorted to for several reasons: to reduce the volume of capital inflows and alter the composition of flows in favor of longer maturities; reduce the degree of nominal and real exchange rate volatility; temper real currency appreciation as a result of capital inflows; increase the ability of monetary authorities to conduct independent monetary policy; and prevent the occurrence of financial crisis and/or financial instability. Capital restrictions may be regarded as effective if they sufficiently meet the outcomes intended by their adoption. In many cases, however, economies do not identify the motives behind their use of restrictions *ex ante*. Nevertheless, in the literature, an assessment is typically made regarding the effectiveness of the use of capital restrictions in one or more of the following ways: whether or not the volume and composition of capital flows can be altered, the degree to which monetary independence is enlarged, how real currency appreciation pressures are held down, and how financial instability and crisis are avoided.

In general, the experiences of a variety of economies with the use of capital restrictions in the 1990s show mixed results (Ariyoshi et al. 2000). Recent studies such as Binici, Hutchison, and Schindler (2010) (BHS hereafter) and Gochoco-Bautista, Jongwanich, and Lee (2010) (GJL hereafter) find that the effectiveness of capital restrictions varies across asset types, and by direction of flow. BHS find that capital restrictions have little effects on inflows when a sample of 74 economies is used. These are in contrast with the results in GJL using a sample of nine emerging Asian economies, which also find a perverse positive effect on capital outflows when restrictions are used. In addition, BHS find differences in the effects of restrictions in high- versus low-income economies.

This study examines whether the effectiveness of capital restrictions is affected by differences in regions (Asian versus non-Asian) and income levels (high versus low/middle-income). The paper is organized as follows: Section II describes how the capital restrictions index in the study is constructed and examines trends in these by region, asset type, direction of flow, and income level; Section III explains the empirical methodology used in the study; Section IV presents the results; and Section V concludes.

II. Capital Restrictions Indexes

De jure capital account restrictions indexes constructed by Schindler (2009) based on data on capital restrictions obtained from the Annual Report on Exchange Arrangements and Exchange Restrictions (IMF, various years) are differentiated by asset type (e.g., financial credit, equity, direct investment) and by direction of flow (i.e., inflow and outflow). These indexes are matched with capital flows in the different asset categories in the following way: equity restrictions index for equity flows, financial credit restrictions index for debt flows, and direct investment restrictions index for foreign direct investment (FDI) flows. Since Schindler's capital restriction indexes are available for 1995–2005 only, these

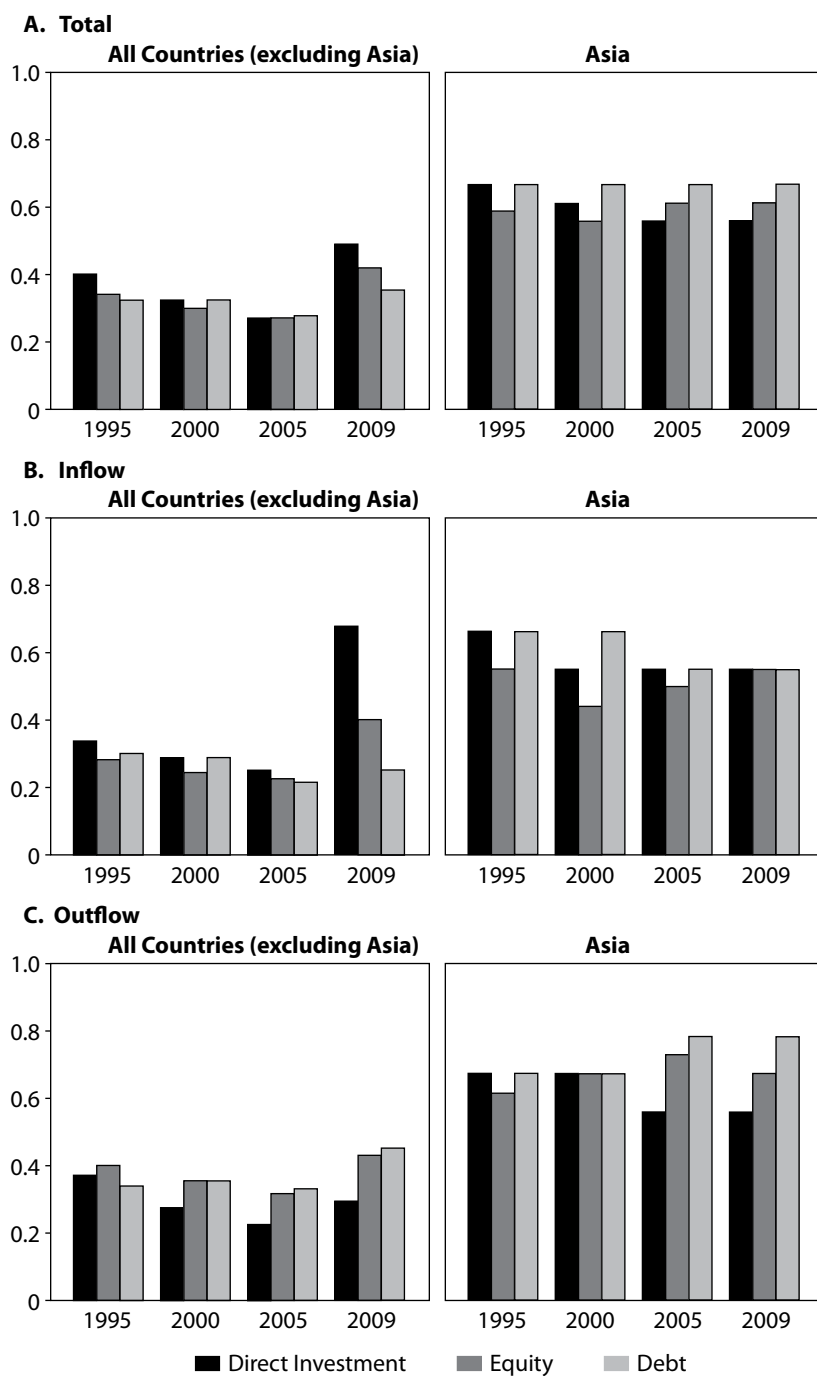
were extended to cover the period to 2007 using his (2009) procedure and data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (2006, 2007, and 2008).

Figure 1 compares capital restrictions in EMEs in Asia¹ and other economies. It shows that from 1995 to 2009, capital flows in Asian EMEs were relatively more restricted than those in the rest of the world whether in terms of inflows, outflows, or asset types. While there is a general increase in the restrictiveness of capital flows to and from other economies from 2005 to 2009, the level of restrictiveness remains below those in Asian EMEs, except for restrictions on direct investment inflows.

Figure 2 shows the trend in capital restrictions from 1995 to 2009 in high-income Asian EMEs (Hong Kong, China; the Republic of Korea; Singapore) and other high-income and low/middle-income economies.² In general, capital flows are more restricted in low/middle-income economies than in high-income economies in terms of both inflows and outflows. In high-income Asian EMEs, capital inflows have become less restricted after the East Asian crisis than in other high-income economies. In terms of capital outflows, high-income Asian EMEs economies have been more restrictive until 2005, but have become less so after 2005.

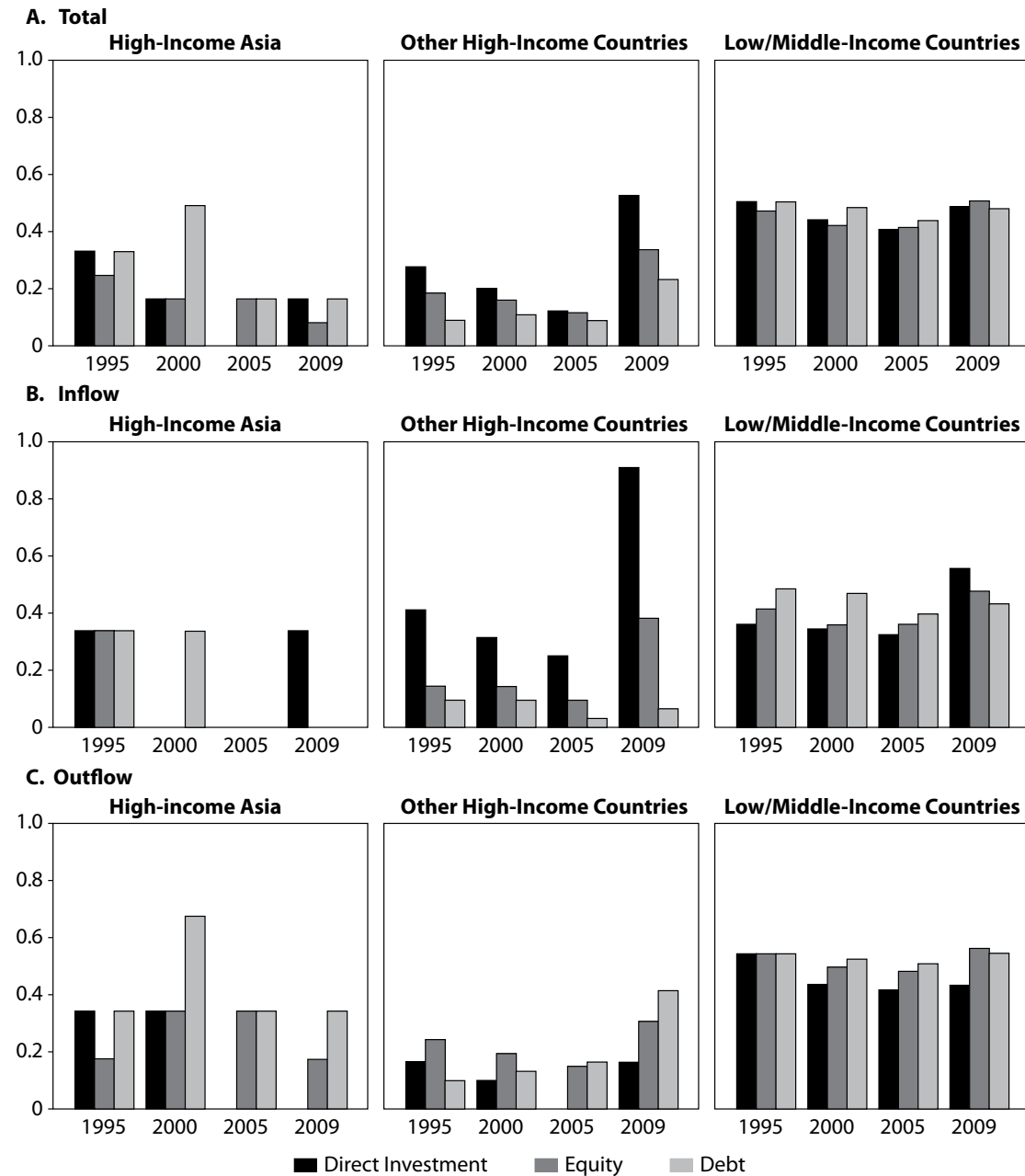
¹ Asian EMEs include the People's Republic of China (PRC); Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; and Thailand.

² High-income Asian EMEs include Hong Kong, China; the Republic of Korea; and Singapore. Other high-income economies include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Low/middle-income economies include Argentina, Brazil, Bulgaria, the PRC, Chile, Czech Republic, Ecuador, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Romania, the Russian Federation, South Africa, Sri Lanka, Thailand, and Venezuela.

Figure 1: Capital Restrictions, Emerging Asian Economies versus Other Economies

Note: Asian emerging market economies include the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; and Thailand.

Sources: Schindler (2009) and authors' estimates.

Figure 2: Capital Restrictions, by Income Level

Note: High-income Asian EMEs include Hong Kong, China; the Republic of Korea; and Singapore. Other high-income economies include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Low/middle-income economies include Argentina, Brazil, Bulgaria, the People's Republic of China, Chile, Czech Republic, Ecuador, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Romania, the Russian Federation, South Africa, Sri Lanka, Thailand, and Venezuela.

Sources: Schindler (2009) and authors' estimates.

III. Empirical Methodology

To examine the differences in the effects of *de jure* restrictions on capital flows, the following regression equation is estimated by direction of flow (inflows and outflows) and by asset category (direct investment, equity, and debt flows):

$$\ln\left(\frac{KF}{N}\right)_{it} = a_{0it} + a_1 KC_{it} + a_2 KC_{it} * EMAsia + X_{it}\theta + \varepsilon_{it} \quad (1)$$

where $(KF/N)_{it}$ is capital flows per capita; KC_{it} is the capital restrictions index; $EMAsia$ is a dummy variable that takes on the value of 1 if emerging Asian economy and 0 otherwise; X_{it} is a vector of control variables including the growth of real gross domestic product (GDP) per capita, the real interest rate differential between country i and the US, the ratio of stock market capitalization/GDP and the ratio of domestic credit to the private sector to GDP as proxies for an economy's level of financial development, the ratio of merchandise trade to GDP as a measure of a economy's openness to trade, the ratio of natural resource exports as a percentage of total merchandise exports as a proxy for the natural resource endowment of a country that is assumed to make it more attractive as an investment destination the more resource-abundant it is; and an overall business rating index from the Economist Intelligence Unit as an indicator of an economy's institutional quality and governance. The Appendix has details on the definition and sources of data used in this paper.

Subsequently, to distinguish the effectiveness of capital restrictions in high-income Asian economies, non-Asian high-income economies, and low/middle income economies, the following regression equation is also estimated:

$$\ln\left(\frac{KF}{N}\right)_{it} = a_{0it} + a_1 KC_{it} + a_2 KC_{it} * Income + a_3 KC_{it} * Income * EMAsia + X_{it}\theta + \varepsilon_{it} \quad (2)$$

where $Income$ is a dummy variable that takes on the value of 1 when the economy is classified as a high-income income economy and 0 otherwise.

Annual capital flow figures in terms of aggregate flows, direction of flow, and type of asset from 1995 to 2007 are derived using the methodology in BHS from an updated and extended version of the database developed by Lane and Milesi-Ferretti (2007) (LM hereafter). Using data on capital flows from the IMF's Balance of Payments Statistics (BOP) data including calculations for capital gains and losses, LM generate estimates for stock positions of economies using estimates of their international investment position (IIP) as a benchmark. These stock data are then converted into flows by taking first differences.

BOP data measure net capital inflows and outflows during a recording period while IIP data measure the stocks of external assets and liabilities at the end of the period. Capital inflows measure net purchases or sales by nonresidents of domestic assets while

outflows measure net purchases or sales of foreign assets by residents. Hence, both capital inflows and outflows can also take on negative values (LM). Negative values for inflows (outflows) can be considered as outflows (inflows). As in BHS, to construct the best counterpart of inflow and outflow data from the derived flows obtained by taking first differences of the LM stock data, the following formulation is used:

$$\begin{aligned} \text{Inflows} &= -\min(\text{derived flow assets}, 0) + \max(\text{derived flow liabilities}, 0) \\ \text{Outflows} &= \max(\text{derived flow assets}, 0) - \min(\text{derived flow liabilities}, 0) \end{aligned} \quad (3)$$

The sum of inflows and outflow is equal to total flows.³

The data set is a panel composed of 24 high-income (six Asian and 18 non-Asian) and 21 low-/middle-income economies for the period 1995–2007. The model is estimated by panel regression with fixed country and time effects. Standard errors have been corrected for general forms of heteroskedasticity and uses White's robust standard errors.

IV. Results and Discussion

A. Effectiveness of Capital Restrictions in Asian versus Non-Asian Emerging Market Economies

Table 1a shows the results of estimating equation (1).⁴ For total capital flows, only the coefficients on equity in non-Asian EMEs and debt restrictions in Asian EMEs are statistically significant. This means that while capital restrictions do not affect total FDI flows, they significantly reduce both total equity flows and total debt flows, but not across all economies. Restrictions on equity flows are effective only in non-Asian economies while restrictions on debt flows are effective only in Asian economies.

For capital inflows, the results in Table 1b show that capital restrictions are effective in reducing FDI inflows to Asian EMEs but not to other economies. This finding appears to be the exception to the rule as restrictions on capital inflows are ineffective for other types of inflows and other regions.

For capital outflows, the results in Table 1c show that the coefficients of capital restrictions are significant across all asset categories considered. However, while capital restrictions have a negative effect on FDI outflows and equity outflows in non-

³ As BHS point out, the manner in which the data set is constructed implies that changes in stocks can arise from both sales/purchase and from valuation changes. Since capital account restrictions only affect actual transactions and not valuation changes, the effects of capital restrictions may be underestimated using the LM measure. The estimates obtained can thus be interpreted as lower bounds.

⁴ See Appendix Table 1 for the full regression results.

Asian EMEs, these restrictions have a positive and seemingly perverse effect in Asian EMEs. Restrictions on capital outflows actually increase such outflows in Asian EMEs. Meanwhile, capital restrictions do not seem to affect debt outflows in other economies but reduce debt outflows in Asian EMEs. Both of these results are consistent with those obtained in GJL in the case of nine Asian EMEs.

Table 1: Effectiveness of Capital Restrictions in Emerging Asian Economies and non-Asian Economies, 1995–2007

Flow/Economy	FDI	Equity	Debt
A. Total			
All (excluding Asia)	NS	–**	NS
Asia	NS	NS	–*
B. Inflow			
All (excluding Asia)	NS	NS	NS
Asia	–***	NS	NS
C. Outflow			
All (excluding Asia)	–***	–*	NS
Asia	+***	+*	–**

*, **, *** denote 10%, 5%, and 1%, level of significance, respectively.

FDI = foreign direct investment, NS = not significant.

Source: Authors' estimates (see Appendix Table 1).

Among the control variables, real GDP per capita, ratio of stock market capitalization to GDP, and ratio of domestic credit to the private sector are generally found to be significant. Better institutions and governance encourage FDI total flows, equity inflows, and debt outflows. The proportion of merchandise trade to GDP, which is a proxy of trade openness, appears to encourage equity outflows but discourage FDI and equity inflows.

B. Effectiveness of Capital Restrictions Based on Different Levels of Income

Table 2a shows the results of estimating equation (2).⁵ None of the coefficients on capital restrictions for total FDI flows are significant. Thus, once again, capital restrictions appear to be uniformly ineffective in reducing total FDI flows across economies regardless of the level of income. Meanwhile, capital restrictions are effective in reducing total equity flows in low/middle-income economies but not in high-income economies whether in Asia or outside of Asia. Also, capital restrictions are effective in reducing high-income Asian EMEs' total debt flows but not in other economies.

For capital inflows, Table 2b shows that capital restrictions are effective in reducing FDI inflows to high-income Asian EMEs but not to other economies. Likewise, they are effective in reducing debt inflows to all high-income countries excluding Asia EMEs.

⁵ See Appendix Table 2 for the full regression results.

Otherwise, capital restrictions on inflows are ineffective across different regions, income levels, and asset types.

Table 2: Effectiveness of Capital Restrictions across Economies of Varying Income Levels, 1995–2007

Flow/Economy	FDI	Equity	Debt
A. Total			
Low/midde-income (including Asia)	NS	–*	NS
All high-income (excluding Asia)	NS	NS	NS
High-income Asia only	NS	NS	–**
B. Inflow			
Low/midde-income (including Asia)	NS	NS	NS
All high-income (excluding Asia)	NS	NS	–**
High-income Asia only	–***	NS	NS
C. Outflow			
Low/midde-income (including Asia)	–***	NS	NS
All high-ncome (excluding Asia)	NS	NS	NS
High-income Asia only	+***	NS	NS

*, **, *** denote 10%, 5%, and 1%, level of significance, respectively.

FDI = foreign direct investment, NS = not significant.

Source: Authors' estimates (see Appendix Table 2).

For capital outflows, the results in Table 2c show that only the coefficients on restrictions on FDI outflows are significant. Restrictions on FDI outflows in low/middle-income countries reduce FDI outflows. In contrast, such restrictions on FDI outflows in high-income Asian EMEs increase outflows. Once again, the results for high-income Asian EMEs appear to be different from the rest and appear to be driving earlier results obtained in GJL.

As for the control variables, generally the same set of variables is found to be significant when either equation (1) or (2) is estimated, as shown in the Appendix tables.

V. Conclusions

There are significant differences in the effectiveness of capital restrictions between Asian and non-Asian EMEs and across economies of varying income levels. In general, restrictions affect capital outflows more than they do inflows.

Capital restrictions evidently do not generally affect FDI flows except in Asian EMEs in which they reduce FDI inflows. This finding suggests that FDI is not primarily affected by the use of capital restrictions and is perhaps driven by more structural factors such as the profitability of investment. That they reduce FDI inflows to Asian EMEs, as well as high-income Asian EMEs, while acting to increase FDI outflows from Asian EMEs appears

to make a strong case for not using such restrictions on FDI inflows or outflows in Asian EMEs. In the case of the other regions, such restrictions on FDI flows are generally ineffective and should also not be used. The sole exception to this prescription is the use of restrictions on FDI outflows from low/middle-income economies. FDI outflows from these economies are reduced when restrictions are used. There may be a case for such restrictions on FDI outflows for these economies.

Capital restrictions are effective in reducing total debt flows in and debt outflows from Asian EMEs. However, restrictions on FDI and equity outflows in Asian EMEs perversely increase these types of capital outflows. The policy implication appears to be that putting restrictions on capital outflows in Asian EMEs is, in general, not a good idea as they do not work in the way normally intended to reduce outflows except in the case of debt flows.

Restrictions work to reduce equity outflows but only in non-Asian EMEs as well as in low/middle-income economies regardless of region. This may be related to higher levels of capital market development in the other economies relative to Asian EMEs and higher-income economies.

The policy implications from this study are that capital restrictions differ in their effects depending on the region, level of income, type of asset, and direction of flow, and these need to be taken into account in the use of restrictions. They also suggest that capital restrictions are probably not the first and only tool to use in dealing with large capital flows, and that if they are to be used, they should probably be used in the context of other macro prudential regulations. The results on the effects of restrictions on FDI flows likewise suggest that a better macro environment that provides a good return on investment may be a better way to attract and manage FDI flows relative to the use of capital controls, which are likely to have temporary effects even when they are effective. Instead, their use in a bid to affect FDI flows may give the wrong signal to investors about the prospects in potential recipient countries and may retard such flows.

Appendix

Appendix Table 1: Regression Results with Asian EME Dummy, 1995–2007
(dependent variable: $\ln(\text{capital flows/capita})$)

Explanatory Variables	Direction of Flow/Type of Asset								
	Total (Inflows + Outflows)			Inflows			Outflows		
	FDI	Equity	Debt	FDI	Equity	Debt	FDI	Equity	Debt
Capital restrictions	0.058 [0.34]	−0.902 [2.51]**	0.286 [0.82]	0.235 [1.37]	−0.509 [0.97]	0.508 [0.91]	−0.798 [3.20]***	−0.763 [1.90]*	0.063 [0.21]
Capital restrictions*EM Asia dummy	−0.220 [0.38]	0.483 [0.75]	−0.963 [1.84]*	−2.240 [4.43]***	1.673 [1.61]	−0.797 [1.02]	2.088 [4.40]***	2.301 [1.69]*	−1.506 [2.30]**
Real interest rate differential	0.005 [0.77]	−0.004 [0.66]	−0.010 [0.91]	0.005 [0.87]	−0.006 [0.80]	−0.027 [1.97]**	0.013 [1.27]	0.010 [1.53]	0.027 [1.61]
$\ln(\text{real GDP per capita})$	1.624 [2.30]**	3.603 [4.60]***	1.474 [1.31]	2.052 [2.47]**	5.094 [5.11]***	1.018 [0.56]	1.666 [1.75]*	1.084 [0.94]	2.400 [1.32]
Stock market capitalization/ GDP	0.588 [3.53]***	0.506 [2.88]***	−0.311 [0.99]	0.486 [2.24]**	0.876 [3.79]***	−0.127 [0.26]	0.519 [2.34]**	0.035 [0.13]	−0.255 [0.47]
Domestic credit to private sector	0.000 [2.91]***	0.000 [1.44]	0.000 [1.44]	0.000 [1.79]*	0.000 [1.88]*	0.000 [0.98]	0.000 [3.93]***	0.000 [0.31]	0.000 [1.97]**
Merchandise trade (% of GDP)	−0.008 [2.22]**	−0.003 [0.87]	0.001 [0.19]	−0.010 [2.23]**	−0.013 [2.23]**	0.008 [0.61]	−0.003 [0.65]	0.016 [2.36]**	−0.001 [0.13]
Natural resources (% of merchandise exports)	0.004 [0.28]	−0.002 [0.18]	−0.004 [0.18]	0.006 [0.41]	0.003 [0.16]	−0.021 [0.74]	0.007 [0.44]	−0.006 [0.36]	0.034 [1.14]
EIU's Overall Business Rating	0.473 [3.23]***	0.333 [1.62]	0.176 [0.60]	0.573 [3.26]***	0.462 [2.05]**	0.423 [0.94]	0.217 [1.10]	0.231 [1.02]	0.797 [1.90]*
Observations	471	471	379	435	388	301	431	429	335
Number of countries	45	45	44	45	45	43	45	45	44
R-squared	0.44	0.49	0.23	0.36	0.43	0.25	0.37	0.26	0.18

*, **, *** denote 10%, 5%, and 1%, level of significance, respectively.

FDI = foreign direct investment.

Note: Robust t statistics in brackets. All regressions include time dummies and a constant but not reported.

Source: Authors' estimates.

Appendix Table 2: Regression Results with Income and Emerging Asia (EM) Dummies
Dependent Variable: ln(Capital Flows/Capita), 1995–2007

Explanatory Variables	Direction of Flow/Type of Asset								
	Total (Inflows + Outflows)			Inflows			Outflows		
	FDI	Equity	Debt	FDI	Equity	Debt	FDI	Equity	Debt
Capital restrictions	0.042 [0.19]	-0.762 [1.94]*	0.289 [0.79]	0.136 [0.60]	0.060 [0.08]	0.453 [0.94]	-0.911 [2.85]***	-0.087 [0.18]	-0.146 [0.40]
Capital restrictions*high-income dummy	-0.111 [0.36]	-0.231 [0.35]	-0.099 [0.20]	-0.147 [0.36]	-0.828 [1.00]	-1.357 [2.17]**	0.363 [0.82]	-0.722 [0.99]	0.197 [0.31]
Capital restrictions*high-income dummy *EM Asia dummy	0.329 [0.59]	-0.246 [0.37]	-1.233 [2.51]**	-1.860 [2.69]***	0.420 [0.71]	0.000 [.]	1.825 [3.51]***	-0.203 [0.16]	-0.740 [1.08]
Real interest rate differential	0.005 [0.78]	-0.004 [0.68]	-0.010 [0.92]	0.005 [0.87]	-0.006 [0.91]	-0.028 [2.00]**	0.012 [1.22]	0.011 [1.65]	0.025 [1.48]
Ln(real GDP per capita)	1.651 [2.33]**	3.624 [4.61]***	1.478 [1.32]	2.028 [2.41]**	4.988 [4.95]***	1.037 [0.57]	1.616 [1.70]*	1.642 [1.28]	2.150 [1.17]
Stock market capitalization/GDP	0.586 [3.50]***	0.501 [2.85]***	-0.296 [0.96]	0.500 [2.28]**	0.879 [3.79]***	-0.108 [0.22]	0.538 [2.41]**	0.062 [0.23]	-0.228 [0.42]
Domestic credit to private sector (% of GDP)	0.000 [2.90]***	0.000 [1.44]	0.000 [1.45]	0.000 [1.78]*	0.000 [1.88]*	0.000 [0.98]	0.000 [3.96]***	0.000 [0.42]	0.000 [1.94]*
Merchandise trade (% of GDP)	-0.009 [2.25]**	-0.003 [0.89]	0.000 [0.02]	-0.010 [2.32]**	-0.013 [2.25]**	0.006 [0.46]	-0.003 [0.64]	0.015 [2.12]**	0.001 [0.07]
Natural resources (% of merchandise exports)	0.004 [0.29]	-0.003 [0.22]	-0.003 [0.16]	0.005 [0.32]	0.003 [0.17]	-0.020 [0.71]	0.007 [0.45]	-0.009 [0.56]	0.030 [0.99]
EIU's Overall Business Rating	0.462 [3.12]***	0.345 [1.66]*	0.180 [0.61]	0.542 [3.04]***	0.468 [2.04]**	0.418 [0.95]	0.202 [1.03]	0.324 [1.40]	0.758 [1.85]*
Observations	471	471	379	435	388	301	431	429	335
Number of countries	45	45	44	45	45	43	45	45	44
R-squared	0.44	0.49	0.23	0.35	0.43	0.25	0.37	0.25	0.18

*, **, *** denote 10%, 5%, and 1%, level of significance, respectively.

FDI = foreign direct investment.

Note: Robust t statistics in brackets. All regressions include time dummies and a constant but not reported.

Source: Authors' estimates.

References

- Ariyoshi, A., K. Habermeier, B. Laurens, I. Otter-Robe, J. Canales-Kriljenko, and A. Kirilenko. 2000. Capital Controls: Country Experiences with Their Use and Liberalization. IMF Occasional Paper No. 190, International Monetary Fund, Washington, DC.
- Binici, M., M. Hutchison, and M. Schindler. 2010. "Controlling Capital? Legal Restrictions and the Asset Composition of International Financial Flows." *Journal of International Money and Finance* 29(4):666–84.
- Gochoco-Bautista, M. S. G., J. Jongwanich, and J. W. Lee. 2010. How Effective Are Capital Controls in Asia? ADB Economics Working Paper Series No. 244, Asian Development Bank, Manila.
- Magud, N., and C. Reinhart. 2007. "Capital Controls: An Evaluation." In S. Edwards, ed., *Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences*. Chicago: University of Chicago Press.
- Schindler, M. 2009. Measuring Financial Integration: A New Data Set. IMF Staff Papers 56, International Monetary Fund, Washington, DC.

About the Paper

Maria Socorro Gochoco-Bautista and Ruth H. Francisco find that differences in regional and income levels matter for the effectiveness of *de jure* capital restrictions.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than \$2 a day, with 903 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org/economics
ISSN: 1655-5252
Publication Stock No. WPS113713



Printed in the Philippines