Effectiveness and Effects of China's Capital Controls

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Abstract

Reductions in barriers to global trade have not been accompanied by a widespread loosening of restrictions on international flows of capital, especially in China. This study shows that China has some of the most restrictive controls and uses them effectively to bias flows of cross border capital heavily in favor of foreign direct investment and limit flows of portfolio and bank assets and liabilities, as well as reduce capital flow volatility. China is now facing pressure to speed up its opening to all forms of cross border capital. But since China is still struggling to strengthen its domestic financial structure, capital account liberalization would expose it to considerable risks and potentially high costs.

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Key words: Capital control measures, cross-border capital flows, capital flow volatility

I. Introduction

Nations at every stage of development and in every region of the world are more closely linked through trade in goods and services, through flows of funds and investments in each others' economies than ever before. But in sharp contrast to more and more nations loosening restrictions on international trade and spurring its rapid growth, controls over capital flows are still substantial nearly everywhere except in the most developed economies. This is certainly the case in China, where restrictions on movements of capital across borders remain especially broad based and numerous.

Indices have been created to measure the degree of capital account openness. At a minimum, they reflect a nation's intentions of international financial integration. But ideally they also gauge the effectiveness of capital controls. By combining these two aspects, it is possible to gain insight into a country's exposure to international capital markets and weaknesses in their financial structures.

While a number of studies have measured capital controls for a broad range of countries, measures of China's capital controls are notably lacking. The aim of this paper is to rectify this deficiency by constructing capital control index (CCI) for China adding another measurement of actual cross-border flows index (CBFI). With these in hand, together with looking at the volatility of capital flows, the effectiveness and effects of China's capital controls in shaping its financial flows are then compared with other nations to see where the situation in China currently stands and to get a clearer idea of some major challenges and choices looming for Chinese policymakers.

This paper is structured as follows. The methodology of constructing capital control measurements and two means by which the effectiveness of capital controls can be assessed are introduced in Section II. The construction of capital control index for China and comparison of capital control effectiveness with other emerging economies are presented in Section III. The effect of China's capital controls on composition of capital flows is analyzed

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in Section IV. This paper ends with conclusions in Section V.

II. Construction of Capital Control Measurements and Assessment of Capital Control Effectiveness

Capital controls generally take two main forms: direct or administrative controls, and indirect or market-based controls (Akira, *et al.*, 2000). Direct or administrative controls restrict capital transactions and transfers of funds through outright prohibitions, explicit quantitative limits, or an approval procedure. In China, as well as many other countries, such restrictions commonly require official permission to transfer funds into and out of the country, prevent foreign companies from investing in core industries such as telecommunication, transportation, energy, and national defense and limit ownership of firms in other industries to a minority share. Countries also regulate capital flows by imposing minimum stay requirements for certain types of capital, including direct and portfolio investment (Campion and Neumann, 2003).

Indirect or market-based controls discourage capital movements and associated transactions by making them more costly to undertake. Such controls take various forms, including explicit or implicit taxation of cross-border financial flows and dual or multiple exchange rate regime. Typical examples of this include withholding taxes on interest income, portfolio investment taxes and unremunerated reserve requirements.

To evaluate the effectiveness of capital controls in shaping cross-border capital flows, it is first necessary to measure the degree of capital restrictions and regulations imposed by a country. A common approach used in many international studies is to calculate capital control indices (CCI) based on data collected by the International Monetary Fund in its Annual Reports on Exchange Arrangements and Exchange Restrictions To evaluate the effectiveness of capital controls in shaping cross-border capital flows, it is also necessary to measure the degree of actual capital flows of a country or an economy, which is represented by cross-border capital flow index (CBFI).

1. Methodology of CCI construction

Before 1996, *International Monetary Fund Annual Reports on Exchange Arrangements and Exchange Restrictions* (AREAER) provided a binary (0/1) evaluation in six categories of cross border financial flows for all member countries[2]. AREAER expanded the coverage of its reporting procedures in 1997[3] and in the case of capital account transactions, there have since been 13 subcategories (see Table 3 from 1-13).

A number of capital control indices have been developed and as evident in a summary of studies in Table 1, the capital control measures in the majority of these are based on the AREAER information, with a wide range of years and countries covered. A commonly used methodology, initially created by Johnston and Tamirisa (1998), is to calculate a simple average of the 13 subcategories of capital controls, where 0/1 dummies are used to indicate whether or not a country regulates that specific practice. A maximum CCI score of 1.0

[2] The six categories include: bilateral payments arrangements with members and non-members, restrictions on payments for current account transactions, restriction on payments for capital account transaction, import surcharges, advance import deposits, and surrender or repatriation requirements for export proceeds.
[3] AREAER editions before and including 1996 had a reporting framework called, "Summary Features of Exchange and Trade Systems in Member Countries". Editions since 1997 have a reporting system called, "Summary Features of Exchange Arrangements and Regulatory Frameworks for Current and Capital Transactions in Member Countries".

indicates that the country imposes at least some degree of control in all of the subcategories, while a score of 0 indicates no explicated capital controls on any. Miniane（2004）expanded on this method by adding a fourteenth subcategory of dual exchange rate arrangements in his study of 34 countries covering the years 1983 to 2000. In general, such measures of capital account openness reflect a country's official intentions toward financial integration and hence can be used to assess the effectiveness and effects on actual cross border capital flows.

Table 1. Studies of Capital Control Measures, Data Sources, and Countries Covered

Quinn (1997)	AREAER	63 countries for the year of 1958, 1973, 1982 and 1988
Johnston and Tamirisa (1998)	AREAER	45 countries for the year of 1996
Rossi (1999)	AREAER and others	15 countries. 1989-1997
Brune, *et al* (2001)	AREAER	173 countries. 1973-1999
Miniane (2004)	AREAER	34 counties, 1983-2000
Lane and Milesi-Ferretti (2001)	IFS/ Balance of Payments Statistics Yearbook(BPSY)	67 countries, 1970-1998
Edison and Warnock (2003)	Standard and Poor's/IFS	29 emerging countries, 1988-present

Source: Miniane (2004)

2. Methodology of CBFI construction

The capital control index (CCI) provides quantitative measurements of capital account openness and hence gives a means to judge the degree of a country's capital account liberalization and international financial integration. This measure has a problem however, as it does not capture differences in the intensity or enforcement of capital controls (Prasad *et al.*, 2003). Therefore, another measure of financial integration, based on a country's cross-border capital flows of main non-official assets and liabilities as a share of its GDP, is devised. This measure is defined as the CBFI.

Among the subcategories of capital restrictions listed in Table 3, nine cover a range of banking and portfolio investment activities, two deal with foreign direct investment, and one each address real estate transactions and personal capital movement. Reflecting the emphasis of the AREAER categories, the CBFI is the annual sum of a country's inflows and outflows of FDI, portfolio investments, and bank assets and liabilities as a share of the country's GDP[4]. In this sense, the CBFI is similar to using the sum of exports plus imports as a share of GDP to reflect a country's openness to trade in goods and services.

Others analyzing this issue have generally used gross stocks of these components as a share of GDP to get a measurement of financial integration because they are less volatile. (Lane *et al*, 2001). The choice to use flows in this study is for just the opposite reason because one of the main purposes that governments place restrictions on capital is to reduce the volatility of its movement in and out of a country. Thus, it is necessary to take into account such behavior if the effectiveness of capital controls is to be fully assessed.

3. Assessment of capital control effectiveness

In this study, two methods are used to judge the effectiveness of capital controls. One looks

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[4] This study uses data of IMF Balance of Payments Statistics Yearbooks to calculate CBFI.

at the relationship between the CCI and the CBFI. Another examines how capital controls impact the volatility of capital flows. As to the first, CCI and CBFI are distinctive in meaning, although both are gauges of capital account openness. The CCI reflects the existence of restrictions on capital flows, while the CBFI measures actual non-official capital flows that cross a country's borders. The effectiveness of a country's capital controls as reflected in the actual degree of international financial integration can thus be more satisfactorily analyzed based on the combination of these two aspects. A summary interpretation of using these two indices in unison is presented in Table 2.

Table 2. Interpreting the CCI and CBFI

	High CBFI	Low CBFI
High CCI	Capital restrictions ambiguous	Capital restrictions effective
Low CCI	Capital flowing freely and readily	Other factors such as poor investing environment keep capital flows low

Countries with a high CCI and a low CBFI mean their capital account restrictions are effective in controlling actual capital flows. Countries with both a high CCI and a high CBFI indicate their capital account restrictions are ambiguous or ineffective in controlling actual capital flows. Countries with a low CCI and a high CBFI have opened their markets and achieved an attractive environment for cross border flows. And finally, some countries with a low CCI do not have a high CBFI, which means capital control liberalization is not the only condition for international financial integration.

The second approach judges the effectiveness of capital control in shaping financial flows by measuring volatility in inflows, outflows, and net flows relative to GDP. Volatility of these flows is expressed by their standard deviations. Indeed, one of the main reasons that governments place restrictions on capital movements is to limit exposure to abrupt changes in its inflows and outflows across borders. Therefore, the effectiveness of capital control in shaping financial flows can be assessed by looking at the changes or volatility of capital inflows, outflows and net flows.

III. China's CCI Construction and Its Effectiveness of Capital Controls

1. China's capital control index construction

A review of the literature shows that little research has been carried out on China's capital controls. Therefore in order to analytically assess China's standing in international financial markets, it is necessary to first construct comparable data for China.

Using Miniane's methodology that adds dual exchange rate arrangements to the 13 categories in AREAER (Miniane, 2004), the construction of China's capital control index (CCI) is presented in Table 3.

Table 3. China's Capital Control Indices, 1996-2003

Subcategories of Capital Account Transactions	1996	1997	1998	1999	2000	2001	2002	2003
1. Capital Market Securities	1	1	1	1	1	1	1	1
2. Money Market Instruments	1	1	1	1	1	1	1	1
3. Collective Investment Securities	1	1	1	1	1	1	1	1

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4. Derivatives and other instruments	1	1	1	1	1	1	1	1
5. Commercial Credits	1	1	1	1	1	1	1	1
6. Financial Credits	1	1	1	1	1	1	1	1
7. Guarantee、Sureties and Financial Backup Facilities	1	1	1	1	1	1	1	1
8. Direct Investment	1	1	1	1	1	1	1	1
9. Liquidation of Direct Investment	0	0	0	0	1	1	1	1
10. Real Estate Transactions	1	1	1	1	1	1	1	1
11. Personal Capital Movements	Na	1	1	1	1	1	1	1
12. Provisions specific to Commercial Banks and other credit institutions	1	1	1	1	1	1	1	1
13. Provisions specific to institutional investors	0	0	1	1	0	0	0	0
14. Dual exchange rate arrangements	0	0	0	0	0	0	0	0
CCI	0.769	0.786	0.857	0.857	0.857	0.857	0.857	0.857

Source: Calculation of indices is based on Annual Report of Exchange Arrangements and Exchange Restrictions (AREAER) through 1997 to 2004.
Note: "1" indicates that there exists specific restriction; "0" indicates no restriction; Na indicates that there was no subcategory of "personal capital movements" in 1997 AREAER edition.

Data from AREAER annual editions are used to construct the CCI from 1996 to 2003. Choice of this period is especially appropriate since it begins when AREAER revamped its reporting procedures and 1996 was the year China signed IMF Articles of Agreement VIII[5] As shown in Table 3, China's controls on cross border flows of capital have remained virtually unchanged throughout the entire period, with its CCI rising from a low of 0.769 in 1996 to 0.786 in 1997 and then to 0.857 over the rest of the period.

2. Effectiveness of China's Capital Controls and some implications from other emerging economies

As described in Section II, there are two ways to assess the effectiveness of capital controls on actual cross-border financial flows. The CCI and CBFI are used first. In order to better understand the effectiveness and implications of China's capital controls, China's CCI and CBFI are compared with those of other emerging markets to have a better understanding of China's capital control effectiveness and implications. These indices for China and nine other economies in Asia and South America for two sub-periods spanning 1996 to 2003 are listed in Table 4.

The degree to which these economies are open to trade in goods and services is measured by taking the sum of exports and imports as a share of GDP, which is shown in the export and import index (XMI) column in the table. All the economies listed in the table have opened wide when it comes to current account transactions and rank among the biggest trading economies. It is just the opposite for most of these economies when it comes to opening up to international flows of capital, however, as a comparison with the CBFI shows.

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[5] The 158 countries that signed The IMF Articles of Agreement VIII by the end of 2003 pledged avoidance of restrictions on current payments, avoidance of discriminatory currency practices, convertibility of foreign-held balances, furnishing of information, consultation between members regarding existing international agreements, and obligation to collaborate regarding policies on reserve assets.

Table 4. Comparisons between CCI and CBFI, 1996-2003

	Average 2001-2003				Average 1996-2000		
	CCI	CBFI	XMI		CCI	CBFI	XMI
China	0.857	0.078	0.564		0.825	0.074	0.420
Malaysia	0.857	0.063	2.107		0.786	0.081	2.087
Brazil	0.619	0.068	0.286		**0.**871	0.073	0.197
Mexico	0.762	0.052	0.536		0.772	0.059	0.582
Korea	0.786	0.069	0.719		0.743	0.092	0.704
Thailand	0.786	0.068	1.245		0.743	0.138	1.025
Chile	0.429	0.165	0.538		0.900	0.169	0.461
Argentina	0.666	0.115	0.345		0.386	0.113	0.228
Singapore	0.357	0.439	3.105		0.328	0.565	3.451
HK SAR*	0.143	1.069	3.035		0.214	1.932	2.672

Notes: Countries are ranked according to CCI from highest to lowest based on 1996-2003 averages.
Year 2001 was chosen to separate the two periods because of the 9.11 terrorist attack in the U.S. and the subsequent more stringent enforcement of capital controls to halt funds flowing to terrorist networks.
 * Cross border flows data for Hong Kong SAR began in 1998.

As table 4 shows, China is at the top of the list of the economies that are ranked according to their average CCI scores, with Malaysia, Mexico, Korea, Thailand, and before 2001 Brazil and Chile, not far behind. This means all these countries had extensive restrictions to capital account transactions.

As for CBFI, China, along with Brazil and Mexico, have a consistently lower scores over the entire period covered. This indicates that their relatively restrictive capital control measures were quite effective in practice. Malaysia, Korea, and especially Thailand are examples where the CBFI fell in the recent period as capital control measures were added. Overall, China and these countries' restrictions on capital flows as reported to the IMF have been quite successful in the sense of controlling actual capital flows.

Chile is on the other end of the scale of the emerging economies, having the highest CBFI throughout the entire period. Although before 2001 Chile ostensibly had many restrictions on capital flows with a CCI of 0.900, it nonetheless had rather large capital flows with a CBFI of 0.169. This contrasts with China's situation before 2001 with a CCI at 0.825 and CBFI at 0.074. Both China and Chile had quite strict capital control before 2001, but the result was markedly different, with China's capital controls clearly more effective than those of Chile. The implication to China is that capital control is sometimes not effective, because there are other factors, such as interest rate, exchange rate and investing environment etc that may influence capital flows. (Brune, *et al,* 2001, discuss such additional factors in the relationship of internationally integrated markets and capital account openness. Capital control measures should coordinate with other policies to control capital flows more effectively.

Argentina is a case where relatively few capital restrictions in the early part of this period coincided with a mildly high level of actual capital flows. It is notable, however, that the subsequent re-imposition of more restrictive capital controls in 2001 barely had an impact on its overall CBFI, which in fact edged up to 0.115 from 0.113 even though the CCI increased to 0.666 from 0.386. The implication to China is that international financial integration has a characteristic of permanence, and once China releases its capital control, reversing will be difficult. Because in that case, capital control will become ineffective in

controlling actual cross-border flows. Therefore, cautiousness and prudence are needed during China's capital account liberalization.

Moving further along the scale toward the most open capital economies as measured by a low CCI, the very high CBFI of Hong Kong SAR and Singapore corresponds to their perennial ranking as the world's two freest economies. This indicates just how far Mainland China has to go in relaxing capital controls and realizing an open capital account .

The other means to judge the effectiveness of capital control by looking at volatility of capital flows shows a complementary result. The volatility of the annual changes in inflows, outflows, and net flows relative to GDP as measured by their standard deviation over the entire period is listed for each economy in Table 5. Although the sample period is too short for a robust degree of confidence, when all the countries in our study are analyzed together, there is a strong relationship, as measured by the correlation coefficient, showing that the greater the restrictions on flows of capital, the lower is the volatility of inflows, outflows, and net flows.

Table 5. Capital Controls and Volatility in Cross Borders Flows in Some Developing Economies

	Average 1996 to 2003			Standard deviation*		
	CCI	CBFI		Inflows	Outflows	Net Flows
China	0.837	0.076		0.008	0.010	0.015
Malaysia	0.813	0.074		0.024	0.017	0.034
Brazil	0.777	0.072		0.014	0.009	0.017
Mexico	0.769	0.056		0.014	0.006	0.012
Korea	0.759	0.083		0.009	0.012	0.015
Thailand	0.759	0.112		0.018	0.050	0.043
Chile	0.724	0.167		0.027	0.037	0.023
Argentina	0.491	0.114		0.030	0.027	0.050
Singapore	0.339	0.518		0.089	0.102	0.074
Hong Kong SAR	0.143	1.500		0.259	0.240	0.065
Correlation Coefficient**	Each with CCI	-0.878		-0.888	-0.893	-0.862

Notes: * The standard deviation describes how tightly all the separate data points are clustered around the mean in a set of data. When the individual data points are pretty tightly bunched together, the standard deviation is small. When the data points are spread apart, the standard deviation is relatively large.

**The correlation coefficient measures the degree to which two things vary together or oppositely. If two standardized variables covary positively and perfectly, the correlation will equal 1.00. If two things covary negatively and perfectly, then the correlation will equal - 1.00.

As table 5 shows, China, with its tight capital restrictions, was especially successful in limiting the volatility of capital flows over this period as indicated by their low standard deviations (with standard deviation of inflows, outflows and net flows at 0.008, 0.010 and 0.015 respectively). While looking at other economies' data, it is obvious that the assessment using volatility approach is basically consistent with that using CCI and CBFI approach. This indicates that the two approaches are efficient in assessing capital control effectiveness in controlling capital flows.

By comparing China's CCI and CBFI with those of other emerging economies, and looking at the volatility of capital flows, a conclusion can be drawn that, among the economies in this study, China is the most effective in using capital controls to shape its

cross-border capital flows. Experience of other emerging economies shows that China needs to study other factors that may influence capital flows and adjust its capital control policy accordingly. In addition, given the difficulties of reversal, China needs to be cautious and prudent in arranging its capital account liberalization.

Assessing the effectiveness of capital control is a crucial first step when capital controls are studied. But the effect of capital controls is another important issue. Therefore, finished with analyzing the effectiveness of China's capital controls, examination of the effects of capital controls comes next.

IV. Effect of China's Capital Controls on Composition of Capital Flows

The final focus of this study is on the effect that China's capital controls have in shaping its cross-border financial flows and their composition. Previous studies generally placed little emphasis on the impact that capital controls have on the composition of international capital flows as pointed out by Campion and Neumann (2003). The main focus of capital controls has been to reduce the possibility of capital flight (so called hot money) by tightly restricting short-term inflows and outflows and encouraging long-term capital inflows. The theoretical and analytical model developed by Campion and Neumann (2003) focused mainly on the effects that capital controls have on the debt and equity composition of capital inflows. As defined by AREAER, however, capital controls are placed on both inflows and outflows of capital and hence both are accordingly taken into account in this study as are other inflows and outflows of foreign direct investment (FDI) and money channeled through banks.

It is notable that in the four economies (Mainland China, Malaysia, Brazil and Mexico), where capital restrictions were the highest during the entire period and actual cross border capital flows were the lowest, more than half of the flows that did occur was in the form of FDI. In the case of China, this additionally reflects its success in becoming the world's favored destination of FDI, outside of the United States, over the past decade.

Table 6. Main Components of Capital Flows as a Share of Total Flows

	Average 2001-2003				Average 1996-2000		
	FDI	Portfolio	Bank		FDI	Portfolio	Bank
Mainland China	0.518	0.168	0.314		0.636	0.126	0.239
Malaysia	0.513	0.300	0.187		0.670	0.118	0.212
Brazil	0.527	0.207	0.266		0.544	0.289	0.167
Mexico	0.590	0.139	0.271		0.522	0.292	0.185
Korea	0.156	0.472	0.371		0.255	0.379	0.366
Thailand	0.310	0.239	0.451		0.277	0.176	0.547
Chile	0.353	0.483	0.164		0.630	0.275	0.095
Argentina	0.113	0.519	0.368		0.407	0.412	0.181
Singapore	0.410	0.282	0.308		0.393	0.296	0.311
Hong Kong SAR*	0.152	0.250	0.598		0.210	0.211	0.578

Note: * Cross border flows data for Hong Kong SAR began in 1998. The component of FDI as a share of total flows is obtained by dividing the sum of FDI inflows and outflows by the CBFI. The portfolio and bank components as a share of total flows are obtained in the same manner.

This also accentuates the fact that the AREAER binary coding does not capture the

varying degrees by which countries impose restrictions on the different forms of capital flows. In the case of China, 12 of the 14 AREAER subcategories have been coded as 1 over the entire 8-year period covered. Chinese policymakers, however, make no secret of tilting the field heavily to encourage inflows of FDI though favorable tax policies and other regulations, while tightly enforcing restrictions on international financial flows of capital via issuance and investments in bonds and equities, cross border bank lending and fund raising, associated development of derivatives, and placing strict limits on the amounts of money that can be taken out of the country by its citizens.

Although Korea and Thailand do not have much lower capital control indices than China and have similar CBFI, their openness to flows of capital via portfolio securities and banks is substantially greater. In fact, these two countries are more similar to the Asian financial centers of Singapore and Hong Kong SAR where international financial flows are more concentrated in portfolio investment and banking. Consequently all these countries experienced bouts of substantial capital flight when the Asian crisis swept across the region in 1997-1998. China, in contrast, was the only Asian economy examined in this study that did not experience a single year of net capital outflows over the period examined, which again demonstrates the effectiveness of China's tight controls.

V. Conclusions

Cross border capital flows are of great concern because they are closely related to international financial integration and domestic financial and economic stability. According to capital control indices constructed in this study, restrictions on capital still remain significant in nearly all except the most advanced markets. Countries use such controls to minimize the exposure to each other's vulnerabilities as well as provide cover for their own domestic deficiencies. Some countries also have successfully used capital controls to bias the composition of cross border capital flows. Notably, nations that have opened their financial markets the least generally have a much greater proportion of FDI flows than either portfolio or bank flows. In China, use of capital controls has been particularly successful in restricting actual cross border flows to reduce their volatility and skewing cross border capital strongly in favor of FDI.

China is continuing its opening policy by targeting RMB complete convertibility. However, the process of liberalizing restrictions on cross border capital flows must embody a comprehensive approach to first strengthen related core areas. This includes rigorous regulatory oversight that enforces good corporate governance and disclosure rules, and a sound financial system that includes full foreign participation. A critical ingredient is the establishment of clear property rights and an efficient legal system. By varying degrees, China is making progress in all of these areas. China's four regulatory agencies, the China Bank Regulatory Commission, the China Securities Regulatory Commission, the China Insurance Regulatory Commission, and the State-Owned Assets Supervision and Administration Commission are all working attentively on these issues.

The central dilemma China faces is how fast to open the economy to the international financial markets. Bringing down barriers to capital flows sooner rather than later will add pressure to improve deficiencies quickly. But this would also expose China to the harsh judgment of markets if it fails to meet acceptable standards of accountability. As it now stands, there is considerable risk that the outcome of quickly liberalizing capital account

transactions will be costly for China. As demonstrated during the Asian financial crisis, there is no stronger, quicker, or more unforgiving punisher of poor financial practices than the power of free capital markets.

References

Akira, Ariyoshi, Habermeier Karl F., Laurens Bernard J., Otker-Robe Inci, Canales Kriljenko Jorge I. and Kirilenko Andrei A., 2000. "Capital control: country experiences with their use and liberalization," *IMF Occasional Paper*, No.190.

Brune, Nancy, Geoffrey Garrett, Alexandra Guisinger and Jason Sorens, 2001. "The political economy of capital account liberalization," Available via the Internet: www.international.ucla.edu/profile/ggarrett/article.asp?parentid=3683.

Campion, Mary Kathryn and Rebecca M. Neumann, 2003. *Compositional Effects of Capital Controls – Theory and Evidence*. Blackwell Publishing Ltd.

Edison, Hali J., and Francis E. Warnock, 2003. "A simple measure of the intensity of capital controls," *Journal of Empirical Finance*, Vol. 10, No. 1-2.

Johnston, Barry, and Natalia Tamirisa, 1998. "Why do countries use capital controls?" *IMF Working Paper*, 98/181.

Lane, Philip and Gian Milesi-Ferretti, 2001. "The external wealth of nations: Measures of foreign assets and liabilities for industrial and developing countries," *Journal of International Economics*, Vol. 55, No.2.

Miniane, Jacques, 2004. "A new set of measures on capital account restrictions," *IMF Staff Papers*, Vol. 51, No. 2

Prasad, Eswar S., Kenneth Rogoff, Shang-Jin Wei and M.Ayhan Kose, 2003. "Effects of financial globalization on developing countries: some empirical evidence," *IMF Occasional Paper*, No.220.

Quinn, Dennis, 1997. "The correlates of change in International financial regulation," *American Political Science Review,* Vol. 91.

Rossi, Marco, 1999. "Financial fragility and economic performance in developing economies—Do capital controls, prudential regulation, and supervision matter?" *IMF Working Paper,* 99/66.