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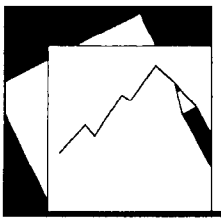

IMF Working Paper

Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization

Graciela Laura Kaminsky and Sergio L. Schmukler

INTERNATIONAL MONETARY FUND

 WP/03/34

IMF Working Paper

Research Department

Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization

Prepared by Graciela Laura Kaminsky and Sergio L. Schmukler[1]

Authorized for distribution by Kenneth Rogoff

February 2003

Abstract

We examine the short- and long-run effects of financial liberalization on capital markets. To do so, we construct a new comprehensive chronology of financial liberalization in 28 mature and emerging market economies since 1973. We also construct an algorithm to identify booms and busts in stock market prices. Our results indicate that financial liberalization is followed by more pronounced boom-bust cycles in the short run. However, financial liberalization leads to more stable markets in the long run. Finally, we analyze the sequencing of liberalization and institutional reforms to understand the contrasting short- and long-run effects of liberalization.

JEL Classification Numbers: F30, F32, F33, F34, F36, G12, G15
Keywords: financial liberalization, capital controls, financial integration, stock market prices, booms, busts, financial cycles
Author's E-Mail Address: graciela@gwu.edu

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[1] Graciela Kaminsky is Professor of Economics and International Affairs at George Washington University, and Sergio Schmukler is a Senior Economist at the World Bank. Part of the paper was done while she was a visiting scholar at the Research department of the International Monetary Fund. We have received insightful comments from Tom Glaessner, Raghu Rajan, and Linda Tesar, as well as participants at presentations held at the American Economics Association 2002 Annual Meeting, the Federal Reserve Bank of New York, the Deutsche Bundesbank, the conference Financial Globalization: A Blessing or a Curse? (World Bank), and the Society for Economic Dynamics 2002 Meeting (New York University). We are grateful to Tatiana Didier, Federico Guerrero, Cicilia Harun, José Pineda, Arun Sharma, Akiko Terada, Francisco Vazquez, Chris van Klaveren, and Kevin Wang, who helped us by providing excellent research assistance at different stages of the project. This paper has been previously circulated under the title "On Booms and Crashes: Financial Liberalization and Stock Market Cycles." The Research Committee and the Latin American Regional Studies Program of the World Bank kindly provided financial support.

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I. INTRODUCTION

The financial crises of the 1990s have claimed several victims. Banking systems in many countries collapsed, fast growing economies suddenly faced sharp recessions, and the booming international capital flows of the mid-1990s dwindled to a trickle. This is not all. Another important casualty of these crises has been the support for the liberalization of financial systems. In the aftermath of the Asian crisis, many have argued that globalization has gone too far, leading to erratic capital markets and causing costly crises. This has prompted some to suggest a return to the old order of financial controls. For example, Stiglitz (1999) clamors for developing countries to put some limits on capital inflows to moderate "excessive" boom-bust patterns in financial markets.[2] Even controls on capital outflows, not long ago dismissed as ineffective, have been recommended again. Krugman (1998), for example, argues that capital controls might help in managing, at least temporarily, an otherwise disorderly retreat of investors. The debate has reached the general public, with Soros (2002) and Stiglitz (2002) broadly criticizing the functioning of the international financial system. With many more economists joining the ranks of those supporting intervention in financial markets, long gone seem to be the days of an indiscriminate advocacy of financial integration.[3]

Interestingly, in what seems to be a parallel world, many still praise the advantages of liberalization. It is claimed that financial liberalization helps to improve the functioning of financial systems, increasing the availability of funds and allowing cross-country risk diversification. For example, Obstfeld (1998) argues that international capital markets can channel world savings to their most productive uses, irrespective of location. Stulz (1999) and Mishkin (2001) claim that financial liberalization promotes transparency and accountability, reducing adverse selection and moral hazard while alleviating liquidity problems in financial markets. They argue, moreover, that international capital markets help to discipline policymakers, who might be tempted to exploit an otherwise captive domestic capital market. Others even claim that financial liberalization and the financial development it triggers tend to greatly facilitate economic growth.[4] As has the group that favors more repression, the group supporting deregulation has also been growing in numbers.[5]

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[2] These overreactions in capital markets are often explained by information asymmetries. With imperfect and costly information, investors may act as a herd and overreact to shocks, withdrawing from countries at the smallest signs of problems, even when fundamentals do not warrant it. See, for example, Calvo and Mendoza (2000).

[3] See, for example, Eichengreen and Wyplosz (1993) and Rodrik (1998).

[4] The evidence on the benefits of financial deregulation seems to be quite strong with, for example, output growth rates estimated to have increased about one percentage point following liberalization (as shown in Bekaert, Harvey, and Lundblad 2001).

[5] See, for example, King and Levine (1993), Jayaratne and Strahan (1996), Rajan and Zingales (1998), and Levine (2001).

The empirical research, so far, has not helped to resolve the conflicting views. The findings in the crisis literature suggest that booms and busts in financial markets are at the core of currency crises and that these large cycles are triggered by financial deregulation.[6] On the contrary, the findings in the finance literature tend to support the claim that deregulation is beneficial, with liberalization reducing the cost of capital.[7] Perhaps, the inability to settle this debate is due to the fact that the various lines of empirical research focus either on the short-run or the long-run effects of deregulation, without studying the possible time-varying effects of financial liberalization. Moreover, the existing empirical literature has not provided a comprehensive analysis of the liberalization process. It has concentrated alternatively on the liberalization of the domestic financial sector, the capital account, or the stock market, even when liberalization reforms have entailed the progressive opening of the three sectors.

The goal of this paper is, first, to provide a better understanding of the liberalization process and, second, to explain both the link between liberalization and crises, as well as the relation between deregulation and more stable financial markets. To do so, we first assemble a new, more comprehensive database on financial liberalization for 28 countries for the period January 1973–June 1999. By itself, this is an important contribution, because this database is an improvement over the existing ones in several respects: (1) the new dataset looks at the experiences of a wide set of countries, both developed and developing; (2) it captures various aspects of liberalization, namely the deregulation of the capital account, the domestic financial sector, and the stock market; (3) the chronology covers an extended period in which several regulatory changes occurred, including deregulations and impositions of new controls; and (4) the new data provide information on the degrees of liberalization.

We also analyze the anatomy of stock-market cycles by applying algorithms designed to identify business cycles. With this technique, we study the duration and magnitude of upturns and downturns. Since financial cycles would be spurious if markets were efficient, we test the null hypothesis of a random walk.[8] We then study whether booms and busts change with financial liberalization. We finally analyze the possibility that financial deregulation triggers forces that favor changes in institutions, which can ultimately promote financial stability and growth.

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[6] See, for example, Corsetti, Roubini, and Pesenti (1998), Kaminsky and Reinhart (1999), and McKinnon and Pill (1997).

[7] See, for example, Henry (2000).

[8] Some empirical evidence in the last two decades has undermined the belief in efficient markets. Now many economists believe that imperfections in asset markets trigger bubbles and protracted and predictable bull and bear markets. See for example, De Long, Shleifer, Summers, and Waldmann (1990), Allen and Gorton (1993), and Allen, Morris, and Postlewaite (1993).

The rest of the paper is organized as follows. Section II describes the new data on financial liberalization and examines the patterns of deregulation. Section III characterizes booms and busts in the different regions. Section IV examines whether domestic financial liberalization and capital controls can explain the changing nature of financial cycles. Section V relates financial liberalization to institutional reform. Section VI concludes.

II. The Evolution of Global Financial Liberalization

One of the most prolific areas of empirical research in international economics and finance has been that of the analysis of the effects of controls and financial liberalization on financial markets, investment, and growth. Surprisingly, in spite of the great interest of several disciplines on the effects of deregulation of financial markets, the information on the evolution of financial regulations is still very fragmented. Below is a brief review of the existing measures.

Information on capital account controls is mostly based on indicators published by the International Monetary Fund (IMF) in its *Annual Report on Exchange Arrangements and Exchange Restrictions*.[9] For the period 1975–95, this publication reports a single indicator classifying only two capital account regimes: a "no controls" regime, which includes episodes with full liberalization of the capital account, and a "controls" regime, which includes both episodes with minor restrictions to the free flow of capital as well as episodes with outright prohibition of all capital account transactions. This indicator does not distinguish between controls on capital inflows and controls on capital outflows. Not until 1996, did the IMF begin to publish a more comprehensive report on capital account controls, which still does not capture the intensity of controls.[10]

Information on regulations of the domestic financial sector is even more fragmented. There is no institution compiling systematic cross-country information over time and researchers have relied on varied sources. One of them is Williamson and Mahar (1998), which dates liberalization according to five distinct dimensions of financial liberalization: existence of credit controls, controls on interest rates, entry barriers to the banking industry, government regulation of the banking sector, and importance of government-owned banks in the financial system. Most researchers construct their own liberalization chronology. For example, Demirgüç-Kunt and Detragiache (1999) date liberalization for 53 countries since 1980. In that study, liberalization of the domestic financial sector is interpreted as liberalization of domestic interest rates.

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[9] See Quinn and Inclan (1997) for an alternative measure.

[10] The new indicators evaluate restrictions on 11 types of capital account transactions: (1) capital market securities, (2) money market instruments, (3) collective investment securities, (4) derivatives and other instruments, (5) commercial credits, (6) financial credits, (7) guarantees, sureties, and financial backup facilities, (8) direct investment, (9) liquidation of direct investment, (10) real estate transactions, and (11) personal capital movements.

Information on the liberalization of domestic stock markets is also still quite partial. The International Financial Corporation (IFC) provides this information just for emerging markets. Again, this index (as the IMF index for the capital account) only captures two regimes: a "liberalization" regime and a "restricted" regime. The liberalization dates are determined based on whether foreigners are allowed to purchase shares of listed companies in the domestic stock exchange and whether there is free repatriation of capital and remittance of dividends and capital gains. Others, such as Bekaert and Harvey (2000), construct their own chronologies of stock market liberalization to date liberalization episodes for emerging markets, using information compiled by the IFC and the establishment of new investment vehicles like country funds and depositary receipts.[11]

The existing chronologies share some limitations. One limitation is that they do not distinguish between different intensities of liberalization/repression. Since deregulation tends to change slowly, valuable information is lost when the indicators only try to assess whether or not the liberalization has occurred.[12] Another limitation is that most chronologies analyze financial liberalization episodes as if they were permanent. Still, many countries have undergone several liberalization reversals, particularly following currency crises.[13] Naturally, these limitations call for a more comprehensive analysis of the various aspects of financial controls.

A. New Measures of Financial Liberalization

The new measures of financial liberalization introduced in this paper try to overcome part of the shortcomings of previous chronologies discussed above. Thus, our database captures to some degree the intensity of financial liberalization episodes as well as episodes

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[11] There is a very large related literature that studies the extent of financial and economic integration from observable economic variables, not from government regulations.

[12] For example, Chile introduced restrictions on capital inflows at the beginning of the 1990s. Controls were reinforced in the mid-1990s in the midst of the capital inflow episode. In 1998, under the threat of a contagious speculative attack against the Chilean peso, controls were eliminated. Similarly, domestic financial deregulation may take several years to be complete. For example, the deregulation of the domestic banking sector in Colombia was initiated in August 1974. Only in the 1980s were credit controls finally eliminated.

[13] For example, Argentina implemented a broad liberalization of financial markets in 1977, which was later reversed in 1982. Again, in the late 1980s, a new wave of financial liberalization affected the domestic financial sector, the capital account, and the stock market. This time around the liberalization attempt was longer lasting. Still, again in 2001, in the midst of Argentina's crisis, the government reintroduced controls on interest rates and restrictions on capital account transactions.

of liberalization reversals. Our chronology also tries to address some of the limitations of the empirical research on the effects of financial liberalization. First, most of the empirical research focuses on emerging markets, perhaps because most concerns are associated with liberalization episodes in developing countries, with even the most averse critics of capital account liberalization still supporting the financial deregulation of mature markets. A comprehensive picture of the effects of financial liberalization requires the analysis of deregulation episodes in both developed and developing countries, which the new database covers. Second, most of the previous studies focus on the elimination of controls on just one particular financial sector, be it the capital account, the domestic financial sector, and the stock market. This focus on the opening of just one financial market may result in a biased picture, since controls in one sector can also affect the behavior of other parts of the financial system, which may or may not be directly under any type of restrictions.[14] The new chronology deals with the regulations in three sectors.

The new database includes 28 countries for the period 1973–1999.[15] We classify the sample into four (mostly regional) country groupings: the G-7 countries, which are comprised of Canada, France, Germany, Italy, Japan, United Kingdom, and the United States; the Asian region, which includes Hong Kong SAR, Indonesia, Malaysia, the Philippines, the Republic of Korea, Taiwan (Province of China), and Thailand; the European group, which excludes those countries that are part of the G-7 and includes Denmark, Finland, Ireland, Norway, Portugal, Spain, and Sweden; and the Latin American sample, which consists of the largest economies in the region, Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

To capture the liberalization of the capital account, we evaluate the regulations on offshore borrowing by domestic financial institutions, offshore borrowing by nonfinancial corporations, multiple exchange rate markets, and controls on capital outflows. The first two indicators reflect restrictions on capital inflows. Restrictions on capital inflows can take various forms, with the most extreme restriction being an outright prohibition to borrow

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[14] This problem may be particularly important because the complete deregulation of financial systems is not accomplished in just one round, and the time span between the deregulation of one market and the elimination of controls across the board takes, in most cases, several years. For example, the data show that, in the 1970s, domestic financial repression is widespread not only in emerging markets, but also in several mature financial markets. Governments start lifting the various restrictions gradually. In many cases, the liberalization reform starts in the banking sector with the deregulation of domestic interest rates. The elimination of interest rate controls not only affects the market for bank loans and deposits, but also attracts international capital flows (when these flows are not strictly prohibited). Also, the stock market flourishes as the extent of credit rationing diminished.

[15] As used in this paper, the term "country" does not in all cases refer to a territorial entity that is a state as understood by international law and practice.

overseas. Milder controls include restrictions of minimum maturity on capital inflows and non-interest reserve requirements on foreign borrowing.

To measure the liberalization of the domestic financial system, we analyze the regulations on deposit interest rates, lending interest rates, allocation of credit, and foreign-currency deposits. As additional information, we also collect data on reserve requirements. To set the liberalization dates, we focus mainly on the first two variables, the price indicators. However, we complement that information with the regulations on the last three variables, those on quantities, to have a better picture of the degree of repression of the domestic financial sector. Finally, to track the liberalization of stock markets, we study the evolution of regulations on the acquisition of shares in the domestic stock market by foreigners, repatriation of capital, and repatriation of interest and dividends.

For each sector, the chronology identifies three regimes: "fully liberalized," "partially liberalized," and "repressed." The criteria used to determine whether the capital account, the domestic financial sector, and the stock market are fully or partially liberalized, or repressed, are described in detail in Appendix Table 1. We established these criteria after collecting all the regulations and carefully studying the range of restrictions adopted throughout countries and years. We believe that these criteria characterize well the degrees of financial liberalization. The chronology of restrictions compiled for each country and sector along with the complete list of references used to construct it are described in Appendix Tables A2 and A3.[16]

Table 1 reports the dates of partial and full financial liberalization for all the countries in the sample. The first three columns of dates display the liberalization of the capital account, the domestic financial sector, and the stock market. The last two columns report dates of partial and full liberalization taking into account the three sectors analyzed. A country is considered to be fully liberalized when at least two sectors are fully liberalized and the third one is partially liberalized. A country is classified as partially liberalized when at least two sectors are partially liberalized.

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[16] The sources of information include the IMF publications *Annual Report on Exchange Arrangements and Exchange Restrictions* and Country Reports, the IFC publication *Emerging Markets Database*, and the Organization for Economic Cooperation and Development (OECD) publication *Economic Surveys*. We also use various reports by the Economist's Intelligence Unit, the World Bank, annual reports of central banks, as well as research papers with chronologies on financial market restrictions.

Table 1. Liberalization Dates

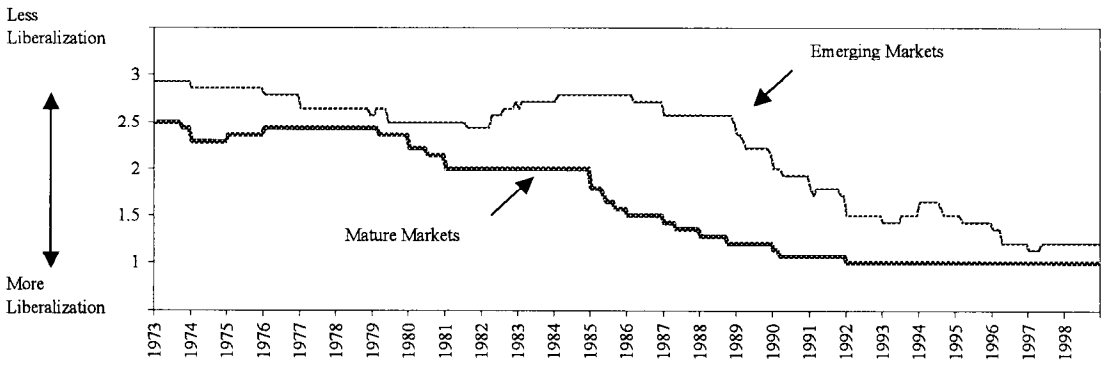
Economy	Capital Account	Domestic Financial Sector	Stock Market	Partial Liberalization	Full Liberalization
Asia					
Hong Kong SAR	Jan 73 -	Aug 94p/May 00 -	Pre 73 -	Jan 73 -	Aug 94 -
Indonesia	Jan 78p/Jan 88 - Feb 91	Jan 78p/Jan 83 -	Dec 88p/Aug 89-	Jan 83 -	Dec 88 - Feb 91
Korea	Jan 93p/Jan 96 -	Jan 88p/Jan 95 -	Jan 91p/Jan 98 -	Jan 93 -	Jan 96 - Dec 98
Malaysia	Jun 79p - Dec 93	Oct 78p - Sep 85	July 73/Jan 75p/84 - Dec 97	Jun 79 - Aug 98	Feb 91 - Dec 93
	Sep 94 - Aug 98	Feb 91 -			Sep 94 - Dec 97
Philippines	Jan 76p - Dec82	Jul 81p/Dec 82 -	Mar 86p/Jan 94 -	Mar 86 -	Jan 94 -
	Jan94p -				
Taiwan (Province of					
China)	Jan 87p/Jan 97 -	Sep 84p/Jul 89 -	Jan 87p/Apr 98 -	Jan 87 -	Jan 97 -
Thailand	Jan 79p - Dec 81	Jun 89p/Jun 92 -	Jan 88p/Jan 90 -	Jan 90 -	Jan 92 - Apr 97
	Jan 92/Aug 95p - Apr 97				Jan 98 -
	Jan 98 -				
Europe					
Denmark	Oct 88 -	Jan 73p - Jan 75	Pre 73 -	Jan 73 - Dec 75	Oct 88 -
		Mar 79p/Jan 81 -		Mar 79 -	
Finland	Jan 87p/Jun 89 -	Jan 86p/ Jan 90 -	Pre 73p/Jan 90 -	Jan 87 -	Jan 90 -
Ireland	Jan 79p/Jan 92 -	May 85p/Feb 86 -	Pre 73p/Jan 92 -	May 85 -	Jan 92 -
Norway	Jan 80p - Dec 81	Jan 79 - Dec 79	Jan 84p/Jan 89 -	Sep 85 -	Jan 88 -
	Jan 85p/Jan 88 -	Sep 85p/Jan 88 -			
Portugal	Sep 89p /Aug 92 -	Jan 84p/Mar 90 -	Pre 73 - Dec 75	Jan 86 -	Mar 90 -
			Jan 86 -		
Spain	Jan 75p/Jan 80/Jun 88p/Dec 92 -	Jan 74p/Jan 81 -	Pre 73 -	Jan 74 -	Jan 80 -
Sweden	Jan 84p/Jan 89 -	Jan 78p/Jan 85 -	Pre 73p/ Jan 80 -	Jan 80 -	Jan 85 -
G-7					
Canada	Pre 73p/Mar 75 -	Pre 73 -	Pre 73 -	Jan 73 -	Jan 73 -
France	Jun 85p/Jan 90 -	Jan 85 -	Pre 73 -	Jan 85 -	Jun 85 -
Germany	Pre 73p/Mar 81 -	Pre 73 -	Pre 73 -	Jan 73 -	Jan 73 -
Italy	May 87p/Jan 92 -	Jan 74 - Dec 74	Pre 73 -	Jan 74 - Dec 74	May 87 -
		Jan 81-		Jan 81 -	
Japan	Jan 79p/Jul 80 -	Jan 79p/Dec 91 -	Jan 85 -	Jul 80 -	Jan 85 -
United Kingdom	Oct 73p/Oct 79 -	Jan 81-	Pre 73 -	Oct 73 -	Jan 81 -
United States	Jul 73 -	Pre 73p/Jan 82 -	Pre 73 -	Jan 73 -	Jul 73 -
Latin America					
Argentina	Apr 76p/Dec 78 - Mar 82	Jan 77 - Jun 82	Jan 77p - Mar 82	Jan 77 - Mar 82	Dec 78 - Mar 82
	Dec 89 -	Oct 87 -	Jan 89 -	Jan 89 -	Dec 89 -
Brazil	Jan 90p - Dec 93	Jan 76 - Dec 78	Pre 73 p/Jun 91 -	Jan 76 - Jan 79	Jun 91 - Dec 93
	Mar 95p -	Jan 88p/Jan 89 -		Jan 89 -	Mar 95 -
Chile	Jun 79p - Dec 82	Jan 74p/May 75 - Nov 82	Jan 87p/Jan 92 -	Jun 79 - Nov 82	Apr 90 - May 91
	Apr 90/Jun 91p/Sep 98 -	Jan 84p/Jan 85 -		Jan 87 -	Jan 92 -
Colombia	Jan 91p/Sep 98 -	Aug 74p/Sep 1980 - Dec 85	Jan 91p -	Jan 91 -	Sep 98 -
		Jul 86 -			
Mexico	Pre 73 - Jul 82	Jan 74p - Aug 82	Jan 89p/Jan 91 -	Jan 74 - Jul 82	Nov 91 -
	Nov 91 -	Oct 88p/Apr 89 -		Apr 89 -	
Peru	Pre 73p - Dec 86	Pre 73p - Dec 81	Jan 92 -	Jan 91 -	Jan 92 -
	Jan 91 -	Jan 91 -			
Venezuela	Pre 73 - Jan 83	Aug 81 - Jan 84	Jan 77 - Dec 87	Jan 77 - Jan 84	Aug 81 - Jan 83
	Mar 89 - Dec 93	Jan 89 - Aug 94	Jan 90 - Jun 93	Mar 89 - Dec 93	Jan 90 - Jun 93
	Apr 96 -	Apr 96 -	Jun 95 -	Apr 96 -	Apr 96 -

This table reports the dates of partial and full liberalization of financial markets. The first three columns provide information by sector: capital account, domestic financial sector, and the stock market. The last two columns provide information on an integral measure of financial liberalization. The dates are based on the criteria displayed in Appendix Table 1. A country is considered to be fully liberalized when at least two sectors are fully liberalized and the third one is partially liberalized. A country is considered to be partially liberalized if at least two sectors are partially liberalized. Otherwise, the country is considered to be financially repressed. If there is no information about the month of liberalization, we use January (December) if the corresponding report indicates that liberalization is implemented at the beginning (end) of the year. "-" followed by a blank means that it covers the period until June 1999. Pre 73 (Pre 73p) means that the sector is already fully (partially) liberalized at that time, with no significant measures taken at that date.

B. Pace and Dynamics of Liberalization

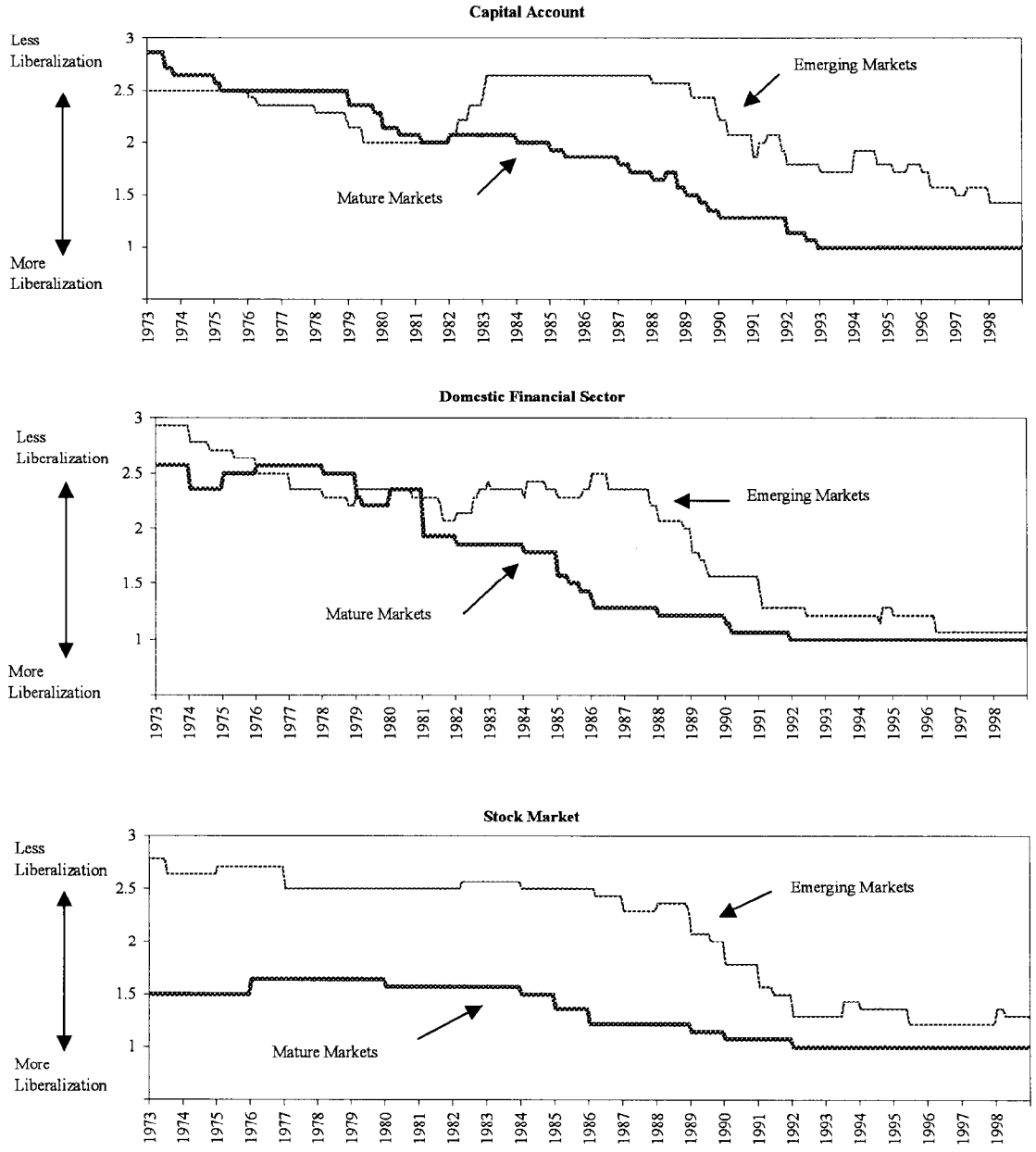
Figures 1–3 and Table 2 summarize the information in Table 1 by displaying the time-series and cross-sectional variation of liberalization. Figure 1 plots the index of financial liberalization in emerging and mature markets. This index jointly evaluates the liberalization of the capital account, the domestic financial sector, and the stock market. It can take values between one and three, with one indicating fully liberalized and three indicating fully repressed financial systems. As expected, mature financial markets are on average less regulated. The index for mature markets averages 1.7 over the sample, while for emerging markets, it averages 2.3. Interestingly, across all regions there is a gradual lifting of restrictions, with the index of liberalization declining from an initial value of 2.5 for mature markets and 2.9 for emerging economies to one and 1.2, respectively, toward the end of the sample. Still, there is also a regional pattern in the dynamics of financial liberalization, with emerging markets suffering liberalization reversals in the early 1980s, following the debt crisis. In contrast, the pace of liberalization in mature markets, while also gradual, is uninterrupted.

Figure 1. Index of Financial Liberalization



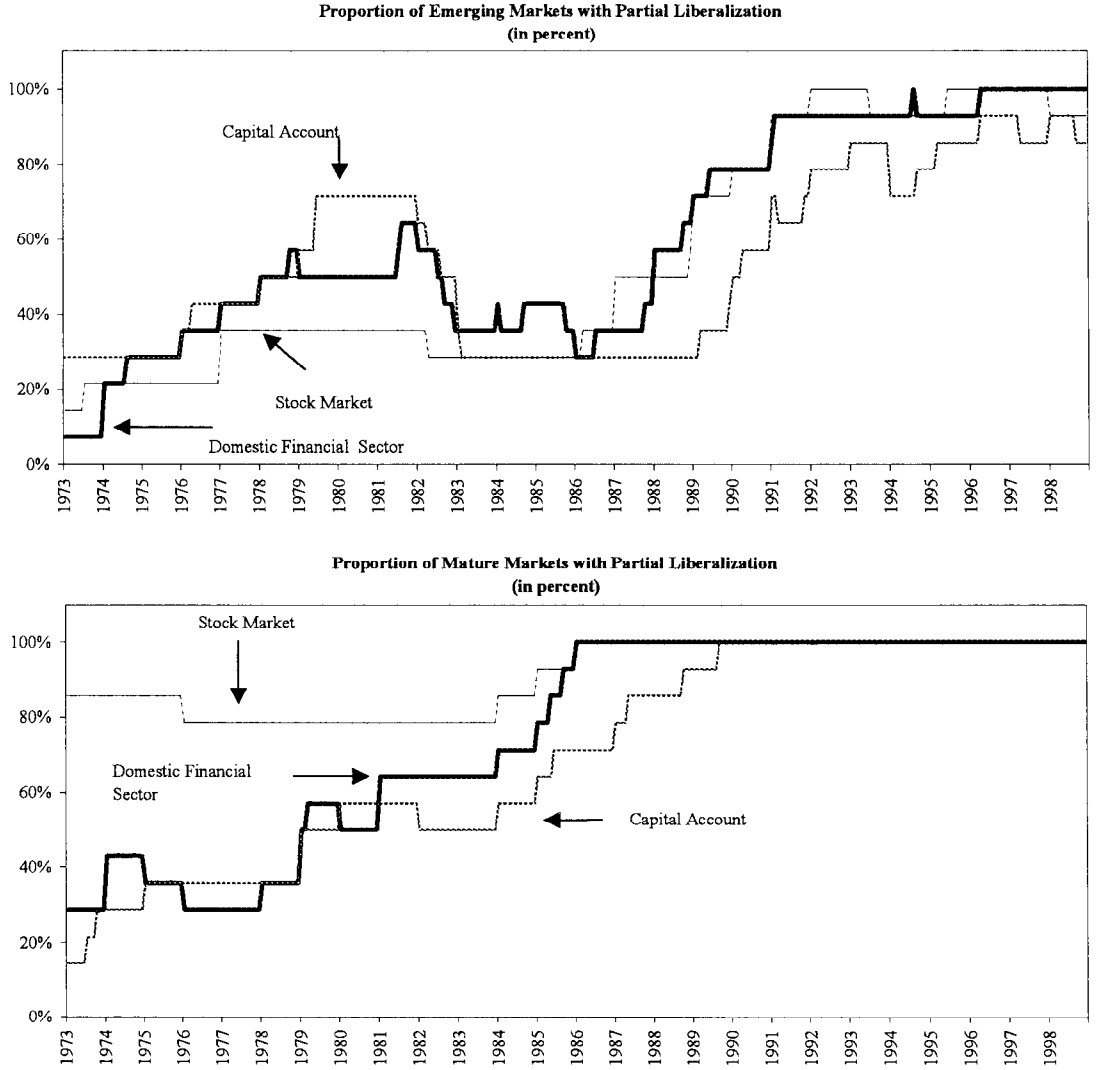
The index of financial liberalization jointly evaluates the liberalization of the capital account, the domestic financial sector, and the stock market. The index is a cross-country average. The value three means repression, two means partial liberalization, and one means full liberalization. Mature markets include: Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Norway, Portugal, Spain, Sweden, United Kingdom, and United States. Emerging markets include: Argentina, Brazil, Chile, Colombia, Hong Kong SAR, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Taiwan (Province of China), Thailand, and Venezuela.

Figure 2. Indexes of Financial Liberalization by Sector



The three indexes evaluate separately the liberalization of the capital account, the domestic financial sector, and the stock market. The indexes are a cross-country average. The value three means repression, two means partial liberalization, and one means full liberalization. Mature markets include: Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Norway, Portugal, Spain, Sweden, United Kingdom, and United States. Emerging markets include: Argentina, Brazil, Chile, Colombia, Hong Kong SAR, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Taiwan (Province of China), Thailand, and Venezuela.

Figure 3. The Sequencing of Financial Liberalization



The panels show the proportion of countries with (at least partially) liberalized capital account, domestic financial sector, and stock market. Mature markets include: Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Norway, Portugal, Spain, Sweden, United Kingdom, and United States. Emerging markets include: Argentina, Brazil, Chile, Colombia, Hong Kong SAR, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Taiwan (Province of China), Thailand, and Venezuela.

Table 2. Sequencing of Liberalization

Strategies of Liberalization

Regions	Proportion of Episodes in Which a Particular Sector Partially Liberalized First (in percent)		
	Capital Account	Domestic Financial Sector	Stock Market
Asia	33	33	33
Europe	0	25	75
G-7	0	0	100
Latin America	25	58	17

Regions	Proportion of Episodes in Which a Particular Sector Fully Liberalized First (in percent)		
	Capital Account	Domestic Financial Sector	Stock Market
Asia	0	55	43
Europe	13	25	63
G-7	20	0	80
Latin America	15	77	8

Duration of the Liberalization Reform

Regions	Number of Months between the Opening of the First Sector and the Third Sector
Asia	108
Europe	55
G-7	61
Latin America	38
All Regions	66

First Sector to Open	Number of Months between the Opening of the First Sector and the Third Sector
Capital Account	107
Domestic Financial Sector	58
Stock Market	47

The bottom panel reports the duration of the liberalization reform measured as the number of months between the partial opening of the first sector and the partial opening of the third sector.

Figures 2 and 3 examine separately the sequencing of liberalization of the capital account, the domestic financial sector, and the stock market. Figure 2 shows the index of liberalization for each sector for both emerging and mature markets. Stock markets in developed countries are liberalized earlier, with the index for this sector oscillating around 1.5 in the early 1970s. In contrast, both the domestic financial sector and the capital account tend to be severely repressed until the early 1980s. In the early 1970s, the indexes for both sectors are on average above 2.5. Financial markets across the board are heavily repressed in developing countries in the early 1970s. But in the mid and late 1970s, many emerging economies liberalize the domestic sector and the capital account. The liberalization reform is short-lived. Controls are re-imposed in the aftermath of the 1982 debt crisis. Overall, restrictions in stock markets remain in place until the late 1980s when a liberalization wave occurs in Asia and Latin America.

While Figure 2 provides information on the average level of restrictions in the various financial markets in the two regions, it may still mask individual country experiences. For example, a medium value of the index in one region may reflect that all the countries in that region are partially liberalized, or that some countries are fully liberalized while the rest of the countries are completely repressed. Figure 3 presents another perspective of the sequencing of liberalization across countries. This figure reports the proportion of countries with (at least) partial liberalization of the capital account, the domestic financial sector, and the stock market, again examined separately for emerging markets and mature markets. By the early 1970s, about 80 percent of stock markets in mature markets are already liberalized. In mature markets, the liberalization of the domestic financial sector also predates the opening of the capital account, with about all countries liberalizing, at least partially, the domestic financial sector by the mid 1980s. It is only in the late 1980s and the beginning of the 1990s, in part driven by the movement toward the formation of the European Monetary Union, that capital account liberalization reaches all mature markets.

Liberalization follows a different path in emerging markets. Only a small proportion of countries implement reforms before the early 1970s. This proportion increases in the late 1970s and then again in the mid and late 1980s. By early 1990s, all the sectors of the financial system are finally liberalized. There are two episodes of financial liberalization. The first one is in the late 1970s. In this episode, all the action centers in the domestic sector and the capital account, with the stock market continuing to be out of the reach for foreign investors. This liberalization episode ends following the debt crisis in 1982. The second wave of liberalization starts in the late 1980s. This time around, basically both the domestic sector and the stock market are jointly deregulated, predating capital account liberalization that only starts in the early 1990s.

Table 2 examines even further the sequencing of liberalization by analyzing the strategies and duration of liberalizations in Asia, Europe, G-7 countries, and Latin America. The top two panels show the proportion of episodes in which the capital account, the domestic financial sector, or the stock market is liberalized first. The top panel focuses on partial liberalization episodes, the panel below examines full liberalization episodes. The bottom two panels display the duration of liberalization episodes; they report the number of

months from the time the first market is deregulated until liberalization is implemented in all markets. The top two panels reveal that the paths toward financial reform differ across regions. Basically all the G-7 countries deregulate the stock market first. European countries implement a somewhat mixed strategy toward deregulation, with 25 percent of the countries liberalizing the domestic financial sector first and basically all the rest deregulating the stock market first. On the other hand, Latin American countries overwhelmingly adopt liberalization of the domestic financial sector first, while Asian countries follow a mixed strategy, with some countries opting for deregulating the domestic sector first and some others focusing on the stock market first. Capital account liberalization in all Asian countries is mostly introduced at a latter stage.

The bottom panels reveal that liberalization reforms take a long time to be completed. On average, 66 months elapse from the time the first market is liberalized until all markets are deregulated. Interestingly, the time to completion of the liberalization reform is far longer in Asia than in Latin America. Finally, liberalization episodes that are first implemented in the stock market are the ones that become completed the fastest. The variety of experiences in financial reforms indicates that it is important to examine not just the responses to liberalization in one particular financial market, but that it is important to examine the effects of the sequencing of the deregulation reform.

III. Financial Cycles

As discussed above, to understand better the conflicting stylized evidence on the effects of financial liberalization, it is useful to study the short- and long-run response of financial markets to deregulation. This section sets the groundwork to reconcile the evidence by constructing an anatomy of booms and busts (crashes) in stock markets.

A. Methodology for Identifying Financial Cycles

There is a long tradition in macroeconomics in analyzing economic fluctuations in terms of business-cycle phases. Economists have examined the behavior of output in expansions and recessions, with particular attention to asymmetries in the two phases and to the possible changing nature of those fluctuations. For the United States, there is also an "official" classification of the cycle in expansions and contractions. No similar interest has flourished in characterizing boom-bust cycles in financial markets. Most studies in financial markets are focused on examining the relation between dividends, interest rates, and stock prices to evaluate whether markets are efficient. Other papers analyze the time-varying volatility in financial markets using ARCH-GARCH models. A third line of research looks at the domestic and global factors that influence prices.[17] In contrast, there seem to be no studies on the behavior of stock prices over financial cycles. This lack of evidence on the amplitude and duration of booms and busts seems particularly notable in light of the evidence that links booms and busts in credit and asset prices with financial crises.

[17] For a review see, for example, Karolyi and Stulz (2002).

Perhaps, the lack of interest in booms and busts in stock prices steams from the idea that in efficient markets prices should follow random walk processes. In this case, cycles are meaningless. However, as Cecchetti, Lam, and Mark (1990) show, even in efficient markets stock prices can follow mean-reverting processes, with cycles in the stock market replicating cycles in output. Moreover, cycles could be magnified by the increasing presence of institutional investors, which tend to follow momentum-based fads (buying stocks that are past winners and selling past losers), and by the presence of asymmetric information that leads to herding.[18]

This paper concentrates on the fluctuations of stock prices without trying to quantify the possible imperfections in financial markets. The latter would not be an easy task due to the lack of agreement about the empirical counterpart to any definition of equilibrium stock prices. However, while we do not isolate the effects of fundamentals and fads on financial cycles, the characterization of stock market cycles will allow us to start understanding the behavior of financial markets. In particular, we will be able to have a reading on whether financial liberalization has magnified the boom-bust cycles in financial markets.

The question now is how to identify historical cycles in stock prices. There is no general agreement on the techniques to isolate fluctuations of variables at business cycles frequencies. The first approach was that pioneered by researchers at the National Bureau of Economic Research (NBER).[19] The business cycle turning points were identified retrospectively and on an ongoing basis by the NBER. Although initially these turning points were determined judgmentally, the process can be well approximated by a computer algorithm developed by Bry and Boschan (1971). The NBER continues to use this methodology to identify what has become to be known as the official business cycles dating in the United States.[20]

In this paper, we follow the approach used by the NBER to construct an algorithm that identifies turning points. We examine stock market fluctuations at intermediate frequencies, since financial crises tend to follow boom-bust cycles in financial markets of an

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[18] See, for example, Grinblatt, Titman, and Wermers (1995).

[19] These researchers include Mitchell (1927), Mitchell and Burns (1938), and Burns and Mitchell (1946).

[20] Other researchers of the business cycle have used linear filters to distinguish between the trend and cyclical components of time series. However, there has not been any agreement on whether variables are trend stationary or difference stationary or what is the best filter to isolate the fluctuations at different frequencies. As examined in Stock and Watson (1998), these considerations have led econometricians to find methods that better isolate the cyclical component of economic time series with some researches proposing using the Hodrik-Prescott (1997) filter and others arguing in favor of the Baxter and King's (1999) band-pass filter.

intermediate duration, between two and three years. According to Bry and Boschan (1971), the first step in the determination of cycles is the identification of cyclical turning points. This technique and the algorithms that we apply look for clearly defined swings in stock market prices in each country. We work with the same order of duration as business cycles, that is swings that are longer than two years. This is the only identifying restriction. We are not imposing any other restrictions such as minimum amplitude of cycles. Essentially, the algorithm isolates local minima and maxima in a time series, subject to the constraint that the duration of upturns and downturns cannot be less than 12 months.[21]

The cycles we identify would be spurious if stock prices followed random walk processes. To show that the random walk does not capture the basic properties of the data on stock prices, we estimate random walks with drift using parameters calculated from the actual data. For each country, we simulate a specific model 1,000 times. Since some of the series on stock prices do not span the whole sample, the number of months for each country simulation is the same as the number of months in the actual data. We then filter the simulated data with the algorithm and compare the cycles generated by random walk processes and those generated by the actual data.

[21] The algorithm dates contractions and expansions using each country's stock price series, rather than the de-trended series. Therefore, busts correspond to sequences of absolute declines in stock prices rather than periods of slow growth relative to the trend.

B. Empirical Regularities

Figure 4 reports monthly log stock price indexes for the 28 countries in the sample. Stock prices are measured in 1993 U.S. dollars.[22] (Appendix Table 4 reports the indexes used as well as their sources.) Figure 4 also identifies the booms and crashes obtained using the algorithm described above. The algorithm identifies 146 cycles. The shaded areas denote expansions. The series show well-defined swings with an average duration of about 44 months.

Table 3 examines the characteristics of stock cycles in the 28 countries in the sample and compares them to the behavior of the random walk simulations. This table provides mean values and tests of whether the differences between the actual and simulated samples are statistically significant. Columns 2–3 and 5–6 report the mean amplitude and duration of cycles using the actual and simulated data. Columns 4 and 7 report the significance level of tests of the null hypothesis that mean cycles from the actual and simulated data are equal. The depth of the contraction (height of the expansion) is measured as the change between the peak (trough) and the following trough (peak), as a percent of the mid value of the peak and trough. This measure puts the amplitude of expansions and contractions on an equal foot. Finally, the duration of a contraction (expansion) is defined as the number of periods between a peak (trough) and the following trough (peak).

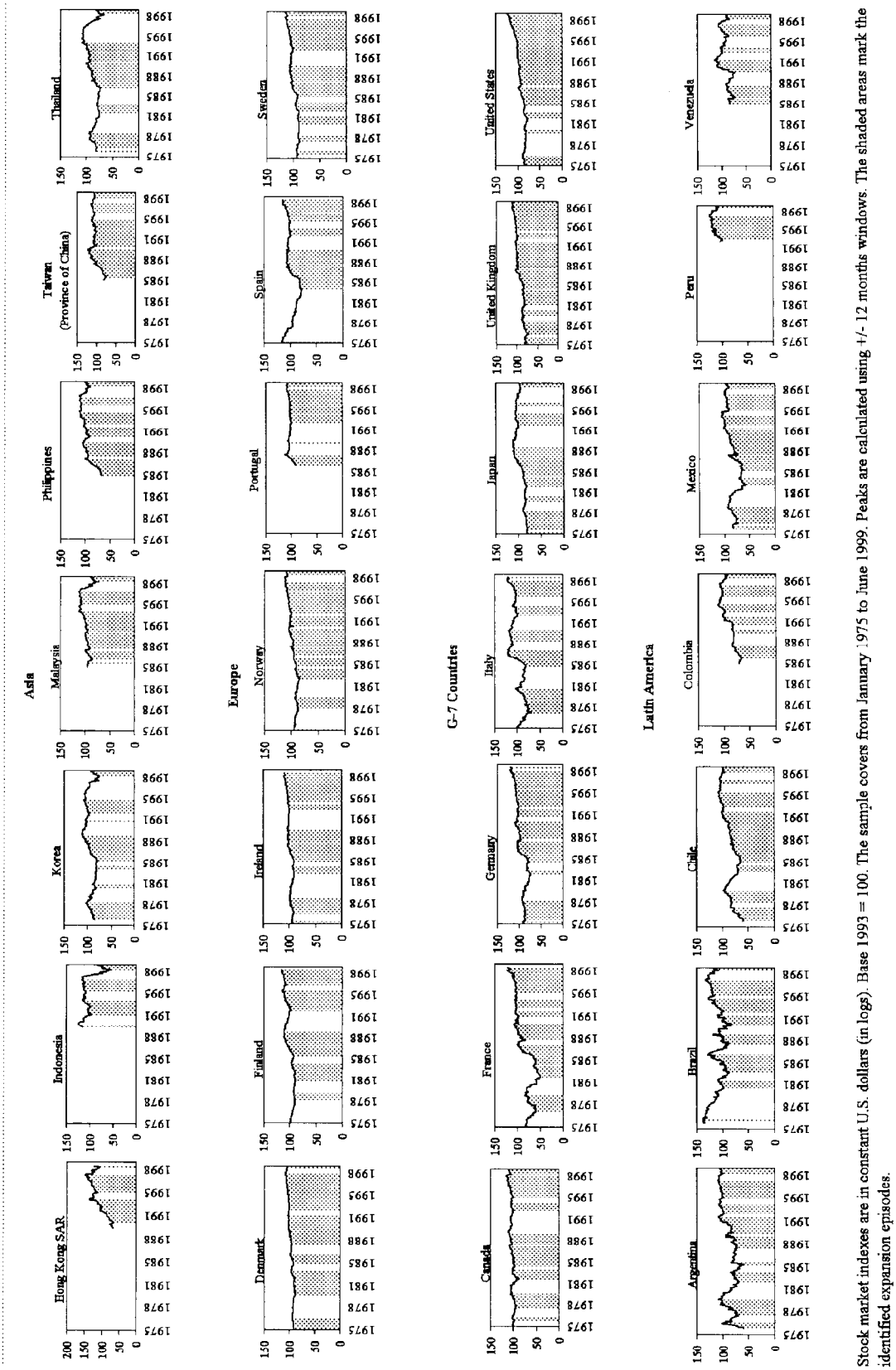
Table 3. Characteristics of Stock Market Cycles

	Amplitude			Duration		
Phase	Random Walk (mean)	Actual Data (mean)	Difference of Means P-Value	Random Walk (mean)	Actual Data (mean)	Difference of Means P-Value
Booms	65	74	0.01	22	26	0.00
	(0.10)	(3.59)		(0.04)	(1.24)	
Crashes	55	61	0.05	15	18	0.04
	(0.86)	(3.62)		(0.03)	(1.26)	

The table shows the average amplitude and duration of booms and crashes in stock prices for the actual data and for the simulated data, under null hypothesis that stock prices follow a random-walk process. The stock market indexes start in January 1975 and end in June 1999. The filter used identifies 146 stock market cycles. To estimate the average amplitude of booms and crashes under the null hypothesis of a random walk, we first estimate a random walk with drift model for each country. We simulate those models 1,000 times. Since the stock market series for several countries do not span the whole sample, the length of the simulated random walk series for each country is the same as the length of the actual series. Amplitude is expressed in percent, calculated as a deviation from the mid point between the peak and the trough. Duration is expressed in months. Standard errors are in parentheses.

[22] As it is common in the international finance and finance literature, we look at stock returns from the point of view of investors with portfolios comprising assets in various countries. This is why, we study returns in one international currency. Alternatively, we could have focused on prices in domestic currency deflated by the domestic price index. Our results do not change substantially when using prices in domestic currency from those discussed in the text.

Figure 4. Stock Markets Indexes



Stock market indexes are in constant U.S. dollars (in logs). Base 1993 = 100. The sample covers from January 1975 to June 1999. Peaks are calculated using +/- 12 months windows. The shaded areas mark the identified expansion episodes.

According to Table 3, booms across all regions oscillate around 74 percent. The typical contraction in stock markets is about 61 percent. The data reveal that contractions tend to be short-lived relative to expansions. The mean duration of contractions is around 18 months, while the mean duration of expansions is around 26 months and statistically different from the duration of contractions at all conventional significance levels. From the table, it is clear that there are significant differences between the amplitude of booms and crashes in the actual data relative to the one that is observed under the null hypothesis of a random walk. The amplitude of booms for the actual data is about 15 percent larger than the average amplitude for the simulated data. Similarly, the average duration of booms for the actual data is about 20 percent longer than the average duration for the simulated data. Analogous comparisons can be made for contraction episodes. Again, contractions obtained from the actual data are significantly more protracted than those obtained from random walk processes.

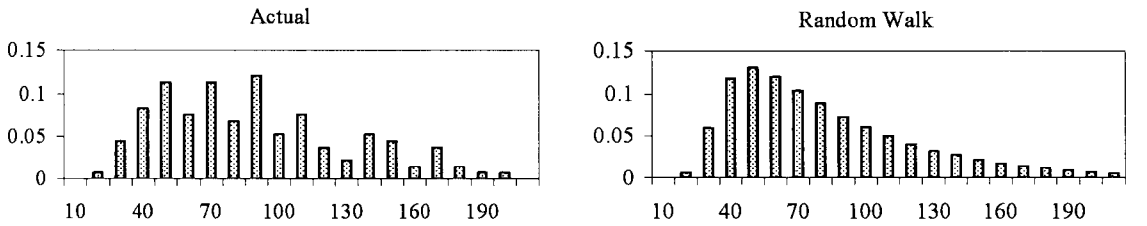
To provide another picture of the differences between the actual and simulated data, Figure 5 reports the frequency distribution of the amplitude and duration of booms and crashes. The horizontal axis in each figure shows the size or duration of booms and crashes, the vertical axis shows the frequencies in percent. If stock prices followed a random walk process, the frequency distribution of the amplitude and duration of each phase of the cycle for the actual and the simulated data would be equal. From this figure, it is clear that there are significant differences in the amplitude and duration of booms and crashes relative to what one would expect if stock prices followed random walks. Booms and crashes are more pronounced and protracted than those generated under the null hypothesis of a random walk. Kolmogorov-Smirnov tests are used to evaluate the null hypothesis of equal frequency distributions of the size and duration of booms and crashes in the actual and random walk data. As shown by the p-value at the bottom of each panel, we reject the null hypothesis that stock prices follow random walk processes.

Figure 6 examines the characteristics of the typical cycle in the four regions. The top panel reports the mean amplitude and duration of booms and crashes in Asia, Europe, the G-7 countries, and Latin America. The bottom panel plots the typical cycle in each region. The horizontal axis in the figure records the number of months before and after the peak of the cycle. The horizontal axis contains 26 months for expansions and 18 months for contractions. These are the durations of the two phases for the typical cycle in our sample. The vertical axis reports the value of the stock index. To obtain the typical cycle, the value of the stock index in each cycle is normalized to 100 at the peak. Each line in this panel represents the average value of the stock index during the 44 months around the peaks of the four regions.

Figure 6 shows that cycles are more pronounced in Latin America. On average, the amplitude of cycles in this region is about twice as large as the amplitude of cycles in the G-7 countries. As expected, the most developed countries, the G-7, have milder stock market cycles, with the Asian and the other European stock market cycles being of intermediate magnitudes. The Asian cycles are larger than the European ones. In contrast to the disparities concerning the amplitude of cycles, the duration of booms and busts is similar across regions, though the ones from developed countries tend to be longer, making the larger amplitudes for emerging markets even more striking.

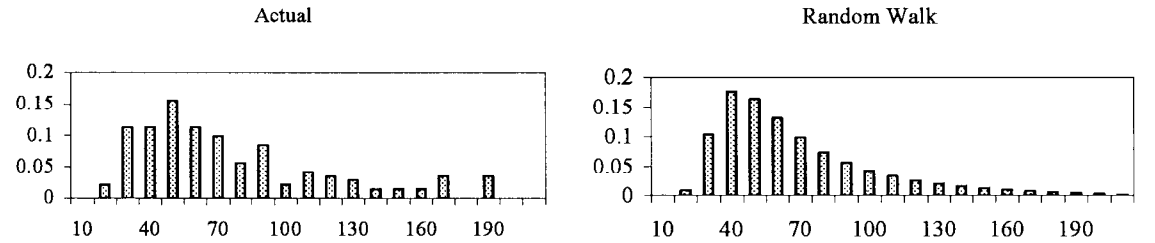
Figure 5. Frequency Distribution of the Amplitude and Duration of Stock Market Booms and Crashes

Amplitude of Booms



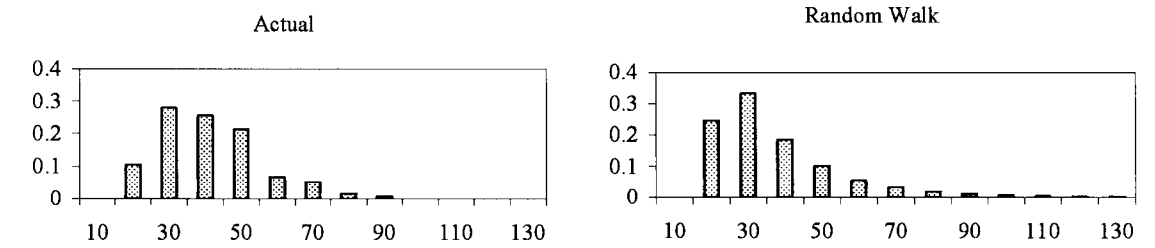
Two-sample Kolmogorov-Smirnov test for equality of distribution functions: P-value 0.01

Amplitude of Crashes



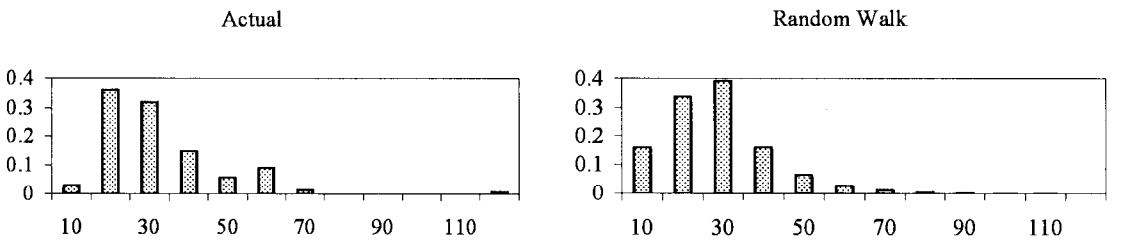
Two-sample Kolmogorov-Smirnov test for equality of distribution functions: P-value 0.10

Duration of Booms



Two-sample Kolmogorov-Smirnov test for equality of distribution functions: P-value 0.00

Duration of Crashes



Two-sample Kolmogorov-Smirnov test for equality of distribution functions: P-value 0.18

The figures report the frequency distribution of the amplitude and duration of booms and crashes for the actual and simulated data, assuming random walk processes with drift. The horizontal axis in each figure shows the size or the duration of booms and crashes, the vertical axis shows the frequencies in percent. The Kolmogorov-Smirnov test is used to evaluate the null hypothesis of equality of the frequency distribution of the amplitude and duration of booms and crashes in the actual and generated data.

Figure 6. Characteristics of Regional Cycles

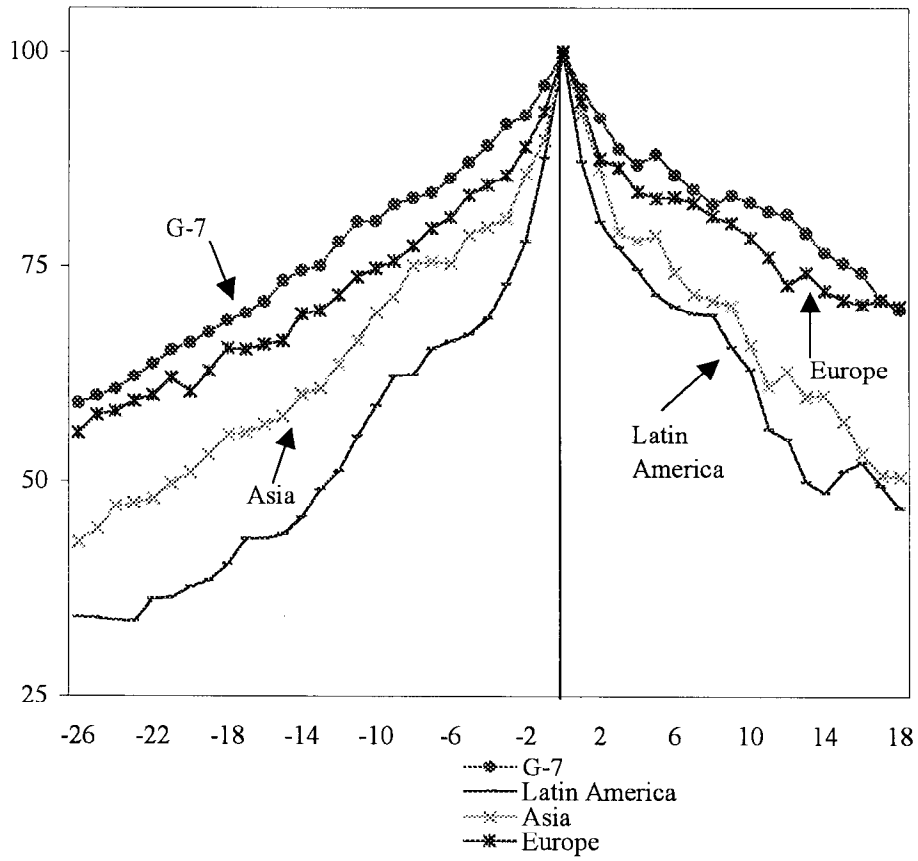
Emerging Markets

Phase	Asia		Latin America	
	Amplitude	**Duration**	**Amplitude**	**Duration**
Booms	75	24	102	23
Crashes	60	18	86	16

Mature Markets

Phase	Europe		G-7	
	Amplitude	**Duration**	**Amplitude**	**Duration**
Booms	72	29	53	28
Crashes	51	21	37	16

The Regional Cycles



Notes: The table and figure show the average cycle per region. The sample starts in January 1975 and ends in June 1999. The total number of cycles per region is as follows: 28 for Asia; 35 for Europe; 44 for G-7; and 39 for Latin America. In the top panel, duration is expressed in months while amplitude is expressed in percent; it is calculated as a deviation from the mid point between the peak and the trough.

IV. Stock Market Cycles and Financial Liberalization

To examine the claim that financial liberalization triggers more protracted and deeper booms and busts in asset markets, we examine the characteristics of financial cycles during episodes of financial repression and liberalization. Our first approach is in the event study tradition, analyzing the behavior of stock markets in the aftermath of liberalization relative to their functioning in repression times, those years before deregulation occurs. To examine the conflicting views that liberalization triggers financial excesses but also contributes to less volatile financial markets, we compare the characteristics of financial cycles in the short run and long run following liberalization. We then report regression results that control for other factors and study the sequencing of the openings. Those results examine whether liberalization creates larger cycles when the first market opens or whether each consecutive opening triggers substantial increases in booms and crashes. The regressions also test whether financial turbulences are just the product of liberalization episodes that start with opening first the capital account, the domestic sector, or the stock market.

A. Event Studies

Figure 7 examines the characteristics of financial cycles around the time of the overall partial liberalization of financial markets, that is, when at least two sectors are partially liberalized. We classify financial cycles in three categories, those that occur during repression times, those that occur in the short run after liberalization, and those that occur in the long run following liberalization. The short run is defined as the four years after liberalization. The long run includes the fifth year after liberalization and the years thereafter, conditional on the deregulation not being reversed.[23] The top panel in Figure 7 shows the average amplitude of booms and crashes for all countries in our sample during repression times (the striped bars), the short-run effects of liberalization (the white bars), and the long-run effects of liberalization (the gray bars). It also reports the characteristics of cycles separately for emerging and mature markets since the evidence from these two groups of countries might differ. The bottom panel examines whether the differences of amplitudes across regimes are statistically significant.

The evidence for the 28 countries in the sample indicates that the amplitude of booms substantially increases in the immediate aftermath of liberalization (about 20 percent higher than during repression times). But equity markets stabilize in the long run if liberalization persists, with the amplitude of booms about 25 percent smaller than in repression times. Similarly, the amplitude of crashes increases in the immediate aftermath of liberalization (about 15 percent higher than during repression times), but declines to about 60 percent of its size during repression times if liberalization persists in the long run. As shown in the bottom panel, these differences are statistically significant at conventional levels.

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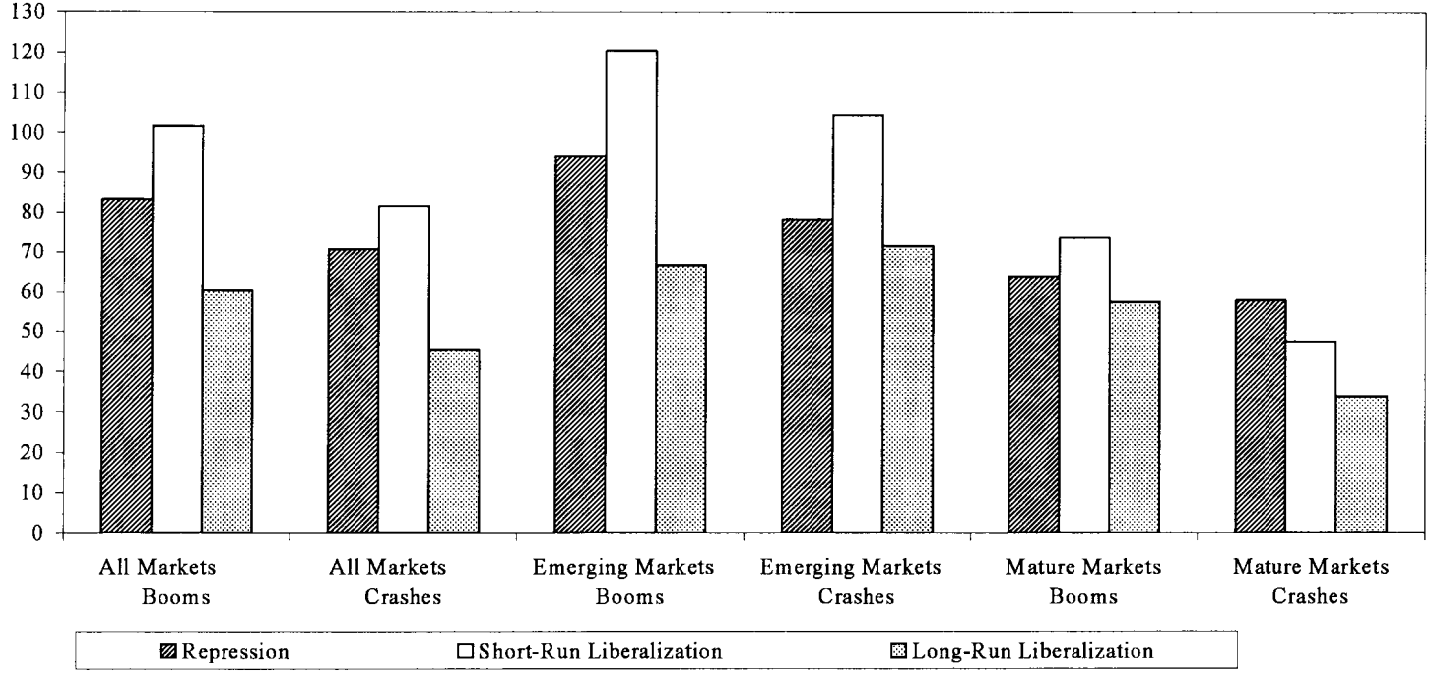
[23] Since the choice of the short-run window is ad-hoc, we also examined the robustness of the results to different definitions of window size. The results for three- and six-year windows are quite similar.

Figure 7. Average Amplitude of Booms and Crashes
(in percent)



Hypothesis Tests	P-Value					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Repression < Short-Run Liberalization	0.03	0.13	0.03	0.03	0.25	0.88
Repression > Long-Run Liberalization	0.00	0.00	0.01	0.31	0.28	0.00
Short-Run Liberalization > Long-Run Liberalization	0.00	0.00	0.00	0.01	0.08	0.03

The figure shows the average amplitude of booms and crashes in the different periods and markets (mature and emerging). The table shows hypothesis tests of equality of booms and crashes during repression times and after liberalization. The repression period occurs when less than two sectors are partially liberalized. The short-run liberalization period is defined as the immediate aftermath of partial financial liberalization (four-year window), and zero otherwise. The long-run liberalization period occurs after four years have elapsed from the time of the partial financial liberalization.

The evidence for the 28 countries, however, obscures important differences across emerging and mature markets. When examined separately, we note that the short-run effects of liberalization in emerging markets are more striking, with booms and crashes in the immediate aftermath of liberalization increasing by about 35 percent over their size during repression. Still, if liberalization persists, financial cycles become less pronounced, with booms about 30 percent smaller than during repression times, and crashes about 90 percent of their size during repression times. On the other hand, the evidence from mature markets indicates that if liberalization triggers more volatile stock markets in the short run, booms and busts do not increase as much as in the case of emerging markets. Moreover, on average, crashes do not increase relative to their value during repression times. Still, liberalization seems to generate more stable financial markets in the long run, with crashes averaging only about 60 percent of their size in repression times.

B. Accounting for Domestic and External Shocks

While the evidence in Figure 7 suggests that financial liberalization influences the size of expansions and contractions in financial markets, stock price fluctuations also reflect changes in other market fundamentals. For example, stock prices respond to expansions and recessions in the domestic economy. They also react to world economic conditions.[24] The omission of these variables may bias our results, especially since the timing of liberalization may not be fortuitous. In fact, we have described in Section I that Latin American countries reintroduce controls on domestic interest rates and credit and re-impose controls on capital flows following the hikes in interest rates in industrial countries in the early 1980s. Also, many emerging markets liberalize their financial markets when international capital flows resume in the late 1980s. Insofar as countries react to "bad times" by adopting capital controls and to "good times" by relaxing them, there is the danger that we may ascribe the increase in the size of booms to liberalization and the amplification of crashes to capital controls, when in fact it is the world market condition the one fueling changes in stock prices.

To account for these factors, the event study analysis is complemented with regressions that control for domestic and world economic conditions. In particular, we examine the role of growth in domestic and world economic activity and changes in world real interest rates. We estimate the following equation by least squares with heteroskedastic-consistent standard errors,

$$amplitude_i = \boldsymbol{\alpha}'\mathbf{X}_i + \rho_1 d_i^r + \beta_1 d_i^{sr} + \lambda_1 d_i^{lr} + \varepsilon_i, \qquad (1)$$

[24] For example, Calvo, Leiderman, and Reinhart (1993) argue that decreases in U.S. interest rates trigger large capital flows to emerging markets, which in turn fuel increases in asset prices.

where $amplitude_i$ is the amplitude of expansion (contraction) i. $\mathbf{X}_i$ is a matrix of control variables that includes the change in world real interest rate, the world output growth, and the domestic output growth during each expansion (contraction). d_i^r is a dummy variable equal to one if the cycle occurs during "repression" times, and zero otherwise. d_i^{sr} is a "short-run" dummy variable equal to one if the cycle occurs in the immediate aftermath of financial liberalization (four-year window), and zero otherwise. d_i^{lr} is a "long-run" dummy variable equal to one if the cycle occurs after four years have elapsed from the time of financial liberalization, and zero otherwise. The world real interest rate is proxied with the U.S. federal funds real interest rate, world output is the average of the industrial production indexes of the G-3 countries, and domestic output is captured by the index of industrial production in the domestic economy. All data come from the IMF's International Financial Statistics.

The results from this estimation are shown in Table 4. As in Figure 7, this table examines the effects of overall partial financial liberalization (when at least two sectors have been partially liberalized). As expected, fluctuations in the world interest rate affect stock market cycles as does output growth, with a one percentage point increase in the world real interest rate leading to a five percentage point contraction in the amplitude of stock market expansions. Similarly, booms and crashes in stock markets are also explained by upturns and recessions in the domestic economy. Even after accounting for these other determinants of fluctuations in stock prices, financial liberalization still matters. Financial liberalization triggers larger cycles in the short run and stabilizes financial markets in the long run. Interestingly, once we control for the state of the economy (domestic and foreign) and for interest rate fluctuations, the short-run effects of financial liberalization become even more pronounced. For example, in the immediate aftermath of liberalization, booms increase by about 40 percent in emerging markets and by 55 percent in mature markets relative to repression times. Similarly, crashes in emerging markets increase by 30 percent in the immediate aftermath of liberalization vis-à-vis repression times.

Note that the results in Figure 7 and Table 4 suggest two tales about the aftermath of liberalization reforms. While larger booms follow liberalization in both emerging and mature markets, it is only in emerging markets that crashes are more severe following liberalization. The average short-run experience in emerging markets seems to support the evidence from the crisis literature that concludes that liberalization leads to excessive financial booms and crashes. Liberalization episodes do not seem to bring (on average) this short-run pain to mature markets; larger booms are not followed by larger crashes, suggesting that larger booms may just reflect the reduction in the cost of capital once deregulation takes place, as the finance literature argues.[25] Still, financial liberalization brings more stable financial markets in both emerging and mature market economies in the long run. In section IV, we examine possible explanations for the varied short-run effects of liberalization as well as for the long-run gains across countries.

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[25] As always averages may hide exceptions, Denmark, Finland, Norway, and Sweden suffer financial collapses and banking crises in the early 1990s following liberalization.

Table 4. Determinants of Booms and Crashes:
The Effects of Partial Liberalization

Independent Variables	Amplitude					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Change in the World Real Interest Rate	-5.03	3.878	-4.909	6.821	-4.10	-0.51
	[1.255] ***	[1.428] ***	[3.170]	[2.445] ***	[1.269] ***	[1.260]
World Output Growth	1.348	0.871	1.842	2.331	1.67	0.07
	[0.613] **	[0.850]	[1.024] *	[1.555]	[0.801] **	[0.671]
Domestic Output Growth	0.984	-0.84	0.662	-1.257	1.07	-0.60
	[0.200] ***	[0.409] **	[0.290] **	[0.552] **	[0.310] ***	[0.451]
Repression	60.878	66.865	70.415	74.449	41.37	59.98
	[7.078] ***	[6.642] ***	[10.090] ***	[10.334] ***	[10.276] ***	[6.326] ***
Short-Run Liberalization	80.466	77.896	96.218	95.449	63.92	47.82
	[7.110] ***	[7.037] ***	[11.761] ***	[10.619] ***	[9.089] ***	[6.616] ***
Long-Run Liberalization	44.106	44.087	52.547	65.572	38.07	34.22
	[5.006] ***	[4.462] ***	[8.772] ***	[9.560] ***	[5.945] ***	[3.206] ***
Observations	140	141	60	61	80	80
R-squared	0.85	0.73	0.88	0.82	0.84	0.78

Hypothesis Tests	P-Value					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Repression < Short-Run Liberalization	0.01	0.12	0.03	0.08	0.03	0.91
Repression > Long-Run Liberalization	0.01	0.00	0.06	0.25	0.36	0.00
Short-Run Liberalization > Long-Run Liberalization	0.00	0.00	0.00	0.02	0.00	0.03

The top panel shows regressions of the amplitude of booms (crashes) in stock markets on changes in the world real interest rate, world output growth, domestic output growth, a dummy for "repression" effects, a dummy for "short-run liberalization" effects, and a dummy for "long-run liberalization" effects. The bottom panel reports hypothesis tests on the regression coefficients. A country is considered to be partially liberalized if at least two sectors are partially liberalized. Otherwise, the country is considered to be financially repressed. The change in world real interest rate, the change in world output, and the change in domestic output are growth rates from the beginning to the end of the corresponding boom or crash. "Repression" is a dummy variable equal to one if the particular phase of the cycle occurs during repression times, and zero otherwise. "Short-run liberalization" is a dummy variable that equals one if the particular phase of the cycle occurs in the immediate aftermath of partial financial liberalization (four-year window), and zero otherwise. "Long-run liberalization" is a dummy variable equal to one if the particular phase of the cycle occurs after four years have elapsed from the time of the partial financial liberalization, and zero otherwise. Standard errors are in brackets. *, **, *** mean significance at 10, 5, and 1 percent, respectively.

C. Sequencing of Liberalization

So far we have studied the liberalization across all markets. Now we turn to examine whether the short-run increase in boom-bust amplitudes occurs every time a new sector is deregulated and whether the sequencing of the openings matters. Table 5 examines whether the short-run increase in booms and busts occurs every time a new sector is deregulated. We limit our search to the deregulation of the first two sectors. We define repression times as those episodes in which all sectors are closed. The short-run liberalization periods are the four years after the opening of the first sector and the four years after the opening of the second sector. The long-run liberalization episode includes the fifth year after the opening of the second sector and the following years if the liberalization reform is not reversed.

We estimate the following regression,

$$amplitude_i = \boldsymbol{\alpha}' \mathbf{X}_i + \rho_1 d_i^r + \beta_1 d_i^{sr,1,2} + \beta_2 d_i^{sr,2} + \lambda_1 d_i^{lr,2} + \varepsilon_i . \qquad (2)$$

The new variable $d_i^{sr,1,2}$ is a dummy variable equal to one if the cycle occurs in the immediate aftermath of financial liberalization (four-year window after the first sector is deregulated and four-year window after the second sector is deregulated), and zero otherwise. $d_i^{sr,2}$ is a dummy variable equal to one if the cycle occurs in the four years after the deregulation of the second sector, and zero otherwise. $d_i^{lr,2}$ is a dummy variable equal to one if the cycle occurs after four years have elapsed from the time of the liberalization of the second sector, and zero otherwise. Thus, the average amplitude of booms (crashes) in the aftermath of the first opening is captured by β_1, while that of the second market opening is captured by $\beta_1 + \beta_2$.

While the evidence on short- and long-run effects of financial liberalization is not reversed, the focus on the first and second openings reveals some important differences. Interestingly, the increase in the amplitude of booms is similar following the first and second opening, but crashes in the immediate aftermath of the first opening are smaller than those observed during repression times. The amplitude of crashes in emerging markets only increases following the opening of the second sector. Again, this evidence is consistent with the results from the crisis literature, which finds that booms of credit persist for several years following the deregulation of financial markets with these booms in turn fueling protracted bull markets.

Table 5. Determinants of Booms and Crashes: The Effects of Sequencing I

Independent Variables	Amplitude					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Change in the World Real Interest Rate	-4.649	4.3	-4.851	9.506	-3.64	-0.57
	[1.252] ***	[1.485] ***	[3.068]	[2.250] ***	[1.329] ***	[1.394]
World Output Growth	1.426	0.85	1.676	2.522	1.77	-0.02
	[0.613] **	[0.895]	[1.008]	[1.467] *	[0.833] **	[0.737]
Domestic Output Growth	1.102	-0.847	0.905	-1.455	1.08	-0.60
	[0.199] ***	[0.426] **	[0.277] ***	[0.525] ***	[0.320] ***	[0.495]
Repression	51.087	69.221	57.701	84.147	38.61	60.19
	[8.127] ***	[8.208] ***	[11.533] ***	[11.446] ***	[11.859] ***	[8.105] ***
Short-Run Liberalization	80.389	56.276	98.122	44.119	57.37	54.89
Sector One and Two	[10.059] ***	[11.098] ***	[15.870] ***	[16.507] **	[13.187] ***	[9.726] ***
Short-Run Liberalization	-7.951	23.229	-12.258	59.247	-0.71	-7.10
Sector Two	[11.641]	[13.196] *	[18.227]	[19.044] ***	[15.180]	[11.976]
Long-Run Liberalization	40.147	44.96	47.606	63.974	34.98	33.58
	[5.196] ***	[4.794] ***	[8.595] ***	[8.963] ***	[6.472] ***	[3.564] ***
Observations	132	133	58	59	74	74
R-squared	0.85	0.73	0.89	0.85	0.84	0.78

Hypothesis Tests	P-Value					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Repression < Short-Run Liberalization						
First Sector	0.01	0.83	0.01	0.98	0.12	0.66
Second Sector	0.01	0.17	0.02	0.10	0.09	0.88
Repression > Long-Run Liberalization	0.08	0.00	0.21	0.07	0.37	0.00
Short-Run Liberalization > Long-Run Liberalization						
First Sector	0.00	0.17	0.00	0.86	0.05	0.02
Second Sector	0.00	0.00	0.00	0.00	0.01	0.04

This table analizes whether the sucessive liberalizations of the three sectors trigger more unstable financial markets (larger booms and crashes) in the short run. The top panel shows regressions of the amplitude of booms (crashes) in stock markets on the change in the world real interest rate, world output growth, domestic output growth, a dummy for "repression" effects, two dummies for "short-run liberalization" effects, and a dummy for "long-run liberalization" effects. The change in world real interest rate, the change in world output, and the change in domestic output are growth rates from the beginning to the end of the corresponding boom or crash. "Repression" is a dummy variable equal to one if the particular phase of the cycle occurs during repression times, and zero otherwise. "Short-run liberalization sector one and two" is a dummy variable that equals one if the particular phase of the cycle occurs in the immediate aftermath of financial liberalization of the first or second sectors (four-year window), and zero otherwise. "Short-run liberalization sector two" is a dummy variable that equals one if the particular phase of the cycle occurs in the immediate aftermath of financial liberalization of the second sector (four-year window), and zero otherwise. "Long-run liberalization" is a dummy variable that equals one if the particular phase of the cycle occurs after four years have elapsed from the time of financial liberalization of the second sector, and zero otherwise. The bottom panel reports hypothesis tests on the regression coefficients. "Short-run liberalization first (second) sector" corresponds to the test of the null hypothesis that the opening of the first (second) sector does not trigger larger booms and crashes relative to repression times or long-run liberalization, alternatively. If the stock market is liberalized before 1973, only the capital account and the domestic financial sector are being considered in the analysis. Standard errors are in brackets. *, **, *** mean significance at 10, 5, and 1 percent, respectively.

Table 6 examines the effects on financial markets of various types of sequencing of the deregulation process. We estimate the following regression,

$$amplitude_i = \boldsymbol{\alpha}' \mathbf{X}_i + \rho_1 d_i^r + \beta_1 d_i^{sr,1,2} + \beta_2 d_i^{sr,2} + \beta_3 d_i^{CA} + \beta_4 d_i^{SM} + \lambda_1 d_i^{lr,2} + \varepsilon_i . \qquad (3)$$

The variables d_i^{CA} and d_i^{SM} help to capture the possible differential effect on booms and crashes of opening respectively the capital account and the stock market first. These dummy variables are equal to one if the cycle occurs during the four years after that particular sector is liberalized, and zero otherwise. The average amplitude of booms (crashes) in the aftermath of the first opening, when the liberalization reform is initiated with the deregulation of the domestic financial sector, is captured by β_1. If the liberalization reform starts with the opening of the capital account (stock market), the amplitude of booms or crashes in the four years after the first opening is captured by $\beta_1 + \beta_3(\beta_1 + \beta_4)$.

Our results indicate that the ordering of liberalization does not matter in general. Opening the capital account or the stock market first does not have a different effect than opening the domestic financial sector first. But one exception exists; crashes seem to be larger in emerging markets if the capital account opens up first. This might provide some mild support to the usual claim that the capital account should be opened last.

In sum, our results suggest that we gain from examining the effects of deregulation of different sectors. In particular, we find that crashes become more pronounced not at the onset of the liberalization reform but after some years have elapsed. Interestingly, the sequencing of financial liberalization does not seem to matter when evaluating the effects on financial cycles. Finally, as also shown in the previous section, the experiences of mature and emerging markets look different in the aftermath of financial liberalization. We analyze these differences next.

Table 6. Determinants of Booms and Crashes: The Effects of Sequencing II

Independent Variables	Amplitude					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Change in the World Real Interest Rate	-4.706	4.37	-4.756	8.079	-3.85	-0.10
	[1.265] ***	[1.518] ***	[3.092]	[2.227] ***	[1.356] ***	[1.402]
World Output Growth	1.356	0.89	1.86	2.953	1.75	0.19
	[0.619] **	[0.914]	[1.073] *	[1.687] *	[0.841] **	[0.743]
Domestic Output Growth	1.097	-0.847	0.888	-1.635	1.08	-0.64
	[0.199] ***	[0.430] *	[0.282] ***	[0.508] ***	[0.323] ***	[0.489]
Repression	51.738	69.078	56.71	82.268	39.11	58.72
	[8.159] ***	[8.287] ***	[11.743] ***	[11.306] ***	[11.974] ***	[8.062] ***
Short-Run Liberalization	81.618	56.46	97.193	45.445	56.55	58.78
Sector One and Two	[10.113] ***	[11.244] ***	[16.076] ***	[15.955] ***	[13.546] ***	[9.892] ***
First Sector to Open: Capital Account	-9.449	-3.216	-26.611	64.331	7.86	-21.95
	[13.011]	[16.044]	[23.260]	[25.551] **	[15.298]	[13.539]
First Sector to Open: Stock Market	-26.004	-6.09	-7.518	40.558	-17.65	-26.94
	[20.553]	[24.398]	[38.317]	[45.599]	[23.957]	[18.863]
Short-Run Liberalization	-3.94	24.453	-6.473	43.828	1.20	0.52
Sector Two	[12.028]	[13.952] *	[19.058]	[19.286] **	[15.865]	[12.528]
Long-Run Liberalization	40.749	44.893	47.186	64.876	35.00	33.42
	[5.218] ***	[4.837] ***	[8.679] ***	[8.788] ***	[6.558] ***	[3.524] ***
Observations	132	133	58	59	74	74
R-squared	0.86	0.73	0.89	0.87	0.84	0.79

Hypothesis Tests	P-Value					
	All Markets		Emerging Markets		Mature Markets	
	Booms	Crashes	Booms	Crashes	Booms	Crashes
Repression < Short-Run Liberalization						
Domestic Financial Sector	0.01	0.82	0.01	0.97	0.14	0.50
Capital Account	0.11	0.78	0.32	0.20	0.11	0.91
Stock Market	0.44	0.75	0.22	0.47	0.50	0.89
Repression > Long-Run Liberalization	0.08	0.00	0.23	0.10	0.35	0.00
Short-Run Liberalization > Long-Run Liberalization						
Domestic Financial Sector	0.00	0.17	0.00	0.87	0.06	0.01
Capital Account	0.03	0.33	0.22	0.08	0.06	0.41
Stock Market	0.26	0.42	0.15	0.33	0.44	0.53

This table shows whether the short-run effects of liberalization depend on which sector is deregulated first. The top panel shows regressions of the amplitude of booms (crashes) in stock markets on changes in the world real interest rate, world output growth, domestic output growth, a dummy for "repression" effects, two dummies for "short-run liberalization" effects, a dummy for the capital account opening if this is the first sector to open, a dummy for the stock market opening if this is the first sector to open, and a dummy for "long-run liberalization" effects. The change in world real interest rate, the change in world output, and the change in domestic output are growth rates from the beginning to the end of the corresponding boom or crash. "Repression" is a dummy variable equal to one if the particular phase of a cycle occurs during repression times, and zero otherwise. "Short-run liberalization sector one and two" is a dummy variable that equals one if the particular phase of a cycle occurs in the immediate aftermath of financial liberalization of the first and second sectors (four-year window), and zero otherwise. "Short-run liberalization sector two" is a dummy variable that equals one if the particular phase of the cycle occurs in the immediate aftermath of financial liberalization of the second sector (four-year window), and zero otherwise. "Long-run liberalization" is a dummy variable that equals one if the particular phase of the cycle occurs after four years have elapsed from the time of financial liberalization of the second sector, and zero otherwise. "First sector to open: capital account (stock market)" is a dummy variable equal to one if the first sector to open is the capital account (stock market), and zero otherwise. The bottom panel reports hypothesis tests on the regression coefficients. "Short-run liberalization domestic financial sector (capital account/stock market)" corresponds to the test of the null hypothesis that opening first the domestic financial sector (capital account/stock market) does not trigger larger booms and crashes relative to repression times or long-run liberalization, alternatively. If the stock market is liberalized before 1973, only the capital account and the domestic financial sector are being considered in the analysis. Standard errors are in brackets. *, **, *** mean significance at 10, 5, and 1 percent, respectively.

V. Financial Liberalization and Institutional Reform

Our findings necessarily provoke several questions. What is the essential ingredient for more stable financial markets in the long run? Is it just financial liberalization? Or, does liberalization trigger some other changes that in turn deliver more stable financial markets in the long run? Can we explain the differences in the aftermath of financial liberalization in mature and emerging markets? And, is it possible to avoid the short-run pain following liberalization?

These questions have generated an intense debate on the sequencing of liberalization and institutional reform.[26] Many have argued that it is very risky to open up financial systems. During financial repression, banks tend to have poor balance sheets.[27] Protected from outside competition, badly regulated, and badly supervised banks do not have the pressure to run efficiently. Liberalization in this scenario unveils a new problem, as protected domestic banks suddenly get access to new sources of funding, triggering protracted financial booms. Moreover, financial liberalization brings competition and lowers bank profits, eroding banks' franchise values and lowering their incentive for making good loans. Naturally, this worsens problems of moral hazard.[28] Based on these views, a standard recommendation on sequencing is to first clean up domestic financial institutions and change government institutions, then deregulate the industry and open up the capital account.

This discussion about sequencing may be irrelevant if the timing is such that reforms never predate liberalization, with institutional changes happening mostly as a result of financial deregulation. To shed new light on this sequencing debate, we collect data on the quality of institutions as well as data on the laws governing the proper functioning of financial systems. Then, we compare the timing of financial liberalization and institutional reforms. The data on the quality of institutions is captured by the index of law and order.[29] To better assess the functioning of the financial system, we use information on the existence and enforcement of insider trading laws, constructed by Bhattacharya and Daouk (2002). Appendix Table 5 reports the time of improvement in the law and order index, the time when the insider trading law is passed, and the time when insider trading starts to be prosecuted.

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[26] Note that the sequencing mentioned here discusses the optimal order between financial liberalization and other financial sector reforms. While the sequencing mentioned in the previous section deals with the order of liberalization of the stock market, the domestic financial sector, and the capital account.

[27] This is shown, for example, in Rojas-Suarez and Weisbrod (1994).

[28] See Akerlof and Romer (1993) and Hellman, Murdok, and Stiglitz (2000).

[29] This index is published in the International Country Risk Guide (ICRG). The law sub-index assesses the strength and impartiality of the legal system, while the order sub-index assesses the popular observance of the law. Each index can take values from one to three, with lower scores for less tradition for law and order.

We characterize as an improvement in the quality of government institutions when the index of law and order increases by one unit and this change is maintained for at least two years.

The top panel in Table 7 examines the sequencing of liberalization and reform in our sample of 28 countries. It shows the probabilities that financial liberalization occurs conditional on reforms having already been implemented. In particular, we look at whether reforms to institutions occur prior to the partial or full liberalization of the financial sector. If governments clean up financial institutions and improve the quality of institutions prior to deregulating the financial sector, one would expect this probability to be close to one.

The evidence for emerging and mature markets displayed in Table 7 suggests that reforms to institutions occur mostly after liberalization is implemented. For example, in the case of emerging markets, in only 18 percent of the cases, law and order improves prior to the partial liberalization of financial markets. Also, while in 62 percent of the cases, the laws prosecuting insider trading exist prior to partial financial liberalization, insider trading starts to be prosecuted in only 11 percent of the cases before the partial deregulation of the financial sector. Interestingly, law and order improves substantially following partial liberalization. By the time the financial sector becomes fully liberalized, the quality of institutions, as measured by the law and order index, has improved in 64 percent of the cases. Also, insider trading prosecution is enforced in 44 percent of the cases before the full liberalization of the financial sector.

This evidence casts doubts on the notion that governments tend to implement institutional reforms before they start deregulating the financial sector. On the contrary, the evidence suggests that partial liberalization fuels institutional reforms. The evidence for mature markets is less compelling. Still, insider trading prosecution is only enforced in 17 percent of the cases prior to the partial liberalization of the financial sector, but in this case, in 44 percent of the cases, institutions improve prior to the full liberalization of the financial sector. Again, both indicators show that reforms continue following partial liberalization.

There are several reasons that can explain why financial liberalization might prompt institutional reforms. First, as discussed in Rajan and Zingales (2001), well-established firms may oppose reforms that promote financial development because it breeds competition. These firms can even be hurt by financial development as financial development implies better disclosure rules and enforcement (reducing the importance of these firms' collateral and reputation) and permits newcomers to enter and compete away profits. We can add that incumbents may oppose the removal of capital controls as capital can flow away to more attractive destinations, limiting their sources of funds. However, opposition may be weaker in the presence of worldwide abundance of trade and cross-border flows. In these times, free access to international capital markets will allow the largest and best-known domestic firms to tap foreign markets for funds, with the support for financial liberalization becoming stronger. But financial liberalization sows the seeds of destruction of the old protected and inefficient financial sector, as foreign and domestic investors (now with access to international capital markets) require better enforcement rules.

Table 7. Financial Liberalization and Institutional Reforms

Panel A
Sequencing

Mature Markets

Type of Financial Liberalization	Probabilities of Liberalization Conditional on		
	Insider Trading Laws Existence	Insider Trading Laws Enforcement	Law and Order
Partial Liberalization	36 **	17	44 ***
Full Liberalization	64 ***	25 *	50 ***
Hypothesis Test (P-Value)			
Partial Liberalization = Full Liberalization	0.04	0.34	0.33

Emerging Markets

Type of Financial Liberalization	Probabilities of Liberalization Conditional on		
	Insider Trading Laws Existence	Insider Trading Laws Enforcement	Law and Order
Partial Liberalization	62 ***	11	18
Full Liberalization	77 ***	44 **	64 ***
Hypothesis Test (P-Value)			
Partial Liberalization = Full Liberalization	0.17	0.08	0.02

Panel B
Effects of Liberalization and Institutional Reforms on Financial Cycles

Independent Variables	Amplitude	
	All Markets	
	Booms	Crashes
Change in the Real Interest Rate	-4.496	4.05
	[1.245] ***	[1.442] ***
World Output Growth	1.498	1.033
	[0.609] **	[0.863]
Domestic Output Growth	0.963	-0.876
	[0.199] ***	[0.415] **
"Repression Times" Dummy	63.696	69.188
	[7.376] ***	[7.176] ***
Short-Run Dummy	83.329	80.368
	[8.245] ***	[8.558] ***
Long-Run Dummy	53.259	50.923
	[7.781] ***	[8.139] ***
Law and Order	-18.316	-8.984
	[6.178] ***	[7.005]
Insider Trading Laws		
Existence	2.159	-0.627
	[7.005]	[7.821]
Enforcement	0.543	-1.732
	[7.560]	[8.422]
Observations	140	141
R-squared	0.86	0.73

Panel A shows the probability of financial liberalization conditional on the existence and enforcement of insider trading laws and on the dummy for law and order. Panel B reports the regression reported in Table 4 with the inclusion of the institutional variables: law and order, existence of insider trading laws, and enforcement of insider trading laws. "Law and order" is a dummy variable that equals one in periods in which there is a "permanent" improvement in the International Country Risk Guide's index of law and order or the index is at its highest level. The improvement periods in this index are characterized by at least one point increase in the index from its two-year period average, and the maintainance of the index above this average for at least another two years. "Insider trading laws" are dummy variables that equal one after the existence or enforcement of those laws. The data come from Bhattacharya and Daouk (2000). See Appendix Table 3. Standard errors are in brackets. *, **, *** mean significance at 10, 5, and 1 percent, respectively.

Second, as mentioned before, the liberalization and the gradual integration of emerging markets with international financial markets by itself may help to fortify the domestic financial sector. Foreign investors have overall better skills and information and can thus monitor management in ways local investors cannot. Liberalization, moreover, allows firms to access mature capital markets. Firms listing on foreign stock markets are also in the jurisdiction of a superior legal system and have higher disclosure standards.

Third, the integration with world markets and institutions tends to speed up the reform process to achieve a resilient financial system. Capital markets can help supervise domestic financial institutions, imposing stricter market discipline, increasing transparency and the diffusion of information, and even pushing governments into guaranteeing that its financial system is well supervised and regulated.[30]

To have a sense of the effects of changes in institutions on financial booms and busts, we estimate the following regression,

$$amplitude_i = \boldsymbol{\alpha}'\mathbf{X}_i + \rho_1 d_i^r + \beta_1 d_i^{sr} + \lambda_1 d_i^{lr} + \tau_1 d_i^{L\&O} + \tau_2 d_i^{ITA} + \tau_2 d_i^{ITE} + \varepsilon_i . \qquad (4)$$

This regression is the same as regression (1) but also evaluates the possible effects of changes in government institutions. $d_i^{L\&O}$ is a dummy variable equal to one if the boom (crash) occurs when the law and order index has improved or it is at its highest level, and zero otherwise. d_i^{ITA} is a dummy variable equal to one if the boom (crash) occurs following the approval of the law prosecuting insider trading, and zero otherwise. d_i^{ITE} is a dummy variable equal to one if the boom (crash) occurs when insider trading prosecution is enforced and zero otherwise.

The results are also reported in Table 7. Note that improvements in the law and order index trigger more stable financial markets, with the amplitude of booms and crashes declining about 18 and 9 percentage points, respectively. This evidence provides one possible explanation of why mature markets, with better government institutions, do not experience the larger crashes observed in emerging markets in the aftermath of liberalization.[31]

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[30] See Gourinchas and Jeanne (2002) for a model on the link between financial liberalization and social infrastructure.

[31] For more discussion on this issue, see Martin and Rey (2002).

VI. Conclusions

This paper presented a new approach to understand the effects of financial liberalization by introducing a novel database on liberalization and by focusing on booms and busts in stock market prices. Our main results can be summarized as follows.

First, our chronology of financial liberalization indicates that domestic and international financial liberalization is a process in which different types of restrictions are removed over time. Moreover, while liberalization has been an uninterrupted process in most mature markets, it has been characterized by reversals in emerging markets, in which capital controls and restrictions are at times reintroduced. We also found that the pattern of liberalization varies across regions, with developed countries liberalizing their stock markets first and developing economies opening their domestic financial sector first.

Second, with regard to the possible changing nature of financial cycles, our analysis shows that stock market booms and busts have not intensified in the long run after financial liberalization. In fact, despite the claim that financial integration leads to volatile capital markets around the world, stock market cycles become less pronounced after liberalization. Still, in the short run, we found that financial liberalization does tend to trigger larger cycles. Interestingly, the short-run effects of liberalization vary across mature and emerging markets. The evidence from emerging markets, with larger booms and crashes in the immediate aftermath of liberalization, provides some support to the findings of the crisis literature of excessive financial cycles following liberalization. In contrast, the evidence from mature markets, with larger bull markets but less pronounced bear markets in the aftermath of deregulation, supports the view that liberalization is beneficial even in the short run.

Third, to explain the contrasting short- and long-run effects of financial liberalization, we explored the dynamics of liberalization and institutional reform. We collected information on the quality of institutions as well as data on the laws governing the functioning of the financial system. The evidence suggests that institutional reforms do not predate liberalization. Most of the time, government reforms are implemented within a few years after the partial opening of financial markets. As the quality of institutions improves, financial cycles become less pronounced. Perhaps due to lack of correct incentives, countries do not tend to improve their financial systems before liberalization, disregarding the typical policy prescriptions.

To conclude, this paper opened several avenues for future research. First, the new dataset will allow researchers to understand better the links between financial liberalization and financial development, investment, and growth. Second, the richness of the data will allow researchers to better comprehend the channels through which financial deregulation impacts economies. Third, more research on whether financial liberalization can be a first step toward achieving institutional reforms would be welcome. Last but not least, the relation between financial liberalization and reforms leaves unanswered the question of whether countries can deregulate financial systems without becoming vulnerable to crises.

Table A1. Criteria to Define Liberalization Periods

Capital Account	
Criteria for Full Liberalization	
Borrowing abroad by banks and corporations	Banks and corporations are allowed to borrow abroad mostly freely. They may need to inform the authorities, but the authorization is granted almost automatically. Reserve requirements might be in place but are lower than 10 percent. The required minimum maturity is not longer than two years.
	And
Multiple exchange rates and other restrictions	There are no special exchange rates for either current account or capital account transactions. There are no restrictions to capital outflows.
Criteria for Partial Liberalization	
Borrowing abroad by banks and corporations	Banks and corporations are allowed to borrow abroad but subject to certain restrictions. Reserve requirements might be between 10 and 50 percent. The required minimum maturity might be between two and five years. There might be some caps in borrowing and certain restrictions to specific sectors.
	Or
Multiple exchange rates and other restrictions	There are special exchange rates for current account and capital account transactions. There might be some restrictions to capital outflows.
Criteria for No Liberalization	
Borrowing abroad by banks and corporations	Banks and corporations are mostly not allowed to borrow abroad. Reserve requirements might be higher than 50 percent. The required minimum maturity might be longer than five years. There might be caps in borrowing and heavy restrictions to certain sectors.
	Or
Multiple exchange rates and other restrictions	There are special exchange rates for current account and capital account transactions. There might be restrictions to capital outflows.

Domestic Financial Sector	
Criteria for Full Liberalization	
Lending and borrowing interest rates	There are no controls (ceilings and floors) on interest rates.
	And
Other indicators	There are likely no credit controls (subsidies to certain sectors or certain credit allocations). Deposits in foreign currencies are likely permitted.
Criteria for Partial Liberalization	
Lending and borrowing interest rates	There are controls in either lending or borrowing rates (ceilings or floors).
	And
Other indicators	There might be controls in the allocation of credit controls (subsidies to certain sectors or certain credit allocations). Deposits in foreign currencies might not be permitted.
Criteria for No Liberalization	
Lending and borrowing interest rates	There are controls in lending rates and borrowing rates (ceilings and floors).
	And
Other indicators	There are likely controls in the allocation of credit controls (subsidies to certain sectors or certain credit allocations). Deposits in foreign currencies are likely not permitted.

Stock Market	
Criteria for Full Liberalization	
Acquisition by foreign investors	Foreign investors are allowed to hold domestic equity without restrictions.
	And
Repatriation of capital, dividends, and interest	Capital, dividends, and interest can be repatriated freely within two years of the initial investment.
Criteria for Partial Liberalization	
Acquisition by foreign investors	Foreign investors are allowed to hold up to 49 percent of each company's outstanding equity. There might be restrictions to participate in certain sectors. There might be indirect ways to invest in the stock market, like through country funds.
	Or
Repatriation of capital, dividends, and interest	Capital, dividends, and interest can be repatriated, but typically not before two and not after five years of the initial investment.
Criteria for No Liberalization	
Acquisition by foreign investors	Foreign investors are not allowed to hold domestic equity.
	Or
Repatriation of capital, dividends, and interest	Capital, dividends, and interest can be repatriated, but not before five years of the initial investment.

This table describes the criteria used to determine whether the capital account, the domestic financial sector, and the stock market are fully or partially liberalized.

Table A2. Chronology of Financial Liberalization

	Capital Account	Domestic Financial Sector	Stock Markets
Argentina	In July 1980, the authorities eliminated the 1-year minimum maturity requirement for foreign loans. In June 1981, a dual foreign exchange market was introduced. In December, the administration that came into power returned to a more liberal exchange system, unifying the exchange markets, eliminating the exchange insurance and swap facilities, liberalizing sales of foreign currency, and announcing that the peso would be allowed to float. In April 1982, all amortization payments on loans other than import-related loans were made subject to prior approval of the central bank. In November 1989, a free exchange rate was introduced. In December, proceeds from all loans had to be transacted in the free exchange market. There were no conditions on maturity, dates, or interest rates. In 1990, the special exchange rate regime for capital account transactions was abolished.	In January 1977, credit controls were abolished. Also in 1977, ceilings on domestic (lending and deposit) interest rates were eliminated. In July 1982, new economic authorities introduced a financial reform, setting interest rates at sharply negative real terms. Credit controls were re-imposed in a large scale basis. In October 1987, most domestic interest rate regulations were eliminated. Domestic interest rate deregulation was completed by the end of 1989. In 1990, the process of reform of the banking sector continued. Remaining controls on credit at the national level were progressively eliminated until 1994.	In January 1977, a new Foreign Investment Law eased previous restrictions on foreign direct investment, provided the right of foreign investors to repatriate capital after three years and repatriate their profits and dividends without any central bank prior approval. Foreign investment regulations were further liberalized in 1980. Prior approval was no longer required for investment in any of the country's stock markets, provided that the amount did not exceed 20% of the capital of the company involved. In April 1982, the right to freely transfer profits and dividends abroad was "temporarily" suspended. In 1989, the Economic Emergency Law further liberalized foreign investment in the stock exchange. Repatriation of capital, profits, and dividends was fully liberalized in that year.
Brazil	In 1990, certain financial institutions were authorized to obtain resources from abroad through the issuance of commercial papers. Brazilian banks located abroad were authorized to issue medium- and long-term certificates of deposits. Borrowing abroad by corporations had a minimum maturity term of one year. In March, the government introduced a foreign exchange interbank market for transactions related to capital repatriation and profit and dividend remittances. In May 1992, authorities banned the issuance of international bonds with maturity less than three years. In June, foreign investors represented by funds and institutional investors were authorized to operate in options and futures markets. In January 1994, the automatic authorization of foreign loans was suspended. Renewal or extensions of previous loans were also subject to a minimum term of 36 or 96 months, which prevailed for new loans. In March, automatic authorization for issuing bonds, commercial paper, and other fixed-income instruments abroad was terminated. Also in March, the government introduced new restrictions on the constitution and operation of foreign institutional investors. In October, the financial transaction tax on foreign borrowing was increased from 3% to 7%. In March 1995, financial and non-financial institutions were authorized to obtain resources from abroad by issuing commercial papers, notes, and bonds, including securities. Also in March, the minimum period for new foreign loans was lowered from 36 to 24 months. In February 1996, another package of measures aimed at restricting short-term capital inflows was enacted. The minimum average term for contracting, renewing, or extending foreign loans was increased from 24 to 36 months. Banks were permitted to buy and sell foreign exchange in the forward market without restrictions. In 1997, the minimum average term for borrowing abroad was decreased from three to one year for new loans, and to six months for renewals or extensions. In April, the "entrance" tax was reduced to 2%. In 1998, the special exchange rate regime for capital account transactions was abolished.	In 1976, ceilings on deposit and lending rates were removed. In 1979, those ceilings were re-imposed. In 1988, some loan rates were liberalized. In 1989, deposits rates were liberalized.	In 1973, persons domiciled or residents abroad could purchase Brazilian commercial and industrial securities, provided that transactions were channeled through a Brazilian investment company and were effected in Brazilian stock exchanges. Capital was subject to registration in the central bank and had to remain in the country for at least three years. Remittances of profits and dividends were subject to certain limitations. In 1979, the minimum holding period for capital repatriation was reduced from three to two years. In 1983, it was reduced again, from two years to three months. In 1987, foreign portfolio investment could not exceed 5% of the voting capital and 20% of the total capital of a company. New legislation gave foreign investors exemption from domestic income tax on capital gains. In July 1989, remittances abroad of profits and dividends were allowed after sixty days. In June 1990, the government announced a gradual liberalization of capital repatriation that was completed in the following year (1991). In June 1991, the Foreign Investment Law was changed. Until that month, foreign portfolio investors could invest in Brazil only through country funds. By then, foreign investors were allowed to set up omnibus accounts which were essentially portfolios of one or more shares held in local custody. Besides, foreign ownership levels were increased. Foreign institutions could own up to 49% of voting common stock and 100% of non-voting participating preferred stock. Some corporate limitations applied (e.g. Petrobras common stocks was off limits), and the voting class (ON) of banks were not available.
Canada	In 1973, chartered banks were allowed to borrow abroad, but subject to some guidelines. Corporations were allowed to issue bonds abroad, but were subject to some controls. No controls were in place on foreign exchange transactions. In 1974, the freedom for chartered banks in conducting their foreign currency operations was increased. In February 1975, the 1970 guideline that requested Canadians to explore fully all available sources in the domestic market before issuing bonds abroad was lifted.	Under the 1967 Bank Act, the determination of interest rates on loans was left to market forces.	In 1973, there were no controls over inward or outward portfolio investment. Some specific restrictions existed on inward direct investment in broadcasting, telecommunications, transportation, fishery, energy, and financial services. Capital and income could be freely repatriated.

	Capital Account	Domestic Financial Sector	Stock Markets
Chile	In 1973, all new foreign borrowing or refinancing of existing credits by commercial banks, except for short-term lines of credit, were subject to prior approval of the central bank. Corporations were allowed to borrow abroad, but were subject to some exchange rate regulations. In 1977, the special exchange rate regime for capital account transactions was abolished. In January 1978, a limit on external indebtedness of commercial banks to relend in local currency (25% of capital and reserves of each bank) was imposed. In 1979, non-interest bearing deposit requirements on foreign borrowing were introduced: 25% for maturities less than three years, 15% for maturities between three and four years, and 10% for maturities between four and five years. In June, the pre-existing limit on external indebtedness of commercial banks was eliminated. In 1982, most capital outflows were restricted, and a special exchange rate regime for capital account transactions was introduced. In May, authorities imposed a 20% reserve requirement on foreign borrowing with maturity of less than 24 months. In July, authorities reduced to 5% the reserve requirement on foreign borrowing with maturity of less than six years. In September 1985, commercial banks were allowed to borrow abroad without any restrictions or prior authorization. In April 1990, new regulations liberalizing foreign exchange market operations were introduced. Previously, those operations were prohibited unless under central bank's specific authorization. By then, all transactions were permitted unless specifically restricted by the central bank. In June 1991, a non-remunerated reserve requirement of 20% was imposed on direct foreign borrowing for the first twelve months. In May 1992, reserve requirements were raised to 30%. In September 1998, reserve requirements on capital inflows were eliminated.	Liberalization of lending and deposit rates started in 1974 and was completed by May 1975. Also in 1974, selective credits to priority sectors were mostly eliminated. In 1976, quantitative credit controls were abolished. In December 1982, commercial banks' interest rates controls were re-imposed (deposit and lending rates). In 1984, deposit rates were mainly liberalized, but the indicative interest rate for 30-day deposits was still in place. In 1985, loan rates were liberalized. In 1987, the central bank eliminated its practice of announcing indicative interest rate for 30-day bank deposits.	In 1987, Law 18,657 permitted foreign capital investment funds to purchase shares issued by Chilean corporations and other securities approved by the securities commission, provided that such funds met certain portfolio diversification requirements and had certain minimum paid-up capital levels. Aggregate foreign ownership was limited to 25% of shares of a listed company. In May 1987, a country mutual fund was introduced. In 1992, Chilean enterprises were authorized to issue ADRs. In January, regulation DL600 eased restrictions on foreign investment and repatriation of capital to a minimum holding period of one year. In August 1995, authorities allowed capital to be repatriated after one year.
Colombia	In January 1991, under the "Apertura" program, authorities unified the exchange rate and controls on borrowing abroad were relaxed. Authorities maintained some controls on the capital account to reduce the volatility of capital flows, in particular those of short-run nature. In February 1992, residents were allowed to hold foreign stocks and other foreign portfolio investments abroad up to US$500,000. In September 1993, authorities imposed a non-remunerated 47% deposit requirement on most foreign borrowing. In 1994, foreign loans with maturity ranging from thirty days to five years were subject to a non-remunerated deposit requirement ranging from 43% to 140% of the loan. In 1996, reserve requirements of 50% were imposed on all foreign credits with a maturity of less than five years. Since May 1997, foreign loans (all maturities) were subject to non-remunerated deposits requirements of 30% of the loan in pesos to be held for eighteen months. In January 1998, foreign loan non-remunerated deposit requirements were reduced to 25% of the loan in domestic currency, and the period was shortened to twelve months. In September, foreign loan non-remunerated deposit requirements were further reduced to 10% of the loan in domestic currency, and the period was shortened to six months.	A gradual liberalization was implemented between 1967-1972, but some controls remained, like ceilings on deposit rates. In August 1974, interest rates on loans were liberalized and ceilings on deposit rates were substantially raised. Policies attempting to control the amounts and types of loans were abandoned. Also, the financing of preferential sectors from the central bank was reduced. After September 1980, most deposit interest rates were freely determined. In 1982, credit controls were greatly, but not completely, eliminated. In May 1984, the central bank increased from 8% to 15% the interest rate paid on the agricultural bonds, which were held by banks as a forced investment equivalent to 16.5% of their loan portfolio. From January to June 1986, authorities introduced a temporary (deposit and lending) interest rate control. In 1990, all deposits rates at commercial banks were market determined. In 1994, directed and forced lending to agricultural sector was reduced.	In January 1991, a new foreign investment code, Resolution 49, came into effect, which gave foreigners the same rights as domestic investors. Foreign investors could not repatriate their capital within one year of registration, but were free to do so thereafter. In October, limitations on annual transfers of profits were abolished. Capital had to be registered with the central bank before profits could be repatriated. In December, Resolution 52, which allowed foreigners to purchase up to 100% of locally listed companies, came into effect. Special regimes remained in effect in the financial, petroleum, and mining sectors. The purchase of a 10% or more of the shares of a Colombian financial institution required prior approval by the Superintendence of Banks.
Denmark	In 1978, the purposes for which Danish firms could raise loans abroad were confined mainly to the financing of fixed investments and foreign trade. Financial loans with maturities greater than five years could be raised abroad by business firms. In 1983, authorization was given to domestic corporations to borrow abroad without restrictions, provided that the maturity of such loans was at least five years. Financial loans were no longer restricted to the financing of fixed business investment, they could be raised for any business purpose. In October 1988, all remaining foreign exchange regulations were lifted.	In January 1973, the Interest Rates Agreement that regulated interest rates was abolished, and since then, lending interest rates have become increasingly independent of the official discount rate. In 1975, the Interest Margins Act of 1975 imposed a maximum between the average of banks' lending and deposit rates. In March 1979, this Act and ceiling on deposit rates expired. This agreement was replaced by a new one between the central bank and deposit money banks on lending interest rates. Participant banks and savings banks were obliged to freeze their lending rates at the level of the first quarter of 1979 (adjustment would take place in accordance with changes in the discount rate). The banks signing the agreements were offered more favorable borrowing conditions at the central bank. In June 1981, this agreement on lending interest rates ended.	In 1973, nonresidents could freely purchase or subscribe Danish shares, whether officially listed in the main Copenhagen stock market or listed there at "street" or "curb" market prices, provided the purchase did not represent a direct investment and was not being made with a view to subsequent direct investment in the company concerned. Capital and income repatriation was free.

	Capital Account	Domestic Financial Sector	Stock Markets
Finland	In 1973, lending to nonresidents was restricted to export credits. In 1987, international banking activities of Finnish authorized banks were liberalized, but subject to certain supervisory reporting requirements. In August, regulations on foreign borrowing were eliminated for credits with maturity of at least five years. In June 1989, regulations on foreign borrowing were eliminated for credits with maturity of at least one year. In 1990, the regulations on outward and capital transfers were broadly liberalized. In January 1991, all foreign exchange controls were eliminated, except those regarding the raising of loans abroad by private corporations. In June, the Bank of Finland eliminated all controls on overseas borrowing by private corporations.	In 1986, restrictions on average lending rates were abolished. However, lending rates remained under some constraints, since all loans were tied to a base rate controlled by the Bank of Finland. In March 1989, the central bank reduced its direct control over allocation of credit. Only a set of non-binding recommendations on bank lending was issued. In 1990, the use of a base rate as a reference rate for new loans was largely discontinued.	In 1973, nonresidents could purchase bonds, debentures, or shares quoted on the Helsinki Stock Exchange through an authorized bank, against convertible or externally convertible currencies or by debiting a convertible Markka account, and nonresidents were also permitted to sell them through the bank and to freely repatriate the proceeds. No permission was needed for the acquisition of shares with funds classified as capital accounts, however, the proceeds could not be transferred abroad without a permission from the central bank. In 1990, the regulations on outward and inward capital transfers were broadly liberalized. The sale to nonresidents of derivative instruments based on Finnish shares and warrants was permitted. However, because of restrictions on foreign ownership, restricted shares could not be transferred to foreign residents. In February 1990, Finnish companies were allowed to issue shares abroad without prior authorization. Also, it was no longer necessary for nonresidents to effect their purchases of Finnish securities through the HSE. In 1992, the act on mutual funds was amended so as to give foreigners the right to own units in these funds. Some restrictions on foreign ownership still applied. In 1993, the restrictions on foreign ownership (cap limits on certain sectors and large Finnish companies) were lifted. Nonresidents were allowed to purchase Finnish securities and to own Finnish corporations without any restrictions.
France	In 1985, the requirements on direct investment abroad were abolished. In June, banks were freely allowed to contract foreign currency loans and borrow in francs up to 50 million. In June 1989, limitations on the foreign exchange positions of commercial banks were abolished. Effective January 1990, all remaining exchange restrictions with respect to capital transactions were abolished. Borrowing abroad in French francs or foreign currencies by physical or juridical persons, whether public or private French residents, or by branches or subsidiaries in France of juridical persons, whose registered office was abroad, was unrestricted.	In 1985, (deposit and lending) interest rate ceilings were mostly eliminated. In 1986, the ceiling and selectivity of credit policies were abolished. Credit selectivity was replaced by explicit credit subsidies. In January 1987, credit controls were completely removed. The compulsory ratio for assets was abolished.	In 1973, participation exceeding 20% of the quoted firm's capital was considered direct investment and required prior declaration to the ministry of finance. French securities held in France by nonresidents could be exported, provided that they had been deposited with an authorized bank in a foreign dossier. French and foreign securities held under a foreign dossier could also be sold in France and the sales proceeds could be transferred abroad with no restriction. The transfer abroad of nonresident-owned funds in France was not restricted. If justifying documents were presented and certain exchange control requirements were met, authorized banks were permitted to approve, without any limitation, applications for profits and dividends repatriation. In December 1989, restrictions regarding foreign direct investment in existing French firms were loosened, mainly by reducing the period during which the ministry of finance could suspend (for non-European Comunity investors) the acquisition of participation in an existing French firm.
Germany	In 1973, banks were subject to high minimum reserve requirements on the level of their foreign liabilities with maturities of less than four years. Banks' foreign currency borrowing that were immediately reinvested abroad were exempted from the minimum reserve requirements. Cash deposit requirements were applied to certain borrowing made by residents from nonresidents. The prior approval of the central bank was required for sales to nonresidents of all domestic money market paper and of fixed-interest securities of german issuers with less than four years remaining to maturity. No special exchange rate regime for capital account transactions existed. In February 1974, Bundesbank approval requirements were lifted for all borrowings abroad made by residents. In March 1980, Germany lowered the minimum maturity for domestic fixed-interest securities eligible for sale to nonresidents from four to two years, and in November, it was further reduced further to one year. In December, the Bundesbank concluded with the major commercial banks a gentlemen's agreement over voluntary curbs on capital exports. In March 1981, restrictions to the sale of German money market paper and fixed-interest securities to nonresidents were lifted. This implied a de facto abolition of the remaining restrictions on capital transactions. The agreement over voluntary restriction on capital exports was ended.	Ceilings on interest rates were abolished in 1967. And there were no credit controls since 1973.	In 1973, previous approval for nonresident's direct investments in Germany and purchases of German or foreign equities was required. However, nonresidents could freely repatriate capital and income. In 1974, this approval was no longer required.

	Capital Account	Domestic Financial Sector	Stock Markets
Hong Kong	In 1973, there were no restrictions on borrowing abroad by corporations. In January, the exchange control was abolished. In September, banks were free to run positions in any currency without any consultation.	In 1973, the lending and deposit rates offered by banks were subject to the interest rates arrangement of the Exchange Bank Association, but the rates offered by deposit-taking companies were not. As a result, the deposit-taking companies were in a better condition to attract deposits by offering better rates. Nevertheless, the rates closely followed market conditions. There were no credit controls in place, except for some short lived loans to small scale industries. In September 1983, following a large fall in the stock market index and a run against the currency, interest rates administered by the Hong Kong Association of Banks were increased twice, in October and November. After the stabilization of the currency, rates were reduced. In October, the withholding tax on interest on domestic currency deposits was removed. In August 1994, the HKAB announced a timetable for the removal of the interest rate cap on time deposits. In October, rate caps in deposits with maturity of more than a month were deregulated. In January 1995, interest rate caps on deposits of more than seven days were removed. In September, the Hong Kong Monetary Authority removed the ceiling on time deposits fixed for seven days. It also announced no further liberalization of rates on deposits with maturity below seven days.	In 1973, no restrictions applied on acquisitions by foreigners and on repatriation of capital and income.
Indonesia	In 1978, a special exchange rate regime for current account transactions was introduced. The deposit requirements for foreign currency liabilities by corporations were abolished. A 15% reserve requirement was applicable to foreign currency liabilities of foreign exchange banks. In 1979, the special exchange rate regime for current account transactions was abolished. In 1988, almost all (except for open position limits) restrictions on borrowing abroad were lifted. In 1991, a reduction on bank's net open position was implemented to reduce banks' access to foreign borrowing. In March, the central bank adopted measures to discourage foreign borrowing. The Bank of Indonesia began to scale down its swap operations, reducing individual bank's limits from 25% to 20% of capital. The three-month swap premium was raised by 5%. In November, bank's short-term foreign exchange liabilities could not exceed 30% of their own capital. A reserve requirement of 2% was applicable to foreign currency liabilities of foreign exchange banks. Firms could also obtain foreign credit subject to a 30% reserve requirement for a year. In 1992, the central bank limited banks' short-term foreign liabilities to 30% of capital. Borrowing abroad required a prior approval of the central bank. In 1996, foreign exchange banks were subject to central bank directives with respect to borrowing abroad. A prior approval of the team set in 1991 was required before the acceptance of a loan from abroad. An annual borrowing ceiling was imposed by the central bank on foreign commercial borrowing of more than two years of maturity. In 1998, a special exchange rate regime for capital transactions was introduced.	In 1978, private banks were allowed to set their own deposit rates, but state banks could set rates only for rupiah deposits of three months or less and for foreign currency deposits. In 1983, most loan rates were liberalized, credit ceilings were abolished, and centrally oriented credit was greatly reduced. In June, state banks were free to set their own deposit rates on all classes of time deposits. In 1990, banks were required to allocate 20% of loans to small businesses.	In December 1988, the government introduced deregulation measures to allow foreigners to purchase shares in eight non-joint venture companies. In 1989, investors were granted the right to repatriate capital and profits. The law provided that no transfer permit would be issued for capital repatriation as long as investment benefits from tax relief were being received. However, foreign payments did not require a transfer permit. In August 1989, foreigners were allowed to purchase up to 49% of all companies listed shares, including foreign joint ventures, but excluding bank shares. No person could purchase more than 1% of any collective investment security. In 1992, the exclusion of bank shares was eased and foreigners were allowed to buy listed shares (up to 49%) in three categories of banks: private national, state owned, and foreign joint venture. In December 1997, foreign companies were authorized to purchase, without limit, shares issued by Indonesian nonbank companies in the Indonesian capital market.
Ireland	In 1978, the special exchange rate regime for capital account transactions was abolished. In 1979, the central bank suspended the 50% deposit requirement on inflows of capital through commercial banks. In September, restrictions on acquisition of foreign securities were eased. In 1980, exchange control approval was required for all transfers of capital to nonresidents. In 1988, lending of Irish currency to nonresidents began to be permitted to the extent that the nonresidents were parties to commercial transactions with residents. Residents were allowed to borrow foreign currency for any purpose, but an approval of the central bank had to be obtained when the borrowing was not for the financing of trade. Since January 1992, residents were allowed to borrow in foreign currency for non-trade purposes without restrictions. Also in January, exchange controls on outward capital transfers were eliminated. In September, residents were prohibited from making financial loans in Irish pound for periods of less than one year to nonresidents without the permission of the central bank. Forward foreign exchange transactions	In May 1985, the central bank announced a new and more market-oriented arrangement for the determination of (lending and deposit) interest rates by the Associated Bank. In the past, changes in interest rates by these banks had to be approved by the central bank. Since May 1985, each bank was free to decide its lending and deposit rates subject to a maximum permissible prime-lending rate set by the central bank. In February 1986, the central bank suspended the arrangement governing Associated Bank interest rates (lending and deposit rates).	In 1973, purchases by nonresidents of Irish registered securities had to be funded with foreign currency from an external account. Also, purchases in excess of certain amount had to be notified to the central bank. Some restrictions also applied to repatriation of capital and income. Exchange control approval was required for all transfers of capital to nonresidents. In 1992, restrictions on acquisitions by foreigners and repatriation of capital and income were lifted.

	Capital Account	Domestic Financial Sector	Stock Markets
Ireland	in Irish pounds for speculative purposes were prohibited. The minimum maturity of allowable forward transactions was 21 days. In January 1993, all controls were eliminated.		
Italy	In 1982, the special exchange rate regime for capital account transactions was eliminated, but the deposit requirement for investment abroad was still in place. In 1983, certain sectors were exempted from the 50% non-interest bearing deposit requirement. In July 1994, a ceiling on foreign indebtedness by banks was introduced and eliminated in December 1985, but some restrictions still remained. In May 1987, the deposit requirement for investment abroad was abolished. In May 1990, most restrictions on borrowing abroad by banks were lifted. In 1992, there were no controls on banks' foreign borrowing. Banks were only obliged to declare transfers by filing out a special customs form. There were also no controls on corporations' foreign borrowing. Residents were free to undertake financial transactions with nonresidents, including loans.	In 1974, (deposit and lending) interest rate ceilings were eliminated. In 1975, deposit interest rate ceilings were re-established. In 1981, they were eliminated.	In 1973, foreign investment of any kind was permitted freely. No restrictions applied to capital and profit repatriation.
Japan	In 1979, controls on inflows were eased. In January, the prohibition regarding nonresidents' purchases of bonds with remaining maturity of less than five years was entirely lifted. The Japanese authorities implemented major reforms during the 1980s. These reforms included the deregulation of cross-border transactions and improvements on access to foreign financial institutions. Starting in July 1980, Japanese corporations were allowed to issue bonds abroad, provided that advance notice was given. Deregulation continued during the 1990s and it was completed by mid 1990s.	In 1979, interest rate deregulation started. In 1991, interest rates on almost all time deposits held by corporate clients were fully liberalized at the end of the year. Also in 1991, the share of deposits with market-determined interest rates amounted to 75% of total deposits. In July 1991, direct quantitative controls on credit were abolished. In June 1992, the liberalization of interest rates on time deposits was completed. The first step to deregulate demand deposits was taken. Postal savings interest rates remained regulated.	In 1973, there were no restrictions on repatriation of income. Acquisitions of securities for portfolio investment could be made freely through designated securities firms. In other occasions, a prior notification without a waiting period was required. In 1976, foreign ownership limits applied. In principle, acquisitions by foreign investors were subject to validation or license. However, acquisitions of stocks for portfolio investment were automatically approved by the Bank of Japan. All these acquisitions had to be made against yen proceeds from the sale of foreign exchange if the investor wished to obtain remittance rights upon validation. In 1985, controls on outflows were eased.
Korea	In January 1979, the Korean authorities revised their exchange control regulations to permit domestic banks to lend to nonresidents, but not to borrow abroad. In 1993, a capital act liberalization plan was announced, giving greater freedom for residents concerning capital outflows. Despite the capital act liberalization plan, considerable restrictions remained on capital inflows: bond-holding by nonresidents was allowed indirectly through the Korea Trust and Country Fund; direct holding was allowed only for convertible bonds issued by small and medium enterprises; domestic companies could use foreign commercial loans within certain limits only for the import of capital goods and for foreign direct investment (FDI). In 1996, long-term borrowing was forbidden in practice, but short-term foreign borrowing was permitted under the regulations governing open exchange positions. In 1998, borrowing abroad by high-tech foreign-financed manufacturing companies was allowed up to 100% of the foreign invested capital. However, maturity was limited to three years or less and limitations were imposed on the use of funds. In April, authorities abolished regulations on usage of long-term loans with maturity of over five years that were brought into the country by foreign manufacturers.	In 1988, loan rates from banks and nonbank financial intermediaries, other than interest rates on loans subsidized by government funds, were liberalized. Interest rates on time deposits with maturities of more than two years at banks, postal savings, and credit unions, and on time and savings deposits with maturities of over one year at mutual savings and finance companies were liberalized. Short-term deposit rates were still under the authorities' control. Bank of Korea also controlled the total volume of credit and the minimum credit guidelines to small and medium firms and conglomerates. In 1991, the government announced a four-stage plan for interest rates deregulation (deposit and lending rates). In November, short-term lending rates (bank overdrafts, discounts of commercial paper, and trade bills) were liberalized. In 1995, all lending rates and most deposit rates were deregulated, except government supported lending and demand deposits. In 1997, all lending rates were freed. In July, remaining restrictions on deposit interest rates were eliminated. In January 1998, all direct restrictions on lending to prohibited sectors were completely abolished.	In 1984, the repatriation of dividends was fully permitted. In 1991, repatriation of capital became freely permitted. Market opened to foreign investors. A notification system made authorization of foreign investment subject to approval or notification. Foreign participation became easier under the regulations. In 1992, foreign investors were permitted to invest in the domestic stock market, subject to the restriction that foreign ownership of listed firms could not exceed 10% of total equity, and they could not hold more than 3% of total equity. Investments in stocks by resident foreign financial institutions were subject to the same limits as those by institutions owned by nationals. In 1995, the ceiling on stock investment by nonresidents was raised twice. The ceiling on aggregate purchases was raised to 12% in January, and to 15% in July. In 1996, the ceiling on aggregate purchases was increased to 18% in April, and to 20% in October. The ceiling on individual purchases was raised to 5%. In 1997, ceilings on foreign ownership of Korean equities were raised four times (May, November, and twice in December). In December, these ceilings were increased to 50% and to 55%. In May 1998, the aggregate ceiling on foreign direct investment in Korean equities was eliminated, and equity investment in non-listed companies was permitted.

	Capital Account	Domestic Financial Sector	Stock Markets
Malaysia	In 1973, no special exchange rate regime for capital account transactions existed. In May, the new exchange control regulations opened up opportunities for banks and corporations to expand considerably their foreign exchange operations. Borrowing by Malaysian residents from nonresidents required the approval of the Controller of the Foreign Exchange, which was freely given on all loans raised on reasonable terms and used to productive purposes in Malaysia. In June 1979, borrowing from nonresidents by banks and corporations was freely permitted, but only up to a certain limit. In January 1987, resident borrowers could borrow up to US$400,000 from nonresidents without obtaining any permission. Larger amounts required permission from the Controller of Foreign Exchange, which was freely given to finance productive activity in Malaysia. From January to August 1994, all residents were prohibited from selling short-term monetary instruments to nonresidents. In September 1998, exchange controls were introduced.	In October 1978, the liberalization of (deposit and lending) interest rates started. In October 1985, controls on deposit and lending rates were re-imposed by restricting the competitive bidding up of interest rates among banks. In February 1991, those controls were completely eliminated.	In 1973, repatriation of capital and income was free. Since May, all payments for capital repatriation up to US$400,000 were freely approved by any commercial bank. Payments in excess of that amount required the approval of the Controller of Foreign Exchange, which was freely given under normal circumstances. In July 1973, the Malaysian stock exchange was established. In conformity with the liberalization of the Malaysian exchange control regulations, all nonresidents were permitted to trade freely in all shares listed, without any need for exchange control permission. In 1975, the general aim was that foreign investment would be allowed in the proportion of 30% of foreign equity and 70% of Malaysian equity. New import substitution projects had to have 100% Malaysian ownership. Industries exporting more than 80% of their production and using mainly imported materials could be considered for majority foreign ownership, ranging from 51% to 70%, but in exceptional cases, 100% foreign ownership could have been considered. In 1984, a relaxation of these regulations on foreign ownership was announced. Majority equity shares could be held by foreign firms engaged in capital-intensive and resource-oriented enterprises. In addition, the possibility of 100% foreign ownership, previously limited to export industries, was extended to other sectors. In 1988, foreign stock brokerage firms were allowed to increase their equity share in local brokerage firms from 30% to 49%. In 1992, the guidelines on foreign equity capital ownership were liberalized. Companies exporting at least 80% of their production were no longer subject to any equity requirements. Companies exporting between 50% and 79% of their production were permitted to hold 100% equity, provided that they had invested US$50 million or more in fixed assets or completed projects with at least 50% local value added, and that the company's products did not compete with those produced by domestic firms. These guidelines did not apply to sectors in which limits on foreign equity participation had been established. In August 1993, the minimum amount of equity that had to be held by an indigenous Malay group, company, or institution was lowered from 51% to 35%. In 1998, investors could not directly convert their short-term investment into foreign exchange. Proceeds from investments held for less than one year could be transferred only to Malaysian ringgit-denominated accounts, which could be used only to acquire other ringgit assets. In February 1999, the minimum holding period was eliminated and a graduated system of exit taxes was introduced: for investments made prior to February 1999, capital was taxed at 50% if repatriated less than seven months after entry, 20% if repatriated after seven months, and 10% if repatriated nine to twelve months after entry; capital repatriated after a year and the original capital of investments made after February were not taxed. However, repatriated gains for those investments were taxable as follows: capital gains repatriated within twelve months after the gain was realized were taxable at 30%, and those repatriated after more than twelve months were taxable at 10%.
Mexico	In 1973, private corporations and private banks were allowed to borrow abroad, but subject to the approval of the central bank. There was no special exchange rate regime for capital account transactions. In August 1982, commercial banks were required to surrender to the Bank of Mexico their net foreign exchange holdings, including gold and silver. In September, an exchange control was introduced with a preferential exchange rate to be used to make interest payments on foreign credit. In November 1991, the special exchange rate regime for capital account transactions was abolished, and the central bank abolished the restriction on bank loans obtained from foreign financial institutions to be channeled through the controlled exchange market.	In 1974, authorities allowed banks to issue certificate of deposits at free interest rates. In August 1979, a new system to increase flexibility on deposit interest rates was introduced. By then, the maximum rates were frequently adjusted by the central bank. In September 1982, the Mexican president nationalized the banking system. In October 1988, some interest rate controls were lifted, and liberalization of deposit interest rates started. In April 1989, interest rate ceilings were abolished. Banks were authorized to pay interest on checking accounts.	In 1989, restrictions on foreign capital participation were substantially liberalized. Foreign investments were permitted in the Mexican Stock Market through specially designed trust funds and "B" shares of Mexican corporations. However, participation was not allowed in the administration of the companies involved. Foreign investors could hold majority of shares in new firms, as long as the new investment met a list of conditions. In 1991, restrictions on repatriation of capital and income were abolished, and restrictions on portfolio investment were lifted. However, there were sectors that remained reserved to Mexicans or to Mexican corporations with a foreign exclusion clause. There were also caps to foreign participation in some sectors, and foreign investment in others required prior authorization.

	Capital Account	Domestic Financial Sector	Stock Markets
Norway	In 1980, foreign borrowing by banks was liberalized. Limits on foreign currency exposure of banks were established. In 1981, there was an elimination of minimum limits on maturity of foreign debt held by domestic firms. In 1982, an upper limit on short-term borrowing abroad by domestic enterprises was set. Deregulation of the conditions on borrowing abroad by corporations started in 1985 and was completed in 1988. In 1992, borrowing and lending abroad were subject to a mandatory deposit requirement. No other restrictions on borrowing and lending abroad existed. Norwegian companies were permitted to make direct investments abroad.	In 1979, lending rate regulations were briefly removed and explicit restrictions on deposit interest rates were lifted. In September 1985, authorities switched to so-called interest rate monitoring (i.e. moral suasion) and lending interest rates were further liberalized. Also, lending interest rate declarations were removed. In 1988, liberalization of lending rates was completed and they became market determined.	In 1973, acquisition by foreign investors was precluded. Repatriation of capital and income was free of regulations. In 1989, further liberalization stipulated that non-resident portfolio investment in Norwegian shares and domestic listed bonds with a maturity of one year or more was unrestricted. In 1984, nonresidents were allowed to purchase quoted and nonquoted shares, within the limits established in the Concession Acts. Previously, most transactions in securities involving nonresident's interest were subject to approval.
Peru	In 1973, a special exchange rate regime for capital account transactions existed. Borrowing abroad by corporations was permitted, but under some restrictions. In 1974, the central bank eliminated the regulation restricting the net foreign exchange position of commercial banks. In 1987, controls were imposed, commercial banks were nationalized, and borrowing abroad by banks was substantially limited. A cash deposit requirement was re-imposed. In December 1990, restrictions were relaxed, capital controls were removed, and the special exchange rate regime for capital account transactions was abolished. In 1991, borrowing abroad was substantially deregulated, and in 1992, restrictions on borrowing abroad were lifted.	In 1973, there were no interest rate ceilings for deposit and lending rates, but some preferential lending rates existed. In 1982, binding interest rate ceilings were put in place. In 1991, controls on lending interest rates were abolished. In March 1992, interest rates for foreign exchange deposits were freed.	In 1991, repatriation of capital, income, and dividends were liberalized. In 1992, under the Private Sector Guarantee Regime, foreign investors were guaranteed non-discriminatory treatment. The stock market was 100% opened except for banks, which had a foreign portfolio investment limit of 15% of total shares outstanding. In 1993, shares of banks, insurance companies, and pension fund management companies became freely available.
Philippines	In 1976, the central bank exempted Offshore Banking Units (OBUs, introduced in 1972) from reserve requirements, local taxes, and fees and permitted them to extend foreign currency loans to any enterprise from deposits raised outside the country. In 1979, regulations were introduced to gain control over short-term borrowing from OBUs. In 1983, foreign borrowing required prior approval from the central bank. In 1994, commercial banks were allowed to maintain open exchange positions, but subject to the limitation that long and short positions could not exceed 25% and 5%, respectively, of unimpaired capital.	In 1981, the central bank deregulated all lending and deposit rates, except short-term lending rates. In July, ceilings on all deposit rates were lifted and in October, the ceilings on medium and long-term lending rates were also lifted. In December 1982, the ceiling on short-term lending rates was eliminated.	In May 1986, a country fund ("The Thornton Philippines Redevelopment Fund Limited") was introduced. In 1991, a new foreign investment law was promulgated. It expanded the number of sectors opened to full foreign ownership, simplified the approval process, and defined more clearly restrictions on foreign investment. However, the law required that Philippines nationals owned a minimum of 60% of the shares issued by domestic firms. To ensure compliance, Philippine companies typically issued two classes of stock (A-shares, to be held by Philippine nationals, and B-shares, which both foreign and national investors could buy). Foreign investors were allowed to invest in all sectors, except for those specified in a negative list. Also, full and immediate repatriation privileges for all types of investments were allowed to be serviced directly, without the approval of the central bank. Foreign investment regulations were removed over the following three years and most sectors of the economy became open to 100% foreign ownership.
Portugal	In 1992, all restrictions on borrowing abroad by banks were eliminated, except for open foreign exchange position limits. In August, the Bank of Portugal liberalized the purchase of foreign securities by residents. In September, compulsory deposits affecting all foreign borrowings were abolished. In December, authorities fully liberalized all external borrowings by residents, regardless of their nature or maturity.	In 1984, the Bank of Portugal freed deposit rates to align them around the rate on 6-12 month time deposits, which was supposed to serve as a reference rate. However, ceilings on lending and on some deposit interest rates prevailed. Some preferential lending rates were still in place. In 1990, preferential lending rates were practically phased out, but some ceilings remained.	In 1973, the transfer abroad of full proceeds from the liquidation of foreign investments was authorized without restrictions. Foreign investments were authorized freely if they were involved in activities that were of recognized interest for Portugal's development, and provided that no speculative operation in real state was involved. In 1976, the transfer abroad of proceeds from the liquidation of foreign investments was authorized after five years and subject to quantity restrictions. A new decree law restricting foreign investment was issued. All private capital transactions between Portugal and foreign countries were subject to prior authorization by the central bank. Foreign direct investment in Portugal was allowed on the basis of the Foreign Investment Code. In 1986, a new foreign investment regulation substantially liberalized capital account movements. The transfer of the proceeds of liquidation of foreign investment, including capital gains, was free of restrictions.

	Capital Account	Domestic Financial Sector	Stock Markets
Spain	In 1975, regulations on capital inflows were relaxed. In several cases, borrowing abroad by the nonbank private sector was encouraged. In 1977, rules on Spanish direct investment abroad were liberalized, no longer requiring prior authorization. In addition, authorized banks could extend credit in foreign currency to nonresidents, provided that it was financed with funds deposited in non-resident convertible currency accounts. A non-interest bearing deposit requirement equivalent to 25% of non-commercial loans and credits received from abroad was introduced in 1979 and abolished in November 1980. Also in November 1980, foreign borrowing by residents was liberalized: authorization became automatic for loans with maturity of at least one year. In 1985, for loans with maturity of at least one year, authorization became automatic if the application was not questioned or rejected within fifteen working days by the Bank of Spain. In June 1988, the minimum maturity period of foreign currency borrowing not subject to official authorization was raised from one to three years. In 1989, a 30% unremunerated deposit requirement on all new foreign borrowing by industrial firms was imposed. In 1990, the unremunerated deposit requirement on all foreign borrowing by banks and residents was abolished. In 1992, all remaining capital controls were lifted. In March, the non-remunerated deposit requirement that applied to all loans contracted abroad was abolished. In April, banks were authorized to grant financial loans to nonresidents without restrictions. Between September and November, foreign exchange controls were in place. Compulsory 1-year non-interest bearing deposits at the Bank of Spain were required. Those deposits were equal to 100% of: (i) the increase in the peseta value of the total long positions in foreign currency; (ii) the increase in credit balances relating to peseta-denominated loans or deposit transactions vis-à-vis nonresidents, except those arising from exporting financing.	In 1974, a gradual liberalization of interest rates began, starting with the liberalization of lending rates on long-term loans and on deposits with maturity over two years. In 1977, authorities liberalized interest rates on deposits with maturity over one year. By the beginning of 1981, lending and deposit interest rates were freed, except for some short-term deposit rates. In 1987, final liberalization of interest rates took place and authorities also allowed banks to pay interest for sight deposits.	Since 1963, foreign capital participation was permitted freely in most Spanish industries. In some specific industries, foreign participation was permitted freely up to 50% of the capital of the enterprise and amounts in excess of 50% required the authorization of the Council of Ministers. Purchases by nonresidents of shares of Spanish companies were freely permitted up to the percentages applicable to direct investment. Nonresidents could freely repatriate the proceeds, including capital gains, from the liquidation of shares in Spanish companies. Holders of Spanish securities (excluding securities issued by private companies acquired through direct subscription) could freely transfer abroad interest and profits. The securities had to be purchased with pesetas resulting from the sale of foreign exchange. In 1986, a new legislation that further liberalized foreign (direct and portfolio) investment was approved. In 1992, most remaining controls on capital transfer were abolished. The proceeds from liquidation of non-resident investments and capital could be freely transferable abroad, provided that these investments had been fully registered at the Registry of Foreign Investment.
Sweden	In 1984, Sweden relaxed the minimum required maturity for borrowing abroad in foreign currency by enterprises from five to two years. In March 1987, the limit on foreign borrowing by enterprises was abolished. In 1989, the remaining foreign exchange controls were removed. Corporations were free to borrow abroad irrespective of the purpose and maturity.	In 1978, ceilings on banks' deposit interest rates were abolished. In 1980, controls on lending rates for insurance companies were removed, but limits on average lending rates were imposed. In 1985, ceilings on banks' lending rates were lifted.	In 1973, foreign direct investment and the transfer abroad of proceeds required authorization, which was always given. Since 1980, foreigners were allowed to buy Swedish shares. In 1992, the act restricting foreign acquisitions of Swedish enterprises was abolished.
Taiwan	In July 1987, foreign exchange controls were liberalized and foreign exchange market was opened. Exchange controls on current account transactions were completely abolished, and controls on capital account transactions were limited to transactions over US$5 million per year per person. Ceilings of banks' foreign liabilities were gradually raised during the late 1980s and 1990s. In October 1996, domestic corporations were allowed to freely borrow from overseas financial institutions and convert the foreign currency funds to New Taiwan dollars. In December, remaining restrictions on forward foreign exchange trade were removed. In 1997, capital account transactions for investment or trade purposes were completely free, but controls remained on capital transactions of a short-term nature. The amount that companies could freely inwardly or outwardly remit each year was raised from US$20 million to US$50 million. In May, restrictions on foreign liability limits of authorized foreign exchange banks were abolished.	In September 1984, the central bank allowed banks to set their prime rate based on their cost of funds. In 1986, the central bank approved a proposal from the Banker's association to enlarge the range between the maximum and minimum lending rates, allowing banks to enjoy a greater latitude in setting their own lending rates according to loan maturity and customer's credit worthiness. In July 1989, interest rate ceilings and floors were completely abolished. In November 1994, in order to further liberalize the deposit-taking business, banks were allowed to post interest rates specified for deposits in excess of 3 millions of New Taiwan dollars, and these rates could differ from those on deposits of less than 3 millions of New Taiwan dollars, even though the length of maturity could be the same.	In May 1983, portfolio investment by foreign investors was permitted through the purchase of beneficiary certificates issued by a securities investment trust fund enterprise within the country and sold by agents ouside the country. A preapproval procedure was required for issuing beneficiary certificates. Also in May 1983, the first country fund was established. In December 1986, regulations were relaxed, and foreigners were permitted to invest in stock markets via contracts with mutual funds. In 1987, outward remittances of capital were allowed freely up to US$5 million per year. In February 1995, the ceilings on the total amount of foreign investment in the local stock market were abolished. The new regulation required that each foreign investor held no more that 6% of the market capitalization of a listed company, and foreign investors as a group could not hold more than 12% of the market capitalization of a listed company. In August, the ratios were increased to 7.5% and 15%,

	Capital Account	Domestic Financial Sector	Stock Markets
Taiwan			respectively. Foreign direct investment by all foreign natural persons was permitted. In March 1996, the domestic securities market was further opened to nonresidents. Each offshore natural person and offshore juridical person could invest up to US$5 million and US$20 million in the market, respectively. The ceiling on total foreign direct investment in any listed corporation was raised in March and November to 15% of the outstanding shares. In December 1996, the ceilings on investments in the stock market by qualified foreign institutional investors was raised from US$400 millions to US$600 millions. In February 1997, domestic companies were allowed to issue stocks overseas, and foreign companies were allowed to list their stocks in the domestic market. In January 1998, ceilings on the proportions of a local companies' listed shares that could be held by an individual foreign investor and by foreign investors as a group were raised to 25%, and 30%, respectively. In April, the ratio was increased to 50%.
Thailand	In October, Thailand exempted all loans with original maturity of more than one year from the 10% mandatory deposit requirement. In 1982, authorities set the maximum rate that foreign lenders could charge to Thai costumers in conformity to the domestic interest rate ceiling, which enabled borrowers to legally borrow from abroad at rates higher than the ceiling rate stipulated in the Civil and Commercial Code. A special exchange rate regime for current account transactions was introduced in 1983 and abolished in 1984. In 1992, loans from abroad could be contracted without restrictions, but if the loan was used domestically, resident borrowers were required to convert foreign currency obtained into baths. In August 1995, asymmetric open position limits for short and long positions were introduced in order to discourage foreign borrowing. In December, a variety of measures aimed at reducing foreign-financed lending was introduced. In 1996, the remaining restrictions on credit to residents from nonresidents were eliminated. In May and June 1997, the central bank adopted some measures to limit capital flows. A two-tier exchange rate regime was introduced in July 1997 and abandoned in January 1998.	In June 1989, the Bank of Thailand decided to eliminate the ceiling for time deposits with maturity of more than one year. In March 1990, interest rate ceilings on all types of deposits were eliminated. In June 1992, lending interest rates were liberalized.	In 1988, repatriation of income and capital could be made freely. In January, a country fund ("The Siam Fund Limited") was introduced. In 1990, equity capital investments by nonresidents could be made freely. Foreign equity participation or joint ventures were freely permitted. Foreign investors could hold up to 100% of the equity of a firm, but provided that the firm exported all of its output. Certain economic activities were still reserved to Thai nationals. The Banking Law restricted foreign ownership in banks to 25%. The Alien Business Law restricted foreign ownership in specified sectors to 49%. In addition, other laws provided similar restrictions that ranged from 15% to 65%.
United Kingdom	In October 1973, the minimum period for foreign currency borrowing for most domestic uses was reduced to two years. In 1979, the special exchange rate regime for capital account transactions was abolished. In October, authorities eliminated all barriers to outward and inward flows of capital.	Since the early 1980s, authorities in the United Kingdom abandoned the use of credit controls. In August 1981, the Bank of England stopped publishing its minimum lending rate and eliminated the ceilings on deposits rates. However, some controls on the mortgage lending rates were still in place. In 1986, ceilings on lending rates were eliminated, and the government withdrew its guidance on mortgage lending rates.	In 1973, nonresidents could buy sterling securities on a recognized stock exchange in the United Kingdom against payment in foreign currency or in sterling from an external account. The securities purchased could be exported. The participation of foreign capital as a direct investment was subject to individual authorization, which was normally granted. Cases involving the takeover of existing companies, which by their size or nature, constituted a vital part of the English economy were considered on their merits. All proceeds from realization, redemption, or maturity of sterling capital assets (including direct investments) owned by nonresidents could be freely transferred abroad at the official exchange rate. Payments for invisibles to nonresidents required exchange control authorization, which was granted freely.
US	In 1973, corporations were allowed to borrow abroad but subject to ceilings, which were relaxed in July. In June, the minimum reserve to be held by Federal Reserve member banks against Euro-dollar borrowings in excess of amounts permitted as a reserve-free base, introduced in 1972, was reduced from 20% to 8%. It was further reduced in April 1975, from 8% to 4%, and in December 1977, from 4% to 1%. In August 1978, the reserve requirement on loans by foreign branches of US banks to US residents (under Regulation M) of 1% was abolished.	In 1973, Regulation Q that set ceilings on interest payments on deposits was in place. In 1982, Regulation Q was suspended. By October 1983, all controls on time deposits with an original maturity of at least thirty-two days were lifted.	In 1973, capital, income, and profits were freely transferable abroad. There were no restrictions on foreign portfolio and direct investment. Foreign portfolio investment in excess of 10% of the voting securities of a US corporation was considered direct investment and had to be reported to the Department of Commerce. Portfolio investment by nonresidents had to be reported to the Treasury Department.

	Capital Account	Domestic Financial Sector	Stock Markets
Venezuela	In 1973, all capital transfers were permitted freely. Banks and corporations were allowed to borrow abroad without any restrictions. In February 1983, authorities announced that authorized private debt could be paid at the preferential rate and a dual exchange rate regime was introduced. All foreign credit had to be registered. *In March 1989, the* system of multiple exchange rate was abolished, and virtually all forms of exchange controls were eliminated. In 1994, the foreign exchange market was closed, and a comprehensive system of exchange controls covering all current and capital account transactions was introduced. In April 1996, exchange controls were abolished.	In August 1981, the government largely freed interest rates. The discretional control of interest rates by the central bank was replaced by a system of freely floating interest rates. In February 1984, interest rate controls were re-established. A mixed regime was introduced: the central bank imposed a maximum for lending rates, but banks were allowed to freely determine deposits rates. In June, the central bank decided to introduce a minimum for deposit rates. In 1989, legal restrictions on deposit and lending rates were mostly eliminated. In 1991, interest rate ceilings were completely removed. In September 1994, the central bank established a 25% financial margin with respect to the interest rate of its short term liabilities (plus 15% for the maximum lending rate, and minus 10% for the minimum deposit rate). In June 1995, a new measure for fixing money market interest rates was established as a band, where maximum asset rate was established at 46% and *a minimum liability rate at 24%. In April 1996, the* maximum lending rate and minimum deposit rate were removed.	In 1973, capital transfers were permitted freely. In 1977, ceilings on transfers of profits and dividends were increased to 20%. National enterprises were permitted to increase foreign participation from 20% to 49%. Sectoral limits remained in place. In 1987, no capital repatriation was allowed for a period of five years, and in the following eight years, repatriation was limited to a maximum annual rate of 12.5%. In 1989, capital repatriation became freely permitted. In 1990, profits could be freely repatriated, and controls on foreign *participation in non-financial companies were* completely abolished. In 1994, the government fixed the exchange rate and effectively prohibited the repatriation of capital and income. In 1995, the government approved the trading of Venezuelan Brady bonds at the stock market, creating a de facto currency convertibility for the repatriation of capital and income.

Table A3. References Used to Construct the Chronology of Financial Liberalization

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Table A4. Stock Market Indexes and Their Sources

Countries	Stock Market Indexes	Beginning Date	Ending Date	Base Period	Data Source
Asia					
Hong Kong SAR	Hang Seng	Jan-90	Jun-99	1993=100	Federal Reserve Board
Indonesia	JSE Composite Index	Dec-89	Jun-99	1993=100	International Finance Corporation
Korea	KSE Composite	Dec-75	Jun-99	1993=100	International Finance Corporation
Malaysia	KLSE Composite	Dec-84	Jun-99	1993=100	International Finance Corporation
Phlllipines	PSE Composite Index	Dec-84	Jun-99	1993=100	International Finance Corporation
Taiwan (Province of China)	TSE Average Index	Dec-84	Jun-99	1993=100	International Finance Corporation
Thailand	SET Index	Dec-75	Jun-99	1993=100	International Finance Corporation
Europe					
Denmark	Copenhagen Stock Exchange Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Finland	HEX-Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Ireland	ISEQ Total Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Norway	Oslo Stock Exchange Industrial Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Portugal	Banco Totta & Acores	Jan-86	Jun-99	1993=100	International Finance Corporation
Spain	Madrid Stock Exchange Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Sweden	Stockholm Exchange	Jan-75	Jun-99	1993=100	International Finance Statistics
G-7					
Canada	TSE-300	Jan-75	Jun-99	1993=100	Bloomberg
France	Average of 40 Largest Enterprises	Jan-75	Jun-99	1993=100	International Finance Statistics
Germany	CDAX	Jan-75	Jun-99	1993=100	Bloomberg
Italy	MIB Index	Jan-75	Jun-99	1993=100	International Finance Statistics
Japan	NK500	Jan-75	Jun-99	1993=100	Bloomberg
United Kingdom	ASX all shares	Feb-75	Jun-99	1993=100	Bloomberg
United States	S&P 500 Composite	Feb-75	Jun-99	1993=100	Bloomberg
Latin America					
Argentina	Bolsa Indice General	Dec-75	Jun-99	1993=100	International Finance Corporation
Brazil	BOVESPA Market Index	Dec-75	Jun-99	1993=100	International Finance Corporation
Chile	IGPA Index	Dec-75	Jun-99	1993=100	International Finance Corporation
Colombia	Bogota Stock Index	Jan-75	Jun-99	1993=100	International Finance Corporation
Mexico	BMV General	Dec-75	Jun-99	1993=100	International Finance Corporation
Peru	Indice General IGBVL	Dec-92	Jun-99	1993=100	International Finance Corporation
Venezuela	Index de Capitalization de la BVC	Dec-84	Jun-99	1993=100	International Finance Corporation

The table shows which stock market index is used for each country, its beginning and ending date, its base period, and its data source.

Table A5. Institutional Reforms

Countries	Index of Law and Order (1)	Insider Trading Laws Existence (2)	Insider Trading Laws Enforcement (3)
Asia			
Hong Kong SAR	Sep-93	1991	1994
Indonesia	Jun-91	1991	1996
Korea	Oct-91	n/a	n/a
Malaysia	Apr-93	1973	1996
Philippines	Jul-92	1982	No
Taiwan (Province of China)	No Change	1988	1989
Thailand	Apr-88, Aug-92	1984	1993
Europe			
Denmark	Highest Level (whole sample)	1991	1996
Finland	Highest Level (whole sample)	1989	1993
Ireland	Sep-89, Apr-96	1990	No
Norway	Highest Level (whole sample)	1985	1990
Portugal	Oct-94	1986	No
Spain	Dec-91	1994	1998
Sweden	Highest Level (whole sample)	1971	1990
G-7			
Canada	Highest Level (whole sample)	1966	1976
France	Jan-92	1967	1975
Germany	Highest Level (whole sample)	1994	1995
Italy	Aug-95	1991	1996
Japan	Jul-92	1988	1990
United Kingdom	Sept-89, Jan-92	1980	1981
United States	Highest Level (whole sample)	1934	1961
Latin America			
Argentina	Dec-92	1991	1995
Brazil	No Change	1976	1978
Chile	Apr-94	1981	1996
Colombia	Mar-94	1990	No
Mexico	No Change	1975	No
Peru	Sep-92	1991	1994
Venezuela	No Change	1998	No

Column (1) reports the dates in which there is a "permanent" improvement in the International Country Risk Guidc's index of law and order. In this index, law and order are assessed separately, with each sub-component comprising zero to three points. The law sub-component is an assessment of the strength and impartiality of the legal system, while the order sub-component is an assessment of popular observance of the law. The improvement periods in this index are characterized by at least one point increase in the index from its two-year period average, and the maintainance of the index above this average for at least another two years. This column also shows those countries for which the index of law and order was at its highest level during all the sample. "No change" corresponds to no permanent changes in the index. Columns (2) and (3) come from Bhattacharya and Daouk (2000). The columns report, respectively, the dates when insider trading laws are aproved and when the first prosecution under these laws occurs. The authors surveyed stock market participants and national regulators to obtain the answers. "n/a" means not available. "No" means that there is no enforcement of insider trading laws.

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