Unpacking the Black Box:

The Diffusion of Financial Liberalization in Developing Countries

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Abstract

Over the past three decades, many developing countries have liberalized their capital account. Recent studies suggest that these policy changes were interdependent and diffused through networks of peers. However, the mechanisms by which policies are transmitted remain under-theorized and the peer networks are treated as homogenous. This paper strengthens the literature on the diffusion of financial liberalization. Theoretically, we distinguish between concrete and more amorphous causal processes by which policies are diffused. We argue that networks vary by degree of form and interdependence and hypothesize that diffusion of liberalization policies is more likely across networks that are more structured and interdependent. Second, we use a disaggregated measure that allows us to compare specific financial liberalization policies. Once we employ a more calibrated measure of openness, there is less evidence that policy changes were driven by diffusion. Based on panel data for 114 emerging economies over 1973-2002, we find limited support for diffusion through the specific path of memberships in Regional Integration Agreements (RIAs).

Introduction

Since the end of the Bretton Woods systems, governments across the world have decreased restrictions on cross border financial transactions related to the capital account. However, outside of the OECD countries, little is known about the decision of whether and when to remove such restrictions, despite the fact that much of the radical liberalization – particularly in the 1990s – took place in the developing world. A second generation of studies suggests that explanations must move away from the conventional focus on decision-theoretic models (first generation studies) that assume countries make decisions to liberalize independently of what other countries do, and instead, turn to alternative explanations in which decision-making is interdependent and conditional upon the behavior of other countries within variously described networks of countries.

Increased interest in diffusion mechanisms has developed alongside growing criticism of the theoretical underpinnings and empirical tests of the diffusion process. With few exceptions, existing studies leave unidentified and under-theorized the specific mechanisms of transmission or agents through which policies are diffused. For example, researchers examine diffusion across competitive networks without identifying the channels through which policy ideas are transmitted. Implicit in the categorization of competitive networks is the idea that countries are more likely to receive and act upon information that comes from countries with whom they compete. But this begs the question – what is the process by which this information is transmitted across these physical, intellectual and cultural frontiers? Competition itself is not an agent of transmission. In short, existing studies have left the causal mechanisms underlying the diffusion of policy ideas under-theorized.

Our paper makes three contributions to the literature on the diffusion of policies. First, we contribute to theorizing about diffusion by identifying and classifying causal mechanisms through which financial regulation policy decisions are transmitted across countries over time. Second, by analyzing diffusion forces as a mechanism of globalization rather than the result of globalization - the so-called Galton's Problem (Jahn 2005), we extend the analytic reach of diffusion beyond the set of already globally integrated, developed countries. Third, we take seriously the injunction to distinguish diffusion from a general trend towards greater liberalization. Commonly used composite measures of financial liberalization make independent decisions to move towards greater openness difficult to differentiate from specific patterns of policy diffusion. Thus, in contrast to previous work that pooled heterogeneous measures of openness, we disaggregate financial openness into 12 distinct policies, allowing for analysis of policy equivalents.

To preview, we find strong but narrow support for a specific diffusion path in the case of financial openness. Based on panel data for 114 emerging economies over 1973-2002, the results indicate that diffusion through regional integration agreements (RIAs) has positively impacted a developing country's decision to liberalize. We argue that RIAs, which have a high degree of form (or governance) and interdependence, spread capital control openness across their network more efficiently than peer groups characterized by less interdependence and weaker (or nonexistent) structures. The quantitative empirical results are supported by the illustrative case of the Association of Latin American Integration (ALADI).

The remainder of this article is divided into five sections. Section 2 reviews the literature and develops our theoretical arguments about the diffusion of financial liberalization policies in the developing world. Section 3 discusses the underlying causal processes of the diffusion of

policy ideas across peer networks of RIAs. Section 4 introduces our 12 measures of financial openness. Section 5 discusses methodological issues. In Section 6, we report and discuss the results.

Capital Controls and Diffusion

Under the Bretton Woods system, capital account regulations enabled countries to pursue independent domestic economic policies even while under the interlocking regime of fixed exchange rates. Post-Bretton Woods, the continued use of capital controls has been justified on various grounds, including the reduction of balance of payments crises; prevention of exchange rate volatility; retention of domestic savings and prevention of excessive foreign ownership of domestic factors of production; and taxation of domestic capital and financial transactions (Guitan 1997). Over the past three decades, however, many emerging economies lifted restrictions on the flows of capital. Explanations for the policy change range from individual coordination with other domestic policy choices to individual responses to the changing costs and benefits of capital controls[1] to changes in domestic political conditions.[2]

Empirically, perception of a snowball-like upsurge in the liberalization of capital controls has served to challenge the assumption of independent decision making by countries. Depicting changes in financial openness relative to the baseline year of 1970, Figure 1 demonstrates not only the more than double increase in openness but draws out the S-shaped curve which is illustrative of the diffusion process, suggesting that liberalization by an initial set of countries provided a catalyst for further liberalization.

[Figure 1 here]

Additionally, the discourse about the decision to undertake changes in financial openness – both by policy makers – often makes reference to the experience of other countries. Both Chile and Malaysia have been cited as influencing the decisions regarding controls of capital made by other countries. Relaxing the assumption of independence allows us to explore this second class of explanations in which the "probability that a country will (voluntarily) adopt certain policies is based on prior adoption of policies in a country's 'peers.'"[3]

Diffusion as a concept and process has been used by anthropologists and sociologists to explain the widespread adoption of cultural practices and organizational forms over time. DiMaggio and Powell (1983) suggest two causal mechanisms which drive the increased homogenization of organizational forms: competitive and institutional (which includes mimetic emulation, as well as normative and coercive processes). These mechanisms have been subsequently extended by others to explain the homogenization of policy choices as well. Arguably, globalization and its associated decline in the costs of transportation and communication across distant communities and networks have facilitated the process of emulation and dissemination of information, giving rise to the diffusion of policies and practices. And this widespread adoption of certain reforms and institutional frameworks has given rise to a growing body of diffusion studies.[4]

A number of analyses examine the role of diffusion in the increasing adoption of financial liberalization policies. Simmons and Elkins (2004) suggest two ways that foreign economic policy choices are diffused: choices by a country's peers can alter either a) the "payoffs" associated with a given policy choice or the b) information set upon which decisions are based. And they find that financial openness has been diffused across similarly situated countries competing for capital. Kobrin and Wu (2005) find that the liberalization of FDI

restrictions has been diffused across countries competing for capital, as well countries in shared regional and income networks.Quinn and Toyoda (2005) demonstrate the negative impact of the spread of anti-capitalist sentiment on financial liberalization.

While recent diffusion studies provide some leverage into explaining the cross-variation in financial openness, there are some theoretical concerns and methodological limitations which generate difficulties for the interpretation of these findings. First, while Simmons and Elkins (2004) test the broadest range of hypotheses driving interdependent decision processes, they use the standard binary variable to capture financial liberalization. Unfortunately, the lack of variation in the dependent variable makes it difficult to rebut the challenge that what one is observing is simply a general trend in openness rather than the diffusion of policy choices across countries and over time. Second, the study of the diffusion of financial liberalization runs counter to conceptions of diffusion as the result of increased globalization. Jahn (2005) assumes that it is the increased integration of economies which "leads to a shift in focus on the part of political actors from domestic to international matters." To the extent that financial liberalization is the cause of such integration, diffusion should not be observed in the patterns of policy changes resulting in integration. Third, recent studies leave the causal mechanisms driving the diffusion process under-theorized and under-explored (Weyland 2005) which means that we know little about the actors and mechanisms by which policy ideas are transmitted across space and time.

We begin by challenging the implicit assumption in previous diffusion studies that all peer groups are alike. Drawing on sociological traditions, we argue that peer networks vary by degree of structure and interdependence. By focusing on the variation in peer groups as well as using disaggregated measures of capital account regulations, we seek to address the current limitations in the diffusion literature while furthering our understanding of the conditions or

characteristics that enable potential diffusion networks. In particular, we argue that because of the uncertainty surrounding deregulation and the potential for policy reversals, diffusion processes for capital control policies are strongest across peer groups which are more structured and interdependent. Thus, while regional integration agreements (RIAs) have frequently been characterized as weak or ineffectual in terms of their stated outcomes (Schiff and Winters 1998), we find strong evidence that they serve as effective conduits of capital control policies.

Countries as Interdependent Actors

Theories of diffusion tend to fall into one of two broad categories. The first category, coercion, encompasses diffusion mechanisms that involve coercion from one or more actors over another. In the increasingly interdependent global order, countries with more power in the international order, or that are perceived as possessing great power, are often able to shape the policies adopted by countries that are less powerful (Gilpin 1987) or who depend on the dominant set of actors for some good or resource.

While several recent empirical diffusion studies emphasize the coercive role of strong states or multilateral organizations (usually the International Monetary Fund) in widespread policy adoption, we align ourselves with a growing number of scholars who consider diffusion to mean the *voluntary* adoption of policies (Meseguer and Gilardi 2006) and as such, focus on alternate diffusion mechanisms. Moreover, as Guisinger (2005) notes, diffusion as coercion is difficult to observe: it would only exist "if actors adjust their policies because other actors have already done so in response to the preferences of the dominant actor or organization." Underscoring the difficulty in observing coercion, Vreeland (2004) and Brune (2007) argue that

countries exercise considerable discretion when seeking out the assistance of the IMF and may request that financing be tied to policy reforms.

The second category of diffusion explanations seeks to understand the logic behind the decision to adopt policy choices of other countries in the absence of coercion. For Dimaggio and Powell (1983), there are at least two processes by which policy choices might be diffused across countries: competition and emulation. First, "competition" is the process by which a country's action is conditioned on the previous choices undertaken by one's competitors. Countries are assumed to be conservative in the case of policy deregulation; however, action by a competitor changes the playing field enough to make deregulation more likely. Simmons and Elkins (2004) refer to diffusion by competition as altering payoffs. In the second process, "emulation," an action is conditioned on the previous choices of one's peer group or by members of a country's shared network. In this case, countries are assumed to be uncertain about the costs and payoffs of deregulation, an assumption that is partially supported by high level disagreements between technical advisors from the World Bank and IMF (see the Rogoff and Stiglitz debate). Adoption of policies by one country generates informational externalities for other actors (Coleman 1988).

Both diffusion via competition and diffusion via emulation are supported by the growing diffusion literature. Recent studies (Kogut and Macpherson 2003, Simmons and Elkins 2004, Kobrin and Wu 2005, Swank 2006, Elkins, Guzman and Simmons 2006, Pitlik 2007) provide evidence suggesting that diffusion as competition explains the adoption of economic policy choices. Others suggest that diffusion as emulation explains the adoption of various policies, including pension privatization (Weyland 2003), macroeconomic and market-oriented reforms (Fourcade-Gourinchas and Babb 2002, Meseguer 2004, Simmons and Elkins 2004, Henisz et al 2005) and privatization of state-owned enterprises (Kogut and Macpherson 2005).

However, isolating specific diffusion causal mechanisms poses significant challenges. Diffusion mechanisms can often be closely intertwined: peer groups defined by geographic position, for example, may also function as competitors. Furthermore, the mechanisms are not mutually exclusive (Lee and Strang 2006). Rather than drive an unnatural line between these two potential mechanisms, we focus instead on identifying the causal mechanisms and characteristics of peer networks: structure and interdependence.

Characteristics of peer networks

Previous diffusion studies have treated peer networks as uniform. However, drawing on sociological and organizational theories, we argue that there are two critical dimensions – form and function - by which peer groups may vary, and which subsequently, may affect the efficiency with which information about policy choices is diffused across countries and time. Networks can range in form from loose ties of information and exchange to institutionalized networks which reflect "an association of independent individuals or institutions with a shared purpose or goal, whose members contribute resources and participate in two-way exchanges."[5] Quite often, more formal networks involve the creation of organizational structures, forms of governance, and '*communities of practice*.' In addition, more structured networks are likely to have a stronger sense of shared purpose (toward a policy or outcome), identified decision-making processes, and shared or pooled assets.[6] The governance and organizational structures inherent in formal networks serve to bind members (they are self-enforcing and self-regulating) and reinforce shared characteristics. Inclusion in these more structured networks may be formal and require that countries acting individually or collectively decide on the members of the network.

Conversely, other networks of 'peer groups' may be informal, and may exist with little or no structure, and an absence of shared purpose, rules, and channels of information exchange. For example, scientists, researchers and international institutions – such as the World Bank – have all imposed 'peer groupings' on states based on shared characteristics – including geographical divides, income levels and similar historical institutions. Actors of the international marketplace similarly group states together as competitors for scarce goods (e.g. trade, investment, people). And while most diffusion theories assume that states' behaviors are a reflection of these comparisons, the reality is that these groupings do not truly function as 'networks.' They are not based on ties of reciprocity, are not self-regulating and self-governing, and do not have guiding principles and norms for making decisions.

In the context of investment regulations, compare, for example, the networks that have a greater degree of structure against those with little. On the basis of investor specific criteria, the international financial sector has generated unofficial peer groupings, be they "emerging market economies" or credit rating categories, of states deemed to be of similar status. It is widely assumed that these countries are thus pitted against each other in the competition for capital, creating strong incentives to converge upon market preferred behavior such as capital account liberalization. While countries may choose policies that make them more or less likely to be placed in a different grouping, these types of peer networks are void of purpose and do not exhibit internally-generated norms and rules for making decisions. In contrast, the signing of bilateral investment treaties (BITs) allows countries complete control of the development of their network of investment partners and gives rise to self-enforcing relationships built on mutually agreed upon policies.

A second dimension of networks is their form which both reflects and facilitates greater (or lesser) degrees of interdependence. More structured peer networks may aptly reflect the popular notion of 'networked governance,' a system of interdependent sovereign units (Lazer 2003). But within peer networks, the degree of interdependence is shaped (and reinforced) by dimensions of coordination, cooperation and information (Lazer 2003).

In contrast to peer groupings based on loose ties, states, over time, have created opportunities to forge their own peer networks through various forms of cross-border cooperation. These forms of engagement and cooperation range from meetings to alliances to formal treaties. Frequently, these networks are fashioned with the explicit purpose of cooperating, coordinating information or policies and disseminating information.

At the base of diffusion theories is the transmission of new "technology" and its effects through networks. Regardless of whether the driver is emulation or competition, diffusion mechanisms appear to be largely based on informal dissemination of information through networks. A single observation with no direct contact may be enough to spur change. But networks that offer repeated opportunities for observation as well as the potential for face to face discussion (and even coordination) across multiple levels of decision-makers may more efficiently facilitate the transmission of information. When the benefits of a new policy are most uncertain, especially when such benefits might vary across different circumstances, frequent (repeated) and more coordinated observations or contact are more likely to aid diffusion than limited observations (Autio et al 2005, Lee and Strang 2006).

The uncertainty of benefits certainly marks expectations about capital account liberalization. For developing countries, economists have long promoted openness as a means to cheaper capital. However, such efficiency arguments have been weighed against other economic

and political concerns. Despite theoretical expectations that developing countries – frequently defined as such due to their scarcity of capital – will attract capital post-liberalization, empirical studies are at odds as to whether such inflows support increased economic growth[7]. Even where growth is achieved, the increase in capital has been destabilizing for some.[8] Countries, particularly small developing countries with fixed exchange rates to defend, may also fear the potential volatility from sudden withdrawals which can generate not only economic losses but also potential political costs. Furthermore, governments may be unsure to the extent which capital account liberalization will be supported by the financial sector, particularly when the financial sector is characterized by a highly-concentrated state banking sector with little interest in increased competition.

In light of this uncertainty, we argue that while all peer groups may offer opportunity for policy diffusion, it is the greater interdependence among more structured networks that spurs the diffusion of financial liberalization policies. To test this proposition, we array previously suggested peer networks in terms of form (structure) and function (interdependence). Doing so highlights the previously understudied role of RIAs.

Peer Networks

Earlier diffusion studies examined several peer networks based on various shared characteristics. Specifically, peer groups have been defined on the basis of similar economic structures, competition for capital, trade networks, and patterns of official agreements between countries (see for example Simmons and Elkins 2006, and Kobrin and Wu 2005). Figure 2 organizes these previously identified peer groups according to characterizations of form (structure) and function (interdependence) as discussed above.

[Figure 2 here]

Capital Competitors

One of the most commonly discussed peer networks for the transmission of capital control liberalization is that of capital competitors. Simmons and Elkins (2004) and Kobrin and Wu (2005) find that liberalization policies have been diffused across countries competing for capital. Rationally acting governments recognize that, all else equal, investors use measures of risk to determine where to invest their limited pool of capital and resources. Governments reconsidering their own regulations are likely, then, to take cues from countries with whom they are in competition.

However, these cues occur at arm's length. First, the selection of peer networks defined purely by capital competition occurs externally in the absence of any specific country to country communication or interaction instrument. Researchers have grouped countries into peer networks using standardized and widely publicized credit ratings, published by Fitch, Moody's, and Standard and Poor's, which partition countries according to their repayment capacity. In the course of explaining sovereign credit ratings, these agencies act as information disseminators themselves, at times directly through presentations to concerned government agents. Changes in status, particularly negative changes, are widely published in the business press as well as investor reports. Anecdotally, governments have been known to manipulate macroeconomic policy so as to preserve bond ratings and credit risk ratings.[9] While capital account restrictions are a small set of the many domestic policies which influence ratings and other market evaluations, countries may individually select to compete by changing other domestic policies or liberalizing other types of capital restrictions. However, this 'peer grouping' does not have a

'networked governance' structure through which policy choices made by individual nation states are disseminated.

In addition, this grouping of capital competitors provides no tangible or formal communication links between countries. While capital competitors may communicate with each other– through formal trade agreements or participation in military alliances, etc – there is no inherent communication vehicle within this peer group of capital competitors that helps us understand how policy decisions regarding the removal of capital controls might be transmitted across countries and over time. In light of the lack of country to country contact within the 'peer network,' it seems less likely that specific policy changes are being diffused through such networks.

Economic Competitors

A core assumption of diffusion (by emulation) is that given incomplete information and/or limited resources to analyze and assess policy impacts, policy makers turn to analogies provided by the experience of other countries. Emerging markets at comparable stages of development may have similar economic and market structures, labor institutions, and infrastructure systems (Simmons and Elkins 2004). Networks of countries based on similar economic structures thus provide a testing ground from which to observe the costs (benefits) of adopting particular policies. The way in which a country adopts and implements a policy or manages the political difficulties in adopting reforms reveals information about the costs (benefits) of the decision from which similarly situated countries can observe and update their decisional calculus.

As with capital competitors, these 'peer groupings' of countries with similar economic structures are widely used and promoted by international organizations such as the World Bank

and the IMF and by influential states. Conferences, technical training provisions and funding are provided on the basis of such economic similarities. However, this peer group lacks a formal governance structure, shared purpose, and rules or norms for making decisions. Moreover, there is no explicit mechanism in the network which reveals how information about capital control policy choices is transmitted or disseminated across the countries.

Bilateral Investment Treaty Partners

Bilateral investment treaties (BITs) are agreements between two countries for the reciprocal encouragement, promotion and protection of investments by nationals and companies of one state in another state. Bilateral investment treaties – themselves the subject of prominent diffusion literature (Simmons and Elkins 2004, Simmons, Elkins and Guzman 2006) – would appear ideal mechanisms for the diffusion of capital control liberalization. The development of treaties should both promote discussion of capital control policies and aid in the protection of liberalization that occurs in the process of implementing the treaty and abiding by its terms and conditions. Simmons and Elkins (2004) find evidence that BITs spread capital control liberalization in its most aggregated form.

Even so, once signed, BITs provide few opportunities for government officials and bureaucrats countries to meet face to face and thus few opportunities for the transmission of any changes in policy which might occur post-BIT signing. This owes to the fact that BITs are designed to facilitate private investment flows across borders and do not require regular cross-national government communication or coordination to sustain. Thus, despite the focus on investment regulations, we assert that BITs will have only a small influence on the diffusion of capital control policies when such policies are disaggregated to specific regulatory areas.

Trade Partners

Peer networks based on trading partners tend to have more governance than BITs. Countries maintain can and do and control flows of goods and services, changing trade policies in response to security concerns or ideological issues. This dynamic of exchange tends to create networks that are more likely to share commonalities ('shared purpose') than the peer networks discussed previously. Moreover, this relationship of exchange is supported by a governance structure created by the fabric of trade policies, tariffs, environmental and labor restrictions, etc. These trade relationships spur contact between countries, providing more opportunities for policy diffusion and greater understanding of the context in which policy decisions were made.

Furthermore, emerging economies are sensitive to the conditions and policies of their primary trading partners. Capital controls, for example, may affect black market premia and exchange rate movements, both of which may influence movements of tradables. The nature of trade requires countries to adopt and maintain policies that promote mutually beneficial relationships; in other words, there is a greater degree of coordination and even collaboration among this peer network. Countries may be influenced by primary trading partners to maintain competitive policies and a mutually beneficial trade environment as they compete for preferential trade arrangements with third parties. They may do this by creating even more specialized agreements which include policies on the liberalization of capital controls.

However, while trade networks have the benefit of some level of some self-selection, countries may not necessarily see themselves as peers or even competitors of all the countries in their network and contact through negotiations between states may be intermittent. For example, Brazil has over seventy major trading partners – countries as culturally and economically diverse as the Belarus, Norway, Vietnam and Yemen. Arguably, Brazil has much more frequent

interaction with the U.S. (which accounts for 13% of trade) than it does with Bangladesh (which accounts for only 0.2% of its trade).[10] As such, we argue that diffusion of policies will be limited through trade networks, particularly since there is considerable variation in the degree of contact and opportunities to transmit policy choices.

Regional Integration Agreements (RIAs)

Wejnert (2005) finds that democratization has been diffused across economic agreements. Here, we focus on regional integration agreements (RIAs) because of their particular characteristics. RIAs encompass formal agreements between countries to ease economic activity across state borders – be it trade, investment or labor flows. Perhaps the most preeminent example of a successful RIA is that of the European Union which expanded from a six-member community creating a common market in coal and steel to a 27-member economic and political union including a supranational governance and legal structure; a single market for goods, services, labor, and capital; a common currency for many members; as well as harmonized policies in defense, immigration, and economic development among others. Other RIAs, such as the Mano River Union or the Pacific Island Forum, exist in relative obscurity outside of the involved governments.[11] Some RIAs in developing countries have been deemed largely ineffectual in advancing their integration agendas.[12] However, we argue that despite failure to achieve their stated objectives, they may paradoxically create a conduit for the diffusion of a broader number of economic policies, including capital account liberalization.

While the level of development and strength of RIAs varies, many have real organizational structures with employees, budgets and defined programs (Gray 2010). The majority have regular annual meetings and summits. For example, the Association for Latin

American Integration (ALADI) agreed to adopt a schedule of "at least two meetings a year to reinforce the spirit of regional association and the practical aspects of co-operation and interchange."[13] Others, like the Association of Southeast Asian Nations (ASEAN), have specialized sub-committees devoted to finance, trade, or agricultural products which gather more regularly. The Common Market for Eastern and Southern Africa (COMESA) has a Banker's Association which has its own mission "to offer a forum of exchange of information and statistics related to the banking sector within the region and to promote the creation of a zone of monetary stability with an efficient payment system."

Over time, these organizational structures and regular meetings of the RIAs facilitate the creation and maintenance of (technical) 'communities of practice' where information about technical issues, best practices, the costs and benefits of policies is exchanged among its members. As noted by Wenger (1998), policy learning can be facilitated by participation in communities of practice. According to Professor David Rice, founder of Strategic Policy Concepts who has trained technocrats in developing countries, "the process of building communities of practice, particularly in regions where the tensions of historical conflicts still influence present day interactions, is fundamentally dependent upon personal relationships between key decision-makers. Creating opportunities for frequent interactions between peers in government, for example, under the auspices of shared learning and information exchange, facilitates an ongoing dialogue about issues of common cause while strengthening personal and institutional ties."[14]

Policies under the integration umbrella vary as much as the organizations memberships themselves. Many RIAs are simply preferential trade agreements. Others have expanded to attempts to form free trade zones, common markets, or other types of economic integration.

Some such as the Arab Maghreb Union (UMA) espouse the desire for political unity. The Organization of African Unity (since 2002, the African Union) has had autonomous working groups covering telecommunications, postal, news, television, and radio services, railways, trade and sports.

Among the current set of RIAs, only one – APEC – directly specifies a role for the organization in the liberalization of capital controls. However, while not specifically included or required, specific policies regarding financial liberalization, are often discussed and debated at these meetings. For example, in 1997, during the third meeting of COMESA central bank governors, acting secretary general Erastus Mwencha "emphasized the necessity of financial market integration and development for improvement in efficiency and integration in goods and factor markets. He added that financial market restrictions and fragmentation, distorted product and market behavior as well as hindered efficient allocation of resources regionally. He [also] identified the benefits of financial market integration as bringing about improved price stability leading to increased trade and investment flow within the region."[15] Urging COMESA member countries to make greater progress on financial liberalization, in October 2007, Mwencha said, "The liberalization of financial services will enhance competition and improve sectoral efficiency, leading to lower costs, better quality and more choice of financial services. There will be improved financial intermediation and investment opportunities through better resource allocation across sectors, countries and time, and through better means of managing risks and absorbing shocks." [16]

In addition, policy edicts are frequently announced at the final close of the meeting which sends a clear signal about policy choices and priorities for the RIA membership at large. At the

close of the third APEC Finance Ministers Meeting, a joint ministerial statement was issued which stated:

> We the APEC Finance Ministers met […] to discuss broad economic challenges facing the region, […] We exchanged views on our topics: current macroeconomic conditions, financial and capital markets, [….] and the effects of exchange rate movements on trade and investment. As a result of the discussion, we [,,,] agreed on several initiatives in critical areas. The APEC Finance Ministers' findings will broadly guide our voluntary efforts in pursuing key policy objectives of stable capital flows, domestic financial and capital market development, and mobilizing private resources for infrastructure development."[17]

At the close of the joint ministerial statement, the APEC Finance Ministers requested that "in order to advance our discussion, we ask the Working Group to undertake a regional effort to share experiences on policies, reforms and liberalizing measures. This sharing of experience will help us to identify the most successful policies and strategies."[18] Thus, as illustrated, meetings and policy discussions can serve lower the transaction costs for observing the consequences and benefits of policy decisions made by peers.

But, as noted by Dr. Oscar Schiappa-Pietra, former Executive Director of the Peruvian Agency for International Cooperation and former visiting professor of Comparative and International Law at American University, capital control policies are addressed "from time to time" and "indirectly" in discussions or negotiations. Moreover, Schiappa-Pietra admits that whether certain policies grab hold depend on the "nature of the forums and the type of governmental representatives attending the meetings."[19]

Admittedly, the observation that financial liberalization was 'diffused' across RIAs when capital control policies were not, by and large, explicitly mentioned begs the question of why certain policies are diffused. Lee and Strange (2006) muse that, "While all policies have some probability of spreading, some are more contagious than others."[20] They argue that the policy choice of reducing public sector employment rolls was more likely to be diffused than alternate

ideas because the policy both aligned with and reinforced existing theories about market-enhancing reforms, privatization, the inefficiencies of government and state owned enterprises which were being discussed during this time period. Similarly, while capital control policies were not an explicit binding requirement of forming RIAs, discussions about these policies may have gained traction because they were an element of the market-enhancing reforms being debated and discussed around the world during this time period of analysis. In addition, technical assistance and advisory services are frequently provided by global trade and aid agencies through RIAs.[21] These gatherings may provide a vehicle through which the costs and benefits of policy choices are revealed.

Despite their varied functionality, RIAs not only reflect a significant degree of interdependence through which information about policy decisions might be shared but also are formed among a group states with common purpose, increasing the likelihood of shared understanding when interpreting the costs and benefits of policy changes. Participation in RIAs as well as more frequent direct country to country contact between government agents within a formal institutional structure provides a closer manifestation of the theoretical description of diffusion than previously tested networks. Because of these characteristics, we expect RIAs to be the most efficient transmitter of specific capital control policy changes.

Illustration

The pattern of financial liberalization (presented in Table 1) by members of the Latin American Integration Association (ALADI) offers an illustration of the diffusion mechanism in general as well as the specific case of diffusion via an RIA. Established in 1980, ALADI's objective is to promote the creation of an area of economic preferences through regional tariff preferences, and

regional and partial (bilateral) scope agreements. These agreements may cover tariff relief and trade promotion, economic complementation, agricultural trade, financial, fiscal, customs and health cooperation, environment preservation, scientific and technological cooperation, tourism promotion, and many other policy areas.

[Table 1 here]

Two interesting points about the case are worth noting. First, diffusion is observed as members of ALADI removed controls on certain policies the year immediately following the decision by (one of) their peers to liberalize. In 1989, Peru lifted controls on proceeds from exports. In the following year, Argentina and Venezuela removed controls on that same policy. In 1990, Paraguay removed both inward and outward restrictions on invisibles, credit operations, and foreign direct investment. A year later, Peru followed suit on credit operations. Second, we do not observe diffusion across all types of policies. Only one country (Ecuador) liberalized controls commercial and credit institutions. Paraguay's opening of controls on outward invisibles generated no immediate response. This ALADI example underscores the fact that policies may diffuse in clusters, and that diffusion should not imply that policy choices converge globally or that diffusion simply reflects the general trend towards greater liberalization. The diffusion process is not deterministic. Diffusion is ultimately mediated by domestic political and economic conditions which may change as a result of liberalization. For example, as we observe in Table 1, once countries removed restrictions on certain policies, they remained open even when one of their peers closed, suggesting that openness among RIA members may change payoff structures rather than just provide information.

Second, that in the absence of firm constraints, peer networks support but do not enforce liberalization. During the period 1988-2000, only two countries, Venezuela and Ecuador re-

imposed capital controls. But, following its recovery from its banking crisis in 1994-1995, Venezuela once again liberalized its policies on proceeds from exports and invisible transactions.

Diffusion Prior to Economic Integration

Jahn (2005) argues that diffusion as an explanation for policy implementation stems from the increased integration – or globalization – of policies. Integration leads politicians to face outward rather than inward when setting domestic economic policies such as expenditure on welfare oriented policies. Thus, diffusion effects should only be observed after a certain level of integration has been attained. A strict interpretation of Jahn's argument would suggest that policies such as financial liberalization – a precursor to such integration – should be excluded altogether from diffusion analysis since integration is a necessary condition for the diffusion mechanism. A looser interpretation would suggest that the diffusion-related determinants of financial liberalization – with diffusion as both a facilitator and as a result of increased integration – should grow stronger as integration increases.

In contrast, we argue that in the case of financial liberalization, policymakers have always focused on international issues. Capital controls concern transactions across borders in a way that welfare and other domestic economic policies do not. Policy makers have thus always included international conditions when deciding on the regulation of capital flows. Therefore, there is little reason to assume that integration is necessary for the diffusion of capital controls.

Measuring Financial Liberalization

We explore the extent to which diffusion has driven financial liberalization in developing countries by using the components of a new indicator, the Financial Openness Index (FOI)

(Brune 2006). Improving on existing available measures of capital account openness, the FOI assesses the degree of openness on different categories of capital transactions and flows. Disaggregated, the FOI addresses a distinct problem, namely the inability to distinguish between openness in general and specific patterns of liberalization which would signal a diffusion process. The FOI includes information on twelve categories of current and capital account transactions: 1) proceeds from exports (EXP); 2) proceeds from invisible transactions (ININV); 3) payments from invisible transactions (OUTINV); 4) inward controls on money market transactions (ICM); 5) outward controls on money market transactions (OCM); 6) inward controls on credit operations (ICR); 7) outward controls on credit operations (OCR); 8) inward controls on foreign direct investment (IFDI); 9) outward controls on foreign direct investment (OFDI); 10) real estate transactions (REALESTATE); 11) controls on provisions and operations of commercial and credit institutions (FIN); and 12) exchange rate arrangements - multiple/dual v. unified (RATE). Each category is coded as either having significant restrictions ("closed"=0) or not ("open"=1). These categories can be used either individually or summed together to create an index, the FOI, with a range of possible scores from 0 (fully closed) to 12 (fully open). In the context of testing diffusion hypotheses, the individual policy data provides greater detail on which policies are being opened and when.

To reiterate, the aggregate measure of diffusion - such as that used in Simmons and Elkins (2004) - allows for the possibility that countries may respond with a variety of policies not directly linked to the initial policy change. In response to a tightening capital market, countries could respond by changing rules governing inward investment, outward investment, and banking regulations to name only a few, all of which would generically appear as liberalization. Heterogenous responses to external stimuli, while in themselves interesting, are different from

policy diffusion. For the transmission of a policy to constitute diffusion rather than an alternative transmission mechanism, policy changes should be substantively linked.

Methods and Data

For the primary analysis, we model the probability that a given capital control is open as follows:

$$y_{cit} = y_{cit-1} + x\beta + \sum_{d=1}^{5} \delta_d D_{dit-1} + T \sum_{d=1}^{5} \tau_d D_{dit-1} + T\beta + \alpha_c + \alpha_i + \varepsilon_{cit}$$

where *c* indexes capital control type, *i* indexes individual countries, and *t* indexes the year.

This random-effects logit model with a lagged dependent variable is comparable to a restricted dynamic logit model[22] and offers advantages over other estimation methods. First, while other tests of diffusion mechanisms have used duration models[23], the standard duration model assumption of a standard path to a single "death" does not pertain to capital controls. Unlike many other policies, financial liberalization policy choices can and indeed have been reversed from year to year. Additionally, there is no theoretical reason that suggests that financial liberalization should follow a specific schedule – or an underlying distribution of "failure times" - as is generally required for most duration models. Instead, we initially model dependency on prior decision-making by lagging the dependent variable, thus acknowledging that policy decisions like financial openness are highly dependent on prior decision-making. An alternative specification using a fixed-effects model is discussed in the robustness section below.

The dependent variable y_{cit} represents a 0/1 indicator variable for openness for the 12 capital control types discussed above. Analyzing observations at the individual control level allows for more precise testing of the diffusion hypotheses that specific policies, rather than

openness in general, are diffused across borders. Additionally, using individual capital control policy categories allows for the observation of more of the variance in countries' regulation of capital. Aggregated indexed measures can understate changes since simultaneous opening and closing of individual policy areas can cancel out other. Aggregated binary measures may obscure significant changes both before and after the cut-off point used to determine "openness". Set point bias is especially import in the case of capital controls because of the numerous different areas of regulation and the empirical finding that most capital control liberalization is incremental, with few countries selecting for simultaneous liberalization across all controls. Utilizing multiple observations for each country does however create problems of statistical bias. The solution is to include both a fixed effect for type of control, α_c, and a random effect to cluster on country, α_i.

The inclusion of the lagged dependent variable y_{cit-1} explicitly models the extent to which country's policies are not annually independent. $x\beta$ is a matrix of economic and control variables discussed below. $\sum_{d=1}^{5} \delta_d \, D_{dit-1}$ denotes our primary variables of interest – the set of up to 5 diffusion variables who operation is discussed in greater detail below. Because of the potential for correlation between networks, we include the set of proposed diffusion mechanisms together as much as possible. Doing so runs the risk of understating the diffusion effects as the estimation process shares effect size across correlated measures. However, the alternative of independently estimating the diffusion effects, for the same reason, could overestimate effect sizes because of omitted variable bias. Given the trade off, we prefer to select the more conservative strategy of including the most commonly proposed mechanisms together. Because use of trade partner data severely limits our use of longitudinal data, we create two models. Model A includes the capital competition, economic competition, BITs, and RIAs, all of which

can be observed from 1973 to 2002. Model B adds diffusion via trade partners and thus constrains the analysis from 1981 to 2002.

To test the extent to which economic integration is a precursor to the diffusion process, we interact the diffusion measures with a trade-related measure of economic integration: $T \sum_{d=1}^{5} \tau_d \, D_{dit-1}$ where T is the ratio of trade to the gross domestic product (GDP) for each country-year observation. An alternative would be to determine a structural break distinguishing the pre-integrated period from the post as in Jahn (2005). However, with no clear theory to suggest how much integration is required for country policy makers to turn outward, the interaction term avoids the imposition of ad hoc assumptions. $T\beta$ stands for the first-order effect of trade dependence on capital control openness. The remaining potential for unexplained correlation is modeled in the error term as ε_{cit}.

The structure of the diffusion mechanisms assumes that the likelihood of openness in one country is influenced by the extent of openness in countries with which it shares particular relations be the network defined by capital competition, economic competition, a BIT agreement, trade partnership, or a RIA. For each country year control observation, the diffusion variable takes the mean value of openness for that particular capital control in the preceding period in country's "peer group." Again, these means are calculated individually for each specific capital control. If diffusion is taking place, these diffusion variables should be positively associated with the country's subsequent behavior. Note that rather than relegate the diffusion component as a nuisance term (as in Hays, Kachi and Franzese 2010), we explicitly model the diffusion networks so as to better gauge their influence.

To operationalize diffusion via *capital competition*,[24] we utilize Standard & Poor's credit rating groups, which groups countries into 7 top level categories (AAA through "not classified").

To calculate the Standard & Poor's average for a country year capital control policy observation, each country is placed in a group defined by its year and credit rating. Not counting the country itself, the mean capital control openness is calculated for the group in each year for each individual capital control (the numeric equivalent of the percentage of credit peers coded as "open" for the individual capital control).

Diffusion via *economic structure* is based on a classification of countries according to their primary source of GDP, be it agriculture, fuel and ore, manufacturing, services, or diversified.[25] Again, the diffusion variable is the average openness for the indexed capital control, of all other countries in the peer group, in the prior year. Diffusion via *trade partners* is calculated using an export trade weighted average of the capital controls of the trading partners of the observed country. Countries for which export data exists but capital control data does not exist are assumed to have "closed" controls. Those for which export trade information is missing are excluded. Trade data comes from the U.S. Department of Trade dataset and is smoothed by a 3-year moving average.[26] Similarly diffusion *via BITs* utilizes the average openness for each indexed control of a country's BIT parties, again in the prior year.

To operationalize diffusion via *RIAs*, we first identified forty-three officially recognized RIAs since 1970.[27] To constitute an RIA, the agreement had to have more than two parties, have a geographic focus, include language pertaining to shared economic policies across borders, and have been signed into agreement by at least two of the convening parties.[28] These coding rules excluded system wide agreements such as the WTO as well as security agreements such as North Atlantic Treaty Organization (NATO). Free trade agreements and other sub-agreements were subsumed under the umbrella organization unless membership in such was limited to a specified

sub-group.[29] Countries were included as members from their individual signing days and excluded if membership was withdrawn, suspended, or rescinded.[30]

The RIA diffusion measure combines information about the openness of a country's RIA partners. All agreements are weighed equally, regardless of the number of members, the amount of intra-agreement trade, or other possible weighting schemes. Countries may be linked to other countries through multiple overlapping regional integration agreements. Countries not in one of these RIAs received a score of 0.[31]

Following Brune et al (2001), we also account for a variety of other domestic and international influences on financial openness (summary statistics presented in Table 2). We include GDP growth, GDP per capita, inflation and savings rates. Emerging markets with low domestic savings rates may need to open their capital accounts to attract foreign investment. Countries with slower rates of economic growth and higher rates of inflation may feel the need to open their capital accounts in an effort to improve economic performance.[32] Economic stability is accounted for by including reserves and current account balance. We account for international forces ("push factors") by including world interest rates. We account for both fixed exchange rates regimes and currency crises. The degree to which a country is integrated into the international economy is accounted for by including trade and private capital flows. The influence of domestic political and institutional variables is accounted for by including regime type, central bank independence and partisan politics. Appendix A describes the data and sources.

Results

Our quantitative analysis focuses on the post-Bretton Woods period (1973-2002) and the 114 developing countries[33] for which financial liberalization data and sufficient economic data exist. Table 2 presents average financial openness for all capital control policies as well as the individual policy areas. [34] Although during the period from 1973 to 2002 less than a quarter of capital controls were "open" the percentages increased significantly over the time period. With the exception of *FIN* (controls on provisions and operations of commercial and credit institutions),[35] between 1973-2002, the percent of controls open within each category increased within a range of 12 to 26 percentage points. Although not presented, cross-time depictions of individual capital control openness (with the exception of controls on exchange rates) replicate the S-shape curve of the combined openness measure illustrated in Figure 1, again providing a graphical hint that diffusion may be occurring. Table 2 presents a summary of the means of the diffusion variables.

The first analysis (Table 3, Random Effects) offers two horse races between standard diffusion network hypotheses and our RIA hypothesis. Model A presents the estimated results when diffusion via capital competition (S&P), economic competition, BITs, and RIAs is included.[36] Model B presents an identical model with the addition of diffusion via trade partners which results in constraining the time period from 1981to 2002. Because of the pooled nature of the capital control policy observations, we included dummy variables for each type of capital control. Our results indicate that there is variation in the likelihood that governments will lift restrictions on individual types of transactions. For example, countries are more likely to open all other capital controls than the excluded policy *FIN* (Provisions Specific to Commercial Banks). Countries are also more likely to remove restrictions on inflows and outflows of foreign direct

investment than on capital markets, credit transactions and current account-related capital transactions (i.e. invisibles and the surrender of export proceeds), although the significance of the difference varies conditionally on the specific comparison pairs. Additionally, the small but significant coefficient for the time counter suggests that the probability of opening any capital control steadily increases each year.

Diffusion

With respect to diffusion, the results support our hypothesis. Only diffusion via RIAs is consistently significant in Model A and Model B. In other words, policy decisions regarding the removal of controls on the capital account were diffused across member countries of RIAs. The results support our argument that information (about policy choices and their impacts) may be more effectively transmitted across peer networks that have more formal structures and reflect a greater degree of interdependence (through formal cooperative and coordination mechanisms).

Contrary to our prediction, capital account liberalization policies were diffused across peer networks of economic competitors, but this effect was only significant in our truncated Model B. Neither of the variables measuring diffusion through networks of capital competitors or BITs was significant, findings that contradict Simmons and Elkins (2004). The divergence in results is most likely attributable to the fact that the model used by Simmons and Elkins (2004) employed a composite measure of financial openness; as such, they did not test the more restrictive definition of policy diffusion that requires country to country transmission of specific policy innovations.

To test the extent to which economic integration is a precursor to the diffusion process, each diffusion measure was interacted with a measure of economic openness – the ratio of trade

to GDP. In no case did diffusion seem to accelerate as a function of interdependence, as suggested by Jahn. Instead, the lack of significance for the interaction coefficients and, in some cases, the negative correlations offer no evidence to counter our proposition that the diffusion of capital control liberalization preceded integration.

In Models A and B, the prior year's control policy, the wealth of the country, and the degree of trade openness are economic conditions strongly correlated with an increased likelihood of openness. The stock of foreign reserves is negatively correlated, supporting expectations that need for capital drives openness. In model B, economic growth and savings also are positively correlated with openness, where as a fixed exchange rate makes openness less likely. The latter demonstrates the quandary of exchange rate choice for many developing countries: while the combination of open capital controls and a fixed exchange rate would, under Mundell-Fleming conditions, limit monetary authority and thus demonstrate anti-inflationary strategy to markets, removing one's hands from a tiller of the economy can be particularly difficult for governments facing the prospect of economic volatility. However, the effect size for fixed exchange rate regime is significant only in the truncated sample (Model B).

In terms of political conditions, a country under an IMF program and the rule of right-wing party also increase the likelihood of capital control openness. In Model B where the time series is truncated, democracies are slightly less likely to be open, but the finding is not robust to the increased time span of Model A.

Robustness checks

We run two additional models to verify the robustness of our initial findings. First, those who doubt the effectiveness and strength of RIAs and their ability to facilitate and support the

transmission of information regarding specific policy options might argue that the RIA diffusion variable is simply capturing a regional effect. We address this concern by including regional dummy variables. Per Table 4, the diffusion via RIAs finding remains positive and significant, although the magnitude of the effect decreases slightly. The results support our claim that the organizational structure and function of RIAs do serve as effective instruments through which policy choices are transmitted across member countries.

Second, to ensure results are not driven by countries for which we observe no change in capital control policy – regardless of whether they were open or closed in the initial period, we provide an additional fixed effects version of the analysis. Doing so reduces the number of observations available for analysis by almost 25 percent, although less than one-fifth of all countries are completely removed from the sample[37]. The fixed effects analysis (Table 5) retains the variables from the random effects analysis but drops the lagged dependent variable due to potential coefficient bias in first-order autoregressive models including individual fixed effect (Nickell 1981).

For the diffusion variable of interest – RIAs –, the estimated effect increases under the fixed effects specification. Again, a country's likelihood of opening appears strongly linked to the behavior of other countries with whom it shares membership in RIAs. Additionally, in the fixed effects analysis, capital account liberalization policy choices also appear to have been driven diffusion across shared trade networks. As discussed previously, we hypothesized that information might be effectively transmitted across trading partners (compared to BITs or economic competitors) owing to the fact that trade networks reflect a degree of cooperative behavior and coordination and are supported by a 'governance' structure of policies and regulations.

Results for the economic and political variables with fixed effects estimated are consistent between Model A and Model B but differ somewhat from the results with random effects estimated. In comparison between the random and fixed effects models, the correlation between high income and high trade dependence and capital account liberalization increases; however, the findings for GDP growth reverse. When taking into account a country's general tendency for openness, GDP growth negatively and significantly correlates with the likelihood of opening; in contrast to the random effects findings of a positive but insignificant relationship. Similarly, reserve levels are no longer significant but changes in inflation are negatively and significantly related to openness, with the inclusion of individual country levels of openness. These differences reflect the change of analytic focus: with the inclusion of the country intercepts, *changes* rather than *levels* drive the estimation process.

Conclusion

In summary, we find strong support for our hypothesis. We begin this enterprise by arguing that not all peer networks are created alike; they vary in at least two critical dimensions: form and function. The diffusion of policy choices is most likely to occur across peer networks that have more formal structures (e.g. shared purpose, formal decision-making process) that helps to sustain the group collectively, and which, more often than not, require and facilitate significant communication, coordination and cooperation among its members. Of the range of peer networks that have been discussed in previous diffusion studies, we argue that capital account liberalization policy choices are most likely to be diffused across countries who belong to the same RIA. Many of the RIAs are sophisticated organizational structures, complete with

proper budgets, staff and resources. They facilitate country to country communication through regular meetings, reports, sub-committees, reports and policy edicts.

The findings presented here underscore the need to consider countries as interdependent actors who respond to the decisions made by external actors abroad. Even after taking into account the effect of political and economic determinants, the findings indicate that countries have adopted financial liberalization after taking cues from the policy actions of countries within their spheres of influence. Furthermore, these cues come from specific policies rather than amorphous liberalization; preceded and thus served as a mechanism for economic integration; and influenced not only on initiation but also the duration of capital control openness.

The results also indicate that informational networks, both informal and formal, do transmit important information about the costs and benefits of certain policies and reforms. However, not all information channels or networks are created alike. As discussed previously, some networks may be loosely configured with weak ties among members. Other networks have internal systems that more efficiently filter information and policy alternatives than others (Lazer 2003, Guisinger 2005). Organizational communities that reflect a greater degree of 'networked governance' seem to be more effective disseminators of information. There is growing attention ion about the optimal architecture design for peace treaties, environmental accords, power-sharing agreements. The implication of this study is that more formal arrangements which are built on a shared purpose and which promote communication, collaboration and coordination among participating members may be more effective for helping participants realize their stated objectives.

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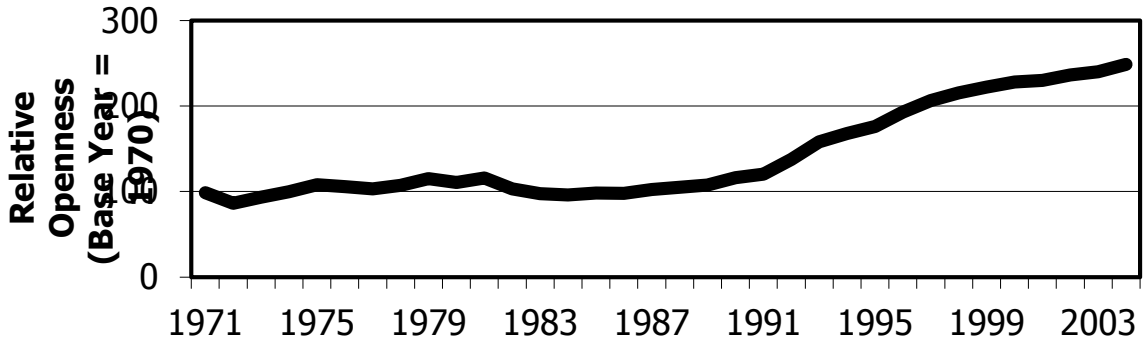
Figure 1: Relative Openness in Financial Liberalization in Developing Countries Since 1970



Source: Brune 2009. Note: The Financial Openness Index is based on a 0-12 scale.

Figure 2: Characterization of Common Capital Control Diffusion Mechanisms

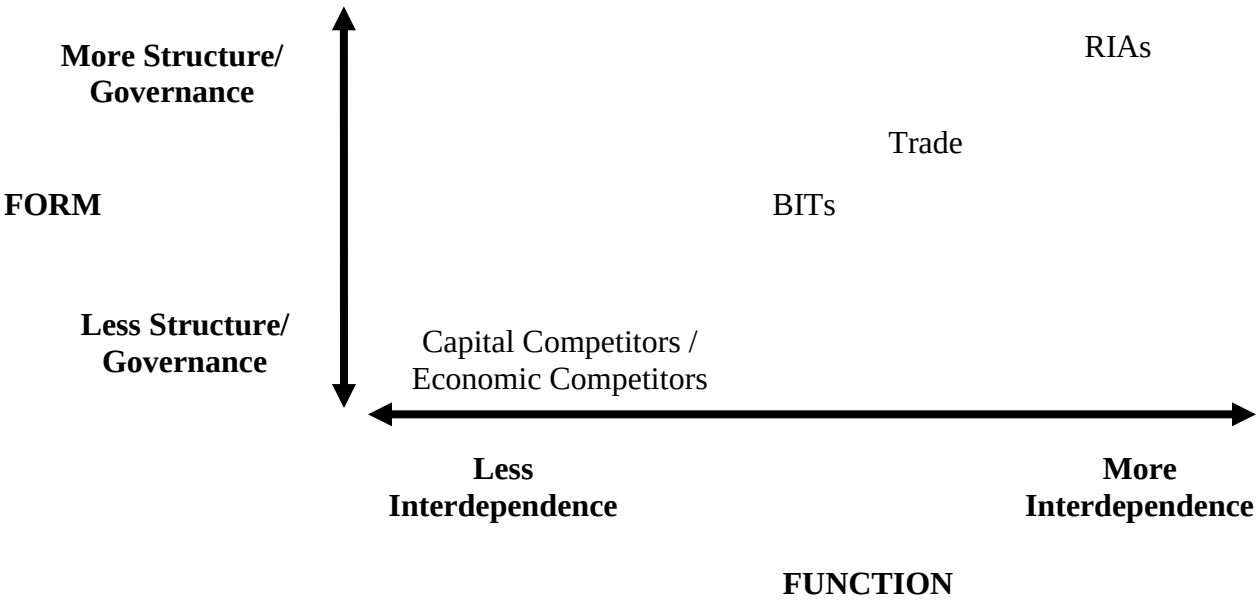


Table 1: Diffusion of Financial Liberalization: ALADI Example

Table cells indicate when a country removed restrictions on an individual policy. A country's name in parentheses (Ex. (ARG)) indicates the placement of restrictions on individual policies.

	Control Policy										
Year	**Exports**	**Inward Invisibles**	**Outward Invisibles**	**Inward Money Market**	**Outward Money Market**	**Inward Credit Operations**	**Outward Credit Operations**	**Inward FDI**	**Outward FDI**	**Real estate**	**Commercial and Credit Institutions**
1985			PRY								
1986											
1987						(ECU)					
1988		ARG BOL									
1989	PER										
1990	ARG VEN	VEN	ARG	ARG PRY	PRY	PRY	PRY	PRY	PRY	PRY	
1991			PER			PER	PER				
1992	MEX URY	MEX	MEX		PER				PER	PER	
1993						ARG	ARG		ARG		
1994	PER	COL						(ECU)		BRA	
1995	(VEN)	(VEN)		ECU	ECU				ECU	ECU	
1996	VEN	VEN	VEN			VEN	VEN		VEN	VEN	
1997					(ECU)			BOL	URY		ECU
1998	BOL			PER				PER			
1999											
2000											

Note: While the ALADI was established in 1980, members only started to remove controls on the current account in 1985, the point at which we begin our illustration.

ALADI members
ARG = Argentina
BRA = Brazil
BOL = Bolivia
CHI = Chile
COL = Colombia
ECU = Ecuador
MEX = Mexico
PRY = Paraguay
PER = Peru
URY = Uruguay
VEN = Venezuela

Table 2: Summary Statistics of Independent Variables and Dependent Variable (Combined and By Capital Control Type) from 1973 to 2002

Independent Variables (Obs = 19020*)	Mean	Std. Dev	Min	Max
Currency Crisis	0.21	0.41	0	1
GDP Growth	3.61	5.31	-50.25	35.22
Savings	15.11	14.07	-84.40	63.08
Current Account Balance	-4.32	7.43	-45.34	28.71
Reserves	-1.24	3.82	-48.30	31.74
Inflation, square root	6.98	2.82	1.68	64.34
Fixed Exchange Rate	0.49	0.50	0	1
GDP Per Capita (log)	6.90	1.09	4.49	9.30
Trade as % GDP	75.64	40.75	8.87	282.40
Private Capital Flows as % of GDP	11.84	22.69	0.02	649.17
Central Bank Independence	0.29	0.46	0	1
Democracy	0.47	0.50	0	1
Right Party In Power	0.23	0.42	0	1
Country under IMF Program	0.53	0.50	0	1
Diffusion – Standard & Poor Ratings	0.26	0.21	0	1
Diffusion – Bilateral Investment Treaties	0.57	0.33	0	1
Diffusion – Trade	0.52	0.29	0	1
Diffusion - Economic type	0.26	0.22	0	1
Diffusion – Regional Integration Agreements	0.26	0.26	0	1
Dependent Variable Combined and Disaggregated (Obs=19020 Combined and 1585 Individually)	**Mean**	**Std. Dev**	**Min**	**Max**
All Capital Controls	0.23	0.42	0	1
Controls on EXP	0.19	0.39	0	1
Controls on FIN	0.01	0.08	0	1
Controls on ICM	0.18	0.38	0	1
Controls on ICR	0.21	0.40	0	1
Controls on IFDI	0.21	0.41	0	1
Controls on ININV	0.26	0.44	0	1
Controls on OCM	0.15	0.36	0	1
Controls on OCR	0.17	0.38	0	1
Controls on OFDI	0.22	0.41	0	1
Controls on OUTINV	0.28	0.45	0	1
Controls on RATE	0.75	0.43	0	1
Controls on REALESTATE	0.14	0.34	0	1

* 19020 observations except when Diffusion - Trade included. Then limited to 1981 to 2002 and only 16752 observations.

Table 3: Results from Random Effects Logit Model on Pooled Capital Control Policies
Dependent variable = Capital Account openness (0/1); Max. 12 observations per country

	Model A			Model B		
Capital Account Openness (O/1), lagged	7.31	(0.15)	***	7.31	(0.16)	***
Currency Crisis	-0.19	(0.15)		-0.14	(0.16)	
GDP Growth	0.02	(0.01)		0.02	(0.01)	*
Savings	-0.01	(0.01)		-0.02	(0.01)	**
Current Account Balance	-0.01	(0.01)		-0.01	(0.01)	
Reserves	-0.03	(0.01)	**	-0.03	(0.01)	**
Inflation, square root	-0.04	(0.02)		-0.03	(0.03)	
Fixed Exchange Rate	-0.23	(0.17)		-0.33	(0.17)	*
GDP Per Capita (log)	0.27	(0.13)	**	0.37	(0.14)	***
Trade as % GDP	0.01	(0.00)	***	0.01	(0.00)	**
Private Capital Flows as % of GDP	0.00	(0.00)		0.00	(0.00)	
Central Bank Independence	0.31	(0.21)		0.14	(0.22)	
Democracy	-0.31	(0.21)		-0.38	(0.23)	*
Right Party In Power	0.52	(0.17)	***	0.40	(0.17)	**
Country under IMF Program	0.45	(0.15)	***	0.61	(0.16)	***
Diffusion - Standard & Poor (S&P) ratings	-0.04	(1.19)		-0.78	(1.25)	
Integration * Diffusion - S&P	0.02	(0.01)		0.02	(0.01)	
Diffusion - Bilateral Investment Treaties (BITs)	0.48	(0.44)		0.64	(0.55)	
Integration * Diffusion - BITs	0.00	(0.00)		0.00	(0.01)	
Diffusion - Economic type	1.19	(1.17)		2.01	(1.22)	*
Integration * Diffusion - Economy	0.00	(0.01)		-0.01	(0.01)	
Diffusion - Trade				0.39	(0.73)	
Integration * Diffusion - Trade				0.00	(0.01)	
Diffusion - Regional Integration Agreements (RIAs)	1.93	(0.75)	**	2.02	(0.80)	**
Integration * Diffusion - RIAs	-0.02	(0.01)	**	-0.02	(0.01)	**
Controls on EXP	1.90	(0.54)	***	1.55	(0.56)	***
Controls on ICM	1.55	(0.52)	***	1.52	(0.53)	***
Controls on ICR	1.79	(0.54)	***	1.37	(0.57)	**
Controls on IFDI	2.06	(0.51)	***	2.05	(0.53)	***
Controls on ININV	1.88	(0.56)	***	1.58	(0.59)	***
Controls on OCM	1.65	(0.52)	***	1.62	(0.53)	***
Controls on OCR	1.73	(0.53)	***	1.41	(0.55)	**
Controls on OFDI	1.87	(0.55)	***	1.71	(0.57)	***
Controls on OUTINV	1.96	(0.56)	***	1.59	(0.59)	***
Controls on RATE	2.47	(0.76)	***	2.17	(0.81)	***
Controls on REALESTATE	1.74	(0.51)	***	1.44	(0.53)	***
Time Counter	0.03	(0.01)	*	0.04	(0.02)	**
Constant	-10.09	(1.12)	***	-11.11	(1.24)	***
lnsig2u	0.09	(0.21)		0.08	(0.22)	
Observations	19020			16752		
Number of countries	114			110		
Standard errors in parentheses clustered by country. Country constants for fixed effects not shown. Statistical significance of coefficients represented as follows: *** p<0.01, ** p<0.05, * p<0.1						

Table 4. Robustness Checks: Random Effects Logit Model with Regional Dummies
Dependent variable = Capital Account openness (0/1); Max. 12 observations per country

	Model A			Model B		
Capital Account Openness (O/1), lagged	7.29	(0.15)	***	7.28	(0.16)	***
Currency Crisis	-0.17	(0.15)		-0.12	(0.16)	
GDP Growth	0.02	(0.01)		0.03	(0.01)	*
Savings	-0.01	(0.01)		-0.02	(0.01)	**
Current Account Balance	-0.01	(0.01)		-0.01	(0.01)	
Reserves	-0.03	(0.01)	**	-0.03	(0.01)	**
Inflation, square root	-0.03	(0.02)		-0.03	(0.03)	
Fixed Exchange Rate	-0.22	(0.17)		-0.30	(0.17)	*
GDP Per Capita (log)	0.19	(0.15)		0.29	(0.16)	*
Trade as % GDP	0.01	(0.00)	***	0.01	(0.00)	***
Private Capital Flows as % of GDP	0.00	(0.00)		0.00	(0.00)	
Central Bank Independence	0.37	(0.22)	*	0.16	(0.23)	
Democracy	-0.33	(0.22)		-0.41	(0.24)	*
Right Party In Power	0.49	(0.17)	***	0.35	(0.18)	**
Country under IMF Program	0.46	(0.15)	***	0.61	(0.16)	***
Diffusion - S&P	0.15	(1.18)		-0.49	(1.25)	
Integration * Diffusion - S&P	0.01	(0.01)		0.02	(0.01)	
Diffusion - BITs	0.52	(0.44)		0.70	(0.54)	
Integration * Diffusion - BITs	-0.01	(0.00)		-0.01	(0.01)	
Diffusion - Economic type	0.80	(1.17)		1.62	(1.22)	
Integration * Diffusion - Economy	0.01	(0.01)		-0.01	(0.01)	
Diffusion - Trade				0.31	(0.72)	
Integration * Diffusion - Trade				0.00	(0.01)	
Diffusion - RIAs	1.86	(0.75)	**	1.94	(0.79)	**
Integration * Diffusion - RIAs	-0.02	(0.01)	**	-0.02	(0.01)	**
Controls on EXP	1.98	(0.54)	***	1.63	(0.57)	***
Controls on ICM	1.60	(0.52)	***	1.55	(0.54)	***
Controls on ICR	1.86	(0.54)	***	1.44	(0.57)	**
Controls on IFDI	2.11	(0.52)	***	2.08	(0.53)	***
Controls on ININV	1.97	(0.56)	***	1.67	(0.59)	***
Controls on OCM	1.69	(0.52)	***	1.63	(0.54)	***
Controls on OCR	1.81	(0.54)	***	1.47	(0.56)	***
Controls on OFDI	1.95	(0.55)	***	1.77	(0.57)	***
Controls on OUTINV	2.05	(0.57)	***	1.67	(0.60)	***
Controls on RATE	2.61	(0.76)	***	2.26	(0.81)	***
Controls on REALESTATE	1.80	(0.52)	***	1.50	(0.53)	***
Time Counter	0.03	(0.01)	**	0.04	(0.02)	**
Constant	-10.52	(1.42)	***	-10.97	(1.34)	
East Asia & Pacific dummy	0.63	(0.78)		0.32	(0.72)	
Eastern Europe and C. Asia dummy	0.39	(0.72)		0.05	(0.70)	
Middle East and N. Africa dummy	0.86	(0.78)		0.37	(0.76)	
Western Europe dummy	0.40	(0.93)		-0.35	(0.95)	
Sub-Saharan Africa dummy	0.74	(0.74)		0.20	(0.65)	
Latin America & Caribbean dummy	1.43	(0.69)	**	0.95	(0.68)	
/lnsig2u	-0.09	(0.22)		-0.08	(0.23)	
Observations	19020			16752		
Number of Countries	114			110		

Table 5. Robustness Checks: Fixed Effects Logit Model
Dependent variable = Capital Account openness (0/1); Max. 12 observations per country

	Model A			Model B		
Currency Crisis	-0.08	(0.10)		0.05	(0.12)	
GDP Growth	-0.02	(0.01)	**	-0.05	(0.01)	***
Savings	-0.01	(0.01)	*	-0.02	(0.01)	
Current Account Balance	0.00	(0.01)		-0.02	(0.01)	
Reserves	-0.01	(0.01)		-0.01	(0.01)	
Inflation, square root	-0.13	(0.03)	***	-0.11	(0.03)	***
Fixed Exchange Rate	-0.14	(0.12)		-0.08	(0.13)	
GDP Per Capita (log)	0.78	(0.18)	***	1.69	(0.23)	***
Trade as % GDP	0.01	(0.00)	***	0.02	(0.00)	***
Private Capital Flows as % of GDP	0.00	(0.01)		0.00	(0.01)	
Central Bank Independence	0.27	(0.18)		-0.04	(0.21)	
Democracy	0.33	(0.18)	*	1.03	(0.25)	***
Right Party In Power	-0.03	(0.13)		-0.17	(0.14)	
Country under IMF Program	0.02	(0.11)		0.53	(0.13)	***
Diffusion - S&P	0.78	(0.92)		-1.94	(1.14)	*
Integration * Diffusion - S&P	0.01	(0.01)		0.01	(0.01)	
Diffusion - BITs	0.19	(0.32)		-0.08	(0.43)	
Integration * Diffusion - BITs	-0.01	(0.00)		0.00	(0.01)	
Diffusion - Economic type	-1.33	(0.94)		0.14	(1.10)	
Integration * Diffusion - Economy	0.05	(0.01)	***	0.02	(0.01)	
Diffusion - Trade				1.76	(0.58)	***
Integration * Diffusion - Trade				0.00	(0.01)	
Diffusion - RIAs	3.56	(0.61)	***	1.85	(0.66)	***
Integration * Diffusion - RIAs	-0.03	(0.01)	***	-0.02	(0.01)	*
Controls on EXP	0.81	(0.47)	*	1.02	(0.55)	*
Controls on ICM	1.18	(0.45)	***	1.66	(0.52)	***
Controls on ICR	1.32	(0.46)	***	1.51	(0.54)	***
Controls on IFDI	1.16	(0.45)	***	1.95	(0.53)	***
Controls on ININV	0.98	(0.48)	**	1.42	(0.56)	**
Controls on OCM	1.04	(0.45)	**	1.59	(0.52)	***
Controls on OCR	1.06	(0.46)	**	1.25	(0.54)	**
Controls on OFDI	0.61	(0.47)		1.45	(0.55)	***
Controls on OUTINV	1.23	(0.47)	***	1.60	(0.56)	***
Controls on RATE	0.57	(0.60)		1.70	(0.73)	**
Controls on REALESTATE	1.39	(0.46)	***	1.53	(0.53)	***
Time Counter	0.12	(0.01)	***	0.22	(0.02)	***
Constant						
lnsig2u						
Observations	6245			4550		
Number of countries	92			81		
Standard errors in parentheses clustered by country. Country constants for fixed effects not shown. Statistical significance of coefficients represented as follows: *** p<0.01, ** p<0.05, * p<0.1						

Appendix A: List of Variables

Variable	Definition	Source
GNP Per capita (log of)	GNP per capita (thousands of constant 2000 $US)	World Bank World Development Indicators 2005 (WDI)
Fixed Exchange Rate	Dummy variable: 1= fixed pegs to dollar, franc or sterling, and pegs to basket of currencies or other individual currencies, and cases IMF codes as pegs with limited flexibility. Crawling pegs, managed floats and independently floating exchange rates coded as=0.	Leblang (1999). Supplemented using the IMF's AREAER.
Currency Crisis	Dummy =1 country experienced currency crisis	Leblang (1999), supplemented by Brune
Current Account Balance		WB WDI and IMF International Financial Statistics
Reserves	Gross international reserves expressed in terms of number of months of imports of goods and services which could be paid for.	WDI
Inflation rate, square root	Implicit price deflator for "the average annual rate of price change in the economy."	WDI
GDP growth	Real annual GDP growth (%)	WDI
Domestic savings rate	Gross Domestic Savings as a proportion of GDP.	WDI
IMF	Dummy variable indicating whether country is under one of four IMF program arrangements (Stand By, Extended Fund Facility, Structural Adjustment Facility, or Enhanced Structural Adjustment Facility)	Vreeland (2001); Supplemented by Brune
Trade	Exports plus Imports as Share of GDP	WDI
Private Capital Flows	Private capital flows as share of GDP	WDI
Democracy	Dummy =1 if country has democratic regime	Alvarez et al 2001
Partisanship	Dummy=1 if country governed by a right-wing party	Brune (2006).
Central Bank Independence	Dummy = 1 if central bank is independent	Cukierman (1992), supplemented by Castro and McNamara (2004)
Regional Integration Agreement Diffusion	Groupings by participation in regional integration agreements	UNCTAD 2006, WTO 2006.
Trade Weighted Diffusion	Groupings based on primary trading partners	UNCTAD; Guisinger 2005.
Economic Structure Diffusion	Groupings of countries based on percentage of economy derived from agriculture, manufacturing, minerals and ores, services and diversified	WDI
Export Structure	Groupings of countries based on share of	WDI

Diffusion	exports derived from agriculture, manufacturing, minerals, & services	
Capital Competition Diffusion	Groupings of countries based on S&P country credit risk rating.	Standard and Poor's (2005)

[1] Federal Reserve Bank of San Francisco (2001).

[2] Political economists have attributed the variation in financial liberalization to partisanship (Alesina et al 1994, Quinn and Inclan 1997), central bank independence (Epstein and Schor 1992, Alesina et al 1994), domestic cleavages/factor endowments (Quinn and Inclan 1997), and crises (Haggard and Maxfield 1996).

[3] Meseguer (2004).

[4] Scholars have explored the role of diffusion in: growth of welfare states (Strang and Chang 1993); quality certification by firms (Guler et al 2002); neoliberal macroeconomic policies (Meseguer 2002, 2003; Henisz et al 2005); pension privatization (Brooks 2005); privatization (Brune 2006, Kogut and Macpherson 2005); trade (Guisinger 2005); FDI restrictions (Kobrin and Wu 2005); central bank independence (McNamara and Castro 2003); democratization (Coppedge 2005); and deregulation (Gilardi 2003, Levi-Faur).

[5] Voluntary Service Overseas. 2009. Capacity Building in Network Organizations. (VSO Netherlands).

[6] Van Alstyne, Marshall. 1997. The State of Network Organization. Journal of Organizational Computing 7(3). Voluntary Service Overseas. 2009. Capacity Building in Network Organizations. (VSO Netherlands).

[7] Rodrik 1998, Quinn 1997.

[8] Edwards 2007.

[9] Financial Times, February 2003.

[10] http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_113359.pdf

[11] More often than not, developing countries participate in more than one RIA. For example, Chile has participated in the Andean Community, Latin American Integration Association, and Asian Pacific Economic Community. Each constitutes a distinct grouping of members but are self-selected communities of peers. With a few exceptions – notably APEC - economic powerhouses like the United States or China fall outside most RIA agreements, creating less asymmetry among participants than is observed in other international organizations such as the WTO.

[12] Schiff and Winters 1998.

[13] Latin America moves towards common market. Financial Times, May 9, 1984.

[14] Interview. September 22, 2010.

[15] "Comesa spells out priorities." Business Review Reporter. November 14, 1997.

[16] "Establishment of FTA to Boost Inter-COMESA trade." Business Review Reporter. October 23, 1997.

[17] BBC. Third APEC Finance Ministers Meeting, Kyoto, Japan, March 17, 1996, Join Ministerial Statement.

[18] Third APEC Finance Ministers Meeting, Kyoto, Japan, March 17, 1996, Join Ministerial Statement.

[19] Interview with Dr. Oscar Schiappa-Pietra, April 29,2010.

[20] Lee and Strang (2006), p. 890.

[21] UNCTAD. Activities Undertaken by UNCTAD in favor of Africa. 2004.

[22] Beck et al 2001.

[23] Henisz et al 2005.

[24] Simmons and Elkins (2004) preferred measure of capital competition arises from a correlation matrix of educational and infrastructural variables from which they identify a tenth of the sample as being "most similar" to the country under observation. While Simmons and Elkins generously shared their data, we disagree with the ultimate categorization of countries and thus use only the Standards and Poor's bond ratings.

[25] However, since only Bulgaria is categorized as primarily manufacturing and is not included in the dataset, as a practical matter there are 4 groups each year.

[26] Countries in the general dataset but for which DOT trade data exists only for imports includes Bhutan, Botswana, Cayman Islands, Eritrea, Lesotho, Namibia, and Swaziland. For these countries, capital control information is included for the purposes of other countries' trade partner diffusion measure calculation, but they do not have these measures themselves. Additional countries excluded are: Andorra, Channel Islands, Isle of Man, Liechtenstein, Marshall Islands, Mayotte, Micronesia, Monaco, Northern Mariana Islands, Palau, Puerto Rico, San Marino, Taiwan, Virgin Islands (U.S.), and West Bank and Gaza.

[27] This variable comes from a number of sources including the World Bank, General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) records, and Gray (2010). RIAs include Gulf Cooperation

Council, League of Arab States, Arab Maghreb Union, Organization of African Unity/the African Union, Community of Sahel-Saharan States, Common Market for Eastern and Southern Africa, East African Community, Community of Central African States, Economic and Monetary Community of Central Africa and UDEAC, Economic Community of West African States, West African Economic and Monetary Union, South African Development Coordination Conference/Southern African Development Community, Southern African Customs Union, Mano River Union , Economic Community of Great Lakes Countries, Liptako-Gourma Authority, Indian Ocean Commission, Nile Basin Initiative, Asian Pacific Economic Cooperation, Association of South East Asian Nations, Pacific Island Forum, South Asian Association for Regional Cooperation, Bangkok Agreement, Latin American Integration Association, Andean Community, Central American Common Market, Dominican Republic-Central America-United States Free Trade Agreement, Caribbean Community, Mercosur, North American Free Trade Agreement, the Organization of Eastern Caribbean States, the European Union, European Economic Area, the Council of Europe, the Council of Baltic Sea States, the Baltic Free Trade Agreement, Organization of the Black Sea Economic Cooperation, Central European Free Trade Agreement, Commonwealth of Independent States, Eurasian Economic Community, Economic Cooperation Organization, European Free Trade Agreement, and the Organization for Economic Co-operation and Development.

[28] The RIA did not have to demonstrate success in achieving its outcomes; as has been noted, many RIAs have been viewed as ineffective in achieving their specified outcomes.

[29] Thus the "pillars" of the African Union, such as COMESA, stand alone whereas trade agreements such as GAFTA, SAFTA, and COMESA-PTA are considered as part of their overarching organizations of the Arab League, the South Asian Association for Regional Cooperation (SAARC), and COMESA respectively.

[30] While several RIAs underwent name changes, only one – the Baltic Free Trade Agreement – completely disbanded within our dataset's scope.

[31] A score of a 0 is the equivalent of an interaction term in which a country is first observed as being in or not in an RIA and then coded for the average openness of RIA members.

[32] We took the square root of the inflation rate (rather than, say, logs) to take into account long tails in both positive and negative inflation.

[33] Only countries still considered developing in the 1980s were included in the regression analysis.

[34] With 12 capital control policies per year, each country should have 396 observations and the dataset 46,332 observations. As not all countries entered the international system prior to 1970 and financial liberalization data is not available for all country years, the resulting panel is unbalanced with just under half of the observations missing.

[35] Financial controls on commercial and credit institutions remain the most closed category. In 1970, no developing country had liberalized "FIN"; by 2006, only 4% had moved to liberalize.

[36] The countries included in random effects specification are Albania, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Barbados, Belarus, Belize, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cape Verde, Chile, China, Colombia, Rep of Congo, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ethiopia, Gabon, The Gambia, Georgia, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Jamaica, Jordan, Kazakhstan, Kenya, Korea, Kyrgyz Republic, Laos, Latvia, Lesotho, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Malta, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Seychelles, Sierra Leone, Slovak Republic, Slovenia, Somalia, South Africa, Sri Lanka, St. Lucia, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, Uruguay, Venezuela, Vietnam, Yemen, Zambia, and Zimbabwe.

[37] In the case of Model A: Angola, Barbados, Belarus, Belize, Cambodia, Cape Verde, Greece, Haiti, India, Malawi, Mexico, Nepal, Pakistan, Saudi Arabia, Slovenia, South Africa, Sudan, Syrian Arab Republic, Trinidad and Tobago, Turkmenistan, Vietnam, and Zimbabwe.