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A Tale of Two Markets:

Bond Market Development in East Asia and Latin America

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A Tale of Two Markets: Bond Market Development in East Asia and Latin America

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Chapter 1. Executive Summary

Fostering local bond markets is a priority of policy makers in both East Asia and Latin America. This Occasional Paper provides a comparison of market developments in the two regions. It shows that Asian bond markets are larger and better capitalized and that the tenor of Asian bonds is longer, reflecting the region's high savings rates, history of stable policies and relatively strong investor protections. On the other hand, Latin American bond markets are more liquid by most measures, and they have had more success in attracting foreign investor participation. But in East Asia and Latin America alike, progress remains slow, especially for corporate bonds. Fundamentally this reflects the fact that bond market development is part of the larger process of financial development and that financial development cannot be separated from the still larger process of economic development. Policies to strengthen and harmonize financial structure may help, but by themselves these cannot relax these fundamental developmental constraints.

A further obstacle is that small developing countries lack the scale needed to support deep and liquid markets. Although countries in both regions have responded by seeking to encourage foreign investor participation, the two regions are pursuing this objective in different ways. Latin American countries are each seeking to enhance the efficiency of market infrastructure, the predictability of transactions, and the transparency of regulation. Each Latin American country is, in effect, competing with its neighbors for foreign investors. While East Asian countries are pursuing many of the same initiatives, in addition they are seeking to harmonize their institutions and regulations and to overcome the obstacle of inadequate scale by creating an integrated regional bond market.

Although Latin America's decentralized approach promises an immediate payoff to countries implementing ambitious reforms, it threatens to run up against limits of minimum efficient scale. Even relatively large countries like Brazil and Mexico may be too small to support a bond market with extensive capitalization that is a prerequisite for world-class efficiency and liquidity that are characteristic of the global financial centers. The East Asian approach of attempting to build an integrated bond market on a regional platform has the potential to relax this constraint, but this approach requires a consensus on the design and implementation of the relevant reforms, rendering progress painfully slow.

Which region will do better going forward? The answer will depend, in part, on how successful they are in pursuing further reforms. Latin American countries have further to go in strengthening investor protections, enhancing market transparency, and building efficient bond market infrastructures. East Asian countries have further to go in encouraging retail participation and reducing the dominance of pension funds, provident funds, and other buy-and-hold investors and in putting out the welcome mat to foreign investors.

Chapter 2. Introduction

Developing bond markets and enhancing the capacity of public- and private-sector borrowers to issue long-dated, domestic-currencydenominated debt securities is high on the policy agenda in both East Asia and Latin America. The Financial Stability Forum, the World Bank, the Inter-American Development Bank, the Asian Development Bank, the Bank for International Settlements, the OECD, national governments, and not a few private-sector bodies have all analyzed what emerging markets should do to enhance their access to bond finance and develop local markets. Among their recommendations are for emerging markets to strengthen macroeconomic policies in order to provide a stable setting for both borrowing and lending, to strengthen corporate governance as a way of ensuring that firms borrow prudently, to strengthen financial disclosure requirements in order to enhance the ability of potential bondholders to make prudent investment

decisions, to encourage the growth of institutional investors as a way of enhancing diversification opportunities and reducing transaction costs, and to strengthen bond market infrastructure generally by creating efficient clearing and settlement, credit enhancement and custodial facilities.

Emerging markets have taken important steps in these directions, as we detail below. Yet, despite all this, progress remains disappointing. Local bond markets, corporate bond markets in particular, are still small by the standards of the advanced industrial countries. (See Figure 1.) Liquidity is scarce, and turnover is low. Notwithstanding the commentary surrounding the recent surge of funds into emerging economies, foreign participation in local bond markets, especially corporate bond markets, remains quantitatively limited, a few prominent national exceptions notwithstanding to the contrary.



Figure 1 Corporate bonds (flow) as a share of GDP, weighted average

Source: SDC Platinum. Note: based on corporate bonds issued between 1995 and 2004. These disappointing results are rationalized in two, not necessarily incompatible, ways.² First, institutions and policies remain weaker in emerging markets than advanced countries, and fixing this problem takes time. Second, emerging economics seeking to develop their bond markets have the handicap of small size. Market depth and liquidity require a certain minimum efficient scale, something that is particularly hard to achieve in small countries, a group into which many emerging markets fall.³

Fixing the first problem requires emerging markets to stay the course – to continue strengthening market infrastructure and regulation. To fix the second one, both East Asian and Latin American countries are seeking to encourage the participation of foreign investors in their local markets. They have relaxed the capital account restrictions that long served to discourage entry and exit, removed the withholding taxes on interest income that are cited by foreign investors as a significant source of uncertainty, and adopted other foreign-investor-friendly initiatives.

But, beyond these common elements, East Asian and Latin American countries are pursuing different approaches to encouraging foreign investor participation. The Latin American economies are proceeding on a country-by-country basis, each seeking to enhance the efficiency of market infrastructure, the predictability of transactions, and the transparency of regulation. Each country is, in effect, competing with its neighbors for foreign investors. East Asian countries, in contrast, are moving as a group, not just upgrading arrangements but also harmonizing institutions and regulation within the region, and creating not just national investment vehicles attractive to foreign investors but in addition regional investment vehicles like the Pan Asian Index Fund.⁴

In principle, both approaches have advantages. Latin America's decentralized approach allows countries with the desire to do so to move ahead quickly, while East Asia's collective approach applies peer pressure to those apt to lag behind. The Latin approach promises an immediate payoff to countries that succeed in implementing ambitious reforms but it threatens to run up against limits of minimum efficient scale. That is, even if Uruguay succeeds in creating one of the world's most efficient corporate bond markets and in encouraging high levels of foreign investor participation, the small size of the country, its firms and its market mean that it will still lack the liquidity and low costs of larger markets, given that bond issuance and trading are subject to strongly increasing returns to scale. For its part, the Asian approach is likely to be slower because consensus must precede reform. But it promises to deliver an integrated regional bond market and thus to relax the constraint of insufficient scale.

⁴ For more on the PAIF, see below.

² Both rationales feature in de la Torre, Gozzi and Schmukler (2006). While these authors are primarily concerned with equity rather than bond markets, there is considerable overlap between their perspective and ours.

³ Related to this is the fact that emerging markets are not first movers in the competition for global market share. There already exist deep and liquid markets in the leading global financial centers. From the point of view of liquidity and transactions costs, it is therefore more attractive for issuers and investors from emerging markets to transact on the major global markets than it is for foreign investors to transact on emerging markets. This makes it hard to build local markets when markets in the major financial centers that have already achieved minimum efficient scale are siphoning off potential business.

What are the lessons of experience to date? Since the development of bond markets has multiple dimensions, this question is unlikely to have a simple answer. Thus, East Asia looks better by standard measures of bond market capitalization and in terms of maturity structure of its debt. In contrast, Latin America looks better in terms of market liquidity and the participation of foreign investors. Do these contrasts reflect differences in the strategies that countries in the two regions are pursuing to develop their local markets? Our answer is yes, in part, but in addition these contrasts are influenced by historical considerations and extraneous factors (in the case of Mexico, for instance, proximity to the United States). And does the fact that East Asia is "ahead" in terms of bond market capitalization while Latin America is "ahead" in terms of market liquidity and foreign investor participation mean that these differences will widen further over time? This question is even harder to answer unequivocally. For what it is worth, we conjecture that the answer is no - that the legacies of history and extraneous factors can be overcome, with sufficient time. East Asia will catch up in terms of liquidity and foreign investor participation, while Latin America will close the gap in terms of maturity and market cap. At that point we will have a real test of the relative efficacy of the national and regional strategies.

Chapter 3. Rationales

The attention presently paid to bond market development grows out of the financial crises and credit instability experienced in both Latin America and Asia in the last 15 years. Crises in Mexico and Argentina in 1995 and 2002 and various East Asian countries 1997-8 demonstrated the danger of disruptions to the supply of bank credit when other sources of finance are underdeveloped. The short tenor of bank loans, itself a consequence of the tendency for banks to fund themselves with demandable debt, meant that even where financial institutions continued to operate, borrowers finding themselves unable to roll over their maturing obligations might experience a credit crunch. Access to bond markets came to be seen as an essential "spare tire."⁵ These episodes thus created a desire in both regions to foster bond markets as a way of opening up additional channels for debt finance.

Bond markets of sorts already existed in both regions, of course. But during the crises they provided little relief. The yield on new issues skyrocketed. Market access evaporated just when it was needed most. Low secondary market liquidity prevented investors from rebalancing their portfolios. And the illiquidity of the secondary market, which depressed retail demand, in turn limited the ability of potential issuers to place bonds on the primary market. Even in good times, the ability to issue on local markets was limited to large, well-known entities. This problem was even worse on foreign markets, where underwriters and investors were only interested in issues too large to be practical for all but national governments and major corporations. The appetite of foreign investors seemed to be limited to issues denominated in dollars or other hard currencies, a A basic question for the proponents of such initiatives, but one that is asked and answered too rarely, is why Asian and Latin American countries should seek to develop domestic bond markets when there already exist deep and liquid global bond markets to tap into. Why shouldn't issuers and investors from this region simply meet in New York or London, where there already exist deep, liquid and efficient markets on which to transact? Global markets already have sophisticated infrastructure, reliable clearing and settlement, and transparent regulation. Given that bond markets are characterized by increasing returns to scale, it is not clear why officials should seek to recreate them at the national level, where the requisite scale is lacking, rather than tapping into global markets that already possess the relevant advantages?

Some of the "obvious" answers to these questions are, in reality, not so obvious. It is said that global markets are fickle – that foreign investors, unlike their domestic counterparts, have a tendency to flee emerging markets at the first sign of trouble, as they did in the crises of the 1990s. Spikes in volatility reflecting increases in global risk aversion can close off global markets to emerging economies. Emerging economies need to develop their local markets, the implication follows, to ensure themselves of a steady source of finance.

fact that created further difficulties in bad times when the exchange rate had a tendency to depreciate. This hardly seemed like a functional spare tire at a time when market conditions seemed to demand a set of high-performance all-weather radials. The conclusion drawn by policy makers was that drastic action was needed to enhance the access of governments and, in particular, private corporations to bond finance.

⁵ In the words of Alan Greenspan (1999).

But it is not clear that these arguments hold water. Even if foreign investors are really more flighty than domestic investors (an assumption that can be questioned), it is not clear why getting them to buy emerging market bonds in Sao Paulo rather than New York should alter their response to shocks. Even if it is preferable that debt issued by resident enterprises be purchased by resident investors, it is not clear why it is preferable that the two meet to complete their transaction in Seoul rather than London. It is not clear why where they meet should have implications for the volatility of prices and transactions volumes. The problem in the 1990s was not that global markets were more volatile than domestic markets in any meaningful sense. Rather, it was that emerging economies ran current account deficits and depended on foreign capital inflows, and thus suffered destabilizing currentaccount reversals and sudden stops in periods of volatility, something to which they would have been equally susceptible if the net capital inflow took the form of foreign purchases on local markets.

Another popular answer to the question of why develop local markets is that currency mismatches, which are what render current-account reversals and sudden stops so disruptive, are more easily avoided when governments and corporations fund themselves locally. In particular, residents with local-currency-denominated liabilities have more appetite for local-currency-denominated investments.

This rationale is similarly subject to a number of objections. This argument that issuers are better able to place domestic-currency-denominated instruments on local markets because investors there have a natural appetite for such assets hardly applies to markets with participation by foreign investors, who presumably prefer assets denominated in and yielding returns in their own currency. And if resident investors and issuers wish to buy and sell local-currency bonds, it is not obvious that they cannot do so in New York or London. A number of Latin American governments have recently demonstrated the feasibility of issuing local-currency bonds abroad, as have a limited number of corporations.⁶ To be sure, it is not clear that this will remain feasible when liquidity is less abundant and the global demand for emerging market securities is less buoyant. And, even if it is, there will be start-up costs of creating a deep and liquid market in such issues. That is, other developing-country governments and corporations may not find it economical to follow until there is a critical mass of such bonds in the market. But there also exist start-up costs in developing local markets, as we will see below.

Another answer, popular in Asia, is that there is no reason why Asian countries should have to pay the United States and other advanced industrial countries for the privilege of recycling Asian savings. Because savings rates are high in Asia, the region has no need for imported capital. It seems perverse that it should have to go to New York to purchase financial intermediation services. Better would be for it to enhance the supply of such services within the region. But the reason that Asian issuers and investors go to global markets is that the latter, partly as the result of the advantages of scale, can provide the relevant financial intermediation services at low cost. Given the existence of strongly increasing returns to scale in finance and the observed trend toward consolidation, it is not clear that Asian countries

⁶ For details, see below.

can easily create a market capable of providing such services at comparable cost.⁷ National or regional pride may prompt efforts to instead create a market in such transactions at home, but this is

not an economic rationale.

The most compelling rationale for efforts to foster local bond markets is that local markets are better than global markets at meeting the credit needs of small and medium enterprises (SMEs). Global underwriters are only interested in relatively large issues, which are beyond the means of smaller borrowers. With a diverse population of investors, they rely on standardized information, such as a rating of the borrower by one of the major agencies. By definition, local markets are closer to local issuers, better positioning them to acquire and process the information needed to evaluate the credit worthiness of SMEs, which are less likely to be rated. Thus, a strategy of neglecting local market development in favor of relying on global markets threatens to limit the access to credit of small and medium-sized firms.8

We can shed some indirect light on this question by combining data from EMware on domestic bonds and Bondware on international bonds and comparing the average size of issues by emerging economies on the two markets. Our data cover the period 1990-2005. The median issue is US\$17 million on the domestic market but \$100 million on the international market. The comparable averages are \$47 million on the domestic market and \$150 million on the international market. If we limit our attention to the lowest decile as a way of focusing on the segment of the market relevant to

SMEs, the median and mean are both roughly \$1.2 million for domestic issues but \$8 million (median) and \$7.5 million (mean) for international issues. If we consider only the five per cent of smallest bonds in the distribution, the mean and median are \$0.5 million for domestic markets and \$5 million for international markets. All this is consistent with the notion that SMEs in a position to borrow and service only relatively small amounts of debt may be able to place issues on domestic markets even when they are locked out of international markets owing to their small scale. It is at least indirect evidence for the view that the development of domestic markets has advantages in terms of credit provision to SMEs. The presumption that local markets are better at marshalling information about SMEs that are least likely to be rated by the major agencies and about whom the least standardized information is publicly available, such information depreciating with distance, points in the same direction.

⁷ Thus, this rationale for attempting to develop Asian bond markets is akin to the classic argument for infant industry protection (global markets may be more efficient now, but with a bit of care and nourishment Asian markets can become equally efficient) and is therefore subject to the standard objections to this case for public-sector intervention. Given that this (finance) is a sector with strong first-mover advantages, these standard objections are stronger still.

⁸ To be sure, SMEs also rely on bank credit. But this reintroduces the problem that bank loans tend to be relatively short in term. SMEs would clearly be better off with a diversified set of financial liabilities – to bondholders, banks and others.

Chapter 4. The State of Play

The comparison of East Asian and Latin American bond markets can be framed in a number of ways. In Figure 2 we scale domestic markets by GDP. (All such figures are weighted averages that put heavier weights on larger countries.) By this measure, Emerging East Asia had modestly larger domestic markets than Latin America, in the neighborhood of 45 rather than 35 per cent of GDP.9 But where East Asia most clearly stands out is in the composition of those issues. Latin American local markets are heavily skewed toward government bonds; reflecting the region's history of budget deficits, government bonds as a share of GDP are much larger than in Emerging Asia. In Emerging Asia, in contrast, fully half the outstanding stock is made up of issues of financial institutions and corporations. The difference in the portions of

the two bars denoting domestic corporate bonds in 2004 is particularly striking. On this metric, Emerging East Asia is ahead in terms of developing the access of corporations that many would say is the ultimate objective of bond market development.

But things look different if we instead scale bond market capitalization by the size of the domestic financial system (M2 in Figure 3 or domestic credit in Figure 4). Now it is in Emerging East Asia where bond markets look small. This is consistent with the view that Asia is still excessively dependent on bank finance and that its bond markets are underdeveloped. In Latin America, evidently, it is financial sectors generally and not merely bond markets that are underdeveloped.



Figure 2 Domestic Bonds as a share of GDP, weighted average

Source: Borensztein, Eichengreen and Panizza (2006).

⁹ We also see how both regions are well ahead of Emerging Europe in the development of their local markets but still far behind the advanced countries. East Asia Includes: China, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. Latin America includes: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.





Source: Authors' calculation based on World Bank and BIS data



Figure 4 Domestic bonds as a share of domestic credit, simple average

Source: Authors' calculation based on World Bank and BIS data

This suggests that the growth of bond markets should be viewed as an organic part of the process of financial development, and that countries will develop deep and liquid markets in debt securities only once they have succeeded in reducing the larger obstacles to financial development. Indeed, there are good reasons to think that banking systems and bond markets develop together. This

observation is consistent with the notion that banking systems and bond markets have prerequisites in common. In both cases confidence and efficiency rest on a reasonable level of information disclosure. In turn, mandating disclosure may require regulation by a supervisory agency or securities commission.¹⁰ The development of both a bond market and a sound banking system requires strong creditor rights and an effective system of corporate governance so that small creditors can be assured of being dealt with fairly. In both cases, confidence may require macroeconomic stability so that depositors and investors do not fear that the value of their claims will be inflated away, and strong creditor rights so that they are confident that they will get a square deal in the event of a debt or banking crisis.

In addition, the fact that bond markets grow in tandem with the rest of the financial system suggests that banks and bond markets should be characterized as complements rather than substitutes. Banks provide underwriting services for prospective issuers, advising the issuer on the terms and timing of the offer. They provide bridge finance while the marketing of the bonds is still underway. They provide distribution channels for government bonds and form an important part of the primary dealer network. Their institutional support may also be conducive to secondarymarket liquidity.¹¹ While some of these services can be purchased from foreign banks, the costs of doing so can be substantial. And in the case of some functions, for example provision of a distribution network to local retail investors, foreign banks may lack the relevant institutional capacity. All this suggests that bond market development should not be seen as an alternative to the development of an efficient banking system but rather as part of a single organic process.¹²

For Emerging Asia, it is hard to argue that banking systems are too small or that the underdevelopment of banking systems is holding back local bond markets. But there is also the danger that an imperfectly competitive banking system, in which financial institutions use their incumbency and market power to slow securitization and disintermediation, can slow the growth of the bond market. It may do this by limiting access to the payment system and supporting the maintenance of regulations that increase the cost of underwriting and issuance.¹³ The situation on the ground appears to vary considerably. In Chile, the Latin American country with the most active corporate bond market, fully 26 investment banks

¹⁰ Given the incentive for potential issuers to otherwise utilize information strategically.

¹¹ Finally, banks owing to their relatively large size can be major issuers of domestic bonds themselves, although in practice this seems to be more the case in the advanced economies and in East Asia than in Latin America – see below. In addition, banks in many Latin American countries are large holders of government bonds, well beyond what is needed to meet statutory liquidity requirements.

¹² This is different from the "pecking order model" in which bank finance develops first because the information and contracting environments are highly imperfect. According to this model, banks in long-term relationships with their clients have a comparative advantage in bridging information gaps, enforcing repayment and reorganizing problem loans. Bond markets only develop later, once an economy has acquired strong institutions of information disclosure, corporate governance, insolvency reorganization, and so forth. Recent research (e.g. Rajan and Zingales 2003a) suggests that the sequencing of external finance, starting with banks and moving from bond markets and finally equity markets, in actual fact is not so clear cut. The precise form of this sequencing differs in different times and places. While not denying the special role of banks in the kind of imperfect information and contracting environment that is characteristic of many emerging markets, the perspective here suggests that the development of banking systems does not just precede the development of bond markets; rather, the two are complementary processes.

¹³ See Schinasi and Smith (1998), Rajan and Zingales (2003b) and Eichengreen and Leungnareumitchai (2004) for theory and evidence.

have been active in underwriting and helping to place domestic debt securities. But Chile is an exception to the rule. Whereas 20 different commercial and investment banks act as lead underwriters in Brazil, three of them account for 90 per cent of issues. In Mexico, similarly, three large banks dominate the underwriting and sell side of the market. In a number of East Asian countries, a handful of underwriters similarly dominate the market. IMF (2002) observes that banks in Thailand have been able to place barriers in the way of bond issuance in an attempt to limit competition from the bond market.

But market capitalization is not the only dimension along which bond markets can be compared. Figure 5 compares the maturity-related characteristics of corporate bonds in the two regions. It shows that both East Asia and Latin America have made progress in reducing the share of very short-term debt securities, but that East Asia remains ahead in this regard, presumably reflecting its longer history of price stability. What issue, firm and country characteristics are mainly responsible for this contrast is not clear. We therefore use data on individual corporate bonds issued on both domestic and foreign markets to analyze further the determinants of maturity. These regressions, reported in the appendix, suggest that better-capitalized firms issue longer-maturity bonds. In addition, firms located in countries with higher ratings issue bonds with longer maturities (two extra months for every notch). Firms from countries with larger domestic government bond markets tend to issue at longer maturities, as if government and corporate bond markets are complements from the point of view of market development. GDP per capita, a standard proxy for the general level of economic and financial development, is positively associated with corporate debt maturity. Interestingly, these country characteristics entirely account for observed maturity differences between Latin America and Asia; once they are included there is no remaining role for the regional dummy variable. This suggests that if Latin America succeeds in



Figure 5 Composition of Bonds Issued over 2000-2005 (Only Private non-financial)

Source: Borensztein, Eichengreen and Panizza (2006).

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Figure 6 EMTA Trading of Locally Issued Bonds as a Share of Outstanding Domestic Bonds

Source: Authors' calculations based on EMTA and BIS data

Note : Turnover is expressed as a ratio of trading of local instrument reported in the 2005 EMTA survey and the total amount of domestically issued bonds reported by BIS. Regional averages are unweighted.

strengthening macroeconomic policies and investor protections, it should be able to lengthen the maturity of its debt to match East Asia.

An area where Latin America appears to outstrip Asia is in terms of market liquidity. That turnover appears to be higher in Latin America than in East Asia is partly due to the exceptionally high recorded turnover rates for Mexico.¹⁴ But it is also striking that the major East Asian markets display low levels of liquidity, so measured, not just in comparison with Mexico and Argentina but a number of other emerging markets (Russia, Poland and South Africa) as well.¹⁵

We can use these data to explore the determinants of liquidity. Our regressions relate the turnover rate to per capita GDP as a measure of economic and financial development, GDP as a measure of country size, capitalization of the government bond market as a share of GDP, domestic credit over GDP as a proxy for financial development, and a country's distance from the United States as a measure of the investor base (on the assumption

¹⁴ Our estimates of turnover are computed from quarterly surveys conducted by EMTA and could conceivably reflect reporting bias (reporting EMTA members could be disproportionately active in Mexican markets). Our analysis suggests that EMTA members trade more Latin American paper than East Asian paper but that when trading Asian paper they trade a much larger share of locally-issued instruments.

¹⁵ This last contrast is not, however, evident in earlier data, like that for 2004. Thus, the EMTA surveys suggest that the relatively high levels of activity in Russian, Polish and South African markets is a relatively recent phenomenon, associated with the surge of interest in these high-yielding assets in 2005. Whether the pattern will endure is yet to be seen. Equally impressive is the wide variation in turnover rates in both regions. For every Mexico with high turnover rates, there is a Peru with strikingly low ones. In East Asia, similarly, for every Hong Kong and Singapore, where turnover rates are high, there is a Philippines and Korea, where they are strikingly low. Though we have no way of knowing for sure, we worry that there may be a sampling bias underlying these contrasts (if, for example, responses to EMTA's surveys come disproportionately from traders active in the Mexican market).

that active U.S.-based investors who lend liquidity to local markets have a preference for bonds issued by nearby countries, about whom information is relatively abundant). Pooling data for annual EMTA surveys covering the years 1997-2004, we have 24 countries and 188 observations.¹⁶ Three variables consistently show up as significant: GDP (with a positive sign), per capita GDP (with a positive sign), and distance (with the expected negative coefficient).¹⁷ This suggests that country characteristics, fundamentals and exogenous factors (proximity to major financial centers) may all matter for the development of liquidity.¹⁸ That said, the coefficient on distance (and a number of the other results) appear to be heavily driven by the observation for Mexico, which could conceivably be picking up other distinctive features of that market.

Two other aspects of economic structure, in addition to the development of financial systems, that often arise in comparisons of Latin America and Emerging Asia are the size of economies and national saving rates. Country and therefore market size is frequently cited as an obstacle to bond market development (see e.g. de la Torre, Gozzi and Schmukler 2006). Econometric studies of the determinants of local bond market capitalization relative to GDP such as Eichengreen and Leungnaruemitchai (2004) and Borensztein, Eichengreen and Panizza (2006a) support the hypothesis that this ratio is lower in small countries even after controlling for other determinants of market development. There are fixed costs of underwriting, publicizing and distributing a bond issue, making large issues more economical than small ones. Secondary market liquidity will be



Figure 7. Bond Markets and the Size of the Economy

Source: Authors' calculation based on World Bank and BIS data.

¹⁶ We have 24 observations in 1997, 2001, 2002, and 2003 and 23 observations in 1998, 1999, 2000 and 2004.

¹⁷ Standard errors are clustered by country.

¹⁸ Results are available from the authors on request.

greater where there exists a large number of bonds and bondholders and not just a handful of shares in the hands of a small number of investors.

Figures 7 and 8 do not suggest that considerations of minimum efficient scale obviously favor East Asia over Latin America, or vice versa. Within each region problems of small domestic market size are more binding for some countries than others. But the two figures do suggest that country size is a factor in bond market development. McCauley and Remolona (2000) argue on the basis of discussions with market participants that a market capitalization of at least \$100 billion is required for a deep and liquid bond market; following up on this, Gytelberg, Ma and Remolona (2006) suggest that a somewhat higher figure is appropriate for corporate bonds, given their greater heterogeneity. If we take \$150 billion as the relevant threshold, then only Korea and – for what it is worth – China qualify in Emerging Asia.¹⁹ No country in Latin America and the Caribbean comes close. Mexico is the largest issuer with a total of \$33 billion in corporate bonds as of the end of 2005.²⁰

Figure 8. Corporate Bond Markets and the Size of the Economy



Source: Authors' calculation based on World Bank and BIS data.

¹⁹ Australia and Japan qualify as well, but they are not emerging Asian economies.

²⁰ Admittedly, just looking at market size may be too simplistic, especially when one is concerned with the development of the corporate bond market. In that context the constraint may in fact be firm size, small firms lacking the resources to defray the fixed costs of a bond flotation (and investors demanding higher – and sometimes prohibitive – spreads as compensation for small issue size and the consequent lack of liquidity). Borensztein, Eichengreen and Panizza (2006a) look at country size and firm size in tandem; they find at least weak evidence that countries with more large firms (as well as larger economies) have bigger bond markets. To measure firm size they first compute the assets of the largest 100 firms as a share of GDP and regress this on GDP (as a way of acknowledging the fact that, by construction, this ratio is negatively correlated with country size). They then use the residual from this regression as a measure of adjusted firm size.

One way of attempting to relax the constraint of small market size is by encouraging the participation of foreign issuers and investors. Hong Kong and Singapore have gone a significant way down this road.²¹ For Hong Kong, proximity to the Chinese mainland is an advantage; as of late 2005, some 20 Chinese enterprises had issued and listed bonds in Hong Kong.²² The country has invested in financial infrastructure and imposes no restrictions on foreign issuance or bond purchases. In addition, the Hong Kong market is well equipped with liquid hedging instruments, which will be increasingly important as the renminbi-dollar exchange rate begins to move. The foreign exchange market is deep and liquid, and there are no restrictions on the onshore derivative market. Singapore is another country where strong market infrastructure makes foreign issuance attractive. Nonresidents have been permitted to tap the Singapore dollar bond market since August 1998. The government sought to encourage this by granting tax exemptions for fee income earned by financial institutions arranging debt security issues in Singapore. Another attraction of issuing in Singapore has been the low required yields, reflecting ample national savings.

But as late as 2002 only 8 per cent of corporate bond issues in Singapore were by foreign entities. The main constraint appears to be the illiquidity of the swap market, reflecting the requirement that dealers in swaps not hold open positions, which makes it hard to hedge out currency risk (Jin and Loh 2002). Recently the government has sought to enhance the liquidity of the swap market by freeing banks from the requirement to set aside reserves against Singapore dollars received from swaps with nonbanks and by opening up the swap market to offshore banks and securities dealers. There is some sign of this having the desired effect: local currency corporate bonds issued by nonresidents now account for more than a third of all such issuance.

In contrast, in no Latin American country does foreign issuance begin to approach this level. The main foreign issuers remain the World Bank and Interamerican Development Bank, which enjoy favorable access to currency swap markets and favorable funding costs and can justify local currency borrowing as a contribution to local market development.

Asia's high saving rates are an advantage for bond market development. Higher levels of savings mean more funds potentially available for investment in debt securities. Figures 9 and 10 – especially Figure 9 for total saving – lend some support to this view.²³ The opposite view is sometimes heard; thus, Mukherjee (2006) argues that high Asian savings rates discourage bond market development by giving banks ample deposits to lend. But the figures provide little support for this hypothesis.

Another measure for fostering bond markets is to promote the establishment and activities of institutional investors – pension funds, mutual

²¹ Along with Australia and New Zealand.

²² See Ma (2005).

²³ The fact that this relationship is stronger for total saving than private saving is a hint that chronic government budget deficits (public dissaving, in other words) are not especially good for bond market development, the advantages of public issuance for the creation of a liquid benchmark asset notwithstanding. In addition, we used BIS data to run regressions of the determinants of bond market capitalization, as in Eichengreen and Luengnaruemitchai (2005), adding private savings as an explanatory variable. In these regressions private savings are important as a determinant of the demand for both corporate and government bonds (but less so as a determinant of the demand for bonds issued by financial institutions, perhaps reflecting the greater ability of banks to fund themselves through deposits in high-saving countries).

Figure 9. Total Savings and Bond Market Capitalization



Source: Authors' calculation based on World Bank and BIS data.

Figure 10. Private Saving and Bond Market Capitalization



Source: Authors' calculation based on World Bank and BIS data.

funds, insurance companies and banks. These entities have a natural appetite for bonds and are convenient mechanisms for channeling savings toward the bond market. Mutual funds enable individual investors to hold claims on a diversified bond portfolio. Banks demand government bonds because they are relatively liquid and to satisfy prudential requirements. Pension funds and insurance companies have long-term liabilities denominated in domestic currency; it therefore makes sense for them to match these with longterm domestic-currency investments. We can see this in Figures 11 and 12, where the role of institutional investors in the two regions is

Figure 11. Pension Funds and Corporate Bond Markets



Source: Authors' calculation based on World Bank, BIS, International Association of Pension Funds Supervisory Organisms (AIOS), and International Federation of Pension Funds Administrators (FIAP) data.

Figure 12. Institutional Investors and Corporate Bond Markets



Source: Authors' calculation based on data from BIS, Dalla (2003), and Inter-American Development Bank (2006)

compared. While the data are fragmentary, they suggest a positive correlation between assets of pension funds and institutional investors (defined as pension funds plus insurance companies) and the size of the corporate bond market.²⁴

Pension and provident funds are the leading investors in debt securities in Singapore, Malaysia and Vietnam. In four representative Emerging Asian economies, the total net assets of mutual funds are 15 per cent of GDP, comparable to the figure for five Latin American countries.²⁵ And the assets under management by insurance companies approach and in some cases (like Thailand) exceed those under management by mutual funds. Pension funds hold a very significant fraction of government bonds in countries like Chile, Colombia, and Mexico, where the reform of pension systems was relatively early to get underway. In Brazil, the mutual fund industry is the most important holder of government securities (along with the banking system and the state development bank, BNDES), although it focuses mainly on the short end of the market. The role of life and other insurance companies is smaller in Latin America than in Asia - with the exception of Chile, where insurance company assets under management approach 20 per cent of GDP. In Mexico and Chile, institutional investors hold upward of 90 per cent of corporate bonds; in Peru they hold more than 70 per cent.²⁶ In Asian countries with higher saving rates - in Thailand for example - retail investors who purchase bonds directly through bank branches play a larger role in the local bond market.

Pension funds and insurance companies, in particular, follow buy-and-hold strategies. Liquidity, at least as measured by turnover, tends to be less in markets dominated by a few large institutional investors. Less liquidity makes participation even less attractive for retail investors. And the lower levels of demand that result raise required rates of return and placement costs. The dominance of institutional investors and relatively low levels of foreign participation may thus explain why turnover rates and other measures of liquidity are lower in East Asia than Latin America.

²⁶ See IMF (2005b).

²⁴ They also show that Latin American countries have smaller markets than predicted by the assets under management by institutional investors – that is, they tend to be below the regression line. A possible interpretation is that other (non-institutional) investors are even less important in Latin America than East Asia.

²⁵ Data are from IMF (2005).

Chapter 5. Some Summary Comparisons

A simple way of comparing the role of these and other determinants of bond market development in the two regions is to use aggregate data for a cross section of countries and series of years to estimate the determinants of bond market capitalization. Exercises like this have been undertaken previously by Eichengreen and Luengnaruemitchai (2005).²⁷ We have extended their analysis for purposes of this study. We use annual data from the BIS to estimate a model by generalized least squares with corrections for heteroskedasticity and panel-specific autocorrelation. Relative to Eichengreen and Luengnaruemitchai, we have data for three additional years (2002-4) and as many as 14 additional countries (up to 500 additional observations). In addition we focus more closely on the determinants of corporate bond market development (as opposed to aggregating government and corporate issues).28

Tables 1 and 2 summarize the results. A range of variables, from country size (as measured by aggregate GDP) to the general level of economic development (proxied by GDP per capita), the development of the banking system (proxied by bank credit as a share of GDP), the level of private savings, openness, and the historical inheritance (proxied by the national origin of the legal system,

geographical variables and so forth) all affect bond market development in important ways.

These results enable us to identify a handful of factors importantly associated with the development of Latin American and East Asian bond markets. The analysis shows that a limited number of observable policy variables and country characteristics explain some 70 percent of the difference between in bond market capitalization between Latin America and the industrial countries. This same handful of variables also explains 90 per cent of the difference in the development of the market in the bonds of corporations and financial institutions between the two regions.

Our 22 country characteristics explain 80 percent of the difference in the development of corporate bond markets between Latin America and East Asia.²⁹ The development of financial systems (as proxied by domestic credit as a share of GDP) explains about a one third of the difference, while the general level of economic development (as proxied by GDP per capita) explains a quarter. Historical factors such as the origin of the legal code explain another 12 percent and macroeconomic stability (as proxied by the volatility of the interest rate) explain another quarter of the difference. Asia's higher private savings explain

²⁷ See also Braun and Briones (2006).

²⁸ East Asia Includes: China, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. Latin America includes: Argentina, Brazil, Chile, Colombia, Mexico, and Peru.

²⁹ And other aspects of the institutional inheritance proxied for here by latitude.

²⁹ Recall that here the development of the financial system is proxied for by bank credit to the private sector.

²⁹ Again, "corporate" as used in this sentence should be understood to denote the bonds of both nonfinancial and financial corporations.

²⁹ Again the clarification in the previous footnote applies.

another 5 per cent, while its greater trade openness explains another 15 per cent. The effect of institutional quality is there, but because of the extent of within-region heterogeneity its effects are relatively small. On the one hand investor protection is stronger in East Asia, and this explains 3 percent for the difference between regions. On the other hand, contract enforcement is cheaper on average in Latin America, due mainly to very high costs in Indonesia (Table 3).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GBOND/GDP	PBOND/GDP	CBOND/GDP	FBOND/GDP	GBOND/GDP	PBOND/GDP	CBOND/GDP	FBOND/GDP
GDP	6.031	9.074	1.037	7.118	-1.740	5.511	1.038	3.893
	(6.04)***	(6.74)***	(2.05)**	(6.64)***	(0.71)	(4.25)***	(2.11)**	(4.73)***
GDP2	-0.470	0.040	0.032	-0.032	0.507	-0.663	-0.225	-0.321
	(5.14)***	(0.24)	(0.60)	(0.26)	(1.28)	(3.22)***	(2.88)***	(2.32)**
GDP_PC	1.192	1.626	0.499	1.499	2.389	1.527	1.125	-0.214
	(2.39)**	(4.24)***	(3.37)***	(5.26)***	(2.50)**	(3.27)***	(5.83)***	(1.00)
GDP_PC2	-0.017	-0.014	-0.004	-0.011	-0.117	-0.075	-0.056	0.015
	(1.70)*	(1.83)*	(1.47)	(1.70)*	(4.03)***	(4.16)***	(7.85)***	(2.02)**
EXP	0.114	0.188	0.038	0.135	0.173	0.163	0.060	0.041
	(2.78)***	(6.14)***	(3.12)***	(5.81)***	(2.88)***	(5.52)***	(4.48)***	(2.93)***
PRSAV	-6.543	5.657	2.121	2.274	-22.802	1.145	1.010	2.936
	(0.94)	(1.40)	(1.43)	(0.68)	(2.04)**	(0.26)	(0.50)	(1.47)
FIX	-0.415	-0.628	0.096	-0.502	2.101	0.665	0.105	0.145
	(0.74)	(1.68)*	(0.73)	(1.58)	(2.00)**	(1.29)	(0.45)	(0.63)
INTER	1.273	0.103	0.028	0.139	1.471	0.142	0.024	0.064
	(2.26)**	(0.36)	(0.24)	(0.57)	(1.90)*	(0.45)	(0.16)	(0.41)
IRATE	-0.169	-0.006	-0.007	-0.014	-0.103	0.011	0.010	-0.005
	(4.54)***	(0.41)	(0.87)	(1.11)	(2.37)**	(0.72)	(1.36)	(0.67)
SD_IRATE	-0.617	0.185	0.121	0.269	-0.837	-0.155	0.048	-0.185
	(5.77)***	(2.51)**	(3.20)***	(5.49)***	(4.84)***	(2.19)**	(1.70)*	(3.98)***
DOMCR	-3.061	10.032	0.014	7.738	-2.903	4.053	2.860	1.191
	(0.94)	(3.37)***	(0.01)	(3.14)***	(0.36)	(1.33)	(2.11)**	(0.82)
DOMCR2	-0.055	-3.251	0.180	-2.449	-2.935	-0.789	-0.889	-0.390
	(0.05)	(2.69)***	(0.48)	(2.50)**	(0.77)	(0.59)	(1.45)	(0.59)
CONC	-8.088	2.870	1.029	0.893	21.910	7.509	0.899	0.280
	(2.40)**	(1.10)	(1.07)	(0.40)	(2.82)***	(2.08)**	(0.62)	(0.16)
SPREAD	0.096	-0.143	0.082	-0.150	0.032	0.321	0.109	0.166
	(1.18)	(1.95)*	(3.69)***	(2.34)**	(0.11)	(1.14)	(0.99)	(0.89)
KAPCON	0.358	0.102	-0.067	-0.036	-0.124	0.037	0.121	-0.142
	(2.45)**	(1.03)	(1.46)	(0.43)	(0.43)	(0.34)	(2.19)**	(2.35)**
PUBLICDEBT	0.420	0.012	-0.003	0.022	0.209	-0.001	-0.001	-0.000
	(21.72)***	(0.99)	(0.60)	(2.25)**	(7.00)***	(0.14)	(0.20)	(0.05)
DEBT_KCON	0.044	0.001	-0.000	0.005	0.045	-0.004	-0.001	0.001
	(10.99)***	(0.52)	(0.34)	(2.63)***	(5.07)***	(1.34)	(1.00)	(0.78)

Table 1: The D	eterminant	ts of the Siz	ze Governm	nent and Pr	ivate Bond	Markets Re	lative to GI	OP (cont'd)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GBOND/GDP	PBOND/GDP	CBOND/GDP	FBOND/GDP	GBOND/GDP	PBOND/GDP	CBOND/GDP	FBOND/GDP
YR_PR	0.998	0.768	0.233	0.658	0.639	0.682	0.189	0.400
	(4.39)***	(6.35)***	(2.91)***	(5.99)***	(2.28)**	(6.00)***	(3.11)***	(5.90)***
RULEOFLAW	0.440	0.462	0.079	0.396	0.923	-0.233	0.088	0.045
	(0.98)	(1.78)*	(0.81)	(1.82)*	(1.38)	(0.79)	(0.74)	(0.32)
INVPROT	2.683	2.190	0.225	-0.612	3.663	3.255	0.642	2.255
	(4.32)***	(4.13)***	(0.96)	(1.36)	(3.26)***	(6.02)***	(2.59)***	(8.17)***
CONTR_COST	-0.287	-0.162	-0.112	-0.050	-0.377	-0.078	-0.021	-0.074
	(8.59)***	(6.40)***	(4.65)***	(2.44)**	(8.48)***	(3.59)***	(2.10)**	(5.40)***
FRENCHLAW	22.897	18.005	0.960	9.431	37.693	8.255	-1.498	8.446
	(7.38)***	(7.42)***	(1.21)	(4.34)***	(7.47)***	(3.84)***	(1.59)	(6.61)***
SOCLAW	3.200	-12.516	-2.735	1.104	16.920	2.996	-3.543	7.643
	(0.75)	(1.39)	(1.95)*	(0.40)	(2.88)***	(1.13)	(3.42)***	(4.52)***
GERSCANLAW	3.323	31.547	3.104	16.809	3.868	37.819	10.731	23.813
	(1.05)	(14.27)***	(3.09)***	(8.26)***	(0.63)	(12.04)***	(4.57)***	(15.33)***
LATITUDE	-13.811	-22.489	-2.497	-24.493	-11.238	-6.520	2.948	-16.726
	(1.81)*	(3.60)***	(1.23)	(4.81)***	(0.73)	(0.96)	(1.08)	(3.90)***
EAP	-2.846	10.691	9.120	-0.192	-26.465	-1.511	2.764	-3.412
	(0.59)	(4.09)***	(6.06)***	(0.09)	(5.21)***	(0.81)	(3.49)***	(3.34)***
LAC	-18.520	-5.281	1.555	-6.332	-50.892	-5.252	-1.179	-3.214
	(3.98)***	(2.07)**	(1.28)	(2.61)***	(6.99)***	(1.78)*	(0.91)	(2.58)**
ECA	5.036	21.265	2.206	-0.101	-29.595	-4.907	-2.408	-1.660
	(1.05)	(2.37)**	(1.43)	(0.04)	(3.76)***	(1.71)*	(1.86)*	(1.34)
OTH	20.512	13.806	6.021	8.790				
	(3.75)***	(4.64)***	(4.14)***	(5.22)***				
Constant	-10.051	-37.926	-5.627	-13.164	-0.112	-27.858	-8.987	-8.023
	(1.16)	(6.47)***	(2.15)**	(2.79)***	(0.01)	(5.26)***	(3.72)***	(2.76)***
Observations	491	479	483	476	222	222	214	222
Number of cc	43	43	43	42	21	21	21	21
F test: EAP=LAC	17.53	38.36	31.51	7.11	22.45	2.84	13.98	0.04
Prob > F	0.000	0.000	0.000	0.008	0.000	0.092	0.000	0.850

Absolute value of z statistics in parentheses. Estimation method: Generalized Least Squares with correction for heteroskedasticity and panel-specific autocorrelation. All regressions include year-fixed effects. * significant at 10%; ** significant at 5%; *** significant at 1%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GBOND/CR	PBOND/CR	CBOND/CR	FBOND/CR	GBOND/CR	PBOND/CR	CBOND/CR	FBOND/CR
GDP	6.540	7.963	0.264	3.977	-8.798	6.235	0.924	3.537
0.2.1	(3.90)***	(7.10)***	(0.65)	(5.08)***	(1.85)*	(4.46)***	(1.73)*	(3.42)***
GDP2	-0.468	-0.810	0.017	-0.131	2.074	-0.754	-0.148	-0.348
	(3.11)***	(3.97)***	(0.41)	(1.40)	(3.04)***	(3.24)***	(1.69)*	(1.98)**
GDP PC	-1.507	2.290	0.824	1.378	-1.610	1.618	1.249	-0.016
-	(2.13)**	(6.88)***	(5.72)***	(6.00)***	(0.96)	(4.44)***	(7.13)***	(0.06)
GDP_PC2	0.026	-0.033	-0.010	-0.012	0.009	-0.084	-0.058	0.002
	(1.73)*	(4.52)***	(3.60)***	(2.44)**	(0.17)	(6.81)***	(9.83)***	(0.22)
EXP	0.153	0.203	0.028	0.086	-0.155	0.133	0.044	0.031
	(2.63)***	(5.55)***	(2.20)**	(4.43)***	(1.88)*	(5.42)***	(3.13)***	(1.63)
PRSAV	-21.599	1.949	2.782	3.225	-37.455	2.532	3.575	6.250
	(1.96)*	(0.40)	(1.68)*	(0.98)	(2.18)**	(0.61)	(1.73)*	(2.14)**
FIX	0.121	-0.627	0.240	-0.434	2.143	0.367	0.022	0.112
	(0.14)	(1.26)	(1.55)	(1.46)	(1.37)	(0.77)	(0.10)	(0.37)
INTER	2.347	0.367	0.152	0.158	4.136	0.501	0.201	0.300
	(2.74)***	(1.04)	(1.03)	(0.66)	(3.39)***	(1.71)*	(1.35)	(1.39)
IRATE	-0.211	-0.031	-0.019	-0.035	-0.112	-0.013	-0.009	-0.031
	(3.14)***	(1.41)	(2.14)**	(3.00)***	(1.63)	(0.90)	(1.25)	(2.88)***
SD_IRATE	-1.783	0.411	0.097	0.264	-3.249	-0.311	0.021	-0.216
	(8.69)***	(3.70)***	(1.93)*	(5.03)***	(10.11)***	(4.29)***	(0.66)	(3.88)***
DOMCR	-88.447	-4.119	-6.110	6.078	-112.036	-3.339	-0.747	-2.959
	(16.30)***	(1.35)	(7.03)***	(2.83)***	(8.55)***	(1.21)	(0.53)	(1.41)
DOMCR2	16.940	-2.689	1.173	-3.744	22.164	0.021	0.038	0.611
	(9.10)***	(2.53)**	(4.34)***	(4.27)***	(4.09)***	(0.02)	(0.06)	(0.65)
CONC	-11.272	2.455	2.351	1.558	46.972	10.043	3.744	1.205
	(2.14)**	(0.82)	(2.30)**	(0.83)	(3.90)***	(3.01)***	(2.48)**	(0.50)
SPREAD	-0.319	-0.097	0.010	-0.053	0.068	1.040	0.100	0.174
	(2.64)***	(1.61)	(0.68)	(1.20)	(0.16)	(2.77)***	(0.58)	(0.86)
KAPCON	0.341	-0.208	-0.048	-0.155	-0.131	0.244	0.293	-0.021
	(1.53)	(1.64)	(1.01)	(2.12)**	(0.25)	(2.34)**	(4.42)***	(0.26)
PUBLICDEBT	0.381	0.058	0.011	0.028	0.192	0.021	0.007	0.006
	(12.60)***	(4.18)***	(2.05)**	(2.91)***	(5.21)***	(2.13)**	(1.29)	(0.85)
DEBT_KCON	0.032	0.009	0.000	0.007	0.020	0.003	-0.001	0.001
	(5.57)***	(3.12)***	(0.28)	(3.58)***	(1.69)*	(1.07)	(0.51)	(0.70)
YR_PR	2.359	1.058	0.414	0.671	0.887	0.972	0.338	0.680
	(5.64)***	(7.53)***	(4.31)***	(7.43)***	(1.64)	(9.93)***	(5.24)***	(7.41)***
RULEOFLAW	-0.091	0.868	0.325	0.505	0.957	0.683	0.411	0.332
	(0.14)	(2.69)***	(2.98)***	(2.51)**	(0.96)	(2.48)**	(3.11)***	(1.67)*
INVPROT	1.441	1.040	0.166	0.945	10.429	3.703	0.370	2.483
	(1.34)	(1.64)	(0.78)	(2.69)***	(4.36)***	(7.76)***	(1.53)	(7.54)***

able 2: The Determinants of Government and Private Bond Markets relative to Domestic Credit (contrd)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
	GBOND/CR	PBOND/CR	CBOND/CR	FBOND/CR	GBOND/CR	PBOND/CR	CBOND/CR	FBOND/CR		
CONTR_COST	-0.632	-0.152	-0.082	-0.069	-1.072	-0.113	-0.025	-0.093		
	(11.23)***	(5.29)***	(6.19)***	(4.40)***	(11.89)***	(5.30)***	(1.69)*	(5.24)***		
FRENCHLAW	15.682	14.475	0.507	12.365	67.341	10.435	-1.172	9.470		
	(3.33)***	(5.46)***	(0.66)	(8.49)***	(6.63)***	(5.39)***	(1.13)	(5.84)***		
SOCLAW	-22.549	-1.158	-2.966	4.742	13.081	5.156	-3.896	9.349		
	(0.89)	(0.36)	(2.29)**	(2.48)**	(1.01)	(1.91)*	(3.15)***	(4.11)***		
GERSCANLAW	0.051	27.886	1.418	19.752	-3.071	55.035	0.000	31.810		
	(0.01)	(10.50)***	(1.74)*	(9.46)***	(0.25)	(19.69)***	(.)	(13.10)***		
LATITUDE	-11.260	2.078	-4.050	-10.331	-20.030	-18.358	1.196	-20.389		
	(1.06)	(0.30)	(1.86)*	(2.28)**	(0.59)	(2.56)**	(0.37)	(3.49)***		
EAP	-20.094	21.476	10.770	4.173	-2.294	-2.067	2.337	-3.810		
	(3.09)***	(7.49)***	(5.85)***	(1.77)*	(0.25)	(1.17)	(2.71)***	(2.62)***		
LAC	-51.113	-1.817	3.370	-4.387	-58.293	-1.626	-0.310	-3.240		
	(7.10)***	(0.67)	(2.48)**	(2.31)**	(5.18)***	(0.67)	(0.25)	(1.86)*		
ECA	10.891	-3.360	2.865	-2.628	16.284	-3.082	-1.755	-2.683		
	(0.43)	(0.97)	(1.83)*	(1.17)	(1.12)	(1.23)	(1.36)	(1.43)		
OTH	5.532	20.581	8.799	7.558						
	(0.81)	(6.27)***	(6.33)***	(3.76)***						
Constant	120.853	-36.258	-4.843	-23.310	64.501	-26.725	-7.888	-7.210		
	(10.12)***	(5.24)***	(1.95)*	(5.20)***	(2.67)***	(5.48)***	(3.04)***	(1.79)*		
Observations	491	473	469	469	222	222	203	222		
Number of cc	43	42	42	42	21	21	20	21		
F test: EAP=LAC	18.96	58.87	25.58	16.44	25.63	0.05	5.31	0.16		
Prob > F	0.000	0.000	0.000	0.000	0.000	0.817	0.021	0.689		

_ ...

Absolute value of z statistics in parentheses. Estimation method: Generalized Least Squares with correction for heteroskedasticity and panel-specific autocorrelation. All regressions include year-fixed effects. * significant at 10%; ** significant at 5%; *** significant at 1%

					Time and	l cost to
	Access	to Credit	Shareholde	r Protection	enforce a	contract
	Creditor	Creditor		Investor	Number	
	Rights	Information	Disclosure	Protection	of days	Cost
Argentina	3	6	7	5	520	15
Bolivia	3	4	1	4	591	11
Brazil	2	5	5	5	546	16
Chile	4	6	8	6	305	10
Colombia	4	4	7	6	363	19
Costa Rica	4	6	2	3	550	41
Dominican Republic	4	5	3	4	580	35
Ecuador	3	4	1	4	388	15
Jamaica	6	0	3	5	202	28
Mexico	2	6	6	4	421	20
Nicaragua	4	4	4	5	155	16
Panama	6	6	3	5	355	37
Peru	2	6	7	6	381	35
Paraguay	3	6	6	6	285	30
El Salvador	5	5	6	5	275	13
Uruguay	4	5	3	5	620	26
Venezuela	4	4	3	2	445	29
Average LAC	4	5	4	5	411	23
	0	0	10	4	0.44	00
China	2	3	10	4	241	26
Hong Kong, China	10	5	10	9	211	13
Indonesia	5	3	8	5	570	127
Korea	6	5	1	5	75	5
Malaysia	8	6	10	9	300	20
Philippines	3	2	1	3	360	51
Singapore	10	4	10	9	69	9
Thailand	5	4	10	6	390	13
Iaiwan, China	4	5	8	5	210	8
Average EAP	6	4	8	6	270	30
Average IND	6	5	6	6	182	11

Table 3. Creditor Rights, Investor Protection and Contract Enforcement, 2005

Source: Doing Business

Table 4. Total Issuance Costs as Percent of Issue Size (for issues of US\$100 million)

	Brazil	Chile	Mexico	Uruguay*
Domestic Debt	2.39%	2.74%	1.18%	2.88%
Domestic Equity	4.39%	1.62	3.93%	
International Debt	2.22%	2.22%	2.22%	

Source: Zervos (2004) and De Brun et al. (2006)

* Denotes cost for issuing a bond with a value of US\$50 million.

Chapter 6. Policy Initiatives

It is useful to distinguish five categories of policy initiatives for developing financial markets in Latin America and East Asia: efforts to strengthen financial and legal systems generally, investments in building dedicated market infrastructure, steps to encourage the participation of institutional investors, measures to encourage the participation of foreign investors, and finally extra-national initiatives - in Asia the effort to build and integrate bond markets at the regional level, and in Latin America the effort to enhance the terms of access of borrowers to international financial markets. Where Latin America or East Asia are taking similar approaches, we ask which region has made more progress, and what accounts for the difference. Interestingly, it turns out that there is more variation within regions than between them, in terms of the extent of progress and the state of the markets.

To anticipate, our analysis suggests that East Asian countries have made more progress in their efforts to strengthen their legal and financial systems and in building secondary-market infrastructure, while Latin America has made more progress in fostering the participation of foreign investors, which is key for enhancing market turnover and liquidity.

6.1 Strengthening Legal and Financial Systems

Interamerican Development Bank (2005) has compared the strength of creditor rights using an index designed to capture legal protection for

creditors and the reliability of law enforcement. We do something similar in Table 3 and Figures 13-14, where we show how countries rank in terms of standard measures of investor protection and creditor rights. While there are wide variations in these measures of legal infrastructure, the overall impression is that Latin America fares poorly in terms of investor and creditor protection. In both cases, the highest ranked Latin American country (Chile) has values that are lower than the Asian average. Here, interestingly, Emerging Asia surpasses even the average for the advanced economies in the strength of creditor rights. Other measures of the efficiency of legal systems also favor East Asia, if less decisively. The number of days needed to resolve a contract dispute is higher in Mexico, Argentina and Brazil than in Korea, Malaysia and Thailand. (Chile compares favorably with Malaysia and Thailand but not with Korea on these grounds.) The cost in terms of court fees, attorney fees and payments to accountants and advisors is again lower in Korea and unusually high in Indonesia but otherwise little different across these countries.³⁰ (See Table 3.)

The principal East Asian countries again do somewhat better in terms of measures of financial transparency. Korea, Malaysia and Thailand rank higher than Brazil, Chile, Colombia and Mexico in terms of their adherence to international accounting standards.³¹ Except for Mexico and Peru, every Latin American country for which the International Accounting Standards Committee provides this

³⁰ IMF (2005a), Table 4.3.

³¹ Table 4.4. In contrast, there is little difference in adherence to the IMF's Special Data Dissemination Standard; the principal countries in both regions have both subscribed and met SDDS specification in recent years.



Figure 14 Effective Creditors' Rights



Source: Effective Creditor Rights are equal to Creditor Rights *Rule of Law. Creditor rights are from La Porta et al. (1998) Rule of Law (rescaled to the 0-1 range) is from Kaufman et al. (2003).

information ranks behind every Asian country for which comparable data are available. (See Figure 15.)

Our regressions on BIS data confirm that institutional quality (as measured by, inter alia, rule of law) is important for bond market capitalization. Indeed, a difference-in-differences analysis (asking whether corporate or government bond markets grow faster when there has been an improvement in this measure of institutional quality) suggests that such considerations are particularly important for private bonds.³²

6.2 Investment in Dedicated Market Infrastructure

The two regions have come a long way in the development of the relevant market infrastructure. By 2002, 88 per cent of Latin American countries had created a supervisory authority. 91 per cent established custody arrangements. 92 per cent had invested in a clearing and settlement process. All countries in the region had put modern trading systems in place.³³ The same is true of all the middle- and high income countries of East Asia, but not also of their lower-income counterparts.³⁴

Figure 15 Compliance of Latin America and East Asian Countries with International Accounting Standards



Source: International Accounting Standards Committee (www.isb.org).

³² For details see Borensztein, Eichengreen and Panizza (2006a).

³³ Data from de la Torre and Schmukler (2004).

³⁴ The Philippines, which has a nascent corporate bond market (roughly \$150 billion Philippine pesos, or \$3 billion U.S., as of end 2005) is probably where to draw the line; not all bond issues must be registered with the Securities and Exchange Commission, trading is over the counter or bilateral, and the bankruptcy law is criticized as outdated. Only now are the authorities beginning to mandate delivery of securities to the purchaser or third-party custodians, accreditation of third-party custodians, and establishment of a fixed income exchange. See Espenilla (2006).

Malaysia, which has the largest corporate bond market in the region as a share of GDP, is exceptional for the ambitious steps taken to develop market infrastructure in the last ten years.³⁵

But while there has been progress in both regions, several Asian countries have taken exceptional steps to enhance the transparency of the secondary market. Malaysia has established a Bond Information Dissemination System on which dealers are required to enter price and volume information within ten minutes of a trade, which then immediately becomes available to other screen subscribers. In March 2006 it extended access to its on-line data base to a wider group of investors. The Thai Bond Market Association requires traders to report OTC trades within 3 minutes and distributes their information to members four times daily. The Korea Security Dealers Association requires dealers to report their transactions within 15 minutes via its information distribution system and posts these data to its website on the same day.³⁶ Indonesia now plans to move in the same direction.37 It plans to establish an autonomous bond pricing agency that will not also be involved in trading to set reference prices for trading while avoiding conflicts of interest. We are not aware of similarly ambitious initiatives to disseminate information on the secondary market in Latin America.

Both regions have rating agencies for evaluating issues in local currency by smaller entities that may not be able to attract the attention of the major international rating agencies. In East Asia, the global rating agencies rate foreign currency issues, while multiple local agencies to rate local currency issues exist in China, Indonesia, Korea and Malaysia, and there is at least one local rating agency in the Philippines and Thailand.³⁸ Fitch has the largest presence in Latin America, with subsidiaries and representatives in Argentina, Bolivia, Brazil, Chile, Costa Rica, El Salvador, Mexico, Uruguay, Venezuela and affiliates and joint ventures in Colombia, Ecuador and Peru. Standard and Poor's has offices in Argentina, Brazil and Mexico but also rates large corporations in other Latin American countries. Moody's has a partnership with a Chilean rating agency (Humphreys). And Colombia, Chile, Ecuador, Panama and Peru in addition have independent rating agencies, which specialize in rating both small issues and microfinance products. In both regions, then, multiple rating agencies compete in the market, although they provide better coverage of large firms than small ones and dollar securities than local currency issues.

³⁵ Malaysia is also pursuing the strategy of attempting to become the Islamic financial center for the region – a different way of encouraging foreign participation than being pursued by the other countries considered here. The government has started issuing short-term Islamic Treasury Bills and longer-term Islamic Bonds with a maturity of ten years. For details, see bin Ibrahim and Wong (2006).

³⁶ Some countries especially concerned to encourage investor and issuer participation, like Hong Kong, have gone even further. There the authorities have promulgated new guidelines to facilitate the marketing of debt instruments to the public and introduced amendments to the Companies Ordinance to streamline bond issuance. They have established an efficient multi-currency clearing and settlement system. In May 2005 the Hong Kong Monetary Authority launched a refined Retail Exchange Fund Notes Programme to promote the development of the retain bond market. See Ma (2005).

³⁷ In addition, the stock exchange has urged regulators to require bond traders to report their daily transactions and to for the regulators to make that information publicly available in some form.

³⁸ For details see Asian Development Bank (2005).

6.3 Encouraging Participation by Institutional Investors

Here, once again, the two regions have followed similar approaches with similar degrees of success, although the particulars differ. Latin American countries have long had generous social-safety nets, including generous pension and retirement systems. Their privatization in recent years has thus created a large constituency of institutional investors with an appetite for locally-issued bonds, government bonds in particular. This appears to be important as a factor contributing to the demand for locally-issued bonds. In regressions on BIS data, we find that the number of years since privatization of the pension system has a large and highly significant effect on the overall size of the bond market.³⁹ This effect is strongest, however, for governments bonds and weakest for corporate issues, perhaps reflecting historical limitations on the ability of pension funds to hold the paper of speculative credits.

In Asia, in contrast, social security systems have historically been underdeveloped, encouraging households to rely on high saving rates to prepare for retirement. But state provident funds have strong demands for fixed-income securities to match their annuity profiles. By some estimates, 60 per cent of Malaysian bonds find their way into the state-organized Employees Provident Fund, while the comparable figure for Thailand is thought to be 30 per cent.⁴⁰ The state provident fund in Vietnam has what amounts to a perfectly elastic demand for local currency fixed-income securities, which are in short supply relative to its annuity profile. The problem is that markets dominated by one large buy-and-hold investor may lack dynamism.

One would expect insurance companies also to be important in East Asia, since savings rates in Asia are high and insurance companies are one way through which households can conveniently deploy their savings to the bond market. Data on insurance companies for the principal economies in the two regions confirm that this is the case, except for Chile, which has an unusually large insurance industry and where assets under management as a share of GDP are impressive even by East Asian standards. Data on mutual funds' total net assets as a share of GDP show wide variations within both regions (in Latin America, high in Brazil but virtually nonexistent in Argentina, in Asia high in Korea but relatively low in Thailand) but relatively little difference between them.

Countries in both regions have taken steps to further encourage the participation of institutional investors. Chile has relaxed limits on the investment portfolios of insurance companies, raised the limits on individual voluntary contributions to pension funds, and standardized capital requirements for mutual funds. It has put in place a detailed list of safeguards and procedures to facilitate the investment of pension funds in corporate bonds: bonds first must be reviewed by the securities commission, accepted for listing by the stock exchange, and in the case of corporate bonds approved by the Risk Classification Commission. Companies issuing bonds must be registered with the supervisory authority and fulfill demanding disclosure requirements, mainly by submitting detailed balance sheets guarterly. Mexico reformed its Mutual Funds Act in 2001 to facilitate the development of additional collective investment vehicles. Rules governing the portfolio allocation decisions of pension funds were relaxed (although

³⁹ These regressions follow those in Section 3 above, controlling for a number of other determinants of bond-market capitalization.

⁴⁰ In some months, the growth of the Malaysian bond market almost exactly matches the growth of the state provident funds' contributions, which is an indirect indication of the dominant role of these entities.

these funds are still prohibited from taking positions in sub-investment-grade bonds). Peru is seeking to relax regulations limiting pension fund investments in corporate bonds. Brazil's new bankruptcy law, designed to speed reorganization and strengthen creditor rights, should work in the same direction.

Asian countries are similarly taking steps to encourage institutional investors. In the Philippines a Revised Investment Company Act awaiting approval aims to streamline regulations for investment companies, opens mutual fund operations to foreigners, and allows mutual funds to sell securities by public offering. A variety of countries in the region are taking steps to encourage new investor classes, including local institutional investors, and encouraging wider investor diversification by providing more equal treatment of transaction-related requirements and taxation.⁴¹ Singapore has recently allowed insurers to actively hedge part of their exposures, which should encourage them to take more risk in the fixed-income market.

6.4 Encouraging Foreign Participation

The two regions have adopted similar initiatives to encourage foreign participation in local markets. Countries from both regions (Brazil, Singapore, Malaysia and Thailand) are doing road-shows aimed at increasing foreign investor participation in their markets. They have liberalized the capital account of the balance of payments, liberalized

domestic financial sectors, and liberalized the access of foreign investors to domestic and foreign stock markets. They have sought to relax withholding-tax requirements on the payment of interest, as for example with the measures adopted by Brazil in February 2006, although there remain concerns that this may create additional scope for tax evasion by residents (who may be able to avoid paying domestic withholding taxes by relabelling themselves as nonresidents) and although as yet the new Brazilian measures apply only to government issues. Hong Kong similarly imposes no withholding on foreign investors in locally-issued bonds and since 2003 provides tax concessions for qualified debt instruments. Malaysia has committed to imposing no withholding tax on nonresident interest income on fixed interested securities; it imposes no restrictions on foreign investors wishing to participate in the domestic bond market and allowed supranational and multinational corporations to issue ringgitdenominated securities. Thailand recently issued bonds that are tax free for international investors and has eased regulations on the issuance of bahtdenominated debt instruments by offshore issuers.⁴² South Korea has streamlined reporting requirements for foreign investors and authorized them to use nominee accounts. It has increased the amounts that can be borrowed by nonresidents from local banks and securities firms in order to take positions in securities markets. China is in the process of clarifying its rules for qualified foreign institutional investors (QFII's) to purchase foreign exchange in order to take positions and manage exposures. To facilitate secure and efficient

⁴¹ See ADB (2006).

⁴² These provisions were adopted with multilateral institutions such as the Asian Development Bank in mind. In May 2005 the ADB floated the first local currency bond issued by a foreign institution in Thailand. The proceeds still must be used for projects in the country or in neighboring countries, or else the proceeds must be swapped into foreign currency.

settlement of cross-border transactions it has established real-time links from its clearing and settlement system to a number of major Asian and international securities depositories.

Latin America's long experience with hot money causes some countries to continue to impose a variety of restrictions on the entry and exit of international investors. In Brazil, investors must first register with the Securities and Exchange Commission and the central bank. In Colombia, foreign investors must first establish an investment trust vehicle and cannot withdraw their funds before one year. East Asian countries continue to apply such restrictions as well. Most notably, China limits domestic portfolio investment to qualified foreign investors, as noted above. Kaminsky and Schmukler (2004) have constructed a measure of the extent of liberalization by region. They show that Latin America was behind East Asia in the 1980s (significant restrictions were imposed on domestic financial markets, including on foreign access, with the debt crisis that broke out in 1982), but that since the early 1990s market access and regulation have if anything been more liberal in Latin America. Figure 16 summarizes the extent of nonresident purchases of bonds in the two regions. These suggest that Latin America is ahead of East Asia in terms of attracting the participation of foreign investors (that is, in terms of the share of local currency corporate bonds that are purchased by foreigners).



Figure 16 Share of Domestic Bonds held by Foreign Investors

Source: IMF (2006).

The other dimension of foreign participation is nonresident issuance in the local market. Figure 17 shows the role of resident and nonresident issuers of bonds in the currencies of 21 emerging market countries.⁴³ While in most cases the local currency market is completely dominated by residents, non-residents pay an important role in Hong Kong, South Africa, Singapore and Czech Republic. Overall, 99 per cent of bonds issued in Latin American currencies are issued by residents and 92 per cent of bonds issued in East Asian currencies are issued by residents. On balance, then, nonresident issuance contributes less to local

currency corporate bond market liquidity in Latin America than East Asia. Selected Asian countries, Hong Kong and Singapore among them, have moved aggressively to encourage nonresident issuance. They have ample savings and worry less than their Latin American counterparts about the danger that foreign issuers will absorb scarce domestic resources. That said, the extent of localcurrency issuance by nonresidents is all but nonexistent across most of East Asia. Aside from the special cases of Hong Kong and Singapore, only in the Philippines has it reached nonnegligible levels.





Source: Authors' calculations based on BIS data

Note: Includes bonds issued by Financial and Non-Financial Corporations, State Agencies and International Organizations. It assumes that all bonds issued domestically are issued by residents and are in local currency

⁴³ We use BIS data (Table 16 of Securities Statistics) to estimate the amount issued by residents in domestic markets and use disaggregated data on international issues (these data are not publicly available and were given to us by the statistical office of the BIS) to compute the amount international issues in domestic currency by residents and non-residents. Note that in constructing these figures we follow the practice of Burger and Warnock (2003) and Claessens et al. (2004) in assuming that all domestic issuers are residents and that all domestic issues are in local currency.

6.5 Extra-National Initiatives

In addition to these national measures, both Latin American and East Asian countries have been exploring regional and global initiatives. But the structure of these initiatives differs, reflecting differing perceptions of the weaknesses to be addressed. In Latin America the perception is that the depth and liquidity of local markets is constrained small market size and by the weakness of creditor rights (unreliable contract enforcement, high costs of judicial proceedings, long time period required to conclude bankruptcy proceedings). The response to this problem is to facilitate the access of corporates to the larger markets of the international financial centers, In East Asia the corresponding response is to attempt to overcome inefficient minimize scale by integrating national markets regionally, using peer pressure to strengthen creditor and investor rights, and cooperating in the development of more efficient bond market infrastructure.44

Since 2003 a number of Latin American governments (those of Brazil, Colombia, Uruguay) have placed domestic-currency-denominated government bonds on foreign markets. These bonds are in local currency, as noted, and reasonably long term (they mature between 2010 and 2016). These bonds are however settled in dollars; Uruguay's are also indexed to inflation. They thus pass the maturity and currency risk on to the borrower, and in this way are consistent with recent concern with double mismatches.⁴⁵ A complete list of such issues is in Tables 5.⁴⁶

⁴⁵ Some Latin American governments, like that of Mexico, are seeking to borrow on local markets now, rather than going to New York. But our Figure 2 above shows that there is still a contrast in terms of overall strategies compared to East Asia.

⁴⁴ The Asian Bond Markets Initiative (AMBI), endorsed by ASEAN+3 finance ministers at their meeting in Manila in August 2003 is the mechanism for this peer pressure and cooperation. The vehicle is a set of working groups concerned with the creation of securitized debt instruments, the creation of credit guarantee mechanisms, foreign exchange and settlement issues, the issuance of bonds denominated in local currencies by nonresidents (multilateral development banks, foreign government agencies, and multinational corporations), rating agencies and information dissemination, and the coordination of technical assistance. Achievements include the issuance of local currency bonds by the ADB in a number of Asian countries in the effort to enhance the liquidity of local markets; agreement on the desirability of exempting nonresidents from domestic holding taxes; and the provision of credit guarantees by the Japanese Bank for International Cooperation and Nippon Export and Investment Insurance for bonds issued by select Asian multinational corporations.

⁴⁶ To make such international bonds more attractive to both issuers and investors, a global effort spearheaded by the multilateral financial institutions made the addition of renegotiation-friendly collective-action clauses to international bonds issued in New York the norm, as it has been since 2003. (Uruguay has succeeded in adding to some of its bonds "super-collective-action" clauses which provide for the aggregation of bondholder votes across issues on the terms of a proposed restructuring.) Economists also made the case for GDP-indexed bonds or warrants, which have been issued by the Government of Argentina in conjunction with its recent debt restructuring and the market in which appears to be thriving (Borensztein and Mauro 2004).

Number Million Number Million Number Million Number Million USD USD USD of bonds of bonds USD of bonds of bonds Argentina Poland Singapore South Africa TOTAL Number Million Number Million Number Million Number Million Number Million USD USD USD USD USD of bonds of bonds of bonds of bonds of bonds Brazil China Colombia Hungary Mexico Singapore South Africa TOTAL

Table 5a. International Issuance in Local Currency (all issuers)

Table 5b. International Issuance in Local Currency (corporate issuers)

			199	1997		8	199	9	2000)
			Number	Million	Number	Million	Number	Million	Number	Million
			of bonds	USD						
Argentina			1	175						
Poland			1	148						
Singapore							1	12		
South Africa			2	33	1	405	1	243	1	171
TOTAL			4	356	1	405	2	255	1	171
	2001		200	2002		3	200	4	2005	5
	Number	Million								
	of bonds	USD								
Brazil							1	100	4	295
Hungary					1	151	3	183		
Mexico									1	466
Singapore	2	1291	2	327			5	706	1	168
South Africa							1	259	1	167
TOTAL	2	1291	2	327	1	151	10	1247	7	1095

Source: IADB.

Hong Kong Institute for Monetary Research

In part, governments have made an unusual effort to access international markets because of the high cost of borrowing at home. This is most obvious in the case of Colombia's November 2004 issue, primary spreads on which were 20 to 50 basis points below those on comparable domestic bonds. Uruguay, which followed, did not benefit from lowering borrowing costs on international markets, presumably because its issue took place in the difficult conditions of a debt restructuring.⁴⁷

The question is whether the facilitating conditions are permanent and whether where governments lead corporations will follow. Some, such as Tovar (2005), question the permanence of this new form of market access. Ample liquidity has made for unusually favorable conditions for emerging economies on global markets; if central banks continue to drain that liquidity and there is a flight to quality on the part of investors, it is not clear that the appetite for global bonds denominated in Latin American currencies will survive.⁴⁸ Similarly, both economic policies and Latin American exchange rates have been unusually strong, encouraging international investors to bet on further currency appreciation. Again, it is clear that Latin American currencies cannot appreciate forever and that sooner or later such extrapolative expectations will be disappointed.

As for the ability of corporate borrowers to raise debt finance abroad by issuing peso-denominated foreign bonds, there is only modest progress to date. The Mexican oil company Pemex has been able to float bonds denominated in pesos abroad, but it is not exactly a private corporation. Telefonica del Peru was able to issue a \$227 million issue denominated in soles to foreign investors in late 2005 – the first such issue by a private nonfinancial corporation – but it is in fact a unit of Spain's Telefonica telecommunications group.

And even if large corporations do follow, small ones may still find it impossible to do likewise. The minimum size for global bond issues is infeasibly large for small Latin American corporations, indeed for all corporations from smaller countries such as Uruguay.⁴⁹ More generally, smaller Latin American corporations will continue to have to borrow at home, where minimum issue size is typically less. But with larger entities, including the government, borrowing abroad, secondary market liquidity will be less. Commercial and investment banks will invest less in the dedicated technology needed to underwrite and distribute bond issues locally, and they will be able to spread the fixed costs of doing so over a smaller clientele of borrowers. Perhaps most importantly, with big corporations borrowing abroad, political pressure to strengthen creditor rights and reform problems of contract enforcement in order to enhance the operation of the market will be correspondingly less. This strategy of internationalizing local-currency borrowing may result in a quick short-run reduction in funding costs for large entities but little incentive to improve the operation of the market and, if anything, a further deterioration in ease of access for smaller borrowers.

⁴⁷ Tovar (2005), p.110.

⁴⁸ Thus, Argentina was able to issue a global bond, a eurobond, and a private placement all in pesos in the mid-1990s, but the flight to quality that followed the Russia-LTCM crisis closed off this incipient form of access to international markets. Buchanan (2005) and Borensztein, Eichengreen and Panizza (2006b) show that only a portion of recent spread compression can be explained by improvements in fundamentals in emerging markets, the remainder presumably being accounted for by shifts in global risk aversion.

⁴⁹ See de Brun, Galdelman, Kamil and Porzecanski (2005).

In Asia, the perception is that small market size is a binding constraint on bond market development. As noted above, only Korea and China surpass the \$150 billion threshold for corporate bond market capitalization required for high levels of secondarymarket liquidity. Thus, Hong Kong and Singapore, which are widely regarded as having two of Asia's better developed bond markets, have a market capitalization (as of the end of 2004) of just \$62 billion and \$22 billion, respectively.

The Asian Bond Fund 2 initiative seeks to relax this constraint by developing a pan-regional bond index, the Pan Asia Index, and a passively managed mutual fund operated by private-sector managers and designed to track the index. The passively managed mutual fund is open to further subscription by private investors. In addition, whereas under ABF1 the participating central banks invested in the dollar bonds of sovereign and quasi-sovereign issuers, under ABF2 they are investing in the local-currency issues of sovereigns and quasi-sovereigns.⁵⁰ The index unit is designed to provide a benchmark structure for tracking pan-Asian performance, while the passively managed mutual fund is designed to facilitate one-stop entry for retail and institutional buyers. The idea is that investors will find it more attractive to purchase a security that represents claims on a basket of regional bonds, which will enable them to take bets on the performance of the entire regional economy while diversifying away idiosyncratic national risk. Insofar as these securities become the focal point for investors, the market in them will presumably be more liquid than the market in the underlying national bonds, and the constraint of small market size will be relaxed. There is some sign of this working, in that the PAIF grew by roughly 13 per cent, reflecting private participation, in the course of its first six months (the second half of 2005).

ABF2 has a variety of other features designed to work in the same direction. It entails the establishment not only of a Pan Asia Index Fund but also a series of national bond funds. Each of these national indices is made up of a portfolio of underlying bonds on which investors, including in some cases international investors, can trade claims. As noted above, the demands of adequate secondary-market liquidity are more formidable for corporate than government bonds, given the greater heterogeneity of the former. Knowing that there are other potential purchasers of a particular corporate bond, enabling the investor to liquidate a position without significantly moving prices, is scant comfort to investors in other corporate issues; there must exist potential purchasers and adequate market liquidity for each class of corporate bonds. Bundling together a group of such bonds and facilitating trading of claims on the portfolio may thus foster participation in the market. If there develops a large volume of trading in this one asset, it may then be possible for brokers to spread their fixed costs more widely and reduce transactions costs. Insofar as the funds in question are passively managed, it may be possible to cut management and subscription costs still further. Insofar as investors in the Pan Asia Index Fund wish to further tailor their exposure to national markets, they can do so by taking additional positions in the relevant national funds. There are some signs of this happening, with the ABF Hong Kong Bond Index Fund having grown 42 per cent since inauguration, the Malaysian Fund having

⁵⁰ The Asian Bond Fund (ABF), originally launched by the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) in June 2003, was designed to catalyze the growth of Asian bond markets by allocating a portion of the reserves of regional central banks to purchases of government and quasi-government securities. The initial \$1 billion of investments, known as ABF1, was devoted to Asian sovereign and quasi-sovereign issues of dollar-denominated bonds.

grown by 27 per cent, and the Singapore Fund having grown by 35 per cent.⁵¹ (At the time of writing, the other five national funds – for China, Indonesia, Korea, the Philippines and Thailand, had yet to be issued.) According to Leung (2006), this reflects low transactions costs, low management fees, and the absence of a subscription fee in the case of the PAIF.

In addition, there is the argument that this model will give a boost to the integration of national markets. The global custodian for PAIF and the eight single market funds has established a regionwide custodian network linking up all eight markets, on which investors in other bonds can now piggyback. Presumably other examples will follow.

Implementing this model requires the elimination of restrictions on the participation of foreign investors. Thus, to facilitate development of the initiative, Malaysia was forced (or chose) to further liberalize access to its markets. PAIF was given permission by the Chinese government to invest in both exchange-traded bonds and interbank traded bonds and to repatriate the proceeds. China continues to apply various limits on investment in such bonds and repatriation of interest and principal by other investors, but it is not clear that these will remain viable now that a window has been opened for PAIF.

But the most serious limitation of the model from the present point of view is that the regional bond funds in question are all concentrating on sovereign and quasi-sovereign securities. According to Leung (2006, p.74), "it is believed that the experience gained can still shed some light on the development of corporate bond markets in Asia." Presumably this does not mean that central banks will invest directly in portfolios of corporate securities in some future ABF3, but rather that private sector managers, impressed by the performance of the PAIF, will be moved to create a similar index of corporate securities. Time will tell.

⁵¹ Ma (2005), p.3.

Chapter 7. Conclusion

The desirability of developing local bond markets is now clearly recognized by policy makers in both East Asia and Latin America. But progress remains slow, especially for corporate bonds. Fundamentally this reflects the fact that bond market development is organic to the larger process of financial development and that financial development cannot be separated from the still larger process of economic development. Clever financial engineering may help, but by itself cannot relax these fundamental developmental constraints.

A further obstacle is that small developing countries lack the scale needed to support deep and liquid markets. Countries in both regions have responded by seeking to encourage foreign investor participation. But the two regions are pursuing this objective in somewhat different ways. Latin American countries are competing with one another for foreign investors, each seeking to enhance the efficiency of market infrastructure, the predictability of transactions, and the transparency of regulation. Each Latin American country is, in effect, competing with its neighbors for foreign investors. While East Asian countries are pursuing many of the same initiatives, in addition they are seeking to harmonize their institutions and regulations and to overcome the obstacle of inadequate scale by creating an integrated regional bond market.

Although Latin America's decentralized approach promises an immediate payoff to countries implementing ambitious reforms, it threatens to run up against limits of minimum efficient scale. Even relatively large countries like Brazil and Mexico may be too small to support a bond market with a capitalization of \$150 billion, the kind of figures that are cited as prerequisites for world-class efficiency and liquidity, and they may remain too small for a very long time. Even if foreign investors own 100 per cent of the Uruguayan market, that market may still be too small to permit new issues to be underwritten at a cost as low as much larger and therefore more efficient global markets. The East Asian approach of attempting to build an integrated bond market on a regional platform has the potential to relax this constraint, but this approach requires a consensus on the design and implementation of the relevant reforms, rendering progress painfully slow.

Which region is doing better? This complex question does not admit of a simple answer. Asian bond markets are larger and better capitalized, and the tenor of Asian bonds is longer. These facts reflect the region's high savings rates, history of stable policies, and relatively strong investor protections. Latin American bond markets are more liquid by most measures, and they have had more success in attracting foreign investor participation. To some extent these facets reflect the incentive for Latin American countries, competing with one another for foreign investor participation, to push ahead quickly with reforms. To some extent they are the ironic reflection of a history of budget deficits, which has bequeathed a large stock of government securities that are liquid, standardized, and easily traded – and which provide a benchmark off of which riskier credits can be priced and traded. To some extent they reflect sheer proximity to a large population of U.S.-based investors increasingly appreciative of the potential benefits of adding emerging market securities to their portfolios.

Which region will do better going forward? The answer will depend, in part, on how successful they are in pursuing further reforms. Latin American countries have further to go in strengthening investor protections, enhancing market transparency, and building efficient bond market infrastructures. East Asian countries have further to go in encouraging retail participation and reducing the dominance of pension funds, provident funds, and other buy-and-hold investors and in putting out the welcome mat to foreign investors.

Given the difficulty of achieving a consensus on reform and coordinating the implementation of those policies across countries, progress in East Asia may remain slow for some time. But the Latin American approach of every country for itself is likely to run up against limits, since many countries in the region will remain too small, in the relevant economic sense, to achieve the minimum efficient scale necessary to support world-class-bond markets. If Asian countries ever succeed in creating something that approximates an integrated regional market, they will have a leg up on the problem.

And, finally, how much difference will the development of local bond markets make? Success at developing these markets will provide alternative sources of finance to the small and medium sized enterprises that are increasingly the drivers of productivity growth in the 21st century economy, if it indeed is true that global markets are not particularly interested or particularly good at this task. Alternatively, the major financial centers may turn out to be more efficient at guaranteeing and securitizing loans to SMEs, reflecting the same scale economies and first-mover advantages that give them a leg up in the competition for other business. In this case seeking to privilege local markets will be counterproductive. It is not clear which strategy makes more sense. To echo what was said above, only time will tell.

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Appendix. Bond Level Regressions

In this appendix we present in more detail the analysis of issue-level data described in the text. In each regression there are three groups of variables: (i) Bond-specific variables; (ii) Firmspecific variables; and (iii) Macroeconomic variables.

The bond-specific variables are from EMWARE (bonds issued on domestic markets) and BONDWARE (bonds issued in international markets) and they include: (i) the maturity in the bonds measured in years (this is the dependent variable in the regression); (ii) the value of the bond (AMOUNT measured in log of the face value in US dollars); (iii) three dummies for the type of coupon, the first takes value one for zero coupon bonds (ZEROC), the second takes value one for fixed rate bonds (FIXR), and the third takes value one for floating rate bonds (this is the excluded dummy); (iv) and dummy variable taking value one for bonds issued on the domestic market (MARKET_D). The firm-specific variables are from Bloomberg and include: (i) profitability (PROFIT is measured as earnings over total assets); (ii) firm SIZE (SIZE is the log of total assets in US dollars); (iii) liquidity (LIQ is short term debt over equity); and (iv) capitalization (CAP is equities over total assets). We also include an interaction between firm SIZE and the MARKET_D dummy (SIZEDOM).

The macroeconomic variables are from different source. Sovereign credit RATINGs (RATING) is from Standard & Poors. The lagged value of government Bonds over GDP (GOVB_GDP_1) is from the BIS. The lagged value of public debt over GDP (DEBT_GDP_1) is from the World Bank. The lagged value of inflation (INF_1), GDP per LIQita (GDP_PC_1_1), and changes in the real exchange rate (DRER_1) are from the World Bank (with the exception of Taiwan, where the data are from the central Bank of Taiwan). The yield on U.S. junk bonds (HY) is from Bloomberg.⁵²

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⁵² In Table A4, AL is a dummy that takes value one for Latin American countries.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	mat	mat	mat	mat	mat	mat	mat	mat	mat
PROFIT	0.006	0.009	0.008	0.016	0.015	0.020	0.017	0.016	0.016
	(0.006)	(0.006)	(0.006)	(0.011)	(0.012)	(0.013)	(0.012)	(0.010)	(0.010)
SIZE	-0.059**	-0.107***	-0.041	-0.001	0.121	-0.022	0.116	0.042	0.041
	(0.029)	(0.034)	(0.059)	(0.108)	(0.095)	(0.083)	(0.093)	(0.066)	(0.068)
LIQ	-0.041***	-0.040***	-0.040***	-0.043***	-0.020***	-0.022***	-0.022***	-0.017***	-0.015***
	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
CAP	0.992***	1.172***	1.159***	0.668	1.527**	1.499**	1.504**	0.382	0.305
	(0.378)	(0.365)	(0.366)	(0.651)	(0.654)	(0.612)	(0.620)	(0.550)	(0.533)
AMOUNT		0.309***	0.308***	0.370***	0.395***	0.386***	0.403***	0.319***	0.327***
		(0.040)	(0.040)	(0.113)	(0.103)	(0.087)	(0.101)	(0.066)	(0.065)
FIXR		0.245**	0.196**	0.151	0.353*	0.557***	0.325	0.139	0.199
		(0.097)	(0.099)	(0.199)	(0.212)	(0.190)	(0.201)	(0.163)	(0.153)
ZEROC		-1.571***	-1.598***	-1.408	-1.437	-1.150	-1.267	-1.873*	-1.742*
		(0.396)	(0.392)	(1.129)	(1.002)	(0.990)	(0.992)	(0.951)	(0.962)
MARKET_D		-1.639***	-1.636***	-1.613***	-1.418***	-0.619***	-1.527***	-0.959***	-0.641***
		(0.143)	(0.143)	(0.312)	(0.276)	(0.234)	(0.266)	(0.239)	(0.231)
SIZEDOM			-0.096	-0.268**	-0.281***	-0.071	-0.264**	-0.037	-0.033
			(0.061)	(0.106)	(0.108)	(0.094)	(0.103)	(0.080)	(0.082)
RATING				0.150***	0.393***	0.414***	0.406***	0.465***	0.408***
				(0.032)	(0.056)	(0.060)	(0.059)	(0.096)	(0.113)
GOVB_GDP_1					0.033**	0.061***	0.042**	-0.061**	-0.025
					(0.016)	(0.015)	(0.017)	(0.025)	(0.027)
DEBT_GDP_1					-0.024***	-0.022***	-0.025***	0.042**	0.038**
					(0.008)	(0.008)	(0.008)	(0.017)	(0.019)
DRER_1					0.014	0.018	0.006	-0.011	-0.003
					(0.015)	(0.016)	(0.016)	(0.009)	(0.008)
INF_1					0.000	-0.000	0.000*	-0.001**	-0.000
					(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP_PC_1					-1.471***	-1.436***	-1.497***	-4.754***	-2.535
					(0.239)	(0.230)	(0.251)	(1.266)	(2.559)
HY							0.129*	-0.024	
							(0.071)	(0.042)	
Constant	5.143***	5.497***	5.051***	3.035***	11.077***	10.367***	9.805***	41.314***	20.030
	(0.451)	(0.440)	(0.517)	(0.917)	(1.738)	(1.626)	(1.803)	(11.874)	(22.701)
Observations	4523	4523	4523	4394	3895	3895	3895	3895	3895
R-squared	0.105	0.197	0.197	0.228	0.310	0.384	0.316	0.451	0.477
Fixed effects	Sector	Sector	Sector	Sector	Sector	Sector	Sector	Sector	Sector
					(Quarter-yea	r	Country	Quarter-
									year
									Country

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Robust standard errors in parentheses, in columns 4-9 the standard errors are clustered at the country-year level. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2: The	able A2: The Determinants of Maturity. International Bonds										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
	mat	mat	mat	mat	mat	mat	mat	mat			
PROFIT	0.042***	0.025	0.034*	0.026	0.032	0.024	0.020	0.026			
	(0.016)	(0.016)	(0.018)	(0.020)	(0.020)	(0.020)	(0.018)	(0.020)			
SIZE	0.156***	-0.130*	-0.121	-0.030	-0.091	-0.022	-0.152	-0.192**			
	(0.056)	(0.067)	(0.096)	(0.083)	(0.096)	(0.082)	(0.092)	(0.095)			
LIQ	-0.026***	-0.004	-0.012	-0.005	-0.007	-0.004	-0.009	-0.006			
	(0.009)	(0.009)	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)	(0.011)			
CAP	-3.320***	-2.777***	-3.123***	-1.606*	-1.622	-1.557*	-0.697	-0.663			
	(0.737)	(0.719)	(0.754)	(0.910)	(1.012)	(0.904)	(1.028)	(1.095)			
AMOUNT		0.741***	0.674***	0.488***	0.515***	0.497***	0.573***	0.600***			
		(0.101)	(0.148)	(0.142)	(0.156)	(0.149)	(0.173)	(0.172)			
FIXR		0.253	0.861***	1.640***	1.337***	1.675***	0.762**	0.975***			
		(0.231)	(0.305)	(0.361)	(0.384)	(0.367)	(0.362)	(0.364)			
ZEROC		-0.553	-0.539	0.606	-0.397	0.605	0.259	-0.087			
		(1.935)	(2.395)	(2.380)	(2.717)	(2.344)	(2.122)	(2.499)			
RATING			0.216***	0.376***	0.308***	0.377***	0.595***	0.468***			
			(0.046)	(0.060)	(0.057)	(0.057)	(0.087)	(0.107)			
GOVB_GDP_1	l			-0.011	0.018	-0.019	-0.086**	-0.073*			
				(0.019)	(0.017)	(0.019)	(0.035)	(0.040)			
DEBT_GDP_1				-0.019*	-0.011	-0.018*	0.039	0.026			
				(0.010)	(0.009)	(0.009)	(0.023)	(0.024)			
DRER_1				0.007	0.016	0.011	0.000	-0.004			
				(0.017)	(0.016)	(0.016)	(0.014)	(0.016)			
INF_1				-0.000	-0.001*	-0.000	-0.001***	-0.001**			
				(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
GDP_PC_1				-0.993***	-0.548**	-0.974***	-4.176***	-7.825**			
				(0.213)	(0.227)	(0.212)	(1.269)	(3.244)			
HY						-0.185*	-0.320***				
						(0.098)	(0.076)				
Constant	6.597***	5.597***	2.160**	8.642***	3.897**	10.098***	38.080***	64.795**			
	(0.601)	(0.583)	(1.071)	(1.713)	(1.561)	(1.878)	(11.625)	(28.649)			
Observations	1121	1121	1088	927	927	927	927	927			
R-squared	0.071	0.107	0.151	0.205	0.330	0.212	0.302	0.372			
Fixed Effects	Sector	Sector	Sector	Sector	Sector	Sector	Sector	Sector			
					Quarter-year		Country	Quarter-			
								year			
								Country			

Robust standard errors in parentheses, in columns 4-9 the standard errors are clustered at the country-year level. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A3: Th	e Determina	ants of Mat	urity. Dom	estic Bond	s			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	mat	mat	mat	mat	mat	mat	mat	mat
PROFIT	-0.011*	-0.006	-0.004	0.001	0.006	0.004	0.008	0.006
	(0.006)	(0.006)	(0.014)	(0.015)	(0.015)	(0.016)	(0.012)	(0.011)
SIZE	-0.082**	-0.153***	-0.288**	-0.153	-0.057	-0.134	0.035	0.052
	(0.034)	(0.037)	(0.117)	(0.100)	(0.081)	(0.090)	(0.065)	(0.064)
LIQ	-0.041***	-0.046***	-0.050***	-0.022***	-0.024***	-0.024***	-0.020***	-0.019***
	(0.004)	(0.004)	(0.009)	(0.008)	(0.007)	(0.007)	(0.006)	(0.005)
CAP	2.613***	2.801***	2.059***	2.263***	1.818***	2.221***	0.466	0.433
	(0.418)	(0.416)	(0.680)	(0.690)	(0.624)	(0.650)	(0.496)	(0.498)
AMOUNT		0.319***	0.405***	0.444***	0.403***	0.461***	0.303***	0.310***
		(0.045)	(0.123)	(0.104)	(0.093)	(0.099)	(0.059)	(0.059)
FIXR		0.380***	0.256	0.232	0.266	0.142	-0.159	-0.119
		(0.117)	(0.248)	(0.245)	(0.237)	(0.224)	(0.199)	(0.187)
ZEROC		-1.465***	-1.299	-1.659*	-1.276	-1.389	-1.743*	-1.523*
		(0.390)	(1.141)	(0.913)	(0.894)	(0.891)	(0.896)	(0.893)
DOM_CUR	R	-0.541	-0.816	-1.921**	-1.757**	-2.260***	0.442	0.375
		(0.397)	(0.513)	(0.750)	(0.856)	(0.751)	(0.500)	(0.503)
RATING			0.132***	0.455***	0.538***	0.496***	-0.010	-0.017
			(0.033)	(0.080)	(0.095)	(0.087)	(0.105)	(0.156)
GOVB_GDI	P_1			0.066***	0.081***	0.084***	-0.041	-0.006
				(0.019)	(0.019)	(0.021)	(0.025)	(0.039)
DEBT_GDF	P_1			-0.030***	-0.031***	-0.034***	0.033*	0.041**
				(0.010)	(0.009)	(0.010)	(0.017)	(0.018)
DRER_1				0.004	0.005	-0.013	-0.020***	-0.016*
				(0.013)	(0.019)	(0.014)	(0.007)	(0.008)
INF_1				0.000**	0.000	0.001***	-0.000	0.001*
				(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
GDP_PC_1				-1.779***	-2.000***	-1.865***	5.243***	12.243***
				(0.366)	(0.397)	(0.410)	(1.840)	(2.899)
HY						0.219***	0.123***	
						(0.067)	(0.041)	
Constant	5.105***	4.789***	4.780***	15.487***	15.218***	13.334***	-42.475** ·	-104.835***
	(0.451)	(0.621)	(0.950)	(2.259)	(2.638)	(2.283)	(16.220)	(25.578)
Observatio	ns 3402	3402	3306	2968	2968	2968	2968	2968
R-squared	0.176	0.205	0.227	0.343	0.415	0.363	0.543	0.563
Fixed Effec	ts Sector	Sector	Sector	Sector	Sector	Sector	Sector	Sector
					Quarter-yea	r	Country	Quarter-
								year
								Country

Robust standard errors in parentheses, in columns 3-8 the standard errors are clustered at the country-year level. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A4: The De	Image: Table A4: The Determinants of Maturity: LAC versus Asia											
	(1)	(2)	(3)	(4)	(5)	(6)						
	mat	mat	mat	mat	mat	mat						
PROFIT	0.034***	0.018	0.037*	0.016	0.022**	0.019						
	(0.011)	(0.011)	(0.019)	(0.022)	(0.011)	(0.012)						
SIZE	0.190*	0.217**	-0.165	0.017	0.007	0.109						
	(0.109)	(0.084)	(0.123)	(0.114)	(0.066)	(0.071)						
LIQ	-0.034***	-0.010*	-0.008	-0.004	-0.038***	-0.016***						
	(0.006)	(0.006)	(0.008)	(0.009)	(0.007)	(0.005)						
CAP	1.022	1.729***	-3.928***	-1.909	2.332***	2.023***						
	(0.660)	(0.612)	(0.913)	(1.285)	(0.578)	(0.539)						
AMOUNT	0.068	0.137*	0.668***	0.305*	0.066	0.191***						
	(0.096)	(0.071)	(0.172)	(0.174)	(0.080)	(0.072)						
FIXR	-0.210	-0.087	0.887**	1.253***	-0.366	-0.248						
	(0.217)	(0.180)	(0.343)	(0.423)	(0.230)	(0.194)						
ZEROC	2.506***	2.099***	-3.072	-1.725	2.551***	1.531**						
	(0.834)	(0.765)	(1.914)	(1.931)	(0.734)	(0.647)						
MARKET_D	-2.031***	-1.068***										
	(0.342)	(0.242)										
SIZEDOM	-0.191*	-0.128										
	(0.109)	(0.094)										
RATING	0.088**	0.586***	0.205***	0.665***	0.038	0.366***						
	(0.036)	(0.068)	(0.069)	(0.077)	(0.033)	(0.088)						
HY	0.027	0.122**	-0.023	0.039	0.037	0.132***						
	(0.077)	(0.055)	(0.120)	(0.086)	(0.067)	(0.044)						
GOVB_GDP_1		0.032		0.032		0.074***						
		(0.020)		(0.029)		(0.020)						
DEBT_GDP_1		-0.021***		-0.028***		-0.019***						
		(0.007)		(0.009)		(0.006)						
DRER_1		-0.027**		-0.009		-0.013						
		(0.013)		(0.018)		(0.010)						
INF_1		0.126**		0.215**		0.003						
		(0.058)		(0.103)		(0.050)						
GDP PC 1		-1.790***		-1.380***		-1.478***						
		(0.223)		(0.274)		(0.384)						
AL	-10.571***	-7.321	3.180	25.855*	-9.714***	-4.340						
	(3.308)	(9.091)	(3.486)	(13.137)	(2.965)	(8.625)						
AL*PROFIT	-0.080***	-0.057*	0.007	0.027	-0.097***	-0.071*						
	(0.029)	(0.032)	(0.043)	(0.041)	(0.030)	(0.037)						
AL*SIZE	-0.243	-0.337	-0.179	-0.284	-0.686***	-0.854***						
	(0.242)	(0.252)	(0.230)	(0.215)	(0.129)	(0.135)						
AL*LIQ	0.003	-0.021	-0.027	-0.026	0.034	0.010						
	(0.016)	(0.017)	(0.025)	(0.026)	(0.021)	(0.022)						

Table A4: The Determinants of Maturity: LAC versus Asia (cont'd)

	(1)	(2)	(3)	(4)	(5)	(6)
	mat	mat	mat	mat	mat	mat
AL*CAP	-1.157	-2.271	4.109*	1.417	-0.443	-1.061
	(1.487)	(1.731)	(2.337)	(2.669)	(1.727)	(2.005)
AL*AMOUNT	0.725***	0.671***	0.793**	1.043***	0.643***	0.571***
	(0.189)	(0.179)	(0.315)	(0.303)	(0.185)	(0.184)
AL*FIXR	1.975***	2.029***	1.570*	1.422*	1.922**	2.243**
	(0.678)	(0.702)	(0.818)	(0.803)	(0.887)	(0.960)
AL*ZEROC	-5.900***	-5.153***	9.062***	7.659***	-5.632***	-4.114***
	(1.039)	(0.936)	(2.345)	(2.364)	(1.028)	(0.840)
AL*MARKET_D	2.347**	1.164				
	(0.953)	(0.925)				
AL*SIZEDOM	-0.498*	-0.511*				
	(0.283)	(0.270)				
AL*RATING	0.559***	0.160	-0.004	-0.291	0.742***	0.303
	(0.154)	(0.271)	(0.141)	(0.194)	(0.222)	(0.394)
AL*HY	0.294	0.207	-0.879***	-0.926***	0.492***	0.408**
	(0.191)	(0.171)	(0.207)	(0.191)	(0.175)	(0.162)
AL*GOVB_GDP_1		-0.021		-0.097**		-0.018
		(0.032)		(0.044)		(0.033)
AL*DEBT_GDP_1		0.026		0.052*		-0.037
		(0.040)		(0.030)		(0.038)
AL*DRER_1		0.019		0.000		-0.011
		(0.023)		(0.026)		(0.023)
AL*INF_1		-0.125**		-0.215**		-0.002
		(0.058)		(0.103)		(0.050)
AL*GDP_PC_1		0.670		-1.773		0.455
		(1.066)		(1.544)		(1.352)
Constant	3.228***	8.216***	3.084**	6.504**	3.960***	7.117**
	(1.185)	(2.053)	(1.475)	(2.836)	(1.292)	(2.823)
Observations	4248	3752	1056	895	3192	2857
R-squared	0.348	0.430	0.201	0.304	0.427	0.503

Robust standard errors in parentheses. The standard errors are clustered at the country-year level. All regressions include sector fixed effects. * significant at 10%; ** significant at 5%; *** significant at 1%



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