

**Financial Development in Asia:  
The Role of Policy and Institutions, with Special Reference to China<sup>1</sup>  
Barry Eichengreen  
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**1. Introduction**

This is where I came in. A decade ago I wrote a series of papers on financial development and integration in Asia focusing on the role of openness in fostering financial deepening and economic growth.<sup>2</sup> In subsequent years there has much water (some would say liquidity) under the bridge, not just an additional decade of financial experience but also the global financial crisis. This commission from the Asian Monetary Policy Forum thus offers a welcome opportunity to revisit these issues.

The questions then were framed by the Asian financial crisis, of which memories were still fresh. The problem as seen through that lens was that Asia didn't have better developed securities markets, rendering it dependent on bank finance and offshore funding. Banks, the Asian crisis had shown, can be a problem when they grow so large that they become too big to save and too big to fail. They can be a hotbed of insider dealing or, in then popular parlance, "crony capitalism." They can be unstable when they rely excessively on the interbank market for short-term, offshore, foreign-currency-denominated borrowing. Asian countries would be better off, according to the then conventional wisdom, if they developed better-diversified financial systems, allowing them to reduce their dependence on bank intermediation and offshore funding. Deep and liquid securities markets that supplemented these traditional sources of finance could serve as a valuable "spare tire," in the widely-cited words of Alan Greenspan.<sup>3</sup>

Time has been kinder to some elements of this conventional wisdom than others. Certainly subsequent experience has underscored the problems of moral hazard and opportunism that arise in connection with the operation of large, complex financial institutions. It has provided more evidence of the prevalence of "crony capitalism" while highlighting that such problems are by no means peculiar to emerging markets or Asia. It has pointed up the dangers of too big to fail. We have Iceland and others as reminders of the risks of allowing banks to rely excessively on short-term, offshore, foreign-currency funding. And we have the 2008-9 crisis and subsequent contrasts in the development of the U.S. and European economies as object lessons in the advantages of well-diversified financial systems.<sup>4</sup>

But the global credit crisis is also a reminder that agency problems exist not just in banks but also in securities markets. Adverse selection and moral hazard was rife in derivatives markets prior to 2009.<sup>5</sup> When problems then arose, they threatened to take down banks with

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<sup>1</sup>Prepared for the second annual Asian Monetary Policy Forum (Singapore, 29 May 2015). Some of the analysis below draws on ongoing work with PipatLuengnaruemitchai, whose collaboration is acknowledged with thanks. I am also grateful for help from Coby Hu and Joseph Root.

<sup>2</sup> See Eichengreen (2006) and Eichengreen and Luengnaruemitchai (2006, 2008).

<sup>3</sup> The reference is to Greenspan (1999).

<sup>4</sup> This is not to argue that the more heavily bank-based nature of Europe's financial system is the entire explanation for its more intractable crisis and recession, but it is certainly part of the story (see Eichengreen 2015).

<sup>5</sup>For examples of the now large literature developing this point see Gorton (2009), Brunnermeier (2009), Beltran and Thomas (2010) and Kau, Keenan, Lyubomov and Slawson (2012).

positions in dubious securities. And when the banks developed problems, they further diminished the attractions of debt securities issued by both the banks themselves and their guarantors.<sup>6</sup> These dynamics are a reminder that securities markets are no panacea. In a crisis they may not even be a functional spare tire.

Moreover, the crisis challenged the presumption that deeper, more sophisticated financial markets are better. It caused observers to ask whether there was such a thing as excessive financialization – whether too much finance might be bad for growth.<sup>7</sup> It pointed up the question of what kind of financial system is best for advancing not just growth but also other social goals.

Another thing that has visibly changed in the intervening ten years is the greater prominence of China in any discussion of Asian and, for that matter, global financial markets. China figures prominently by virtue of its size and the fact that its economy grew at high single-digit rates for the better part of the last decade. Developments and policy challenges in China necessarily command more attention than ten years ago, since what happens in China doesn't stay in China, financially or otherwise.

These are the issues addressed in this paper. I start in Section 2 by describing the data used to measure the depth of domestic financial markets. In Section 3 I revisit the analysis in Eichengreen and Luengnaruemitchai (2006), again asking how Asia compares with other regions and how much progress has been made in the course of the last decade. Section 4 then focuses on what I argue is a critical nexus, namely that between financial opening, economic and social institutions, and financial development.

Dealing with that nexus is a particular challenge for China, the country that holds the key to Asia's financial future. China's prospects are therefore the focus of Section 5. Section 6 asks whether there is such a thing as excessive financialization and whether Asian countries are at risk of succumbing to it. Section 7, in concluding, makes an effort to draw these diverse strands together.

## **2. Definitions and Data**

Eichengreen and Luengnaruemitchai (2006) used BIS data on debt securities outstanding to compare the depth and development of bond markets in Asia with other regions. We found that Asian countries had smaller bond markets than countries with a comparable per capita GDP in other parts of the world. That difference was attributable in part to the existence in these countries of large, relatively concentrated banking systems, which worked to slow the development of alternative sources of debt finance; to failure to adhere to internationally recognized accounting standards; to levels of transparency and bureaucratic quality that compared unfavorably with those in advanced countries; and to restrictions on capital-account transactions.

In the subsequent decade, the Asian Bond Market Initiative has encouraged information sharing and applied peer pressure to adopt international accounting standards, strengthen contract enforcement, and upgrade supervision and regulation. The Asian Bond Market Forum was

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<sup>6</sup> These relationships even acquired their own name: the diabolic loop (Lane 2012).

<sup>7</sup> See Cecchetti and Kharroubi (2012), Arcand, Berkes and Panizza (2012) and Sahay et al. (2015); I return to these studies below.

created to foster harmonization and standardization of market practices and regulations. Together with relaxation of restrictions on capital account transactions, this has encouraged financial integration and increased the diversity of the investor base.<sup>8</sup> The question is how much difference these policy efforts have made.

A complication in comparing our earlier results with those for the more recent period is that the BIS changed its definitions and procedures for calculating private and international debt securities outstanding by country. As described by Gruic and Wooldridge (2012), prior to mid-2012 the BIS built up estimates of total and international debt securities outstanding – and by implication the difference, namely domestic debt securities outstanding – using issue-level data. It defined an international (for our purpose, foreign) issue as a security placed with international (for our purposes, foreign) investors. The currency of denomination of the issue, the governing law to which it was subject, and the location of primary and secondary markets (active trading) in the securities in question were used to determine the investors, domestic or international, at which an issue was targeted. By and large, the three criteria were consistent with one another: domestic debt securities were denominated in the local currency, subject to local governing law, and registered and traded at home. In practice they tended to be held primarily by domestic residents.

Subsequently the implications of the three criteria began to diverge.<sup>9</sup> In late 2012 the BIS therefore changed its procedures to reflect this fact and the availability of data gathered by national agencies on non-resident holdings of debt securities issued by residents, whether registered domestically or abroad. Now the BIS distinguishes domestic from international debt securities simply according to where they are issued (according to the location of the primary market).<sup>10</sup> The new procedure was used to construct revised series, where possible, back to the early 1990s, and the BIS stopped publishing and supporting the old series.

The change in procedures makes little difference for estimates of market size prior to the turn of the century.<sup>11</sup> More recently, however, the new and old series diverge. Specifically, the new series shows signs of exceeding the old series by a growing absolute and relative amount.<sup>12</sup>

Thus, comparing our earlier statistical results through 2002, based on the old BIS series, to a new set of results through 2013, based on the new BIS series (only the new BIS series being available for 2013), would be comparing apples with oranges. We therefore compare our earlier results through 2002 with an updated set of results through mid-2012 using the old BIS series, which is no longer supported or published by the institution but can still be recovered from its

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<sup>8</sup> On the AMBI and ABMF see Kawashima (2013).

<sup>9</sup> While bonds issued abroad were generally subject to foreign governing law (Greek government bonds issued in London were subject to English law), there were exceptions. Similarly, in a minority of cases bonds registered and issued on foreign markets could be denominated in the local currency.

<sup>10</sup> The vast majority of these securities issued in the local market are denominated in the local currency, although as Gruic and Wooldridge (2012) note there are also a few instances where issues placed on the domestic market were denominated in foreign currency (they point to the example of euro-denominated bonds issued in Croatia by that country's government).

<sup>11</sup> See Graph 3 in Gruic and Woodridge (2012).

<sup>12</sup> So far as I can tell, much of the difference reflects debt securities issued on the local market but subject to foreign governing law.

website. This is appropriate when we seek to ask whether our earlier findings on the determinants of domestic market development have changed over time.

In addition, we can compare new results through 2002 (or for that matter, any earlier year) with results for the recent period, extending through 2013, using the new BIS series. With this second approach we are unable to replicate our earlier results, since methods and procedures used to construct the dependent variable, retrospectively as well as currently, are different. But using the new series enables us to extend the analysis through 2013. And the new series is arguably more appropriate for analyzing the determinants of local market development in recent years insofar as it paints a more accurate picture of the recent period.

It is important to be clear on what questions these data on domestic debt securities, new and old, can and cannot address. They can help us understand how Asia compares with other regions in terms of the depth of local markets. Other sources can then be used to shed light on additional aspects of local market development such as bid-ask spreads and turnover. BIS statistics on domestic debt securities, and specifically the new series, do not tell us who is holding those securities. Hence they do not speak to the question of whether emerging markets, and Asian countries specifically, are at risk as a result of having sold a significant fraction of domestic debt to footloose foreign investors. Other sources of evidence on this question are mixed, though the idea that foreign investors are especially prone to flee when there is an increase in volatility affecting emerging markets has gained currency, as it were, as a result of the decline in inflows into dedicated emerging market mutual funds at the time of the “taper tantrum” in 2013 and again more recently when expectations developed that the U.S. Federal Reserve was poised to raise interest rates.<sup>13</sup> The point here is simply that the data analyzed in this paper are not suitable for addressing this question.

Similarly, our analysis of the development of domestic debt markets in Asia and generally does not speak to the currency-mismatch problem. An earlier literature, to whose development I plead guilty, addresses this.<sup>14</sup> A number of commentators have recently pointed to the dollar-denominated debts of corporations, including the foreign subsidiaries of Asian corporations, as posing special risks to stability in an environment where the dollar exchange rate has strengthened and U.S. policy rates are poised to rise.<sup>15</sup> Here again the outlook is mixed, since when market interest rates in the U.S. will begin to rise is less than certain.<sup>16</sup> But the point is that, in a world where Asian corporations issue foreign-currency-denominated securities abroad (and borrow from international banks) and where foreigners increasingly hold claims in the local markets of emerging economies (denominated in those local currencies), BIS data on domestic

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<sup>13</sup> An early influential paper by Frankel and Schmukler (1997), using data for Mexico, tends to discount the hypothesis. An analysis more supportive of the idea that nonresident investors are “prone to run” is Kim and Wei (1999).

<sup>14</sup> The reference is to Eichengreen and Hausmann (1999) and Eichengreen, Hausmann and Panizza (2009). See also footnote 9 above.

<sup>15</sup> See for example Nordvig et al. (2014). There is also the issue that the conventional statistics may capture these obligations inadequately, as Nordvig et al emphasize; see also Avdjiev, Michael Chui and Shin (2014). In addition there are the foreign-currency-denominated obligations incurred by agents other than the corporate sector, Eastern European households’ borrowing in U.S. dollars and Swiss francs, for example. These obligations to banks will in any case not be captured by data on debt securities. Again, they are not the topic of this paper.

<sup>16</sup> In addition, there is the question of whether most of the appreciation of the dollar associated with the divergence of monetary policy in the United States and abroad is already in the market.

debt securities will not shed light on the extent of (gross) currency exposures and (net) currency mismatches. The risks associated with such exposures are an important issue that warrants attention from both regulators and market participants, but – to repeat – they are not the topic of this paper.<sup>17</sup>

### 3. Where Asia Stands

The stock of outstanding domestic debt securities issued in East Asian countries excluding Japan has expanded enormously since the turn of the century. Where the value outstanding was barely US\$1 trillion in 2002 (US\$1.2 trillion to be precise), the total rose to more than \$3.6 trillion in 2008, \$5.2 trillion in 2010, \$6.8 trillion in 2012 and 8.2 trillion in 2014 (Figure 1).

A trio of observations suggest themselves before declaring this growth a success. First, this expansion is less impressive when measured against the GDP of the countries in question.<sup>18</sup> Second, this period (and its first part in particular) was one of enormous increase in reliance on debt securities not just in Asia but in countries around the world. Real interest rates that were low by historical standards encouraged issuance, while the growth of a class of dedicated institutional investors, both domestic and international, fostered take-up.<sup>19</sup> Third, the majority of the increase in the issuance of debt securities in East Asia ex Japan, and by implication the majority of the outstanding stock at the end of the period, was accounted for by additional issuance by just one country, China.

The result is an uneven picture for Asia as a whole. Figure 3 shows domestic debt securities outstanding as a share of GDP for the principal East Asian countries. Bonds issued by financial institutions, as well as by nonfinancial corporations and governments, are included. Leaving aside Japan, whose economic and financial history is different and whose public-debt situation is unique, it shows that Korea and Malaysia have the deepest bond markets, so measured, with ratios of debt securities to GDP on the order of 100 per cent. China's ratio, at roughly half this amount, is notably lower. To put these figures in perspective, note that the ratio for East Asia ex Japan is slightly below that for Latin America but slightly above that for the countries of Central and Eastern Europe – see Table 1.

To be sure, not everything else is equal across these countries. Notably, levels of economic development, as captured by the level of GDP per capita, vary widely with obvious implications for bond market development. In terms of the average relationship between per capital GDP and bond market capitalization, shown in Figure 4, Indonesia and Vietnam underperform, while Malaysia and Korea overperform, at least slightly.

These small-sample comparisons are clearly sensitive to outliers.<sup>20</sup> Perhaps the best way of dealing with this is by expanding the sample so as to reduce the weight on extreme

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<sup>17</sup> Although I return to these issues in the conclusion, as we no doubt will in the discussion.

<sup>18</sup> Between 2000 and 2014, the aggregate bond market increased by 9.8 times while the aggregate GDP increased by 5.7 times.

<sup>19</sup> In addition, the inability or unwillingness of international banks to lend to Asian corporates during the global crisis may have boosted corporate issuance in the region unsustainably.

<sup>20</sup> Although which countries to classify as outliers is less clear. Leaving out Japan would flatten the regression line, while leaving out Hong Kong and Singapore would steepen it. Leaving out all three would limit deviations of the

observations. This is done in Table 2, which uses the new BIS series and the largest sample of countries for which the institution provides estimates of total debt market capitalization, international debt securities outstanding, and by implication domestic bond market capitalization. The latter, scaled by GDP, is regressed on per capita GDP and a dummy variable for Asian countries. From the point of view of this broad international comparison, Asian countries had smaller bond markets than predicted in 1996 but larger bond markets than predicted in 2012, providing some support for the fruitfulness of efforts to development domestic markets in debt securities in the interim.

Given the caveats the BIS provides on the comparability of its data on total debt issuance and on international debt securities, which are built up from different sources, it may be safer to limit the analysis to countries for which the institution directly estimates domestic debt market capitalization. When this is done in Table 3, the previous picture is preserved. Where once upon a time (circa 1996) debt securities outstanding as a share of GDP were significantly lower than in other regions, even after controlling for per capital GDP, now they are significantly higher. Significance levels are more erratic when we use the old BIS series (Table 4), but the overall picture is preserved. As Levinger and Li (2014, p.3) put it, Asia's bond markets have moved from being the region's financial weak link to becoming "a role model for other emerging market countries trying to build resilience..."

Tables 5 and 6 follow Eichengreen and Leungnarimitchai in controlling for additional determinants of bond market capitalization and distinguishing public- and private-sector bonds. Table 6 in addition distinguishes the period through 2002, as analyzed in our earlier paper, from subsequent years. In Table 5 many of the earlier patterns continue to carry over, such as the association of certain institutional variables (stronger accounting standards, better control of corruption as indicated by higher values of the measure used in the table) with bond market capitalization, and the positive association with capital account openness. Table 6 shows that the spotty significance of this last variable reflects the combination of a significant effect prior to 2002 with an insignificant effect thereafter, perhaps because capital accounts were more widely open, leaving less variation in the variable, in the second subperiod. The key point, though, is that what was a negative coefficient on the dummy variable for Asian countries turns positive in the second subperiod, as if a set of regional economies with relatively underdeveloped bond markets, so measured, have now more than corrected the problem.

An obvious concern is that these results are being driven by Japan, which is a more advanced economy, financially and otherwise, than most of the countries in the sample (and specifically than the emerging economies that are the subject of this paper), and which has an exceptionally large public debt. Tables 7 and 8 replicate Tables 5 and 6 but drop Japan from the countries captured by the Asia dummy. Again, it appears that Asia-ex-Japan countries have smaller bond markets than countries in other regions with comparable characteristics over the sample period as a whole (though significance levels vary). For the earlier (pre-2003) period, the Asia-ex-Japan effect is negative and consistently significant, confirming the earlier result. That

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position of the remaining countries, including those cited at the end of the last paragraph, from the resulting regression line.

effect then goes to zero in the second subperiod, confirming that the observations for Japan were in large part responsible for the significantly positive effect in Table 6 for the recent decade.<sup>21</sup>

Table 7 shows why. For total debt, the Asia-ex-Japan variable is negative for the period as a whole. But when private and public debt are distinguished, we now see that the private debt variable enters positively (Asia-ex-Japan corporates and banks now issue even more debt domestically than their other observable characteristics would lead one to expect), while the public debt variable enters positively (unlike Japan, Asian governments issue less debt than those characteristics would lead one to expect).

There is also wide variation across Asian countries in other measures of bond market development. Figure 5 shows the bond market turnover ratio (average daily trading as a share of amounts outstanding) for both the corporate and government segments, where available. The liquidity of the government segment, so measured, exceeds that of the corporate segment across the region, although the difference, interestingly, is least pronounced in China.

Figure 6 then arrays total turnover against per capita GDP. It suggests that China is a slight outlier in the negative direction.<sup>22</sup> For comparison, recall that corporate bond market turnover in the United States is much higher, on the order of 80 per cent.<sup>23</sup> Another measure of market liquidity is the bid-ask spread available for the government segment; on this metric (Figure 7), China is less of an outlier.

Equity markets are historically later to develop, although this may now be changing, with changes in the information environment.<sup>24</sup> Figures 8 and 9 show equity market capitalization and turnover, along with per capita GDP. China is slightly below the level of market capitalization “predicted” by the average relationship in the region, but displays a slightly higher than predicted rate of turnover.

#### **4. Opening and Institutions as a Critical Nexus**

Among the most controversial potential determinants of financial development is financial opening. And nowhere are financial opening and its effects more controversial than in Asia.

The arguments are familiar. On the one hand, opening the capital account is a way of introducing the chill winds of competition into the financial sector.<sup>25</sup> Domestic intermediaries are exposed to foreign financial technology and managerial expertise. Access to offshore markets offers additional funding opportunities. It limits the ability of policy makers to maintain ceilings on deposit rates below international levels (as in China – see Section 5 below), relaxing

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<sup>21</sup> The signs and significance levels of most of the other variables discussed above are largely unchanged.

<sup>22</sup> Again, Japan, Singapore and Hong Kong are the outliers, although not all in the same directions as in Figure 4; again, omitting the three of them reduces the extent to which the position of other countries deviates from the average relationship in the region.

<sup>23</sup> It was even higher, on the order of 120 per cent, prior to the credit crisis.

<sup>24</sup> The “pecking-order” theories of financial development described below are based on the view that debt markets have developed, historically, before deep and liquid equity markets, owing to high costs of monitoring giving rise to agency problems for outside investors.

<sup>25</sup> An early important contribution to this view was Claessens, Demirguc-Kunt and Huizinga (2001). The more cautious view from the vantage point of 2014 is Claessens and Van Horen (2014).

a further constraint on bank funding.<sup>26</sup> It permits intermediaries to diversify their portfolios internationally and offer a better mix of risk and return. It allows for a more diverse investor base, making for higher levels of turnover and market liquidity. These arguments all point to early opening of the capital account as fostering financial development.<sup>27</sup> Tables 5-8 above, where the openness of the capital account is among the positive and significant determinants of bond market depth and development, are consistent with these arguments.

At the same time, capital account opening heightens exposure to financial disturbances originating abroad, which can result in additional volatility, especially in smaller, more specialized, less developed economies. Access to foreign funding can amplify the adverse effects of existing financial distortions, rendering the removal of restrictions on the capital account welfare reducing.<sup>28</sup> Banks, as well as nonbank financial intermediaries and even nonfinancial corporations, enjoying implicit guarantees will see access to offshore funding as an opportunity to lever up their bets.<sup>29</sup> If that offshore funding is denominated in foreign currency or the country lacks an autonomous monetary policy owing to the nature of its exchange rate regime, the resulting currency mismatch can then prove destabilizing. When bad news arrives, and even when it doesn't, capital inflows can give way to sudden stops and capital outflows, with devastating consequences for financial stability. And nothing is more damaging to financial deepening and development than financial instability.<sup>30</sup>

There is some support for both views, which may be just another way of saying that there is overwhelming support for neither. Klein and Olivei (1999) analyze a cross-section of countries and find that countries with open capital accounts display significantly higher levels of financial depth and economic growth, holding other factors constant. Utilizing historical evidence, Rajan and Zingales (2003) argue that financial openness, has a positive impact on financial development and efficiency.<sup>31</sup> Baltagi, Demetriades and Law (2008) use panel data and an instrumental variables strategy to test this hypothesis, with largely supportive results. My own earlier work (Eichengreen and Luengnaruemitchai 2004) focusing on bond market capitalization, using the IMF's measure of de jure capital account regimes and analyzing data for 41 countries from 1990 through 2001, supports the view that countries with open capital accounts have deeper bond markets. Ishola (nd), in contrast, finds no impact of financial opening on financial development in a sample of African countries. Chinn (2000) similarly detects no relationship between financial openness and bank credit to the private sector, albeit some impact on equity market development.

There is also some support for the so-called "threshold view" that the positive effects dominate only when a country achieves a critical level of institutional strength and regulatory quality. Thus, Chinn and Ito (2006) find that a higher level of financial openness contributes to the development of equity markets only when a threshold level of institutional quality is reached.

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<sup>26</sup> This, recall, was the emphasis of McKinnon (1973) and Shaw (1973).

<sup>27</sup> 19<sup>th</sup> century experience points in the same direction.

<sup>28</sup> In a classic illustration of the theory of the second best.

<sup>29</sup> As in the case of banks in Thailand and Korea prior to 1998 and nonfinancial corporations in a variety of Asian countries in recent years (including the debt issued offshore by subsidiaries and therefore missed by the conventional residency-based statistics – see Nordvig 2014 and Avdjiev, Michael Chui and Shin 2014).

<sup>30</sup> This last point is emphasized even more in the literature on Latin America, given the historical prevalence of financial instability there (see inter alia Didier and Schmukler 2013).

<sup>31</sup> This is especially the case, they argue, when that financial openness is combined with trade openness.



Specifically, that threshold depends more on the general quality of bureaucracy, the strength of the legal system, and control of corruption than it does on finance-focused measures like the quality of supervision and regulation. This suggests that the necessary prerequisites in order for financial opening to have favorable effects involve more than just strengthening the financial system narrowly defined.

A related literature suggests that financial development does more to stimulate economic growth in countries with strong institutions. Chen and Quang (2012) find that only countries with relatively high quality institutions derive growth benefits from financial opening. Klein (2006) finds an inverted u-shaped relationship between the responsiveness of growth to capital account openness and government quality, where neither countries with very low quality governmental institutions nor countries with the highest quality benefit significantly.<sup>32</sup> The Klein and Olivei study cited above finds that the positive relationship between capital account openness and growth is due mostly to variation within the subsample of high-income countries, which is similarly suggestive of an institutional threshold below which no effects, large or small, are evident.

But also relevant is the question is how opening the capital account affects the quality of institutions and regulation. If the answer is “positively and quickly,” then reservations about the impact of opening on financial development where institutional quality is poor need not detain us, since institutions will adapt to accommodate the policy. Rajan and Zingales (2003) argue along these lines, suggesting that opening undermines the market power of incumbents and diminishes the danger of regulatory capture. Others argue that just as a faster car needs more responsive steering in order to not run off the road, a more open economy needs more responsive regulation in order to avoid financial crashes, and those responsible for it, seeing no alternative, will be compelled to supply it.

From a practical standpoint, the question is how quickly the response occurs, and what the costs are in the event of delay. Here the literature is not helpful. There is a dearth of work on the impact of financial opening on institutional development, in contrast to the literature considering the impact of trade on institutions, which is considerable (see e.g. Acemoglu and Robinson Levchenko 2010). In the absence of more evidence, it would seem prudent to go slow.

## **5. China’s Challenge**

China’s financial system is fourth largest in the world, behind only those of the United States, the Euro Area and Japan.<sup>33</sup> Thus, what happens in China financially will have important consequences for the development of financial markets and economies in Asia and worldwide.

China’s financial depth compares less favorably when scaled by GDP. By this metric, the country lags behind not just the advanced economies but also Thailand, Korea and Taiwan, among others. Thailand, Korea and Taiwan have higher per capita incomes, of course. In fact, China’s financial depth scaled by GDP is commensurate to that of other countries with comparable per capita incomes, either now or (in the case of the now-advanced countries) historically.

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<sup>32</sup>Where most of the curvature in the u reflects the limited benefits to countries at the low end.

<sup>33</sup>Here financial size is measured as bank lending and the market value of outstanding bonds and equity combined, as in Cruz, Gao and Song (2014).

If there is a problem, then, it is not with the size of China's financial markets but with their structure. As in other countries at China's stage of economic development, the country's financial system remains heavily bank based. Because the information and contracting requirements of the arms-length transactions on securities markets are demanding, such markets are late to develop. Until they do, financial services are provided by banks, which develop relationships and invest in monitoring technologies so as to be able to assemble information on behalf of investors and to discipline borrowers.<sup>34</sup> Over time, bond, equity and derivatives markets then acquire depth and gain liquidity (according to the pecking-order theory, bond markets first, equity markets later).<sup>35</sup> The growth of these markets presupposes the existence of a relatively elaborate apparatus of underwriters, rating agencies, custodians, clearing and settlement platforms, and systems for policing the markets, both self-policing by organized exchanges, and regulatory oversight by autonomous securities commissions.

Until all this happens, banks remain the dominant source of external finance. And so it is in China today, where banks account for 60 per cent of the sum of bank lending and stock and bond market capitalization, a substantially higher share than in other large financial markets (those of the U.S., the Euro Area, Japan, the UK and Australia being the leaders).<sup>36</sup> The relative weight of banks in finance is roughly comparable to that in Germany in the 1980s or South Korea in the 1990s (in both of which securities markets gained additional capital market share subsequently). The weight of banks is if anything higher in China than in other emerging markets at a comparable stage of economic development, reflecting the close control the authorities have exercised, historically, over the operation of the Chinese economy and the utility of banks as a policy lever.

Necessarily then, developing the Chinese financial system starts with reforming and strengthening the banks.<sup>37</sup> The big Chinese banks, which account for the bulk of bank intermediation, are still majority state owned. Although they are officially commercialized – although they are supposed to operate at arm's length from the government, in other words – whether they in fact take decisions on the basis of commercial or political motives can be questioned. Reflecting this, the World Bank, in a study undertaken jointly with the Development Research Center, a leading Chinese government think tank, has recommended fully privatizing the banks, something that would eliminate much of the remaining ambiguity about their motives.<sup>38</sup>

But commercialization will produce positive results only if the authorities at the same time remove the presumption that the big banks enjoy an implicit guarantee. The decision to

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<sup>34</sup> A point influentially made by Gerschenkron (1964). Banks, it can be argued, are also preferred by government officials (and other powerful incumbents) because they provide convenient mechanisms for channeling funds in preferred directions (a capacity that is lost or at least diluted with the development of anonymous, atomistic securities markets).

<sup>35</sup> Although there is some disagreement in the historical literature about the general validity of this pecking-order view.

<sup>36</sup> Where only the Euro Area comes close. Whether these statistics fully capture the role of nonbank financial intermediaries and their liabilities can be questioned, of course – see the discussion below of the shadow banking system.

<sup>37</sup> Some of the following discussion, especially those portions connected to renminbi internationalization, are taken from Eichengreen (2014).

<sup>38</sup> See Davis (2013).

move ahead with implementation of deposit insurance starting earlier this month (May 2015), which guarantees deposits (up to a 500,000 renminbi ceiling) rather than guaranteeing the banks themselves, is a necessary but not sufficient step in this direction.

More generally, strengthening the banking system also requires regulatory rationalization. Traditionally the PBOC has set a ceiling for deposit rates and a floor for lending rates, ensuring a spread that makes for healthy profits for state owned banks. In July 2013 regulators lifted some controls over bank lending rates with the goal of permitting the banks to compete more intensively in extending corporate loans. But other controls, notably the ceiling on deposit rates, remain in place at the time of writing, reflecting worries that banks would otherwise engage in “unhealthy” competition for deposits and make excessively risky investments in the effort to meet their deposit-rate commitments. But deposit-rate limits only encourage the growth of the shadow banking system as a way of circumventing them (see below). Effective privatization and commercialization will require fully deregulating deposit and lending rates so that banks with profitable investment opportunities can compete for both borrowers and funding without having to create unregulated off-balance-sheet financial products.<sup>39</sup> That in turn will require strengthening regulatory oversight of the banks’ lending and investment practices to ensure that deposit-rate competition doesn’t give rise to excessive risk on the asset side of the banks’ balance sheets.

Finally, strengthening the banking system requires widening the regulatory perimeter. It requires strengthening supervision and regulation of not just the banks themselves but also their off-balance sheet subsidiaries, including investment companies, wealth management products and on-line accounts that constitute the shadow banking system. Estimates of the size of the shadow banking system vary widely, given vagaries of data and definition: they generally range from 50 to 80 per cent of GDP.<sup>40</sup> But even 50 per cent is a substantial number, given that bank lending is officially on the order of 110 per cent of GDP. Many of China’s trust funds and other nonbank investment vehicles are in fact operated by banks which use them to attract funding by offering higher interest rates than permitted on conventional bank deposits and to extend loans that would require them to hold costly capital and provisions were they to be held on the banks’ balance sheets. In turn, the managers of these vehicles have an incentive to seek out risky loan opportunities in the hope of earning income sufficient to meet their interest-rate commitments.

In July 2013 the China Bank Regulatory Commission took a first step in addressing these concerns by requiring commercial banks to register wealth management products prior to selling them to the public. Deposit rate deregulation, by reducing the incentive to create such products as a way of attracting household savings, would be a further step in the same direction.

To be effective, supervision will have to extend also to other nonbank entities that compete increasingly with the banks. Nonbank firms, both SOEs and others, use their excess funds to extend credit through “trust loans” and “entrusted loans” to other firms, taking land and

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<sup>39</sup>More on which below.

<sup>40</sup>A variety of these estimates are reported in Wang (2014).

other property as collateral.<sup>41</sup> Here too banks are involved as intermediaries between the ultimate borrower and lender, allowing restrictions on entrusted loans to be evaded. How banks and others active in this market would hold up in the face of a sharp property market decline or a manufacturing slowdown is an open question. But none of this changes the point is that fostering effective and sustainable financial development will require bringing shadow banking into the light.

Bond markets, while starting out behind, are now growing relative to the banks. Again, China's size implies that its bond market accounts for a very large fraction of overall East-Asia-ex-Japan bond market capitalization, on the order of two thirds, while China's bond market is now the third largest in the world, behind only those of the United States and Japan (as noted above). Issuance is growing rapidly in absolute terms, compared to its rate of increase in other Asian countries, and relative to the growth of the Chinese economy itself, at a rate of approximately 20 per cent per annum.<sup>42</sup>(In the first half of 2014, the rate of growth slowed to the neighborhood of 15 per cent year over year, reflecting the slower growth of the Chinese economy overall.)

Reassuringly, corporate issuance is expanding most rapidly. While corporate issues account for only about a third of the stock of bonds outstanding, they account for half of all new issues.<sup>43</sup> This is a sign that the bond market is increasingly serving the financial needs of the economy.

At the same time, the bond market displays weaknesses. The market is small relative to scale of the economy, smaller than in other emerging markets such as Brazil, Malaysia, Thailand and South Africa. It is dominated by short-term issuance: nearly 40 per cent of new issuance is of bonds with a maturity under one year, as if investors are reluctant to use this market to commit to long-term finance.<sup>44</sup> China is an exception to the general pattern across Asia of lengthening corporate bond maturities, giving rise to worries about rollover risk. Banks still buy many of the longer-term issues, as if much bond issuance is effectively bank lending in disguise.

Corporate issuance, for its part, is dominated by majority-state-owned companies, suggesting that the private sector is even more underserved by the bond market than suggested by the government-bond-corporate-bond breakdown.<sup>45</sup> According to Borst and Lardy (2015), SOEs account directly or indirectly for 90 per cent of corporate bond issuance. As of 2013, only 7 of the top 30 corporate issuers were not majority government owned, and all seven in question were banks. Moreover, a substantial fraction of government bond issuance takes the form of

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<sup>41</sup>Trust loans are made by trust companies, which gather funds from individuals and financial institutions, while entrusted loans use corporate earnings and reserves; these are extended within corporate groups, but a significant portion is between unrelated third parties; see Borst and Lardy (2015).

<sup>42</sup> 23.8 per cent in 2014H1, the most recent figures at the time of writing.

<sup>43</sup>Again in 2014H1. Over the four years ending in 2014H1, the corporate bond market doubled in size relative to Chinese GDP.

<sup>44</sup> In March 2015 the Finance Ministry announced a plan for provincial governments to refinance RMB 1 tr. in debt (most bank loans and trust loans) as bonds so as to lower rollover risk and (hopefully) reduce funding costs. When the first tranche of this debt was marketed in April, demand from the banks and investors generally was underwhelming.

<sup>45</sup> Similarly, a substantial fraction of the bonds issued by financial institutions are issued by majority-state-owned banks.

bonds issued by three state-owned policy banks (the China Development Bank, the Export-Import Bank of China, and the Agricultural Development Bank of China) and guaranteed by the central government. The three state banks are presumably stepping in by issuing and then lending for projects for which the private sector finds it difficult to access bond finance. This is all the more striking given the reluctance of the authorities to allow debt issuers to default (given the presence of an implicit guarantee).

In addition, upwards of two thirds of government bonds are held by banks, Chinese banks in particular, as previously noted. This is in contrast to the situation in other Asian countries with relatively well-developed bond markets, where they are held by private investors, pension funds and other provident funds.<sup>46</sup> Given that much corporate bond issuance is by state-owned companies, whose bonds are then purchased by state-owned banks, one wonders how many of these transactions are policy directed as opposed to arm's length. This raises the possibility of a diabolic loop if, say, local governments get into trouble, infecting bank balance sheets, or banks get into trouble and engage in fire-sales of assets that demoralize the bond market.

Nor is this the diverse investor base to which the architects of deep and liquid bond markets aspire. Banks are not active traders. The dominance of banks on the buy side may thus account for the relatively limited liquidity of the secondary market (as measured by turnover, or amount traded as a share of the value of bonds outstanding), in government bonds in particular. Bid-ask spreads in the local currency government bond market compare unfavorably with those in Korea, Singapore and Thailand (Figure 7 above).<sup>47</sup> Interestingly, China compares more favorably in terms of turnover in the corporate segment of the bond market, where the investor base is more diverse and commercial banks hold less than 40 per cent of total issuance.<sup>48</sup> This contrasts with the experience of other countries where government bonds typically trade more than corporate bonds, reflecting the latter's lack of uniformity, which again points to the problem in China of lack of investor diversity.

There are some obvious things that the authorities and market participants can and are doing about these problems. To increase the diversity of the investor base, China opened the interbank bond market, where most bonds are traded, to qualified foreign institutional investors (licensed commercial and central banks) in 2012, subject to a quota limit, although data from the China Central Depository Trust and Clearing Company (the main bond clearinghouse) suggest that foreign investors still hold less than 1 per cent of total bonds outstanding. The National Association of Financial Market Institutional Investors (NAFMII), the self-organizing association of bond dealers and investors overseen by the central bank, has taken steps to enhance the transparency of the interbank market and ameliorate contracting problems (issuing "Guidelines for Book Building and Issuance," a Code of Conduct for Issuers," "Rules on Bondholders Meetings," etc.).<sup>49</sup> The State Council has authorized trading of government debt

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<sup>46</sup> Japan is something of an exception to this generalization in that a substantial fraction of government bonds outstanding are now held by the central bank.

<sup>47</sup> Working in the same direction is that few bonds are traded on exchanges: 95 per cent of transactions occur on the interbank over-the-counter market, where bonds are offered by banks and other qualified institutions through bilateral inquiry and negotiation, creating counterparty risk and lack of price discovery that may deter market participation.

<sup>48</sup> I am not aware of data on bid-ask spreads for this segment of the market.

<sup>49</sup> Full disclosure requires me to acknowledge that I play a minor role as a member of the academic advisory board for NAFMII.

futures to enable investors to hedge risks, with the goal of encouraging participation and enhancing market liquidity.

In addition, the authorities have mandated that all transactions on the interbank market be conducted through the National Interbank Funding Center and required legal documentation of transfers of ownership. In part this is a crackdown on so-called “proxy holding trades,” where a financial institution transfers a bond from one account to another, both belonging to the same individual or financial institution, as a way for the institution in question to boost its standing in industry league tables for trading volumes. On other occasions, it is alleged, the sale is completed at an inflated price in order to create bookkeeping profits. The result has been a sharp drop in daily trading volumes, suggesting that historical turnover figures are inflated and market liquidity, so measured, is even less than previously thought.

The decision in 2014 to allow Chaori, the solar-cell company, to default is a step toward addressing moral hazard in the bond markets by removing the implicit guarantee.<sup>50</sup> A second step was then taken in April of this year when the government of the city of Ordos refused to guarantee the bonds of the troubled Sundry Group of construction companies. Also in April property developer Kaisa Group missed an interest payment on its dollar-denominated debt, and state-owned power equipment manufacturer Baoding Tianwei Group failed to make a payment on its domestic debt. But as for whether removing the implicit guarantee will encourage greater efficiency or only create an additional risk, only time will tell.

The Chinese corporate sector has the highest debt-to-equity ratios in the region, reflecting the explosive growth of the corporate bond market and historical underdevelopment of equity markets. Stock market capitalization, at about 40 per cent of GDP, compares unfavorably to that in other emerging markets like Brazil, India, and Korea. Moreover, a non-negligible (if declining) share of that capitalization is made up of non-negotiable state-owned shares, causing the official Chinese figures to paint a somewhat exaggerated picture. Controlling for free float (eliminating negotiable shares held by important private stakeholders) is likely to redraw the picture further in the same direction. The rate of growth of capitalization is similarly disappointing by international standards, reflecting high volatility on the Shanghai and Shenzhen markets.

Historically, turnover has been relatively high, despite lack of access of foreign investors to substantial segments of the market.<sup>51</sup> In contrast to the situation in the bond market, retail as well as institutional investors have been willing to participate actively, as a result of which market liquidity compares favorably with the situation in other countries at comparable levels of per capita GDP. But turnover has been declining in recent years, reflecting disenchantment among retail investors and complaints about market transparency and integrity (insider trading and corporate governance scandals). The strong performance of Chinese equities (with the Shanghai and Shenzhen markets rising by 80 per cent between mid-2014 and the time of writing)

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<sup>51</sup> The A-share market of locally underwritten domestic-currency issues is closed to foreign investors.

now appears to be drawing large numbers of retail investors back into the market, although how many of those new share accounts remain active remains to be seen.<sup>52</sup>

A further constraint on market development is close control by the government of new listings. Applications for public listings must be approved by the China Securities Regulatory Commission. The commission appears to time listings so as to manipulate share prices. When prices fall, applications for new listings are delayed or disapproved, which has been the situation in recent years. Similarly, the government has allegedly pressured state owned enterprises and banks to purchase shares when prices are depressed, limiting price discovery and raising additional questions about market integrity.

In May 2014 the State Council circulated a new policy document on capital market development reaffirming its commitment to develop equity markets and increase the share of direct financing in total external finance, although it did not specify the steps it was prepared to take. Some of these are obvious, including speeding approval of public listings while strengthening disclosure and corporate governance requirements for corporations with public listings.<sup>53</sup> They include refraining from arm-twisting banks and SOEs to buy shares when prices are weak.

A key question, raised above, is whether China should move faster to liberalize the capital account as a way of fostering financial development and liquidity. This issue arises most immediately in connection with efforts to internationalize the renminbi, it being unlikely that the currency will acquire meaningful unit of account, means of payment and store of value functions internationally so long as access and use across borders are significantly restricted. The issue also arises in connection with Chinese aspirations for the renminbi to be added to the IMF's SDR basket, inclusion presumably requiring substantial if not full capital account liberalization. But the question can also be asked by those concerned about financial development more broadly. Lack of a diverse investor base is a problem for the bond market, and it can become a problem for the equity market if domestic retail investors continue to retreat. More rapidly liberalizing the access of foreign investors would be a way of addressing this problem, and Chinese policy makers have already begun going down this road (as noted above).

Some observers warn that this strategy for attempting to compress the process of building more liquid financial markets has considerable risks (see Yu 2013). Corporates, both nonfinancial and financial, may respond to the appetite of issue-hungry foreigners by issuing reckless amounts of debt. Banks with easier access to foreign funding may lever up their balance sheets. Corporates with governance and transparency problems may bring initial public offerings to market prematurely. Increased exposure to international capital flows may heighten macroeconomic volatility, especially if it precedes the transition to a more flexible exchange rate.

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<sup>52</sup> Some analyses suggest that the majority of existing investor accounts are now held by households whose heads have a high school education or less.

<sup>53</sup> Some streamlining already occurred at the end of 2013 with the issuance of new guidelines for initial public offerings by the China Securities Regulatory Commission, but more unquestionably is needed.

In principle, these problems can be addressed. Chinese officials promise that new regulations limiting the leverage of bond market participants are coming. They promise a more flexible exchange rate (if not necessarily independence for the central bank). How fast they are coming remains to be seen.

All these are good arguments for why the Chinese authorities should resist the temptation to rely on capital account liberalization as a driver of domestic financial development and instead attend to basics, where the basics include strengthening not just supervision and regulation but also rule of law and bureaucratic quality more generally.

## 6. Excessive Financialization?

The idea that too much financial depth and development (“excessive financialization”) might be deleterious to economic stability and growth is not new; for earlier examples see Tobin (1984) and Epstein (1996). But this concern went mainstream with the growth of financial sectors in the decade leading up to the global credit crisis and the crisis itself. In the advanced countries the acceleration in the growth of the financial sector coincided with evidence of a slowdown in output and productivity growth economy-wide that became apparent even before the crisis (a review of the evidence is Gordon 2012). Many of the countries that then suffered the most serious growth setbacks during and after the crisis (Iceland, Ireland, the United Kingdom and the United States) were those with the largest financial sectors.

At least two studies attempt to identify the point where the contribution of financial depth diminishes and turns negative.<sup>54</sup> Arcand, Berkes and Panizza (2012) run workhorse regressions from the cross-country empirical literature on financial development and growth, including not just credit to the private sector over GDP but also the square of credit to the private sector over GDP. While the ratio enters positively, as in earlier studies, the squared term registers with a negative, statistically-significant coefficient. Using a variety of specifications and estimators, Arcand et al. consistently find that the effect turns negative when the ratio reaches 100 per cent. Cecchetti and Kharroubi (2012) use panel regression and a different sample of countries, also finding a peak in the inverted u-shaped relationship between the private credit ratio and growth at 100 per cent. In addition they find an inverted u-shaped relationship between financial-sector employment growth and economy-wide productivity growth with a peak at slightly below 4 per cent of total employment.

On this metric (private credit as share of GDP), Singapore, Malaysia, China, South Korea, Thailand and Hong Kong are all considerably above the level where the contribution of credit to economic growth turns negative. If the results of these studies are taken literally, they suggest that in all these countries financial deepening has gone far enough.

The controversy surrounding other magic numbers (like the notion that growth tends to slow abruptly when the debt-to-GDP ratio reaches 90 per cent) should leave us skeptical about

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<sup>54</sup> A third study, by Sahay et al. (2015), constructs an eclectic index of financial development that includes not just bank credit to the private sector must also a measure of market-based intermediation, and considers not just financial depth but also measures of access to and efficiency of financial institutions and markets. Like the studies cited in the text, they too find that the contribution of financial development to growth is bell shaped and eventually turns negative. The authors do not provide individual country values of their index so it is hard to say where Asian countries lie along the bell.



the precision of all such numerical thresholds. In the present instance there are special cases; much of the credit recorded as going to the private sector in Hong Kong, for example, may in fact be going to Chinese borrowers (and is funded by Chinese lenders). High income countries typically possess the largest and best-developed financial sectors; their growth may slow not because of any pernicious effects of excessive financialization but simply because they are mature economies that have approached the technological frontier.<sup>55</sup> Existing studies fail to identify the *channels* through which additional financial depth depresses growth, which is what they must do in order to convince. In any case, the structure and performance of the financial sector, and not simply its size, are likely to be what matter for output and productivity growth.<sup>56</sup>

Implicit in this last observation is an important implication for Asian policy makers: financial development means enhancing the performance and efficiency of the financial sector, not simply raising the private credit/GDP ratio. The message is the same as for capital formation: at some point brute-force capital accumulation (simply pushing up the capital/labor ratio) encounters diminishing returns, and countries need to focus on the quality (that is to say, the efficiency) and not just the quantity of investment. This of course is the essence of the rebalancing debate in China, and it applies to financial development as well as physical capital formation. Pushing up the private credit ratio is, clearly, the easier task. Chinese authorities instruct the banks to lend more, and the banks respond with a vengeance. But at some point simply expanding the supply of credit will reach the point of diminishing returns. Improving the efficiency of a given level of intermediation then becomes even more important.

Policy makers should also scrutinize the distortions to which critics of excessive financialization point in order to avoid creating or compounding them. A large and complex financial system may heighten crisis risk and hamstring efforts to contain the adverse macroeconomic effects (Easterly, Islam and Stiglitz 2000, Rajan 2006). This should direct the attention of officials to policies to address threats to stability and create policy space for responding, and to the growing importance of such measures as the financial sector grows. Asian countries on the front lines of the 1997-8 crisis in fact recognized this fact, building larger foreign reserves and negotiating regional networks of swap lines and credits as crisis-containment devices.

Similarly, the distortion may be that the social returns to employment in the financial sector are lower than the private returns, as suggested by Tobin (1984). This may be the case if compensation practices are flawed (bonuses that flow from excessive risk taking cannot be clawed back), because implicit guarantees subsidize financial-sector employment, or because financiers are engaged in redistributing wealth rather than creating it. If so, less employment in the nonfinancial sector may mean less meaningful innovation and growth. Korean officials, to take an example, might usefully ask whether their aspirations of making Seoul a financial hub for East Asia are compatible with their desire to maintain the country's competitive position in

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<sup>55</sup> The studies cited in the preceding paragraph include per capita GDP and various other country characteristics in an effort to control for this possibility, but the danger of omitted variables remains.

<sup>56</sup> Cecchetti and Kharroubi (2012) experiment with various measures of the structure of the financial sector (bank credit as opposed to total credit) without materially affecting the results, but whether they adequately control for the performance of the financial sector can still be questioned.

motor vehicles, shipbuilding, and high-tech products now that the share of employment in the financial sector is approaching Cecchetti and Kharroubi's cutoff of 4 per cent.<sup>57</sup>

## 7. Conclusion

The Asian crisis of 1997-8 was attributed, in part, to the failure of economies in the region to build deeper, more liquid and better diversified financial systems.<sup>58</sup> Asian countries, the argument went, relied too heavily on banks for the provision of financial services. Those banks in turn relied excessively on short-term, offshore, foreign-currency-denominated funding, exposing host economies to sudden stops and destabilizing exchange rate movements. This situation reflected the reliance on bank finance that is characteristic of the early stages of economic and financial development and the telescoped nature of the economic-development process in Asia. It reflected weaknesses in the contracting and regulatory environment that gave banks, which rely on long-term relationships and dedicated monitoring technologies, a leg up in the competition for financial business. It reflected the convenience to policy makers of a financial system dominated by big banks, which could be relied on to channel credit in particular directions. And it reflected the uneven nature of capital account liberalization, which gave politically favored banks preferential access to offshore funding.

The implication was that Asian countries should develop better diversified financial systems in which security markets, and bond markets in particular, play a more important role.<sup>59</sup> Studies showed that local bond markets were smaller than in other regions and smaller than the other economic and financial characteristics of Asian economies would have led one to predict. Following the crisis this perceived problem was addressed by a series of initiatives at the national and regional levels, including the Asian Bond Market Initiative, an effort to pool information and expertise on the development of local bond markets, and the Asian Bond Market Forum, a mechanism to foster financial standardization and increased demand in the region for local-currency bonds.

Comparing the situation at the turn of the century, when these initiatives were just getting underway, with today suggests that economies in the region have made progress in the desired direction. Asian countries no longer stand out as having stunted bond markets. The conclusion holds most strongly for corporate bond markets, where many observers would argue matter most. Evidently, Asian policy makers have succeeded in advancing their objective of building better diversified financial systems.

At the same time, problems remain. Currency mismatches on bank balance sheets may be more closely scrutinized by supervisors and regulators, but nonfinancial corporations continue to borrow heavily offshore, incurring unhedged foreign-currency obligations.<sup>60</sup> This behavior reflects the unusually low cost of funding in offshore bond markets, owing to the low-interest-

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<sup>57</sup> The earlier caution in the text that magic numbers should not be taken too literally suggests that exactly *how* the Korean authorities go about promoting Seoul as a financial center will make all the difference.

<sup>58</sup> The "in part" qualifier is important, since a full accounting of the Asian crisis would necessarily acknowledge important roles for other factors both internal and external to the region.

<sup>59</sup> This emphasis on bond markets in turn reflected the presumption, noted above, that equity markets have even more formidable prerequisites and are even later to develop, although, as also noted above, this presumption can be questioned.

<sup>60</sup> The most prominent study highlighting this problem is Avdjiev, Chui and Shin (2014), as noted above.

rate policies of the Federal Reserve and other advanced-country central banks, but also the failure of local bond markets to provide the same services as efficiently. Domestic bond markets still lack liquidity by the standards of the leading international financial centers. Lack of liquidity, as manifested in low turnover and high bid-ask spreads, reflects the uneven development of the relevant trading platforms and technologies but also the absence of a more diverse investor base.

These observations in turn create a temptation to rely on capital account liberalization – to throw open domestic markets to foreign investors – as a way of jump-starting the financial-development process. Doing so promises to increase the diversity of the investor base, boost trading and turnover, and enhance market liquidity at a stroke. But this strategy also comes with risks, as many Asian countries have learned the hard way. Foreign funds, when they pour in, can push local markets up to uncomfortable heights, from which a fall can be injurious. Such were the worries of policy makers in emerging markets complaining prior to 2013 about the foreign capital flooding into their markets from advanced countries with near-zero interest rates. When flows turn around, markets can quickly become illiquid. Such are the worries of policy makers in countries like Korea and Indonesia, where memories of the role of capital inflows in the 1997-8 crisis were especially vivid, who have resorted to taxes and capital account regulations to moderate the volume of inflows. The so-called “taper tantrum” of mid-2013, when Federal Reserve officials unexpectedly suggested that the security purchase program and low interest rates of the U.S. central bank might soon come to an end, highlighted the dangers motivating these Korean and Indonesian policies.<sup>61</sup>

The implication is that rapid capital account liberalization designed to “jump-start” the process of building larger and more liquid financial markets is an approach with considerable risks. Capital account liberalization is a process whose benefits exceed its costs only when significant prerequisites are met. This conclusion, supported by international evidence and recent Asian history alike, is an important one for Chinese policy makers to take to heart, given their self-avowed strategy of seeking to develop a better diversified financial system in part by encouraging foreign investor participation in local security markets and internationalizing the renminbi.

The bottom line, which comes through clearly in the recent literature on “excessive financialization,” is that policy makers should focus less on headline measures of financial depth and liquidity like market capitalization and turnover, and more on the efficiency of the financial system in meeting the needs of households and firms. Asian policy makers drew an analogous conclusion about fixed investment from the 1997-8 financial crisis: that they needed to focus less on the volume of investment and more on its efficiency. They should now apply the same lesson to the development of the financial system.

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<sup>61</sup> As described in Eichengreen and Gupta (2013). The capital account regulations of these and other emerging markets are described by Baumann and Gallagher (2013).

<b>Table 1. Total Outstanding External Finance (in Percentages of GDP)</b>					
<b>Outstanding Domestic Debt Securities</b>					
	<b>Domestic Credit to Private Sector by Banks</b>	<b>Market Capitalizati on</b>	<b>Issued by Corporate Issuers</b>	<b>Issued by Public Sector</b>	<b>Issued by Financial Institutions</b>
<b>East Asia ex Japan</b>					
China	133.66	44.93	8.09	18.05	15.26
Hong Kong	198.53	421.93	5.04	34.15	10.91
Malaysia	117.60	156.04	36.93	53.92	24.99
Singapore	116.20	144.34	0.57	39.87	7.00
South Korea	136.69	96.54	33.91	41.44	20.18
Thailand	115.56	104.65	12.02	50.28	0.88
Average of above	<b>134.05</b>	<b>68.02</b>	<b>11.73</b>	<b>23.84</b>	<b>15.28</b>
<b>Latin America</b>					
Argentina	14.12	5.68	0.99	7.91	0.42
Brazil	68.54	54.69	0.46	69.74	23.31
Chile	73.19	117.68	10.67	33.89	2.80
Mexico	20.22	44.25	3.37	26.24	13.07
Average of above	<b>47.88</b>	<b>48.84</b>	<b>1.97</b>	<b>46.87</b>	<b>16.01</b>
<b>Central Europe</b>					
Czech Republic	53.77	17.97	5.72	27.69	8.55
Hungary	55.72	16.62	0.40	49.84	5.72
Poland	53.09	35.82	0	40.95	2.89
Average of above	<b>53.66</b>	<b>28.44</b>	<b>1.49</b>	<b>39.00</b>	<b>4.73</b>
<b>Developed Countries</b>					
Australia	122.24	83.84	3.10	29.99	40.88
Canada	170.01	110.69	9.94	62.23	16.86
Japan	106.92	61.82	14.45	203.93	17.58
New Zealand	158.65	46.54	0	31.07	0
United States	49.49	115.50	21.22	82.02	60.04
Euro Area*	124.21	50.18	7.73	60.89	38.45

Average of above	<b>91.94<sup>62</sup></b>	<b>83.84</b>	<b>14.37</b>	<b>90.81</b>	<b>43.23</b>
<b>Other</b>					
Anglo-Saxon Nations <sup>63</sup>	78.85	112.42	16.50	73.66	48.95
Asia, including Japan	124.34	65.80	12.71	88.33	16.10

Note: Data from 2012 and 2013. Author's calculations.

Data from Bank for International Settlements, World Bank and Reuters Datastream.

\*Euro Area includes Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain. Outstanding domestic debt is calculated as an aggregate, dividing the debt securities in the entire Euro area by the aggregate GDP of the Euro area.

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<sup>62</sup>Average excluding Slovakia due to missing data. In addition, calculated using total private credit for Canada and New Zealand.

<sup>63</sup>Anglo-Saxon Nations include Australia, Canada, New Zealand, the United Kingdom, and the United States.

**Table 2. Bond Market Capitalization as a Share of GDP by Per Capita Income and Region, 1996-2011, New BIS Series, Full Sample**

Sample	(1) 1996	(2) 2012	(3) 1996	(4) 2012	(5) Full sample	(6) <2002	(7) ≥2002
Ln GDP per capita			0.119 (3.04)**	0.315 (3.69)**	0.056 (5.78)**	0.077 (9.68)**	0.065 (6.43)**
Asian country	-0.356 (2.51)*	0.145 (0.56)	-0.291 (2.18)*	0.306 (1.29)	-0.090 (2.86)**	-0.143 (2.57)*	0.348 (8.22)**
Constant	0.362 (6.58)**	0.748 (7.36)**	-0.739 (2.02)*	-2.410 (2.80)**	-0.166 (1.73)	-0.387 (5.39)**	-0.165 (1.79)
Observations	53	53	53	53	1302	772	530
R-squared	0.11	0.01	0.25	0.22			
Number of groups					53	53	53

*Notes:* Absolute value of t statistics in parentheses; \*significant at 5%; \*\*significant at 1%. All regressions are estimated using panel Generalized Least Squares, allowing for autocorrelation within the panel and cross-sectional correlation.

*Source:* See text.

**Table 3. Bond Market Capitalization as a Share of GDP by Per Capita Income and Region, 1996-2011, New BIS Series, Limited Sample**

Sample	(1) 1996	(2) 2012	(3) 1996	(4) 2012	(5) Full sample	(6) <2002	(7) ≥2002
Ln GDP per capita			0.051 (1.51)	0.212 (2.77)**	0.053 (4.44)**	0.049 (7.44)**	0.155 (11.58)**
Asian country	-0.243 (2.20)*	0.335 (1.54)	-0.225 (2.07)*	0.429 (2.04)*	0.050 (0.91)	-0.126 (3.20)**	0.270 (6.44)**
Constant	0.267 (5.09)**	0.589 (5.36)**	-0.186 (0.61)	-1.473 (1.96)	-0.161 (1.47)	-0.164 (2.70)**	-0.908 (7.07)**
Observations	31	31	31	31	767	467	310
R-squared	0.14	0.08	0.21	0.27			
Number of groups					31	31	31

*Notes:* Absolute value of t statistics in parentheses; \*significant at 5%; \*\*significant at 1%. All regressions are estimated using panel Generalized Least Squares, allowing for autocorrelation within the panel and cross-sectional correlation.

*Source:* See text.

**Table 4. Bond Market Capitalization as a Share of GDP by Per Capita Income and Region, 1996-2011, Old BIS Series**

<b>Sample</b>	<b>(1) 1996</b>	<b>(2) 2011</b>	<b>(3) 1996</b>	<b>(4) 2011</b>	<b>(5) Full sample</b>	<b>(6) &lt;2002</b>	<b>(7) ≥2002</b>
Ln GDP per capita			0.169 (4.56)**	0.213 (3.42)**	0.044 (4.17)**	0.052 (3.88)**	0.138 (16.92)**
Asian country	-0.157 (1.05)	0.234 (1.21)	-0.063 (0.50)	0.315 (1.99)	0.096 (1.69)	-0.047 (0.96)	0.219 (8.18)**
Constant	0.527 (8.57)**	0.630 (8.14)**	-1.035 (2.99)**	-1.512 (2.40)*	0.189 (1.81)	0.001 (0.01)	-0.693 (8.34)**
Observations	47	50	47	50	1082	587	495
R-squared	0.02	0.03	0.34	0.22			
Number of groups					50	48	50

*Notes:* Absolute value of t statistics in parentheses; \*significant at 5%; \*\*significant at 1%. All regressions are estimated using panel Generalized Least Squares, allowing for autocorrelation within the panel and cross-sectional correlation.

*Source:* See text.



**Table 5: Determinants of Issuance of Domestic Debt Securities, by Sector of Issuer,  
% of GDP 1996-2013  
Extended Sample, New BIS Data**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Debt	Total Debt	Total Debt	Private Debt	Private Debt	Private Debt	Public Debt	Public Debt
<b>GDP, PPP (constant 2011 international billion \$)</b>	0.001 (9.94)***	0.001 (8.40)***	-0.001 (2.05)**	0.001 (6.65)***	0.001 (7.59)***	-0.001 (2.05)**	0.001 (3.95)***	0.001 (3.72)***
<b>Exports of goods and services (% of GDP)</b>	-0.002 (2.67)***	-0.002 (3.17)***	-0.001 (0.14)	-0.001 (2.75)***	-0.001 (1.27)	-0.001 (0.14)	-0.001 (1.47)	-0.001 (2.81)***
<b>Asian Country</b>	-0.253 (2.02)**	-0.217 (1.75)*	0.015 (0.31)	0.102 (3.02)***	0.117 (3.63)***	0.015 (0.31)	0.015 (0.30)	-0.007 (0.15)
<b>Dummy for English Legal Origin</b>	-0.210 (2.37)**	-0.228 (2.45)**	-0.046 (0.95)	-0.038 (1.40)	-0.015 (0.56)	-0.046 (0.95)	-0.062 (2.56)**	-0.039 (1.54)
<b>Distance from Equator</b>	-0.760 (2.17)**	-0.771 (2.11)**	0.145 (0.96)	0.270 (2.93)***	0.217 (2.36)**	0.145 (0.96)	-0.182 (1.65)*	-0.223 (2.16)**
<b>Investment Profile</b>	-0.008 (1.87)*	-0.007 (1.84)*	0.004 (2.23)**	0.000 (0.19)	0.000 (0.15)	0.004 (2.23)**	-0.008 (2.89)***	-0.009 (3.45)***
<b>Law and Order</b>	0.008 (0.64)	0.004 (0.31)	-0.003 (0.52)	0.001 (0.33)	0.003 (0.84)	-0.003 (0.52)	-0.002 (0.20)	-0.004 (0.62)
<b>GDP per capita, PPP (constant international thousand \$)</b>	0.000 (2.57)**	0.000 (4.68)***	0.000 (2.37)**	0.000 (5.10)***	0.000 (6.66)***	0.000 (2.37)**	0.000 (4.14)***	0.000 (6.56)***
<b>Control of Corruption</b>	-0.014 (1.48)	-0.020 (2.08)**	-0.007 (1.30)	0.002 (0.44)	0.002 (0.56)	-0.007 (1.30)	-0.012 (1.97)**	-0.013 (2.29)**
<b>Accounting Standards</b>	0.006 (1.71)*	0.005 (1.38)	-0.007 (2.87)***	-0.004 (3.12)***	-0.003 (2.77)***	-0.007 (2.87)***	0.004 (2.52)**	0.003 (2.05)**
<b>Domestic Credit to Private Sector by Banks (% of GDP)</b>	0.001 (2.94)***	0.001 (1.31)	0.001 (3.72)***	0.001 (4.29)***	0.001 (4.58)***	0.001 (3.72)***	0.001 (3.14)***	0.001 (1.19)
<b>Bureaucratic Quality</b>	-0.006 (0.40)	-0.012 (0.71)	-0.004 (0.37)	-0.001 (0.19)	-0.008 (1.23)	-0.004 (0.37)	-0.002 (0.19)	0.001 (0.05)
<b>SD log Interest Rate</b>	-0.022 (0.82)	-0.015 (0.55)	-0.046 (3.19)***	0.005 (0.49)	-0.000 (0.04)	-0.046 (3.19)***	0.054 (5.22)***	0.047 (4.47)***
<b>SD_change log Xrate</b>	-0.376 (2.87)***	-0.363 (2.84)***	0.057 (0.88)	0.022 (0.37)	0.050 (0.80)	0.057 (0.88)	(1.89)*	-0.232 (3.26)***
<b>Budget Balance (% of GDP)</b>	-0.011 (4.51)***			-0.000 (0.52)			-0.012 (8.00)***	
<b>Chinn Ito Capital Controls Measure</b>	0.015 (1.41)	0.015 (1.42)	-0.001 (0.17)	0.004 (0.71)	0.002 (0.45)	-0.001 (0.17)	0.015 (2.43)**	0.006 (1.12)
<b>Cash surplus/deficit (% of GDP)</b>		-0.013 (7.97)***			-0.003 (4.55)***			-0.010 (9.77)***

<b>Outstanding Domestic Debt Securities Issued by Private Sector (% of GDP)</b>			1.448 (45.45)***			0.448 (14.06)** *		
<b>Constant</b>	0.491 (1.90)*	0.477 (1.83)*	0.461 (3.58)***	0.030 (0.40)	-0.026 (0.36)	0.461 (3.58)***	-0.152 (1.25)	-0.019 (0.16)
<b>Observations</b>	458	493	441	458	493	441	458	493
<b>Number of groups (countries)</b>	32	32	20	32	32	20	32	32

Absolute value of z statistics in parentheses

\* Significant at 10%; \*\* Significant at 5%; \*\*\* Significant at 1%

**Table 6. Determinants of Issuance of Domestic Debt Securities, Total Debt, % of GDP, 1996-2013 and Subperiods, Extended Sample, New BIS Data**

	(1)	(2)
	<b>Total Debt (Pre 2002)</b>	<b>Total Debt (Post 2002)</b>
<b>GDP, PPP (constant 2011 international billion \$)</b>	0.001 (8.78)***	0.001 (6.08)***
<b>Exports of goods and services (% of GDP)</b>	0.000 (0.37)	-0.004 (5.48)***
<b>Asian Country</b>	-0.388 (8.81)***	0.239 (2.12)**
<b>Dummy for English Legal Origin</b>	0.118 (2.09)**	0.033 (0.37)
<b>Distance from Equator</b>	0.065 (0.39)	0.246 (0.77)
<b>Domestic Credit to Private Sector by Banks (% of GDP)</b>	0.001 (2.34)**	0.002 (3.85)***
<b>Bureaucratic Quality</b>	0.011 (1.01)	-0.029 (0.64)
<b>Control of Corruption</b>	-0.011 (1.59)	0.011 (0.62)
<b>Accounting Standards</b>	-0.008 (4.81)***	-0.004 (1.35)
<b>Investment Profile</b>	-0.001 (0.02)	-0.041 (4.50)***
<b>Law and Order</b>	0.002 (0.40)	-0.040 (2.03)**
<b>GDP per capita, PPP (constant international thousand \$)</b>	0.001 (4.04)***	0.001 (4.38)***
<b>GDP, PPP (constant 2011 international \$)</b>	0.001 (3.54)***	0.001 (2.74)***
<b>SD_change in log Xrate</b>	-0.400 (6.39)***	0.113 (1.24)
<b>Chinn Ito Capital Controls Measure</b>	0.031 (5.97)***	-0.006 (0.29)
<b>Constant</b>	0.744 (5.96)***	0.768 (3.92)***
<b>Observations</b>	373	340
<b>Number of groups (countries)</b>	32	32

Absolute value of z statistics in parentheses

\* Significant at 10%; \*\* Significant at 5%; \*\*\* Significant at 1%

**Table 7: Determinants of Issuance of Domestic Debt Securities, by Sector of Issuer,  
% of GDP 1996-2013  
Extended Sample, Excluding Japan, New BIS Data**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Debt	Total Debt	Total Debt	Private Debt	Private Debt	Private Debt	Public Debt	Public Debt
<b>GDP, PPP (constant 2011 international billion \$)</b>	0.001 (10.70)***	0.001 (9.26)***	-0.001 (2.39)**	0.001 (6.49)***	0.001 (7.48)***	-0.001 (2.39)**	0.001 (3.80)***	0.001 (3.06)***
<b>Exports of goods and services (% of GDP)</b>	-0.002 (2.97)***	-0.002 (3.94)***	-0.001 (0.27)	-0.001 (2.12)***	-0.001 (1.55)	-0.001 (0.27)	-0.001 (1.01)	-0.001 (2.78)***
<b>Asian Country</b>	-0.242 (2.10)**	-0.180 (1.61)	0.037 (0.58)	0.026 (0.71)	0.068 (1.80)*	0.037 (0.58)	-0.072 (1.48)	-0.110 (2.57)**
<b>Dummy for English Legal Origin</b>	-0.112 (1.22)	-0.095 (1.07)	-0.033 (0.61)	-0.034 (1.19)	-0.026 (0.90)	-0.033 (0.61)	-0.088 (2.44)**	-0.066 (1.82)*
<b>Distance from Equator</b>	-0.495 (1.48)	-0.375 (1.25)	0.136 (0.71)	0.194 (1.81)*	0.126 (1.22)	0.136 (0.71)	-0.326 (2.68)***	-0.360 (3.39)**
<b>Investment Profile</b>	-0.009 (1.99)**	-0.008 (2.08)**	0.004 (2.15)**	0.001 (0.38)	0.000 (0.18)	0.004 (2.15)**	-0.008 (2.75)***	-0.007 (2.94)***
<b>Law and Order</b>	0.008 (0.64)	0.004 (0.31)	-0.003 (0.52)	0.001 (0.33)	0.003 (0.84)	-0.003 (0.52)	-0.002 (0.20)	-0.004 (0.62)
<b>GDP per capita, PPP (constant international thousand \$)</b>	0.000 (2.60)***	0.000 (4.87)***	0.000 (2.69)***	0.000 (4.22)***	0.000 (6.43)***	0.000 (2.69)***	0.000 (3.22)***	0.000 (6.79)***
<b>Control of Corruption</b>	-0.020 (2.03)**	-0.023 (2.33)**	-0.006 (1.19)	0.002 (0.42)	0.002 (0.51)	-0.006 (1.19)	-0.013 (2.13)**	-0.011 (1.88)*
<b>Accounting Standards</b>	0.003 (0.83)	0.002 (0.56)	-0.007 (2.93)***	-0.003 (2.35)**	-0.002 (1.83)*	-0.007 (2.93)***	0.005 (2.63)***	0.003 (1.85)*
<b>Domestic Credit to Private Sector by Banks (% of GDP)</b>	0.002 (3.34)***	0.001 (1.77)*	0.001 (3.63)***	0.001 (4.58)***	0.001 (4.61)***	0.001 (3.63)***	0.001 (3.82)***	0.000 (1.20)
<b>Bureaucratic Quality</b>	-0.004 (0.26)	-0.027 (1.43)	-0.004 (0.40)	-0.002 (0.35)	-0.006 (1.09)	-0.004 (0.40)	-0.001 (0.12)	0.008 (0.68)
<b>SD log Interest Rate</b>	-0.003 (0.13)	-0.003 (0.16)	-0.050 (2.74)***	0.001 (0.08)	-0.006 (0.53)	-0.050 (2.74)***	0.039 (3.40)***	0.029 (2.66)***
<b>SD_change log Xrate</b>	-0.389 (3.06)***	-0.357 (2.83)***	0.077 (1.19)	0.025 (0.39)	0.024 (0.36)	0.077 (1.19)	-0.217 (2.84)***	-0.313 (4.70)***
<b>Budget Balance (% of GDP)</b>	-0.010 (4.40)***			-0.001 (0.45)			-0.012 (7.70)***	
<b>Chinn Ito Capital Controls Measure</b>	0.015 (1.59)	0.023 (2.16)**	-0.001 (0.13)	0.001 (0.26)	0.002 (0.35)	-0.001 (0.13)	0.010 (1.57)	0.006 (1.23)
<b>Cash surplus/deficit (% of GDP)</b>		-0.013 (7.78)***			-0.003 (4.43)***			-0.010 (10.22)***

			1.449 (46.32)***			0.449 (14.35)***		
<b>Outstanding Domestic Debt Securities Issued by Private Sector (% of GDP)</b>								
<b>Constant</b>	0.500 (1.86)*	0.524 (1.93)*	0.462 (3.32)***	0.094 (1.14)	0.008 (0.10)	0.462 (3.32)***	-0.059 (0.48)	0.182 (1.52)
<b>Observations</b>	458	493	441	458	493	441	458	493
<b>Number of groups (countries)</b>	32	32	20	32	32	20	32	32

Absolute value of z statistics in parentheses

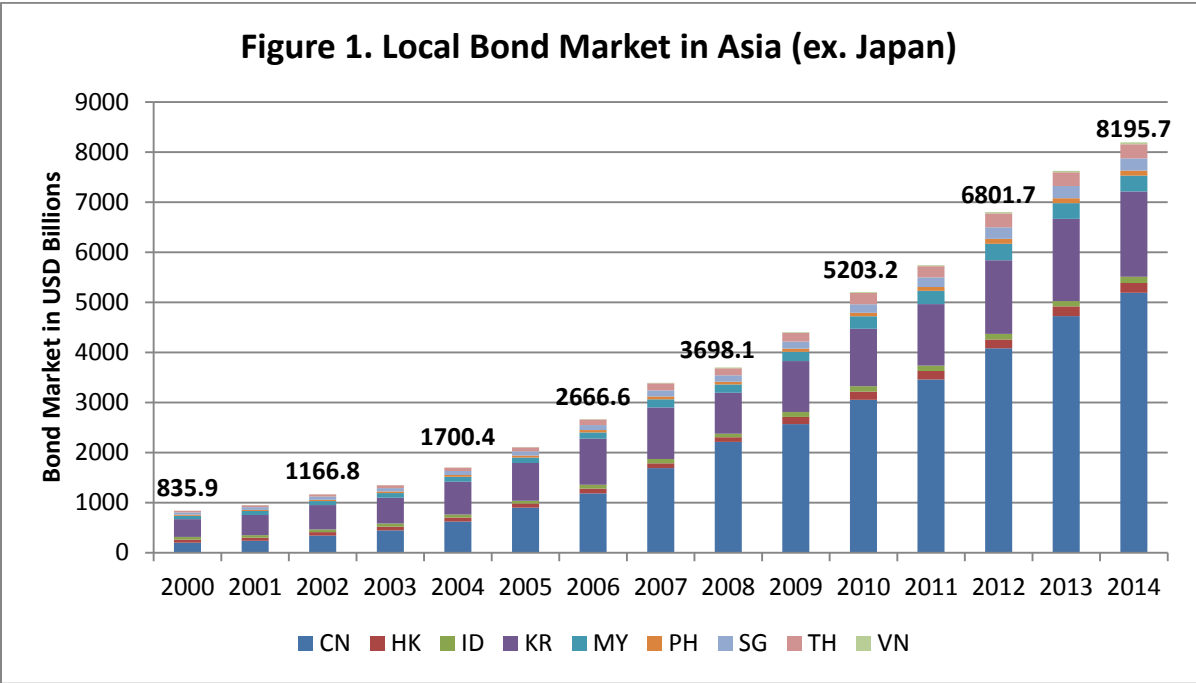
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 8. Determinants of Issuance of Domestic Debt Securities,  
Total Debt, % of GDP, 1996-2013 and Subperiods,  
Extended Sample, Excluding Japan, New BIS Data**

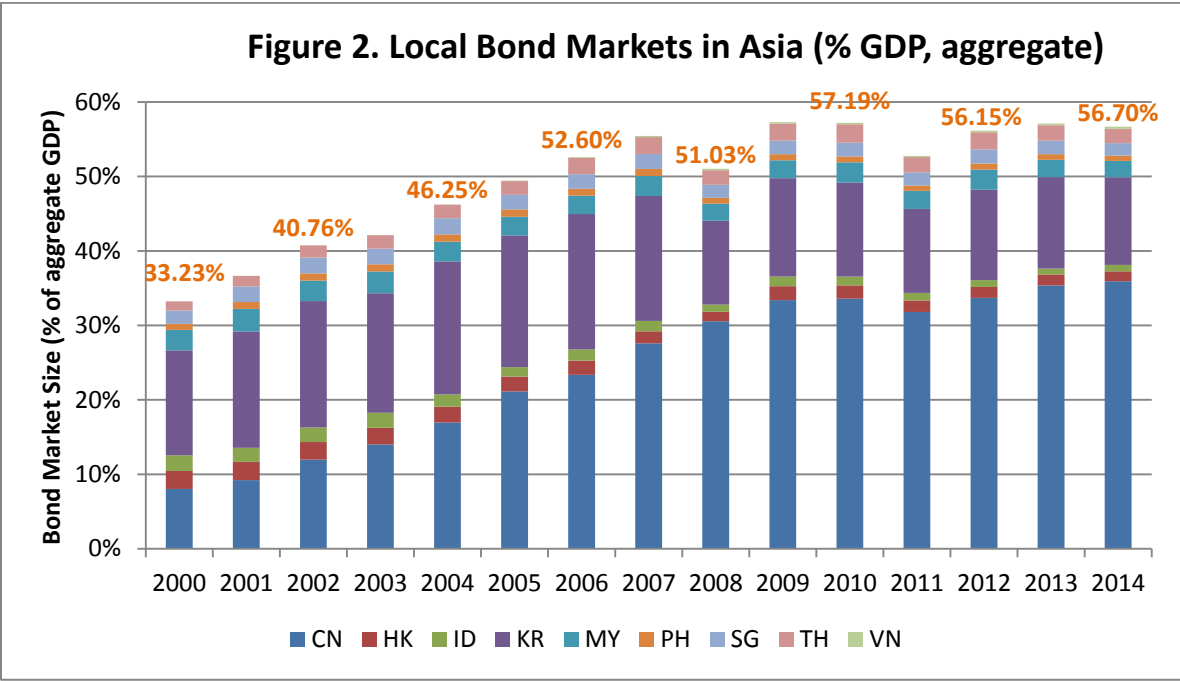
	(1)	(2)
	<b>Total Debt (Pre 2002)</b>	<b>Total Debt (Post 2002)</b>
<b>GDP, PPP (constant 2011 international billion \$)</b>	0.001 (10.01)***	0.001 (8.74)***
<b>Exports of goods and services (% of GDP)</b>	0.000 (0.90)	-0.004 (5.70)***
<b>Asian Country</b>	-0.372 (9.48)***	0.047 (0.69)
<b>Dummy for English Legal Origin</b>	0.151 (2.89)***	0.184 (2.15)**
<b>Distance from Equator</b>	0.153 (1.00)	-0.509 (1.69)*
<b>Domestic Credit to Private Sector by Banks (% of GDP)</b>	0.001 (0.94)	0.003 (6.05)***
<b>Bureaucratic Quality</b>	0.009 (0.88)	0.003 (0.09)
<b>Control of Corruption</b>	-0.011 (1.79)*	0.008 (0.47)
<b>Accounting Standards</b>	-0.008 (5.01)***	0.001 (0.56)
<b>Investment Profile</b>	-0.001 (0.33)	-0.037 (4.13)***
<b>Law and Order</b>	0.005 (0.99)	-0.038 (2.02)**
<b>GDP per capita, PPP (constant international thousand \$)</b>	0.001 (3.45)***	0.001 (4.67)***
<b>o. GDP, PPP (constant 2011 international \$)</b>	0.001 (0.87)	0.001 (1.32)
<b>SD_change in log Xrate</b>	-0.368 (5.78)***	-0.012 (0.14)
<b>Chinn Ito Capital Controls Measure</b>	0.028 (5.53)***	-0.025 (1.52)
<b>Constant</b>	0.692 (5.59)***	0.683 (3.76)***
<b>Observations</b>	373	340
<b>Number of groups (countries)</b>	32	32

Absolute value of z statistics in parentheses

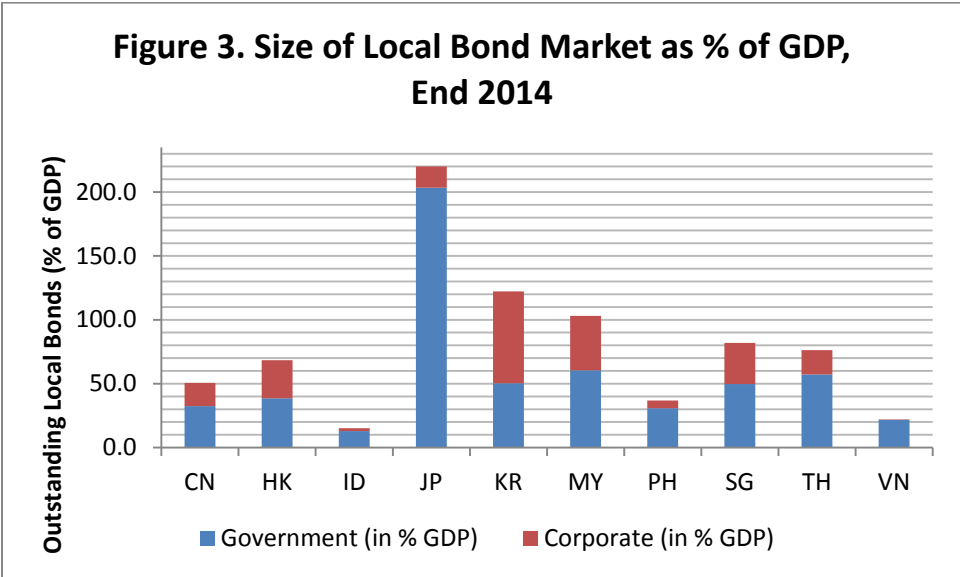
\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%



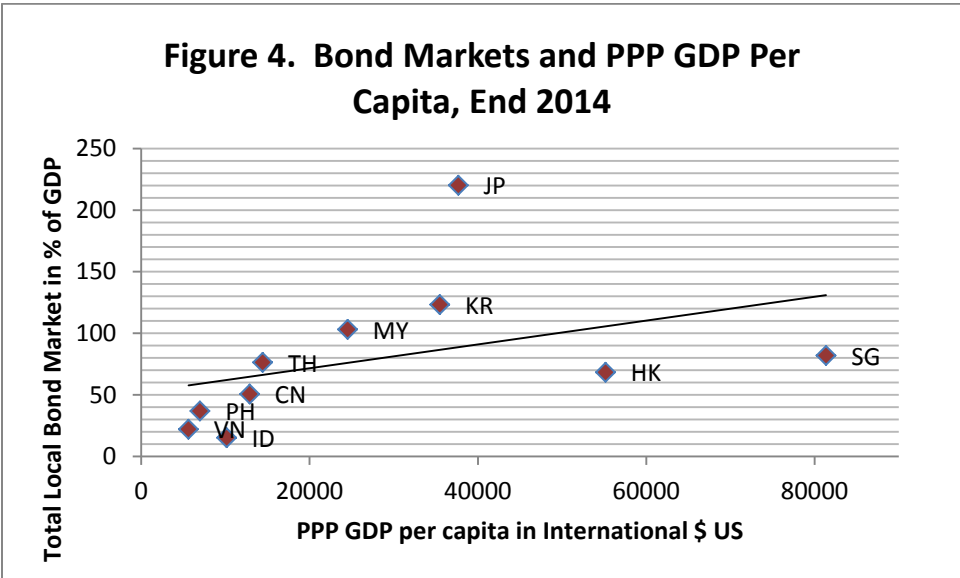
**Note:** Calculated using data for December of each year.  
**Source:** Asian Development Bank.



**Note:** GDP as estimated by the IMF. Figures exclude Japan.  
**Source:** Asian Development Bank and IMF.

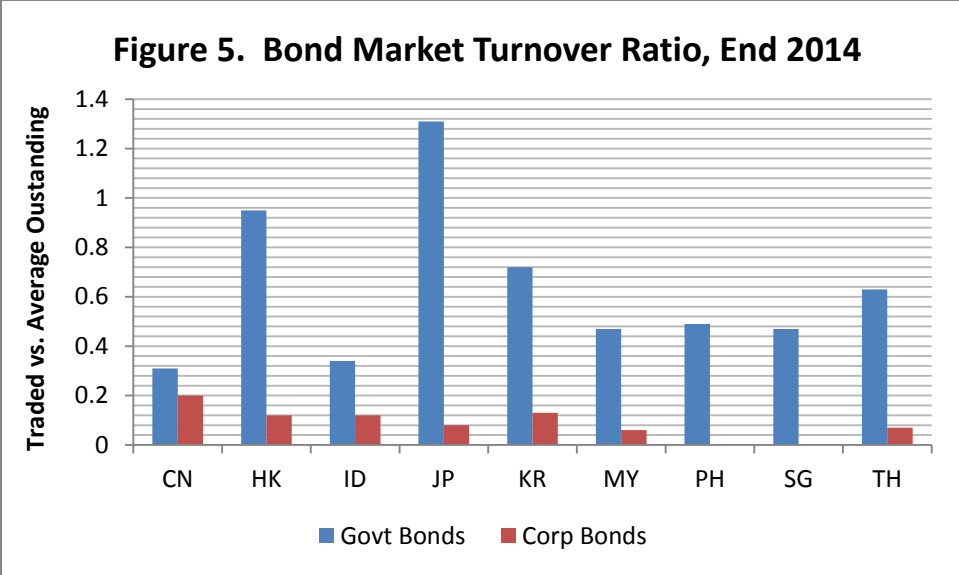


Source: Asian Development Bank and IMF.

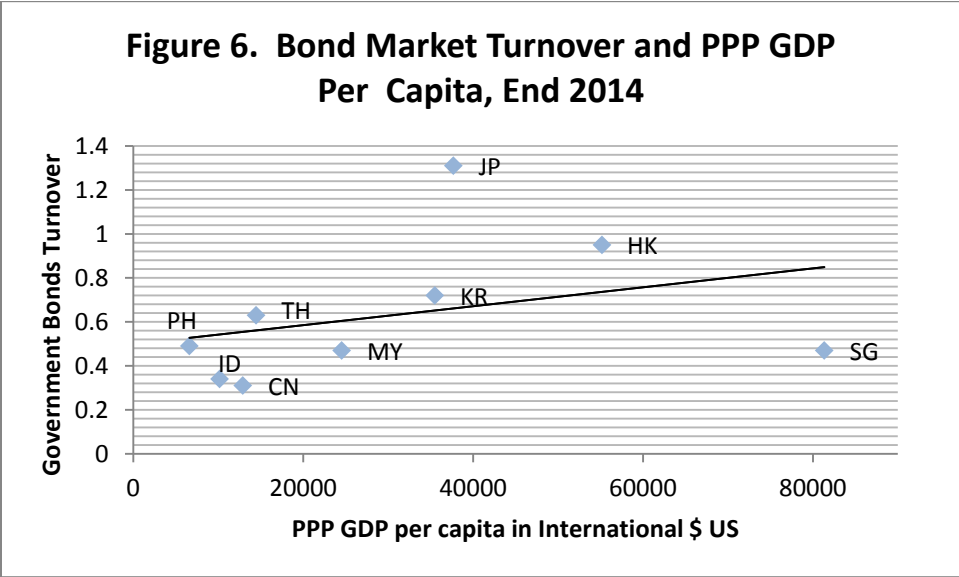


Source: Asian Development Bank and IMF.

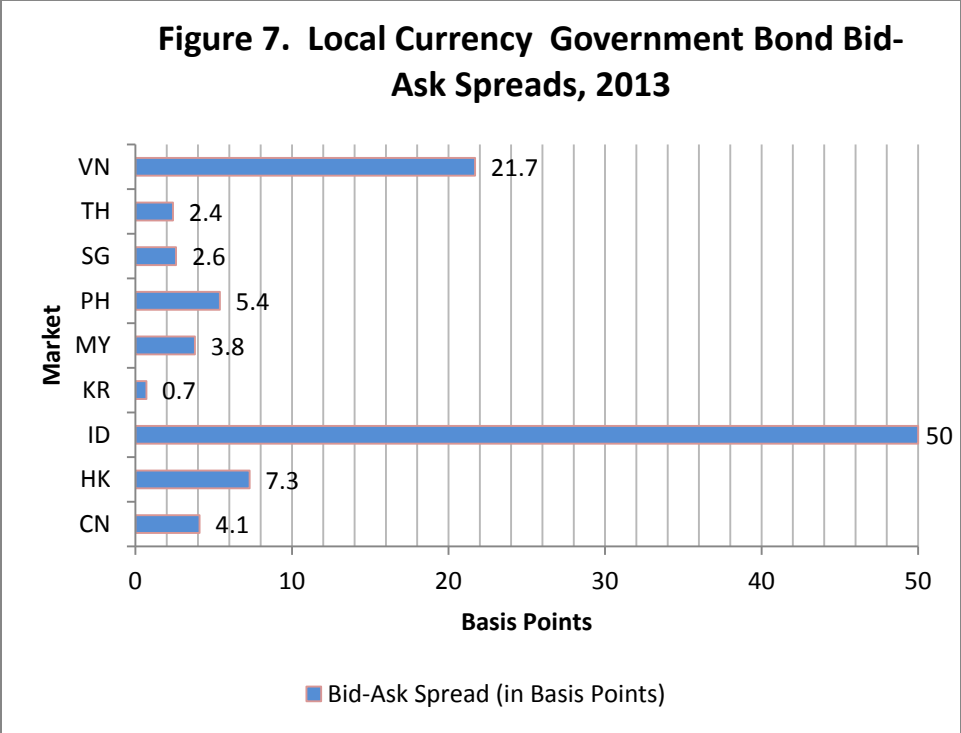




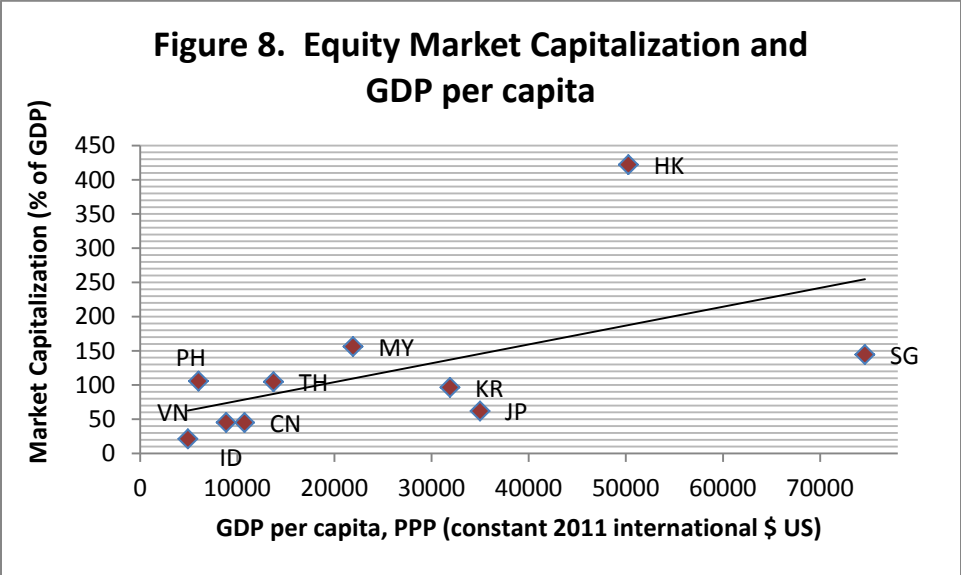
**Note:** End 2013 data for Philippines are latest available.  
**Source:** Asian Development Bank.



**Note:** end 2013 data on turnover for Philippines are latest available.  
**Source:** see text.

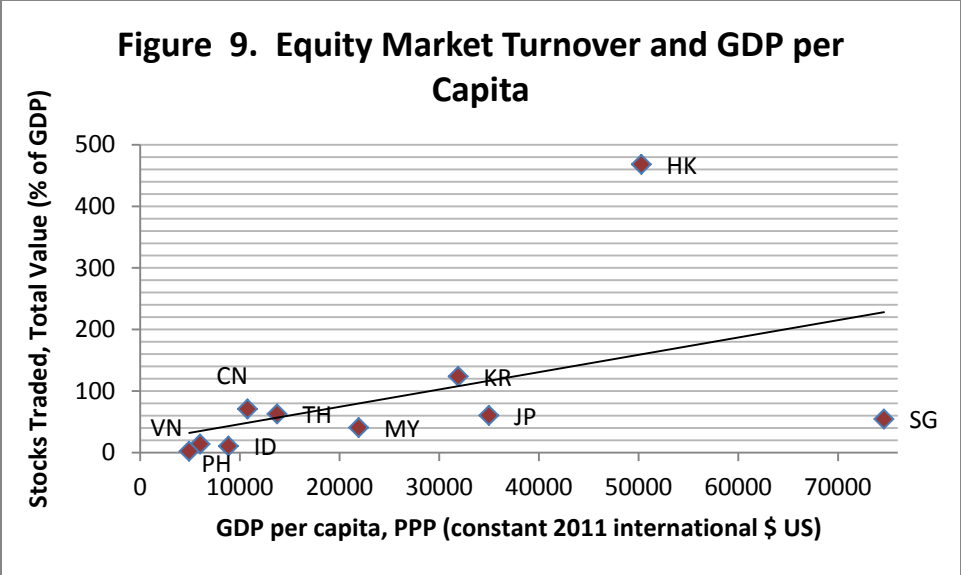


Source: Asian Development Bank.



Note: 2012 data unless otherwise stated.

Source: World Bank.



Note: 2012 data unless otherwise stated.

Source: see text.

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