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# Domestic Bond Market Development: The Arirang Bond Experience in Korea

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*This study contrasts the development of the Republic of Korea's market for won-denominated foreign bonds (Arirang) with similar markets in the Asia-Pacific region. It discusses the problems, concerns, and key issues related to the development of this market within the broader context of domestic, regional, and global bond market development. Korea's experience provides valuable lessons for other emerging market economies also seeking to build bond markets for local and foreign issuers. The sophistication of the local bond market is not enough to make it appealing to foreign borrowers. Market development demands ensuring an enabling infrastructure and a background of macroeconomic stability, nurturing local and international demand, deregulating capital flows, and minimizing exchange restrictions.* JEL codes: F34, G18.

The 1997–98 East Asian financial crisis gave a significant boost to policy reform in the region, spanning the full spectrum of macroeconomic and microeconomic policy possibilities. Specific attention also focused on identifying why bank finance almost completely dominated financial markets in East Asia and on facilitating the development of local and regional bond markets. The idea was that more developed bond markets would make banking markets more efficient and competitive, and would help retain the region's vast household and corporate savings, which were directed largely to fixed-rate investment in Europe and the United States.[1] A two-tiered approach to financial market development aimed at both bank and bond market reform would also be complementary to longer term economic development, provided services could be delivered through efficient financial and legal institutions (Chakraborty and Ray 2006) and there was strong protection for investors and sound fiscal and monetary policy management by government (Burger and Warnock 2006b).[2]

These bond market reforms across East Asia have been quite successful. Bond market volumes have increased twofold or more, and corporate issuance has


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expanded along with the government bond market. In addition, risk premiums, measured by spreads on sovereign eurobonds,[3] have shrunk following a region-wide policy of structural reform matched by prudent fiscal management by governments. In several countries, including the Republic of Korea and Malaysia, the corporate bond market has caught up with that in the United States, as measured by a percentage of gross domestic product (GDP).

Despite these many improvements, however, the development of local financial markets remains modest by the standards of bond markets in developed countries, especially when viewed from a regional perspective.[4] There is also considerable variation in the scale and scope of these markets that correspond on an anecdotal level with the legal jurisdictions in place: countries with common law-based legal systems seem to be more successful in developing their securities markets. Burger and Warnock (2006a) also find that emerging market economies with stronger legal institutions and better historical inflation performance have more developed local bond markets.

One critical market segment that remains largely overlooked in the region and that could help to elevate regional and domestic bond markets to the global plane advocated by McCauley and Park (2006) is the market for foreign bond issuers. These issuers include supranational organizations, such as the Asian Development Bank and the International Finance Corporation; prime-name corporations, such as IBM, Disney, and GE Finance; and banks and other financial institutions, such as Kreditanstalt für Wiederaufbau, that are well known for the diversity of their international bond offerings and that actively issue in many countries and currencies.

The only countries in Asia and the Pacific region that have consistently attracted these high-quality borrowers are the major financial centers of Singapore and Hong Kong, China, and the developed countries of Australia and Japan. Of the crisis economies that implemented radical regulatory change, only Korea has made significant progress in attracting bond issuance by nonresidents.

The objective of this article is to demonstrate the importance of the development of a domestic currency-denominated foreign bond market as the next stage in the bond market reform agenda. The article examines the case of Korea within the broader context of regional foreign bond market development. It builds on Hoschka (2005), who discusses the importance of multilateral development banks, especially the Asian Development Bank, in helping to expand nascent bond markets.[5]

While each financial and bond market in the region differs to some extent, there are common problems that impede the development of corporate bond markets, including investor participation, liquidity, price transparency, credit ratings, and taxation (Leung 2006). One feature of Korea's experience that is especially valuable to other emerging market economies is that it was the first of the crisis economies to actively pursue the expansion of its domestic bond market while also encouraging nonresident issuance through won-denominated “Arirang” bonds.

Today, the Arirang market is still modest in size, at less than 1.7 percent of corporate issuance, or around US$2.7 billion in 2006. This market developed without internationalization of the won or significant changes in capital and exchange controls, although recently further steps have been taken to internationalize the won.[6] Reforms in these areas characterized the stellar development of the foreign bond market in Australia (McCauley 2006) and Singapore (Lian 2002). Nonetheless, the Arirang market has been integral to the development of nongovernment bond markets by encouraging the reform agenda, highlighting regulatory and infrastructure deficiencies, and helping to establish an investor base. Overall, Korea’s experience holds important policy lessons for issuers, investors, regulators, and policymakers in other emerging market economies that are developing local bond markets.

The next section briefly discusses the expanding literature on financial market development with a focus on the role of bond markets. Then, the institutional context of Korea’s financial markets is briefly described, with the focus on the corporate segment, where Arirang bonds belong from a regulatory perspective. Where possible, these market segments are also compared at a regional level. The problems, concerns, and key issues related specifically to the Arirang market are discussed next, followed by strategies for further development. The final section presents some lessons that may be applied to other financial markets.

## The Need for Local Bond Markets

The rationale for bond market development appears clear. A sophisticated market reduces systemic risk and the probability of crisis, since the economy can then borrow in its own currency or in others but with longer maturities (Eichengreen and Hausmann 1999; Burger and Warnock 2006b). Better market mechanisms should aid risk sharing in the financial system and improve the ability to withstand prolonged shocks. The flow-on effects at the corporate level should lead to lower funding costs, improved resource allocation, more efficient corporate capital structures, and encouragement of innovation (Takagi 2002).

Much of the recent financial reform agenda in East Asia has focused on promoting corporate bond market development to expand the financing options available to the corporate sector (Herring and Chatusripitak 2000). McCauley and Park (2006) note three aspects of this vision of well-developed corporate bond markets: a series of domestic markets in which domestic investors provide funds to domestic issuers, a regional bond market denominated in regional currencies with regional investors and issuers, and a global market in which East Asian borrowers and possibly investors are minor players. McCauley and Park argue that the ultimate objective of the development of national bond markets should be integration into a global market. Development of a foreign bond market is consistent with such a vision.

Initially, attention was paid to development of domestic bond markets, both corporate and government (Batten and Kim 2001). Many early government reforms focused on the need to build infrastructure, including settlement systems (Park and Rhee 2006), and to establish reputable credit ratings (Kisselev and Packer 2006) and benchmark yield curves (Woodbridge 2001).

Later, attention shifted to regional markets. The Changmai Proposal at the meetings of the Asian Cooperation Dialogue in June 2003 called for the development of an Asian regional bond market (Pei 2005) and an Asian Bond Fund (Leung 2006). Park and Park (2004) advocated a market-led approach to bond market development coupled with domestic financial reform, to allow the development of viable domestic bond markets before attempts to tackle regional bond market development. Local derivatives markets would also be needed to facilitate risk and maturity transformation (Burger and Warnock 2006b). Only recently has attention turned to the importance of foreign participation in domestic markets (Burger and Warnock 2006a), which includes the issuance activities of multilateral development banks (Hoschka 2005) and foreign investors (Bae, Yun, and Bailey 2006).

Bonds issued in regional currencies, or against a basket of local currencies as suggested by Ito (2004), minimize the double mismatch problem (exchange and maturity mismatch between assets and liabilities) that local bond issuers usually experience. Historically, local issuers tend to issue in the major currencies (U.S. dollars, yen, and euro), and then either swap the proceeds into local currency (interest rate parity theory suggests this should deliver funds equivalent in yield to what is available in the domestic market) or, more often, sell the foreign currency proceeds in spot foreign exchange markets, leaving the repayment cash flows unhedged. This strategy is consistent with a carry-trade, which relies on the unhedged funding of high-yielding assets in foreign currency with low coupon currencies such as the yen to deliver speculative profits—provided the high-yielding currency does not depreciate below the interest rate differential between the two. The risk of these unhedged borrowings is that depreciation of the local currency can destroy the equity position of the local borrowing firms, as happened throughout the region (especially in Indonesia) during the East Asian financial crisis.[7]

Possibly more important for the post-crisis economies of East Asia, competition for borrowers reduces the dependence of firms on banking relationships (Weinstein and Yafeh 1998) and may induce banks to lend to lower quality borrowers than otherwise (Dinc 2000). Competitive pressure from the bond market encourages banks to monitor their credit decisions more effectively when information is asymmetric (Stulz 2000) or when there is poor investor protection (Modigliani and Perotti 2000). There is now consensus that banks and markets can coexist efficiently even in bank-oriented financial systems (Levine 1997; Boyd and Smith 1998; Bolton and Freixas 2000; Ongena and Smith 2000; Allen and Santomero 2001). Chakraborty and Ray (2006) recently established that although stronger bank monitoring helps to resolve information asymmetries and agency concerns, it is the efficiency of financial and legal institutions that influences growth outcomes, whether there is a bank- or a market-based financial system. This finding is consistent with Burger and Warnock (2006b), who note the importance of the legal setting, especially creditor rights, for bond market development.

Empirical evidence suggests that, in East Asia at least, bond markets should be larger and more developed than they are (Eichengreen and Luengnaruemitchai 2004; Lejot, Arner, and Liu 2006). The list of obstacles to be overcome is extensive, as a range of studies have pointed out (Benzie 1992; Emery 1997; Schinasi and Smith 1998; Kim 1999; Batten and Kim 2001; IMF 2005; Lejot, Arner, and Liu 2006; Leung 2006). Among them are the need for enabling regulation, including reform of withholding and other foreign investor taxes (Lejot, Arner, and Liu 2006); continuing reform of corporate governance, which includes better creditor rights, bankruptcy procedures, and contract enforcement (Beck, Levine, and Loayza 2000; Burger and Warnock 2006); and strong financial infrastructure for better information disclosure, the establishment of reliable credit ratings (Kisselev and Packer 2006) and robust benchmark yield curves; and high-quality settlement and risk management systems (Rhee 2003).

The institutional setting before the East Asian financial crisis clearly favored unhedged foreign borrowing with short-dated maturities over domestic-sourced and higher yielding bank debt or securities. Overvalued currencies in protected exchange rate regimes contributed to the bias. There is also some evidence of agency effects from numerous family-owned corporations, which, to preserve information asymmetries, sought bank financing instead of securities issued in either domestic or international markets.

The development of foreign bond markets is important for several reasons. Initially, it serves as a barometer of general development in the local bond market through the availability of better quality and longer dated securities that offer improved diversification for local investors (Jiang and McCauley, 2004). Foreign issuers may introduce best practice in issuance, disclosure, and documentation. And with supranationals such as the Asian Development Bank and the International Finance Corporation, which are often the first foreign bond issuers in developing markets, there is often the prospect of altruistic goals of enhancing bond market development more generally.

## The Korean Bond Market

The foundations of the bond market for Korean government securities were laid in the early 1950s.[8] Corporate bonds appeared in 1963, but issues were restricted to short maturities and were effectively dependent on bank guarantees. Not until the mid-1990s did the market begin to open to foreign investors, and not until 1997 was it fully liberalized, spurred by the currency crisis (Noland 2005). From the late 1980s growth of the government bond market had been slowed by continual current account surpluses. Thus, instead of a robust treasury bill market, quasi-government securities were issued to assist with monetary and exchange rate stability and housing development. At this time chaebol [9]-issued corporate bonds constituted by far the largest segment of the Korean bond market.

The currency crisis brought about fundamental changes in the market. The government had to raise huge amounts of funds for fiscal stimulation and financial restructuring, which induced rapid expansion in all segments of the public bond market. In 1998, treasury issues alone increased sixfold to won 12.5 trillion. Corporate issues also jumped to a staggering won 56 trillion. Firms had to shift borrowing to nonguaranteed securities, as troubled financial institutions were reluctant to extend credit lines or provide credit guarantees. Large quantities of asset-backed securities were issued simultaneously to securitize nonperforming loans and credit card receivables, creating one of the most sophisticated structured finance markets in the region. At the same time the huge surge of fund inflows into investment trust companies secured ample demand for these securities.

The infrastructure for the market was built gradually. Market operations are overseen by the Ministry of Finance and Economy and the Financial Supervisory Commission. Since 1998 the Bank of Korea has had only indirect oversight through supervision of payment and settlement systems and foreign exchange reserves. The securities market is largely self-regulated through organizations such as the Korea Securities Dealers Association, the Korea Exchange, and the Korea Securities Depository, and four local agencies assign credit ratings: Korea Investor Service (a Moody's affiliate), Korea Ratings (a Fitch affiliate), National Information & Credit Evaluation, and Seoul Credit Rating & Information. The underwriting market has also grown competitive, with Dealogic Data showing 10 bookrunners with a market share of at least 3.5 percent, the two largest being the Korea Development Bank and Woori Finance, a subsidiary of Woori Bank.

Today, Korea's bond market is the second largest in East Asia (table 1). In June 2005 it was valued at US$599.8 billion, or 81 percent of GDP, a nearly fivefold increase over 1997, an astonishing rate of growth. It is also the most diverse in the region, with corporate securities accounting for 26 percent of its volume and financial institution bonds for 44 percent. Nontreasury public bonds and asset-backed securities add another US$400 billion to the value of the market.

**Table 1.** Financial Markets in the Asia and Pacific Region (billions of U.S. dollars)

| | 1997 | | | | | June 2005 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Economy* | *Government* | *Corporate* | *Financial* | *Total* | *Percent of GDP* | *Government* | *Corporate* | *Financial* | *Total* | *Percent of GDP* |
| China | 67.4 | 6.3 | 42.7 | 116.4 | 12.9 | 331.8 | 12.2 | 208.0 | 552.0 | 31.5 |
| Hong Kong, China | 13.1 | 32.7 | | 45.8 | 26.4 | 16.0 | 66.9 | | 82.9 | 48.7 |
| Indonesia | 0.9 | 2.0 | 1.7 | 4.6 | 1.9 | 48.5 | 3.8 | 2.9 | 55.2 | 20.6 |
| Korea, Rep. of | 21.6 | 57.1 | 51.7 | 130.4 | 25.1 | 183.5 | 155.0 | 261.3 | 599.8 | 81.0 |
| Malaysia | 19.4 | 20.8 | 16.8 | 57.0 | 56.4 | 49.2 | 45.6 | 20.3 | 115.1 | 93.2 |
| Philippines | 16.6 | 0.3 | | 16.9 | 20.5 | 35.8 | 0.1 | 0.2 | 36.1 | 39.4 |
| Singapore | 13.0 | 10.7 | | 23.7 | 24.9 | 45.1 | 34.5 | | 79.6 | 71.4 |
| Thailand | 0.3 | 9.0 | 1.1 | 10.5 | 6.6 | 34.7 | 22.6 | 14.8 | 72.1 | 42.3 |
| Vietnam | | | | | | 4.3 | | | 4.3 | 10.0 |
| Japan | 2,383 | 578 | 1,650 | 4,608 | 116 | 6,929 | 836 | 1,516 | 9,281 | 187 |
| United States | 4,452 | 1,889 | 5,528 | 11,870 | 143 | 5,697 | 2,659 | 11,192 | 19,548 | 158 |

*Source*: Asian Development Bank; Dealogic Bondware; Bank for International Settlements.

Quasi-government securities include monetary stabilization bonds, foreign exchange stabilization bonds, national housing bonds, and special public bonds issued largely to finance infrastructure improvements in transport, electricity, and telecommunications.

The market is unconcentrated but only moderately diverse, as issuance is dominated by chaebols and their subsidiaries. Accordingly, credit quality in the market is very high and increasing in local terms (table 2). Bonds tend to be straight, unsecured, and almost exclusively nonguaranteed. Equity-linked instruments, predominantly convertibles, are relatively rare, with only 42 listed on the Korea Exchange. Of the more than 2,400 corporate bonds listed on the Korea Exchange, more than 90 percent are unsecured straight issues. Most securities are listed, largely because of restrictions on institutional investors investing in unlisted bonds. Corporate issues are concentrated at the shorter end of the maturity spectrum, with three-year bonds the most popular.

The low concentration of issuance limits liquidity to some extent. In 2005 the average issue size was about US$40 million. Turnover in secondary markets is still relatively high at 3.3 times the outstanding amount in government bonds and 1.0 time the outstanding amount in corporate securities the highest in East Asia. Trading in corporate bonds has declined by nearly 75 percent since 1999 (table 3). As in most countries, most corporate bond trades take place largely over the counter, administered mainly through the Korea Securities Dealers Association Free Board. Only 1.6 percent of trades are accounted for by the Korea Exchange, which reflects the low standardizability of corporate issues.

**Table 2.** Outstanding Bonds in Korea, by Type (billions of won)

| *Bond type* | *2001* | *2002* | *2003* | *2004* | *2005* |
|---|---|---|---|---|---|
| Total | 547,449 | 600,139 | 650,110 | 736,160 | 805,776 |
| Government | 78,126 | 95,808 | 137,677 | 197,932 | 234,126 |
| Treasuries | 46,032 | 52,389 | 82,427 | 142,421 | 180,855 |
| Foreign exchange stabilization bonds | 8,700 | 15,850 | 23,650 | 22,200 | 15,300 |
| National housing bonds | 21,268 | 26,469 | 31,001 | 33,311 | 37,376 |
| Special public | 134,343 | 133,417 | 118,286 | 115,288 | 117,191 |
| Monetary stabilization bonds | 79,121 | 83,890 | 105,497 | 142,729 | 155,235 |
| Financial debentures | 83,660 | 120,898 | 123,963 | 134,854 | 145,523 |
| Municipal | 9,246 | 8,954 | 9,939 | 10,553 | 11,210 |
| Corporate | 162,953 | 157,172 | 154,748 | 134,804 | 142,492 |
| Guaranteed | 5,987 | 4,862 | 3,364 | 755 | 323 |
| Secured | 64,060 | 63,454 | 63,121 | 48,878 | 40,704 |
| AAA | 9,384 | 15,618 | 16,369 | 15,542 | 14,583 |
| AA | 16,862 | 16,219 | 18,259 | 23,604 | 31,633 |
| A | 19,232 | 20,145 | 21,431 | 22,851 | 29,664 |
| BBB | 20,565 | 16,823 | 15,779 | 16,008 | 17,686 |
| BB | 7,855 | 6,446 | 5,506 | 1,251 | 1,075 |
| B | 4,454 | 3,589 | 1,592 | 457 | 432 |
| CCC-D | 3,545 | 1,178 | 536 | 345 | 291 |

*Source*: Korea BondWeb.

The remarkable decline in corporate bond trading is deceptive, however, as it simply reflects turnover settling down after a series of runs between 1999 and 2003. Ferocious trading in the market was fed by three major shocks. Each of

**Table 3.** Government and Corporate Bond Trading in Korea (billions of won)

| | *Government bonds* | | | *Corporate bonds* | | |
|---|---|---|---|---|---|---|
| *Year* | *Over the counter* | *Exchange trading* | *Exchange trading share (%)* | *Over the counter* | *Exchange trading* | *Exchange trading share (%)* |
| 1997 | 15,848.6 | 237.4 | 1.5 | 143,423.1 | 3,807.1 | 2.6 |
| 1998 | 44,554.8 | 6,519.9 | 12.8 | 391,951.9 | 8,968.9 | 2.2 |
| 1999 | 397,504.4 | 281,921.7 | 41.5 | 442,891.0 | 11,685.0 | 2.6 |
| 2000 | 582,662.0 | 23,521.2 | 3.9 | 272,401.0 | 3,648.4 | 1.3 |
| 2001 | 985,028.0 | 12,213.6 | 1.2 | 263,376.0 | 2,012.6 | 0.8 |
| 2002 | 731,811.0 | 46,062.8 | 5.9 | 223,808.0 | 1,111.4 | 0.5 |
| 2003 | 1,001,362.8 | 214,009.9 | 17.6 | 164,858.8 | 892.0 | 0.5 |
| 2004 | 1,524,504.0 | 383,122.5 | 20.1 | 140,560.0 | 986.7 | 0.7 |
| 2005 | 1,550,280.0 | 360,824.4 | 18.9 | 115,752.0 | 1,935.1 | 1.6 |

*Source*: Korea BondWeb.

these was triggered by a sudden downgrade (Daewoo, Hyundai, SK Group, and LG Card), followed by a run on investment trust companies by households and firms, distress sales of bonds, and eventually government intervention (Jiang and McCauley 2004). Corporate issuance has never recovered, as firms could no longer delay much needed deleveraging. This encourages hope that future growth in the market will be underpinned by much healthier conditions.

Vast changes have occurred in the corporate bond investor base since 1998 (table 4). In 1998 the huge rush of capital inflows helped investment trust companies lift their market share to 62 percent, but by September 2005 the reversal of capital flows reduced their share to just 14 percent. Primarily yield-driven investors, such as small mutual savings banks and credit unions, reflecting their appetite for high returns in exchange for modest default risk, absorbed the disposals. The corporate bond holdings of banks and insurance firms have also increased over time.

On the whole, market conditions in Korea remain unattractive to foreign investors, who hold less than 0.5 percent of both corporate bonds and treasuries. This is only partly due to the market's vulnerability to volatility spillover effects from regional financial markets and past capital controls. Because of withholding tax considerations, foreign participation occurs in the forward market rather than the spot market. More important, global portfolio managers stay away because the Korean won is not internationalized and offers no diversification benefits. As a result, even the government's ability to borrow abroad in won is severely limited—Eichengreen, Hausmann, and Panizza (2003) call this the "original sin."

**Table 4.** Corporate Bond Investors in Korea (percent)

| *Investor* | *1998* | *1999* | *2000* | *2001* | *2002* | *2003* | *2004* | *2005* |
|---|---|---|---|---|---|---|---|---|
| Banks | 5.3 | 4.9 | 8.1 | 12.8 | 12.8 | 14.3 | 12.2 | 11.8 |
| Bank trusts | 10.3 | 10.4 | 7.4 | 6.4 | 8.1 | 6.3 | 5.5 | 5.4 |
| Investment trust companies | 62.4 | 60.2 | 29.5 | 20.8 | 18.7 | 11.9 | 15.3 | 13.9 |
| Security companies | 8.7 | 12.3 | 15 | 13.8 | 15.5 | 20 | 21 | 22.8 |
| Insurance companies | 2.1 | 1.5 | 5.5 | 7.2 | 8.9 | 11.8 | 11.8 | 11.8 |
| Pension funds | 0 | 5.6 | 9.2 | 10.7 | 10.4 | 9.1 | 6 | 5.2 |
| Mutual savings banks, credit unions, individuals, others | 11.2 | 5 | 25.3 | 28.4 | 25.6 | 26.5 | 28 | 29.1 |

*Source*: Lee and Kim 2006.

## General Conditions in the Arirang Market

Arirang bonds could be an important vehicle for promoting the internationalization of Korea's capital markets. A key attraction of foreign-issued bonds is their ability to assist the currency matching of Korean assets, which should significantly encourage cross-border investment in the medium term. The potential of the market is further amplified as a channel for the vast savings accumulated in Korea's financial system. Credit-worthy foreign institutions could raise cheap Korean funds through local won-denominated issuance and then swap these, through cross-currency and interest rate swaps, into the currency of their choice when windows of opportunity appear in domestic and international markets.

Currently, the Arirang market remains unable to serve the financing needs of foreign borrowers and constitutes barely 0.8 percent of the corporate bond market. Korean bonds and the won have very little appeal to foreign investors, although efforts to internationalize the won are being accelerated. Eichengreen (2004) points out that this may be a result of Korean monetary policy, which has restricted the flow of capital and intervened extensively to support the U.S. dollar. In addition, withholding taxes of 25 percent on foreign investors' bond interest income compares unfavorably with taxes in important regional markets such as Hong Kong, China, and Singapore. The Arirang market faces no competition from won eurobonds, as Japan's Samurai market does, and nonresident issuance directly in a foreign currency is not yet a viable option (Kimchi bonds, denominated in U.S. dollars, are still in the development stage).

The first foreign borrower to tap Korea's domestic market was the Asian Development Bank in 1995, with a seven-year issue serviced by the Korea Development Bank (see Hoschka 2005 for further information on multilateral development bank financing). Two more supranational organizations followed in 1997, but they have been absent from the market since then. Not until 1999 were foreign firms allowed to issue Arirang bonds, pursuant to the Foreign Exchange Market Liberalization Act of the same year. In 2006 there were six foreign bonds denominated in euros and U.S. dollars, totaling US$580 million. The two U.S. dollar issues were by the U.S.-based Bear Stearns Co and were floating-rate issues, while the four euro issues were both fixed- and floating- rate issues. (Details on all Arirang bonds issued as of year-end 2006 are provided in appendix table A1).

### *Comparison of the Korea Foreign Bond Market with Others in the Region*

Of the four markets investigated in the Asia and Pacific region—Australia; Hong Kong, China; Singapore; and Korea—Australia has the largest foreign bond market with a total issuance of approximately US$70.7 billion (A$90.7) through

236 issues (table 5). The foreign bond markets in Hong Kong, China (US$2.4 billion) and Korea (US$2.7 billion) are approximately the same size and have had a similar number of issues (52 and 55). Despite the sophistication of the financial markets in Singapore, the foreign bond market is comparatively small in value (US$1.3 billion) and in the number of issues (19). Singapore sought to address

**Table 5.** Foreign Bond Issues, Selected Asia and Pacific Economies June 1990–December 2006

| | *Australia* | | *Hong Kong, China* | | *Singapore* | | *Korea, Rep. of* | |
|---|---|---|---|---|---|---|---|---|
| *Foreign bond characteristics* | *Number* | *Share of total (%)* | *Number* | *Share of total (%)* | *Number* | *Share of total (%)* | *Number* | *Share of total (%)* |
| Rating (Standard & Poor's and Moody's) | | | | | | | | |
| AAA | 76 | 32 | 2 | 4 | 1 | 5 | 8 | 15 |
| AA | 73 | 31 | 12 | 23 | 9 | 47 | 6 | 11 |
| A | 42 | 18 | 2 | 4 | 2 | 10 | 7 | 13 |
| BBB | 3 | 1 | 1 | 2 | | | 24 | 44 |
| BB | | | 1 | 2 | | | | |
| Not rated/Not available | 42 | 17 | 34 | 65 | 7 | 38 | 10 | 18 |
| Coupon type | | | | | | | | |
| Fixed | 145 | 62 | 28 | 54 | 17 | 90 | 50 | 91 |
| Floating | 78 | 33 | 20 | 38 | 2 | 10 | 5 | 9 |
| Other | 3 | 5 | 4 | 8 | | | | |
| Selling features | | | | | | | | |
| Private placement | 3 | 1 | 25 | 48 | 0 | | 7 | 13 |
| Exchange listed | 97 | 41 | | | 12 | 63 | 12 | 22 |
| Other/not available | 135 | 55 | 27 | 52 | 7 | 37 | 36 | 67 |
| Currency | | | | | | | | |
| Local | 235 | 99 | 42 | 81 | 18 | 95 | 49 | 89 |
| Foreign currency | 1 | 1 | 7 | 19 | 1 | 5 | 6 | 11 |
| Total bonds issued | 236 | 100 | 52 | 100 | 19 | 100 | 55 | 100 |
| Amount issued, local currency (billion) | A$90.7<br>US$70.7 | | HK$19.05<br>US$2.4 | | S$2.0<br>US$1.3 | | | W486<br>US$2.7 |
| Average issue size (million) | A$384<br>US$300 | | HK$366<br>US$47 | | S$105<br>US$68 | | | W51,000<br>US$55 |

*Source*: Reuters Fixed Income Database.

the absence of a critical mass of corporations with the size and credit quality to issue domestic bonds by encouraging foreign multinationals and multilateral institutions to issue local currency bonds.[10] Of the 19 foreign bond issues recorded, 17 are by financial institutions.

Foreign bonds in nondomestic currency (usually U.S. dollars and euros) remain a small submarket, at best described as experimental in the case of Australia and Singapore, although a modest number of issues have now been undertaken in Korea and Hong Kong. In Australia international investors are likely to maintain unhedged Australian dollar currency positions since they have the buffer of the positive interest rate premium (McCauley 2006). Speculators may also be funding these higher yielding asset positions through low-yielding carry-trades (for example, unhedged borrowings in Japanese yen).

The Australian market is a high credit-quality market (AAA, AA, and A-rated account for 82 percent of issues), dominated by large bond tranches of about US$300 million. These bonds often substitute for risk-free government securities in the portfolios of pension funds in Australia. The average size of the bond issues in the other three markets is less than US$70 million, and while credit quality is also high in the Hong Kong and Singapore markets, Korea is an exception, with many bonds issued at just investment grade (24 BBB, or 44 percent). A significant proportion of bonds are listed on local exchanges in Singapore (63 percent) and Australia (41 percent). In Hong Kong many issues (25, or 48 percent) are privately placed and so do not require credit ratings. Private placements do appear to be an important selling feature in the other markets. Fixed-rate coupons dominate all markets, with the greatest concentration in Korea (91 percent) and Singapore (90 percent); Australia (62 percent) and Hong Kong (54 percent) are more balanced with respect to floating-rate issues. Few bonds are issued with option features (calls, puts, or convertibles) in any market, although five Arirang bonds issued by the U.S. subsidiary of SKC had put (option) features.

While there is no evidence of any systematic or institutional discrimination against foreign bond issuers in the Arirang market, issuance has been dominated by the foreign subsidiaries of Korean chaebols, which tap the already familiar market to achieve favorable funding conditions. These institutions are well known to local institutional investors even though they may not be the most creditworthy. This is in sharp contrast with other foreign bond markets in the region, where supranationals and genuine nonresident borrowers of typically high credit quality account for the bulk of issuance.

### *Potential Risks from Expansion of the Arirang Market*

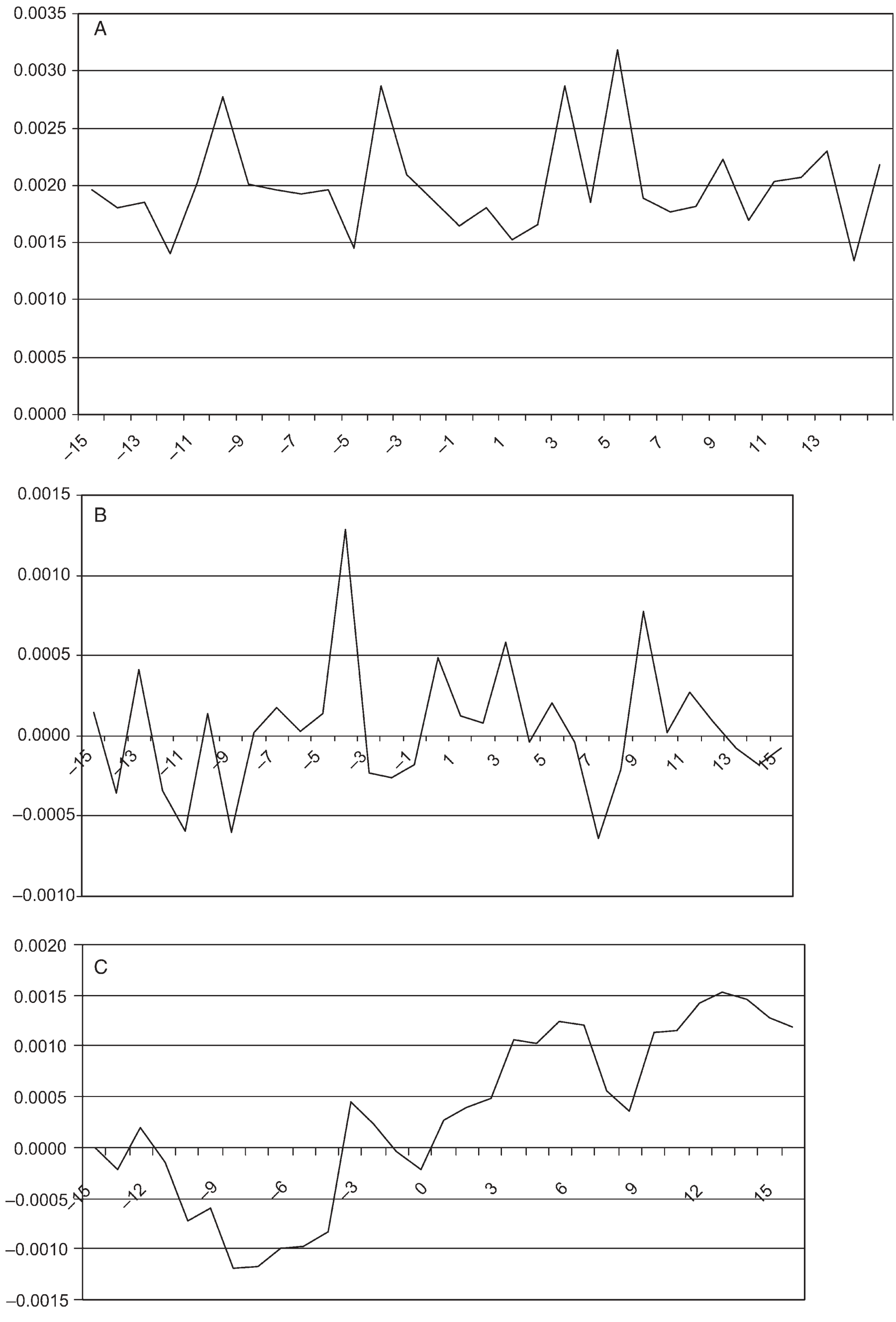
Before discussing the roots of the underdevelopment of the Arirang market, it is important to deal briefly with some of the concerns about the negative implications of the expansion of the Arirang market, which are largely unfounded. For example, there is no evidence that foreign bonds would crowd out local offerings. In fact, the reverse may be the case. In the yield-driven Korean market the significant sector issues by local firms and financial institutions may inhibit price opportunities for foreign borrowers, which would typically be on the quality end of the market. This problem could be mitigated in a number of ways. For example, coordinated regional central bank investment in foreign-issued securities could stimulate demand and absorb much of the U.S. dollar-denominated reserve buildup in the region. A framework similar to the Asia–Europe Meeting Trust Fund set up to assist East Asia's post-crisis economies would probably serve this purpose well.

Another potential problem relates to Korea's relatively thin foreign exchange market. Foreign exchange trading in Korea is increasing, but it remains modest compared with that of other similar-size economies. Compare daily spot turnover of US$19.8 billion in Korea with US$48.9 billion in the Netherlands, US$80.8 billion in Australia, US$102 billion in Hong Kong, and US$125.3 billion in Singapore. Over-the-counter derivatives turnover of US$10.3 billion a day is also modest (BIS 2005). Evidence from other financial markets suggests that most foreign bond issues are swapped into foreign currencies. The same holds in Korea, where chaebol subsidiaries tap the local market and then swap the proceeds into U.S. dollars. If these transactions are relatively large, they could enhance exchange rate volatility and exert downward pressure on the won.

A simple econometric analysis (an event study) of the impact that Arirang issues have had on the dollar–won exchange rate in the period up to June 2006 can help to show whether this is a significant issue. Over 0- to 15-day event windows Arirang issuance has no clear effect in terms of cumulative returns or excess volatility (figures 1a and 1b). For example, a comparison of volatility and returns five days before and five days after issuance shows no statistically significant differences. Of course, the sample and issues are both small, but so too is the market, and the confidence interval at the 95 percent level includes most observations. When cumulative returns are plotted, there does appear to be a small spike in positive returns on day 0 (+0.0005) which persists although a 95 percent confidence interval includes all points five days before and after (figure 1c). To the extent that price discovery in markets is usually associated with a spike in volatility around the event date, this simple analysis suggests no statistically significant volatility spikes when Arirang bonds are issued.

Repeating this experiment for other markets is difficult because of the number of issues and their interaction with other external factors. In Singapore, institutions have historically been reluctant to short the local currency because of reporting requirements and meticulous oversight by the monetary authority. Thus, it is unlikely that the liquidity effects of foreign bond issues would be

**Figure 1.** Does the Issuance of Arirang Bonds Destabilize the U.S. Dollar/Won Exchange Rate? (A) Average standard deviation of returns around 0- to 15-day event windows. (B) Average returns (log of daily change) around 0- to 15-day event windows. (C) Average cumulative returns (log of daily change) around 0- to 15-day event windows *Source*: Authors' analysis based on data from Reuters' Fixed Income Database



arbitraged. In Hong Kong, this is an irrelevant issue given the peg to the U.S. dollar. In Australia and Japan, with large offsetting capital and trade flows and well-developed and informed foreign exchange markets, any such effect would be hard to imagine.

### *Economic and Financial Conditions Surrounding the Arirang Market*

Development of the Arirang market is obviously dependent on expectations about Korea's economy as a whole. Burger and Warnock (2006a) emphasize the importance of a climate of macroeconomic stability to facilitate local bond market development. Domestic economic growth is expected to maintain a moderate rate of growth of 4–5 percent, which should underpin demand and supply in both the corporate and treasury segments of the bond market. The overall picture of treasury issuance is an interplay between proposed fiscal initiatives that would add to the expanding government deficit and concerns over the current account surplus and the buildup of foreign reserves. Korea's foreign reserves are the fifth largest in the world, at US$240 billion in January 2007, and continue to be fed by current account surpluses, estimated at around US$17 billion or 2 percent of GDP.

There are signs of improved confidence by foreign investors. Inbound foreign direct investment (FDI) was US$11.6 billion in 2005, and Korea has broken into the top 20 in FDI attractiveness on the list compiled by the United Nations Conference on Trade and Development. High value-added FDI dominates, and most inbound investment is through mergers and acquisitions. Coupled with foreign portfolio investment, foreign shareholdings have risen to 45 percent of market capitalization on the Korea Exchange. Capital inflows are only partially offset by outbound FDI, which the government encourages to reduce upward pressure on the won. The government is also using foreign exchange stabilization bonds to prevent the won from appreciating, but the won now trades consistently below 1,000 to the U.S. dollar for the first time since 1997.

To date, there is little evidence that foreign firms would finance FDI-related expenditure through Arirang issuance, but expected future inflows of FDI could provide a basis for foreign participation in the market. First, however, the proper enabling environment needs to be in place. The environmental conditions that are critical to the development of a robust Arirang market are discussed below.

*Maintaining Sustainable Economic Growth and Reducing Default Risk.* A stable economic situation and reduced corporate leverage create expectations of earnings upgrades among corporate borrowers. The reduction in corporate debt to equity ratio has been remarkable, dropping from 182 percent in 2001 to 104 percent in 2004, and the default ratio has fallen below 0.1 (Lee and Kim 2006).

Since 2004 credit spreads have remained near historical lows, and in the BBB segment they have narrowed spectacularly. This makes the market more attractive to both domestic and foreign issuers. However, it is likely to reduce yield-oriented investor demand for Arirang issuance by top quality international borrowers.

*Accommodating Declining Savings and High Levels of Consumer Credit.* Korea's savings rate has stabilized in recent years, but it is on the decline from a long-term perspective. It dropped dramatically between 1998 and 2002, from 38 percent to 30 percent, due to credit card abuse, which triggered the collapse of LG Credit Card in 2003. To some extent, this means that household capacity to invest in securities other than through reinvestment or asset substitution remains limited. A similar story emerges from the low level of quasi money in Korea—at 62 percent of GDP in 2004, well below levels in many other countries in the region, including China, Malaysia, and Thailand. The supply of quasi money, which comprises currency not deposited in bank accounts and demand deposits of the central bank, continues to grow, however, and real income growth has been high in Korea, behind only China and Vietnam since 1998.

*Improving Corporate Governance.* Korean efforts to improve corporate governance have yielded some success, but they have also been heavily criticized. Korea's governance practices are ranked sixth among 10 Asian countries by the Asian Corporate Governance Association and CLSA Asia-Pacific Markets (ACGA and CLSA, 2005). Compliance with international accounting and auditing standards is high, and Korea was the first country in the region to pass a law allowing class action lawsuits for securities cases. However, it ranks less well on regulations and their implementation, the quality of regulatory and market-based enforcement, and the political and regulatory environment. Korea also scores lower on the World Bank governance indicators than do many of its regional counterparts, including Japan, Taiwan, China, Singapore, and Hong Kong, with improvements called for in particular in regulatory efficiency, rule of law, and control of corruption.[11]

Reforms in the governance culture of Korean firms are also criticized as largely superficial. Ownership structures are opaque, and independent institutional investors remain unorganized. Standard & Poor's (2006) has indicated that complex family-centered ownership and support to noncore subsidiaries harm corporate credit ratings. The efforts of governance-aware professionals, academics, and activists such as the People's Solidarity for Participatory Democracy have brought increasing attention to these issues.

*Maintaining Stability in Monetary Policy and the Exchange Rate.* The domestic, economic, and financial environments are favorable overall to potential issuers in the

Arirang market. Price stability is good, with domestic demand pressures remaining low as households are deleveraging and credit delinquency is falling. More concern is voiced over the recent appreciation of the won. Unhedged foreign borrowers would be reluctant to tap Korea's domestic market if the won were likely to appreciate beyond the interest rate differential with the issuer's reporting currency. In 2006 the won traded between 1,150 and 1,240 against the euro and 990 and 910 against the U.S. dollar, gaining some 4.3 percent against the dollar year on year. The dollar exchange rate is nonetheless stable, with volatility at its lowest in the post-crisis period. Further rises in the exchange rate are also expected to remain modest, as indicated by the small net outflow of foreign portfolio investment in 2006.

### *Critical Issues to Advance Bond Market Development*

With a generally benign economic and financial environment and regulatory encouragement, the lack of substantial Arirang issuance must stem from very specific factors. These explicit enabling factors and impediments exist in three areas: supply (issuer), demand (investor), and infrastructure.

*Issuer Concerns. Pricing is imperative.* The investor market in Korea is one of an increasingly aggressive search for higher yields. Foreign issuers would likely be at the quality end, possibly rated higher than the government's sovereign rating in international markets and close to government securities in domestic markets. Thus pricing remains a difficult issue unless there is local demand for bonds of appropriate risk and maturity[12]. The continuing expansion of the government bond market may also result in considerable crowding-out effects. Pricing at the long end of the yield curve can be problematic, as the pricing benchmark is the three-year treasury bond. Nonetheless, the few issues in 2006 were by quality issuers, which may reflect a broadening in demand by local investors as well as speculators seeking non-U.S. dollar investments.

*The Ability to Hedge through Cross-currency Swaps is Imperative.* Korea's cross-currency swap market has evolved significantly in the past few years. The interbank trading of foreign currency derivatives alone reached US$3.6 billion daily in 2005, doubling over the previous year and tripling over 2002 (BIS 2005). The Bank of Korea attributes heightened activity—more than 70 percent of it accounted for by swap trades—to greater demand for hedging from trade-oriented local firms. Nonetheless, the derivatives market remains shallow compared with Hong Kong, China, and Singapore, where trading is more than 10 times higher. As a result, pricing is said to be intermittent, and spreads are often wide.

There is a caveat on the importance of derivatives in facilitating bond market development more generally. For example, Singapore has impressive foreign exchange and trading capability, although the Singapore dollar foreign bond market remains small compared with those in the key regional markets of Australia, Hong Kong, and Japan despite recent reforms and initiatives undertaken to develop the local bond market. These include building the government bond market by ensuring a critical mass of investors and issuers, establishing the physical infrastructure, and developing the talent pool (Lian 2002). However, foreign issuers are required to swap or convert proceeds into foreign currency, which in effect prevents unhedged borrowing or the ability of nonresidents to fund Singapore assets.

*Clear documentation is important.* There is no language barrier for chaebol subsidiaries, but it is considerable for non-Korean firms. Much of the documentation governing the law and legal procedures is largely inaccessible to foreigners.[13] In addition, compliance with issuing procedures has been cited as unduly complex. The requirement to translate foreign documents into Korean is onerous. Also, there have been 15 revisions to the Regulation on Securities Issuance and Disclosure since 2000, and recent revisions are generally not available in English. These are major impediments to nonresident issuance.

*The need for domestic ratings is problematic.* All foreign issuers must be rated by a local credit rating agency, irrespective of whether they have already been rated by Moody's or Standard & Poor's. This considerably delays issuance. In a recent example, Ford Motor Credit Company was interested in issuing the won equivalent of US$200 million in June 2003. Salomon Smith Barney was selected as the main agency, and Korea Investor Service and National Information & Credit Evaluation were requested to provide ratings. However, documentation and financials were required in Korean, and various participants were unable to act promptly. Meanwhile, the opportunity to achieve sub-LIBOR borrowing rates had changed, so Ford Motor Credit Company did not proceed with the issue (*Euroweek*, 2003)[14]. The issuing procedure can be easier for supranationals, which can classify new issues as government bonds or special bonds. This was critical for the issuing of the Asian Development Bank's first Arirang bond, which served as a benchmark for later issuers. In addition, as Kisselev and Packer (2006) point out, differences of opinion about the creditworthiness of borrowers is especially pronounced among rating agencies in Asia, particularly for local currency ratings. Such discrepancies appear to be more important in other regional markets, where the preference is for quality issuers.

*Bond proceeds must not be subject to capital and foreign exchange restrictions.* Recent efforts to build financial markets in Korea have been undermined by restrictions on capital movement. The rules are complex, although efforts are being made to simplify them (IFLR 2005, 2006) as part of a broader government agenda to establish Korea as a regional financial center and, more recently, to internationalize the won. Consider the relative importance of domestic and offshore trading in the Australian Hong Kong, and Singapore dollars and the won. According to BIS (2005; tables E1 and E7), offshore trading accounts for 59 percent of global trading of US$97.0 billion in Australian currency per day; 18 percent of US$33.2 in Hong Kong, currency; 19 percent of US$21.2 billion in Singapore currency; and 36 percent of US$17.0 billion in Korean currency. Such evidence suggests the importance of local currency internationalization in developing large foreign bond markets. Singapore is the exception here. The greater internationalization of the Singapore dollar would be expected to be associated with a larger foreign bond market than currently exists. The likely explanation is that the restrictions on bond proceeds have had a negative effect on the size of this market.

### *Investor Concerns*

*Market size and liquidity must be enhanced.* The small scope of the Arirang market severely limits its appeal to domestic and foreign investors alike, although these effects may be mitigated through private placement of issued securities. Private placement does not appear to be as important in Korea as in Hong Kong, where almost half the issues are private placements. An interesting feature of the Australian foreign bond market, which is the largest of the markets considered, is that few issues are private placements. Thus, liquidity is assured by the large size of the issue itself (about US$300 million). This suggests that in the absence of a private placement market of sophisticated investors the importance of issue size for inducing higher levels of liquidity cannot be understated. Thus the 55 billion won (US$55 million) average issue size in the Arirang market is likely impeding secondary market trading and liquidity.

*A simple pricing structure may not be the best.* The Arirang market, like the corporate bond market in general, is very homogeneous and does not cater to a broad range of investors. Until recently, most issues have been fixed-rate. This homogeneity is driven in part by the specific nature of local demand. On the other hand, the Arirang bonds of SKC Inc., which include option-like features, demonstrate that there is a market for more complex and tailor-made investment products, most likely as private placements to investors with specific maturity and risk needs, such as insurance companies. What is most likely hindering the development of more varied coupon and pricing features is the absence of developed derivatives markets in floating-rate instruments. The ability of the markets in Australia and Hong Kong, to support issues of floating-rate bonds may be linked to the sophistication of the local two-way swap market (fixed to floating as well as floating to fixed) and forward rate agreements.

*The won offers limited diversification benefits.* Korean bonds offer some scope for diversification since their dollar returns co-move only moderately with U.S. returns (Jiang and McCauley 2004). However, the won itself offers little diversification benefits to most investors, and thus global portfolios stay away from won-denominated debt. Efforts are being made to increase the internationalization of the won, but there is still very little offshore trading in won. Nonetheless, to the extent that the won is perceived to be undervalued against the U.S. dollar, speculators should be encouraged to hold long positions in the currency. However, these positions must also be easy to reverse to reflect changed expectations, and exchange rate regulations tend to dissuade speculative flows. There has been no evidence of speculative foreign investment in the corporate bond market so far, although foreign participation in the three-year government bond futures market is significant.

*The withholding tax deters foreign investors.* Interest income is subject to a 14 percent withholding tax for resident investors and 25 percent for foreign investors, with reductions or exemptions possible under applicable tax treaties or agreements with the domiciliary country. Recent announcements by the Korean Ministry of Finance and Economy also suggest that withholding taxes will soon be eased to 14 percent (IFLR 2006). Nonetheless, the withholding tax may be a larger barrier than the rates themselves or the bilateral arrangements might suggest. Foreign investors simply do not want to assume the administrative burden of taking advantage of tax treaty rights (Jiang and McCauley 2004). Australia, which offers clear exemptions to withholding taxes, shows that it is possible to encourage international investor involvement in domestic bond markets through appropriate tax policies.

*Poor governance and investor protection inhibit foreign investment.* In the aftermath of the East Asian crisis, many investors were unable to recover their claims because legal systems inadequately supported investor rights. This problem persists even under normal conditions. The likelihood of bankruptcy filings has been shown to be lower where creditor rights are weaker and the judicial system is less efficient (Claessens, Djankov, and Klapper 2003). Burger and Warnock (2006b also highlight the importance of investor protection to the development of local bond markets. While creditor protection is reasonably strong in Korea as measured by creditor rights (La Porta and others 1998) and the resolution of claims disputes (Djankov, McLiesh, and Shleifer 2004), these do not compensate for the regulatory and governance inadequacies criticized by the Asian Corporate Governance Association and the World Bank. Investor confidence is also hurt by the aggressive growth strategy of Korean firms such as Hyundai Motor. The effect of these uncertainties is reflected in investor reluctance to hold certain securities and relatively higher credit spreads on corporate bonds.

*Infrastructure Issues.* Despite improvements, the regulatory and financial infrastructure in Korea is not ready to support a large and sophisticated foreign bond market. Korea ranks only seventh among ten Asian countries—well behind Indonesia and Thailand and below the Philippines as well—on the Hong Kong and Shanghai Banking Corporation's Asian Local Bank Index, which tracks the total return of liquid bonds in local regional economies and assesses the difficulty of accessing bond markets. Korea scores especially low on currency and capital restrictions, the complexity of the withholding tax, and the ease of setting up and operating an investment fund. Korea also receives criticism for infrastructure conditions in pricing, transparency, settlement and custody, derivatives, and hedging.

*The technical infrastructure is critical.* The Korean government is aware of the need to maintain and lengthen liquidity along the yield curve and to concentrate issuance in specific maturity buckets. New treasury issues are allocated reasonably evenly across three maturities. Three-year bonds are still the most popular, but 5- and 10-year bonds are gaining quickly. While this contributes to better pricing in the corporate bond market, many nonpricing-related issues concern foreign market participants, such as the limited availability of offsetting risk management technologies.

The absence of floating-rate markets is a notable shortcoming. There is also no clear development plan for simple exchange-traded and over-the-counter derivatives. There have been delays in the introduction of interest rate futures and other derivatives linked to benchmark bond curves to facilitate risk management and trading. Several recent initiatives are aimed at enhancing price discovery. One is to increase the use of floating-rate measures, which would eventually lead to the expansion of floating-rate instruments (forward rate agreements and possibly short-dated futures). This process began in 2004 with the introduction of the Korea Interbank Offered Rate (KORIBOR), which should become the benchmark interest rate for short-term financing for banks and may become a reference rate for bond or swap transactions. Hong Kong, Singapore, and Australia have equivalent floating-rate benchmarks. These three markets all have sophisticated forward rate arrangements and futures markets as well.

The Korea Securities Depository has yet to complete full reform of corporate bond trading, settlement, and custody. The foundations of the bond registration system were laid by the Registration Act in 1993. The Korea Securities Depository is finally moving toward the full dematerialization of corporate bonds and is working on introducing electronic trading. It has also allowed listed won-denominated corporate issues to be used in repo transactions, which should increase liquidity in the market.

*Capital controls need further attention.* Korea still has capital controls (Noland 2005). There are limits on foreign won funding aimed at hedge funds. Foreign sales of foreign exchange over US$20,000 and purchases over US$10,000 without documentation are subject to notification requirements. The government's exchange rate policy and currency market interventions go beyond smoothing operations and have been a source of controversy. The effectiveness of capital controls, which led to a buildup of foreign reserves, needs to be reconsidered. Anecdotal evidence suggests that illegal money transfers abroad are both common and considerable, totaling an estimated US$1.2 billion in the first half of 2004.

*Reform agenda.* The government hopes to secure Seoul's position as an international financial center by working toward full foreign currency liberalization by 2011. The first phase of the Foreign Exchange Liberalization Plan (2002–2005) increased won funding limits for nonresidents and raised the ceiling on the amount of residents' foreign borrowings requiring notification. Meanwhile, policy measures are being implemented step by step to deepen and widen the foreign exchange market, such as allowing securities firms into interbank and over-the-counter foreign exchange derivatives trading and forging coalitions between domestic and foreign brokerage firms. By the time the plan is implemented, the government hopes to have internationalized the won and made its foreign exchange market a leading financial hub in the Asia and Pacific region.

The 2005 merger of the Korea Stock Exchange, the Korean Securities Dealers Automated Quotation stock market, and the Korea Futures Exchange into the Korea Exchange is expected to upgrade the competitiveness of the nation's trading system for a variety of financial products, including stocks, bonds, options, and other derivatives. The Korea Exchange is further easing some restrictions on foreign equity investors, who already account for more than 40 percent of the market. Internationalization of the stock market has done nothing to increase foreign investment in Korean bonds, however. The Korea Exchange seems unclear on how to encourage Arirang issuance other than by easing listing requirements. The cornerstone of its strategy is to scrap the current rule requiring issuers to be listed on either foreign exchanges or have their depository receipts of foreign shares listed on the Korea Exchange as long as the firm is issuing secured bonds with low risk of delinquency.

## Lessons and Conclusions

Foreign bond market development is a critical next step for governments in the Asia and Pacific region to achieve the integration of local and global bond markets recommended by McCauley and Park (2006). However, governments with that goal in mind have seldom come up with specific development strategies.

The Korean government, however, considers its plans for reform of the domestic financial system part of an explicit strategy for turning Seoul into an international financial center on a par with Singapore and Hong Kong, by 2010. A critical aspect of this plan is to develop Korea's foreign bond market. The Arirang market has only recently started to attract quality issuers, and its overall size is modest given the scale and scope of the local bond markets.

Funding FDI or local currency portfolios appears to have little to do with why foreign firms enter a domestic bond market. Rather, borrowers seek out minimum cost financing among a spectrum of choices. The appeal of Arirang issuance thus hinges largely on the sophistication of Korea's cross-currency swap market and the ease of transferring these domestic funds to their ultimate destination. The clear lesson from other regional markets, especially Australia, is the importance of swaps and floating-rate derivatives for risk management. As progress is being made on this front, the Korean government must ensure that the other obstacles to easy access to the market are also removed. The tasks include improving pricing conditions, reducing administrative burdens, eliminating capital controls, and encouraging local and international investor demand.

There are numerous lessons for other East Asian governments seeking to develop a foreign bond market. They must create an infrastructure that is enabling for bond issuance and risk management, nurture institutional and retail demand, and deregulate capital markets to facilitate two-way capital flows. There appears to be a natural ordering to the tasks involved: first, establish benchmark bonds and indices; second, develop a diverse derivatives market; third, systematically lengthen the bond market's maturity profile; and fourth, build and develop over-the-counter capability and price structures for derivatives and other complex financial instruments.

Korea's experience also shows that the sophistication of the local bond market does not necessarily make it appealing to foreign borrowers. More is needed.

### *Development is Driven by Market Forces and is Difficult to Simply Regulate*

The sophisticated bond markets of Australia Hong Kong, and Singapore have evolved over many years. An enabling infrastructure is only a first step in market development; the right mix of issuer supply and investor demand is also needed, as Korea shows. Despite its conscious building of infrastructure and the success of its corporate bond market, foreign issuance remains modest. Complex regulatory, issuing, and compliance processes; exchange restrictions; parochial investor attitude; and crowding-out effects may all contribute.

### *Proper Planning with Industry can Help to Overcome Some Risks*

In Australia government withdrawal from the bond markets allowed foreign issuers to substitute at the quality end of the investment spectrum. The reverse appears to be the case in Korea; treasury issuance appears to crowd out foreign borrowers despite low levels of government indebtedness. Filling in infrastructure gaps and maintaining liquidity along the benchmark yield curve in conjunction with industry could overcome some of these problems.

### *An Order of Issuance Helps Build Markets, but Follow-through is Needed*

In Korea corporate borrowers were not granted access to the Arirang market until four years after the first supranational issue. The mandate of supranational institutions is to "provide cost-effective funding on a sustainable basis for financing economic development."[15] They are therefore driven to minimize funding costs and lack the ability to cross-subsidize market development through regular issuance. While they may lead the way with a foreign bond issue, as advocated by Hoschka (2005), there should be plans for follow-up issues by other issuers to maximize liquidity and maintain interest in the market. Such a strategy requires ongoing consultation between industry and government.

### *Foreign Issuers are Driven by Cost and are not Necessarily Interested in using Local Issuance to Fund FDI or Portfolio Investment*

Multinational firms pick financing arrangements very carefully. Chaebol subsidiaries issue Arirang bonds to minimize the funding costs of foreign investment. Chaebols obviously have a comparative advantage at home, which they are able to translate into lower costs in the host country. It is unsurprising that chaebol subsidiaries in Indonesia are at the forefront of the Arirang market, as they would probably have difficulty accessing local debt and banking markets.

Foreign bond markets emerge when local market conditions are highly evolved. It is thus striking that the sophisticated Korean bond market developed with minimal foreign involvement. The potential benefits of a well-developed Arirang market are vast. It should help foreign borrowers to currency-match foreign assets or simply provide an alternative source of funds that can be swapped into the currency of choice as windows of opportunity appear. Foreign bonds could ultimately be an important vehicle to promote cross-border investment, while also making the local Korean bond market larger, more liquid, and more resilient to boom and bust cycles. While there is no systematic or institutional discrimination against foreign bond issues, current conditions discourage cross-border activity, amplified by cumbersome access, governance concerns, and weaknesses in institutional arrangements. There appears to be no basis to concerns that expansion of the Arirang market will crowd out local offerings or have destabilizing exchange rate effects.

Korea's experience can provide insights for the ongoing reform of developing economies in Eastern Europe and Asia. In developed countries, as banks have become increasingly cautious about extending credit, a gradual process of disintermediation has been occurring in historically bank-oriented financial regimes, fed by considerable regulatory efforts directed at market liberalization. In emerging market economies bank-intermediated finance is the single most important source of funds to the corporate sector. As these economies experience the same trend toward disintermediation they urgently need to open new financial channels. Korea's example, with all its imperfections, can provide a helpful guide.

# Appendix

**Table A1.** Arirang Bond Issues, June 1995–December 2006

| *Issuer name* | *Domicile of issuer* | *Local credit rating* | *Issue date (DD/MM/YYYY)* | *Description (%)* | *Amount (million) Won* |
|---|---|---|---|---|---|
| Asian Development Bank[a] | Supranational | AAA | 01/09/1995 | 7-year fixed 12.15 | 80,000 |
| European Bank for Reconstruction and Development (EBRD)[a] | Supranational | AAA | 23/04/1997 | 5-year fixed 9.8 | 71,500 |
| EBRD[a] | Supranational | AAA | 02/05/1997 | 5-year fixed 10 | 71,100 |
| PT CS Indonesia[a] | Indonesia | | 11/06/1999 | 3-year fixed 7 | 45,000 |
| PT Hanil Jaya[a] | Indonesia | A | 16/07/1999 | 3-year fixed 7 | 14,000 |
| PT SK Keris[a] | Indonesia | | 29/11/1999 | 1-year fixed 8 | 45,000 |
| PT Indomiwon Citra[a] | Indonesia | | 20/12/1999 | 1-year fixed 10.8 | 20,000 |
| PT Miwon Indonesia TBK[a] | Indonesia | | 16/03/2000 | 1-year fixed 9 | 20,000 |
| PT Indomiwon Citra[a] | Indonesia | BBB- | 20/12/2000 | 2-year fixed 10 | 10,000 |
| PT Indomiwon Citra[a] | Indonesia | | 28/02/2001 | 1-year fixed 11.13 | 15,000 |
| PT Miwon Indonesia TBK[a] | Indonesia | BBB- | 16/03/2001 | 1-year fixed 10.99 | 20,000 |
| SKC Inc.[a] | United States | BBB | 03/05/2001 | 2-year fixed 10.2 | 50,000 |
| PT SK Keris[a] | Indonesia | BBB | 28/05/2001 | 3-year fixed 9.875 | 30,000 |
| Hyundai Assan OSVT[a] | Turkey | A- | 04/06/2001 | 3-year fixed 7 | 29,000 |
| SKC Inc.[a] | United States | BBB | 19/07/2001 | 2-year fixed 8.665 | 70,000 |
| PT SK Keris[a] | Indonesia | BBB | 23/07/2001 | 3-year fixed 8.85 | 50,000 |
| SKC Inc.[a] | United States | BBB | 06/11/2001 | 2-year fixed 8.27 | 50,000 |
| SPI (Seosan) Cogen[a] | Singapore | A | 20/12/2001 | 3-year fixed 7.68 | 140,000 |
| SPI (Seosan) Water[a] | Singapore | A | 20/12/2001 | 5-year fixed 7.68 | 70,000 |
| PT Indomiwon Citra[a] | Indonesia | BBB | 27/02/2002 | 1-year fixed 7.26 | 16,000 |

*Continued*

**Table A1.** *Continued*

| *Issuer name* | *Domicile of issuer* | *Local credit rating* | *Issue date (DD/MM/YYYY)* | *Description (%)* | *Amount (million) Won* |
|---|---|---|---|---|---|
| PT CS Indonesia[a] | Indonesia | A + | 27/04/2002 | 1-year fixed 7.32 | 100,000 |
| PT Indomiwon Citra | Indonesia | BBB | 17/10/2002 | 3-year fixed 6.43 | 30,000 |
| SKC Inc.[a] | United States | BBB + | 02/05/2003 | 1-year fixed 7.75 | 50,000 |
| SKC Inc.[a] | United States | BBB + | 21/07/2003 | 1-year fixed 10.02 | 70,000 |
| PT SK Keris[a] | Indonesia | BBB + | 22/07/2003 | 2-year fixed 9.2 | 50,000 |
| SKC Inc. [a b,c] | United States | BBB + | 06/10/2003 | 3-year fixed 9.5 | 5,000 |
| SKC Inc. [a b,c] | United States | BBB + | 20/10/2003 | 3-year fixed 9.5 | 10,000 |
| SKC Inc. [a b] | United States | BBB + | 06/11/2003 | 1-year fixed 7.24 | 35,000 |
| SKC Inc.[a] | United States | BBB + | 03/05/2004 | 1-year fixed 6.1 | 50,000 |
| Standard Chartered PLC | Great Britain | AAA | 27/04/2004 | 10-year floating | 50,000 |
| SKC Inc.[a] | United States | BBB + | 21/07/2004 | 1-year fixed 6 | 45,000 |
| SPI (Seosan) Water | Singapore | A + | 30/11/2004 | 3-year fixed | 50,000 |
| SKC Inc.[a] | United States | BBB + | 08/11/2004 | 2-year fixed 5.1 | 30,000 |
| SPI (Seosan) Cogen | Singapore | A + | 01/12/2004 | 3-year fixed | 100,000 |
| PT SK Keris | Indonesia | BBB + | 06/12/2004 | 3-year fixed 5.0 | 40,000 |
| PT Chiel Jedang Indonesia | Indonesia | AA- | 30/03/2005 | 3-year fixed 4.72 | 100,000 |
| PT Chiel Jedang Indonesia | Indonesia | AA- | 30/03/2005 | 3-year fixed 4.72 | 100,000 |
| SKC Inc. | United States | BBB + | 03/05/2005 | 2-year fixed 4.77 | 30,000 |
| PT SK Keris | Indonesia | BBB + | 21/07/2005 | 3-year fixed 5.5% | 50,000 |
| SKC Inc. | United States | BBB + | 21/07/2005 | 2-year fixed 4.91 | 45,000 |
| NAC Funding Ltd | IE | | 26/07/2005 | 5-year fixed 4.92 | 120,000 |
| PT SK Keris | Indonesia | BBB + | 30/11/2005 | 2-year fixed 6.13 | 20,000 |
| SKC Inc. | United States | BBB + | 26/12/2005 | 2-year fixed 6.3 | 30,000 |
| SBC Corp BHD | Malaysia | AAA | 28/6/2006 | 8-year fixed 5.2 | 100,000 |
| SBC Corp BHD | Malaysia | AAA | 28/6/2006 | 8-year fixed 5.2 | 100,000 |
| Citicorp Capital Markets Australia LTD | Australia | AA | 28/6/2006 | 3-year fixed 5.07 | 20,000 |
| Citicorp Capital Markets Australia LTD | Australia | AA | 28/7/2006 | 3-year fixed 5.07 | 20,000 |
| Citicorp Capital Markets Australia LTD | Australia | AA | 25/9/2006 | 2-year fixed 4.96 | 10,000 |
| Citicorp Capital Markets Australia LTD | Australia | AA | 25/9/2006 | 2-year fixed 4.96 | 10,000 |
| | | | | Total issues | 2,486,600 |
| | | | | Average (49) issue size | 50,746 |
| | | | | Average maturity | 3-years |
| | | | | | *US dollars* |
| Bear Stearns Co Inc. | United States | A1 | 26/6/2006 | 7-year floating | 200 |
| Bear Stearns Co Inc. | United States | A1 | 26/6/2006 | 7-year floating | 200 |
| | | | | | *Euros* |
| PT Cheil Jedang Indonesia | Indonesia | | 9/10/2006 | 3-year floating | 30 |

*Continued*

**Table A1.** *Continued*

| *Issuer name* | *Domicile of issuer* | *Local credit rating* | *Issue date (DD/MM/YYYY)* | *Description (%)* | *Amount (million) Won* |
|---|---|---|---|---|---|
| PT Cheil Jedang Indonesia | Indonesia | | 9/10/2006 | 3-year floating | 30 |
| NAC Funding PLC | Ireland | | 6/12/2006 | 5-year fixed 5.17 | 40 |
| NAC Funding PLC | Ireland | | 6/12/2006 | 5-year fixed 5.17 | 40 |

[a]Matured.
[b]Callable.
[c]Private placement.
*Source*: Reuters Fixed Income Database.

## Notes

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1. *Asiamoney* (2006) notes that despite the recent reform efforts of East Asian countries, 70 percent of cross-border portfolio investment originating in the region remains fixed rate and 80 percent is directed to the United States and Europe. Strikingly, only 5 percent is directed to other emerging markets in Asia, whereas 63 percent of European cross-border investment stays in Europe.

2. See IMF (2005) for further discussion.

3. Note the JP Morgan Emerging Markets Bond Index dropped from 800 basis points above U.S. Treasuries in 2001 to 200 basis points at the end of 2006.

4. As Eichengreen and Luengnaruemitchai (2004) note, outstanding debt securities in Asia are on average 9.27 percent of GDP for corporate bonds, 23.52 percent of GDP for public sector bonds, and 12.0 percent of GDP for financial institutions. This compares with 20.55 percent, 85.15 percent, and 33.64 percent for developed countries.

5. Between January 2002 and July 2006 the Asian Development Bank issued 71 foreign bonds, including 35 bonds denominated in yen, 19 in mostly other regional currencies, and 17 in U.S. dollars. Of particular note is its recent 1 billion yuan 10-year bond issued in October 2005 (*Asiamoney* 2006).

6. On the May 19, 2006, the Korean Ministry of Finance and Economy accelerated its schedule for liberalization of the won and capital flows (McCauley 2006).

7. These themes are further developed by Rhee (2004), who discusses how a regional bond market facilitates credit enhancement and corporate risk management.

8. See Woo (2002) for a more detailed discussion of the historical development of the Korean bond market.

9. *Chaebol* is the Korean term for conglomerate, such as the Samsung Corporation and its many affiliates. A key feature of these corporations is their complicated ownership structures, through cross-ownerships of shares with different types of voting rights that frequently allow control to remain with the founding family.

10. The authors thank an anonymous referee for bringing this point to our attention.

11. The World Bank publishes six governance indicators biyearly for 209 countries: rule of law, voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality and control of corruption (www.worldbank.org/wbi/governance/govdata).

12. Consider 2006 issues in the Malaysian ringitt (M$) market: KfW priced its M$500 million seven-year issue with a coupon of 4.6 percent, which is 46 basis points over the benchmark five-year Malaysian government security, while the Asian Development Bank priced its five-year issue at 15 basis points over Malaysian government securities. Both were swapped into US dollars to achieve sub-LIBOR financing.

13. For example, the Korean Financial Supervisory Service (FSS) notes the following disclaimer: "The English translation of the financial supervisory regulations is not official and is intended for reference only. Neither the FCC [Financial Supervisory Commission] nor the FSS is responsible for the correctness of the English translation, and the reader is advised to refer to the most up-to-date regulations in Korean. The English translation is current as of August 1, 2002." See http://english.fss.or.kr/en/laws/sec/lawstock_l.jsp

14. See Morrow (2004) for further discussion of bond financing during this period.

15. This is a quotation from the World Bank website on their funding objectives, although it is consistent with others. See http://treasury.worldbank.org/Services/Capital%2bMarkets/Annual+Issuance/Funding+Strategy+and+Objectives.html

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