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# Learning by doing in market reform: lessons from a regional bond fund

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# **Learning by doing in market reform: lessons from a regional bond fund**

Guonan Ma and Eli Remolona<sup>1</sup>

## **Abstract**

Local currency bond markets in East Asia and the Pacific have grown impressively since the 1997 Asian crisis, but policy authorities in the region realize they still have some work to do to allow the markets to realise their true potential. Hence, there have been a variety of regional initiatives to develop these markets. One of these initiatives is the Asian Bond Fund II, which was established by 11 central banks in East Asia and the Pacific in 2005. In creating a regional index bond fund and eight single-market funds, the central banks worked together to identify and come up with ways to reduce market impediments in eight local currency bond markets. Moreover, they built into the regional fund's structure an incentive mechanism for reducing impediments further.

JEL classification: E440, G150, G160, G180, O160.

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## 1. Introduction

Since the Asian crisis of 1997, local currency bond markets in the region have expanded rapidly; even so, they are still seen as not achieving their potential to intermediate between domestic savers and borrowers. Capital flows since the crisis show that Asians have been investing largely in low-yielding foreign assets and foreigners in higher-yielding Asian assets. While some of these flows are consistent with portfolio diversification, the broad pattern suggests that a sizeable part of financial intermediation is being carried out abroad at significant cost. To bring such intermediation home, Asian policymakers perceive a need for deeper and more liquid local bond markets.

This perception has spawned a number of regional cooperative efforts at market reform. In this chapter, we assess one such undertaking - an unusual one in that it involved the creation of an actual bond fund, with financial contributions from the parties concerned. The regional group involved is the Executives' Meeting of East Asia and Pacific (EMEAP) central banks.<sup>2</sup> The fund they have created is called the Asian Bond Fund 2 (ABF2) which was first launched in mid-2005. We argue that because the group set up an actual fund, its reform efforts enjoyed significant advantages from "learning by doing".

In what follows, we first provide an overview of the recent development of local currency bond markets in East Asia and describe the main impediments in those markets. We then explain the structure and features of ABF2 in the context of various regional initiatives for bond market development. Finally, we comment on the role of the ABF2 exercise in the reform of bond market regulation, providing examples of market impediments that have been reduced in the process of creating the fund and describing the mechanism put in place to provide incentives for reducing impediments further.

## 2. An overview of local currency bond markets in East Asia

In the wake of the Asian crisis of 1997, there was concern at first that the lack of well-developed local currency markets was forcing Asians to borrow in foreign currencies, thus making their economies more vulnerable to a speculative currency attack. Since then, however, governments in the region have accumulated such high levels of foreign exchange reserves that the risk of another currency crisis has ceased to be an immediate concern. Of greater interest to policymakers in the region has been the concern that their stockpiles of official reserves may be a sign of inefficient domestic intermediation, since the reserve assets seem to have been earning much less than what Asians pay when borrowing abroad.

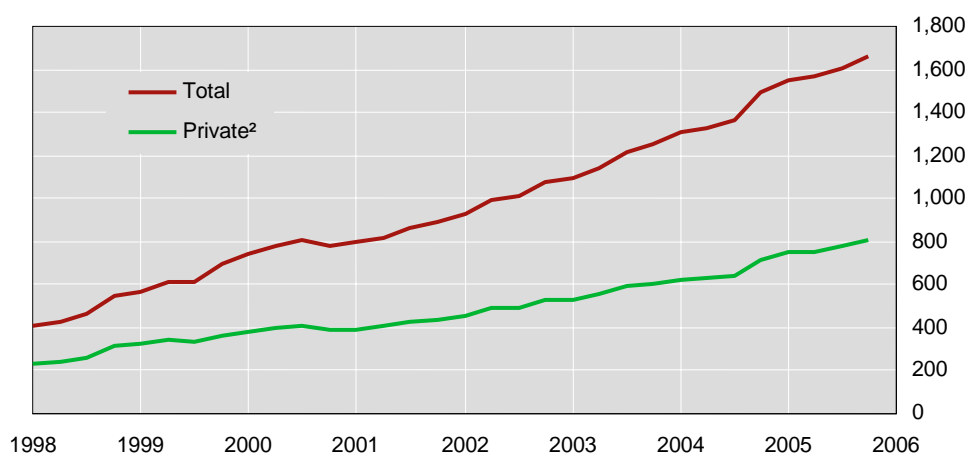
McCauley (2003) documents that the broad pattern of gross capital flows since the Asian crisis has indeed been one of Asians investing in low-yielding foreign assets and foreigners investing in higher-yielding assets in the domestic markets of the region. Part of the reason for this pattern is the fact that foreign exchange intervention has resulted in a large accumulation of reserves by central banks, and these institutions by their nature have a safety bias (rather than a home bias). In effect, Asian savings are being sent abroad only to return mostly in the form of private sector foreign investment. Thus, financial intermediation is being carried out in the more developed financial markets of Europe and North America, and the cost of intermediation is reflected in the large differences in returns between Asian assets abroad and foreign assets in Asia. In principle, the importance of local information should lead to such intermediation being done at home. If local currency bond markets in Asia functioned as

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<sup>2</sup> The 11 EMEAP central banks and monetary authorities are the Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Bank Indonesia, Bank of Japan, Bank of Korea, Bank Negara Malaysia, Reserve Bank of New Zealand, Bangko Sentral ng Pilipinas, Monetary Authority of Singapore, and Bank of Thailand.

intended, Asian policymakers now seem to be asking, could they not keep such intermediation at home and in the process save their economies some of the borrowing costs?

Figure 1: Domestic debt securities outstanding in Asia<sup>1</sup> (in billions of US dollars)



Note: <sup>1</sup> Includes the bond markets of the eight EMEAP members China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, Korea and Thailand. <sup>2</sup> Excluding the Philippines.

Source: BIS.

The Asian crisis did have economic consequences that themselves added impetus to the development of local currency bond markets in the region. As economies contracted, governments in the region found themselves faced with budget deficits. Huge levels of funding were needed for large-scale bank restructuring. And this time, the governments in the region made an effort to eschew borrowing abroad, instead borrowing locally in local currencies. As a result, the total amount of domestic debt outstanding in East Asia, excluding, Japan has risen nearly threefold since 1998 (Figure 1).<sup>3</sup> Hence, to the extent that the sheer volume of debt helps contribute to financial market development, the Asian crisis has contributed to the development of local currency bond markets in the region.

Other factors, however, seem to continue to hold back these local markets. While the strength of issuance has been beneficial to the primary markets, the secondary markets still suffer from a lack of liquidity. A number of market impediments, both cross-border and local, remain. Takeuchi (2004) provides a survey of cross-border impediments in Asia. While most of these cross-border impediments are well known in the literature on capital controls, some local impediments have been relatively less well appreciated and thus have received insufficient attention.

Capital controls typically include a ban on investments by foreigners or on repatriation of principal or income on these investments, restrictions on currency conversion, and other prohibitions and regulatory hurdles for both issuers and investors. There is evidence that such controls still bind in Asia. Ma and McCauley (2006), for example, show that there is still not sufficient arbitrage to equalise onshore and offshore yields in various Asian money markets. Specific examples include tight foreign exchange conversion rules associated with China's "qualified foreign institutional investor" scheme governing foreign portfolio inflows, Indonesian restrictions on domestic banks purchasing local currency instruments from non-resident issuers, Korea's ceiling on resident investment in overseas securities and properties, restrictions on foreign investors purchasing foreign currency from the local banking system in the Philippines, and Thailand's limits on domestic banks' local-currency lending to non-residents.

<sup>3</sup> For a review of bond market development since the 1997 crisis, see CGFS (1999), McCauley and Remolona (2000), Jiang and McCauley (2004), Battellino (2004), and Sheng (2005).

Local market impediments may take the forms of taxes, insufficient market development, and an inadequate clearing and settlement infrastructure. Withholding taxes and taxes on financial transactions remain a major cost to non-resident investors in some of the local markets. Within EMEAP, some jurisdictions exempt only non-resident investors, and some do so only for certain instruments. Insufficient market development, such as the lack of a broad and diversified bond investor base, issuers and products, is not conducive to liquidity. A lack of an independent and competent rating industry and more consistent rating standards is a barrier to more efficient pricing of credits. In many cases, inadequate disclosure requirements, weak accounting standards, and insufficient creditor rights protection add to the impediment list. For deep and liquid markets in Asia, Jiang and McCauley (2004) identify as essential such factors as market size, the diversity of the investor base, and the availability of hedging instruments. Inadequate custody, clearing, and settlement facilities also hamper bond market development. In most Asian bond markets, it is still rather cumbersome and sometimes impossible to clear and settle cross-border bond transactions.

### **3. Regional cooperative initiatives and the ABF project**

East Asia has seen several initiatives in regional cooperation to develop domestic bond markets. One focus of the various regional initiatives has been to open up domestic markets to foreign portfolio investment by removing both local and cross-border impediments. Among these initiatives, only the ABF2 effort involves actually setting up funds to invest in the local currency markets. We argue in this section that this unusual approach leads regulators to encounter impediments in their actual operations of establishing bond funds so as to make it an effective mechanism for regulatory reform. In principle, private investors could have also lobbied for reforms as they set up investment funds. However, market reform is a public good in the sense that the benefits are enjoyed by many investors. Individually, investors would be unwilling to bear the costs of lobbying fully for such reforms, because they would not be able to keep the benefits to themselves.

At least three major government-sponsored regional organizations in Asia are pursuing initiatives to promote financial development in the region (Battellino, 2004). First, under the banner of the Asia-Pacific Economic Cooperation (APEC) forum,<sup>4</sup> the tripartite structure of the PECC (Pacific Economic Cooperation Council) brings together many of the initiatives of government, business, and academe. One such initiative is focusing on the development of securitization and credit guarantees. Second, within the Association of South East Asian Nations Plus Three (ASEAN+3) framework,<sup>5</sup> six working groups have been set up to address a broad range of issues related to local bond markets in Asia. These issues comprise securitized debt instruments, credit guarantee mechanisms, foreign exchange transactions and settlements, local currency issuance by multinational corporations, local and regional credit rating agencies, and coordinated technical assistance. The third organization consists of the EMEAP central banks, which have been behind the setting-up of the Asian bond funds (ABFs).

The initiatives of these three regional organizations tend to complement each other. For example, under ASEAN+3 the Asian Bond Market Initiative has helped secure approval from four countries to allow multilateral development institutions to issue bonds in their local currencies. The Asian Development Bank (ADB), the International Finance Corporation (IFC), and the World Bank have already taken advantage of this by each issuing bonds denominated in Malaysian ringgit and Chinese renminbi.<sup>6</sup> The ADB has also issued in Thai bahts and Philippine pesos.<sup>7</sup> Hence, these actions are

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<sup>4</sup> APEC has 21 member economies: Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong SAR, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Taiwan (China), Thailand, the United States, and Vietnam.

<sup>5</sup> The members of ASEAN are Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The “+3” are China, Japan, and Korea.

<sup>6</sup> There have been four issues of supranational local currency bonds in Malaysia since late 2004: MYR 400 million by the ADB, MYR 500 million by the IFC, and MYR 760 million by the World Bank. The ADB issue in Thailand in 2005

adding to the supply of paper in the local bond markets, while the ABF2 exercise is adding to the demand for this paper.

The ABF exercises are the first initiatives in which a regional organization has contributed financial resources to setting up actual bond funds in Asia. In June 2003, the EMEAP central banks launched the first fund, the Asian Bond Fund 1 (ABF1), pooling \$1 billion in international reserves from the 11 central banks and investing in US dollar denominated bonds issued by sovereign and quasi-sovereign borrowers in eight of the EMEAP economies.<sup>8</sup> By design, ABF1 was set up to be restricted to EMEAP central bank investment only and thus would not be open to other investors. Nonetheless, it was the first regional pooling of international reserves in Asia. In June 2005, the EMEAP central banks launched the second fund, the Asian Bond Fund 2 (ABF2), which has invested \$2 billion of EMEAP central bank reserves in local currency denominated sovereign and quasi-sovereign issues in the same eight EMEAP markets.<sup>9</sup>

#### **4. Concerted “learning by doing”: the ABF2 exercise**

As mentioned, the ABF2 initiative differs from the others in that it involves the actual creation of local currency bond funds. The earlier ABF1 had limited itself to dollar-denominated issues that are mostly traded in more developed international bond markets. Nonetheless, that first fund was important because it afforded the EMEAP central banks an opportunity to work together to build trust so as to foster cooperation and to further develop financial markets in the region (Leung 2006).

ABF2 is actually nine separate funds: a Pan-Asian Bond Index Fund (PAIF) and eight single-market funds (Figure 2). The PAIF is a single-index bond fund investing in sovereign and quasi-sovereign domestic currency denominated bonds issued in the eight EMEAP markets. The PAIF will be quoted in US dollars on an unhedged basis (for more details about the structure of the PAIF, see Section 5 below). The eight single-market funds will each invest in the respective local currency bond market. Each of the nine funds will replicate a bond index provided by a third party, the International Index Company (IIC), which has been a major participant in developing the highly successful credit default swap (CDS) indices in Europe and North America.<sup>10</sup> All eight single market funds have been registered locally in their own markets. Private sector fund managers have been designated to individually manage the PAIF and the single-market funds. The mandate of each fund manager is then to try to replicate the relevant index and manage the fund passively.

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amounted to THB 4 billion. The ADB came back to Malaysia for a second ringgit offering of MYR 500 million in 2006. In China, IFC and ADB issued so-called panda bonds worth RMB 1.13 billion and RMB 1 billion in 2005.

<sup>7</sup> ADB issued PHP 2.5 billion and THB 4 billion bonds, respectively, in the Philippines and Thailand in 2005.

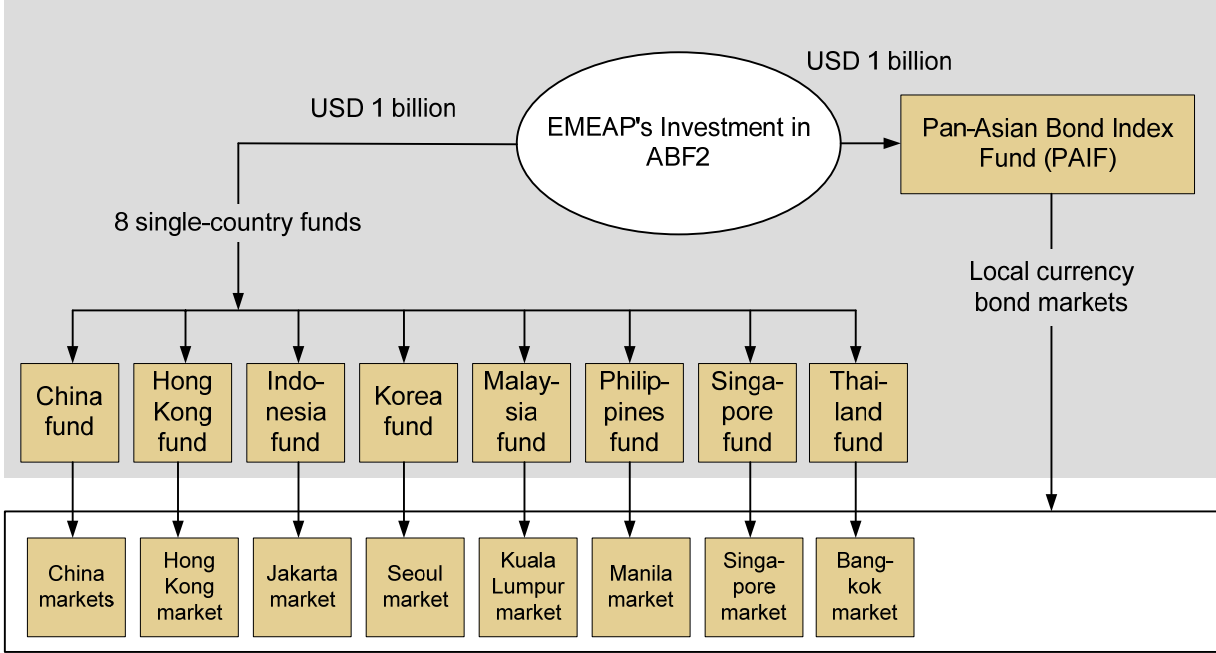
<sup>8</sup> The three EMEAP countries in which the ABFs will not invest are Australia, Japan, and New Zealand.

<sup>9</sup> The BIS acts as manager for ABF1 and as administrator for ABF2.

<sup>10</sup> CDS indices are now the most actively traded instruments in credit markets. The main CDS index for Europe is DJ iTraxx and for North America DJ CDX. Both are the result of a merger between two competing families, Trac-x and iBoxx. See Amato and Gyntelberg (2005).



Figure 2: ABF2 Structure



ABF2 has been proceeding in two phases. In Phase 1, investments in both the PAIF and the single-market funds are confined to the international reserves of the 11 EMEAP central banks, with a total sum of \$2 billion. The EMEAP announced the formal launch of Phase 1 of ABF2 in June 2005. In Phase 2, through public offerings, the PAIF and the eight single-market funds would be gradually opened up to other institutional and retail investors, both within and without the EMEAP region.

The pace and timing of the opening of these nine bond funds could vary across jurisdictions. Since the formal launching of ABF2 in June 2005, six of the nine ABF funds have opened to the public. They are the PAIF, Hong Kong Bond Index Fund, Malaysia Bond Index Fund, Philippine Bond Index Fund, Singapore Bond Index Fund, and Thailand Bond Index Fund. Some of the remaining three single market funds are expected to be offered publicly in the near future. Undertaking the project in phases has allowed the central banks to identify market impediments in stages and deal with them on a realistic schedule.

Table 1: Cumulative growth of the ABF2 funds open to non-EMEAP investors

Funds	Fund size (\$ million)	Growth since inception
PAIF	1,156	14%
Hong Kong Bond Index Fund	214	55%
Malaysia Bond Index Fund	125	26%
Philippine Bond Index Fund	57	3%
Singapore Bond Index Fund	220	35%
Thailand Bond Index Fund	121	20%

Note: As of 31 April 2006, fund size is measured as net asset value, while growth is based on the number of fund units. The IPO dates vary across different funds.

Source: Bloomberg.

As more ABF2 funds became available to the public, the total size of the ABF2 funds, including both the \$2 billion EMEAP seed money and new non-EMEAP investments, increased to \$2.47 billion as of April 2006. Since their respective listings, the growth of individual funds has varied noticeably, ranging from a rise of 3% to above 50% (Table 1). Part of the reason for the differences is the timing of their initial public listings. For instance, the Hong Kong Bond Index Fund was listed in June 2005, while the listing of the Philippine Bond Index Fund took place only in late April 2006. Still, these developments suggest reasonable market demand for Asian local currency index bond funds, with the size of the Philippine fund in particular more than doubling since inception.

The advantage of creating actual funds in the process of trying to reform markets is that an important element of “learning by doing” is introduced. Informal conversations with the key individuals involved suggest that in setting up ABF2 the EMEAP central banks encountered myriad market impediments, many of them seemingly small but each one critical to the operation of the funds. Even when these officials had been aware of the impediments before the exercise, they found some of them to be more significant than initially thought. By undertaking the initiative as a group, the EMEAP central banks improved their understanding of specific impediments in their local bond markets and came up with ways to overcome them. Seeing that the authorities in neighboring jurisdictions had already instituted certain market reforms encouraged the relevant authorities to “fast-track” their own initiatives. Often the central bank officials worked with their counterparts at the finance ministry or the securities regulator to deal with the impediments.

Recognizing that their job is far from complete, the central banks have also agreed on an incentive mechanism for further reducing market impediments. In particular, the scheme for allocating the portfolio to the various local markets will take market impediments into account: the portfolio weight in ABF2 for an individual market rises as cross-border and local market impediments in that market are removed (see Section 7 for a more detailed discussion).

## **5. Designing a liquid Pan-Asian Bond Index Fund<sup>11</sup>**

The Pan-Asian Bond Index Fund (PAIF) is designed to allow institutional and retail investors to gain access to Asia’s local bond markets in a simple and transparent manner. The main challenge was to ensure that investors benefit from the lower transaction costs associated with passively tracking a regional index rather than active management of a portfolio. The specific index is the iBoxx Pan Asia Index, which is constructed to be transparent and to comprehensively cover the eight local Asian bond markets. The index will be quoted in US dollars on an unhedged basis. In practice, the fund will replicate the index closely by holding a selected set of issues rather than all the constituents of the index. Such fund management, however, requires an infrastructure of risk management and analysis of risk factors (Cheung 2006).

The fund’s regional scope meant that there was no natural domicile for it in any of the EMEAP jurisdictions. Tax, legal, operational, and marketing considerations suggested that a Singapore-based unit trust listed on the Hong Kong Stock Exchange would offer the best option for all investors, and this is how it was established.

The fund is open-ended as well as exchange-listed. Hence, investors are able to trade the PAIF in two ways. First, as shown in the figure below, investors can go to fund trustees through dealers to buy or redeem units at that day’s closing net asset value, thus engaging in a transaction in the “primary market”. Second, they can buy or sell units on the stock exchange, thus trading in the “secondary market”. As has been the case with other funds previously launched in the region, there are some restrictions on trading PAIF units in the primary market so as to concentrate liquidity in the secondary market. Nonetheless, the primary market continues to provide an important means for arbitrage to ensure that secondary market prices stay in line with the fund’s net asset value.

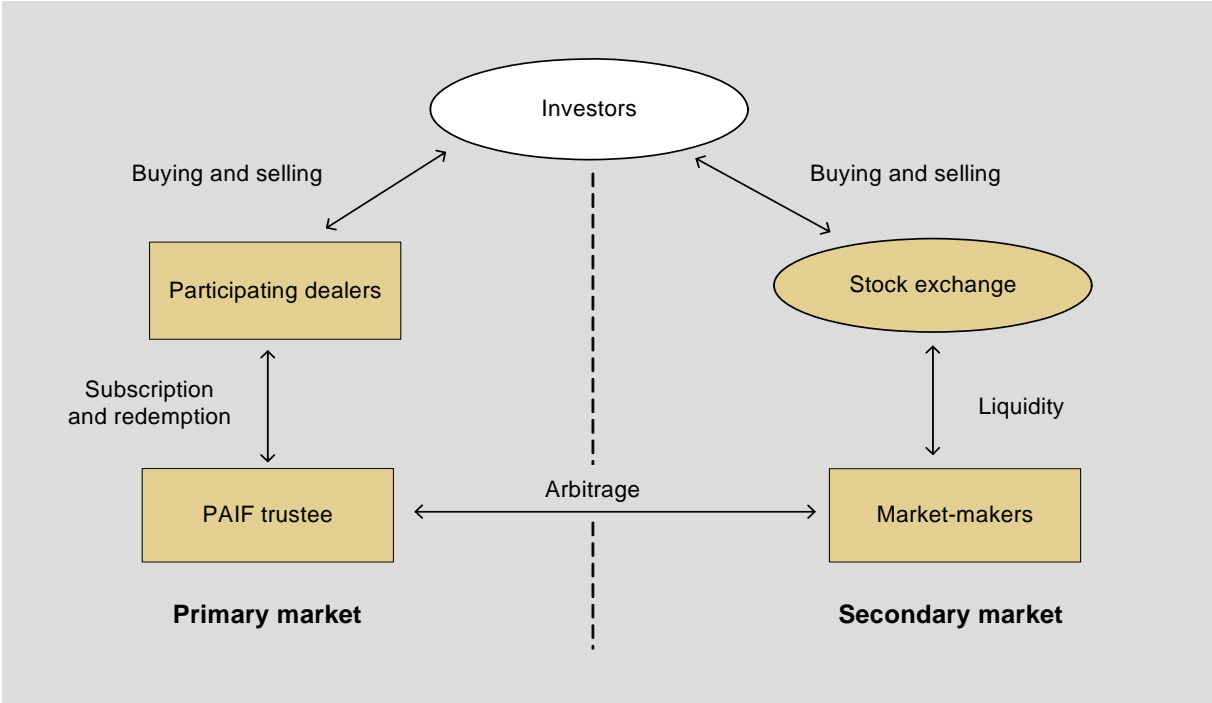
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<sup>11</sup> This section draws heavily from a box written by Pierre Cardon in Ma and Remolona (2005).

In the primary market, the PAIF follows the “participating dealer model”. This model limits daily subscriptions and redemptions only to dealers who have signed an agreement with the fund manager. To help the manager deal with cash inflows and outflows, the participating dealers may only transact a minimum size. For cash transactions, there is a limit on the total daily volumes, and the manager charges a dilution fee. The limit is waived if transactions are in exchange of a basket of bonds. These transactions are known as “in-kind” subscriptions or redemptions. The “in-kind” facility makes the PAIF similar to an exchange-traded fund (ETF), the main difference being that in-kind dealing is more formalized with an ETF.

In the secondary market, the fund manager has appointed market-makers to provide liquidity in the trading of units on the stock exchange. The market-makers are expected to maintain tight bid and offer quotes on the exchange and to seize arbitrage opportunities by closely monitoring the fund’s net asset value and comparing it with the prices on the exchange. To help them provide liquidity, the market-makers have priority in the primary market for trades up to a specified limit per day, and they may borrow fund units from institutional investors.

Figure 3: Two ways to trade the PAIF



The opening of the PAIF to the public took place at the end of June 2005. Before listing the fund on the exchange, a unit trust was set up by the EMEAP central banks with an “in-kind” transfer of the equivalent of around \$1 billion in local currency bonds, which was purchased during Phase 1 of ABF2. The fund may be further enlarged through private placements by institutional investors, participating dealers, and market-makers. It has been listed to allow all other investors to acquire the units on the secondary market. This strategy is expected to keep costs low and avoid the volatility usually associated with a sale-driven initial public offering. From then on, listings on other EMEAP stock exchanges will be considered, depending on demand from local investors and on whether local regulatory rules permit it.

Once listed, the PAIF became the first low-cost, passively managed investment fund invested in the eight EMEAP local bond markets. These features should potentially make the PAIF attractive in the long term to pension funds and retirement accounts seeking opportunities for diversification and favorable long-term returns.

## 6. Market impediments already reduced

For such relatively small sums, the ABF2 initiative has apparently been unusually effective in promoting the reform of local bond markets.<sup>12</sup> Because of the other initiatives that are also under way, it is always difficult to attribute regulatory changes to the ABF2 effort alone. Nonetheless, many of the participants feel that the effort has made a significant difference. In this section, we can provide only a few illustrative examples of reductions in impediments.

The most apparent area for reform has been in capital controls. Malaysia, for example, has announced measures to liberalize its foreign exchange market, so that it has now essentially restored the regime that was in place before it imposed capital controls during the Asian crisis. The Malaysian authorities have lifted all restrictions on non-resident hedging activities. Companies controlled by non-residents now enjoy full access to onshore ringgit credit facilities. Residents without domestic ringgit borrowing can freely invest abroad. Finally, the Malaysians have permitted multilateral agencies to issue local currency bonds in the domestic market and allowed these non-resident issuers to hedge exchange risks with onshore banks.

Korea has also recently announced a series of measures to further liberalize foreign exchange regulations. The limit on won borrowing by foreign investors has been lifted from KRW 1 billion previously to KRW 10 billion. Moreover, Korean residents are now allowed to invest in overseas property up to \$1 million. In China, the investment quota on portfolio inflows by qualified foreign institutional investors has been raised from the initial \$2 billion in 2003 to nearly \$7 billion as of May 2006. Measures have been announced to allow Chinese residents to invest in overseas securities, subject to some quota. China's active participation in ABF2 also bodes well for the country's willingness to simplify its still extensive regulations on cross-border portfolio investment and to lower hurdles for the still fragmented domestic bond markets regulated by multiple authorities. In fact, the PAIF is the first foreign institutional investor that has been given direct access to the Chinese interbank bond market.<sup>13</sup>

Withholding taxes and other taxes are another area of reform. Thailand has already granted non-resident investors withholding tax exemption for income from investing in baht-denominated government bonds and, in most cases, government-guaranteed bonds in the domestic market. Malaysia has also announced the exemption of non-resident investors from the withholding tax on the interest income received from investment in ringgit-denominated debt securities onshore. In Korea, the withholding tax on interest incomes that foreign investors earn on local currency bonds has been reduced. So far, five of the eight EMEAP member markets have either implemented or offered exemption from the withholding tax to non-residents investing in local currency sovereign or quasi-sovereign issues. In the Philippines, the documentary stamp duty on bond trading will be removed with the introduction of the Philippine single-market fund.

One unexpected area of reform has been the legal accommodation of national jurisdictions, so that a fund domiciled in one jurisdiction may be sold in another. The PAIF, for example, is to be domiciled in Singapore to take advantage of a host of factors including bilateral tax agreements between Singapore and the other EMEAP members. However, it will be initially listed in Hong Kong, in part to take advantage of the high degree of liquidity and depth in that market. This combination is the first ever in Asia, demanding a significant learning effort on the part of each regulatory authority.<sup>14</sup> To make the fund possible, the participating central banks and the regulatory authorities concerned

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<sup>12</sup> In this respect, the small sums involved help in that they avoid the problem of a passive investor taking away from the market too much of the available volume of tradable instruments.

<sup>13</sup> Previously, qualified foreign institutional investors were allowed to directly invest in bonds and stocks traded on the smaller Shanghai Stock Exchange and Shenzhen Stock Exchange.

<sup>14</sup> In the future, the PAIF may be listed in another market in the region, and some of the eight single-market funds could be managed in jurisdictions other than those where they are registered and listed.

needed to cooperate in reconciling divergent regulatory frameworks. Direct participation in local currency bond markets by the EMEAP central banks has thus helped them to further identify, understand the details of, and gauge the importance of market impediments as well as to better appreciate the diversity of each other's regulatory frameworks. This appreciation should in turn set the stage for further streamlining of market regulation in the region.

## **7. Incentives to further reduce impediments**

The central banks involved in ABF2 have devised a mechanism to provide incentives to further reduce impediments in their own local bond markets. These incentives are built into the determination of the market weights in the portfolio of the PAIF and the single-market funds. As the assigned weight on a particular market increases, a larger portion of the investments into these index bond funds will be allocated to that market.

### ***Determining the market weights in ABF***

The portfolio allocations of the PAIF and the initial EMEAP investment in the eight single-market funds will be determined in large part by market weights that take account of various factors. There are specifically four such factors: the size of the local market, the turnover ratio in that market, the sovereign credit rating,<sup>15</sup> and a market openness factor. Starting from an equal allocation for each local market, the allocation will be adjusted to take account of these four factors. The allocation for a given market will be adjusted upwards if the adjustment factors score better than the averages for the eight markets. In the adjustment, market size, turnover ratio, and credit rating will each carry a 20% weight. The greatest part of the adjustment will be determined by the market openness factor, which will be assigned a 40% weight.

### ***The market openness factor***

IIC, the company generally responsible for the bond market indices to be replicated by the nine ABF2 funds, has constructed a "qualitative factor that gauges the relative openness of the eight markets" (IIC, 2005a). This factor is measured by a so-called "impediments index" (Table 2): the fewer the impediments present, the better the openness factor would score. In creating the index, IIC consulted with a "number of international and domestic market participants through its Asian Index Committee and Asian Oversight Committee, as a means to help ensure the credibility and market acceptance of the indices" (EMEAP, 2005).

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<sup>15</sup> Local currency long-term debt ratings of the three international rating agencies (Fitch, Moody's, and Standard & Poor's) are applied.

Table 2: Five sub-factors of the impediments index

Sub-factors	Description
Regulatory environment	Degree of investor protection and freedom of action, such as restrictions on foreign investments, currency and capital controls, etc.
Legal environment	Legal restrictions or laws discriminating against specific investor classes, corporate governance
Fiscal environment	Tax treatment and other monetary duties
Market infrastructure	State of development of the local capital market and its influence on asset management
Clearing and settlement infrastructure	Degree of sophistication and competition in back office functionalities such as settlement, custody, etc.

Note: The higher the score of each sub-factor, the fewer the market impediments present. These scores are derived from polls among members of the iBoxx Asian Index Committee. The impediments index is a weighted average of the five sub-factors.

Source: International Index Company.

Any assessment of market openness might be expected to take account of such considerations as the absence of capital controls, the level of withholding taxes, the availability of hedging instruments, the facilities for real-time gross settlement, and the ability to clear local bonds internationally. The higher the market openness factor assigned for a given market, the more the portfolio allocation is adjusted in favor of that market. The country weights, and thus the market openness factor, will be reviewed every September. As impediments are removed, the changes can be expected to be reflected in a rebalancing of the regional portfolio.

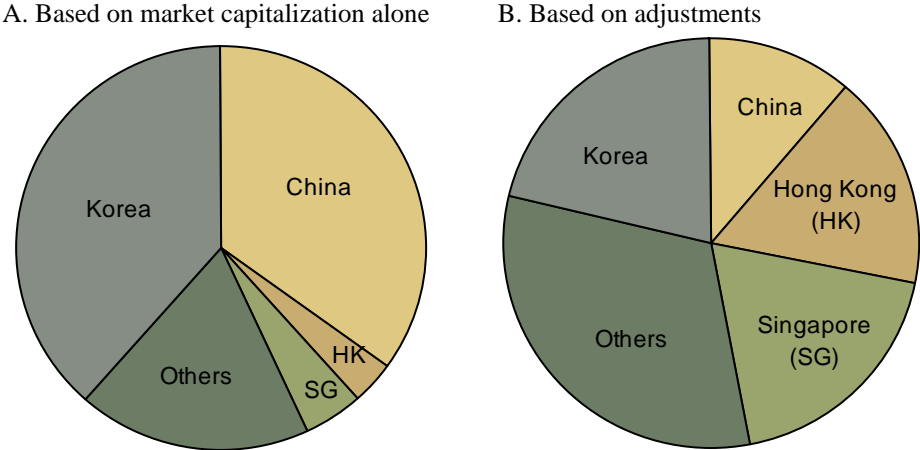
In constructing the market openness factor, the iBoxx Asian Index Committee will treat the regulatory environment as the most important consideration. This sub-factor, which includes capital controls and provisions for investor protection, will alone account for 25% of the openness score. Notably, the two considerations that have been most neglected in the academic literature—market infrastructure and the payment system—will together receive a weight of 37.5%. The legal and fiscal environments will account for the remaining 37.5%.

**An illustration**

Figure 4 shows the effects of such weight adjustments. It compares the weights based on raw market capitalization data and the adjusted weights in the PAIF portfolio at the time of launch. The allocation after adjustments differs considerably from the weights on the basis of raw market capitalization data. The allocations in the PAIF to China and Korea fall noticeably below their capitalization-based weights, while the remaining six markets gain. In particular, the Hong Kong and Singapore allocations rise more than fourfold.

There are at least two ways in which the ABF2 indices will help the development of Asian local currency bond markets. First, they provide a dynamic mechanism to encourage the eight EMEAP members to continue their efforts at market liberalization. As discussed above, market openness is the single most important adjustment factor in the allocation weights, and these will be reviewed annually. As new market liberalization measures are introduced, the market openness factor would score better, thus increasing the weights on the market in question. Second, the improved transparency, replicability, and credibility of these market indices will provide the kinds of benchmarks that have proven useful elsewhere for the development of markets in corporate bonds.

Figure 4: Market weights for the Asian Bond Fund



Note: "Others" includes the remaining four EMEAP markets: Indonesia, Malaysia, the Philippines, and Thailand.

Source: International Index Company.

**8. Conclusion**

The ABF2 initiative is a regional cooperative effort aimed at fostering local currency bond markets in Asia. It differs from other such efforts in that it involved actually setting up bond funds. Hence, it contains an important element of "learning by doing", which has enabled EMEAP to identify in detail significant market impediments that had not been well appreciated before. The process has already helped ease various market impediments, both cross-border and local. The exercise also provides incentives to further reduce market impediments.

An important test for the exercise will be whether it sets the stage for the development of local currency markets in corporate bonds. Already, ABF2 is bringing new instruments to the local markets. As a listed open-ended index fund, the PAIF is a relatively low-cost, low-denomination, and transparent fund, which would be potentially appealing to a broad spectrum of institutional and retail investors. Thus, the PAIF may help broaden both the investment menu and investor base. The ABF may help explore the potential role of exchange-traded bond funds (ETFs). As of April 2006, six of the eight single-market funds have been exchange-listed.<sup>16</sup> China is currently working its own single-market fund to be an ETF in the second phase of ABF2. The introduction of these funds along with a set of transparent and replicable benchmark indices for Asian local currency bond markets may facilitate the development of other fixed income and derivative products, including corporate bonds and credit default swaps.

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<sup>16</sup> The PAIF, and the single-market funds of Hong Kong, Singapore, Malaysia, Thailand and the Philippines.

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