AsianBondsOnline Annual Bond Market Liquidity Survey

Current Trends in the Emerging Asian LCY Bond Market

This year's *AsianBondsOnline* Bond Market Liquidity Survey was conducted in September and October in most markets in emerging Asia.[5] The 2012 survey assessed the current state of liquidity in emerging Asia's local currency (LCY) bond markets by looking at major indicators of liquidity—turnover ratios, bid–ask spreads, representative trading sizes—as well as how market participants view potential changes in policies and improvements to market infrastructure.

The survey found that the most important factors influencing market liquidity in the bond markets of emerging Asia were the continuation of accommodative monetary policies in the United States (US) and Europe, which have resulted in an accelerated inflows of foreign capital. Thus, the role of foreign investors, as well as foreign issuers, is now acknowledged as an important factor in the evolution of bond market liquidity in almost all emerging Asian markets. But foreign inflows have also brought increased volatility in local debt markets and coincided with a retreat from the tightening of the fiscal and monetary policies of 2011 during the first 3 quarters of 2012 in most emerging Asian markets. Perhaps, most importantly, these inflows signal an acknowledgement that credit quality in many of the bond markets of emerging Asia, both government and corporate, has improved. This conclusion is supported by a bevy of sovereign rating upgrades in the region and the improved balance sheets of companies.

Market liquidity has also been driven by the rapidly growing role of institutional investors: pension funds, insurance companies, private banking institutions, and asset management companies. While government bond trading desks at commercial banks are still the largest and most important participants in most markets, institutional investors are assuming an increasingly important role in the larger and more well-developed markets.

Issuance continued to be an important factor driving overall market liquidity in 2012, but its relative importance varied among different market segments. Issuance from central government institutions—treasuries and special purpose government entities—grew very rapidly during the first 3 quarters of 2012 as many governments in the region revived the fiscal stimulus programs they had phased out or reduced in 2011. Central bank issuance was also important, mainly because it was sharply reduced in many markets as central banks generally retreated from their sterilization efforts of recent years. The People's Bank of China (PBOC), for example, simply ceased issuing both bills and bonds in 2012. Quite a few, but not all, central banks in the region have ceased to withdraw liquidity from the market, leaving cash available for investment in other financial instruments, including corporate bonds, which have emerged as the most rapidly growing segment of the emerging Asian bond market in 2012.

The corporate bond market remains less liquid than the government bond sector, due to the fact that many corporate bonds fall into the hands of buy-and-hold investors within a few months of issuance. But there are important exceptions to this generalization in some markets, where issuance by government-owned corporations—or issuance by high-credit-quality private corporations—takes place in very large sizes and continues to trade because of market confidence in the company name and a significant pick-up in yield over a government bond of comparable maturity. Foreign investors have been active in the bond market of the Republic of Korea, for example, and have lately discovered the high-grade corporate bond market, especially bonds issued by government-

[5] Emerging Asia comprises the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam.

owned corporations, as an investment in addition to Korean Treasury Bonds (KTBs).

Recent Trends in Quarterly Turnover Ratios for LCY Bonds in Emerging East Asia

The liquidity of LCY government bonds as measured by quarterly turnover ratios has improved in most emerging East Asian markets in 2012 on a year-to-date (YTD) basis.[6]

- In the People's Republic of China (PRC), quarterly turnover ratios for all three types of government sector bonds rose in the first 3 quarters of 2012, although policy bank bond ratios turned down a bit in 3Q12 **(Figure 13a)**. The principal driver of improving turnover ratios for the PRC's government sector bonds has been the trading volumes of repurchase (repo) bond transactions rather than cash bond transactions. Repo bond turnover ratios for the PRC's central bank bonds, policy bank bonds, and treasury bonds—defined as the quarterly repo bond trading volume for a particular type of government sector bond divided by total bonds outstanding for the bond category in question—are compared with turnover ratios for the same category of cash bond transactions in **Figure 13b**.

- The repo bond turnover ratios are higher than those for cash bond transactions for all types of PRC government bonds. The highest repo bond turnover ratio at end-September was for central bank bonds at a level of 2.52, followed by the repo turnover ratios for treasury bonds at 1.87 and policy bank bonds at 1.78. The comparable cash bond turnover ratios at end-September for the PRC's central bank bonds, policy bank bonds, and treasury bonds were 1.53, 0.93, and 0.45, respectively. The much higher repo turnover ratios were driven by the PBOC's repo transactions.

- The Republic of Korea has seen its turnover ratios for central government bonds and central bank bonds rise steadily over the last year to reach levels of 1.24 for central government bonds and 1.18 for central bank bonds at end-September **(Figure 13c)**.

- Turnover ratios for Malaysian government bonds have fluctuated around a level of 0.5 over the last year, while the turnover ratios for Malaysia's central bank bills have fallen from levels as high as 3.0 at end-December 2009 to about 1.0 at end-September **(Figure 13d)**. The turnover ratio for Malaysian government bonds—comprising Malaysian Government Securities (MGSs) and Government Investment Issues (GIIs)—fell to a level slightly below 0.5 in 3Q12.

- Some of the weakness in the turnover ratio for Malaysian government bonds reflects the decline in the turnover ratio for MGS repo bond transactions in 2012, as the repo turnover ratio has trended downward since 2008 **(Figure 13e)**. The MGS cash turnover ratio has been more robust over the last year, reflecting, at least in part, the large foreign capital inflows into the Malaysian bond market.

- Singapore's turnover ratios have been mixed over the last year **(Figure 13f)**. The turnover ratio for Singapore treasury bills has trended upward in 2012, while the turnover ratio for Singapore Government Securities (SGSs) has trended downward.

- The turnover ratio for all Philippine government securities masks the disparate trading activities among specific types of treasury securities, particularly bills and bonds **(Figure 13g)**. Significant movements have occurred in the individual turnover ratios for bills and bonds over the last year. Based on the records of the Bureau of the Treasury's Registry of Scripless Securities (BTr-ROSS), turnover ratios prior to 2010 were within a range of 0.12 and 0.84 for bills and 0.22 and 0.55 for bonds. Between 1Q10 and 3Q12, the average turnover ratio

[6] Emerging East Asia comprises the People's Republic of China; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam.

Figure 13a: Trends in Quarterly Turnover Ratios for Spot and Repo in the People's Republic of China

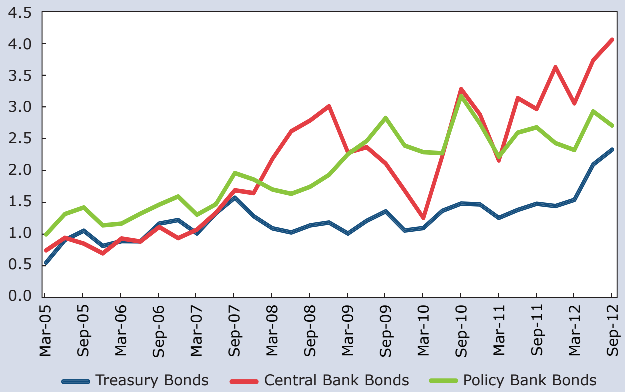


Figure 13b: Trends in Turnover Ratios for Spot and Repo in the People's Republic of China

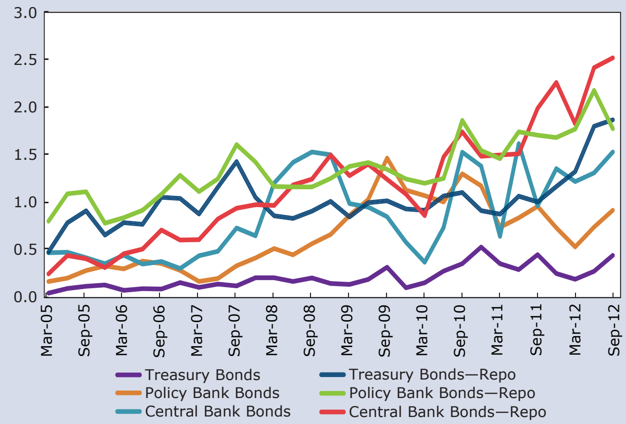


Figure 13c: Trends in Quarterly Turnover Ratios in the Republic of Korea

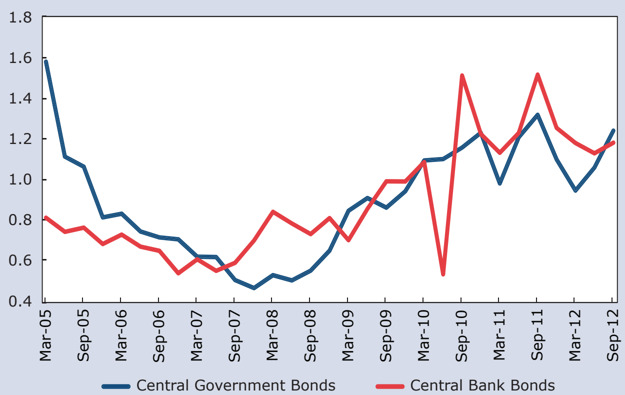


Figure 13d: Trends in Quarterly Turnover Ratios in Malaysia

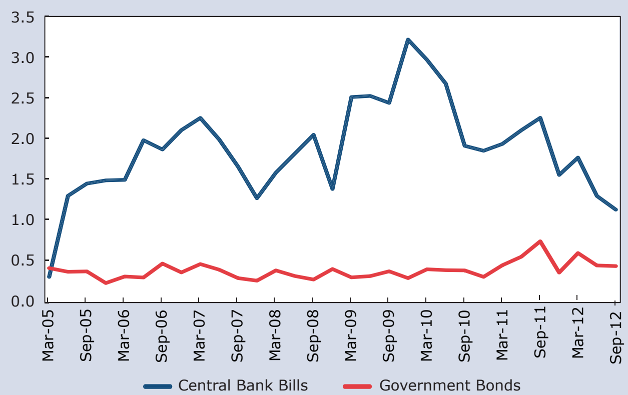


Figure 13e: Trends in Quarterly Turnover Ratios for Malaysian Government Securities

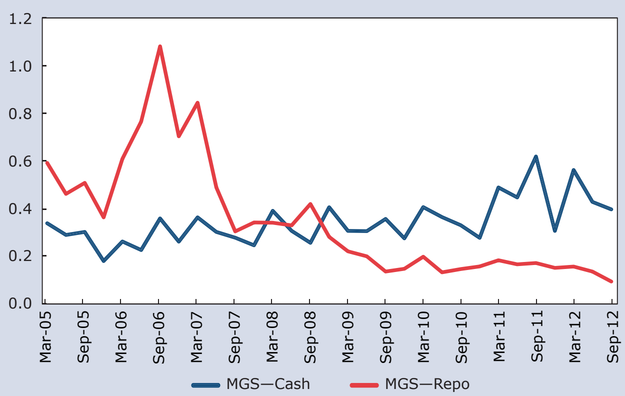
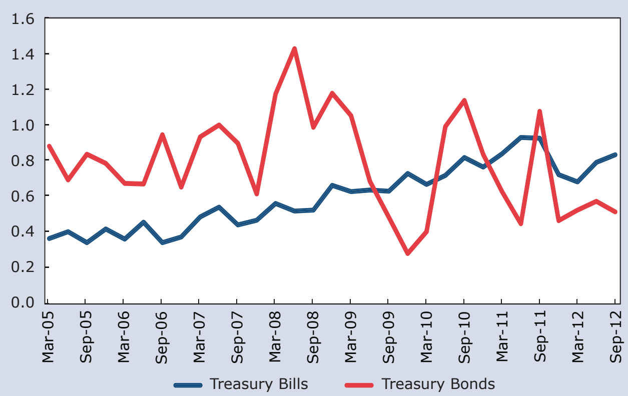


Figure 13f: Trends in Quarterly Turnover Ratios in Singapore



MGS = Malaysia Government Securities.
Notes:
1. For the Republic of Korea, central government bonds include treasury bonds and National Housing Bonds.
2. For Malaysia, government bonds include Malaysian Government Securities (MGSs) and Government Investment Issues (GIIs).
3. Turnover ratios are calculated as LCY trading volume (sales amount only) divided by average LCY value of outstanding bonds during each 3-month period.
Source: *AsianBondsOnline*.

Figure 13g: Trends in Quarterly Turnover Ratios in the Philippines

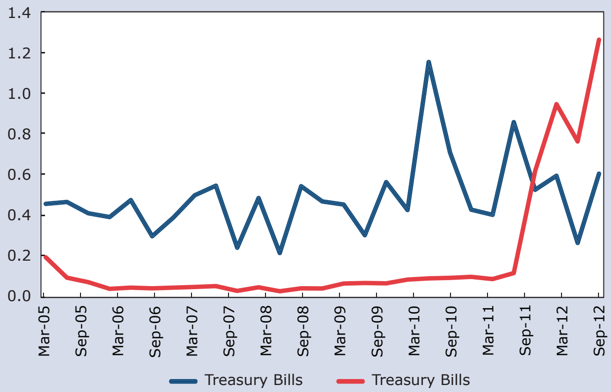


Figure 13h: Trends in Quarterly Turnover Ratios in Thailand

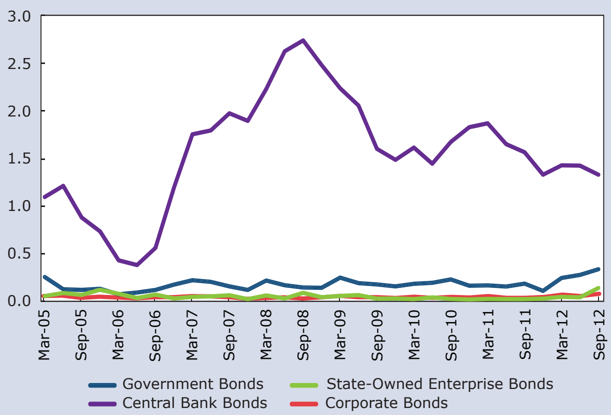
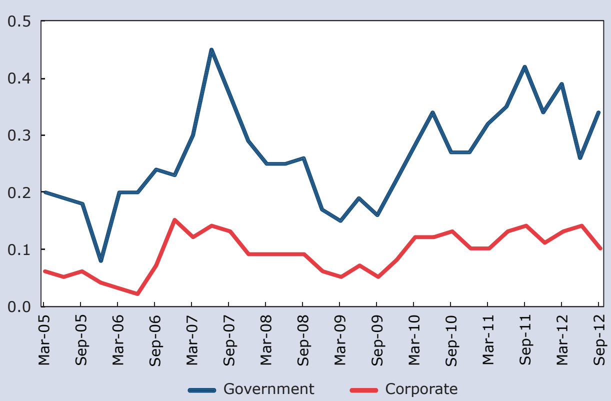


Figure 13i: Trends in Quarterly Turnover Ratios in Indonesia



Note:
1. For Thailand, September 2012 data based on *AsianBondsOnline* estimates.
2. Turnover ratios are calculated as LCY trading volume (sales amount only) divided by average LCY value of outstanding bonds during each 3-month period.

Source: *AsianBondsOnline*.

for bills catapulted from 0.29 to 5.42; for bonds, it improved slightly from 0.56 to 0.61. The turnover of treasury bills increased dramatically between 4Q11 and 3Q12, which coincided with the rapid strengthening of the Philippine peso and the heightened intervention of the Bangko Sentral ng Pilipinas (BSP) in the secondary market.

- The highest quarterly turnover ratios in Thailand are those of central bank bonds, which in both cases, have tended to fluctuate around 1.5 since 2010 **(Figure 13h)**. Turnover ratios for both government bonds and corporate bonds in Thailand are much lower. The turnover ratio for government bonds in recent years has fluctuated in a range just below 0.3, while the turnover ratio for Thai corporate bonds is negligible. This seems to reflect the fact that a very large amount of corporate bonds—almost 50% of the total—are held by retail investors, mostly on a buy-and-hold basis.

- The turnover ratio for Indonesian government bonds is relatively low, fluctuating in a range below 0.5 over the last several years **(Figure 13i)**. The turnover ratio for Indonesian corporate bonds is even lower, fluctuating around 0.1 in recent years.

The 2012 survey received 122 replies to the questionnaire on government bonds and 92 replies to the questionnaire on corporate bonds. The replies came from a total of 127 respondents, representing trading desk staff and managers, portfolio managers, bond market analysts and strategists, and bond pricing agency staff. Of the 127 respondents, 55 represented domestic firms and 72 represented international firms.

Respondents were asked to give quantitative and qualitative feedback on the measures of liquidity in emerging Asian LCY bond markets, as well as their views on the appropriate policies needed to improve market liquidity and efficiency. Market participants were asked to provide bid–ask spreads and typical transaction sizes for both "on-the-run" and "off-the-run" government bonds. In the case of corporate bonds, market participants were asked to provide bid–ask spreads at the time when a new bond is issued, as well as average transaction sizes. **Table 10** summarizes the survey results for the region's government bond markets.

Bid–Ask Spreads. The bid–ask spread is one of the other most commonly used measures of market liquidity since it directly measures the cost of executing a trade. Bid–ask spreads, however, are only valid for market-accepted transaction sizes and for a limited amount of time. The average reported on-the-run bid–ask spread for a government benchmark bond—typically, a treasury bond—in all 10 markets surveyed was 5.8 basis points (bps). The lowest on-the-run bid–ask spread was found in the Republic of Korea and India (0.6 bps each), followed by the Philippines (2.1 bps) and then the PRC and Malaysia (2.7 bps each). The widest bid–ask spread was in Viet Nam (30.5 bps). Bid–ask spreads in emerging East Asia have generally tightened from last year's levels, reflecting large inflows of capital into many of the region's bond markets in 2012 and the easing of monetary policy currently underway in a number of markets.

Liquidity can also be measured by the difference between on-the-run and off-the-run bid–ask spreads. The greatest differences between the two were in Viet Nam and the Philippines at 10.0 bps and 9.6 bps, respectively. The difference between Viet Nam's on-the-run and off-the-run bid–ask spreads can be explained by the fact that it is still a small market in which a large number of illiquid bonds are being issued.

The Philippines is a somewhat more complex story. The government has made dramatic progress in restructuring the market with buy-backs and re-openings of existing issues. The government has also dramatically extended the maturity profile of its markets to the point that the 20-year maturity is now the dominant and most liquid issue. More than 60% of the secondary bonds trading on the Philippine Dealing and Exchange Corp. (PDEx) are centered on the 20-year maturity (FXTN 20-17). Thus, the on-the-run bond is extremely liquid. This reflects increased foreign inflows of investable funds into the Philippines, recent reductions in policy rates, and a continuing trend of sovereign credit rating upgrades from international credit rating agencies. Most recently, Moody's Investor Service (Moody's) upgraded the Philippines to Ba1 from Ba2. Only the Republic of Korea and India have on-the-run bid–ask spreads that are lower than that of the Philippines. The Philippines' off-

Table 10: LCY Government Bond Market Quantitative Indicators

		PRC	HK	IN	ID	KR	MY	PH	SG	TH	VN	Regional
Typical Bid–Ask Spread On-the-Run (bps)	Average	2.7	6.4	0.6	6.6	0.6	2.7	2.1	3.1	3.2	30.5	5.8
	Count	19	7	5	21	11	11	16	9	13	5	117
	SD	1.3	2.5	0.5	2.0	0.2	1.2	2.3	0.8	1.5	9.4	8.9
Typical Bid–Ask Spread Off-the-Run (bps)	Average	4.5	8.1	2.7	11.6	1.0	4.6	11.7	3.6	5.9	40.5	9.4
	Count	16	6	5	13	11	10	16	7	13	5	102
	SD	2.7	4.1	1.2	5.4	0.3	2.2	8.6	1.9	2.0	12.0	11.5
Accepted LCY Bond Transaction Size On-the-Run (US$ million)	Average	23.2	7.3	1.7	1.8	6.5	10.0	3.0	7.9	4.7	2.4	6.9
	Count	20	6	5	17	11	12	16	9	13	5	114
	SD	22.0	3.2	1.7	1.2	4.6	6.4	2.8	6.4	8.4	1.2	6.4
Accepted LCY Bond Transaction Size Off-the-Run (US$ million)	Average	18.5	5.4	1.7	5.3	8.4	7.3	1.4	7.6	2.1	2.4	6.0
	Count	16	5	5	13	10	11	16	8	13	5	102
	SD	20.0	2.3	1.7	11.2	3.1	4.6	0.6	6.2	1.7	1.8	5.1

bps = basis points; HK = Hong Kong, China; ID = Indonesia; IN = India; KR = Republic of Korea; LCY = local currency; MY = Malaysia; PH = Philippines; PRC = People's Republic of China; SD = standard deviation; SG = Singapore; TH = Thailand; VN = Viet Nam.

Note: The bid–ask spreads for Indonesian treasury bonds presented above are expressed in terms of yields or basis points to make them comparable with bid–ask spreads in other Asian markets. Bid–ask spreads for government bonds are most often expressed in terms of "cents" in the Indonesian market. In our 2012 survey, the average treasury bond bid-ask spread was 38.8 cents.

Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Table 11: LCY Government Bond Bid–Ask Spreads—Historical Series

	2006	2007	2008	2009	2010	2011	2012
China, People's Rep. of	7.6	20.0	15.0	5.1	2.2	4.0	2.7
Hong Kong, China	3.0	8.0	4.0	4.3	5.1	4.7	6.4
India	–	–	–	–	–	1.0	0.6
Indonesia	16.9	42.0	24.5	26.6	31.7	32.9	38.8
Korea, Rep. of	1.4	4.5	1.7	1.1	1.1	0.7	0.6
Malaysia	2.3	1.5	12.2	2.3	2.6	3.3	2.7
Philippines	25.3	10.0	19.8	6.6	3.1	5.3	2.1
Singapore	2.7	3.4	20.0	2.9	3.0	3.8	3.1
Thailand	3.0	6.3	9.8	3.4	3.1	3.3	3.2
Viet Nam	–	20.6	75.0	25.6	13.2	33.5	30.5

– = data not available, LCY = local currency.
Note: Indonesian bid-ask spread is expressed in "cents."
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

the-run bid–ask spread of 11.7 bps, however, is exceeded only by that of Viet Nam.

Table 11 shows that liquidity in most government bond markets, as measured by average bid–ask spreads, has improved in 2012 after bid–ask spreads had dramatically risen in 2011 on the back of monetary policy tightening in most emerging East Asian markets. Bid–ask spreads in 2009 and 2010, however, were lower than in 2007 and 2008, driven downward by the monetary easing measures implemented in response to the "Lehman Shock" of 2008.

Average Transaction Size. Transaction size is a useful measure of market depth, given that it is an ex post measure of the quantity of bonds that are traded at the bid or ask price. In this year's survey, average on-the-run transaction sizes (US$ equivalent) for government bonds ranged from lows of US$1.7 million and US$1.8 million in India and Indonesia, respectively, to a high of US$23.2 million in the PRC. The next largest average on-the-run transaction sizes were US$10.0 million in Malaysia and US$7.9 million in Singapore.

Characteristics of Individual Government Bond Markets

The 2012 survey also collected data on bid–ask spreads and average sizes for the different types of bonds in larger individual markets, as well as information on developments in market infrastructure.

The PRC. Bid–ask spreads for the PRC's treasury bills and bonds tightened from 4.7 bps and 4.0 bps in the 2011 survey, respectively, to 2.4 bps and 2.7 bps in 2012 **(Table 12)**. PBOC bills and bonds also tightened by comparable amounts in this year's survey to levels of 2.2 bps and 3.1 bps, respectively. The bid–ask spread for policy bank bonds, however, remained at its 2011 level of 4.0 bps, suggesting that liquidity has remained largely unchanged in 2012, while liquidity for treasury and PBOC instruments has improved markedly since the middle of this year.

Average trading sizes have risen for most types of government bonds in 2012. The average trading size for treasury bills more than doubled to CNY209.8 million and the average trading size for treasury bonds rose from CNY97.5 million in 2011 to CNY146 million this year.

The PBOC has cut its policy interest rates twice this year. The first cut of PBOC's policy rates in 3 years took place on 8 June with a reduction of 25 bps for both rates. This was followed by cuts of 31 bps for the lending rate and 25 bps for the 1-year deposit rate on 8 July. Market participants are waiting to see if further interest rate reductions occur in coming months. The PBOC reduced its reserve

Table 12: LCY Government Bond Survey Results—People's Republic of China

	Treasury Bills	Treasury Bonds	Policy Bank Bonds	PBOC Bills	PBOC Bonds
On-the-Run					
Bid–Ask Spread (bps)	2.4	2.7	4.0	2.2	3.1
Average Trading Size (CNY million)	209.8	146.0	156.7	235.8	195.3
Off-the-Run					
Bid–Ask Spread (bps)	4.6	4.5	6.3	3.1	4.3
Average Trading Size (CNY million)	150.3	116.3	129.6	207.5	163.8

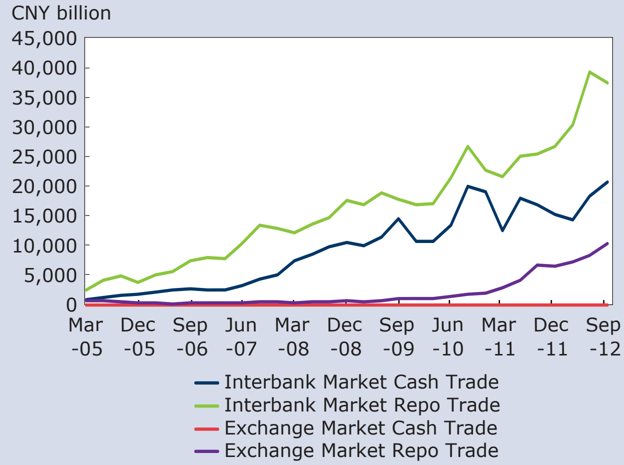
bps = basis points, LCY = local currency, PBOC = People's Bank of China.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

requirement ratio for banks in February and May. More recently, it has engaged in extensive reverse repo operations to add liquidity to the market. As mentioned earlier, a robust repo market has contributed to market liquidity. This is especially true for the exchange bond market, as can be seen in **Figure 14**, which compares trading volumes for repo transactions and cash bond transactions in both the larger interbank bond market and the smaller exchange market. The trading volumes plotted in Figure 14 include transactions for both government and corporate bonds. The interbank bond market, however, is limited to government bonds and AAA-rated corporate bonds, consisting mostly of the so-called "Golden AAA" bonds issued by the largest state-owned enterprises.

The exchange market can accept corporate bonds with a much larger range of credit quality as collateral for repo transactions. One reason for this is that the exchange itself is the counterparty for trading in the exchange market. Trading in the interbank market is primarily on an over-the-counter basis, where a market participant has to accept the credit risk of both his or her trading counterparty as well as the credit risk of the security being traded—essentially, two-way risk. The interbank market is clearly the larger market; its trading volume for repos is larger than that of the exchange market. The exchange market, nevertheless, plays an important role in allowing corporate bonds to be traded, thereby improving their liquidity.

The PRC also has an important market for interest rate swaps (IRSs). The total notional amount traded in the IRS market rose 17.4% quarter-on-quarter (q-o-q) and 1.4% year-on-year (y-o-y) in 3Q12 to CNY801 billion, on a total of 6,662 transactions. The most popular benchmark is the 7-day repo rate, accounting for 52.9% of the notional amount traded, followed by the overnight SHIBOR at 31.6%. These two benchmarks were the most actively traded in 3Q12 because the primary participants in the PRC's onshore IRS market are commercial banks with large funding exposures in the form of repo transactions. Therefore, banks make use of the repo rate as the base rate to hedge their funding. The PRC still lacks a bond futures market, although the government is expected to launch a pilot project for a futures market sometime over the next year.

Figure 14: Repo and Cash Bond Trading Volumes in the PRC's Interbank and Exchange Bond Markets



repo = repurchase.
Source: Wind.

Market participants are eager to see further development of the derivatives markets in the PRC. One example of this would be a more robust credit default swap (CDS) market. A renminbi CDS market has been in operation for over a year. This market is regulated by the National Association of Financial Market Institutional Investors (NAFMII), which is a trade body set up by the PBOC. The domestic CDS market is divided into two sections: (i) non-tradable bilateral contacts that are more akin to insurance policies and known as credit risk mitigation agreements (CRMAs), and (ii) tradable contracts known as credit risk mitigation warrants (CRMWs). Daily trading volume in the CRMW market is negligible because the regulating authority—the China Banking Regulatory Commission (CBRC)—has yet to decide on precise rules for reflecting the reduction of risk on a financial institution's balance sheet once it buys a particular CRMW contract.

Foreign investment in the PRC's bond market at present is limited to funds in the QFII and mini-Qualified Foreign Institutional Investor (QFII) programs, as well as through the cross-border trade settlement program. The allocated quotas for these two programs are relatively small and not necessarily fully invested because QFII funds had been limited to investment in the smaller and less liquid exchange market. They were excluded from investment in the much larger interbank bond market until July 2012.

Republic of Korea. KTBs and Monetary Stabilization Bonds (MSBs), which are issued by The Bank of Korea, have experienced significant improvement in their liquidity in 2012 due to a combination of monetary easing measures and inflows of foreign capital into the Republic of Korea's LCY bond market. As mentioned earlier, the quarterly turnover ratios for both central government and central bank bonds have risen to fluctuate in a range between 1.0 and 1.4 over the last 2 years. Average bid–ask spreads for on-the-run KTBs fell to 0.6 bps in 2012 from 0.7 bps in 2011, while off-the-run KTB bid–ask spreads fell only slightly to 1.0 bps from 1.1bps in 2011 **(Table 13)**. Bid–ask spreads for central bank on-the-run bonds remained unchanged at 0.8 bps, while bid–ask spreads for central bank bills rose slightly to 0.9 bps from 0.8 bps in 2011. Bid–ask spreads for exchange-traded KTBs, however, remained in a range just below 0.25 bps.

Table 13: LCY Government Bond Survey Results—Republic of Korea

	Treasury Bonds	Treasury Bills	Central Bank Bonds	Central Bank Bills
On-the-Run				
Bid–Ask Spread (bps)	0.6	0.8	0.8	0.9
Average Trading Size (KRW billion)	7.2	8.7	8.3	9.0
Off-the-Run				
Bid–Ask Spread (bps)	1.0	1.1	0.9	1.1
Average Trading Size (KRW billion)	9.4	8.0	8.3	8.4

bps = basis points, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Trading sizes for on-the-run and off-the-run KTBs averaged around KRW7.2 billion and KRW9.4 billion, respectively. Trading sizes for on-the-run central bank bonds and bills averaged KRW8.3 billion and KRW9.0 billion, respectively.

Growth of the KTB futures market also has been an important factor this year. In 3Q12, the number of traded KTB futures contracts rose to 9.5 million from 6.3 million in 2Q12, led by increased trading of the 3- and 10-year contracts. About 71% of total KTB futures contracts traded in 3Q12 were 3-year futures, while the rest were 10-year futures. The 10-year futures market has grown from an almost negligible level in 1Q11, reflecting a switch from physical delivery to cash settlement for the 10-year futures contract in late 2010. In addition, market participants reported that foreign investors are becoming more active in the 10-year sector and are contributing to its rapid growth.

India. The 2012 survey results show that the average on-the-run bid–ask spread was 0.6 bps for Government of India (GOI) bonds, less than those for treasury bills and special government bonds, which leveled off at 3.7 bps and 4.8 bps, respectively **(Table 14)**. The survey results also indicate that treasury bills had the highest average trading size at INR345 million, followed by special government bonds at INR108.5 million and GOI bonds at INR90 million.

GOI bonds are medium- to long-term debt securities issued by the Reserve Bank of India (RBI) on behalf of the federal government to finance its budgetary expenditures and infrastructure projects. Treasury bills are short-dated debt securities that are also auctioned by the RBI on behalf of the federal government. Special government bonds are issued to fertilizer and oil marketing companies to serve as a form of compensation for these companies in lieu of cash subsidies.

Market participants have mentioned that GOI securities and treasury bills are relatively liquid, and that there has been an improvement in liquidity in 2012. The average on-the-run bid–ask spreads for GOI bonds and treasury bills in the 2011 survey were 1.0 bps and 4.3 bps, respectively, both of which were higher than this year's results. The government has taken steps over the last year to widen the investor base for India's LCY bond market.

In June, the RBI decided to increase the foreign institutional investor (FII) limit for Indian government securities to US$20 million from US$15 million. Meanwhile, the FII limit for Indian corporate bonds stood at US$45 million. RBI also decided in June to widen the non-resident investor base for Indian government securities by allowing long-term investors—such as central banks, endowment funds, insurance funds, multilateral agencies, pension funds, and sovereign wealth funds—to invest up to US$20 million in Indian government securities.

Table 14: LCY Government Bond Survey Results—India

	Treasury Bills	Government of India Bonds	Special Government Bonds
On-the-Run			
Bid–Ask Spread (bps)	3.7	0.6	4.8
Average Trading Size (INR million)	345.0	90.0	108.5

bps = basis points, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Indonesia. The most liquid government bond market instrument in Indonesia is the fixed-rate treasury bond. Liquidity remains concentrated in the benchmark series: FR0060, FR0061, FR0059, and FR0058. Most of this year's survey respondents cited that liquidity in 2012 has been mostly in the longer-dated tenors of 10 years (FR0059) and 20 years (FR0058). There is less liquidity in treasury bills due to their small size, comprising only 3.3% of total government bonds outstanding. Bank Indonesia (BI) has only been issuing 9-month *Sertifikat* Bank Indonesia (SBI), with liquidity limited to the final 3 months of maturity due to a 6-month holding period requirement that has made SBI less attractive in the market.

The 2012 liquidity survey results for Indonesia showed an average on-the-run bid–ask spread of 6.6 bps for treasury bonds **(Table 15)**. Bid–ask spreads for treasury bills and SBI were wider than those for treasury bonds. The average off-the-run bid–ask spread for all government bond instruments was nearly double the average on-

Table 15: LCY Government Bond Survey Results—Indonesia

	Treasury Bills	Treasury Bonds	SBI
On-the-Run			
Bid–Ask Spread (bps)	38.3	6.6	42.9
Average Trading Size (IDR billion)	30.3	17.6	52.0
Off-the-Run			
Bid–Ask Spread (bps)	60.7	11.6	68.8
Average Trading Size (IDR billion)	52.9	51.2	71.3

bps = basis points, LCY = local currency, SBI = *Sertifikat* Bank Indonesia.
Note: The bid–ask spreads for Indonesian treasury bonds presented above are expressed in terms of yield or basis points to make them comparable with bid–ask spreads in other Asian markets. Bid–ask spread for government bonds are most often expressed in terms of "cents" in the Indonesian market. In the 2012 survey, the average treasury bond bid–ask spread was 38.8 cents. The Indonesian market quotes bid–ask spreads for treasury bills and SBI in terms of yield or basis points.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

the-run spread. The highest bid–ask spreads were the on-the-run and off-the-run spreads for SBI.

The on-the-run transaction sizes averaged IDR17.6 billion for treasury bonds and IDR52.0 billion for SBI. The same trend was observed for off-the-run transactions, where the average trading size for SBI remained the highest among all government instruments.

Liquidity, as measured by the turnover ratio, remains low at below 0.5 for Indonesia. Trading volumes declined significantly in 2Q12 due mainly to bearish global market conditions. Uncertainties related to the eurozone crisis have made investments in emerging market assets more risky. The Indonesian bond market is still largely influenced by external factors; nearly one-third of its government bonds are held by offshore investors. Other investor classes—such as insurance companies and pension funds—tend to buy and hold until maturity, while mutual fund funds' holdings of government bonds remain small. However, foreign investment flows into the Indonesian government bond market recovered in October and could help improve market liquidity in coming months.

The need to broaden the investor base for Indonesian government bonds was cited again in the 2012 survey as an important factor for improving liquidity. Another important factor cited was the need to broaden development of the repo market. In particular, market participants said that Indonesia needs a standardized rule that would be applicable to transactions with all counterparties. Also, it would be useful for Indonesia to establish a centralized institution to manage all repo transactions.

Malaysia. Malaysia has been one of the most rapidly- and consistently-growing bond markets in emerging East Asia over the last several years. This has been based on a combination of growth of 16.1% y-o-y in the government bond market and 12.6% y-o-y for central bank bills issued by Bank Negara Malaysia (BNM). The government has aggressively issued bonds to finance large budget deficits, while

Table 16: LCY Government Bond Survey Results—Malaysia

	MGSs	GIIs	BNM Bills	Treasury Bills
On-the-Run				
Bid–Ask Spread (bps)	2.7	2.9	3.1	2.9
Average Trading Size (MYR million)	30.7	15.8	61.4	19.3
Off-the-Run				
Bid–Ask Spread (bps)	4.6	7.7	3.6	2.5
Average Trading Size (MYR million)	22.3	9.0	40.0	21.0

BNM = Bank Negara Malaysia, bps = basis points, GIIs = Government Investment Issues, LCY = local currency, MGSs = Malaysian Government Securities.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

BNM has issued bills to sterilize the large inflows of foreign capital into the country. This has been easy for the government to finance, in large part, due to the rapidly rising level of foreign capital in the Malaysian bond market and the steady increase in the turnover ratio for the government cash bond market, even as demand for repo transactions has declined over the last several years.

Bid–ask spreads for the benchmark MGS bonds fell to 2.7 bps in this year's survey from 3.3 bps in 2011 **(Table 16)**. The fall in GIIs was roughly the same—from 3.4 bps in 2011 to 2.9 bps this year. Bid–ask spreads for BNM bills fell to 3.1 bps from 3.9 bps in 2011. The largest decline in bid–ask spreads among government securities, however, was for treasury bills, which fell from 5.3 bps in 2011 to 2.9 bps this year.

At the same time, the average trading size for Malaysian government bonds rose dramatically from MYR11.7 million in 2011 to MYR30.7 million in 2012. The average trading size for BNM bills rose from MYR31.9 million in 2011 to MYR61.4 million in 2012. The average trading size for GIIs, however, rose by a much smaller amount—from MYR13.0 million in 2011 to MYR15.8 million in 2012.

Philippines. The average bid–ask spread for Philippine treasury bonds narrowed dramatically in 2012 compared with 2011 **(Table 17)**. The liquidity

Table 17: LCY Government Bond Survey Results—Philippines

	Treasury Bonds	Treasury Bills
On-the-Run (large-issued)		
Bid–Ask Spread (bps)	2.1	8.0
Average Trading Size (PHP million)	126.6	58.7
Off-the-Run		
Bid–Ask Spread (bps)	11.7	12.5
Average Trading Size (PHP million)	56.9	40.3

bps = basis points, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Table 18: LCY Government Bond Survey Results—Singapore

	SGS Bonds	SGS Bills	MAS Bills
On-the-Run			
Bid–Ask Spread (bps)	3.1	3.4	3.0
Average Trading Size (SGD million)	9.7	16.6	17.5
Off-the-Run			
Bid–Ask Spread (bps)	3.6	3.4	3.0
Average Trading Size (SGD million)	9.4	16.3	13.3

bps = basis points, LCY = local currency, MAS = Monetary Authority of Singapore, SGS = Singapore Government Securities.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

survey in 2012 coincided with upbeat market sentiment on the back of monetary easing, while last year's survey was clouded by the negative overhang from the spillover of the eurozone crisis. The bid–ask spread for on-the-run treasury bills narrowed to 8.0 bps in 2012 from 14.5 bps in 2011. Similarly, the average bid–ask spread for on-the-run (large-issue) bonds tightened to 2.1 bps from 5.3 bps. The average trading size for treasury bills rose to PHP58.7 million in 2012 from PHP43.0 million in 2011. Meanwhile, the average trading size of treasury bonds fell to PHP126.6 million in 2012 from PHP161.9 million in 2011.

Bid–ask spreads for off-the run government securities improved and the Philippine peso continued to appreciate versus the US dollar in 2012. The average bid–ask spread for off-the-run treasury bills contracted to 12.5 bps this year compared with 27.7 bps last year. Off-the-run treasury bonds' bid–ask spread also tightened to 11.7 bps in 2012 from 19.4 bps in 2011. Higher average trading sizes were observed for off-the-run government securities in 2012 than in 2011. Average trading sizes of treasury bills and bonds rose to PHP40.3 million and PHP56.9 million, respectively, in 2012 from PHP39.9 million and PHP45.2 million in 2011.

Singapore. Bid–ask spreads for the major types of government bonds in Singapore were broadly the same in 2012 as 2011: 3.1 bps for SGS bonds, 3.4 bps for SGS bills, and 3.0 bps for Monetary Authority of Singapore (MAS) bills **(Table 18)**. Average trading sizes for SGS bills and MAS bills in 2012 were broadly similar at SGD16.6 million and SGD17.5 million, respectively. The average trading size for SGS bonds was substantially smaller (SGD9.7 million). Singapore has an operating repo market for government bonds. However, at present it is limited to interbank transactions and is not typically used as a funding vehicle by market participants.

Thailand. Short-term debt instruments in Thailand in 2012 appear to be relatively more liquid than long-term debt securities based on survey results **(Table 19)**. Bank of Thailand (BOT) bills posted the lowest average on-the-run bid–ask spread among all types of government debt instruments at 2.4 bps, followed by treasury bills at 3.0, BOT bonds at 3.1, and government bonds at 3.2 bps. Meanwhile, the average trading size was highest for treasury bills at THB298.3 million, followed by BOT bills at THB291.7 million. For BOT bonds and government bonds, the average trading sizes amounted to THB151.3 million and THB143.5 million, respectively.

A similar trend can be gleaned from the 2012 survey results for off-the-run government debt securities. BOT bills recorded the lowest average off-the-run bid–ask spread at 3.8 bps, followed by treasury bills at 4.2 bps, BOT bonds at 5.8 bps, and government bonds at 5.9 bps. The average trading size for off-the-run government debt instruments was largest for treasury bills at THB123.2 million,

Table 19: LCY Government Bond Survey Results—Thailand

	Government Bonds	Treasury Bills	BOT Bonds	BOT Bills
On-the-Run				
Bid–Ask Spread (bps)	3.2	3.0	3.1	2.4
Average Trading Size (THB million)	143.5	298.3	151.3	291.7
Off-the-Run				
Bid–Ask Spread (bps)	5.9	4.2	5.8	3.8
Average Trading Size (THB million)	63.5	123.2	65.5	105.0

BOT = Bank of Thailand, bps = basis points, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

followed by BOT bills at THB105 million, BOT bonds at THB65.5 million, and government bonds at THB63.5 million.

There appears to have been a slight improvement in liquidity in the government bond market in 2012 as the average bid–ask spread for government bonds fell to 3.2 bps from 3.3 bps in 2011. Meanwhile, the government bond turnover ratio in Thailand rose to 0.80 in 3Q12 from 0.64 in 4Q11.

Qualitative Indicators for Government Bond Markets

The 2012 *AsianBondsOnline* Bond Market Liquidity Survey asked participants in the region's LCY government and corporate bond markets for their views on market structure and ways to improve liquidity. The "spider charts" included in this section capture market participants' perceptions of the importance of the following structural and policy issues in strengthening and deepening LCY bond markets:

(i) greater diversity of investors and traders,
(ii) easing restrictions on market access,
(iii) easing foreign exchange regulations and restrictions,
(iv) availability of funding for market participants,
(v) tax treatment,
(vi) settlement custody,
(vii) more efficient hedging instruments, and
(viii) transparency.

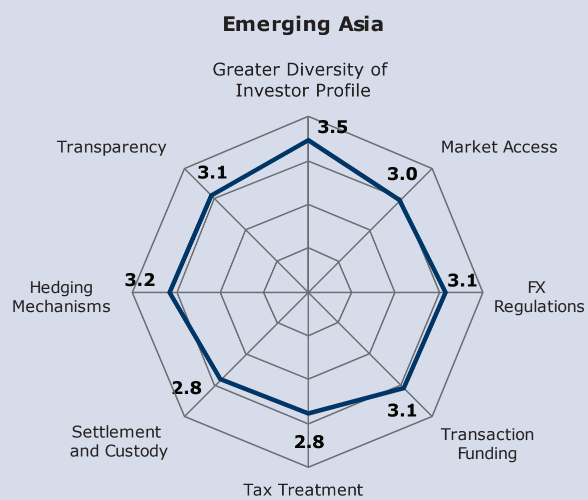
Market participants were asked to characterize each of the above issues by degree of importance:

(i) not important,
(ii) somewhat important,
(iii) important, or
(iv) very important.

Numerical values were assigned—ranging from 1 for not important to 4 for very important—in order to construct the following spider charts.

Figure 15 summarizes the results as they relate to the region's LCY government bond market as a whole. The most important structural issue for market participants was investor diversity, which had a score of 3.5, followed by hedging mechanisms, with a score of 3.2, and foreign exchange regulations, transaction funding, and transparency (3.1 each). Market access received a score of 3.0, while lower scores of 2.8, indicating

Figure 15: Regional Averages—LCY Government Bond Market Structural Issues



FX = foreign exchange, LCY = local currency.
Note: Emerging Asia comprises the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

a somewhat lesser immediate policy priority, were assigned to tax treatment and settlement and custody.

Greater Diversity of Investors and Traders. The investor profile is rapidly changing in many markets. The April 2012 issue of the *Asia Bond Monitor* discussed the growing role of contractual savings institutions in emerging East Asia. More recent data indicate that banks still hold around 65% of treasury bonds in the PRC and that their share of total treasury bonds outstanding is rising. Banks' shares of treasury bonds in the region's other markets, however, are much lower and falling. In the Republic of Korea, for example, banks' share of government bonds has fallen to 19% in 2012, while other types of financial institutions held 29% of the total and insurance companies and pension funds held 34%. In Malaysia, financial institutions as a group held 44% of government bonds, but social security institutions and insurance companies combined held a sizeable 28% of the total, and foreigners held 27% as of end-June. **Figure 16** provides a view of the growth of government bond holdings in recent years by different types of investors for most of the major markets in the region.

Greater diversity of investors and traders was assigned an average importance rating of 3.7 in Indonesia and the Philippines, and an average importance rating of between 3.5 and 3.6 in the PRC, Singapore, Thailand, and Viet Nam **(Figure 17)**.

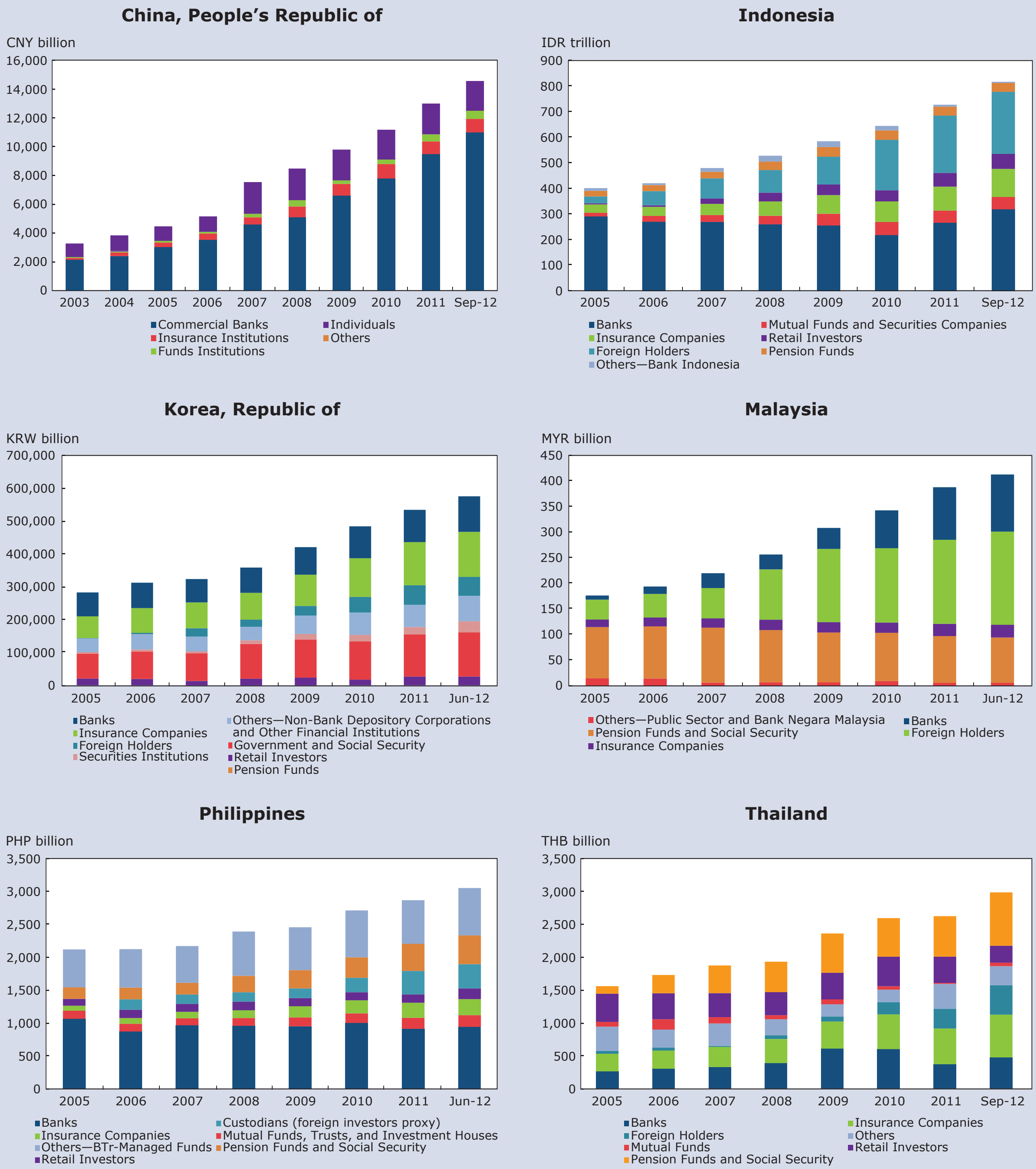
Hedging Mechanisms. In terms of importance in improving liquidity, hedging mechanisms received their highest rankings in Indonesia (3.6), the PRC (3.5), Singapore (3.4), and India (3.3). A number of hedging mechanisms are currently available in several emerging Asian markets. For example, the PRC and Malaysia have working repo markets. In Hong Kong, China, interest rate and cross-currency swaps are available and relatively liquid as are 3-year Exchange Fund Note (EFN) futures. In the Republic of Korea, 3- and 10-year KTB futures contracts are being offered and the liquidity of the relatively new 10-year KTB futures has improved rapidly over the last year. **Table 20** compares the availability of different types of hedging instruments in the region.

Foreign Exchange Regulations. Participants in several major markets—Singapore, the Philippines, Malaysia, and Viet Nam—rated the importance of foreign exchange regulations in a range of 3.5–3.6. Participants from the PRC; Hong Kong, China; India; and Indonesia rated foreign exchange regulations at somewhat lower average levels, ranging from 2.5 in India to 2.9 in the PRC and Indonesia. The importance of foreign exchange regulations in the Republic of Korea and Thailand was rated by participants in these markets in the middle range for the region as a whole—3.0 for the Republic of Korea and 3.1 for Thailand. **Table 21** compares current foreign exchange regulations in the region.

Thailand has progressively liberalized its foreign exchange regulations in recent years. BOT announced a Capital Account Liberalization Master Plan in mid-October to encourage companies and depositors to diversify their investments and enhance business efficiency. More importantly, BOT aims to create an environment that supports more balanced capital flows and facilitates more financial market development en route to further economic integration under the ASEAN Economic Community (AEC) by 2015.

Transparency. Transparency was deemed an important issue by most government bond market participants in the region, garnering a score of 3.1 for the region as a whole. Specifically, participants rated transparency as being very important in the Philippines (3.7), Viet Nam (3.5), and Singapore (3.3), as well as in Thailand, Malaysia, and India, where the average rating of market participants in each country was 3.1. The PRC's transparency score was 3.0, while that of both the Republic of Korea and Hong Kong, China was 2.8. The lowest transparency score of any market in this year's survey was from Indonesia at 2.7.

Figure 16: Investor Holdings



BTr = Bureau of the Treasury.
Source: *AsianBondsOnline*.

Figure 17: Structural Issues for Individual LCY Government Bond Markets

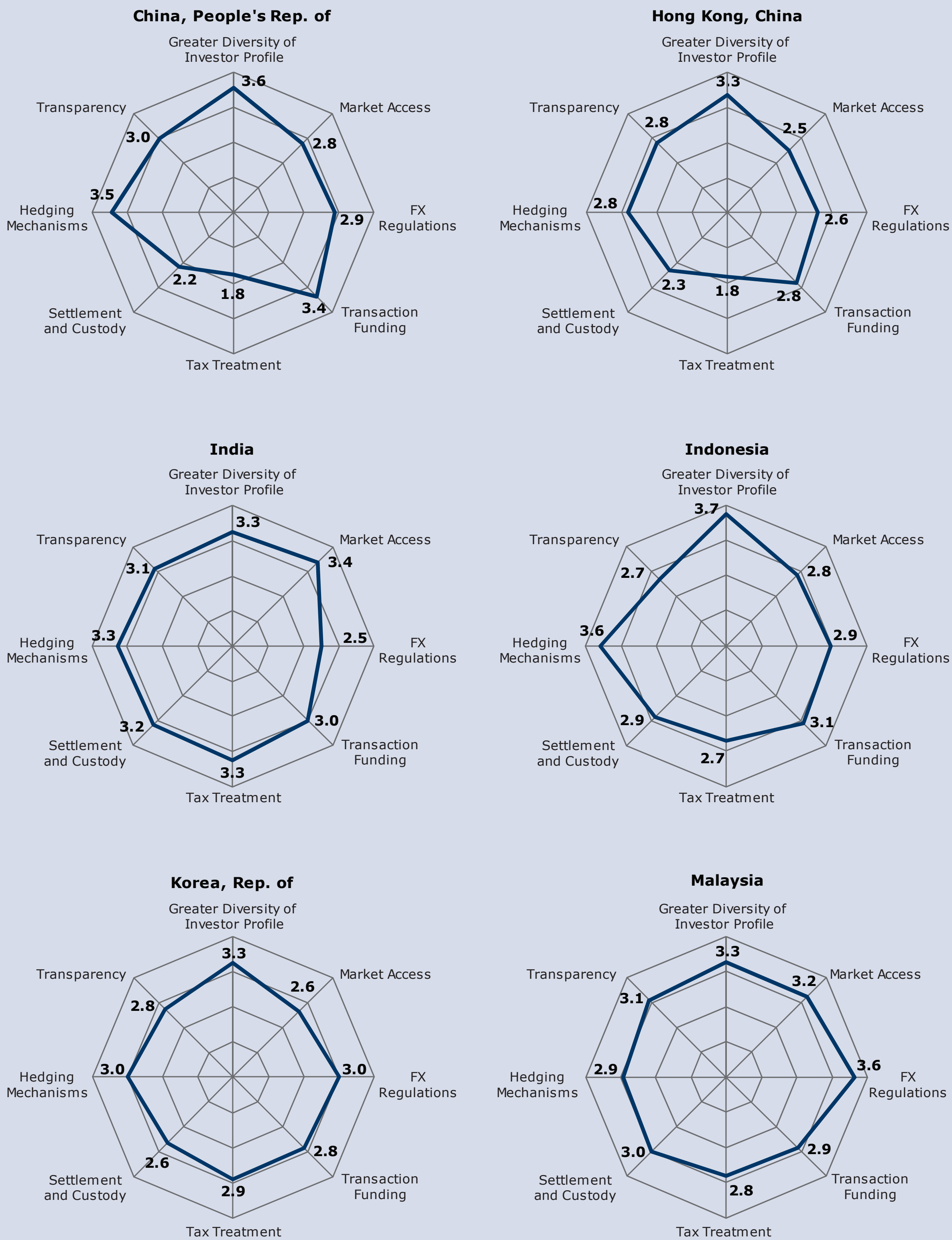


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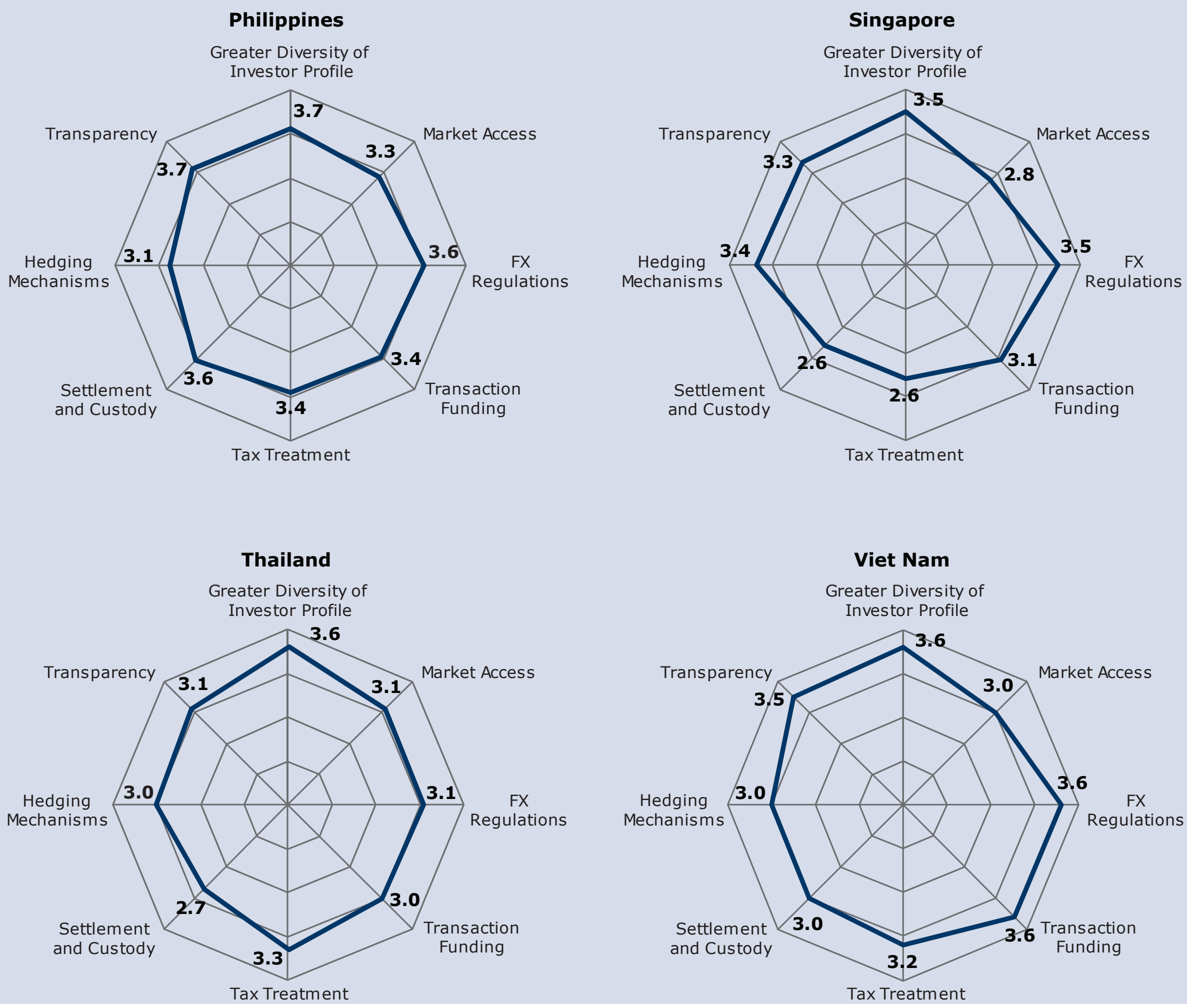
Figure 17 *continued*



FX = foreign exchange, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Transaction Funding. Transaction funding was identified as an important issue this year in Viet Nam (3.6), the Philippines and the PRC (3.4), Singapore (3.1), Indonesia (3.1), India (3.0), and Thailand (3.0). Transaction funding was rated as a somewhat important issue in Malaysia (2.9); the Republic of Korea (2.8); and Hong Kong, China (2.8). This would seem to reflect the large capital inflows into the Republic of Korea and Malaysia over the last year, while the Hong Kong, China money market is normally very liquid. Transaction funding in the PRC is an important issue because of the large role played by the repo market as a major funding vehicle. As we pointed out earlier, the turnover ratio for repo bond transactions is significantly higher than for cash transactions in the PRC.

Other Indicators. The other structural and regulatory indicators for government bond markets in this survey—market access, tax treatment, and settlement and custody—were rated by market participants as less important issues than the five indicators detailed above.

Table 20: Hedging Instruments in Emerging East Asia

	Instruments				
	Futures, Forwards, and Options	Interest Rate Swaps	Repurchase Agreements	Credit Default Swaps	Cross Currency Swaps
Brunei Darussalam	N/A	N/A	N/A	N/A	N/A
Cambodia	N/A	N/A	N/A	N/A	N/A
China, People's Rep. of	Bond Forwards Only; N/A for Futures and Options	Available	Available	Available	Available
Hong Kong, China	Available	Available	Available	Available	Available
Indonesia	N/A	Available	Available	N/A	Available
Japan	Available	Available	Available	Available	Available
Korea, Republic of	Available	Available	Available	Available	Available
Lao PDR	N/A	N/A	N/A	N/A	N/A
Malaysia	Available	Available	Available	Available	Available
Myanmar	N/A	N/A	N/A	N/A	N/A
Philippines	Bond Forwards Only; N/A for Futures and Options	Available	Available	N/A	Available
Singapore	Available	Available	Available	Available	Available
Thailand	Available	Available	Available	Available	Available
Viet Nam	N/A	Available	Available	N/A	N/A

N/A = not available or not applicable.
Source: *AsianBondsOnline*.

Market access received an average rating of 3.0 for the region as a whole, while settlement and custody, and tax treatment, were both rated 2.8. **Table 22** compares current regulations on the tax treatment for interest income among the various markets in the region.

Corporate Bond Markets

Corporate bond markets are generally less liquid than government bond markets. Corporate bonds often are issued in smaller sizes and trade for only 1–2 months after issue before finding their way to buy-and-hold investors. Corporate bonds also may have structural features that make them less liquid as is the case with perpetual bonds or *sukuk* (Islamic bonds), for example. **Figure 18** graphs quarterly turnover ratios for corporate bonds in the region. (Trading volume data for corporate bonds is not available for Singapore and the Philippines.)

Corporate bond market participants were asked to respond to questions similar to ones put to government bond market participants. **Table 23** compiles responses from corporate bond market participants with regard to average issue sizes, bid–ask spreads, and average trading sizes.

Average Issue Size. The largest average issue sizes were in the PRC (US$415.8 million), Malaysia (US$285.9 million), and Singapore (US$158.5 million). The smallest average sizes were in India (US$48.1 million) and Hong Kong, China (US$46.7 million).

Bid–Ask Spreads. Bid–ask spreads for corporate bonds are typically much wider than those for government bonds, reflecting lower levels of liquidity. In many cases, corporate bond liquidity is limited to the months (or month) following issuance.

The highest bid–ask spreads this year came from Viet Nam and the Philippines at 138.3 bps and 34.5 bps, respectively. Bid–ask spreads for Hong Kong, China and Indonesia were 21.3 bps and 18.7 bps, respectively. The lowest bid–ask spreads

Table 21: Foreign Currency and Currency-Related Restrictions

Jurisdiction	Foreign Exchange Rate Floating	Restrictions on Remittances 1. Own Currency 2. Investment Principles 3. Coupons and Dividends	Currencies Eligible for Continuous Linked Settlement Bank Settlement
China, People's Republic of	Government controlled floating rate, referring to a currency basket	1. Restricted 2. Restricted for certain period of time after investment 3. Restricted for certain period of time after investment	–
Hong Kong, China	Link to US dollar (Currency Board System)	1. No restriction 2. No restriction 3. No restriction	Yes
Indonesia	Floating	1. Restricted. (Rupiahs foreign-exchange trades must be done by Indonesian domestic banks, rupiah remittance between foreign banks is prohibited) 2. No Reporting required for repatriation of benefits. 3. Reporting required (*) Real-demand principle applies to inbound foreign exchange or buy Indonesian rupiah only.	–
Japan	Floating	1. No restriction 2. No restriction (ex post facto report required) 3. No restriction (ex post facto report required)	Yes
Korea, Republic of	Floating	1. Restricted 2. No restriction 3. No restriction	Yes
Malaysia	Managed float against a basket of currencies, following the de-pegging of the ringgit	1. Restricted (All remittance out of the country must be made in foreign currency). Real-demand principle applies to inbound foreign exchange only. 2. No restriction for non-resident investors to repatriate in foreign currency. 3. No restriction for non-resident investors to repatriate in foreign currency.	–
Philippines	Floating	1. Restricted. Registration with Bangko Sentral ng Pilipinas (BSP) for issuance of Bangko Sentral Registration Document (BSRD) on per transaction basis is required to qualify for automatic conversion of peso sale/interest into foreign exchange for outward repatriation. 2. Registration with BSP for issuance of BSRD on per transaction basis is required to qualify for automatic conversion of peso sale/interest into foreign exchange for outward repatriation. 3. Interest automatically qualifies for outward repatriation if principal investment has BSRD.	–
Singapore	Floating against basket of currencies	1. No restrictions (investor can hold Singapore dollar in, e.g., Tokyo) 2. No restriction 3. No restriction	Yes
Thailand	Managed floating	1. Restricted 2. Reporting required 3. Reporting required	–
Viet Nam	Controlled floating	1. Restricted 2. Restricted for certain period of time after investment 3. No restriction (Viet Nam issue is based on availability of foreign currency.)	–

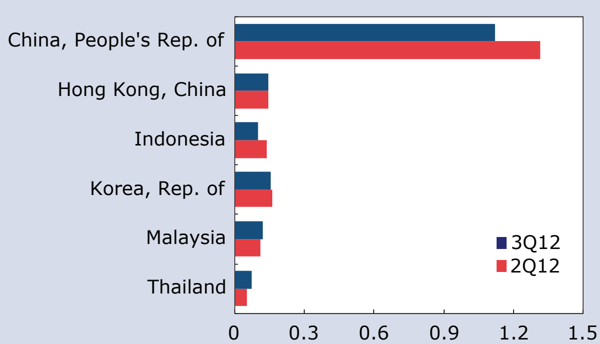
Source: ASEAN+3 Bond Market Guide.

Table 22: Tax Treatments in Emerging East Asian Markets

Market	Withholding Tax on Interest Income	
	Government	Corporate
China, People's Rep. of	Exempt from tax.	Non-resident investors are subject to 10% withholding tax, which may be reduced due to tax treaties.
Hong Kong, China	Exempt from tax.	Individuals are exempt from tax. Corporations are subject to 17.5% profits tax.
Indonesia	Residents and permanent establishments are subject to 15% tax. Non-residents are subject to 20% tax, which is subject to reductions based on treaty. For mutual funds registered with Bapepam LK, the tax rate is 5% for 2011 to 2013, and 15% thereafter.	Residents and permanent establishments are subject to 15% tax. Non-residents are subject to 20% tax, which is subject to reductions based on treaty. For mutual funds registered with Bapepam LK, the tax rate is 5% for 2011 to 2013, and 15% thereafter.
Korea, Republic of	Non-residents are subject to 15.4% withholding tax.[a]	Non-residents are subject to 15.4% withholding tax.[a]
Malaysia	Exempt from tax.	Exempt from tax.
Philippines	Subject to 20% tax withheld at source. Interest income from long-term deposit or investment (with holding period of more than 5 years) is exempt from tax. Foreign corporations are subject to 30% tax on the gross amount of income derived within the Philippines. Non-resident individuals not engaged in trade or business are subject to 25% tax on the gross amount of income derived in the Philippines.	Standard rate of withholding tax on income payments from corporate bonds is 30%.
Singapore	Exempt from tax.	Individual investors are tax exempt. Resident and non-resident institutional investors are exempt from withholding tax, subject to qualifying conditions.
Thailand	Subject to 15% tax for domestic individual resident investors and foreign investors, subject to 1.0% tax for domestic institutional investors.	Subject to 15% tax for domestic individual resident investors and foreign investors, subject to 1% tax for domestic institutional investors.
Viet Nam	Subject to 10% withholding tax.	Subject to 10% withholding tax.

[a] 1.4% local tax is added to 14% national income tax.
Source: *AsianBondsOnline*.

Figure 18: LCY Corporate Bond Turnover Ratios



LCY = local currency.
Note: Turnover ratios are calculated as LCY trading volume (sales amount only) divided by average LCY value of outstanding bonds during each 3-month period.
Source: *AsianBondsOnline*.

were reported in the Republic of Korea (1.9 bps) and India (6.1 bps). Bid–ask spreads in the PRC, Thailand, and Malaysia constituted a middle range of 10.4 bps, 10.3 bps, and 9.4 bps, respectively.

Average Trading Size. The largest average trading sizes were found in the Republic of Korea (US$9.0 million) and the PRC (US$7.1 million). The smallest trading sizes were from the Philippines (US$0.5 million) and Indonesia (US$0.6 million), with Singapore and Thailand coming in at US$1.1 million each. The average trading sizes for the remaining markets fell in a range between US$2.0 million for India to US$3.0 million for Viet Nam.

Table 23: LCY Corporate Bond Market Quantitative Indicators

		PRC	HK	IN	ID	KR	MY	PH	SG	TH	VN	Regional
Typical Issue Size of Corporate Bonds (US$ million)	Average	415.8	46.7	48.1	103.6	94.3	285.9	146.0	158.5	98.2	73.0	147.0
Typical Bid–Ask Spread for New Corporate Issues (bps)	Average	10.4	21.3	6.1	18.7	1.9	9.4	34.5	15.9	10.3	138.3	26.7
	Count	15	4	4	11	7	5	14	5	11	3	79
	SD	4.3	19.8	3.8	10.4	0.6	4.6	14.6	10.3	8.7	141.1	40.3
Typical Transaction Size of LCY Corporate Bonds (US$ million)	Average	7.1	2.9	2.0	0.6	9.0	2.4	0.5	1.1	1.1	3.0	3.0
	Count	17	4	4	11	8	5	15	5	11	3	83
	SD	5.0	2.6	1.9	0.3	-	1.4	0.4	0.3	0.8	1.1	2.9

bps = basis points; HK = Hong Kong, China; ID = Indonesia; IN = India; KR = Republic of Korea; LCY = local currency; MY = Malaysia; PH = Philippines; PRC = People's Republic of China; SD = standard deviation; SG = Singapore; TH = Thailand; VN = Viet Nam.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Inter-Market Comparisons

The PRC. The 2012 survey identified commercial paper, medium-term notes (MTNs), and state-owned enterprise (SOE) bonds as the most liquid types of corporate bonds in the PRC. This can be seen in both the bid–ask spreads presented in **Table 24** and the corporate bond turnover ratios in **Figure 19**. Commercial paper was the most liquid type of corporate paper with a bid–ask spread of 5.5 bps, followed by SOE bonds and MTNs at 6.6 bps and 6.7 bps, respectively. Most of the liquidity in the SOE bond market can be attributed to the largest SOEs, mainly in energy and infrastructure, known as the Golden AAAs, which issue in large sizes and are seen as possessing quasi-government credit quality and implicit sovereign support due to a combination of their government ownership and important roles in the PRC economy. Thus, the Golden AAAs are considered to be safe credit that offer a somewhat higher yield than a straight government security such as a treasury bond. Examples of these issuers include the State Grid Corporation of China, China National Petroleum, and Petro China. The tight spread for MTNs is also being driven by demand from institutional investors such as insurance companies and investment funds, which appreciate the combination of higher yields and good liquidity. Commercial bank bonds are largely issued in the form of subordinated debt with longer-dated maturities of 10 years or more. Thus, they tend to be a buy-and-hold security with much less liquidity.

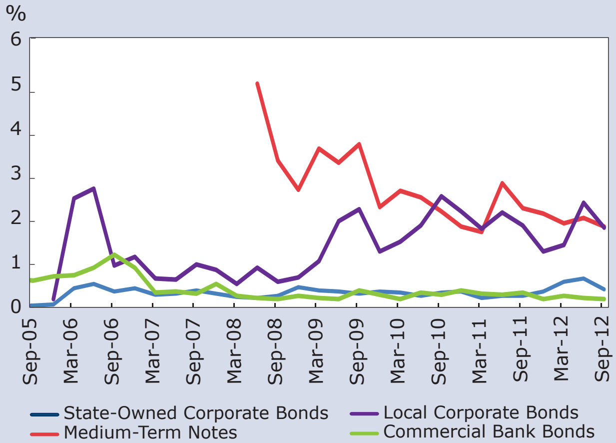
Republic of Korea. The survey results show that special pubic bonds and financial debentures are the most liquid types of corporate bonds in the Republic of Korea. Special public bonds are bonds issued by certain public corporations such as Korea Land and Housing Corp.; Korea Rail Network Authority, and Korea Water Resources Corp. They are typically issued in larger sizes (average issue size of KRW142.9 billion in 2012), giving them greater liquidity, and offer a coupon slightly higher than a government bond of comparable

Table 24: LCY Corporate Bond Survey Results—People's Republic of China

	SOE Bonds	Local Corporate Bonds	MTNs	Commercial Bank Bonds	Commercial Paper
Average Issue Size (CNY million)	6,015.6	2,613.3	3,391.7	12,982.1	3,146.7
Bid–Ask Spread (bps)	6.6	10.4	6.7	14.0	5.5
Average Trading Size (CNY million)	57.8	44.7	56.3	68.5	56.8

bps = basis points, LCY = local currency, MTNs = medium-term notes, SOE = state-owned enterprise.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Figure 19: Trends in the PRC's LCY Corporate Bond Turnover Ratios, September 2005–September 2012



LCY = local currency, PRC = People's Republic of China.
Source: *ChinaBond*.

tenor. Korea Finance Corp. and Korea Land & Housing Corp. are two of the more actively traded special public bonds. In the 2012 survey, the average bid–ask spread for special public bonds was 1.4 bps, compared with 1.7 bps for financial debentures and 2.8 bps for private corporate bonds **(Table 25)**.

Financial debentures are bonds issued by the banking subsidiaries of the Republic of Korea's various bank holding companies. Their average issue size (KRW78.6 billion) is much smaller than that for special public bonds, and in 2012 their average bid–ask spread was slightly higher than that for special public bonds. The average issue size for private corporate bonds in the 2012 survey was KRW83.3 billion, broadly the same as for financial debentures. Turnover ratios for corporate bonds are low, ranging from 0.3 for financial debentures to 0.1 for private corporate bonds at end-September. The turnover ratio for special public bonds, however, has been rising gradually over the last year, slightly exceeding 0.2 at end-September. As mentioned previously, this is partly due to the rising interest of foreign investors in special public bonds.

Table 25: LCY Corporate Bond Survey Results—Republic of Korea

	Special Public Bonds	Financial Debentures	Private Corporate Bonds
Average Issue Size (KRW billion)	142.9	78.6	83.3
Bid–Ask Spread (bps)	1.4	1.7	2.8
Average Trading Size (KRW billion)	10.0	10.0	10.0

bps = basis points, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Malaysia. Malaysia's corporate turnover ratio improved slightly to 0.12 in 3Q12 from 0.11 in 2Q12. Average bid–ask spreads for Malaysian corporate bonds widened slightly to 9.4 bps from 8.2 bps in 2011. The average transaction size, however, rose slightly to US$2.4 million from US$2.1 million in 2011. The typical issue size rose more dramatically to US$285.9 million from US$176.6 million in 2011.

Much of this increase in trading and issuance has reflected a surge in the issuance and trading of Islamic medium-term notes (IMTNs) this year. In absolute terms, trading of IMTNs increased to MYR68 billion during the first 9 months of the year versus a total trading volume of MYR38 billion for the whole of 2011.The more actively traded bonds include those of Project Lebuhraya Utara Selatan (PLUS) Bhd., which issued MYR30.5 billion worth of IMTNs, the world's largest *sukuk* issuance to date. Other actively traded bonds were those of Johor Corp., which issued MYR3.0 billion worth of IMTNs in June, Serawak Energy (MYR2.5 billion of IMTNs in January), Tanjung Bin Energy (MYR3.3 billion of IMTNs in March), Pembinaan BLT-Aman (MYR2.2 billion of IMTNs in April and July), and Hong Leong Bank (MYR1.5 billion of corporate bonds in June).

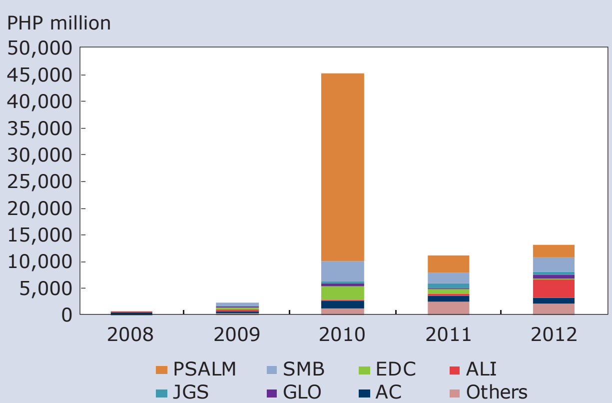
The Philippines. The Philippines' corporate bond market has been one of the most rapidly growing corporate bond markets in emerging East Asia over the last year. In 3Q12, it grew 26.1% y-o-y and 3.9% q-o-q. The average bid–ask spread for Philippine corporate bonds fell to 34.5 bps in 2012 from 52.9 bps in 2011, while the average trading size rose slightly to US$0.5 million from US$0.4 million in 2011. Average issue size for

Philippine corporate bonds also rose slightly to US$146 million in 2012 from US$144.3 million in 2011.

Trading volume data is not available for the Philippine corporate bond market as a whole. However, PDEx maintains a database on the secondary trading of corporate bonds listed on its platform **(Figure 20)**. At the end of 3Q12, there were 17 Philippine companies that had their bonds listed with the exchange, including bonds issued by the National Home Mortgage Finance Corporation, known as *Bahay* Bonds 2, and bonds issued by the Power Sector Assets and Liabilities Management Corporation (PSALM). *AsianBondsOnline* classifies the issuances of these two companies under government securities, since they are government-owned and -controlled corporations.

The secondary trading volume of corporate bonds is negligible compared to that of government securities, accounting for less than 1% of total bonds (government and corporate) traded in 2012. Nevertheless, the volume of secondary trading of corporate bonds grew to PHP13 billion in the first 9 months of 2012, up 44.1% compared with the same period in 2011.

Figure 20: PDEx Trading Volume Trends—Corporate Bonds



AC = Ayala Corporation; ALI = Ayala Land, Inc.; EDC = Energy Development Corporation; GLO = Globe Telecom; JGS = JG Summit Holdings, Inc.; PDEx = Philippine Dealing and Exchange Corporation; PSALM = Power Sector Assets and Liabilities Management Corp.; SMB = San Miguel Brewery, Inc.
Note: PDEx reports one-side of the trade.
Source: Philippine Dealing and Exchange Corporation (PDEx).

Trading volume in 2010 was centered on PSALM bonds, comprising almost 78% of total trades that year. In 2011 and 2012, the trading volume of PSALM bonds declined to levels more comparable with those of the leading private sector issuers. The three companies with the highest traded volumes in 2012 were (i) Ayala Land Inc. (PHP3.3 billion), (ii) San Miguel Brewery (PHP2.8 billion), and (iii) PSALM (PHP2.2 billion).

Singapore. Singapore's average bid–ask spread for corporate bonds narrowed to 15.9 bps in 2012 from 19.0 bps in 2011. Meanwhile, the average trading size fell to US$1.1 million in 2012 from US$1.4 million in 2011. The narrowing of the spread reflected improved liquidity in the LCY corporate bond market, as issuance during the first 3 quarters of 2012 surged 78.5% compared with the same period last year.

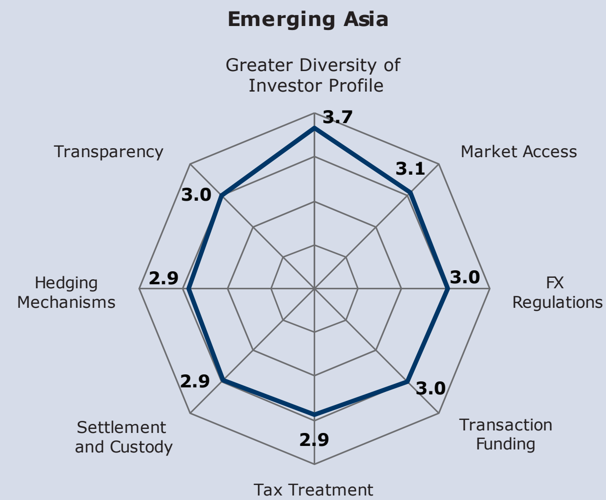
During the first half of 2012, Genting Singapore issued SGD1.8 billion worth of perpetual bonds. Oversea-Chinese Banking Corporate issued SGD1.0 billion of perpetual notes in 3Q12. Two other banks also made large issuances in 3Q12: (i) United Overseas Bank Ltd., with SGD1.2 billion worth of 10-year notes; and (ii) DBS Bank Ltd., with SGD1.0 billion worth of 10.5-year notes. Also in 3Q12, Mapletree Treasury Services issued SGD600 million worth of perpetual bonds, while NTUC Income Insurance sold 15-year bonds worth SGD600 million. Meanwhile, the Housing and Development Board, a government-linked company, raised a total of SGD3.6 billion in the first 3 quarters of 2012, up slightly from the SGD3.4 billion it issued in the first 3 quarters of 2011. Aside from the big issues of perpetual bonds mentioned above, several companies also issued perpetual bonds in small amounts in 2012, including (i) Mapletree Logistics (SGD350 million), (ii) Singapore Post (SGD350 million), (iii) Ascendas Pte (SGD300 million), and (iv) Olam International (SGD275 million).

Thailand. The average bid–ask spread for Thai corporate bonds in the 2012 survey was 10.3 bps, approximately the same as the 9.9 bps in last year's survey. Furthermore, the average trading size of

US$1.1 million was approximately the same as in 2011. This reflects the fact that the Thai corporate bond market consistently has an extremely low quarterly turnover ratio since about half of Thai corporate bonds are held by retail investors, who invest predominantly on a buy-and-hold basis.

The bid–ask spread for Thai corporate bonds is nevertheless relatively low compared with many other markets in the region, suggesting that investors find them to be attractive investments despite their low liquidity. The attractiveness of Thai corporate bonds is driven primarily by the fact that bonds issued by Thai blue chips combine relatively high credit quality with reasonably good returns, given the excess liquidity that has invaded many of Asia's financial markets. Recent examples of attractively priced Thai corporate bonds include subordinated bonds issued by Siam Commercial Bank and Thanachart Bank at coupon rates of 4.65% and 4.70%, respectively, while agri-business conglomerate Charoen Pokphand sold a 20-year bond with a 5.3% coupon and Hemaraj Land and Development sold a 9-year bond with a coupon of 5.65%.

Figure 21: Regional Averages—LCY Corporate Bond Market Structural Issues



FX = foreign exchange, LCY = local currency.
Note: Emerging Asia comprises the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.

Qualitative Indicators for Corporate Bond Markets

Figure 21 summarizes market participants' feedback on the structural and regulatory issues of corporate bond markets in the region. The results for the region as a whole are broadly comparable to those from the government bond market survey, albeit with a few small differences.

- The most important structural issue for the emerging East Asian LCY corporate bond market was greater diversity of investor profile, with a rating of 3.7 compared with 3.5 for the government bond market.
- Market access was rated at 3.1 for the corporate bond market as a whole compared with 3.0 for the government bond market.
- Hedging mechanisms were rated less important in the corporate bond market at 2.9 compared with 3.2 in the government bond market. The lower score reflects the fact that corporate bond markets are typically less liquid than government bond markets; corporate bonds frequently disappear altogether from the markets a few months, or even a few weeks, after issue.
- Transparency received a nearly identical rating in the government (3.1) and corporate bond markets (3.0). Corporate investors rely largely upon the information they receive in the prospectus for a given bond issue, which may contain information that is not otherwise available. One problem in Asia is that prospectuses are sometimes issued only in the language of the country where the issuer is domiciled, making it more difficult for foreign investors to assess the credit worthiness of the issuer.
- Foreign exchange regulations and transaction funding both received ratings of 3.0 for the corporate bond market, compared with 3.1

for both categories in the government bond market. Foreign exchange regulations are a somewhat lower priority for corporate bond investors, who typically have a wider range of concerns than government bond investors. The lower corporate bond market score for transaction funding reflects the lower level of liquidity in the corporate bond market.

- Tax treatment and settlement and custody, however, are rated slightly higher in the corporate bond market at 2.9 in both categories, compared with 2.8 in the government bond market. Taxes paid on government bonds are waived for certain types of investors in government bonds in a number of jurisdictions, but corporate bonds are rarely tax-exempt.

- Settlement and custody is a slightly more important issue in the corporate bond market (2.9) than in the government bond market (2.8). Governments enforce a fair amount of uniformity for settlement and custody procedures for government bonds. Settlements and custody procedures for corporate bonds, however, are less standardized. In some markets, they may even vary according to different settlement and custody procedures that have been set up by a particular bond's underwriters.

Responses on structural issues differed considerably among individual markets. In five markets—the Republic of Korea, the Philippines, Singapore, Thailand, and Viet Nam—the charts broadly resemble the spider chart for the region as a whole, with scores above 3 or just slightly below 3 for most structural issues **(Figure 22)**. Some of the other markets have strikingly unique features.

- The PRC's score for foreign exchange regulations, tax treatment, settlement and custody, and transparency are all well below 3. Settlement and custody works well, and local market participants find the current level of bond market transparency quite acceptable.

- Hong Kong, China scores well below 3 in most categories of its spider chart, except for investor diversity and transparency, reflecting the fact that it is one of the most open capital markets in Asia.

- Participants in the Malaysian market rated transaction funding, tax treatment, settlement and custody, and hedging mechanisms at levels suggesting that they are only somewhat important to the operation of Malaysia's corporate bond market.

- These ratings for Malaysia's corporate bond market are consistent with our observation that corporate bond investors are heavily focused on the performance of the company they are investing in.

Figure 22: Structural Issues for Individual LCY Corporate Bond Markets

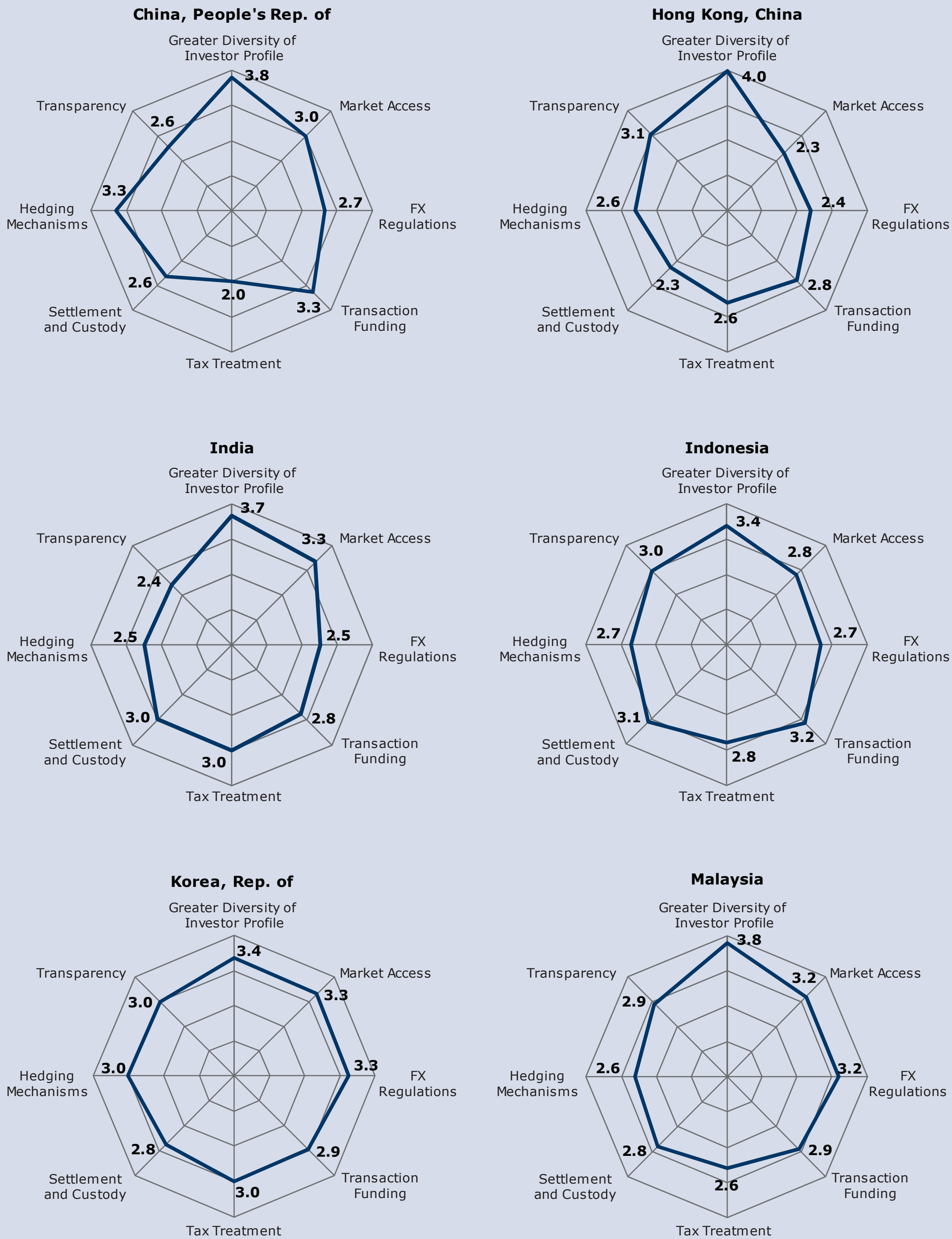


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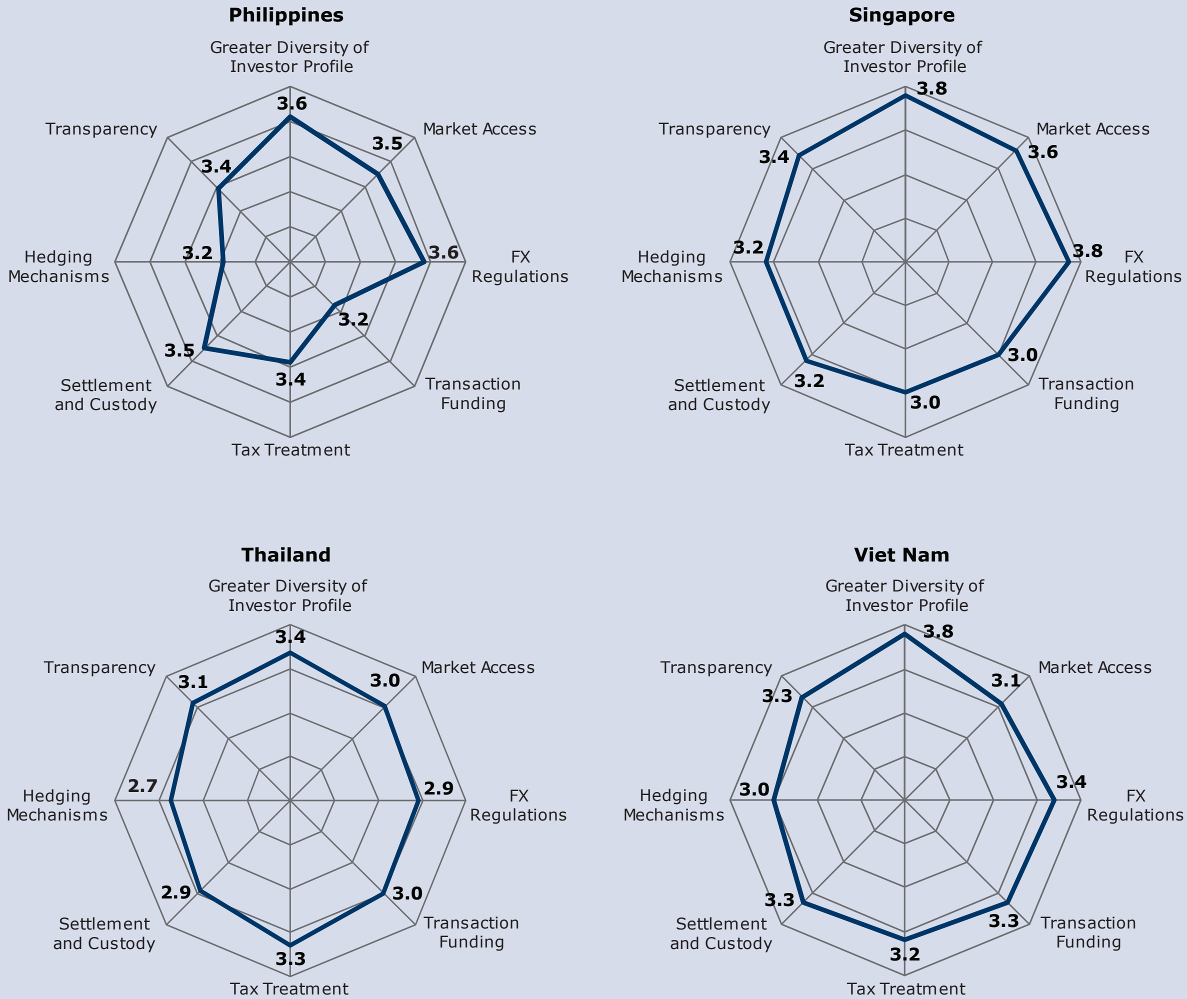
Figure 22 *continued*



FX = foreign exchange, LCY = local currency.
Source: *AsianBondsOnline* 2012 LCY Bond Market Liquidity Survey.