AsianBondsOnline Annual Bond Market Liquidity Survey

Introduction

AsianBondsOnline conducts its bond market liquidity survey every year to obtain a comprehensive overview of the current state of liquidity in local currency (LCY) bond markets in emerging East Asia.[7] The survey is designed to provide market participants with meaningful insights and an accurate perspective on liquidity conditions in the region, and to aid regulators and policymakers in drafting the needed policy and structural reforms for the further deepening of LCY bond markets.

As part of the data-gathering process, *AsianBondsOnline* conducted meetings, phone interviews, and email correspondence with regional bond market participants. Survey participants include, among others, fixed-income traders and dealers, brokers, portfolio and asset managers, debt market researchers and strategists, bond pricing agencies, and regulatory bodies. The 2016 survey was conducted after the United States (US) Federal Reserve meeting in September, specifically, between the end of September and middle of October.

The survey covers two parts: quantitative and qualitative issues relating to bond market liquidity. In the quantitative section, survey participants were asked to provide inputs on liquidity measures such as bid–ask spreads, transaction sizes, and trading volumes. In the qualitative section, respondents were asked to rank structural issues based on the importance or relevance to their respective bond markets.

When asked whether liquidity conditions have improved over the last year, *AsianBondsOnline* received divergent responses from market participants. In the People's Republic of China (PRC), Indonesia, Thailand, and Viet Nam (and to some extent in Malaysia), participants noted a significant improvement in liquidity conditions, over the previous year. In the PRC, bond market sentiments were boosted by the negative outlook for the domestic equity market. In Indonesia, Thailand, and Viet Nam, improved economic outlooks and stable exchange rates helped boost demand for LCY bonds. In developed markets such as Hong Kong, China; the Republic of Korea; and Singapore; most participants said that liquidity conditions were stable. It was only in the Philippines where market participants noted some degree of tightening.

The protracted moves by the Federal Reserve in raising interest rates bode well for LCY bond markets in the region. The low interest rate regime globally, particularly negative interest rates in the European Union and Japan, has helped buoy flows into emerging East Asia's LCY bond markets.

Quantitative Indicators for Government Bond Markets

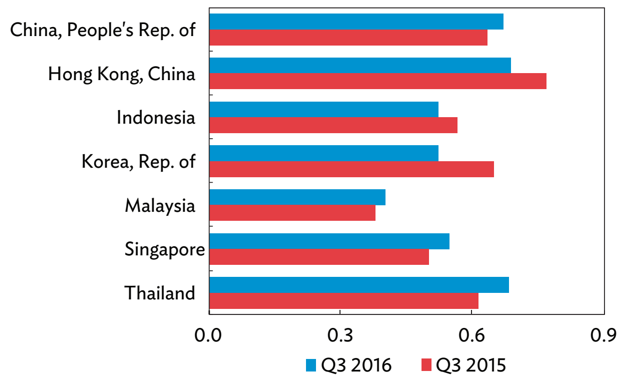
Various indicators are used to measure bond market liquidity. The most commonly cited indicator is trading volume, which refers to the cumulative value of all bonds traded in the secondary market. While trading volume is a common measure of market activity, a bond market's turnover ratio is considered to be a better indicator as it measures trading activity relative to the size of the market. *AsianBondsOnline* calculates the turnover ratio by taking the aggregate value of transactions from the sales side (or one side of the trade only) for a particular quarter and dividing it by the average amount of bonds outstanding for the current and previous quarters. A higher turnover ratio indicates a more liquid market.

Figure 13 presents government bond turnover ratios for emerging East Asian markets in which data are available. Four out of the seven markets recorded higher turnover ratios in the third quarter (Q3) of 2016 than in Q3 2015. The highest government bond turnover ratios were noted in Hong Kong, China (0.69); Thailand (0.68); and the PRC (0.67). Malaysia's turnover ratio was the lowest in the region at 0.40, due largely to a sustained decline in issuance and trading activities in central bank bills.

Another metric for gauging liquidity is the bid–ask spread, or bid-offer spread, which reflects the cost of executing a trade. The bid–ask spreads quoted by market participants are for a given transaction size. The lower or narrower the

[7] 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 13: Local Currency Government Bond Turnover Ratios



Q3 = third quarter.
Notes:
1. Turnover ratios are calculated as local currency trading volume (sales amount only) divided by average local currency value of outstanding bonds during each 3-month period.
2. For the Republic of Korea, Q3 2016 data are based on *AsianBondsOnline* estimates.

Sources: People's Republic of China (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Indonesia Stock Exchange); Republic of Korea (EDAILY *Bondweb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Singapore (Monetary Authority of Singapore and Singapore Government Securities); and Thailand (Bank of Thailand and Thai Bond Market Association).

spread, the more liquid the market. Bid–ask spreads for Treasury bonds in emerging East Asia for this year's survey are presented in **Table 5**. The region's average bid–ask spread for on-the-run government instruments narrowed to 3.8 basis points (bps) in 2016 from 5.4 bps in the 2015 survey, reflecting an overall improvement in government bond market liquidity conditions in 2016.

In 2016, bid–ask spreads narrowed in all of the region's government bond markets except for the Philippines, Singapore, and Thailand. The lowest bid–ask spreads were recorded in the Republic of Korea (0.5 bps), the PRC (1.0 bp), and Malaysia (2.1 bps). The widest bid–ask spread in the region was noted in Hong Kong, China at 8.3 bps. This was partially due to a revision in the methodology used in the 2016 survey as Hong Kong Special Administrative Region (HKSAR) bonds replaced Exchange Fund Notes (EFNs). The Hong Kong Monetary Authority no longer issues EFNs with tenors of more than 2 years. Therefore, since not all market participants are actively trading HKSAR bonds yet, a higher bid–ask spread was observed. The next two markets with the widest bid–ask spreads were Indonesia (5.2 bps) and Viet Nam (7.2 bps). At the same time, these two markets, along with the PRC, posted the largest declines in spreads compared with 2015.

The region's average bid–ask spread for off-the-run government securities declined to 6.6 bps in 2016 from 8.7 bps in 2015. All markets posted a narrower spread in 2016 except for the Philippines (12.5 bps) and Thailand (7.3 bps), where spreads widened, and in the Republic of Korea (0.9 bps), where the spread was unchanged.

Table 5: Local Currency Government Bond Markets Quantitative Indicators

		PRC	HKG	INO	KOR	MAL	PHI	SIN	THA	VIE	Regional
Typical Bid–Ask Spread On-the-Run	Average (bps)	1.0	8.3	5.2	0.5	2.1	4.6	3.0	2.3	7.2	3.8
	SD	0.7	2.9	3.3	0.2	0.9	3.2	0.5	0.5	3.7	2.7
	CV	0.7	0.3	0.6	0.4	0.4	0.7	0.2	0.2	0.5	0.7
Typical Bid–Ask Spread Off-the-Run	Average (bps)	2.0	10.0	9.0	0.9	5.0	12.5	3.5	7.3	9.2	6.6
	SD	0.7	5.0	3.5	0.6	1.5	6.3	1.0	2.1	3.8	4.0
	CV	0.4	0.5	0.4	0.7	0.3	0.5	0.3	0.3	0.4	0.6
Accepted LCY Bond Transaction Size On-the-Run	Average (USD million)	11.1	6.2	1.7	9.1	4.3	1.8	5.5	3.8	3.4	5.2
	SD	4.6	5.8	0.9	0.0	1.8	1.0	1.8	3.3	0.0	3.2
	CV	0.4	0.9	0.6	0.0	0.4	0.5	0.3	0.9	0.0	0.6
Accepted LCY Bond Transaction Size Off-the-Run	Average (USD million)	10.1	6.2	1.3	9.1	3.2	0.9	5.5	2.1	3.4	4.6
	SD	3.9	5.8	0.9	0.0	1.2	0.3	1.8	1.4	–	3.3
	CV	0.4	0.9	0.7	0.0	0.4	0.3	0.3	0.7	–	0.7

– = not applicable, bps = basis points; CV = coefficient of variation; HKG = Hong Kong, China; INO = Indonesia; KOR = Republic of Korea; LCY = local currency; MAL = Malaysia; PHI = Philippines; PRC = People's Republic of China; SD = standard deviation; SIN = Singapore; THA = Thailand; USD = United States dollar; VIE = Viet Nam.
Notes: 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 emerging East Asian markets. Bid–ask spreads for government bonds are most often expressed in terms of "cents" in the Indonesian market. In our 2016 survey, the average Treasury bond bid–ask spread was 30.2 cents.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

The average accepted bond transaction size for on-the-run government securities in emerging East Asia rose to USD5.2 million in this year's survey from USD3.5 million in 2015. All markets in the region recorded increases in their average transaction size except in the Republic of Korea, which was unchanged, and in Malaysia, where the transaction size marginally fell in 2016. The PRC (USD11.1 million) continued to have the largest average transaction size in the region, while the smallest average transaction sizes were recorded in Indonesia (USD1.7 million) and the Philippines (USD1.8 million).

Characteristics of Individual Government Bond Markets

People's Republic of China

Survey respondents in the PRC noted that liquidity conditions significantly improved in 2016. Much of the improvement was attributed to lower interest rates, which led to rising bond prices.

Market participants noted an increase in capital flows into the PRC's bond market resulting from a number of factors. Lower interest rates, which were partially in response to a slowdown in the PRC's economy, led to lower inflation as well as market expectations that the central bank would pursue further easing. In addition, the slowdown in the PRC's economy spurred negative sentiments with respect to the PRC's equity market, increasing flows into the bond market. Government bonds also benefitted from a shift away from corporate bonds by investors concerned with a mounting number of defaults in the PRC corporate bond market in 2016.

Survey respondents noted a large increase in assets under management by funds and other institutions, leading to an increase in bond flows. The PRC recently opened its interbank government bond market to foreigners by removing the need for quotas, which has led to increased foreign investment. This was viewed as a positive development given the potential for increased bond investments in the PRC in the future. However, participants noted that foreign investment remains very low compared with domestic investment.

Market participants expect interest rates to be range-bound for the remainder of the year and believe that the People's Bank of China is unlikely to further ease monetary policy in 2016 given the likelihood of a Federal Reserve rate hike by the end of the year. While interest rates may go up due to ample liquidity in the system, rising interest rates would be viewed as a buying signal given how long low interest rates have persisted in the PRC. Because of a significant increase in trading activity due to rising bond prices, the bid–ask spread fell significantly in 2016 for all major government bonds in the PRC **(Table 6)**. The bid–ask spread for on-the-run Treasury bills fell from 4.0 bps in 2015 to 1.3 bps in 2016, while the on-the-run Treasury bond spread fell to 1.0 bp in 2016 from 5.3 bps in the prior year. Policy bank bond spreads fell to 1.1 bps from 3.0 bps over the same period. Off-the-run bid–ask spreads also fell significantly for all types of issues, but were still higher than bid–ask spreads for on-the-run issues.

Table 6: Local Currency Government Bond Survey Results—People's Republic of China

	Treasury Bills	Treasury Bonds	Policy Bank Bonds
On-the-Run			
Bid–Ask Spread (bps)	1.3	1.0	1.1
Average Trading Size (CNY million)	208.1	73.8	108.1
Off-the-Run			
Bid–Ask Spread (bps)	1.9	2.0	2.3
Average Trading Size (CNY million)	112.5	67.5	62.5

bps = basis points, CNY = Chinese renminbi.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Most participants judged policy bank bonds and Treasury bonds as the most liquid government securities, with the two having roughly the same level of liquidity. Others, however, said that policy bank bonds enjoy greater liquidity than Treasury bonds due to their higher yields. Total policy bank bonds outstanding exceeded that of Treasury bonds, leading to a greater supply available for investors.

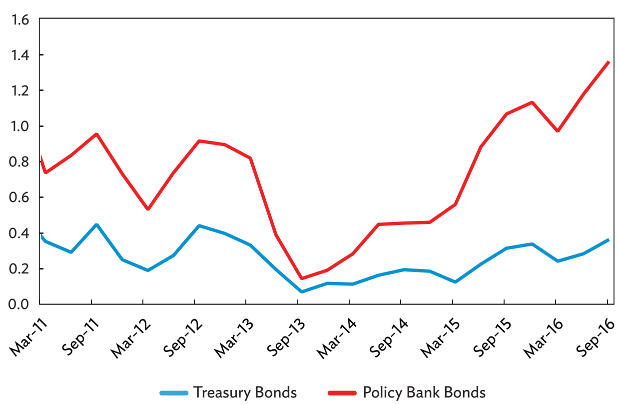
Owing to an increase in the demand for government bonds and declines in bid–ask spreads, large increases in the average trading sizes for government bonds were noted. The average trading size of on-the-run Treasury bills rose to CNY208 million in 2016 from CNY63 million in 2015, the average trading size of on-the-run Treasury bonds rose to CNY74 million from CNY43 million, and the average trading size of policy bank bonds rose from CNY43 million to CNY108 million.

Earlier in 2016, there were concerns that the large issuance sizes of municipal bonds would siphon off liquidity and reduce trading in other segments of the bond market. However, market participants noted that the issuances of local government bonds has not yet had an adverse effect on other parts of the government bond market and liquidity continues to be ample.

Participants also noted that the liquidity of local government bonds is generally poor as investors tend to follow a buy-and-hold strategy.

Consistent with the fall in bid–ask spreads and rise in trading volumes, turnover ratios for Treasury bonds and policy bank bonds increased in 2016 **(Figure 14)**. The turnover ratios also indicate that policy bank bonds are much more actively traded than Treasury bonds, which is consistent with the views of some market participants.

Figure 14: Turnover Ratios for the Spot Market in the People's Republic of China



Source: *ChinaBond*.

Hong Kong, China

In Hong Kong, China, survey respondents said that overall liquidity conditions have remained stable in 2016. Due to the relatively well-developed state of Hong Kong, China's bond market, liquidity is already ample with very little need for regulators to seek improvements via structural changes.

There has been strong demand for government bonds among financial institutions in 2016, reflecting both an increase in Hong Kong dollar liquidity as well as a decline in the loan-to-deposit ratios of banks. The Hong Kong Monetary Authority (HKMA) increased issuance of Exchange Fund Bills (EFBs) to meet the increased demand.

A number of quantitative indicators for liquidity showed improvement as well. The bid–ask spreads for EFBs, and HKSAR bonds declined in 2016.

The bid–ask spread for on-the-run EFBs declined to 3.0 bps in 2016 from 3.5 bps in 2015, while the off-the-run bid–ask spread fell to 3.3 bps from 4.8 bps **(Table 7)**. EFBs have consistently been the most traded and most liquid among Hong Kong, China's government bonds as reflected in the lowest bid–ask spread among all types of government bonds.

Table 7: Local Currency Government Bond Survey Results—Hong Kong, China

	Exchange Fund Bills	Exchange Fund Notes	HKSAR Bonds
On-the-Run			
Bid–Ask Spread (bps)	3.0	6.0	8.3
Average Trading Size (HKD million)	437.5	75.0	48.3
Off-the-Run			
Bid–Ask Spread (bps)	3.3	6.5	10.0
Average Trading Size (HKD million)	437.5	75.0	48.3

bps = basis points, HKD = Hong Kong dollar, HKSAR = Hong Kong Special Administrative Region.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

EFNs' on-the-run bid–ask spreads rose to 6.0 bps, but off-the-run bid–ask spreads declined to 6.5 bps from 7.3 bps. While EFNs continue to enjoy strong demand from financial institutions, issuance has steadily declined since the HKMA determined it would only issue EFNs with tenors of 2 years or less and replace longer-term EFNs with HKSAR bonds in a bid to improve liquidity in the HKSAR bond market.

Market participants indicated that the liquidity of HKSAR bonds improved in 2016 in response to the HKMA issuing more HKSAR bonds in lieu of longer-term EFNs, but participants noted that HKSAR bond liquidity still lags that of EFBs and EFNs. This is reflected in the wider bid–ask spread for HKSAR bonds, which in 2016 fell to 8.3 bps for on-the-run issues and 10.0 bps for off-the-run issues.

Despite lower bid–ask spreads in 2016, the turnover ratio for government bonds declined in 2016 on lower trading volumes. This was the result of an increase in government bond issuance by the HKMA to meet financial institutions' demand for EFBs. Turnover ratios declined as demand for EFBs was strong, with many held after being purchased rather than being traded due to a lack of alternative investments.

As a result, there was a decline in the average trading size of EFBs to HKD438 million in 2016 from HKD490 million in 2015. An increase in the average trading size was observed in 2016 for both EFNs and HKSAR bonds. In the case of EFNs, the average trading size for on-the-run issues rose to HKD75.0 million from HKD51.3 million in the prior year. For HKSAR bonds, the average trading size rose to HKD48.3 million from HKD18.0 million.

Indonesia

Overall liquidity conditions have significantly improved in Indonesia in 2016, reflecting stable macroeconomic fundamentals, the delay in the Federal Reserve's rate hike, and domestic policy reforms that contributed to the further deepening of the LCY bond market. Some survey respondents noted that 2016 has been one of the best years ever for Indonesia's LCY bond market.

The increase in liquidity was driven by increased demand for Indonesia's government bonds by both offshore and onshore investors. A low interest rate environment globally has boosted demand for emerging market assets, including Indonesian bonds. Capital poured into the government bond market as foreign investors continued to chase IDR-denominated bonds, which have the highest yields in the region. The share of foreign holdings in the government bond market grew to 39.2% of the total at the end of September from 37.6% a year earlier.

In addition, demand for bonds was buoyed by a regulation issued by Otoritas Jasa Keuangan requiring insurance and pension funds to hold at least 20% of their assets in government bonds by the end of 2016 and at least 30% by the end of 2017. An ongoing tax amnesty program that aims to encourage residents to declare and repatriate funds parked in overseas tax havens further boosted sentiments in the LCY bond market. As repatriated funds are required to be placed in the Indonesian capital market for a period of 3 years, the bond market is expected to receive additional inflows.

Overall, market participants maintained a positive outlook for Indonesian bonds, despite a looming rate hike by the Federal Reserve, due to positive economic fundamentals. Fundamentally, macroeconomic indicators are stable given subdued inflation, the strengthening rupiah, and a reduced current account deficit.

Survey results showed that on-the-run bid–ask spreads for Treasury bills and Treasury bonds narrowed in 2016, while spreads for *Sertifikat* Bank Indonesia (SBI) widened **(Table 8)**. Bid–ask spreads significantly narrowed for Treasury bonds, particularly benchmark bonds (5-, 10-, 15-, and 20-year tenors), which remained the most liquid among government debt instruments. The 5-year and 10-year bonds were the most widely traded, with the 10-year Treasury bond cited as the most liquid among the benchmarks.

Table 8: Local Currency Government Bond Survey Results—Indonesia

	Treasury Bills	Treasury Bonds	SBI
On-the-Run			
Bid–Ask Spread (bps)	15.0	5.2	16.7
Average Trading Size (IDR billion)	70.9	22.4	43.8
Off-the-Run			
Bid–Ask Spread (bps)	32.5	9.0	15.0
Average Trading Size (IDR billion)	10.0	17.0	10.0

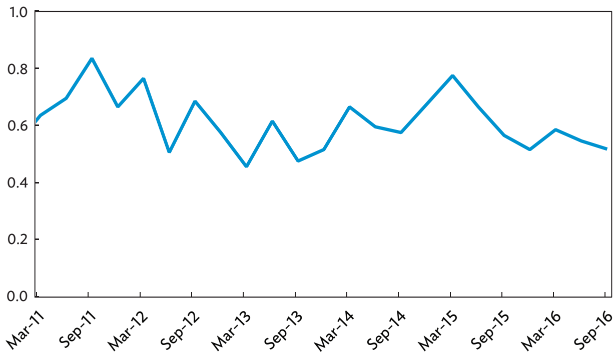
bps = basis points, IDR = Indonesian rupiah, SBI = *Sertifikat* Bank Indonesia.
Notes: The bid–ask spreads for Indonesian Treasury bonds presented above are expressed in terms of yields or basis points to make them comparable with bid–ask spreads in other emerging East Asian markets. Bid–ask spreads for government bonds are most often expressed in terms of "cents" in the Indonesian market. In the 2016 survey, the average Treasury bond bid–ask was 30.2 cents. The Indonesian market quotes bid–ask spread for Treasury bills and SBI in terms of yields or basis points.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

The average trading size also climbed for both Treasury bills and Treasury bonds in 2016. On the other hand, the average trading size for SBI fell. There has been declining interest in SBI since Bank Indonesia began using other monetary tools for managing liquidity, resulting in lower issuance volumes.

Despite increased demand for government bonds, the turnover ratio slipped to 0.52 in Q3 2016 from 0.55 in the previous quarter and 0.57 in Q3 2015 **(Figure 15)**. While overall trading volume increased in 2016, the amount of government bonds outstanding rose more rapidly as the government issued more bonds to fund a widening budget deficit in the revised state budget.

Liquidity in the Indonesian bond market was helped in part by the finalization of the Global Master Repurchase

Figure 15: Quarterly Government Bond Turnover Ratio in Indonesia



Sources: Indonesia Stock Exchange and *AsianBondsOnline*.

Agreement in January, which paved the way for banks to undertake repurchase (repo) transactions through a standardized agreement. Bank Indonesia has been actively encouraging banks to sign the Global Master Repurchase Agreement to boost interbank repo transactions. However, some market participants noted that repo transactions are limited only to banks and suggested that for repo to be fully effective it should be made available to all market participants, including nonbank financial institutions.

A bond futures market is being planned for launch later this year or in 2017, further expanding market instruments available for hedging risks.

Most survey respondents believed there is still room for further easing by Bank Indonesia. At most, an additional 50 bps reduction in the policy rate is expected, though this may not have much impact on bond yields since the Federal Reserve is expected to raise interest rates later this year. (Bank Indonesia further lowered its key rate by 25 bps in October after the conclusion of the survey.) Some participants also mentioned that monetary easing may be made through adjustments in reserve requirement ratios or via macroprudential tools.

Republic of Korea

Government securities in the Republic of Korea are relatively liquid, with average on-the-run bid–ask spreads of 0.5 bps for Treasury bills, Korea Treasury Bonds (KTBs), and Monetary Stabilization Bonds (MSBs) with tenors of less than 1 year, and 0.6 bps for MSBs with tenors of

Table 9: Local Currency Government Bond Survey Results—Republic of Korea

	Treasury Bonds	Treasury Bills	Central Bank Bonds	Central Bank Bills
On-the-Run				
Bid–Ask Spread (bps)	0.5	0.5	0.6	0.5
Average Trading Size (KRW billion)	10.0	10.0	10.0	10.0
Off-the-Run				
Bid–Ask Spread (bps)	0.9	0.6	0.9	0.6
Average Trading Size (KRW billion)	10.0	10.0	10.0	10.0

bps = basis points, KRW = Korean won.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

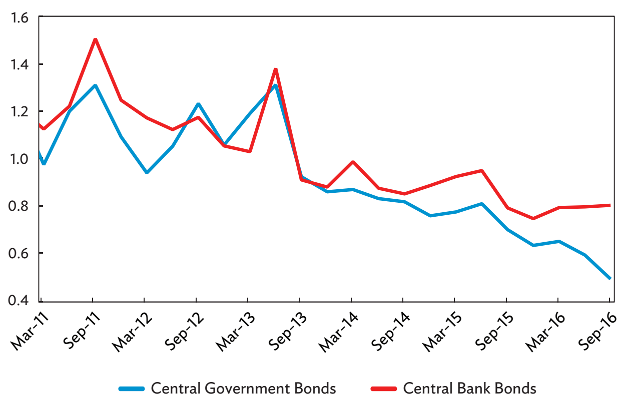
1 year or more **(Table 9)**. The average off-the-run bid–ask spreads were 0.6 bps for Treasury bills and MSBs with tenors of less than 1 year, and 0.9 bps for KTBs and MSBs with tenors of 1 year or more. The average trading size remained the same in 2016 for all government securities at KRW10 billion apiece. Most survey respondents identified 3-year, 5-year, and 10-year KTBs as the most liquid government securities.

Average bid–ask spreads have remained unchanged in 2016 for both on-the-run and off-the-run KTBs and for MSBs with maturities of 1 year or more, but narrowed for both on-the-run and off-the-run Treasury bills and for MSBs with tenors of less than 1 year. The assessments of survey respondents on government bond market liquidity conditions in 2016 were mixed; some witnessed improvements while others perceived either a tightening or no change.

The outlook for government bond market liquidity also varied across survey responses. Some believed liquidity conditions were likely to improve amid expectations of a Federal Reserve policy rate hike before the end of the year, which could generate market volatility and increase the trading of government bonds. Another view was that the effects of market-making with respect to government bond market liquidity were getting stronger. According to some market participants, the issuance of 50-year KTBs in September could help boost liquidity. On the other hand, there were sentiments that market liquidity would not improve over the next 6 months given that the outlook for the Republic of Korea's economy is not optimistic. With regard to monetary policy, survey respondents were of the view that the Bank of Korea's current monetary policy stance would remain unchanged for the time being amid global uncertainties and domestic concerns such as the sluggish economy and rising household debt, among others.

The turnover ratio for LCY central government bonds fell in Q3 2016 compared with the previous quarter as trading volume decreased and the amount of central government bonds outstanding increased **(Figure 16)**. In contrast, the turnover ratio for LCY central bank bonds experienced a marginal uptick in Q3 2016 amid a quarterly hike in the trading volume of MSBs and a decrease in the amount of central bank bonds outstanding.

Figure 16: Quarterly Government Bond Turnover Ratios in the Republic of Korea



Note: For the Republic of Korea, central government bonds include Treasury bonds and National Housing bonds.
Source: The Bank of Korea.

Malaysia

Most participants in this year's survey indicated that Malaysia's bond market liquidity had improved from last year, with some participants describing liquidity conditions to be worse. On the domestic front, the unexpected policy rate cut by Bank Negara Malaysia (BNM) at its 13 July meeting led to a rally in Malaysia's government bond market. The lowering of the statutory reserve requirement ratio in January also provided support to domestic liquidity.

Reduced expectations for a Federal Reserve rate hike amid a low global interest rate environment contributed to higher capital flows into Malaysia's bond market in Q3 2016, further boosting liquidity. Foreign holdings of central government bonds rose to MYR211.8 billion at the end of September from MYR167.3 billion a year earlier. The average bid–ask spread of Malaysian Government Securities (MGSs) narrowed to 2.1 bps from 2.4 bps in 2015. On the other hand, bid–ask spreads for BNM bills and Treasury bills widened on sporadic issuance of these two instruments.

The liquidity gains for Government Investment Issues (GIIs) were evidenced by the average bid–ask spread tightening to 2.2bps in 2016 from 5.3bps in 2015 **(Table 10)**. Demand for GIIs rose due to their inclusion in JP Morgan's Government Bond Index-Emerging Markets indexes effective 31 October 2016. Data from BNM showed foreign holdings of GIIs increasing to MYR26.9 billion at the end of September from MYR8.3 billion in the same period a year earlier. Survey participants also noted the tightening of MGS spreads over comparable GII spreads since the start of the year.

Table 10: Local Currency Government Bond Survey Results—Malaysia

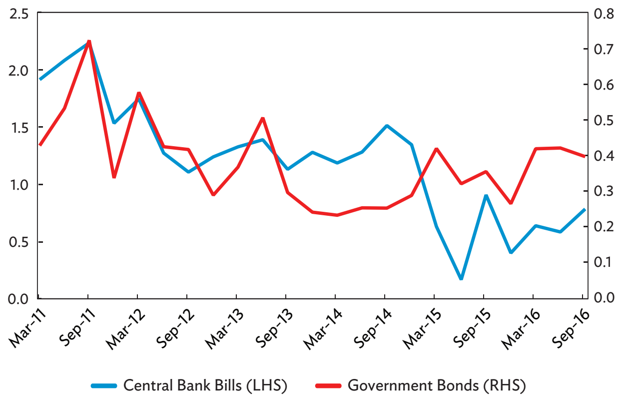
	MGS	GII	BNM Bills	Treasury Bills
On-the-Run				
Bid–Ask Spread (bps)	2.1	2.2	8.6	9.8
Average Trading Size (MYR million)	17.7	16.4	68.8	68.8
Off-the-Run				
Bid–Ask Spread (bps)	5.0	6.1	11.4	11.3
Average Trading Size (MYR million)	13.3	13.2	65.1	68.8

BNM = Bank Negara Malaysia, bps = basis points, GII = Government Investment Issues, MGS = Malaysian Government Securities, MYR= Malaysian ringgit.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Increased bond market liquidity in Malaysia in 2016 was also observed in the quarterly turnover ratios for central government bonds, which reflect improved market activity compared with 2015 **(Figure 17)**. The slight uptick in the quarterly turnover ratio for central bank bills was driven by a decline in the average size of outstanding central bank bills due to sporadic issuance by BNM, while quarterly trading volume remained steady.

In the near-term, market liquidity is expected to remain upbeat on the back of another policy rate cut by BNM. The market consensus is for the cut to take place in the first half of 2017. BNM has room to cut further in order to support Malaysia's moderating economic growth since

Figure 17: Quarterly Government Bond Turnover Ratios in Malaysia



LHS = left-hand side, RHS = right-hand side.
Source: Bank Negara Malaysia.

inflation remains subdued. Survey participants noted BNM's monetary policy decision would likely be data-dependent. Gross domestic product growth of less than 4.0% would prompt the central bank to ease further to support the economy.

Temporary volatility is expected in the coming months in anticipation of the likelihood of a Federal Reserve rate hike in December. This could result in capital outflows given the high level of foreign holdings of Malaysia's central government bonds. Survey respondents also expect strong domestic support from institutional investors in the event of a sell-off. Malaysia's fiscal consolidation efforts continue to be monitored by market participants, especially the release of the 2017 budget in October, which included a lower deficit target. Concerns over how the new target will be met stem from the impact of volatile oil prices on revenue.

Philippines

Survey results from bond market participants in the Philippines showed average bid–ask spreads to be lower for on-the-run Treasury bonds compared to on-the-run Treasury bills (4.6 bps versus 4.8 bps), and were the same for both off-the-run Treasury bills and bonds at 12.5 bps each **(Table 11)**. The average trading size was substantially larger for Treasury bonds than Treasury bills. Average bid–ask spreads were higher for both on-the-run and off-the-run Treasury bills and bonds than in the

Table 11: Local Currency Government Bond Survey Results—Philippines

	Treasury Bonds	Treasury Bills
On-the-Run		
Bid–Ask Spread (bps)	4.6	4.8
Average Trading Size (PHP million)	87.5	25.0
Off-the-Run		
Bid–Ask Spread (bps)	12.5	12.5
Average Trading Size (PHP million)	41.7	18.8

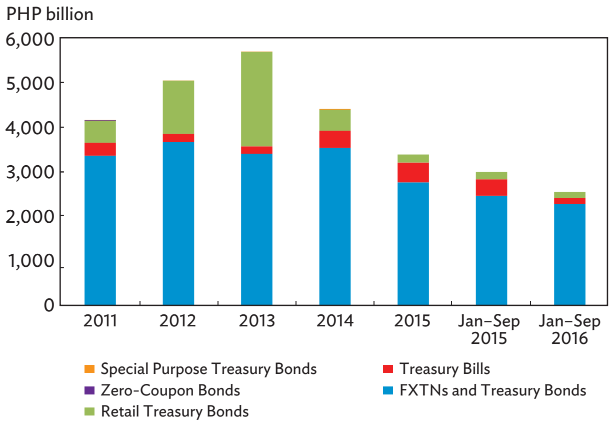
bps = basis points, PHP = Philippine peso.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

previous year, while average trading sizes were down for on-the-run Treasury bills and off-the-run Treasury bills and bonds. (Bid–ask spreads and average trading sizes were identified by survey respondents as good measures of bond market liquidity.)

Most survey respondents identified the 9-year and 15-year Treasury bonds as the most liquid government securities. Observed liquidity trends compared to the previous year were mixed, with differing views that suggested either improving or worsening bond market liquidity conditions. Certain survey responses highlighted the ongoing efforts of the Bangko Sentral ng Pilipinas and market participants to establish a repo market to contribute to the improvement of government bond market liquidity. Among cited factors that influenced the liquidity of the Philippine government bond market in recent months were the monetary policy stances of central banks in advanced economies, including the Bank of Japan, European Central Bank, and the Federal Reserve; global economic growth and outlook; world oil prices; and domestic political events, especially those related to the presidential election held in May. Most respondents believe that the Bangko Sentral ng Pilipinas' monetary policy stance will remain unchanged and that government bond yields will trend upward in coming months.

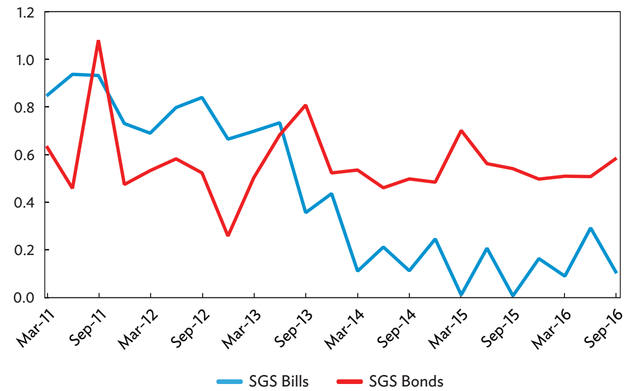
Based on data from the Philippine Dealing & Exchange Corporation, the trading volume of Philippine government securities dropped to PHP2,550 billion in January–September from PHP2,994 billion in the first 9 months of 2015, largely as a result of lowered trading volumes for fixed-rate Treasury notes and Treasury bonds, and (to a lesser extent) Treasury bills **(Figure 18)**.

Figure 18: PDEx Trading Volume Trends—Government Securities in the Philippines



FXTNs = Fixed-Rate Treasury Notes, PHP = Philippine peso.
Note: PDEx reports one side of the trade only.
Source: Philippine Dealing and Exchange Corporation (PDEx).

Figure 19: Quarterly Government Bond Turnover Ratios in Singapore



SGS = Singapore Government Securities.
Sources: Monetary Authority of Singapore, Singapore Government Securities, and *AsianBondsOnline*.

Singapore

Singapore's bond market liquidity survey results showed a widening of the bid–ask spread for Singapore Government Securities (SGSs) bonds from 2.0 bps in 2015 to 3.0 bps in 2016 **(Table 12)**. Most government bond market trading remains concentrated in SGS bonds. According to market participants, liquidity extends to nearly all debt instruments along the yield curve, with 5-year and 10-year SGS bonds the most liquid among all tenors. The exception is SGS bills, which have a limited supply. The Monetary Authority of Singapore (MAS) had held only two auctions for SGS bills in 2016 through the end of September. MAS bills predominantly function as monetary policy sterilization tools and as a place to maintain banks' liquid assets.

In Q3 2016, the turnover ratio for SGS bills increased to 0.10 from 0.01 in Q3 2015. For SGS bonds, the turnover ratio rose to 0.59 in Q3 2016 from 0.54 in Q3 2015 **(Figure 19)**.

Table 12: Local Currency Government Bond Survey Results—Singapore

	SGS Bonds	SGS Bonds
On-the-Run		
Bid–Ask Spread (bps)	3.0	2.0
Average Trading Size (SGD million)	7.5	...

... = data not available, bps = basis points, SGD = Singapore dollar, SGS = Singapore Government Securities.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Overall, the outlook among market participants for the Singapore bond market remains stable. Given weak growth expectations for Singapore's economy and the pending Federal Reserve interest rate hike, MAS is expected to maintain its current accommodative monetary policy stance. Survey respondents do not expect any drastic moves from MAS to counter the weak outlook. Moreover, the deflation that has been besetting Singapore for 23 consecutive months through September is seen as part of a global phenomenon, rather than being peculiar to Singapore. Therefore, the impact on the Singapore bond market has been minimal. Similarly, the Indonesian tax amnesty program, launched on 18 July, which some feared would lead to the repatriation of a sizable amount of assets to Indonesia, has had either a minimal or no impact as evidenced by gains in both depth and liquidity in Singapore's bond market.

Thailand

The liquidity survey results for Thailand showed that average bid–ask spreads widened in 2016 compared with 2015. The average trading size rose across all types of on-the-run government securities. Market participants noted that central bank bills remain the most liquid asset and the majority believe that liquidity has improved in 2016 compared with the previous year. Higher average trading sizes were evident for shorter-term Treasury bills and central bank bills than for longer-term government bonds and central bank bonds. Results showed the average bid–ask spread for central bank bills (1.9 bps) and Treasury

Table 13: Local Currency Government Bond Survey Results—Thailand

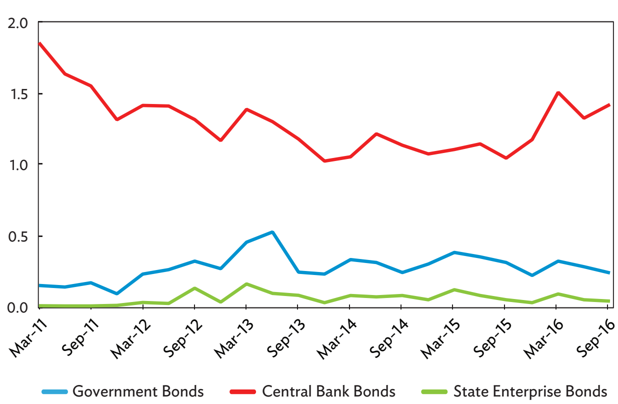
	Government Bonds	Treasury Bills	BOT Bonds	BOT Bills
On-the-Run				
Bid–Ask Spread (bps)	2.3	2.1	2.6	1.9
Average Trading Size (THB million)	131.3	418.8	231.3	431.3
Off-the-Run				
Bid–Ask Spread (bps)	7.3	3.3	3.6	2.6
Average Trading Size (THB million)	72.5	158.3	151.3	158.3

BOT = Bank of Thailand, bps = basis points, THB = Thai baht.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

bills (2.1 bps) are lower than those for government bonds (2.3 bps) and central bank bonds (2.6 bps) **(Table 13)**. Similar to 2015, average bid–ask spreads were lower for on-the-run government debt securities than for their off-the-run counterparts.

Some market participants noted that the bid–ask spread is the best measure of liquidity, while others cited total trading value, average transaction size, and turnover ratios. Compared with Q3 2015, turnover ratios in Q3 2016 declined for government bonds (0.23) and state-owned enterprise bonds (0.05), but rose for central bank bills and bonds (1.41) **(Figure 20)**. The total trading value of Thai government debt securities stood at THB5.3 trillion in Q3 2016, up from THB4.5 trillion in Q3 2015, according to data from the Thai Bond Market Association.

Figure 20: Quarterly Government Bond Turnover Ratios in Thailand



Sources: Bank of Thailand and the Thai Bond Market Association.

The outlook for Thailand's government bond market remains dependent on expectations of a Federal Reserve rate hike. Market participants expect no change in short-term yields; however, a steepening is possible at the longer-end of the yield curve as rates could increase in response to a possible US interest rate hike. The respondents also expect the Bank of Thailand to maintain the policy rate at 1.50% in the short term given that monetary policy needs to remain accommodative to support the recovering domestic economy. Moreover, inflation only turned positive in April after a long period of deflation. Measures offered by survey respondents to improve bond market liquidity include encouraging more trading of longer-dated bonds, increasing the amount of government debt securities issues, developing electronic bidding platforms, and providing a green-shoe option, among others.

Viet Nam

In 2016, survey respondents noted a significant improvement in liquidity in Viet Nam's LCY bond market compared with 2015. Liquidity conditions improved on the back of increased issuance coupled with efforts by the government to lower interest rates and maintain more stable exchange rates. Improved sentiments resulted from increased issuance as the government managed to conduct more successful auctions in 2016 than in the previous year. A new regulation from the State Bank of Vietnam lifting investment restrictions on government bonds for banks and foreign banks also helped boost demand for bonds. Bond market liquidity is expected to improve with the government's plan to launch a derivatives market in 2017. The availability of more diversified products such as bond futures and bond forwards will help deepen the LCY bond market.

Among government bond instruments, Treasury bonds are the most liquid. Survey results showed that the average bid–ask spread for on-the-run Treasury bonds declined to 7.2 bps in this year's survey compared with 15.0 bps in 2015 **(Table 14)**. Average spreads for off-the-run Treasury bonds fell to 9.2 bps from 15.0 bps. The average reported trading sizes for on-the run and off-the run Treasury bonds also increased in this year's survey.

Overall, market participants expect the LCY bond market outlook to remain stable given the positive prospects for Viet Nam's economy. However, they noted some pressures could lead to rising interest rates in 2017.

Table 14: Local Currency Government Bond Survey Results—Viet Nam

	Treasury Bonds	State-Owned Enterprise Bond	State Bank of Vietnam Bills
On-the-Run			
Bid–Ask Spread (bps)	7.2	12.5	5.0
Average Trading Size (VND billion)	75.0	100.0	200.0
Off-the-Run			
Bid–Ask Spread (bps)	9.2	13.5	7.0
Average Trading Size (VND billion)	75.0	100.0	100.0

bps = basis points, VND = Vietnamese dong.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Qualitative Indicators for Government Bond Markets

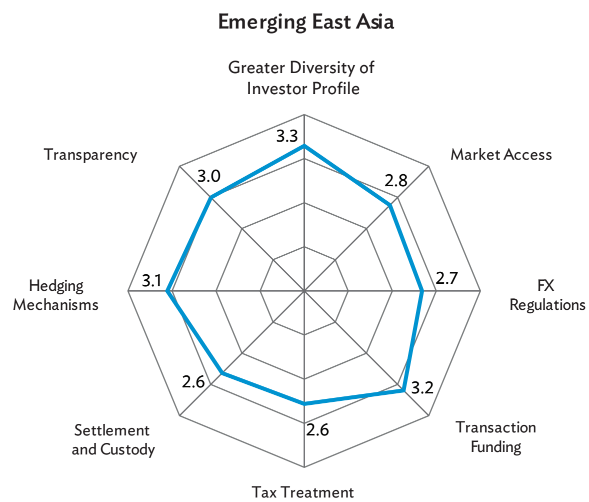
The 2016 *AsianBondsOnline* Liquidity Survey also assesses qualitative indicators of emerging East Asian bond market liquidity. It gathers information from market participants about their perceptions of the importance of structural issues that could potentially affect liquidity in their respective bond markets. A list of these structural issues and their corresponding descriptions is found below.

i. **Greater Diversity of Investor Profile:** the need to widen the investor base for LCY bonds.
ii. **Market Access:** the degree of ease or difficulty for investors to enter the LCY bond market, taking into account investor registration and investment quotas.
iii. **Foreign Exchange Regulations:** the extent of liberal or restrictive foreign exchange, capital investment, and repatriation policies.
iv. **Transaction Funding:** the need for funding availability through active and developed money and repo markets.
v. **Tax Treatment:** the importance of reducing withholding taxes on LCY bonds.
vi. **Settlement and Custody:** the significance of straight-through clearing processes, timely bond trade settlements, and a global custodian or accredited custodian(s).
vii. **Hedging Mechanisms:** the need to have an active and efficient derivatives market.
viii. **Transparency:** the importance of gaining accessibility to daily information on bond market activity, including bond prices, as well as of bonds having credit ratings.

Survey respondents were asked how important each of the eight structural issues were with respect to liquidity: 1 – Not Important, 2 – Somewhat Important, 3 – Important, and 4 – Very Important.

The survey results show that Greater Diversity of Investor Profile was the most important structural issue for promoting liquidity in the emerging East Asian government bond market. The regional average of 3.3 for this structural issue topped the averages for all other structural issues **(Figure 21)**. Three other structural issues garnered regional averages of 3.0 or higher: Transaction Funding (3.2), Hedging Mechanisms (3.1), and Transparency (3.0). Other averages included Market Access (2.8), Foreign Exchange Regulations (2.7), Settlement and Custody (2.6), and Tax Treatment (2.6).

Figure 21: Regional Averages—Local Currency Government Bond Market Structural Issues



FX = foreign exchange.
Note: 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.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Table 15 summarizes the regulations governing cross-border portfolio investment in emerging East Asian markets. **Table 16** provides a summary of tax treatment issues in emerging East Asian bond markets.

Compared to the previous year's survey results, Greater Diversity of Investor Profile remained the most important

Table 15: Cross-Border Portfolio Investment Regulation in Select Emerging East Asian Markets

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
China, People's Republic of	Qualified Foreign Institutional Investors (QFII) may purchase money market funds, subject to a lockup period.	QFIIs are allowed to invest in exchange-traded bonds subject to quotas but interbank-traded bond purchases have no limits. Renminbi Qualified Foreign Institutional Investors (RQFII) are allowed to invest in exchange-traded bonds subject to quotas and in interbank-traded bonds without limits. Financial institutions, such as commercial banks, insurance companies, securities companies, fund management companies, other asset management institutions and the People's Bank of China-approved institutions such as pension funds, charitable funds, endowment funds, and other medium- and long-term institutional investors may invest in the interbank bond market subject without limits.	QFIIs are allowed to invest in A-shares subject to quotas. No single QFII may hold more than 10% of a listed company. Foreign investors may not own more than 30% of a single company. There is an overall limit for all QFIIs at USD150 billion and a single QFII may invest up to USD1 billion, sovereign wealth funds, central banks and monetary authorities can invest beyond USD1 billion. Foreign investors may also make strategic investments in A-shares of listed companies subject to certain criteria and restrictions. RQFIIs are allowed to invest in listed equities subject to quotas. RQFIIs are allowed to fund investments using renminbi sourced abroad.	Qualified Domestic Institutional Investors (QDII) are allowed to buy and hold offshore securities subject to certain quotas. Insurance companies may invest subject to approval and total overseas investment cannot exceed 15% of the insurance company's total assets.	QFII pension and insurance funds, mutual funds, charitable foundations, endowment funds, government investment management companies, and open-end funds have a principal lock-up of 3-months. Other QFIIs are required to keep their investments in the People's Republic of China (PRC) for 1 year. For RQFIIs, there is no holding period. Repatriation of foreign exchange requires the approval of the State Administration for Foreign Exchange.
Hong Kong, China	There are no specific restrictions on portfolio investments and foreign investors may place funds directly in money market instruments.	Nonresidents are free to purchase debt instruments.	Nonresidents are free to purchase equity securities. Investment in banks require Hong Kong Monetary Authority approval.	Residents are generally free to invest abroad. Overseas investment by institutional investors (e.g., insurance companies, banks) must be within certain limits and may require Hong Kong Monetary Authority approval.	No restrictions on repatriation of capital and profits.
Indonesia	Foreign investors are allowed to purchase money market instruments in the secondary market. For Bank Indonesia Certificates, the minimum holding period is one week.	Foreign investors are allowed to purchase debt securities without limit except for retail bonds for which they are only allowed to purchase in the secondary market.	Foreign investors are allowed to purchase shares without limit with the exception of shares in finance company joint ventures.	Pension funds are not allowed to invest in securities abroad. Mutual funds investments are limited to 15% of their net asset value while protected mutual fund has a limit of 30% of their net asset value.	No restrictions apply to repatriation of capital, remittance of dividends, and profits.
Japan	Nonresidents are free to purchase money market securities.	Nonresidents are free to purchase debt securities.	Controls will only apply if the purchase of equity instruments is affected by inward direct investment laws.	Residents are allowed to purchase capital instruments issued abroad.	No restrictions on repatriation of capital, profits, dividends, and interest.

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Table 15 *continued*

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
Korea, Republic of	Nonresidents are allowed to invest in domestic money market instruments. The sale of foreign currency–denominated money market instruments abroad requires notification to a designated foreign exchange bank. Sale of foreign currency–denominated money market instruments exceeding USD30 million or local currency–denominated money market instruments by residents abroad requires notification to the Ministry of Strategy and Finance.	Nonresidents are allowed to buy bonds and other debt securities sold by residents, but notification to a foreign exchange bank or the Bank of Korea is required if the purchase is not made through an account exclusively for investment.	Nonresidents are freely allowed to invest in shares of local companies, but notification to a foreign exchange bank or the Bank of Korea is required if the purchase is not made through an account exclusively for investment. The purchase of listed shares issued by resident public sector utilities in the process of privatization is subject to controls.	Residents are allowed to buy bonds issued abroad, but notification to the Bank of Korea is required if the purchase is not made through an account exclusively for investment.	Effective 9 December 2015, proceeds from capital transactions in excess of USD500,000 or its equivalent must be repatriated within 3 years of the settlement date.
Malaysia	Nonresidents are allowed to purchase money market instruments without any restrictions.	Nonresidents are allowed to purchase bond market instruments without any restrictions.	Nonresidents are allowed to purchase equity instruments without any restrictions.	Residents with domestic borrowing, and has funded the investment through conversion of Malaysian ringgit into foreign currency, may invest abroad but subject to certain limits.	Nonresidents are free to repatriate funds from divestment of local currency–denominated assets or profits and dividents arising from investments.
Philippines	Registration of money market instruments purchased by nonresidents is required only if the foreign exchanged needed for capital repatriation and remittance of profits and earnings will be purchased from Bangko Sentral ng Pilipinas' Authorized Agent Banks (AAB) and AAB-forex corporations.	Nonresidents are allowed to purchase bond market instruments without any restrictions.	Registration of equity instruments purchased by nonresidents is required only if the foreign exchanged needed for capital repatriation and remittance of profits and earnings will be purchased from AABs and AAB-forex corporations.	A resident's investments abroad in excess of USD60 million a year requires prior regulatory approval.	No restrictions on repatriation of capital, profits, dividends, and interest if the foreign exchange needed will be purchased from AABs and AAB-forex corporations.
Singapore	No restrictions for nonresidents to purchase money market instruments.	No restrictions for nonresidents to purchase bond market instruments.	No restrictions for nonresidents to purchase equity instruments.	No restrictions on investments by residents abroad.	Nonresident financial entities must convert Singapore dollar proceeds, from Singapore dollar loans (exceeding SGD5 million), equity listings, and bond issuances into foreign currency before using such funds to finance activities outside Singapore.

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Table 15 *continued*

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
Thailand	Nonresidents can invest in THB-denominated money market instruments. Investment of a nonresident group in THB-denominated money market instruments issued by a domestic financial institution is subject to the overall outstanding THB-denominated borrowing limit of THB10 million.	Nonresidents can invest in THB-denominated debt securities. Investment of a nonresident group in THB-denominated debt securities issued by a domestic financial institution is subject to a overall outstanding THB-denominated borrowing limit of THB10 million.	Nonresidents can invest in equities, but foreign equity participation may be limited if a company is subject to the provisions of the Foreign Business Act or other related laws. Financial institutions' foreign equity participation is limited to 25% of total shares in locally-incorporated banks, credit finance companies, and finance companies. Nonresidents can invest up to 100% of the shares of an asset management company or a securities company. For most other Thai corporations, foreign equity participation is up to 49%.	Institutional investors—the Government Pension Fund, Social Security Fund, companies listed on the Stock Exchange of Thailand, insurance companies, mutual funds, provident funds, securities companies, specialized financial institutions, and Thai companies with asset size of at least THB5 billion—may invest freely in foreign securities issued abroad, up to a certain limit imposed by the directors, management, or supervisory authority of the institutional investors. In September 2014, Bank of Thailand authorized the Securities and Exchange Commission to allocate foreign investments within an overall limit of USD75 billion.	Proceeds of up to USD50,000 or its equivalent can be retained abroad, while proceeds exceeding the threshold must be repatriated on receipt and within 360 days of the transaction date.
Viet Nam	Foreign investors are allowed to purchase money market instruments locally. These transactions must be executed in Vietnamese dong (VND) through an account at a licensed back in Viet Nam.	There is no limit on investments however foreign investors are required to open a VND-denominated securities trading account to sell or purchase debt securities. These transactions must be executed in VND through an account at a licensed back in Viet Nam.	Foreign investors are required to open a VND-denominated securities trading account to sell or purchase listed securities on the stock exchange. Foreign investors are allowed to hold up to 49% of a company's current shares, except in the banking sector, which has a limit of 30%.	Residents may invest in shares and bonds abroad subject to regulation set by the State Bank of Vietnam. Institutional investors, upon acquiring a license for indirect investment abroad, must open an account to transfer capital overseas and transfer legal capital, profits, and earnings from offshore indirect investment to Viet Nam under the State Bank of Vietnam regulations.	There is no provision for timeline on repatriation of profits. However, profits from foreign indirect investment must be repatriated via foreign exchange accounts at authorized credit institutions.

SGD = Singapore dollar, THB = Thail baht, USD = United States dollar.
Sources: International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions 2016,* and local market sources.

Table 16: Tax Treatments in Emerging East Asian Markets

Market	Withholding Tax on Interest Income	
	Government	Corporate
China, People's Rep. of	Exempt from tax	Nonresident investors are subject to a 10% withholding tax, which is subject to reduction based on applicable treaties.
Hong Kong, China	Exempt from tax	Individuals are exempt from tax. Corporations are subject to a 16.5% tax on profits.
Indonesia	Residents and permanent establishments are subject to a 15% tax on bonds and a 20% tax on *Sertifikat* Bank Indonesia. Nonresidents are subject to a 20% tax, which is subject to reduction based on applicable treaties. For mutual funds registered with Otoritas Jasa Keuangan, the tax rate is 5% until 2020 and 10% thereafter.	Residents and permanent establishments are subject to a 15% tax. Nonresidents are subject to a 20% tax, which is subject to reduction based on applicable treaties. For mutual funds registered with Otoritas Jasa Keuangan, the tax rate is 5% until 2020 and 10% thereafter.
Korea, Republic of	Resident and nonresident investors are subject to a 15.4% tax. For nonresidents, the tax is subject to reductions based on applicable treaties.	Resident and nonresident investors are subject to a 15.4% tax. For nonresidents, the tax is subject to reduction based on applicable treaties.
Malaysia	Residents and nonresidents are exempt from tax.	Nonresidents are exempt from tax on interest payments on bonds issued by banks and financial institutions.
Philippines	Subject to a 20% tax withheld at source. Foreign corporations are subject to a 30% tax on the gross amount of income derived within the Philippines. Nonresident individuals not engaged in trade or business are subject to a 25% tax on the gross amount of income derived in the Philippines.	Subject to a 20% tax withheld at source. Foreign corporations are subject to a 30% tax on the gross amount of income derived within the Philippines. Nonresident individuals not engaged in trade or business are subject to a 25% tax on the gross amount of income derived in the Philippines.
Singapore	Exempt from tax except for resident institutional investors who are subject to a 10% tax.	Individual investors are tax exempt. Resident and nonresident institutional investors are exempt from withholding tax, subject to qualifying conditions.
Thailand	Individual resident investors are subject to a 15% withholding tax. Institutional resident investors are subject to a 1% withholding tax. Nonresident investors are exempt from tax.	Individual resident investors are subject to a 15% withholding tax. Institutional resident investors are subject to a 1% withholding tax. Nonresident investors are subject to a 15% withholding tax.
Viet Nam	Residents are exempt from tax. Nonresidents are subject to a 5% withholding tax, which is subject to reduction based on applicable treaties.	Subject to a 5% withholding tax.

Source: *AsianBondsOnline*.

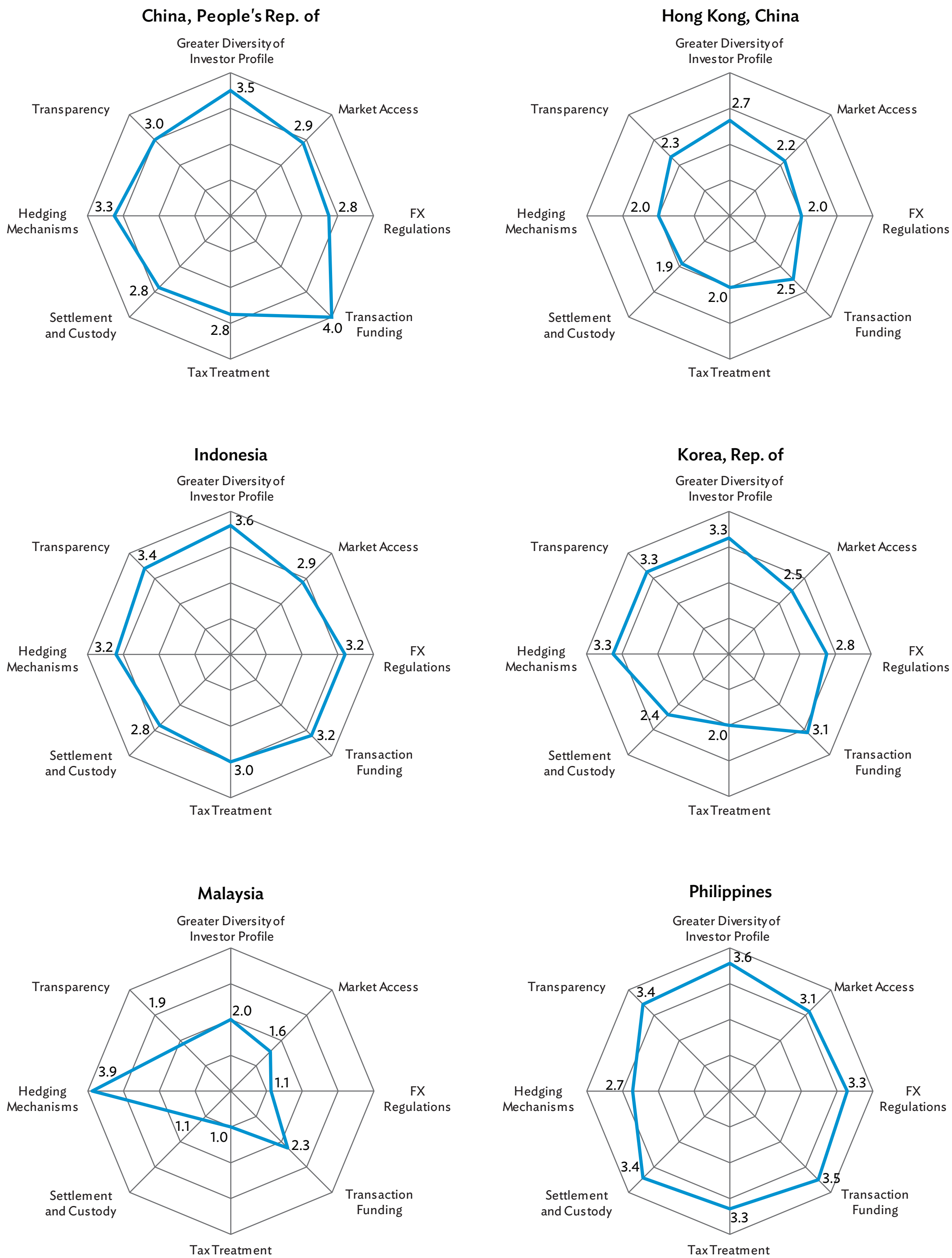
structural issue, although its regional average was down in 2016, similar to Foreign Exchange Regulations, Settlement and Custody, Tax Treatment, and Transparency. The regional averages for Hedging Mechanisms, Market Access, and Transaction Funding remained unchanged between 2015 and 2016.

By individual LCY government bond market, Greater Diversity of Investor Profile was found to be the most important structural issue in Hong Kong, China; Indonesia; the Philippines; and Singapore **(Figure 22)**. The significance of widening the investor base for LCY government bonds was highlighted by survey respondents largely due to the existence of certain dominant investor groups in these markets. Financial institutions invest and trade actively in domestic bond markets in Hong Kong, China and Singapore given their status as international financial hubs. In Indonesia, foreign investors and domestic banks are the two largest investor groups in the LCY government bond market. In the Philippines, financial institutions—banks, investment houses, and insurance companies—are among the major institutional holders of LCY government securities.

Transaction Funding was ranked the most important structural issue with respect to LCY government bond market liquidity in the PRC and Viet Nam. Survey respondents in both economies gave high importance to funding availability through active and developed money markets, including repo markets. Repo markets are relatively liquid in the PRC and positively contribute to liquidity in the government bond market. In Viet Nam, in particular, developing the repo market could boost liquidity.

In the Republic of Korea, three structural issues—Greater Diversity of Investor Profile, Hedging Mechanisms, and Transparency—each received the highest average of 3.3 apiece and were considered as being equally important by survey respondents in terms of LCY government bond market liquidity. The need to widen the investor base for the Republic of Korea's government bonds was found to be relatively important as domestic financial institutions like banks and insurance companies invest heavily in government bonds. Interest rate futures, which are derivative products used to hedge exposures on fixed-income instruments, are available in the Korea Exchange, a securities exchange operator in the Republic of Korea,

Figure 22: Structural Issues for Individual Local Currency Government Bond Markets



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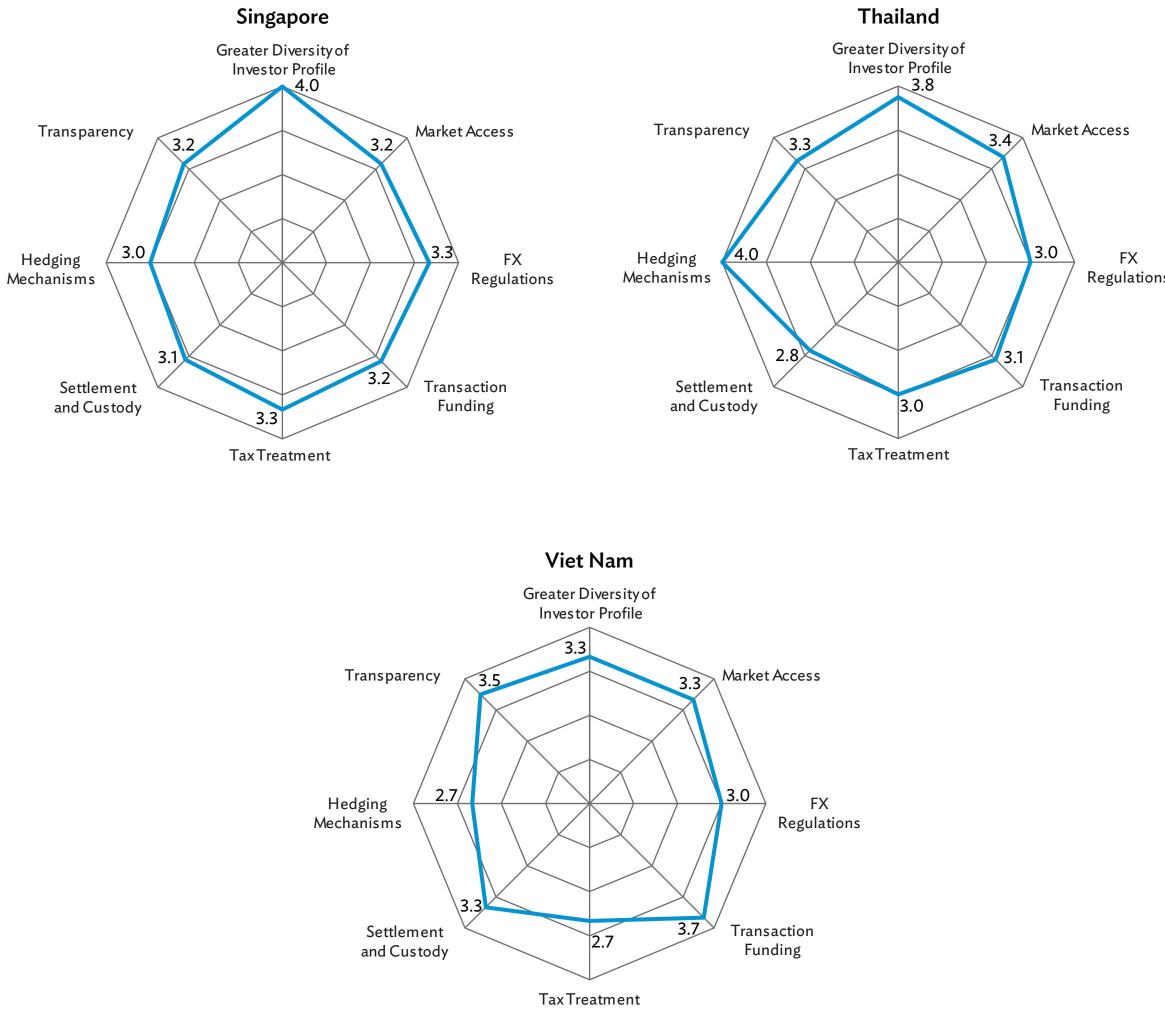


FX = foreign exchange.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

with the 3-year KTB Futures and the 10-year KTB Futures being the most actively traded. Information on daily bond market activity is available through the Korea Exchange and the Korea Financial Investment Association, which operates the over-the-counter bond market in the Republic of Korea.

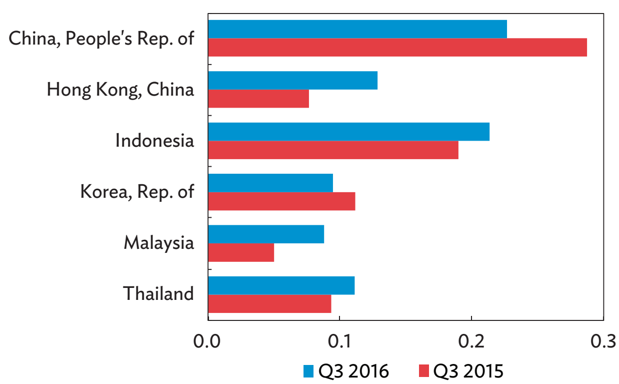
Hedging Mechanisms were identified by survey respondents in Malaysia and Thailand as the most important structural issue in their respective government bond markets. The exchange holding company, Bursa Malaysia, offers four types of interest rate futures to market participants: the 3-month Kuala Lumpur Interbank Offered Rate Futures; and the interest rate futures on the 3-year, 5-year, and 10-year MGSs. Interest rate futures are also available in Thailand, including the 3-month Bangkok Interbank Offered Rate Futures and the 5-year Government Bond Futures offered on the Thailand Futures Exchange.

Quantitative Indicators for Corporate Bond Markets

The region's corporate bond market is significantly less liquid than its government counterpart. Corporate bonds tend to be purchased by buy-and-hold investors. There is also additional due diligence required in assessing corporate bond investments. Liquidity for most corporate bonds tends to be limited to the period following initial issuance up to few months after. Within domestic corporate bond markets, liquidity for individual bonds often varies depending on the issuer. Large corporate bond issuances tend to attract more liquidity as do bonds that are better-rated and issued by more well-known firms.

Figure 23 details the quarterly turnover ratios for LCY corporate bonds in emerging East Asia. (Data for corporate bond turnover ratios were unavailable for the Philippines, Singapore, and Viet Nam.)

Figure 23: Local Currency Corporate Bond Turnover Ratios



Q3 = third quarter.
Notes:
1. Turnover ratios are calculated as local currency trading volume (sales amount only) divided by average local currency value of outstanding bonds during each 3-month period.
2. For Hong Kong, China and Thailand, data for third quarter of 2016 are based on *AsianBondsOnline* estimates.

Sources: People's Republic of China (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Indonesia Stock Exchange); Republic of Korea (EDAILY *Bondweb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); and Thailand (Bank of Thailand and Thai Bond Market Association).

The PRC remains the market with the highest corporate bond turnover ratio, while Malaysia has the lowest. Corporate bond turnover ratios improved in 2016 in Hong Kong, China; Indonesia; Malaysia; and Thailand.

Market participants were asked similar questions to assess their respective corporate bond markets as were asked about government bond markets. **Table 17** summarizes the responses of survey participants in terms of average issue size, bid–ask spreads, and average trading size. One key difference between corporate and government bond markets is that bid–ask spreads for corporate bond issues may not be directly comparable as liquidity for specific corporate bond market issues may exist only for a period of a few days to a few months.

In several corporate bond markets in emerging East Asia, a widening bid–ask spread was observed in 2016, including in the PRC, the Philippines, Singapore, and Thailand. Bid–ask spreads fell for corporate bonds in Hong Kong, China and were mostly unchanged in Indonesia, the Republic of Korea, and Malaysia.

Reflecting its status as a well-developed corporate bond market with bonds outstanding exceeding that in the government bond market, the Republic of Korea had the lowest bid–ask spread. The highest bid–ask spread was noted in the Philippines where the corporate bond market is dominated by a small number of issuers, with the top 10 issuers accounting for more than half of all outstanding corporate bonds at the end of September. The Philippines, along with Indonesia, also had the smallest average transaction size of USD0.3 million.

Table 17: Local Currency Corporate Bond Markets Quantitative Indicators

		PRC	HKG	INO	KOR	MAL	PHI	SIN	THA	VIE	Regional
Typical Issue Size of Corporate Bonds	Average (USD million)	196.8	42.6	50.7	76.1	104.3	83.0	162.2	45.8	25.8	87.5
Typical Bid–Ask Spread for New Corporate Issues	Average (bps)	10.5	11.5	29.2	3.9	8.4	68.8	10.0	6.7	30.0	18.6
	SD	4.3	–	22.6	3.3	2.9	54.1	4.3	3.1	28.3	20.6
	CV	0.4	–	0.8	0.8	0.3	0.8	0.4	0.5	0.9	1.1
Typical Transaction Size of LCY Corporate Bonds	Average (USD million)	7.9	7.1	0.3	9.1	1.6	0.3	1.7	1.3	12.7	4.7
	SD	0.5	–	0.1	0.0	0.7	0.3	1.8	0.4	10.1	4.6
	CV	0.1	–	0.3	0.0	0.4	1.3	1.0	0.3	0.8	1.0

– = not applicable, bps = basis points; CV = coefficient of variation; HKG = Hong Kong, China; INO = Indonesia; KOR = Republic of Korea; LCY = local currency; MAL = Malaysia; PHI = Philippines; PRC = People's Republic of China; SD = standard deviation; SIN = Singapore; THA = Thailand; USD = United States dollar; VIE = Viet Nam.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Characteristics of Individual Corporate Bond Markets

People's Republic of China

Participants in the PRC corporate bond market noted that state-owned enterprise bonds, medium-term notes, and commercial paper tend to be the most liquid. These three instrument types are traded on the interbank bond market, which comprises banks and institutional investors such as insurance companies.

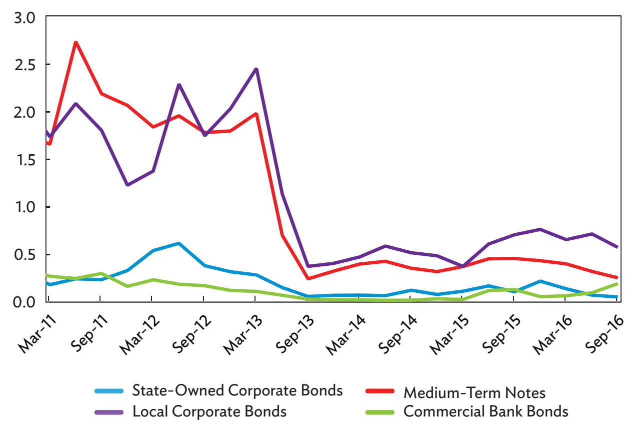
These three types of corporate bonds tend to have lower bid–ask spreads than other types such as local corporate bonds **(Table 18)**. Commercial bank bonds had the lowest bid–ask spread in 2016 at 5.0 bps. Commercial bank bonds are not traded by all banks, leading to an increased supply of commercial bank bonds for other institutional investors in search of yield.

The average issue size of commercial bank bonds rose substantially to CNY5.7 billion in 2016 from CNY2.6 billion in 2015 due to the fund-raising activities of banks.

Liquidity for corporate bonds in 2016 was slightly worse due to concerns over corporate bond defaults causing an increase in bid–ask spreads. The average bid–ask spread for state-owned enterprise bonds rose to 10.5 bps in 2016 from 5.8 bps in 2015. For local corporate bonds, the bid–ask spread rose to 13.3 bps in 2016 from 8.8 bps in the prior year, while the spread for medium-term notes rose to 10.5 bps from 5.5 bps. Commercial paper's average bid–ask spread rose to 10.0 bps from 8.3 bps during the review period.

The rise in bid–ask spreads was due to increased volatility in corporate bond markets on concerns over corporate bond defaults in the market. However, there has been some demand for corporate bonds from investors switching from equities and other investors that are seeking yield. Concerns over corporate bond defaults were also reflected in the slight declines in turnover ratios for local corporate bonds, state-owned enterprise bonds, and medium-term notes in Q3 2016 **(Figure 24)**. The slight rise in the commercial bank bond turnover ratio was partially a function of the already low bid–ask spread.

Figure 24: Local Currency Corporate Bond Turnover Ratios in the People's Republic of China



Source: *ChinaBond.*

Indonesia

The corporate bond market in Indonesia is similar to most corporate bond markets in the region in that it is deemed illiquid with investors mostly holding bonds until maturity. The lack of liquidity is evident in the wider bid–ask spread for corporate bonds relative to government bonds. The average bid–ask spread for a new corporate bond issue fell marginally to 29.2 bps in 2016 from 29.5 bps in 2015.

Most market participants noted that liquidity for corporate bonds is largely limited to the issuances of

Table 18: Local Currency 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)	1,200.0	1,202.9	1,313.1	5,765.2	1,287.5
Bid–Ask Spread (bps)	10.5	13.3	10.5	5.0	10.0
Average Trading Size (CNY million)	52.5	51.7	52.5	100.0	60.0

bps = basis points, CNY = Chinese renminbi, MTNs = medium-term notes, SOE = state-owned enterprise.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

state-owned entities, banks, and financial institutions. The bond issues of familiar corporate names, particularly in consumer-related industries, also command some liquidity as most investors tend to only be attracted to higher-rated corporate bonds. Liquidity for new corporate bonds does not last for long after issuance. Some participants cited an average of 1–3 months, while others say trading can last only 1–2 weeks depending on the name of the issuer and its rating.

At the end of September, Indonesia's entire corporate bond market comprised 104 firms. Most of these firms have issued bonds to refinance their maturing debt. A lengthy issuance process that lasts at least 2–3 months hinders corporates ability to tap the bond market for their funding requirements. However, recent news indicated an increase in corporate bond issuance due to the reluctance of banks to adjust their lending rates.

To further develop liquidity for corporate bonds, some market participants cited the need for regulations to encourage corporates to issue more bonds and increase the available supply. Another factor affecting liquidity is the absence of market makers. Some participants suggested that tax incentives for both issuers and investors should also be provided.

Republic of Korea

Survey results show the average bid–ask spreads in the Republic of Korea to be relatively low (and identical) for special public bonds and financial debentures, but relatively high for private corporate bonds, suggesting that the former are relatively liquid compared to the latter **(Table 19)**. Both special public bonds and financial debentures have average issue sizes of more than KRW100 billion. For private corporate bonds, the average issue size is slightly more than KRW20 billion. Across the three corporate bond types, survey respondents noted similar average trading sizes of about KRW10 billion each, which was unchanged between 2015 and 2016. Average bid–ask spreads were higher in 2016 than in 2015 for special public bonds and financial debentures, but were lower for private corporate bonds. The average issue size was relatively small for all three corporate bond types.

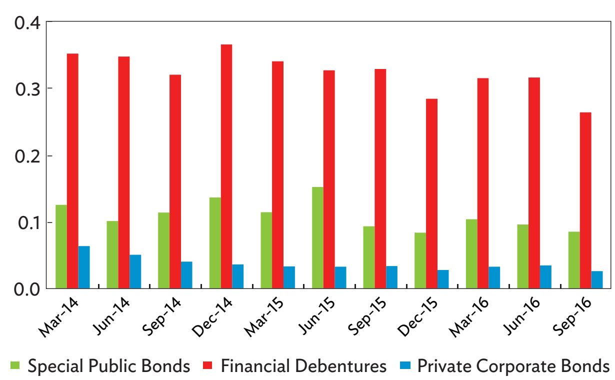
Table 19: Local Currency Corporate Bond Survey Results—Republic of Korea

	Special Public Bonds	Financial Debentures	Private Corporate Bonds
Average Issue Size (KRW billion)	127.4	103.2	20.8
Bid–Ask Spread (bps)	2.3	2.3	7.2
Average Trading Size (KRW billion)	10.0	10.0	10.0

bps = basis points, KRW = Korean won.
Note: Special public bonds are bonds issued by state-owned enterprises, financial debentures are issued mostly by banks and financing companies, and private corporate bonds are issued mostly by securities companies and by private nonfinancial corporates.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

On a quarterly basis, the turnover ratio for LCY corporate bonds stood at 0.09 in Q3 2016, which was less than the 0.11 recorded in both the first and second quarters of this year, implying a tightening in corporate bond market. Across all three types of corporate bonds, turnover ratios showed a downward quarterly trend, with the drop being the sharpest for financial debentures **(Figure 25)**.

Figure 25: Turnover Ratios for Special Public Bonds, Financial Debentures, and Private Corporate Bonds in the Republic of Korea



Source: EDAILY *BondWeb*.

Survey respondents highlighted recent measures undertaken to support the development of the corporate bond market, including reforming the issuance system for Qualified Institutional Buyers securities registered with the Korea Financial Investment Association as well as formulating plans for the restructuring and financing of shipbuilding and shipping companies in the Republic of Korea.

Malaysia

Liquidity in Malaysia's corporate bond market has improved this year, with the quarterly turnover ratio rising to 0.09 in Q3 2016 from 0.05 in Q3 2015. The higher turnover reflects increased market activity in the secondary market relative to the average amount of bonds outstanding. Trading volume for Q3 2016 rose 97.3% y-o-y to MYR46.5 billion, while average bonds outstanding increased at a slower pace of 12.2% y-o-y to MYR528 billion.

Survey participants gave a mixed assessment with some saying liquidity conditions were the same as last year. The results of the survey show the average bid–ask spreads to be almost the same in 2015 (8.5 bps) and 2016 (8.4 bps) **(Table 20)**. Participants noted the lack of supply of corporate bonds in the market this year. Moreover, the corporate bond market in Malaysia remains a buy-and-hold market, with post-issuance trading generally only observed for large AAA-rated bonds. Survey respondents suggest assigning more market makers to help improve liquidity.

Table 20: Local Currency Corporate Bond Survey Results—Malaysia

	Corporate Bonds
Average Issue Size (MYR million)	431.6
Bid–Ask Spread (bps)	8.4
Average Trading Size (MYR million)	6.4

bps = basis points, MYR = Malaysian ringgit.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

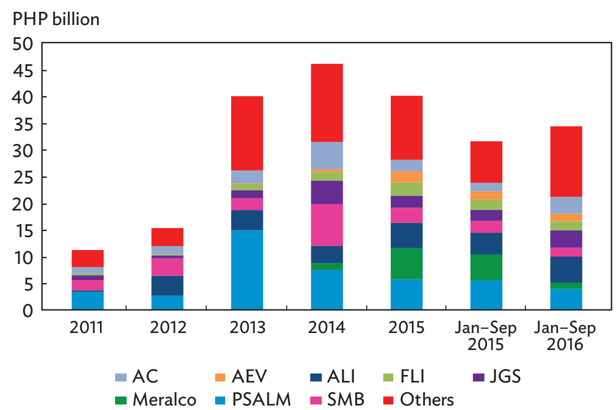
Market participants foresee more issuance of government-guaranteed bonds amid an increase in public infrastructure projects. Effective 1 January 2017, the mandatory credit rating of corporate bonds will be removed and unrated bonds will be allowed to be traded in the secondary market. While survey respondents took note of this regulatory development, the effect on Malaysia's corporate bond market liquidity is yet to be determined as investor preferences are still concentrated on higher-rated bonds. Furthermore, certain investors such as pension funds and life insurance companies have limitations on including unrated bonds in their portfolios.

Philippines

The average bid–ask spread for Philippine LCY corporate bonds was 69 bps in 2016, up from 23 bps in 2015, while the average trading size fell to PHP12.3 million from PHP20.8 million. Some survey respondents noted the lack of liquidity in the corporate bond market as bond investors usually hold until maturity, while others described newly-issued corporate bonds as liquid only for up to 1 month after issuance or until another corporate bond with a similar tenor is issued. Corporate bonds in the Philippines remain relatively less liquid overall compared to government securities. Among the measures proposed in the survey to improve corporate bond market liquidity were the establishment of a repo market, greater issuance of corporate bonds, and improved access for retail investors.

The total trading volume of corporate securities, as reported by the Philippine Dealing & Exchange Corporation, rose to PHP33.5 billion in the first 9 months of 2016 from PHP31.5 billion in January–September 2015, suggesting improving corporate bond market liquidity **(Figure 26)**. (Traded corporate securities include the bonds of three government-owned and -controlled corporations: Land Bank of the Philippines, National Home Mortgage Finance Corporation, and Power Sector Assets and Liabilities Management Corporation.)

Figure 26: PDEx Trading Volume Trends—Corporate Bonds in the Philippines



AC = Ayala Corporation; AEV = Aboitiz Equity Ventures; ALI = Ayala Land, Inc.; FLI = Filinvest Land, Inc.; JGS = JG Summit Holdings; PHP = Philippine peso; PSALM = Power Sector Assets and Liabilities Management Corp.; SMB = San Miguel Brewery, Inc.
Note: PDEx reports one side of the trade only.
Source: Philippine Dealing and Exchange Corporation (PDEx).

Singapore

Survey respondents in Singapore quoted an average bid–ask spread of 10.0 bps for new corporate issues in 2016, up from 6.0 bps in 2015 **(Table 21)**. Average issue size rose to SGD221.1 million in 2016 from SGD141.5 million in the previous year. (Corporate issues in Singapore cover a range of bonds, including quasi-government bonds, high-grade bonds, and unrated high-risk bonds.) Market participants cited the recent default of a handful of commodity-related bonds in the higher-risk category of the corporate bond market as a consequence of burgeoning bond diversity in Singapore's market.

Table 21: Local Currency Corporate Bond Survey Results—Singapore

	Corporate Bonds
Average Issue Size (SGD million)	221.1
Bid–Ask Spread (bps)	10.0
Average Trading Size (SGD million)	2.3

bps = basis points, SGD = Singapore dollar.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Except for certain segments such as commodity-related and riskier unrated bonds, there is high confidence in the outlook for the Singapore corporate bond market. The market is still in the process of developing a larger and more diversified investor base. Liquidity disappears immediately after issuance for all but a few of the highest-rated issues, mainly due to the buy-and-hold tendencies of many investors. In the secondary market, high-grade corporate bonds, which tend to be scarce, are relatively more liquid than riskier bonds. Some survey respondents suggested that the increased participation of international rating agencies in the Singapore bond market would draw in more global investors.

Thailand

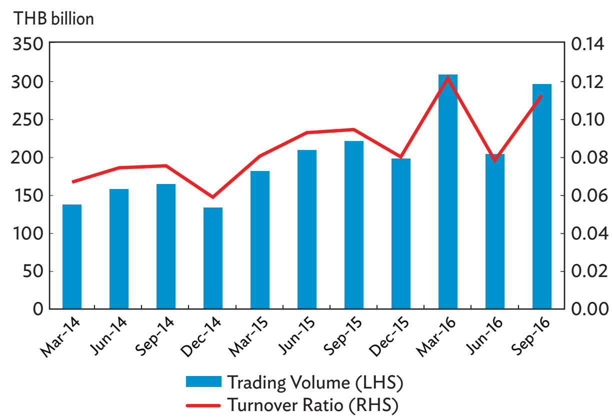
New issues of Thai LCY corporate bonds in 2016 had an average bid–ask spread of 6.7 bps compared with the average of 4.2 bps in 2015 **(Table 22)**. Trading volume increased to THB295.1 billion in Q3 2016 from THB220.7 billion in Q3 2015, while the turnover ratio also rose to 0.11 in Q3 2016 from 0.09 in Q3 2015 **(Figure 27)**. Increased trading values and turnover ratios suggest Thai corporate bond market liquidity has improved in 2016. The average trading size is around THB45 million, while the average issue size stands at THB1.6 billion.

Table 22: Local Currency Corporate Bond Survey Results—Thailand

	Corporate Bonds
Average Issue Size (THB million)	1,585.9
Bid–Ask Spread (bps)	6.7
Average Trading Size (THB million)	45.0

bps = basis points, THB = Thai baht.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

Figure 27: Trading Volume and Turnover Ratio for Local Currency Corporate Bonds in Thailand



LHS = left-hand side, RHS = right-hand side, THB = Thai baht.
Sources: Bank of Thailand and the Thai Bond Market Association.

Viet Nam

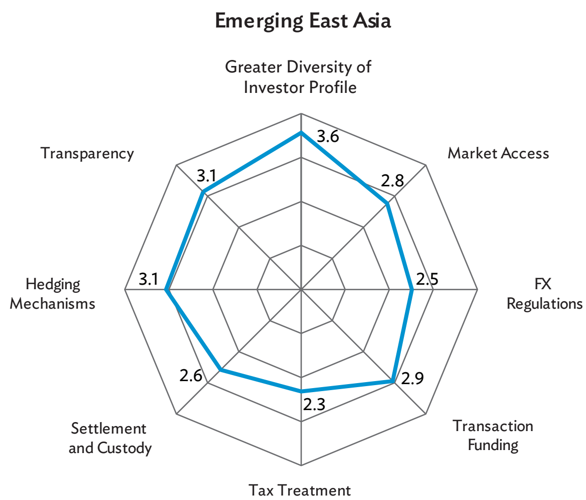
The typical bid–ask spread for newly issued corporate bonds in Viet Nam in 2016 stood at 30.0 bps, which is wider compared with the bid–ask spread for government bonds. In 2015, survey participants provided no quotes for bid–ask spreads, noting that most transactions were privately negotiated.

Liquidity in Viet Nam's corporate bond market remains very limited. Market participants cited the absence of a secondary market as the reason behind this as most corporate bonds are held until maturity by commercial banks. Liquidity is also limited due to the small size of the corporate bond market. Most corporates prefer to apply for bank loans due to their familiarity with the process and the quicker approval process. To improve liquidity, some market participants mentioned the need for the involvement of credit rating agencies.

Qualitative Indicators for Corporate Bond Markets

Figure 28 depicts the perceptions of market participants of various structural and regulatory issues in the region's corporate bond markets.

Figure 28: Regional Averages—Local Currency Corporate Bond Market Structural Issues



FX = foreign exchange.
Note: 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.
Source: *AsianBondsOnline* 2016 LCY Bond Market Liquidity Survey.

Comparing the rankings of structural issues for the corporate bond market with that of the government bond market shows both similarities and differences. For example, survey respondents ranked the importance of Greater Diversity of Investor Profile as the most important issue in both the corporate and government bond market. The survey results show that more diversity among investors is key to creating a variety of investment decisions in the trading of bonds.

With the exception of the Republic of Korea, Greater Diversity of Investor Profile received a score of 3.0 or higher in all of the region's corporate bond markets **(Figure 29)**. As corporate bond market liquidity tends to lag that of government markets, one way to improve liquidity is to diversify the investor base. In addition, foreign investors tend to hold fewer corporate bonds than government bonds.

Survey participants ranked Transparency and Hedging Mechanisms as the next most important issues for corporate bond markets. Transparency was ranked only fourth in the government bond market survey. The discrepancy is due to the increased requirements for due diligence in the evaluation of corporate bonds. Respondents in the Indonesian market gave Transparency the highest rating at 3.6, which is the result of there being difficulties in price discovery despite all bonds being rated.

Hedging Mechanisms are equally important in the corporate bond markets, while ranking third for government bond markets. Risk mitigation requirements for the two markets are different. While interest rate risk can be managed for both government and corporate bonds with similar instruments, corporate bonds have an added risk due to the greater possibility of default. Most investors tend to manage this through the proper evaluation of the credit risk of the issuers. Respondents in Indonesia and Malaysia rated Hedging Mechanisms at 3.5, while it had the lowest score in Viet Nam (2.3), possibly due to the very small size of the market in which the trading of corporate bonds is practically nil.

In the region's corporate and government bond markets, investors assigned Tax Treatment the lowest level of importance with a rating of 2.3 in the corporate bond market and 2.6 in the government bond market. Among individual corporate bond markets, Thailand rated Tax Treatment the highest at 3.7 as the government levies a 15% withholding tax on corporate bonds. While this is not the highest withholding tax rate in the region, there are differences in tax rates for investors, with individuals having a 15% withholding tax rate while corporates are only subject to 1%.

Respondents in Hong Kong, China; the Republic of Korea; and Malaysia rated Market Access as not being very important with a score of 2.5 or lower in each market. All three of these bond markets are relatively more developed than others in the region and are relatively open to foreign investors.

Similarly, Hong Kong, China and Malaysia provided the lowest-rated scores for FX Regulations of 1.0 and 1.1, respectively. The PRC, which until recently had more stringent capital controls, rated FX Regulations at 2.3, partly because the corporate bond market in the PRC is relatively liquid compared with other markets in the region as evidenced by its high corporate bond turnover

Figure 29: Structural Issues for Individual Local Currency Corporate Bond Markets

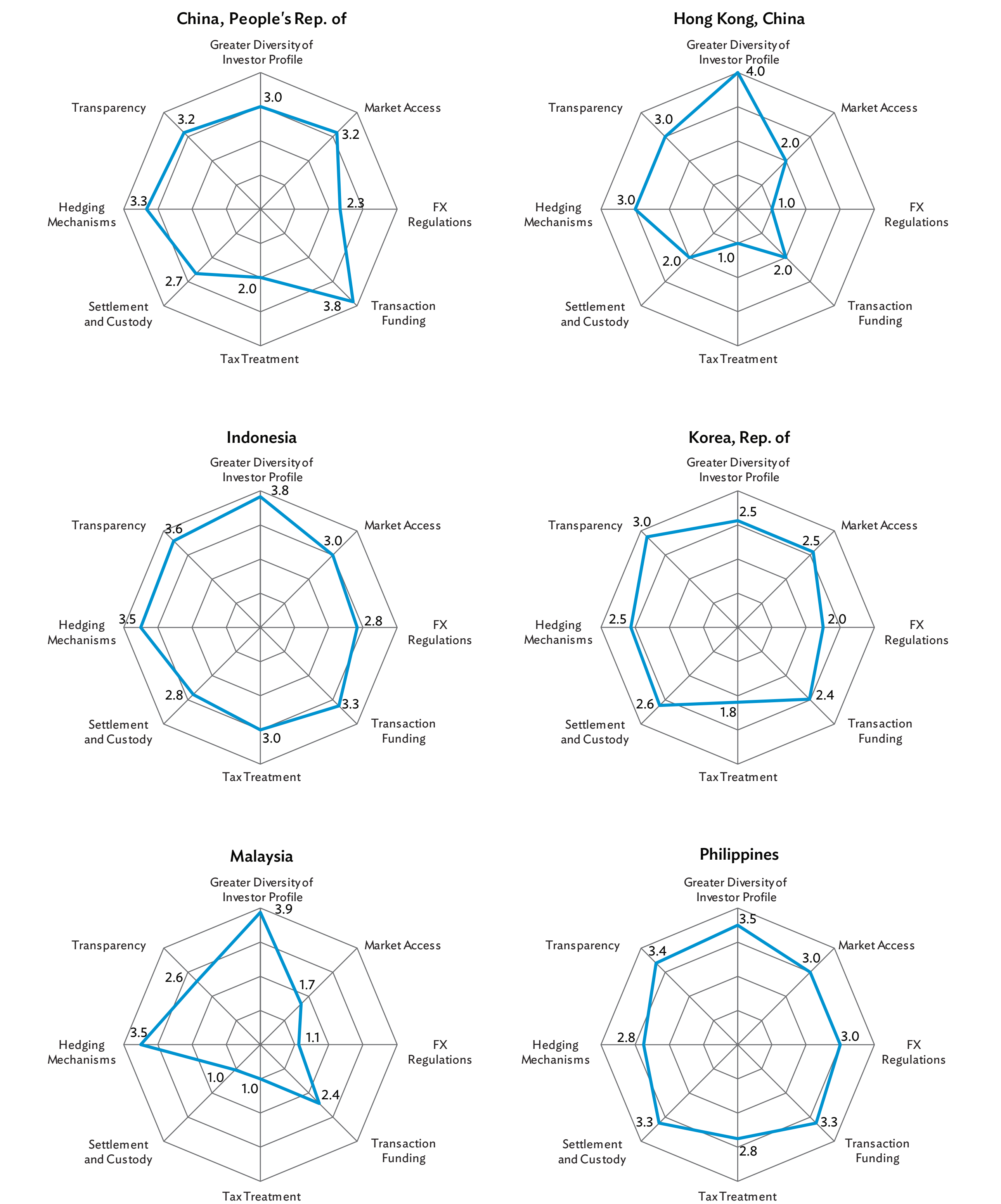


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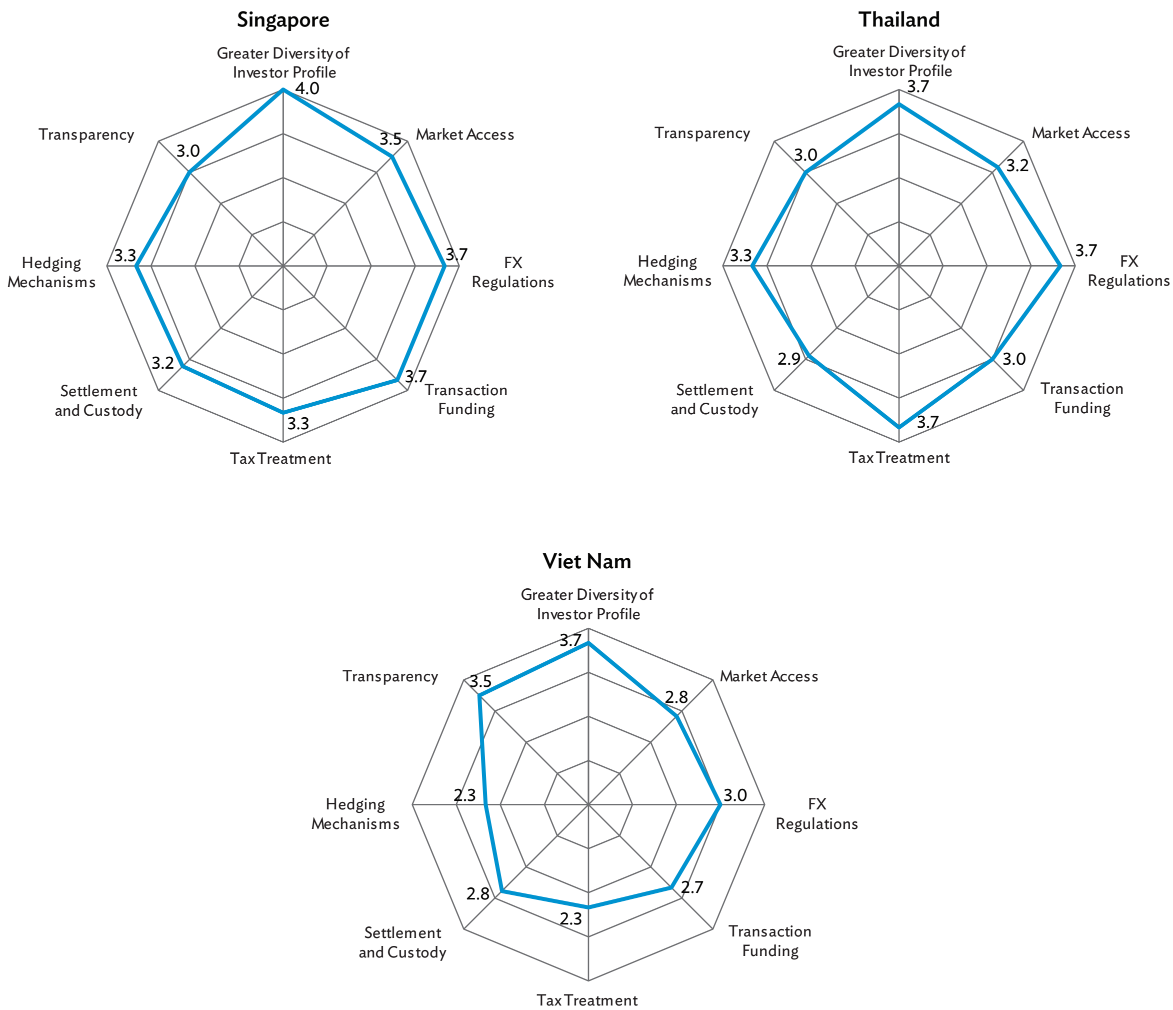
Figure 29 *continued*



FX = foreign exchange.
Source: *AsianBondsOnline* 2016 Local Currency Bond Market Liquidity Survey.

ratio. Market participants' perception is that capital controls play less of a factor in determining liquidity in this corporate bond market.

Survey respondents in the PRC rated Transaction Funding the highest among all markets in the region with a score of 3.8. This is because the PRC's bond market is highly sensitive to the liquidity conditions of its financial institutions. When the new value-added tax system was implemented, money market rates rose on the possibility that government bond repos would be taxed until a clarification was issued by the government.

The Philippines had the highest score in the region for Settlement and Custody at 3.3 due to differences between the trading and settlement of corporate bonds and government bonds in this market. The system for trading and settlement of government bonds developed first while that for corporate bonds lagged.