ASIA BOND MONITOR

NOVEMBER 2019

ASIAN DEVELOPMENT BANK

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The Asia Bond Monitor (ABM) is part of the Asian Bond Markets Initiative, an ASEAN+3 initiative supported by the Asian Development Bank. This report is part of the implementation of a technical assistance project funded by the Investment Climate Facilitation Fund of the Government of Japan under the Regional Cooperation and Integration Financing Partnership Facility.

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Printed in the Philippines.

ISBN 978-92-9261-866-7 (print), 978-92-9261-867-4 (electronic)
ISSN 2219-1518 (print), 2219-1526 (electronic)
Publication Stock No. TCS190521-2
DOI: http://dx.doi.org/10.22617/TCS190521-2

Note:
ADB recognizes “Hong Kong” and “Hongkong” as Hong Kong, China; “China” as the People’s Republic of China; “Korea” as the Republic of Korea; “Siam” as Thailand; “Vietnam” as Viet Nam; “Hanoi” as Ha Noi; and “Saigon” as Ho Chi Minh City.

Cover design by Erickson Mercado.

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Emerging East Asian Local Currency Bond Markets: A Regional Update

Highlights

Key Trends

- Government bond yields rose in major advanced economies between 31 August and 15 October as investment sentiment improved and demand for safe-haven assets declined following the 11 October announcement of a limited trade truce between the People's Republic of China (PRC) and the United States (US).
- In emerging East Asia, bond yield trends were mixed. Bond yields rose in most markets while declining in a few others, driven primarily by domestic factors.[1]
- Most emerging East Asian currencies strengthened against the US dollar between 31 August and 15 October. The Korean won gained the most as it benefited from the easing of PRC–US trade tensions in October.
- Equity markets also benefited from the easing of trade tensions, with the largest gains observed in the Republic of Korea; the PRC; and Hong Kong, China.
- Credit default swap spreads narrowed in all markets, reflecting improved investment sentiment.
- Foreign holdings in emerging East Asian local currency (LCY) government bond markets were largely stable during the review period. The share of foreign holdings continued to rise in the PRC, where the bond market is gradually opening up.
- The size of emerging East Asia's LCY bond market reached USD15.2 trillion at the end of September on growth of 3.1% quarter-on-quarter and 13.0% year-on-year.

Risks to Financial Stability

- The trade dispute between the PRC and the US remains the primary downside risk to the region's financial stability. While there has been some encouraging progress in bilateral negotiations in recent weeks, there is still no sign of a comprehensive long-term settlement.
- Another downside risk to emerging East Asia is a sharper-than-expected slowdown in advanced economies and the PRC given the region's close economic linkages with both.
- One positive factor has been the easing of monetary policies by central banks in advanced economies, which is contributing to more benign global financial conditions.

AsianBondsOnline Annual Bond Market Liquidity Survey

- The *AsianBondsOnline* Annual Bond Market Liquidity Survey showed increased liquidity and trading volumes in most regional LCY bond markets in 2019 compared with last year, largely driven by the accommodative monetary policies of central banks in advanced economies and emerging East Asia.
- The lack of well-functioning hedging mechanisms and a diversified investor base for both government and corporate bonds were identified as the most important common structural issues that require attention from regional authorities.

Theme Chapter on Bond Market Development and Bank Risk-Taking: Evidence from Developing Markets

- The special theme chapter investigates the effect of bond market development on the risk-taking decisions of banks. Using bank-level data from developing markets around the world, the analysis finds that bond market development reduces banks' risks and supports credit creation.
- Both government bonds, which serve as a liquid asset class, and corporate bonds issued by banks, which provide a stable source of funding, help mitigate maturity mismatches in banks' balance sheets. Evidence indicates that large banks and well-capitalized banks benefit the most from bond market development.
- The key takeaway from the study is that a well-functioning capital market can contribute to the soundness of the banking sector.

[1] 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.

Executive Summary

Global and Regional Market Developments

Government bond yields rose in major advanced economies between 31 August and 15 October as investment sentiment improved on the 11 October announcement of a limited truce in the trade dispute between the People's Republic of China (PRC) and the United States (US).

Between 31 August and 15 October, 10-year local currency (LCY) government bond yield trends were mixed in emerging East Asia, mainly driven by domestic factors.[1] The 10-year yield rose in most markets, including the PRC; Hong Kong, China; the Republic of Korea; Malaysia; the Philippines; and Thailand; while yields in bond markets in Indonesia, Singapore, and Viet Nam declined, largely driven by monetary policy easing.

Improved investor sentiment was reflected in the recovery in most regional equity markets; the appreciation of almost all regional currencies; as well as narrowed credit default swap spreads, a decline in the Chicago Board Options Exchange Volatility Index, and narrowing in the Emerging Markets Bond Index Global spread.

Foreign investor holdings in the region's LCY bond markets for which data are available remained mostly stable as the region benefited from monetary policy easing in most advanced economies. The PRC experienced a sustained increase in foreign holdings with the removal of quotas on foreign investment in the LCY bond market and the inclusion of government bonds in global bond indexes.

Risks to the regional outlook still tilt toward the downside. The protracted trade conflict between the PRC and the US remains the primary downside risk. While there has been some progress toward a resolution, a comprehensive and long-term settlement is needed. A sharper-than-expected economic slowdown in advanced economies, as well as in the PRC, also poses a risk to emerging East Asia.

On a positive note, the monetary policy easing of central banks in advanced economies is benefiting the region's financial environment.

Bond Market Developments in Emerging East Asia

Total bonds outstanding in emerging East Asia's LCY bond market reached USD15.2 trillion at the end of September on growth of 3.1% quarter-on-quarter (q-o-q) and 13.0% year-on-year (y-o-y).

The PRC remained the region's leader in terms of bond market size with its share of the regional total rising to 75.4%. The bond market of the Republic of Korea accounted for a 13.1% share of the regional total. Collectively, the outstanding bonds of member markets of the Association of Southeast Asian Nations accounted for a 9.9% share.[2]

At the end of September, government bonds continued to dominate the region's LCY bond market, accounting for a 61.8% share of the total. Total government bonds outstanding stood at USD9.4 trillion, posting growth of 3.1% q-o-q and 11.6% y-o-y. Corporate bonds took a 38.2% share of the total at a size of USD5.8 trillion. Growth in the corporate bond segment hit 3.2% q-o-q and 15.3% y-o-y.

As a share of the region's gross domestic product (GDP), the size of emerging East Asia's LCY bond market inched up to 83.7% at the end of September from 82.7% at the end of June. The largest bond markets as a share of domestic GDP were in the Republic of Korea and Malaysia.

Total LCY bond issuance in emerging East Asia reached USD1.5 trillion in Q3 2019, posting growth of 0.9% q-o-q and 5.2% y-o-y.

The November issue of the *Asia Bond Monitor* includes a chapter discussing the results and analysis of the

[1] 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.
[2] LCY bond statistics for the Association of Southeast Asian Nations include the markets of Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam.

AsianBondsOnline Annual Bond Market Liquidity Survey, presents a theme chapter on Bond Market Development and Bank Risk-Taking: Evidence from Developing Markets, and features two special discussion boxes (LIBOR reform and the ongoing PRC–US trade conflict).

AsianBondsOnline Annual Bond Market Liquidity Survey

AsianBondsOnline conducts an annual survey to assess liquidity conditions in the region's LCY bond markets. This year's survey was conducted between the last week of September through the middle of October.

Survey results showed increased liquidity and trading volumes in most LCY bond markets in 2019 compared with 2018, largely boosted by the accommodative monetary policies of central banks in advanced economies and emerging East Asia.

Among qualitative indicators, the lack of well-functioning hedging mechanisms and a diversified investor base for both government and corporate bonds were identified as the most important common structural issues that require attention from regional authorities.

Theme Chapter on Bond Market Development and Bank Risk-Taking: Evidence from Developing Markets

This study investigates how bond market development shapes banks' risk-taking in terms of portfolio risk, liquidity risk, and overall bank risk. Exploiting a bank-level sample for 26 developing markets, the study finds that bond market development lowers banks' portfolio risk and overall risk, and strengthens their liquidity position. Government bonds serve as liquid assets that allow banks to expand assets without impairing risk positions. Corporate bonds work as a stable funding source and an alternative risky asset class that contributes to bank stability while facilitating risky asset holdings. Large and well-capitalized banks benefit the most from bond market development through an increased ability to take risks while maintaining resilience. This study presents new evidence on the complementary role of a well-functioning bond market in terms of bank soundness, offering policy implications on the importance of capital market development and a well-balanced bond market structure.

Box 1: So Long, LIBOR!

This box discusses developments relating to the global transition from the London Interbank Offered Rate (LIBOR) to alternative risk-free rates (RFRs). It highlights progress made in the United Kingdom and the US, the two markets most likely to go through a complete transition to their respective alternative RFRs: the Sterling Overnight Index Average and the Secured Overnight Financing Rate. While market infrastructures have established trading and clearing services for the two RFRs, challenges remain in facilitating a smooth and timely transition before the scheduled LIBOR phaseout after 2021. The discussion of the challenges in adopting the Sterling Overnight Index Average and the Secured Overnight Financing Rate finds that developing liquidity in cash and derivatives markets for the new RFR-linked instruments is essential for a timely transition. For financial firms, building capacity to trade new RFR-linked instruments will become a strategic priority as the deadline for a full transition approaches.

Box 2: Update on the PRC–US Trade Conflict

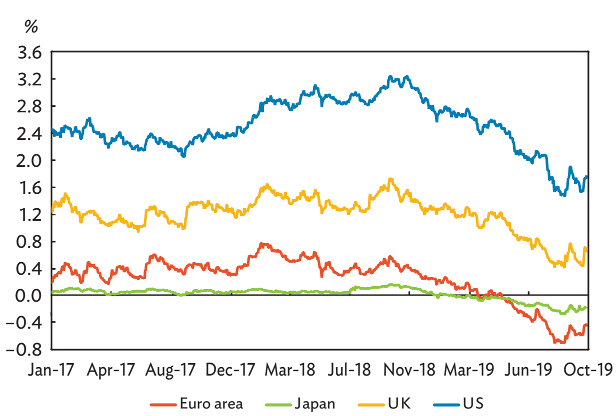
The PRC and the US agreed to a temporary trade truce on 11 October. The US will hold off on further tariff increases in exchange for limited concessions from the PRC to purchase more US agricultural products. The easing of tensions is expected to be a boon for both economies, the PRC in particular. The *Asian Development Outlook 2019 Update* shows that without a deal, the trade conflict would reduce the PRC's GDP by 0.65% over the medium term; the corresponding figure for the US is much smaller at 0.13% of GDP. Although the limited trade deal gives some cause for optimism, it falls far short of a comprehensive and long-term settlement. Ongoing trade tensions between the PRC and the US remain a primary downside risk for the global economy and financial markets.

Global and Regional Market Developments

Between 31 August and 15 October, 2-year and 10-year local currency (LCY) government bond yields rose in major advanced economies on a late boost from the limited trade deal between the People's Republic of China (PRC) and the United States (US) that was announced on 11 October (**Figure A**).

The US Federal Reserve reduced the federal funds target during its 17–18 September meeting by 25 basis points (bps) to a range of 1.75%–2.00%. In its decision, the Federal Reserve noted that while the domestic economy continues to grow and employment remains solid, there has been some weakness in trade and business investment. In addition, the Federal Reserve emphasized that there was a great deal of uncertainty in the global economy. In September, the Federal Reserve slightly upgraded its 2019 gross domestic product (GDP) growth forecast to 2.2% from its June forecast of 2.1%. The 2021 GDP forecast was also slightly increased to 1.9% from 1.8%. The inflation forecasts were unchanged. US labor markets have held steady, with some indicators showing improvements. The unemployment rate slightly inched up to 3.6% in October from 3.5% in September. The US added 128,000 nonfarm payrolls in October despite some labor strikes during the month. The August and September nonfarm payrolls were also revised upwards to 219,000 and 180,000, respectively.

Figure A: 10-Year Government Bond Yields in Major Advanced Economies (% per annum)



UK = United Kingdom, US = United States.
Note: Data as of 15 October 2019.
Source: Bloomberg LP.

The Federal Reserve's policy rate cut led to a decline in US 10-year yields toward the end of September. However, yields gained in October, resulting in an overall rise in yields between 31 August and 15 October. The rise in yields was mostly driven by investor demand for riskier assets amid improved sentiment following the 11 October announcement of a temporary truce in the ongoing PRC–US trade conflict. The US held back from implementing tariff hikes scheduled to go into effect on 15 October, while the PRC promised to buy more US farm products. The Federal Reserve subsequently lowered its rate by another 25 bps to a range of 1.50%–1.75% on 29–30 October.

In line with developments in the US, 10-year yields in Germany fell following the European Central Bank's (ECB) policy rate reduction of its deposit facility by 10 bps to −0.5% on 12 September. The rates on the ECB's refinancing operations and marginal lending facility were left unchanged. In addition, the ECB restarted its asset purchase program, with asset purchases of EUR20 billion per month scheduled to begin 1 November. The ECB's decision to cut the policy rate was due to downgrades of its economic forecasts, especially the worryingly-low inflation rate, which has given rise to fears about deflation. In September, the euro area's inflation rate fell to 0.8% year-on-year (y-o-y) from 1.0% y-o-y in August and fell further to 0.7% y-o-y in October. Third quarter GDP growth also fell to 1.1% y-o-y from 1.2% y-o-y in the previous quarter. However, toward the middle of October, rates began rising again as investor confidence improved on news of progress in the PRC-US trade conflict. Rates in Germany also rose following reports that the government was considering the use of fiscal stimulus to boost the domestic economy.

Despite the Bank of Japan (BOJ) leaving its monetary policy unchanged on 19 September, the BOJ has allowed the 10-year yield rate to rise and reduced its bond purchases. On 31 October, the BOJ again left its monetary policy unchanged. The BOJ noted in its decision that, while the domestic economy continues to progress as expected, there is rising risk and that it will need to pay more attention to the possible effect on its inflation target. The BOJ also adjusted its forward guidance, saying that it expected current interest rates to stay the same or lower as long as the risk to its current macroeconomic trajectory remains, and removed the time frame of keeping rates the same at least until spring 2020.

The BOJ also updated its macroeconomic forecasts from those made in July. GDP forecasts were slightly lowered, with the GDP growth forecast for fiscal 2019 lowered slightly to an annualized 0.6% from 0.7%. The 2020 GDP growth forecast was also lowered to 0.7% from 0.9%, and the 2021 forecast was lowered to 1.0% from 1.1%. The inflation forecast for 2019 was also lowered to 0.7% from 1.0%, while 2020's inflation outlook was lowered to 1.1% from 1.3%. The 2021 inflation forecast was also lowered to 1.5% from 1.6%.

In emerging East Asia, 10-year bond yield trends were mixed.[1] Bond yields rose in most markets while yields declined in a few markets, driven primarily by individual domestic factors (**Table A**). The largest yield declines were seen in Viet Nam, where 10-year yields fell 28 bps between 31 August and 15 October, driven by the unexpected 25 bps cut in the central bank's policy rate on 13 September (**Table B**). The 10-year bond yield dropped in Indonesia by 12 bps, following a 25 bps policy rate cut by Bank Indonesia at its meeting on 18–19 September. Bank Indonesia said the rate cut was a preemptive move to help maintain economic growth in light of external challenges. On 23–24 October, Bank Indonesia reduced its policy rate by another 25 bps. Singapore saw a 5 bps decline in its 10-year rate, despite its yields historically tracking US yields, on the back of monetary easing by the Monetary Authority of Singapore. On 14 October, the Monetary Authority of Singapore reduced the slope of its Singapore dollar nominal effective exchange rate policy band due to minimal inflation and slowing economic growth.

Table A: Changes in Global Financial Conditions

	2-Year Government Bond (bps)	10-Year Government Bond (bps)	5-Year Credit Default Swap Spread (bps)	Equity Index (%)	FX Rate (%)
Major Advanced Economies					
United States	11	27	–	2.4	–
United Kingdom	13	22	(4)	0.1	5.2
Japan	2	10	(0.3)	7.1	(2.4)
Germany	24	28	(0.5)	5.8	0.5
Emerging East Asia					
China, People's Rep. of	(3)	11	(3)	3.6	1.1
Hong Kong, China	3	29	–	3.0	(0.04)
Indonesia	(38)	(12)	(3)	(2.7)	0.2
Korea, Rep. of	9	22	(0.2)	5.1	2.2
Malaysia	0.2	11	(2)	(2.8)	0.3
Philippines	4	31	(3)	(1.7)	0.9
Singapore	(10)	(5)	–	0.3	1.2
Thailand	0.9	7	(2)	(1.7)	0.7
Viet Nam	(19)	(28)	(2)	0.9	(0.02)
Select European Markets					
Greece	(17)	(22)	(65)	(1.1)	0.5
Ireland	14	13	(2)	12.5	0.5
Italy	(6)	(7)	(50)	4.9	0.5
Portugal	10	8	(5)	2.1	0.5
Spain	11	15	(4)	6.2	0.5

( ) = negative, – = not available, bps = basis points, FX = foreign exchange.
Notes:
1. Data reflect changes between 31 August 2019 and 15 October 2019.
2. A positive (negative) value for the FX rate indicates the appreciation (depreciation) of the local currency against the United States dollar.
Sources: Bloomberg LP and Institute of International Finance.

[1] 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.

Table B: Policy Rate Changes

Economies	Policy Rate 1-Jan-2019 (%)	Policy Rate 31-Aug-2019 (%)	Rate Changes		Policy Rate 31-Oct-2019 (%)	Year-to-Date Change in Policy Rates (basis points)
			Sep-2019 (%)	Oct-2019 (%)		
United States	2.50	2.25	↓ 0.25	↓ 0.25	1.75	↓ 75
Euro Area	(0.40)	(0.40)	↓ 0.10		(0.50)	↓ 10
Japan	(0.10)	(0.10)			(0.10)	–
China, People's Rep. of	4.35	4.35			4.35	–
Hong Kong, China	2.75	2.50	↓ 0.25	↓ 0.25	2.00	↓ 75
Indonesia	6.00	5.50	↓ 0.25	↓ 0.25	5.00	↓ 100
Korea, Rep. of	1.75	1.50		↓ 0.25	1.25	↓ 50
Malaysia	3.25	3.00			3.00	↓ 25
Philippines	4.75	4.25	↓ 0.25		4.00	↓ 75
Thailand	1.75	1.50			1.50	↓ 25
Viet Nam	6.25	6.25	↓ 0.25		6.00	↓ 25

( ) = negative, – = no change.
Note: Data as of 31 October 2019.
Source: Various central bank websites.

Bond yield increases in the PRC; Hong Kong, China; and the Republic of Korea were driven by positive economic news. The PRC benefited from improvements in its strained trade relationship with the US. The Republic of Korea and Hong Kong, China, which have tight economic linkages with both giants, also benefited. In addition, in both the Republic of Korea and Hong Kong, China, news of government policy measures to boost the domestic economy contributed to higher yields. The uptick in Hong Kong, China's 10-year bond yield also partly reflected domestic political instability that soured investment sentiment. The Philippines saw the largest rise in its 10-year yield during the review period at 31 bps. Investors in the market expect no further policy rate cuts this year and are selling for profit. In Malaysia, investors are facing uncertainty over whether it will remain in the FTSE World Government Bond Index pending another watchlist review in March 2020. In Thailand, the Bank of Thailand's efforts to limit capital inflows contributed to the rise in bond yields.

Economic Outlook

Global economic growth is projected to decelerate to its slowest pace since the global financial crisis. The deceleration is taking place against a backdrop of softening manufacturing activity and an escalation of trade conflicts and geopolitical tensions. The unprecedented level of trade conflicts is generating uncertainty about the multilateral trading system that laid the foundation for the expansion of global trade and output in the postwar period. In particular, the PRC–US trade tensions show no signs of approaching a fundamental resolution. Global trade is slowing as a result of this and other trade conflicts, as well as due to easing global growth. The heightened external uncertainty is eroding business confidence, which in turn is adversely affecting investment and overall business activity, further dampening growth. The world economy is undergoing a broad-based and synchronized slowdown that is affecting both advanced and emerging economies. All major economies are headed for lower growth.

According to the International Monetary Fund's (IMF) *World Economic Outlook October 2019*, the world economy is projected to expand 3.0% in 2019 and 3.4% in 2020, down from 3.6% growth in 2018. This would mark the slowest 2-year pace of global growth since 2008–2009, when a severe financial crisis that originated in advanced economies almost threw the world economy into a pronounced recession. The IMF downgraded its forecasts for 2019 and 2020 by 0.2 and 0.1 percentage points, respectively, compared with July's forecasts. The downgrades relative to April's forecasts were even bigger: 0.3 percentage points for 2019 and 0.2 percentage points for 2020. The weakening of global growth momentum in 2019 marks a continuation of the sharp slowdown of global economic activity in the last 3 quarters of 2018. The slowdown of global trade is directly impacting global growth as well as harming business sentiment and investment, which is further weakening growth. The projected pickup in 2020 is predicated on stronger economic performances in a number of financially stressed emerging markets and is thus far from certain. Overall, downside risks continue to outweigh upside risks by a sizable margin. There is also a chance that the global slowdown may be sharper than expected.

Advanced economies grew 2.3% in 2018 but growth is projected to slow to 1.7% in both 2019 and 2020. The IMF downgraded its forecast for 2019 by 0.2 percentage points compared with its July forecast. Emerging markets and developing economies are growing at a somewhat more robust pace, but their growth momentum is also slowing notably. Emerging markets grew 4.5% in 2018, but their growth is projected to slow to 3.9% in 2019. The forecast for 2019 marks a downgrade of 0.2 percentage points relative to the IMF's July forecast and 0.5 percentage points relative to its April forecast.

The IMF is projecting emerging markets and developing economies to rebound in 2020 to expand 4.6%, although this assumes a robust recovery of economies under stress. According to the IMF's *World Economic Outlook October 2019*, consumer price inflation in advanced economies will decline from 2.0% in 2018 to 1.5% in 2019 before picking up to 1.8% in 2020. In emerging markets and developing economies, the corresponding figures are 4.8%, 4.7%, and 4.8%.

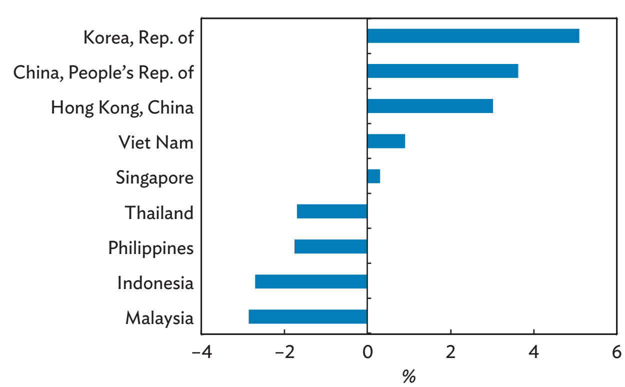
In line with the moderation of global growth momentum, developing Asia's growth is projected to slow.[2] According to the Asian Development Bank's *Asian Development Outlook (ADO) 2019 Update* released in September, the region's growth reached 5.9% in 2018 and is projected to slow to 5.4% in 2019 and 5.5% in 2020. The *ADO 2019 Update* projections for 2019 and 2020 represent downgrades of 0.3 percentage points and 0.1 percentage points, respectively, relative to April's forecasts. Excluding the region's high-income newly industrialized economies, the corresponding figures are higher at 6.4% for 2018, 6.0% for 2019, and 6.0% for 2020. Emerging East Asian economies are still growing at a robust but slowing pace. Partly as a result of ongoing trade tensions with the US, the PRC's growth is forecast to moderate from 6.6% in 2018 to 6.2% in 2019 and 6.0% in 2020. The PRC's growth slowdown also reflects structural forces, especially the natural tendency of economies to slow as they become richer and more mature.

The 2018, 2019, and 2020 actual and projected GDP growth rates for the 10 members of the Association of Southeast Asian Nations are 5.1%, 4.5%, and 4.7%, respectively. The Republic of Korea is projected to grow 2.1% in 2019 and 2.4% in 2020, down from 2.7% in 2018. The 2018, 2019, and 2000 figures for Hong Kong, China, which has been experiencing political instability, are 3.0%, 0.3%, and 1.5%, respectively. Overall, the region is not immune from the global slowdown but nevertheless continues to grow at a significantly faster pace than the rest of the world. As is the case for the world economy, downside risks to the region's growth and financial stability continue to outweigh the upside risks.

Finally, the *ADO 2019 Update* projects the region's (excluding newly industrialized economies) consumer price inflation to rise somewhat from 2.6% in 2018 to 2.9% in 2019 and 2020. There has been a recent uptick in inflationary pressures due to food price pressures associated with the African swine flu, especially in the PRC.

Equity markets showed mixed movements between 31 August and 15 October (**Figure B**). The biggest gainers were the Republic of Korea (5.1%) and the PRC (3.6%), with gains driven by the 11 October trade war truce between the PRC and the US. The equity markets of the Republic of Korea and Hong Kong, China both rose on news of fiscal stimulus plans to support the domestic economy. The declines observed in the equity markets of Indonesia, the Philippines, and Thailand were largely

Figure B: Changes in Equity Indexes in Emerging East Asia



Note: Changes between 31 August 2019 and 15 October 2019.
Source: Bloomberg LP.

[2] Developing Asia comprises the 46 regional developing member economies of the Asian Development Bank. https://www.adb.org/sites/default/files/publication/513146/adosupplement-july-2019.pdf.

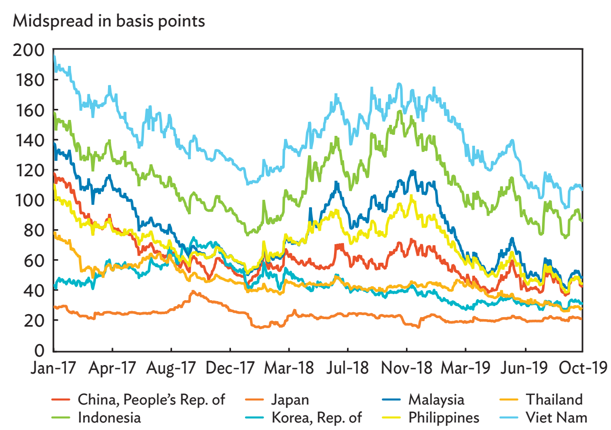
driven by growth concerns. Indonesia experienced a weak trade performance in September and its economic growth forecast was revised downward by the IMF in October. The IMF also downgraded its 2019 growth forecast for the Philippines in October. Malaysia's equity market recorded the largest decline during the review period. Investor sentiment was adversely affected by uncertainty among bond market investors over whether the country would remain in the FTSE World Government Bond Index.

Most emerging East Asian currencies appreciated amid improved investor sentiment as trade tensions between the PRC and the US eased with the announcement of a truce on 11 October (**Figure C**). The largest gainer was the Korean won, which appreciated 2.2%. Trade-sensitive currencies, such as the Korean won and the Singapore dollar, are expected to gain the most if further progress is made in the PRC–US trade conflict.

Credit default swap spreads in emerging East Asia fell during the review period (**Figure D**). One major reason for the decline was the improvement in investor confidence following the announcement on 11 October of the limited trade deal between the PRC and the US, two of the region's largest trade and economic partners. Another important factor was the positive impact on global financial conditions of monetary policy easing in advanced economies. The ECB's interest rate cut and resumption of bond purchases, which came on the heels of the Federal Reserve's rate cuts, have contributed to a more benign global financial environment.

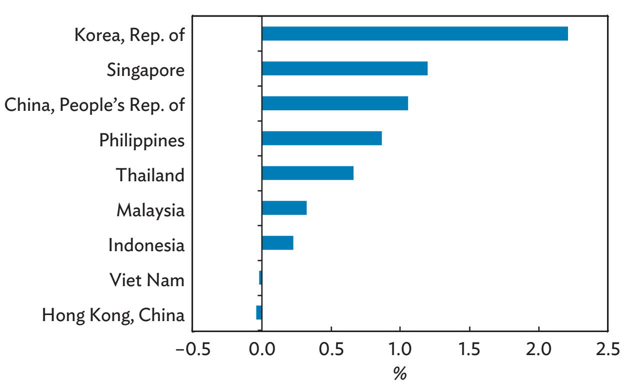
The Chicago Board Options Exchange Volatility Index, a key indicator of market sentiment, showed a large drop during the review period on the back of improved investor optimism in the aftermath of the limited trade deal between the PRC and the US (**Figure E**). The Emerging Markets Bond Index Global spread

Figure D: Credit Default Swap Spreads in Select Asian Markets (senior 5-year)



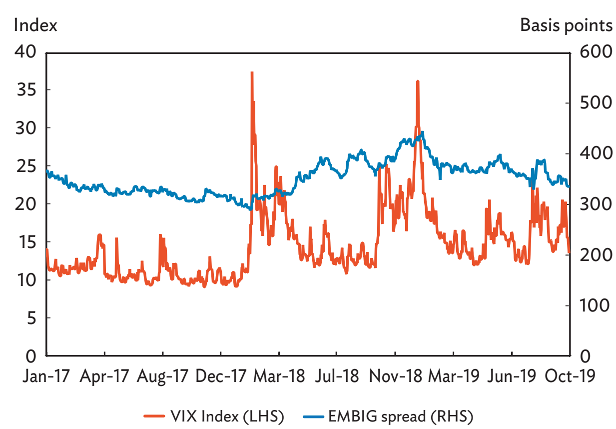
Notes:
1. Based on United States dollar-denominated sovereign bonds.
2. Data as of 15 October 2019.
Source: Bloomberg LP.

Figure C: Changes in Month-End Spot Exchange Rates vs. the United States Dollar



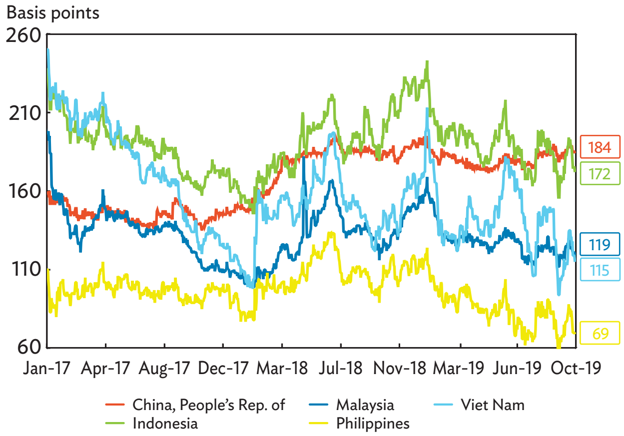
Notes:
1. Changes between 31 August 2019 and 15 October 2019.
2. A positive (negative) value for the foreign exchange rate indicates the appreciation (depreciation) of the local currency against the United States dollar.
Source: Bloomberg LP.

Figure E: United States Equity Volatility and Emerging Market Sovereign Bond Spread



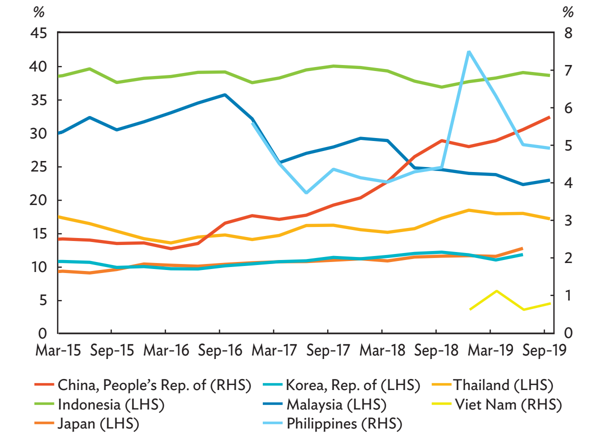
EMBIG = Emerging Markets Bond Index Global, LHS = left-hand side, RHS = right-hand side, VIX = Chicago Board Options Exchange Volatility Index.
Note: Data as of 15 October 2019.
Source: Bloomberg LP.

Figure F: JP Morgan Emerging Markets Bond Index Sovereign Stripped Spreads



Notes:
1. Based on United States dollar-denominated sovereign bonds.
2. Data as of 15 October 2019.
Source: Bloomberg LP.

Figure G: Foreign Holdings of Local Currency Government Bonds in Select Asian Economies (% of total)



LHS = left-hand side, RHS = right-hand side.
Note: Data as of end-September 2019 except for Japan and the Republic of Korea (end-June 2019).
Source: *AsianBondsOnline*.

likewise showed a decline, albeit a much smaller one (**Figure F**). Although the trade war truce agreed upon by the PRC and the US on 11 October falls far short of a comprehensive long-term settlement, it seems to have buoyed market sentiment in the region. Given the region's extensive trade, investment, and other economic links with the two economic giants, the positive reaction of emerging East Asian financial markets is not surprising.

Foreign holdings of LCY government bonds in emerging East Asia were mostly stable between 31 August and 15 October (**Figure G**). Foreign ownership in Thailand's LCY government bond market declined the most, shedding 0.8 percentage points to 17.2% at the end of the review period amid growth concerns and the Bank of Thailand's efforts to limit capital inflows. Indonesia's foreign holdings share also declined 0.4 percentage points during the review period to 38.6% on the back of a weakening domestic economy. In contrast, the PRC saw its share of foreign holdings rise by 0.3 percentage points, partly due to the removal of quotas on foreign investment in the LCY bond market. The addition of PRC government bonds to some global bond indices also provided a fillip. Foreign holdings in Malaysia recovered after the announcement that its government bonds would remain in the FTSE World Government Bond Index. However, uncertainty persists since Malaysia was kept on the watchlist pending a review scheduled for March 2020.

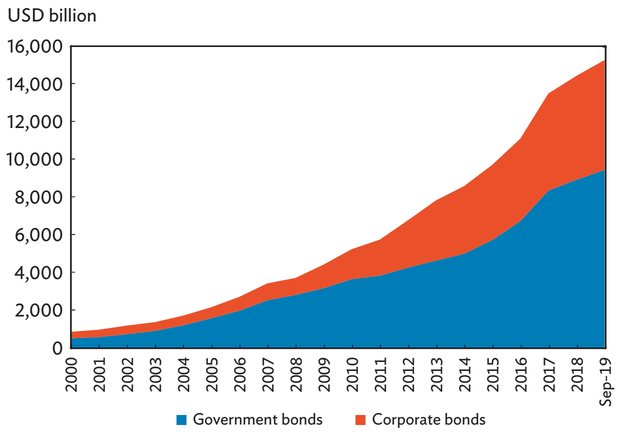
Both foreign and domestic investors in the region's bond markets will need to prepare for a potential shift away from the London Interbank Offered Rate to other alternatives due to a major scandal and consequent loss of market confidence in the benchmark (**Box 1**).

At the end of September, emerging East Asia's LCY bond market reached a size of USD15.2 trillion on issuance of USD1.5 trillion in the third quarter of 2019 (**Figures H** and **I**). Overall growth in the region's bond market, however, moderated to 3.1% quarter-on-quarter and 13.0% y-o-y in the third quarter of 2019. The region's LCY bond market faces a number of downside risks, which are elaborated below.

Risks to Emerging East Asian Bond Markets

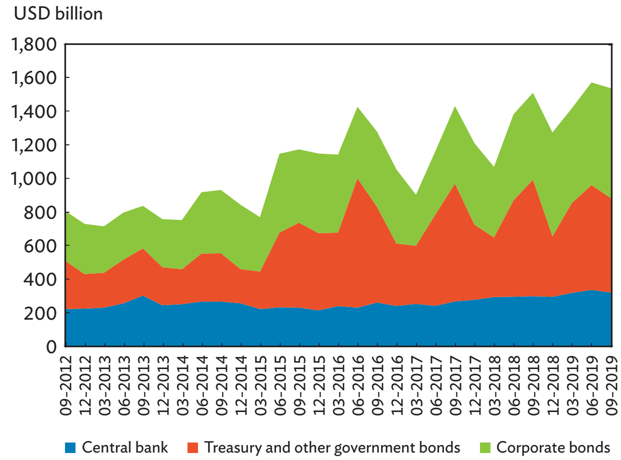
The downside risks to the region's economic growth and financial stability continue to grow and dominate the upside risks. Although the IMF has repeatedly downgraded its forecasts for global growth and the Asian Development Bank has done the same for developing Asia's 2019 growth forecast, there is a nonnegligible chance that growth may be even lower than the downgraded forecasts. The upside risks are few and far between, mainly revolving around unlikely surprises. For example, in the improbable event that

Figure H: Size of Local Currency Bond Market in Emerging East Asia



USD = United States dollar.
Source: *AsianBondsOnline*.

Figure I: Local Currency Bond Issuance in Emerging East Asia (gross)



USD = United States dollar.
Source: *AsianBondsOnline*.

Box 1: So Long, LIBOR!

Two years have passed since Andrew Bailey, Chief Executive of the United Kingdom's (UK) Financial Conduct Authority, famously announced that London Interbank Offered Rate (LIBOR) benchmarks would be phased out after 2021, calling for a market-led transition to alternative risk-free rates (RFRs). With an estimated USD370 trillion in exposure to interbank offered rates (IBORs) across cash and derivative markets, and less than 3 years until the deadline, market participants face a daunting task.

Despite a slow start, the last 12 months have seen encouraging progress. All major markets have identified their replacement rates (**Table B1**). Regulators and public–private working groups have been raising market awareness by issuing guidance notes and conducting numerous market consultations.

Now, all eyes are fixed on the markets for the United States (US) dollar and the pound sterling, which are the most likely to be the first to go through a complete transition. Both markets have seen growing activity in their respective alternative RFRs: the Sterling Overnight Index Average (SONIA) in the UK; and the Secured Overnight Financing Rate (SOFR) in the US, which was only introduced by the Federal Reserve in April 2018.

Table B1: Replacement Rates Proposed in Major Markets

Jurisdiction	Legacy Benchmark	Alternative Reference Rate
United States	USD LIBOR	SOFR
United Kingdom	GBP LIBOR	SONIA
Euro Area	EURIBOR, EUR LIBOR, and EONIA	€STR
Japan	JPY LIBOR, TIBOR, and Euroyen TIBOR	TONA
Switzerland	CHF LIBOR	SARON
Australia	BBSW	RBA cash rate
Canada	CDOR	CORRA
Hong Kong, China	HIBOR	HONIA
Singapore	SOR, SIBOR	SORA

€STR = Euro Short-Term Rate, BBSW = Bank Bill Swap Rate, CDOR = Canadian Dollar Offered Rate, CHF = Swiss franc, CORRA = Canadian Overnight Repo Rate Average, EONIA = Euro Overnight Index Average, EUR = euro, EURIBOR = Euro Interbank Offered Rate, GBP = pound sterling, HIBOR = Hong Kong Interbank Offered Rate, HONIA = Hong Kong Dollar Overnight Index Average, JPY = Japanese yen, LIBOR = London Interbank Offered Rate, RBA = Reserve Bank of Australia, SARON = Swiss Average Overnight Rate, SIBOR = Singapore Interbank Offered Rate, SOFR = Secured Overnight Financing Rate, SONIA = Sterling Overnight Interbank Average Rate, SOR = Swap Offer Rate, SORA = Singapore Overnight Rate Average, TIBOR = Tokyo Interbank Offered Rate, TONA = Tokyo Overnight Average Rate, USD = United States dollar.
Source: Author's compilation.

Market infrastructures have developed trading and clearing services for new RFR futures and swap instruments. Debt issuances have gradually picked up too. However, whether liquidity in cash and derivative markets is developing fast enough to secure a smooth transition is being hotly debated.

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Box 1: So Long, LIBOR! *continued*

On the SOFR side, futures volumes are growing but there is still no sign of liquidity in the swap market. Through the end of September 2019, only USD222 billion had been traded in SOFR swaps, while the volume of LIBOR swaps reached USD100,366 billion. Furthermore, SOFR derivatives trading is concentrated in short-term maturities (through futures and short-dated, single-period swaps).

On the cash side, there have been a number of high-profile SOFR debt issuances (USD279 billion through the end of September 2019), but corporate end-users are still reluctant to give up LIBOR rates and embrace the new RFRs. A key reason is that alternative rates like SOFR and SONIA are overnight indices that require fixing in arrears, through compounding or averaging over an observation period. They do not offer forward-looking term rates, which allows fixing the rate in advance as classical LIBOR products do. The development of forward-looking SOFR term rates could alleviate this issue; the US Alternative Reference Rates Committee is working on this idea, which is tentatively scheduled to be introduced by the end of 2021. However, the committee is cautioning market participants against delaying adoption of SOFR until term rates are available, which is necessarily predicated upon a healthy derivatives market.

SOFR liquidity has improved in some market segments, yet not to such a degree that institutions can comfortably transition away from LIBOR across all business lines. Optimists will point out that SOFR is a new market instrument, significant progress has been made, and there is still some time left before the transition. But skeptics are aplenty too, which is why the case of SONIA is of particular interest.

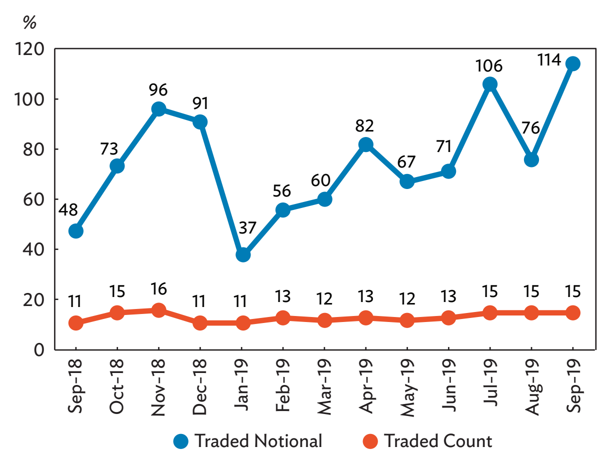
Contrary to SOFR, the 20-year old SONIA Index already had an active swap market before being selected as the alternative reference rate for LIBOR. This greatly facilitates its speedy adoption as a replacement. As the Bank of England (BOE) reports, SONIA is used to value GBP30 trillion of assets each year. SONIA-linked products have now been established in all key segments across cash and derivative markets, thus providing the necessary building blocks for a transition away from LIBOR.

Over GBP18 billion of SONIA floating-rate notes maturing beyond 2021 were issued in 2019 and, most importantly, the issuance of LIBOR-linked, floating-rate notes maturing beyond 2021 has now all but stopped. Liquidity has also slowly increased in SONIA futures, and swap volumes have been catching up to GBP LIBOR swap volumes in notional terms (**Figure B1**).

But there is a catch. The number of SONIA trades still desperately trails that of LIBOR, with no obvious sign of improvement so far. According to the International Swap Dealers Association (ISDA) SwapsInfo data, GBP LIBOR sees, on average, 1,700 swaps trades per week, whereas SONIA hovers around 225 trades per week. Tellingly, the average notional of a SONIA swap is over five times that of the LIBOR equivalent, as SONIA adoption has been sluggish amid derivative end-users.

Despite real progress in establishing SONIA products across markets, LIBOR remains the de facto standard for GBP-denominated loans, and the stock of LIBOR-linked transactions maturing beyond 2021 keeps growing, compounding the challenges of a market transition. The BOE highlighted in its July *Financial Stability Report* that the outstanding gross notional volume of GBP LIBOR swaps maturing after 2021 is still steadily increasing.[a] The problem

Figure B1: SONIA vs. GBP LIBOR Swap Volumes



GBP = pound sterling, LIBOR = London Interbank Offered Rate, SONIA = Sterling Overnight Index Average.
Source: Author's illustration using data from International Swap Dealers Association (ISDA). Weekly ISDA SwapsInfo analysis for the week ending on 27 September 2019.

[a] BOE. 2019. *BOE Financial Stability Report—July*. London.

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Box 1: So Long, LIBOR! *continued*

is even more acute with noncleared positions and more worrying when considering the number of legacy contracts (instead of notional amounts) that will need to be replaced. So, one would be excused for wondering if an orderly transition is still achievable within the remaining 26 months.

A glimmer of hope comes from two upcoming market events that could genuinely catalyze the necessary expansion of RFR derivative markets. The first is the publication by ISDA of fallback provisions for LIBOR-referencing derivatives. The second is central counterparty (CCP) clearinghouses switching to RFR indices for price alignment interest and collateral discounting.

Fallback language refers to provisions describing how a contract should be managed upon the discontinuation of an underlying benchmark. It comprises three key elements: (i) the definition of the fallback trigger event, (ii) the benchmark replacement index, and (iii) the calculation of a contract-level adjustment spread (since a "credit-risky" term rate like LIBOR 6M would be replaced by a "risk-free" overnight index like SOFR).

The derivative fallbacks that ISDA has been consulting on and plans to publish by the end of 2019 will set how the conversion would take place in the worst-case scenario in which one party would have failed to replace outstanding LIBOR contracts with all its counterparties ahead of the benchmark cessation. The 2006 ISDA Master Agreement definitions will be amended so all new IBOR-referencing contracts include appropriate provisions. ISDA will also publish a multilateral amendment protocol so legacy IBOR transactions can incorporate the fallbacks. Adherence to the protocol will be voluntary though, and there is a chance that some institutions might opt out. One reason is that fallback clauses in cash products may not align with those of their derivatives hedges, creating potential timing and valuation basis risks. Moreover, the calculation mechanism proposed for derivatives ("compounded setting in arrears rate" RFR with "historical mean or median" spread adjustment) is likely to give rise to material value transfers. Thus, some participants may prefer to negotiate alternative arrangements for their legacy books instead of adopting the protocol.

Once the fallbacks have been confirmed, IBOR contracts will have a high probability of referencing the chosen RFR at a future date. Market participants may then start to manage this contingent exposure through RFR derivative hedges. The fallback mechanisms will also offer a much-needed reference point as institutions start negotiating an early conversion of their LIBOR-linked derivatives to RFR-based equivalents. This should help develop liquidity in SOFR and SONIA derivatives, especially over longer tenors.

The second compelling event for RFR adoption is the move by CCPs to switch the US dollar rate for price alignment interest and collateral discounting from the federal funds rate to SOFR. The Chicago Mercantile Exchange is proposing 17 July 2020; LCH is reportedly looking at 17 October 2020. A coordinated "big-bang" approach in which all CCPs switch in a coordinated fashion is still possible. This was the option initially touted by the US Alternative Reference Rates Committee. The impact will be significant, as firms hedging the resulting discounting basis risk will drive liquidity across the SOFR curve, paving the way for term rates.

CCPs are also devising a two-part compensation mechanism. The first element would be a cash payment offsetting the profit-and-loss jump caused by the discounting switch. The second (possibly optional) element would be a risk compensation scheme using RFR-LIBOR basis swaps to neutralize the discounting DV01 basis. In parallel, many institutions already plan to repaper their existing collateral agreements to realign the collateral rate used for noncleared positions with the new clearing standard. This would align valuation standards and eliminate basis risk between noncleared client positions and their cleared hedges. Typically, the firms renegotiating a collateral agreement would then need to estimate a fair compensation fee as well.

The transition away from IBOR rates will ultimately be executed on a firm-by-firm basis. As the deadline looms, operational and technical readiness turns into a competitive advantage. Building the capacity to trade new RFR-linked instruments—with all valuation, risk management, and operations support functions—becomes a strategic priority, as early adopters can exit from problematic positions early and cost-effectively, putting themselves in a better position to negotiate bilateral transition arrangements when the need arises.

global trade tensions suddenly ease and the threat to the postwar multilateral global trading regime recedes markedly, both the real economy and financial markets would enjoy an unexpected boost. Another unexpected fillip would be that the advanced economies and the PRC grow faster than expected, which is an unlikely scenario in light of both cyclical and structural factors, as well as against the background of an increasingly unfavorable external environment. While there is no cause for undue pessimism and there are no compelling reasons to expect a sharp and abrupt global slowdown, there is also little cause for optimism that the world economy can quickly shake off its doldrums and shift to a higher gear. In short, most indicators suggest that we are in the early stages of a downturn in the global business cycle.

The biggest and darkest cloud that hovers over the world economy and global financial markets is global trade conflict, especially persistent trade tensions between the PRC and the US, the world's two largest economies. On 11 October, the PRC and the US reached a limited trade deal that promised to provide some relief to the struggling world economy and calm nerves in global financial markets that have been unsettled by rising tensions between the two countries. The US agreed to put on hold an increase in tariffs from 25% to 30% on USD250 billion worth of imports from the PRC, which had been scheduled to come into effect on 15 October. However, the US did not roll back any of the tariffs that it had already imposed on Chinese imports since it initiated the trade conflict in early 2018. The PRC, for its part, agreed to increase its purchase of agricultural products from the US, especially pork and soybeans, to between USD40 billion and USD50 billion per year. The PRC's concessions were basically a repackaging of existing concessions and relatively minor. Notwithstanding the optimism it generated, the limited trade deal is a temporary truce at best and falls far short of a comprehensive long-term settlement. In light of fundamental differences that separate the two heavyweights—US unhappiness with what it perceives to be the PRC's unfair government support for businesses, and the PRC's resentment at what it perceives to be the blatant and one-sided infringement by the US of Chinese sovereignty—the more likely outcome is a conflict that will persist over time rather than resolve itself in the short term.

The persistence and potential intensification of the PRC–US trade conflict poses a major risk to emerging East Asia. Given the tight economic linkages that emerging East Asian economies have with both the PRC and the US, the elevated level of trade and other economic tensions between the two giants is expected to have negative consequences for the region. Notwithstanding such common sense intuition, the resulting economic impacts on the PRC's neighbors are not so straightforward. There are three different channels through which the US–PRC trade conflict can affect the PRC and other economies in emerging East Asia. The first is the direct channel (i.e., the impact of US tariffs on the PRC's exports to the US). The second channel pertains to indirect impacts via production linkages. The PRC imports many parts and components from other emerging East Asian economies and assembles them into final products for export to the US. Therefore, Korean, Malaysian, and Thai exporters of laptop parts and components to the PRC, for example, will be hit by US tariffs against the PRC's laptop exports. Finally, some producers in the PRC's neighboring markets may benefit from the US tariffs via the redirection of US imports away from the PRC and toward other developing Asian economies. For example, Cambodian producers of garments and textiles may benefit from US tariffs that make Chinese garments and textiles relatively more expensive. Recent empirical analysis suggests that such redirection effects could be substantial (**Box 2**). During the first half of 2019, US imports from the PRC fell 12.4% y-o-y, while US imports from the rest of developing Asia rose 9.7% y-o-y. Furthermore, the analysis finds that the effect of the conflict on the GDP growth of Asian economies other than the PRC is negative if trade redirection effects are excluded and positive if those effects are incorporated. However, the positive effect is generally small.

The negative effect of the trade conflict on emerging East Asian economies is likely to be substantially larger if the negative effect on the PRC is factored in. Even if the direct effect of the conflict on the region is relatively small, it may pose a far bigger risk to the region because the conflict can significantly increase the likelihood of a sharper-than-expected slowdown in the PRC. While the two main protagonists, the US and the PRC, stand to lose the most from the conflict, the PRC is bound to suffer more. According to the *ADO 2019 Update*, the US trade measures that have already been implemented will reduce the PRC's GDP by 0.65%–0.68% relative to what it would have been in the absence of any trade conflict. The corresponding negative impact for the US economy is noticeably smaller at 0.13%–0.17% of GDP. Since the PRC depends more on US demand for its products than

Box 2: Update on the People's Republic of China–United States Trade Conflict

The People's Republic of China (PRC) and the United States (US) agreed to a truce in their ongoing trade conflict on 11 October. Under the limited trade deal, the US will hold off on tariff increases scheduled for the middle of October in exchange for limited concessions from the PRC, mainly in the form of a commitment to purchase more US agricultural products. Although the agreement may offer some relief to the slowing world economy and help calm jittery financial markets, it falls far short of a comprehensive and permanent settlement of the trade conflict. As such, it is premature to presume the normalization of the fraught economic relationship between the world's two largest economies, who remain divided by fundamental differences.

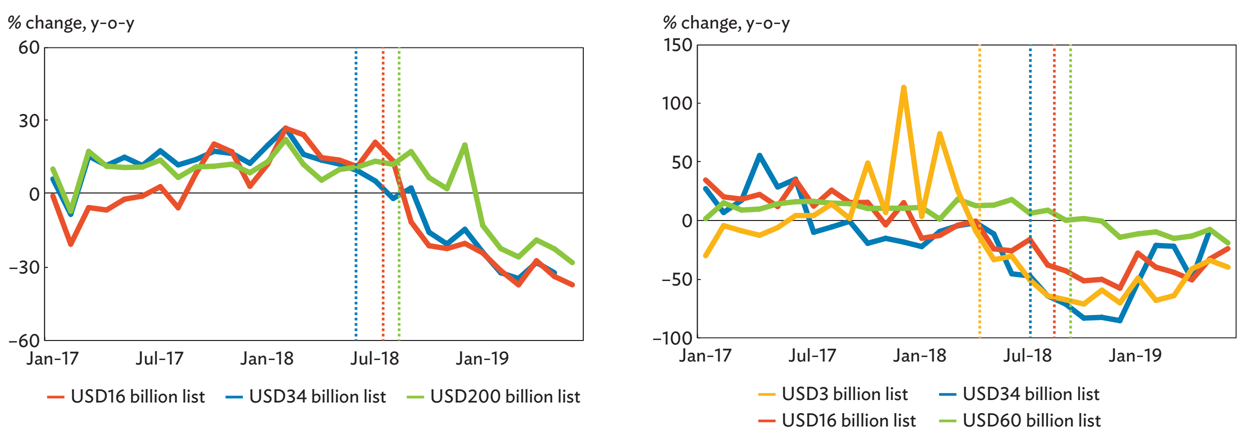
The PRC–US trade conflict continues to pose the biggest single threat to emerging East Asia's economic growth. It also poses a significant threat to the region's financial stability. Declines in business and consumer confidence over concerns about global trade can adversely affect regional financial markets, which in turn can further dent economic activity. In this context, the *Asia Bond Monitor September 2018* issue analyzed the impact of the PRC–US trade conflict on the region's financial markets. The analysis confirmed the presence of a significant link between financial markets—specifically, stock market returns—and new developments in the trade conflict.

Since September 2018, there have been a number of new developments in the trade conflict, including the limited deal announced on 11 October. Prior to this, a temporary truce had been agreed upon in December 2018 to allow for bilateral negotiations, raising hopes for a long-term settlement. Those hopes were dashed in May 2019 when the talks fell through and both sides imposed new tariffs on a number of goods and raised rates on existing tariffs. August 2019 saw the announcement of the latest round of US tariffs, which were to be implemented stepwise in September, October, and December. However, the ceasefire announced on 11 October halted the planned October tariff hikes.

As discussed in the *Asian Development Outlook (ADO) 2019 Update,* data from the first 6 months of 2019 already show the significant impact of tariffs on bilateral PRC–US trade. The PRC's exports that are subject to US tariffs were down 30%–40% year-on-year (y-o-y) in June 2019, while US exports that are subject to PRC tariffs fell by a similar magnitude (**Figure B2.1**). The conflict is also affecting the PRC's tight trade linkages with East and Southeast Asian economies, which collectively form a regional production network that is often referred to as "Factory Asia." Due to weaker demand from the US, firms in the PRC are now buying less from their suppliers in Japan and other economies in the region.

Figure B2.1: Growth in Imports of Tariff-Affected Goods (y-o-y, %)

A. United States' Imports from the People's Republic of China — **B. People's Republic of China's Imports from the United States**



y-o-y = year-on-year.
Notes: Broken lines indicate the date when tariffs went into effect. Left panel: 6 July 2018, 25% on initial USD34 billion list; 23 August 2018, 25% on USD16 billion list; and 24 September 2018, 10% on USD200 billion list, rising to 25% on 10 May 2019. Right panel: 2 April 2018, 15%–25% on USD3.3 billion list; 6 July 2018, 25% on initial USD34 billion list; 23 August 2018, 25% on USD16 billion list; and 24 September 2018, 10%–25% on USD60 billion list, rising to as much as 25% on 10 May 2019.
Source: Asian Development Bank estimates using data from the United States Census Bureau. https://usatrade.census.gov (accessed 16 September 2019).

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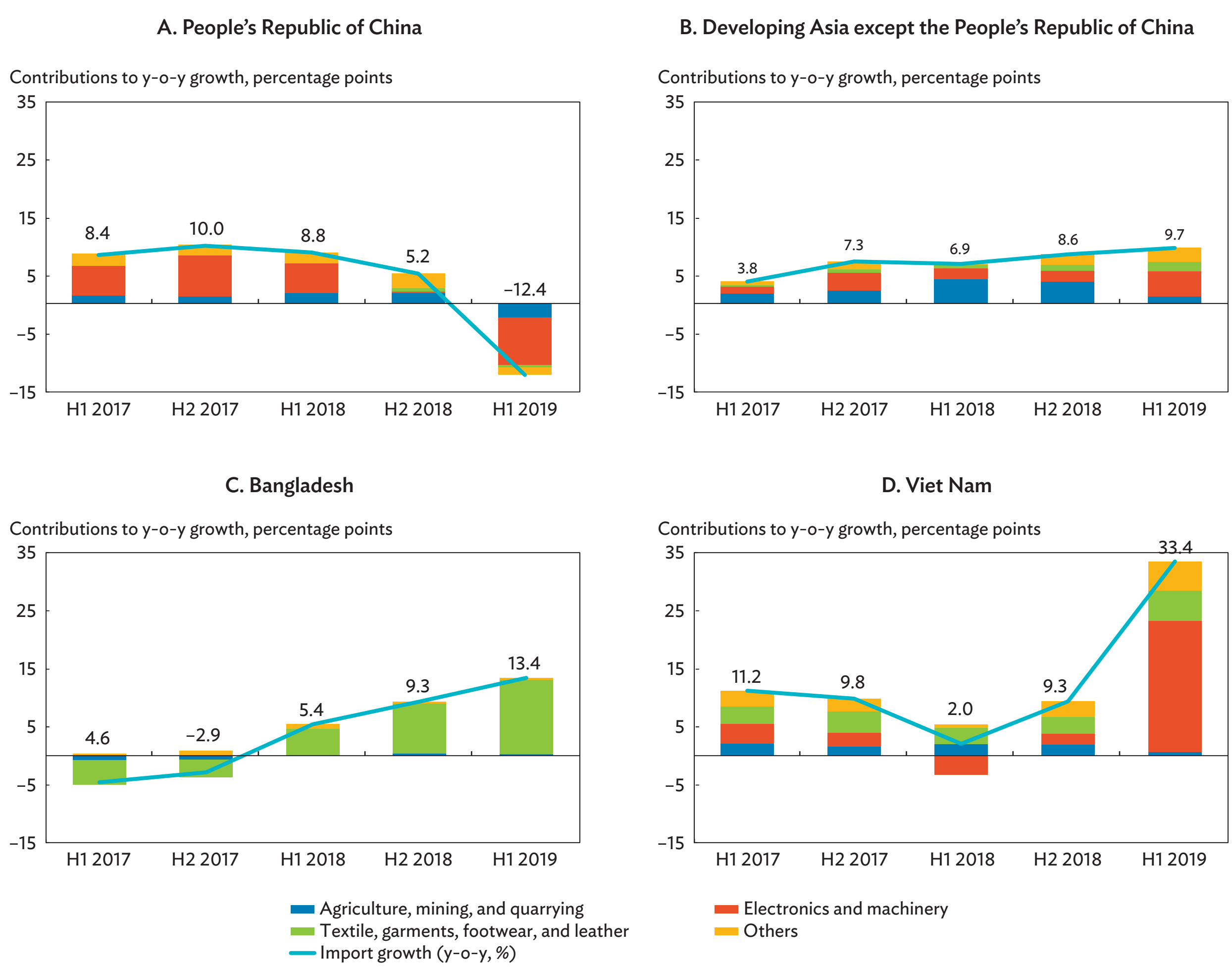
Box 2: Update on the United States–People's Republic of China Trade Conflict *continued*

In addition to affecting the intra-regional trade driven by Factory Asia, the PRC–US trade conflict also seems to be shifting US imports from the PRC to other Asian economies. According to trade data, US imports from the PRC fell about 12% y-o-y in the first half of 2019, while US imports from the rest of developing Asia rose about 10% y-o-y during the same period. Viet Nam; Taipei,China; and Bangladesh enjoyed the most pronounced expansion in their exports to the US, with y-o-y increases of about 33%, 20%, and 13%, respectively (**Figure B2.2**). The primary drivers of increased exports were garments for Bangladesh, and electronics and machinery for Viet Nam and Taipei,China.

Such significant trade developments are bound to have a substantial impact on economic activity. Updated estimates of the effects of the PRC–US trade conflict in the *ADO 2019 Update* confirm this conjecture. The PRC will suffer sizable losses under the current scenario, which includes all tariffs that have been implemented through 30 September, while some economies in the region may see gains due to trade redirection. Estimates show that under the current scenario the trade conflict will reduce the PRC's gross domestic product (GDP) by 0.65% over the medium term relative to a baseline scenario of no conflict. The corresponding figure for the US is much smaller at 0.13% of GDP. The rest of

Figure B2.2: United States Imports from Selected Economies in Developing Asia



H1 = first half, H2 = second half, y-o-y = year-on-year.
Source: Asian Development Bank estimates using data from the United States Census Bureau. https://usatrade.census.gov (accessed 16 September 2019).

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Box 2: Update on the United States–People's Republic of China Trade Conflict *continued*

developing Asia will experience a small GDP gain of 0.11%, primarily due to the redirection of US imports from the PRC. These estimates exclude any negative effects caused by uncertainty, loss of confidence, or risk aversion, which are much harder to quantify. But as noted in the *ADO 2019 Update*, there has already been a decline in investment growth in a large number of economies in developing Asia.

Ultimately, the impact of the PRC–US trade conflict on the region's economies and financial markets will be determined by the dispute's future evolution, which is inherently unpredictable and unknowable. Although the limited trade deal of 11 October gives some cause for optimism, it falls far short of a comprehensive settlement and it is not clear whether it heralds the eventual normalization of the PRC–US trade relationship. What is more certain is that if the conflict persists into 2020 and beyond, which is the more likely scenario given the fundamental differences that separate the two economic heavyweights, the real economic and financial impacts will be substantial.

vice versa, and the tariffs imposed by the US on the PRC are relatively larger, the expectation of greater damage to the PRC's economy is not surprising.

The sizable negative effects on the PRC matter for other emerging East Asian economies because they are closely integrated with the PRC's economy. Above all, these economies depend on the huge Chinese market for exports and growth. As such, any negative effects on the PRC is likely to have tangible spillovers for the rest of the region. Although the trade conflict is by no means the only cause of the PRC's moderating growth in recent years, it is a significant contributor. The toll that the conflict is taking on the PRC's growth is evident in the latest economic data. According to the *ADO 2019 Update*, the PRC's GDP expanded 6.0% y-o-y in the third quarter of 2019, the slowest pace in 27 years. Weakening investment, along with sluggish exports, were the major drivers of the slowdown. In addition to negative spillovers from the PRC's growth slowdown, the simmering conflict is denting business confidence and investment throughout the region, further contributing to slower growth. Declining investment is evident in all subregions and most major economies of developing Asia. Although there are domestic factors behind the investment decline in some economies, a less rosy external environment is clearly a contributing factor.

Although the persistent PRC–US trade conflict remains the primary threat to emerging East Asia's economic growth and financial stability, a number of other downside risks loom on the horizon. According to empirical analysis in the *ADO 2019 Update*, the rapid growth of private debt in the region can adversely affect financial stability. Public and private debt have continued to grow in developing Asia. Since the global financial crisis of 2008–2009, markets in the region have continued to accumulate public debt, partly reflecting countercyclical fiscal stimulus measures taken in response to the crisis, and more recently investment pushes by a few regional economies. The ratio of private debt to GDP has expanded even more rapidly in some economies. The PRC, for example, witnessed rapid growth of corporate debt, while the Republic of Korea, Malaysia, and Thailand have seen their household debt grow quickly. For the region as a whole, the ratio of total debt relative to GDP expanded by about two-thirds during the past decade.

High and mounting public debt raises investor concerns about fiscal sustainability and a government's liquidity and solvency. Rapid private debt accumulation can jeopardize the ability of companies and households to service their debt. The 1997/98 Asian financial crisis underlined the damage caused by the unsustainable buildup of private debt. High levels of debt render the economy more vulnerable to shocks. Private debt is significantly linked to financial vulnerability. The analysis in the *ADO 2019 Update* revisits the debt–financial vulnerability nexus using an index of currency stress as a proxy for financial vulnerability.

The analysis finds that if the private-debt-to-GDP ratio rises from the first quartile of 39% to the third quartile of 161%, the exchange rate loss compared to its 12-month peak (i.e., maximum currency loss) increases by 13.5 percentage points. The adverse effect of private debt buildup on currency depreciation is more pronounced in emerging markets. Moving from the first quartile to the third quartile of the private-debt-to-GDP ratio results in a 7.6 percentage points greater exchange rate loss in emerging economies relative to advanced economies. The analysis also reveals a significant association between public debt and financial vulnerability during periods of financial stress. Furthermore, public debt and private debt are interrelated; a private debt boom–bust may require government bailouts of troubled financial institutions.

As mentioned, other downside risks also loom on the horizon. The risk of a disorderly Brexit continues to hover over the economies and financial markets of the United Kingdom and the European Union. In light of the limited trade and other economic linkages between the United Kingdom and Asia, the fallout from a disorderly Brexit on Asia is likely to be limited. However, in the unlikely scenario that the disruption from Brexit becomes severe enough to destabilize European (and even global) financial markets, emerging East Asia would not be immune from the resulting instability.

A somewhat more likely potential source of volatility in emerging East Asian markets is financial instability in vulnerable emerging markets outside the region. Against a backdrop of slowing global growth and heightened uncertainty associated with rising trade and geopolitical tensions, financial stress in a major emerging market with weak fundamentals and political instability—for example, Argentina or Turkey, both of which remain financially fragile—could trigger a generalized risk aversion toward emerging markets. In other words, the fragile state of global financial conditions could amplify the spillovers and contagion effects from external shocks such as an emerging market financial crisis. Finally, on the trade front, the current downturn in the global electronics cycle may turn out to be more pronounced than expected. The electronics industry, which produces semiconductors and other products that depend heavily on them, plays a major role in many economies in emerging East Asia.

The one silver lining amid the gathering dark clouds that threaten the global financial and economic landscape is the easing of monetary policies in advanced economies. The Federal Reserve cut the federal funds rate, its key benchmark rate, by 25 bps each in July, September, and October. The Federal Reserve indicated that the rate cut was designed to support economic growth amid elevated uncertainty about future growth. In September, the ECB announced its biggest package of rate cuts and economic stimulus in 3 years. Specifically, the central bank cut interest rates further below zero and revived bond purchases in a bid to revive growth and lift worryingly-low inflationary expectations. Easier monetary conditions in advanced economies have allowed many emerging East Asian economies—such as the PRC, Indonesia, the Republic of Korea, Malaysia, the Philippines, Thailand, and Viet Nam—to follow suit since May 2019. The shift toward more accommodative monetary policies around the world has helped to mitigate the deterioration of financial market sentiment due to the global growth slowdown and uncertainty. The sustained easing of monetary conditions in advanced economies may have also stemmed capital outflows from emerging markets.

Overall, the downside risks to emerging East Asia's growth prospects and financial stability continue to significantly outweigh the upside risks. The easing of global financial conditions due to more accommodative monetary policies in both advanced and emerging economies provides some relief from the gloomy global outlook, but it will be limited relief at best. Emerging East Asia's strong fundamentals should keep it in good stead amid the current global financial and economic landscape of slowing growth and elevated uncertainty, exacerbated by simmering global tensions that may further intensify. However, the region should prepare itself for a downturn in the global business cycle and a number of sizable downside risks. Although there is no cause for undue pessimism, the region's policy makers would do well to support growth and maintain their guard against potential vulnerabilities.

Bond Market Developments in the Third Quarter of 2019

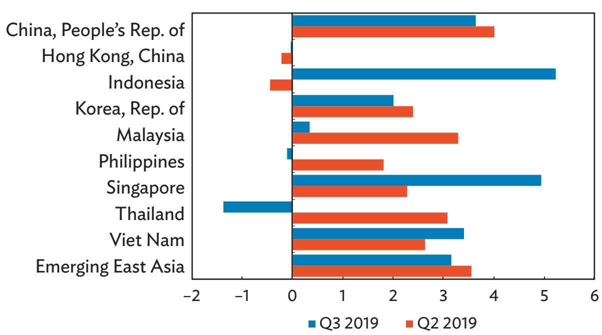
Size and Composition

Local currency bonds outstanding in emerging East Asia reached USD15.2 trillion at the end of September amid growth moderation in most of the region's bond markets in the third quarter of 2019.

The size of emerging East Asia's local currency (LCY) bond market reached USD15.2 trillion at the end of September.[3] Growth moderated to 3.1% quarter-on-quarter (q-o-q) in the third quarter (Q3) of 2019, down from the 3.5% q-o-q expansion posted in the second quarter (Q2) (**Figure 1a**). The size of the region's overall bond market was capped by slower q-o-q expansions in the bond markets of the People's Republic of China (PRC) and the Republic of Korea, the two largest bond markets in emerging East Asia. Other bond markets that posted a slowdown in q-o-q growth were Malaysia, the Philippines, and Thailand. In contrast, faster q-o-q expansions were noted in the bond markets of Indonesia, Singapore, and Viet Nam. While growth in the bond market of Hong Kong, China remained negative, the pace of contraction slowed from Q2 2019 to Q3 2019.

Similarly, the regional bond market's year-on-year (y-o-y) growth for Q3 2019 softened to 13.0% from 14.1% in Q2 2019 (**Figure 1b**). While all of the region's bond markets posted positive y-o-y growth in Q3 2019, six out of nine markets recorded a slowdown compared with

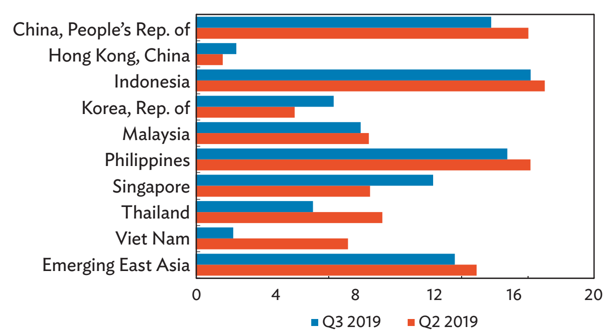
Figure 1a: Growth of Local Currency Bond Markets in the Second and Third Quarters of 2019 (q-o-q, %)



q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter.
Notes:
1. Calculated using data from national sources.
2. Growth rates are calculated from local currency base and do not include currency effects.
3. Emerging East Asia growth figures are based on 30 September 2019 currency exchange rates and do not include currency effects.
4. For Hong Kong, China, Q3 2019 corporate bonds outstanding are based on *AsianBondsOnline* estimates. For the Republic of Korea, government bonds outstanding is as of August 2019. For Singapore, corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Thailand, Q3 2019 bonds outstanding are based on *AsianBondsOnline* estimates.

Sources: People's Republic of China (*CEIC*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; and Indonesia Stock Exchange); Republic of Korea (*EDAILY BondWeb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury and Bloomberg LP); Singapore (Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg LP); Thailand (Bank of Thailand); and Viet Nam (Bloomberg LP and Vietnam Bond Market Association).

Figure 1b: Growth of Local Currency Bond Markets in the Second and Third Quarters of 2019 (y-o-y, %)



Q2 = second quarter, Q3 = third quarter, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Growth rates are calculated from local currency base and do not include currency effects.
3. Emerging East Asia growth figures are based on 30 September 2019 currency exchange rates and do not include currency effects.
4. For Hong Kong, China, Q3 2019 corporate bonds outstanding are based on *AsianBondsOnline* estimates. For the Republic of Korea, government bonds outstanding is as of August 2019. For Singapore, corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Thailand, Q3 2019 bonds outstanding are based on *AsianBondsOnline* estimates.

Sources: People's Republic of China (*CEIC*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; and Indonesia Stock Exchange); Republic of Korea (*EDAILY BondWeb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury and Bloomberg LP); Singapore (Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg LP); Thailand (Bank of Thailand); and Viet Nam (Bloomberg LP and Vietnam Bond Market Association).

[3] 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.

the previous quarter. In particular, y-o-y growth rates moderated in the bond markets of the PRC, Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam in Q3 2019 versus Q2 2019. On the other hand, faster annual growth was seen in the bond markets of Hong Kong, China; the Republic of Korea; and Singapore.

Among all emerging East Asian economies, the PRC remained home to the largest LCY bond market at a size of USD11.5 trillion at the end of September. It accounted for a 75.4% share of the region's aggregate bond stock at the end of the review period, with its share inching up from 75.0% at the end of June. The PRC's bond market growth moderated to 3.6% q-o-q in Q3 2019 from 4.0% q-o-q in Q2 2019, pulled down by the slower expansion in the government bond market.

Growth in the PRC's government bond segment eased on a q-o-q basis to 3.5% from 4.2% in Q2 2019, tempered by a slowdown in issuance. In nominal terms, however, the volume of government bond issuance was still hefty, leading to the expansion of the government bond stock during the review period. Local government bonds continued to drive growth as the government pushed for a September deadline for local governments to utilize their bond quotas as part of measures to spur economic growth and boost infrastructure spending. At the end of September, these quotas had been mostly fulfilled.

In the same period, the stock of corporate bonds grew 3.9% q-o-q, up from 3.6% q-o-q in Q2 2019, buoyed by higher issuance volume in Q3 2019. Growth in corporate bonds was driven by increases in the stock of commercial bank bonds, listed corporate bonds, and medium-term notes. Commercial bank bond gains were driven by banks' need to replenish capital following the write-off of bad assets. On a y-o-y basis, bond market growth in the PRC fell to 14.9% in Q3 2019 from 16.7% in Q2 2019.

At the end of September, the Republic of Korea's LCY bond stock of nearly USD2.0 trillion was the second-largest in emerging East Asia. The Republic of Korea's share of the regional bond total slipped to 13.1% in Q3 2019 from 13.2% in Q2 2019 and 13.8% in Q3 2018. Overall growth declined to 2.0% q-o-q in Q3 2019 from 2.4% q-o-q in the preceding quarter. Government bonds contributed to the growth, albeit to a lesser extent than that of corporate bonds. The stock of government bonds grew 1.6% q-o-q, driven largely by an increase in central government bonds. The government maintained its pace of issuance during the first 3 quarters of 2019 as part of stimulus efforts to boost the economy. In August, the Parliament passed a supplemental budget bill worth KRW5.8 trillion, more than half of which will be funded through the issuance of bonds. As in the past, the corporate bond segment fueled much of the growth in the overall bond stock. Corporate bonds rose 2.3% q-o-q amid a still substantial issuance volume, despite it being lower than in the previous quarter. On a y-o-y basis, the LCY bond market of the Republic of Korea rose 6.9% in Q3 2019.

LCY bonds outstanding in Hong Kong, China leveled off at USD249.4 billion at the end of September, posting a marginal decline of 0.04% q-o-q. While tallying negative growth in Q3 2019, the pace of contraction was an improvement from a decline of 0.2% q-o-q in Q2 2019. The contraction in corporate bonds exceeded growth in government bonds, resulting in slightly negative growth during the period. Growth in government bonds inched up to 0.5% q-o-q in Q3 2019 from 0.2% q-o-q in the prior quarter, buoyed by increases in the stocks of Exchange Fund Bills and Hong Kong Special Administrative Region Bonds. The stock of Exchange Fund Notes contracted as issuance remained limited to the 2-year maturity. The stock of corporate bonds also contracted 0.9% q-o-q in Q3 2019. On a y-o-y basis, Hong Kong, China's bond market growth picked up to 2.1% in Q3 2019 from 1.4% in Q2 2019.

On an aggregate basis, the outstanding size of LCY bonds among member economies of the Association of Southeast Asian Nations (ASEAN) totaled USD1,510.9 billion.[4] Overall growth in ASEAN bond markets slowed in Q3 2019, moderating to 1.6% q-o-q from 2.3% q-o-q in the prior quarter. On an annual basis, growth slipped to 9.9% during the review period. At the end of September, government bonds totaled USD1,039.6 billion, representing 68.8% of the aggregate ASEAN bond total. The remaining USD471.4 billion was accounted for by corporate bonds for a share of 31.2%. The bond markets of Thailand, Malaysia, and Singapore remained the largest in ASEAN.

The outstanding amount of LCY bonds in Thailand tallied USD420.1 billion at the end of September as

[4] LCY bond statistics for ASEAN include the markets of Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam.

growth contracted 1.4% q-o-q in Q3 2019, reversing the 3.1% q-o-q gain posted in Q2 2019. The stock of government bonds declined 0.5% q-o-q as increases in government bonds and state-owned enterprise bonds were more than offset by the decline in the stock of central bank bonds. Beginning in July, the Bank of Thailand (BOT) reduced the supply of 3-month and 6-month BOT bills to limit foreign fund inflows and arrest the Thai baht's strong appreciation. Corporate bonds also declined 3.5% q-o-q in Q3 2019, as the volume of bond maturities exceeded new issuance during the quarter. On an annual basis, Thailand's bond market growth decelerated to 5.9% in Q3 2019 from 9.4% in the preceding quarter.

Malaysia's LCY bonds outstanding reached USD356.5 billion at the end of September, with growth plummeting to 0.3% q-o-q in Q3 2019 from 3.3% q-o-q in Q2 2019. The decline in overall growth stemmed from the weak q-o-q growth in government bonds that was exacerbated by a contraction in corporate bonds. The stock of government bonds rose 0.8% q-o-q in Q3 2019 on slower expansions of central government bonds and central bank bills, and a contraction in the stock of Sukuk Perumahan Kerajaan, which are Islamic bonds issued by the Government of Malaysia to refinance funding for housing loans to government employees and to extend new housing. The corporate bond segment contracted 0.2% q-o-q in Q3 2019, following a relatively strong 5.0% q-o-q hike in the prior quarter, dampened by a huge volume of maturities and a significant decline in issuance volume. On a y-o-y basis, growth in the Malaysian LCY bond market slipped to 8.3% in Q3 2019 from 8.7% in Q2 2019.

Malaysia's LCY bond market continued to be dominated by *sukuk* (Islamic bonds), making it the largest *sukuk* market in emerging East Asia. At the end of September, about 61.6% of its LCY bond stock was structured following Islamic principles. *Sukuk* comprised 46.0% of the government bond total and an even larger share of 79.0% of the corporate bond stock.

Singapore's LCY bond market comprised bonds outstanding of USD322.4 billion at the end of September on faster growth of 4.9% q-o-q in Q3 2019 versus 2.3% q-o-q in Q2 2019. Government bond market growth picked up to 5.6% q-o-q from 2.7% q-o-q, buoyed by the three-fold increase in the issuance of Singapore Government Securities (SGS) bills and bonds during the quarter. In contrast, the stock of Monetary Authority of Singapore (MAS) bills contracted in Q3 2019. The stock of corporate bonds also climbed 3.8% q-o-q in Q3 2019, up from 1.7% q-o-q in the prior quarter. On a y-o-y basis, Singapore's LCY bond market expanded 11.9% in Q3 2019.

In Q3 2019, the region's fastest-growing LCY bond market on a q-o-q basis was that of Indonesia. Total LCY bonds climbed to USD227.5 billion at the end of September, with growth rebounding strongly to 5.2% q-o-q in Q3 2019 after contracting 0.5% q-o-q in the preceding quarter. Government bond market growth surged to 5.3% q-o-q in Q3 2019 after a decline of 0.3% q-o-q in the previous quarter, largely lifted by an expansion in the stock of central government bonds. The government took advantage of strong demand for bonds and accepted more than its targeted amount during its weekly Treasury bond auctions. In addition, the government was looking to raise more funds as the budget deficit was estimated to be wider than expected due to the tax collection shortfall. Corporate bond market growth also rebounded, rising 4.9% q-o-q after a decline of 1.6% q-o-q in Q2 2019. Corporate bond issuance was quite active in Q3 2019 as firms took advantage of low borrowing costs driven by the policy rate cuts of Bank Indonesia. On a y-o-y basis, Indonesia's LCY bond market growth slipped to 16.8% in Q3 2019 from 17.6% in Q2 2019.

The outstanding size of the Philippines' LCY bond market totaled USD129.2 billion at the end of September. Overall growth of the market contracted 0.1% q-o-q, driven largely by a decline in the stock of government bonds. Government bond market growth contracted 0.7% q-o-q in Q3 2019 as the government reduced its borrowing program in Q3 2019 due to underspending resulting from the delay in the approval of the 2019 national budget and increased borrowing in the first half of the year. Corporate bond market growth moderated to 2.1% q-o-q in Q3 2019 from 2.3% q-o-q in the previous quarter due to a significant decline in the volume of new issuance. On a y-o-y basis, bond market growth in the Philippines eased to 15.7% in Q3 2019 from 16.8% in Q2 2019.

Viet Nam continued to account for the smallest LCY bond market in the region with outstanding bonds of USD55.1 billion at the end of September. Overall growth climbed to 3.4% q-o-q in Q3 2019 from 2.6% q-o-q in Q2 2019. Growth came mainly from government bonds, which rose 4.0% q-o-q, driven largely by an increase in central bank bills. The State Bank of Vietnam continued issuing bills to mop up excess liquidity in the market. The stock of Treasury bonds also increased, albeit to a smaller extent on reduced issuance. In August, the State Treasury reduced the frequency of its government bond auctions to once every 2 weeks from the previously scheduled weekly auctions due to slow government disbursements. Corporate bonds contracted 2.8% q-o-q in Q3 2019. On an annual basis, bond market growth in Viet Nam eased to 1.9% in Q3 2019 after expanding 7.7% in Q2 2019.

At the end of September, the region's bond market was largely dominated by government bonds, with an outstanding amount of USD9.4 trillion and a 61.8% share of the aggregate LCY bond stock (**Table 1**). Government bond market growth eased to 3.1% q-o-q and 11.6% y-o-y in Q3 2019 from 3.7% q-o-q and 13.6% y-o-y in Q2 2019. The region's government bond market leaders were the PRC and the Republic of Korea, with regional shares of 78.8% and 8.6%, respectively. Except for the bond markets of the Philippines and Thailand, all government bond markets tallied positive q-o-q growth in Q3 2019.

Collectively, the government bonds outstanding of ASEAN member economies accounted for 11.1% of the regional government bond total at the end of September. Among ASEAN markets, the government bond markets of Thailand (USD302.9 billion), Singapore (USD200.4 billion), and Indonesia (USD196.7 billion) were the largest. Malaysia was next with government bonds outstanding of USD187.6 billion. The government bond markets of the Philippines and Viet Nam remained the smallest.

Emerging East Asia's aggregate corporate bond total reached USD5.8 trillion at the end of September, accounting for a 38.2% share of the regional bond market total. Growth in corporate bonds slipped to 3.2% q-o-q in Q3 2019 from 3.3% q-o-q in Q2 2019. On a y-o-y basis, however, corporate bond market growth inched up to 15.3% in Q3 2019 from 15.0% in Q2 2019. The bond markets of the PRC and the Republic of Korea accounted for a combined 90.2% share of the region's corporate bond total at the end of September. Most markets in the region reported positive q-o-q growth, while q-o-q declines were observed in Hong Kong, China; Malaysia; Thailand; and Viet Nam.

At the end of September, the corporate bond markets of ASEAN member economies comprised an aggregate 8.1% share of emerging East Asia's corporate bond total. The corporate bond markets of Malaysia, Singapore, and Thailand remained the largest in ASEAN.

As a percentage of regional gross domestic product (GDP), emerging East Asia's LCY bond market accounted for an 83.7% share at the end of September (**Table 2**). This was up from 82.7% at the end of June and 80.0% at the end of September 2018. The GDP shares of both government and corporate bonds increased in Q3 2019 from the prior quarter. The government bonds-to-GDP share inched up to 51.7% in Q3 2019 from 51.1% in Q2 2019, while the corporate bonds-to-GDP share rose to 32.0% from 31.6% during the same period. Among emerging East Asian markets, the Republic of Korea continued to have the largest bonds-to-GDP share at 129.7%. Next was Malaysia at 105.8%. All other emerging East Asian markets had a bonds-to-GDP share of 88.1% or lower.

Foreign Investor Holdings

Movements in the shares of foreign investor holdings in emerging East Asian economies were largely stable in Q3 2019.

Emerging East Asia's foreign investor holdings were largely unchanged at the end of September compared with the previous quarter (**Figure 2**). The share of foreign holdings rose slightly in both the PRC, Malaysia, and Viet Nam in Q3 2019.

In the PRC, the share of foreign holdings rose from 5.4% at the end of June to 5.8% at the end of September, as the government continued to open its bond market to foreign investors. Foreign demand increased following the inclusion of PRC government bonds in the Bloomberg Barclays Global Aggregate Index. They will also be included in JP Morgan's Government Bond Index–Emerging Markets Global Diversified Index. The PRC also removed investment quotas under the Renminbi Qualified Foreign Institutional Investor and Qualified Foreign Institutional Investor programs.

In Malaysia, the share of foreign holdings rose to 23.0% at the end of September from 22.3% at the end of June over news that its government bonds would remain in the FTSE World Government Bond Index. However, uncertainty remains as the inclusion of Malaysian government bonds will be up for review again in March 2020.

Table 1: Size and Composition of Local Currency Bond Markets

	Q3 2018		Q2 2019		Q3 2019		Growth Rate (LCY-base %)				Growth Rate (USD-base %)			
							Q3 2018		Q3 2019		Q3 2018		Q3 2019	
	Amount (USD billion)	% share	Amount (USD billion)	% share	Amount (USD billion)	% share	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y
China, People's Rep. of														
Total	10,383	100.0	11,512	100.0	11,459	100.0	5.3	15.4	3.6	14.9	1.5	11.8	(0.5)	10.4
Government	6,823	65.7	7,447	64.7	7,402	64.6	6.2	16.6	3.5	12.9	2.4	12.9	(0.6)	8.5
Corporate	3,560	34.3	4,065	35.3	4,057	35.4	3.6	13.1	3.9	18.6	(0.2)	9.6	(0.2)	14.0
Hong Kong, China														
Total	245	100.0	250	100.0	249	100.0	(0.7)	1.5	(0.04)	2.1	(0.5)	1.3	(0.4)	1.9
Government	147	60.3	149	59.5	149	59.9	(0.4)	3.4	0.5	1.4	(0.1)	3.2	0.2	1.2
Corporate	97	39.7	101	40.5	100	40.1	(1.2)	(1.2)	(0.9)	3.1	(1.0)	(1.5)	(1.3)	2.9
Indonesia														
Total	185	100.0	217	100.0	228	100.0	5.9	13.9	5.2	16.8	1.8	3.0	4.7	22.7
Government	157	84.8	188	86.4	197	86.5	6.2	13.5	5.3	19.1	2.1	2.6	4.8	25.0
Corporate	28	15.2	30	13.6	31	13.5	4.1	16.5	4.9	4.4	0.1	5.3	4.4	9.6
Korea, Rep. of														
Total	2,005	100.0	2,019	100.0	1,988	100.0	0.1	3.6	2.0	6.9	0.6	7.0	(1.5)	(0.8)
Government	837	41.7	820	40.6	804	40.4	(1.0)	5.4	1.6	3.6	(0.5)	8.9	(1.9)	(4.0)
Corporate	1,168	58.3	1,200	59.4	1,184	59.6	0.9	2.4	2.3	9.4	1.4	5.7	(1.3)	1.4
Malaysia														
Total	333	100.0	360	100.0	357	100.0	0.7	9.1	0.3	8.3	(1.7)	11.3	(1.0)	7.0
Government	175	52.6	189	52.4	188	52.6	0.4	8.1	0.8	8.3	(2.0)	10.3	(0.5)	7.1
Corporate	158	47.4	172	47.6	169	47.4	1.1	10.2	(0.2)	8.3	(1.4)	12.4	(1.6)	7.0
Philippines														
Total	107	100.0	131	100.0	129	100.0	0.9	11.2	(0.1)	15.7	(0.3)	4.6	(1.2)	20.6
Government	85	79.3	103	78.9	101	78.4	0.04	9.0	(0.7)	14.4	(1.2)	2.7	(1.8)	19.2
Corporate	22	20.7	28	21.1	28	21.6	4.3	20.1	2.1	20.7	3.0	13.0	1.0	25.8
Singapore														
Total	291	100.0	314	100.0	322	100.0	2.0	9.8	4.9	11.9	1.6	9.1	2.7	10.7
Government	176	60.5	194	61.8	200	62.2	1.6	9.3	5.6	15.0	1.3	8.5	3.4	13.8
Corporate	115	39.5	120	38.2	122	37.8	2.5	10.7	3.8	7.2	2.1	9.9	1.7	6.1
Thailand														
Total	376	100.0	425	100.0	420	100.0	1.9	10.0	(1.4)	5.9	22.6	35.2	(1.1)	11.9
Government	269	71.7	304	71.5	303	72.1	0.8	9.0	(0.5)	6.6	19.1	29.4	(0.3)	12.6
Corporate	106	28.3	121	28.5	117	27.9	4.8	12.7	(3.5)	4.2	32.7	52.4	(3.3)	10.1
Viet Nam														
Total	54	100.0	53	100.0	55	100.0	9.2	17.7	3.4	1.9	7.5	14.8	3.8	2.4
Government	49	91.9	48	91.2	51	91.8	8.9	14.7	4.0	1.7	7.2	11.9	4.4	2.2
Corporate	4	8.1	5	8.8	5	8.2	13.1	67.2	(2.8)	4.2	11.3	63.0	(2.3)	4.7
Emerging East Asia														
Total	13,979	100.0	15,281	100.0	15,208	100.0	4.1	12.8	3.1	13.0	1.8	11.1	(0.5)	8.8
Government	8,720	62.4	9,441	61.8	9,395	61.8	4.9	14.5	3.1	11.6	2.4	12.3	(0.5)	7.7
Corporate	5,259	37.6	5,841	38.2	5,813	38.2	2.8	10.3	3.2	15.3	0.7	9.2	(0.5)	10.5
Japan														
Total	10,228	100.0	10,948	100.0	11,068	100.0	0.5	1.6	1.3	2.9	(2.1)	0.6	1.1	8.2
Government	9,540	93.3	10,191	93.1	10,302	93.1	0.4	1.7	1.3	2.6	(2.2)	0.7	1.1	8.0
Corporate	688	6.7	757	6.9	766	6.9	2.2	0.04	1.5	5.9	(0.4)	(1.0)	1.2	11.4

( ) = negative, LCY = local currency, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.

Notes:

1. For Hong Kong, China, Q3 2019 corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Japan and the Republic of Korea, government bonds outstanding are as of August 2019. For Singapore, corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Thailand, Q3 2019 bonds outstanding are based on *AsianBondsOnline* estimates.
2. Corporate bonds include issues by financial institutions.
3. Bloomberg LP end-of-period LCY–USD rates are used.
4. For LCY-base, emerging East Asia growth figures are based on 30 September 2019 currency exchange rates and do not include currency effects.
5. 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.

Sources: People's Republic of China (*CEIC*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; and Indonesia Stock Exchange); Republic of Korea (*EDAILY BondWeb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury and Bloomberg LP); Singapore (Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg LP); Thailand (Bank of Thailand); Viet Nam (Bloomberg LP and Vietnam Bond Market Association); and Japan (Japan Securities Dealers Association).

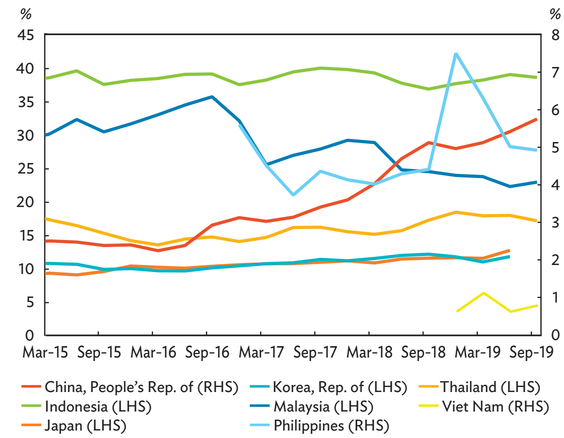
Table 2: Size and Composition of Local Currency Bond Markets (% of GDP)

	Q3 2018	Q2 2019	Q3 2019
China, People's Rep. of			
Total	81.1	84.6	86.1
Government	53.3	54.7	55.6
Corporate	27.8	29.9	30.5
Hong Kong, China			
Total	68.2	67.6	67.3
Government	41.1	40.2	40.3
Corporate	27.1	27.4	27.0
Indonesia			
Total	19.0	20.0	20.7
Government	16.1	17.2	17.9
Corporate	2.9	2.7	2.8
Korea, Rep. of			
Total	123.9	127.8	129.7
Government	51.7	51.9	52.4
Corporate	72.2	75.9	77.3
Malaysia			
Total	102.5	106.9	105.8
Government	53.9	55.9	55.7
Corporate	48.6	50.9	50.1
Philippines			
Total	34.2	37.3	36.6
Government	27.1	29.4	28.7
Corporate	7.1	7.9	7.9
Singapore			
Total	81.6	85.7	88.1
Government	49.4	53.0	54.8
Corporate	32.2	32.8	33.3
Thailand			
Total	75.3	78.4	77.5
Government	54.0	56.0	55.9
Corporate	21.4	22.4	21.6
Viet Nam			
Total	23.4	21.5	21.7
Government	21.5	19.6	19.9
Corporate	1.9	1.9	1.8
Emerging East Asia			
Total	80.0	82.7	83.7
Government	49.9	51.1	51.7
Corporate	30.1	31.6	32.0
Japan			
Total	211.8	213.8	216.2
Government	197.6	199.1	201.2
Corporate	14.3	14.8	15.0

GDP = gross domestic product, Q2 = second quarter, Q3 = third quarter.
Notes:
1. Data for GDP are from CEIC. Q3 2019 GDP figures carried over from Q2 2019 for Hong Kong, China; Japan; Malaysia; Singapore; and Thailand.
2. For Hong Kong, China, Q3 2019 corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Japan and the Republic of Korea, government bonds outstanding are as of August 2019. For Singapore, corporate bonds outstanding are based on *AsianBondsOnline* estimates. For Thailand, Q3 2019 bonds outstanding are based on *AsianBondsOnline* estimates.

Sources: People's Republic of China (*CEIC*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; and Indonesia Stock Exchange); Republic of Korea (*EDAILY BondWeb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury and Bloomberg LP); Singapore (Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg LP); Thailand (Bank of Thailand); Viet Nam (Bloomberg LP and Vietnam Bond Market Association); and Japan (Japan Securities Dealers Association).

Figure 2: Foreign Holdings of Local Currency Government Bonds in Select Asian Economies (% of total)



LHS = left-hand side, RHS = right-hand side.
Note: Data as of end-September 2019 except for Japan and the Republic of Korea (end-June 2019).
Source: *AsianBondsOnline*.

The Philippines saw a marginal decline in its foreign holdings share from 5.0% at the end of June to 4.9% at the end of September. The decline was mainly due to foreign investors taking profits amid expectations that the Bangko Sentral ng Pilipinas (BSP) was nearing the end of its easing cycle.

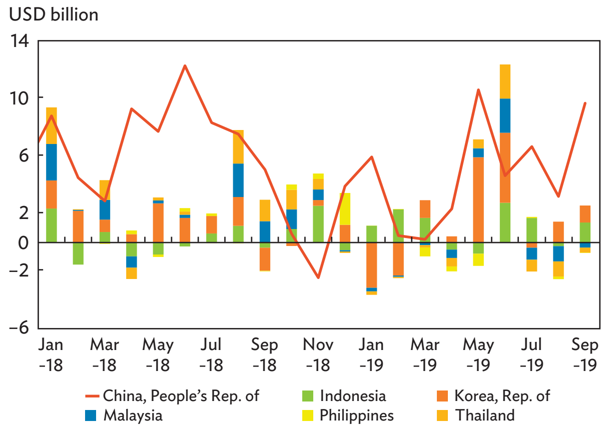
Indonesia's foreign holdings share fell during the review period from 39.1% to 38.6% as foreign investors grew cautious over concerns of slowing economic growth and weak trade figures.

Foreign Bond Flows

Foreign flows into the region's bond markets were positive in Q3 2019.

Foreign bond flows in most emerging East Asian markets were positive in Q3 2019. While flows fluctuated in most markets during the review period, the PRC had consistent net inflows in all 3 months during the quarter. The size of the PRC's inflows in July, August, and September were USD6.7 billion, USD3.2 billion, and USD9.7 billion, respectively, which exceeded the monthly cumulative fund flows into all other emerging East Asian markets (**Figure 3**). The PRC continued to attract bond inflows on increased participation from foreign investors following the inclusion of PRC government bonds in major global bond indices.

Figure 3: Foreign Bond Flows in Select Emerging East Asian Economies



USD = United States dollar.
Notes:
1. The Republic of Korea and Thailand provided data on bond flows. For the People's Republic of China, Indonesia, Malaysia, and the Philippines, month-on-month changes in foreign holdings of local currency government bonds were used as a proxy for bond flows.
2. Data as of 30 September 2019.
3. Figures were computed based on 30 September 2019 exchange rates to avoid currency effects.

Sources: People's Republic of China (*Wind Information*); Indonesia (Directorate General of Budget Financing and Risk Management, Ministry of Finance); Republic of Korea (Financial Supervisory Service); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury); and Thailand (Thai Bond Market Association).

Thailand experienced negative outflows in each month during the quarter as the BOT sought to limit capital flows in order to curb the appreciation of the Thai baht.

In Malaysia, foreign investors returned to the bond market in September, after exiting in August, following news that Malaysia would remain in the FTSE World Government Bond Index.

In Indonesia, outflows were observed in August, but investors subsequently returned in September. The Philippines saw outflows in both August and September as foreign investors took profits, having largely priced in an expected BSP rate cut in September.

In contrast, the Republic of Korea saw inflows in August and September due to the appreciation of the Korean won as trade tensions between the PRC and the US eased.

Issuance

LCY bond issuance in emerging East Asia totaled USD1.5 trillion in Q3 2019.

In Q3 2019, aggregate LCY bond issuance in emerging East Asia amounted to USD1.5 trillion on growth of 0.9% q-o-q and 5.2% y-o-y (**Table 3**). The pace of growth was weaker compared with gains of 12.2% q-o-q and 16.4% y-o-y in Q2 2019. On a q-o-q basis, Hong Kong, China; the Republic of Korea; Malaysia; the Philippines; Thailand; and Viet Nam each experienced contractions in issuance during the quarter. The PRC, Indonesia, and Singapore all recorded growth in issuance in Q3 2019.

Despite a decline in issuance in the majority of markets, the PRC's issuance of USD980.5 billion lifted the regional total as its aggregate bonds comprise 63.8% of emerging East Asia's total bond market. Indonesia posted the most rapid issuance growth at 45.0% q-o-q, which also helped offset the decline in issuance in the other markets. On a y-o-y basis, all markets registered an increase in issuance in Q3 2019 with the exception of Malaysia.

Issuance of LCY government bonds in emerging East Asia contracted 5.5% q-o-q and 8.6% y-o-y to fall to USD881.4 billion in Q3 2019. The decline in government issuance, which reversed the 13.3% q-o-q and 12.5% y-o-y growth posted in Q2 2019, was driven by contractions in issuance in most markets. The PRC, the largest issuer of government bonds in the region, posted a 9.9% q-o-q drop in issuance as local governments met their issuance target ahead of schedule. Only Hong Kong, China; Indonesia; and Singapore posted growth in government bond issuance in Q3 2019. Hong Kong, China's government issuance growth was modest at 0.5% q-o-q. Indonesia's government bond issuance rose 43.8% q-o-q as the government sought funds to finance its budget deficit. Singapore's 8.5% q-o-q growth in government bond issues stemmed from issuance of 6-month SGS bills starting in July, which were intended to gradually replace the 24-week MAS bills and meet the demand for short-term, rated instruments denominated in Singapore dollars.

Table 3: Local-Currency–Denominated Bond Issuance (gross)

	Q3 2018		Q2 2019		Q3 2019		Growth Rate (LCY-base %)		Growth Rate (USD-base %)	
							Q3 2019		Q3 2019	
	Amount (USD billion)	% share	Amount (USD billion)	% share	Amount (USD billion)	% share	q-o-q	y-o-y	q-o-q	y-o-y
China, People's Rep. of										
Total	998	100.0	982	100.0	981	100.0	3.9	2.2	(0.2)	(1.8)
Government	612	61.3	540	54.9	467	47.6	(9.9)	(20.6)	(13.5)	(23.7)
Central Bank	0	0.0	0	0.0	0	0.0	–	–	–	–
Treasury and Other Govt.	612	61.3	540	54.9	467	47.6	(9.9)	(20.6)	(13.5)	(23.7)
Corporate	386	38.7	442	45.1	514	52.4	20.9	38.4	16.1	33.0
Hong Kong, China										
Total	112	100.0	117	100.0	114	100.0	(2.1)	1.9	(2.4)	1.7
Government	104	92.9	107	91.7	107	94.0	0.5	3.1	0.1	2.9
Central Bank	104	92.7	106	90.8	106	93.6	1.0	2.9	0.6	2.7
Treasury and Other Govt.	0.2	0.2	1	0.9	0.5	0.4	(52.5)	111.1	(52.7)	110.8
Corporate	8	7.1	10	8.3	7	6.0	(30.0)	(14.4)	(30.3)	(14.5)
Indonesia										
Total	15	100.0	17	100.0	24	100.0	45.0	55.4	44.3	63.2
Government	13	85.0	15	87.9	21	87.2	43.8	59.4	43.1	67.4
Central Bank	2	13.9	4	24.8	8	33.5	96.4	275.1	95.5	293.8
Treasury and Other Govt.	11	71.1	11	63.2	13	53.7	23.2	17.3	22.6	23.1
Corporate	2	15.0	2	12.1	3	12.8	53.7	32.6	53.0	39.2
Korea, Rep. of										
Total	170	100.0	187	100.0	169	100.0	(6.3)	7.3	(9.6)	(0.6)
Government	78	46.1	70	37.7	68	40.2	(0.2)	(6.5)	(3.7)	(13.3)
Central Bank	34	20.3	32	17.1	31	18.1	(0.8)	(4.6)	(4.3)	(11.5)
Treasury and Other Govt.	44	25.7	38	20.6	37	22.1	0.3	(8.0)	(3.2)	(14.7)
Corporate	91	53.9	116	62.3	101	59.8	(10.0)	19.0	(13.1)	10.3
Malaysia										
Total	22	100.0	27	100.0	20	100.0	(25.2)	(8.1)	(26.2)	(9.2)
Government	14	61.7	10	36.4	9	45.6	(6.3)	(32.0)	(7.6)	(32.8)
Central Bank	6	28.8	2	7.2	2	10.2	4.9	(67.5)	3.5	(67.9)
Treasury and Other Govt.	7	32.9	8	29.2	7	35.4	(9.1)	(1.0)	(10.3)	(2.2)
Corporate	9	38.3	17	63.6	11	54.4	(36.0)	30.5	(36.8)	29.0
Philippines										
Total	5	100.0	9	100.0	7	100.0	(20.7)	32.0	(21.5)	37.6
Government	4	81.8	6	71.2	5	78.5	(12.5)	26.7	(13.4)	32.0
Central Bank	0	0.0	0	0.0	0	0.0	—	—	—	—
Treasury and Other Govt.	4	81.8	6	71.2	5	78.5	(12.5)	26.7	(13.4)	32.0
Corporate	0.9	18.2	2	28.8	1	21.5	(40.9)	56.0	(41.6)	62.6
Singapore										
Total	106	100.0	116	100.0	124	100.0	8.4	17.3	6.1	16.1
Government	102	95.5	113	96.7	120	96.8	8.5	19.0	6.3	17.7
Central Bank	95	89.7	104	89.7	94	75.9	(8.4)	(0.8)	(10.3)	(1.8)
Treasury and Other Govt.	6	5.8	8	7.0	26	21.0	225.5	326.2	218.6	321.6
Corporate	5	4.5	4	3.3	4	3.2	4.8	(18.0)	2.6	(18.9)
Thailand										
Total	72	100.0	93	100.0	78	100.0	(16.1)	2.0	(15.9)	7.8
Government	58	80.4	76	81.7	64	82.8	(15.0)	5.1	(14.7)	11.0
Central Bank	50	69.7	65	70.4	59	76.2	(9.3)	11.5	(9.0)	17.8
Treasury and Other Govt.	8	10.7	10	11.3	5	6.6	(50.7)	(36.7)	(50.6)	(33.1)
Corporate	14	19.6	17	18.3	13	17.2	(21.4)	(10.5)	(21.2)	(5.5)

continued on next page

Table 3 *continued*

	Q3 2018		Q2 2019		Q3 2019		Growth Rate (LCY-base %)		Growth Rate (USD-base %)	
							Q3 2019		Q3 2019	
	Amount (USD billion)	% share	Amount (USD billion)	% share	Amount (USD billion)	% share	q-o-q	y-o-y	q-o-q	y-o-y
Viet Nam										
Total	8	100.0	23	100.0	20	100.0	(13.3)	167.3	(12.9)	168.6
Government	7	93.4	23	100.0	20	99.3	(13.8)	184.3	(13.5)	185.7
Central Bank	5	62.7	22	94.0	19	96.1	(11.3)	310.0	(10.9)	311.9
Treasury and Other Govt.	2	30.7	1	6.0	0.7	3.2	(53.4)	(72.0)	(53.2)	(71.8)
Corporate	0.5	6.6	0	0.0	0.1	0.7	–	(73.4)	–	(73.2)
Emerging East Asia										
Total	1,508	100.0	1,570	100.0	1,536	100.0	0.9	5.2	(2.2)	1.9
Government	991	65.7	959	61.1	881	57.4	(5.5)	(8.6)	(8.1)	(11.1)
Central Bank	297	19.7	335	21.4	320	20.8	(3.7)	7.9	(4.7)	7.6
Treasury and Other Govt.	694	46.0	624	39.7	562	36.6	(6.5)	(15.9)	(9.9)	(19.0)
Corporate	517	34.3	611	38.9	654	42.6	11.1	32.0	7.1	26.6
Japan										
Total	397	100.0	398	100.0	265	100.0	(33.4)	(36.5)	(33.6)	(33.2)
Government	359	90.5	355	89.2	238	89.8	(33.0)	(37.1)	(33.1)	(33.8)
Central Bank	3	0.8	0	0.0	0	0.0	–	(100.0)	–	(100.0)
Treasury and Other Govt.	356	89.7	355	89.2	238	89.8	(33.0)	(36.5)	(33.1)	(33.2)
Corporate	38	9.5	43	10.8	27	10.2	(36.8)	(31.5)	(36.9)	(28.0)

( ) = negative, – = not applicable, LCY = local currency, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Corporate bonds include issues by financial institutions.
2. Bloomberg LP end-of-period LCY–USD rates are used.
3. For LCY-base, emerging East Asia growth figures are based on 30 September 2019 currency exchange rates and do not include currency effects.
4. For Hong Kong, China, Q3 2019 corporate bond data are based on *AsianBondsOnline* estimates. For the Republic of Korea, Q3 2019 government bond data are based on *AsianBondsOnline* estimates. For Thailand, Q3 2019 issuance data are based on *AsianBondsOnline* estimates.
5. For Japan, data for Q3 2019 are based on issuance data for the first two months of the quarter.
Sources: People's Republic of China (*CEIC*); Hong Kong, China (Hong Kong Monetary Authority); Indonesia (Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; and Indonesia Stock Exchange); Republic of Korea (*EDAILY BondWeb* and the Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bloomberg LP); Singapore (Singapore Government Securities and Bloomberg LP); Thailand (Bank of Thailand and Thai Bond Market Association); Viet Nam (Bloomberg LP and Vietnam Bond Market Association); and Japan (Japan Securities Dealers Association).

Central bank bond issuance in emerging East Asia dropped 3.7% q-o-q in Q3 2019, while Treasury and other government bond issuance contracted 6.5% q-o-q. Government bonds comprised 57.4% of the total issuance in emerging East Asia in Q3 2019, down from 66.0% in the previous quarter.

The growth of LCY corporate bond issuance in emerging East Asia edged up to 11.1% q-o-q in Q3 2019 from 10.5% q-o-q in Q2 2019 to reach USD654.4 billion. Hong Kong, China; the Republic of Korea; Malaysia; the Philippines; and Thailand saw contractions in corporate debt issuance due to a high base effect from the previous quarter. Slowing growth prospects in the region tempered the demand for corporate debt in many economies despite the prevailing low-interest-rate environment. The surge in corporate bond issuance in the PRC, Indonesia, and Singapore more than offset the declines in other markets. The strong growth in the PRC, where companies raised a total of USD513.7 billion, boosted total bond issuance in the region. The PRC's share accounted for 78.5% of the region's corporate bond issuance total in Q3 2019. On an annual basis, the 38.4% y-o-y growth in the PRC's corporate debt issuance in Q3 2019 was up from 27.5% y-o-y in Q2 2019.

The PRC's LCY bond issuance remained the largest in the region in Q3 2019 at USD980.5 billion, comprising 63.8% of the regional total. Growth during the quarter fell to 3.9% q-o-q from 15.6% q-o-q in Q2 2019. On an annual basis, growth dropped considerably to 2.2% y-o-y from 20.0% y-o-y in the previous quarter. Debt issuance from the government fell 9.9% q-o-q in Q3 2019, reversing the 24.7% q-o-q growth seen in the previous quarter. The issuance of local government bonds, which are intended to boost the PRC's slowing growth through infrastructure financing, eased during the quarter. Local government borrowing spiked at the end of the previous quarter, leading to lower issuance in Q3 2019. Issuance of Treasury and policy bank bonds also contracted considerably during the quarter. Strong issuance of corporate debt, which rose 20.9% q-o-q in Q3 2019, more than offset the decline in government bond issuance.

The Republic of Korea, the second-largest issuer in the region, issued a total of USD168.7 billion in LCY bonds in Q3 2019, comprising 11.0% of the regional total. Total issuance declined 6.3% q-o-q in Q3 2019, reversing the 16.5% growth in Q2 2019. Both the government and corporate segments posted declines in issuance during the quarter. The 0.2% q-o-q drop in government bond issuance was driven by an 0.8% q-o-q contraction in central bank bond issuance, which offset the 0.3% q-o-q growth in Treasury and other government bonds. Growth in Treasury and other bonds was broadly unchanged compared with previous quarters. Corporate bond issuance in Q3 2019 was also less active than in the prior quarter. At 59.8%, the corporate segment's share of total bond issuance in the Republic of Korea was the largest in emerging East Asia.

In Hong Kong, China, total issuance contracted 2.1% q-o-q to USD113.7 billion in Q3 2019. Government bond issuance posted modest growth of 0.5% q-o-q to reach USD107.0 billion in Q3 2019, reversing the 2.6% q-o-q growth in the prior quarter. Issuance of Exchange Fund Bills and Notes by the Hong Kong Monetary Authority rose 1.0% q-o-q, while issuance of Hong Kong Special Administrative Region bonds contracted 52.5% q-o-q from a high base in the previous quarter. Political unrest worsened during the quarter, weakening business sentiment. Corporate bond issuance dropped 30.0% q-o-q to USD6.8 billion as heightened risk aversion and weakened growth prospects dampened the demand for corporate debt.

The aggregate LCY bond issuance of ASEAN member economies reached USD272.9 billion in Q3 2019, accounting for 17.8% of the total issuance in emerging East Asian economies. Four of the six markets posted negative q-o-q growth in total issuance, with Malaysia registering the largest q-o-q decline from a high base in the previous quarter. Indonesia and Singapore posted positive issuance growth during the quarter, driven by strong expansions in both the government and corporate segments. Total LCY bond issuance among ASEAN economies in Q3 2019 comprised 87.9% government bonds and 12.1% corporate bonds.

Total issuance in Indonesia rose 45.0% q-o-q to reach USD24.3 billion in Q3 2019, reversing the 36.8% q-o-q decline in the previous quarter. Issuance growth recovered during the quarter, as both the government and corporations resumed market activities after the long holiday in celebration of Eid'l Fitr. Government bond issuance rose 43.8% q-o-q as the government took advantage of increased demand and accepted more than the targeted amount for auctioned bonds during the quarter. Government bonds accounted for 87.2% of total issuance in Q3 2019. Corporate bond issuance was also more active, with growth rising to 53.7% q-o-q in Q3 2019 from 30.9% in Q2 2019. On a y-o-y basis, total LCY bond issuance in Indonesia rose 55.4% in Q3 2019.

Malaysia's LCY bond issuance dropped to USD20.2 billion in Q3 2019 due to contractions in debt sales from both the government and corporations. The contractions in total issuance of 25.2% q-o-q and 8.1% y-o-y in Q3 2019 reversed the growth of 9.8% q-o-q and 24.5% y-o-y in Q2 2019. Government issuance slid 6.3% q-o-q as the decline in Malaysia Government Securities and Government Investment Issues outpaced the growth in central bank bonds. Corporate debt issuance dropped 36.0% q-o-q in Q3 2019 from a high base in Q2 2019, which saw a large amount of corporate debt issuance amid a low-interest-rate environment. Corporate bonds comprised 54.4% of Malaysia's total issuance in Q3 2019.

In the Philippines, total bond issuance contracted 20.7% q-o-q to USD6.7 billion in Q3 2019. Issuance of government bonds fell 12.5% q-o-q to USD5.3 billion, driven by a decline in the issuance of Treasury bonds and other government bonds. The government scheduled a lower volume of issuance in Q3 2019 since it had raised sufficient funds in the previous quarters. Issuance of corporate bonds plunged 40.9% q-o-q to USD1.4 billion due to lower seasonal demand during the quarter.

Singapore's total bond issuance amounted to USD123.5 billion in Q3 2019. Growth in total bond issuance more than doubled, rising to 8.4% q-o-q in Q3 2019 from 4.0% q-o-q in Q2 2019. Government issuance increased 8.5% q-o-q in Q3 2019, driven by strong issuance of SGS bills and bonds as the government began issuing 6-month SGS bills in July to eventually replace 24-week MAS bills. Corporate bond issuance increased 4.8% q-o-q in Q3 2019, up from 4.0% q-o-q in Q2 2019.

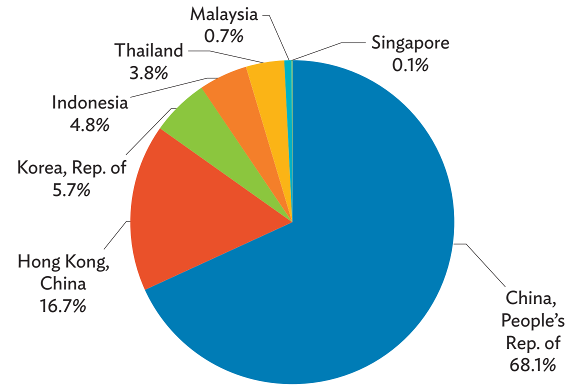
In Thailand, total bond issuance dropped 16.1% q-o-q to USD77.9 billion in Q3 2019 due to contractions in government and corporate debt issuance. Government bond issuance declined 15.0% q-o-q, reaching USD64.5 billion at the end of September. Starting in July, the BOT lowered its supply of short-term bills to curtail speculative capital flows and stem the appreciation of the Thai baht, resulting in a 9.3% q-o-q decline in central bank bond issuance. Issuance of Treasury and other government bonds also dropped significantly by 50.7% q-o-q. Corporate bond issuance contracted 21.4% q-o-q in Q3 2019, reversing the 11.6% q-o-q growth in Q2 2019. Corporate borrowing was tempered by weakened growth prospects for the Thai economy amid the continuing PRC–US trade war. On an annual basis, growth in total bond issuance dropped considerably to 2.0% from 30.6% in Q2 2019. Government bond issuance represented 82.8% of total issuance in Q3 2019.

Viet Nam's total bond issuance fell 13.3% q-o-q to USD20.2 billion in Q3 2019. Government bond issuance dropped 13.8% q-o-q due to declines in the issuance of central bank and Treasury and other government bonds. Issuance of State Bank of Vietnam bonds declined 11.3% q-o-q, while Treasury and other government bond issuance contracted 53.4% q-o-q. The issuance of Treasury bonds was capped by the reduction in scheduled auctions beginning in August. Corporate debt issuance totaled USD0.1 billion. Corporate bond issuance as a share of total issuance was lower in Viet Nam in Q3 2019 than in any other regional economy at 0.7%. On an annual basis, total issuance rose 167.3% in Q3 2019, up from 122.2% growth in the previous quarter.

Cross-Border Bond Issuance

Total intra-regional bond issuance in emerging East Asia declined 5.5% q-o-q in Q3 2019 to USD3.4 billion from USD3.6 billion in Q2 2019. Intra-regional issuance was also down 16.3% y-o-y from the USD4.1 billion raised in Q3 2018. The PRC continued to comprise the largest share of the regional aggregate at 68.1%, with total issuance of USD2.3 billion in Q3 2019 (**Figure 4**). Hong Kong, China followed with issuance of USD575.3 million, accounting for almost one-fifth of the regional total. Other economies that issued cross-border bonds in Q3 2019 include the Republic of Korea (USD197.3 million), Indonesia (USD167.2 million),

Figure 4: Origin Economy of Intra-Emerging East Asian Bond Issuance in the Third Quarter of 2019



Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

Thailand (USD131.3 million), Malaysia (USD25.5 million), and Singapore (USD1.8 million).

In the PRC, intra-regional bond issuance reached USD2.3 billion in Q3 2019 on 23.4% q-o-q growth from the USD1.9 billion raised in the previous quarter. Government-owned China Development Bank, the top issuer in the PRC and the entire region, issued 2-year bonds worth USD1.0 billion in Q3 2019. The bonds were issued in different tranches in July and September, and were denominated in Hong Kong dollars. Another five companies issued HKD-denominated bonds amounting to USD1.1 billion. A sole company issued SGD-denominated bonds worth USD144.7 million, while two companies issued MYR-denominated bonds worth USD13.7 million.

Hong Kong, China had the second most cross-border issuance in the region in Q3 2019, with aggregate issuance of USD575.3 million. Most of the bonds issued in Q3 2019 were denominated in Chinese renminbi (USD564.5 million), with the remaining amount in Singapore dollars. RK Junyu Real Estate was the largest issuer from Hong Kong, China, selling bonds with tenors of 3 years and 5 years amounting to a total of USD314.8 million.

In the Republic of Korea, two financial institutions issued cross-border bonds in Q3 2019 totaling USD197.3 million. The Export–Import Bank of Korea raised USD147.5 million via bonds denominated in both Hong Kong dollars and Indonesian rupiah. The other issuer was Kookmin Bank, which raised USD49.8 million via a 1-year HKD-denominated bond.

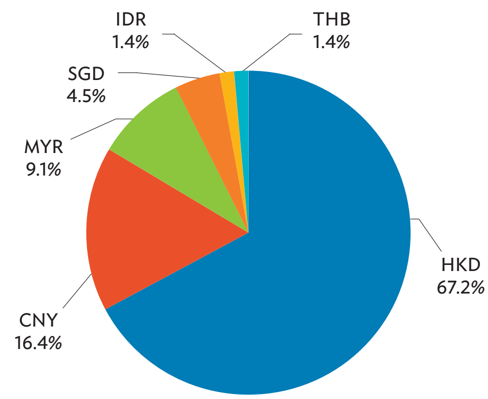
The sole bond issuer from Indonesia in Q3 2019 was Bumitama Agri, an Indonesian oil palm plantation company. The firm issued two MYR-denominated 5-year and 7-year bonds worth a total of USD167.2 million.

Other regional economies that issued cross-border bonds in Q3 2019 were Malaysia, Thailand, and Singapore. CIMB Bank Berhad from Malaysia issued USD25.5 million in HKD-denominated bonds, while CIMB Bank from Thailand issued cross-border bonds worth USD131.3 million. Nomura International Fund was the sole issuer from Singapore, with bonds amounting to USD1.8 million.

The top 10 issuers in the region had an aggregate issuance volume of USD3.1 billion and accounted for 88.8% of the regional total in Q3 2019. Five out of the top ten issuers were from the PRC, issuing bonds denominated in both Hong Kong dollars and Singapore dollars. The remaining five issuers among the top ten were from Hong Kong, China; Indonesia; the Republic of Korea; and Thailand. The top three issuers were all financial firms from the PRC: government-owned China Development Bank (USD1.0 billion); ICBC Hong Kong (USD510.3 million); and China Overseas Finance (USD314.8 million), which was also the largest single issuance during the quarter.

The majority of the cross-border bonds issued in Q3 2019 were denominated in Hong Kong dollars, totaling USD2.3 billion and comprising 67.2% of the regional total (**Figure 5**). HKD-denominated cross-border issuances came from firms based in the PRC, the Republic of Korea, and Malaysia. The Chinese renminbi was the next most popular currency, with cross-border issuances worth USD566.3 million and comprising 16.4% of the regional total. CNY-denominated cross-border issuances came from firms based in Hong Kong, China and Singapore. The region's other cross-border issuances in Q3 2019 were denominated in Malaysian ringgit (9.1%, USD312.2 million); Singapore dollars (4.5%, USD155.6 million); Indonesian rupiah (1.4%, USD49.3 million); and Thai baht (1.4%, USD49.0 million).

Figure 5: Currency Share of Intra-Emerging East Asian Bond Issuance in the Third Quarter of 2019



CNY = Chinese yuan, HKD = Hong Kong dollar, IDR = Indonesian rupiah, MYR = Malaysian ringgit, SGD = Singapore dollar, THB = Thai baht.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

G3 Currency Issuance

Total G3 currency bond issuance in emerging East Asia amounted to USD257.1 billion in January–September.

Total G3 currency bonds issued in emerging East Asia from January to September totaled USD257.1 billion, an increase of 14.9% y-o-y from USD223.7 billion in the same period in 2018 (**Table 4**).[5] The growth was driven by increased G3 issuance in all economies in emerging East Asia except the Republic of Korea, the Philippines, Singapore, and Thailand.

During the review period, 92.9% of all G3 currency bonds issued were denominated in US dollars, while 4.2% were in euros, and 2.9% were in Japanese yen. In January–September, a total of USD238.9 billion worth of bonds denominated in US dollars were issued in emerging East Asia, representing an increase of 19.1% y-o-y. The equivalent of USD10.7 billion of EUR-denominated bonds were issued during the review period, a decline of 39.8% y-o-y, as most economies that issued EUR-denominated bonds during January–September 2018 reduced such issuance in 2019. Bonds issued in Japanese yen totaled USD7.5 billion, a surge of 38.1% y-o-y, spurred by Malaysia's samurai bond issuance in March.

[5] G3 currency bonds are denominated in either euros, Japanese yen, or US dollars.

Table 4: G3 Currency Bond Issuance

2018			January to September 2019		
Issuer	Amount (USD billion)	Issue Date	Issuer	Amount (USD billion)	Issue Date
Cambodia	**0.3**		**Cambodia**	**0.0**	
China, People's Rep. of	**183.6**		**China, People's Rep. of**	**164.5**	
Tencent Holdings 3.595% 2028	2.5	19-Jan-18	Tencent Holdings 3.975% 2029	3.0	11-Apr-19
CNAC (HK) Finbridge Company 5.125% 2028	1.8	14-Mar-18	China Construction Bank 4.250% 2029	1.9	27-Feb-19
Scenery Journey 11.000% 2020	1.6	6-Nov-18	Guangzhou Bank 5.900% Perpetual	1.4	20-Jun-19
Others	177.8		Others	158.2	
Hong Kong, China	**21.9**		**Hong Kong, China**	**26.1**	
CHMT Peaceful Development Asia Property 7.5% 2019	3.3	25-Apr-18	AIA Group 3.60% 2029	1.0	9-Apr-19
Bank of China (Hong Kong) 5.9% Perpetual	3.0	14-Sep-18	Hong Kong, China (Sovereign) 2.50% 2024	1.0	28-May-19
ICBC (Asia) 4.9% Perpetual	2.5	21-Mar-18	Celestial Miles 5.75% Perpetual	1.0	31-Jan-19
Others	13.0		Others	23.1	
Indonesia	**26.1**		**Indonesia**	**15.7**	
Perusahaan Penerbit SBSN *Sukuk* 4.40% 2028	1.8	1-Mar-18	Perusahaan Penerbit SBSN *Sukuk* 4.450% 2029	1.3	20-Feb-19
Indonesia Asahan Aluminium 5.71% 2023	1.3	15-Nov-18	Indonesia (Sovereign) 1.450% 2026	0.8	18-Jun-19
Indonesia (Sovereign) 4.75% 2029	1.3	11-Dec-18	LLPL Capital 6.875% 2039	0.8	4-Feb-19
Others	21.8		Others	12.9	
Korea, Rep. of	**30.4**		**Korea, Rep. of**	**22.5**	
Hanwha Life Insurance 4.700% 2048	1.0	23-Apr-18	Republic of Korea (Sovereign) 2.500% 2029	1.0	19-Jun-19
Korea Development Bank 0.625% 2023	0.9	17-Jul-18	Export–Import Bank of Korea 0.375% 2024	0.8	26-Mar-19
Export–Import Bank of Korea 0.625% 2023	0.9	11-Jul-18	LG Display 1.500% 2024	0.7	22-Aug-19
Others	27.6		Others	20.0	
Malaysia	**2.9**		**Malaysia**	**10.8**	
TNV Global Ventures Capital 4.85100% 2028	0.8	1-Nov-18	Malaysia (Sovereign) 0.530% 2029	1.9	15-Mar-19
Malayan Banking Berhad 3.51813% 2023	0.3	10-Aug-18	Resorts World Las Vegas 4.625% 2029	1.0	16-Apr-19
Others	1.9		Others	8.0	
Philippines	**6.2**		**Philippines**	**5.4**	
Philippines (Sovereign) 3.00% 2028	2.0	1-Feb-18	Philippines (Sovereign) 3.750% 2029	1.5	14-Jan-19
Philippines (Sovereign) 0.38% 2021	1.0	15-Aug-18	Philippines (Sovereign) 0.875% 2027	0.8	17-May-19
Others	3.2		Others	3.1	
Singapore	**16.1**		**Singapore**	**8.2**	
Temasek Financial 3.625% 2028	1.4	1-Aug-18	BOC Aviation 3.50% 2024	0.8	10-Apr-19
DBS Bank 3.300% 2021	1.3	27-Nov-18	DBS Group Holdings 2.85% 2022	0.8	16-Apr-19
Others	13.5		Others	6.7	
Thailand	**5.9**		**Thailand**	**2.8**	
Bangkok Bank (Hong Kong) 4.45% 2028	0.6	19-Sep-18	Bangkok Bank (Hong Kong) 3.733% 2034	1.2	25-Sep-19
Bangkok Bank (Hong Kong) 4.05% 2024	0.6	19-Sep-18	Siam Commercial Bank 3.900% 2024	0.5	11-Feb-19
Others	4.7		Others	1.1	
Viet Nam	**0.7**		**Viet Nam**	**1.0**	
Emerging East Asia Total	**294.0**		**Emerging East Asia Total**	**257.1**	
Memo Items:			**Memo Items:**		
India	**6.4**		**India**	**17.9**	
Export–Import Bank of India 3.875% 2028	1.0	1-Feb-18	Indian Oil Corporation 4.75% 2024	0.9	16-Jan-19
Others	5.4		Others	17.0	
Sri Lanka	**3.9**		**Sri Lanka**	**4.9**	
Sri Lanka (Sovereign) 5.75% 2023	1.3	18-Apr-18	Sri Lanka (Sovereign) 7.55% 2030	1.5	28-Jun-19
Others	2.7		Others	3.4	

USD = United States dollar.
Notes:
1. Data exclude certificates of deposit.
2. G3 currency bonds are bonds denominated in either euros, Japanese yen, or US dollars.
3. Bloomberg LP end-of-period rates are used.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

The PRC continued to dominate all economies in the issuance of G3 currency bonds, totaling USD164.5 billion during the January–September period, supported by its issuance in US dollars. This was followed by Hong Kong, China with USD26.1 billion and the Republic of Korea with USD22.5 billion, both issuing mainly in US dollars as well.

In the first 9 months of 2019, G3 currency bond issuance increased on a y-o-y basis in Malaysia (810.0%); Viet Nam (41.8%); Hong Kong, China (36.1%); the PRC (18.5%); and Indonesia (2.1%). Issuance of G3 currency bonds in January–September declined on a y-o-y basis in Singapore (–42.6%), Thailand (–30.3%), the Philippines (–11.1%), and the Republic of Korea (–4.8%). Cambodia issued G3 currency bonds in January–September 2018 but not in January–September 2019.

The PRC accounted for 64.0% of all G3 currency issuance in emerging East Asia in January–September, issuing USD158.3 billion in US dollars, the equivalent of USD6.0 billion in euros, and the equivalent of USD0.2 billion in Japanese yen. In September, financial services company ICBC (Hong Kong) issued USD-denominated green bonds, two of which had tenors of 3 years (USD0.5 billion and USD1.0 billion with coupon rates of 2.25% and 2.7885%, respectively) and one of 5 years (USD1.0 billion with a coupon rate of 2.8985%). Proceeds from the green bonds will be used to finance environmentally sustainable assets in the PRC. Property developer Country Garden issued a USD0.5 billion 6-year callable bond with a 6.15% coupon rate. Proceeds from the issuance will be used for refinancing maturing offshore liabilities. Special purpose entity Coastal Emerald issued two bonds in August: a USD0.5 billion 3-year bond with a coupon rate of 3.95% and a USD0.9 billion callable perpetual bond with a 4.3% coupon rate. Proceeds will be used for refinancing and general corporate purposes.

The Republic of Korea accounted for an 8.8% share of all G3 currency bonds issued during the review period: USD18.4 billion in US dollars, the equivalent of USD2.9 billion in euros, and the equivalent of USD1.2 billion in Japanese yen. The Export–Import Bank of Korea increased its issuance of USD-denominated bonds in August and September with three bonds totaling USD0.12 billion with tenors of 3–5 years and varying coupon rates. In August, commercial bank KEB Hana Bank issued a USD0.05 billion 1-year USD-denominated bond with a coupon rate of 2.66563%.

Hong Kong, China accounted for a 10.2% share of G3 currency bond issuance in January–September. By currency, USD25.1 billion was issued in US dollars, while JPY-denominated bonds amounted to USD1.0 billion. In September, Joy Treasure Assets Holdings, which provides investment management services through its subsidiaries, issued two USD-denominated bonds: a USD0.4 billion 5-year bond with a 2.875% coupon rate and a USD0.5 billion 10-year callable bond with a coupon rate of 3.5%. Proceeds will be used to refinance existing liabilities. Insurance company FWD Group issued a bond denominated in US dollars: a USD0.6 billion perpetual bond with a 6.375% coupon rate. Proceeds from the issuance are for general corporate purposes.

G3 currency bond issuance among ASEAN member economies increased 5.3% y-o-y to USD44.0 billion in January–September from USD41.8 billion in the same period in 2018. As a share of emerging East Asia's total, ASEAN's G3 currency bond issuance accounted for 17.1% during the review period, down from 18.7% during the same period in 2018. Indonesia issued the most G3 currency bonds among ASEAN members, totaling USD15.7 billion, followed by Malaysia and Singapore, with issuances amounting to USD10.8 billion and USD8.2 billion, respectively.

Indonesia's G3 currency bond issuance in January–September accounted for 6.1% of the total in emerging East Asia, comprising USD13.1 billion in US dollars, the equivalent of USD1.9 billion in Japanese yen, and the equivalent of USD0.8 billion in euros. Government-owned power company Perusahaan Listrik Negara issued three tranches of JPY-denominated bonds with tenors ranging from 3 years to 10 years and coupon rates ranging from 0.43% to 1.05%. Proceeds from the issuance will be used to fund the government's electricity infrastructure development.

G3 currency bonds issued in Malaysia accounted for 4.2% of emerging East Asia's total, including USD-denominated bonds worth USD8.5 billion, and USD2.4 billion worth of bonds denominated in Japanese yen. Malaysian bank Malayan Banking Berhad issued a 5-year bond worth USD0.85 billion and with a coupon rate of 2.96838%. The proceeds will be used for the bank's working capital and other general purposes. The Government of Indonesia's sovereign wealth fund, Khazanah Nasional, through financial services firm Cerah Capital, issued a USD0.5 billion zero coupon 5-year bond. The debt issuance is convertible to CIMB Bank shares currently held by Khazanah Nasional.

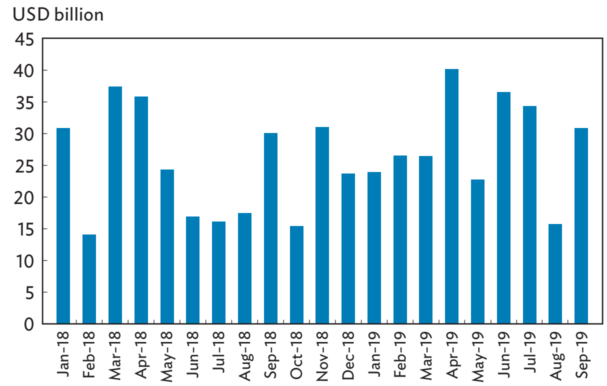
Singapore's share of G3 currency bond issuance in emerging East Asia was 3.2% in January–September, comprising USD8.0 billion issued in US dollars and USD0.2 billion in euros. Global aircraft operating company BOC Aviation expanded its US dollar issuances with a USD0.5 billion 10-year callable bond with a coupon rate of 3.0%. Proceeds from the issuance will be used for funding new capital expenditures, general purposes, and refinancing debt. United Overseas Bank issued USD-denominated covered bonds worth USD0.5 billion with a 3-year tenor and a 1.625% coupon rate. The issuance is part of the bank's USD8.0 billion global covered bond program.

The Philippines accounted for a 2.1% share of total G3 currency bonds issued in emerging East Asia during the January–September period, comprising bonds denominated in US dollars, Japanese yen, and euros amounting to USD3.8 billion, USD0.9 billion, and USD0.8 billion, respectively. In August, the Government of the Philippines issued four tranches of samurai bonds with tenors ranging from 3 years to 10 years and coupon rates between 0.18% and 0.59%. The proceeds will be used to fund the government's infrastructure projects and human capital development.

During the January–September period, 1.1% of all G3 currency bonds issued in the region were from Thailand, comprising USD2.8 billion worth of bonds denominated in US dollars. Bangkok Bank (Hong Kong) issued a USD1.2 billion 15-year callable bond with a 3.733% coupon as part of its global medium-term note program. The debt issuance will be included in the Tier 2 capital of the bank. Chemical holding company Indorama Corporation issued a USD0.3 billion 5-year bond with a coupon rate of 4.375%. Proceeds will be used to refinance and support the company's investment plans.

Viet Nam accounted for the smallest share of G3 currency bond issuance in emerging East Asia at 0.4%, all of which was issued in US dollars. Mong Duong Power Company, though its finance entity, Mong Duong Finance, issued in August a USD0.68 billion 10-year bond with a coupon rate of 5.125%. Proceeds from the issuance will be used to purchase the power company's project loan from existing lenders.

Figure 6: G3 Currency Bond Issuance in Emerging East Asia



USD = United States dollar.
Notes:
1. Emerging East Asia comprises Cambodia; the People's Republic of China; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam.
2. G3 currency bonds are bonds denominated in either euros, Japanese yen, or US dollars.
3. Figures were computed based on 30 September 2019 currency exchange rates and do not include currency effects.

Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

Monthly G3 currency issuance trends from January 2018 to September 2019 show a huge drop in August 2019 to USD15.7 billion from an average of USD35.4 billion per month in the preceding 2 months (**Figure 6**). The slowdown in G3 currency issuance resulted from declines in the PRC; Hong Kong, China; and Indonesia; mainly led by the respective financial sectors of the PRC and Hong Kong, China.

Government Bond Yield Curves

Government bond yield curves rose at the longer end in most markets in emerging East Asia between 31 August and 15 October.

For most of the review period between 31 August and 15 October, yields in advanced economies trended downward as global economic growth weakened and central banks eased monetary policy.

In the US, the Federal Reserve eased policy rates on 17–18 September and 29–30 October by 25 bps each due to rising uncertainty, while the European Central Bank (ECB) reduced its deposit facility rate by 10 bps on 12 September. The ECB also resumed its asset purchase program at a monthly pace of EUR20 billion on 1 November.

The Federal Reserve released updated economic forecasts in September, which were mostly unchanged from June, except for a slight increase in the 2019 and 2021 annualized GDP growth rates to 2.2% (from 2.1%) and 1.9% (from 1.8%), respectively. Inflation forecasts were unchanged. In the euro area, ECB economic forecasts for September showed a downgrade in 2019 GDP growth to 1.1% from 1.2% and in 2020 to 1.2% from 1.4%. The biggest revision was a downgrade in inflation for 2020 to 1.0% from 1.4%.

Despite these developments, yields in advanced economies started trending upward toward the end of the review period amid a softening in the trade dispute between the PRC and the US. In the case of Japan, rising yields were caused by concerns over rates at the longer end of the curve remaining too low. The Bank of Japan scaled back bond purchases at the longer end of the curve, despite reaffirming its commitment to loose monetary policy on 19 September.

In emerging East Asia, 2-year yields in most markets generally followed movements in advanced economies, with the exceptions largely resulting from individual monetary policies. Yields trended upward in the Republic of Korea and Hong Kong, China (**Figure 7a**). Yields trended lower in the PRC and Singapore, but the declines were marginal. Indonesia and Viet Nam also saw their 2-year yields trending downward during the review period, while Malaysia's 2-year yield movements were roughly stable (**Figure 7b**).

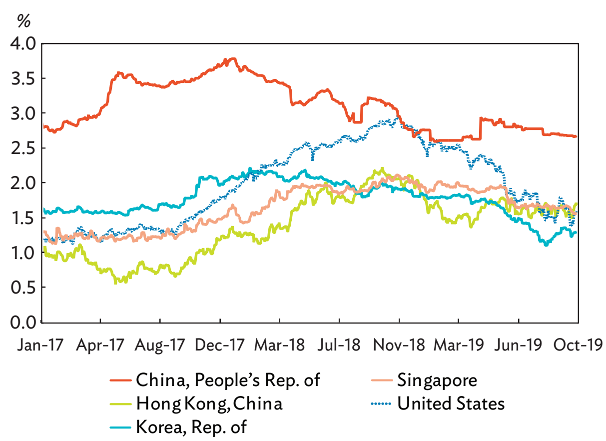
The trends for 10-year yields in emerging East Asia mirrored movements in the 2-year yields. The only exceptions were the PRC and Malaysia, whose 10-year yields trended upward (**Figures 8a** and **8b**).

Yield curves for all markets in emerging East Asia steepened during the review period, with the exception of Hong Kong, China (with an inverted yield curve) and Viet Nam (**Figure 9**). The drivers of the steepening varied across different markets.

In the PRC, the Republic of Korea, Malaysia, and the Philippines, the steepening yield curve was mostly due to a rise in yields at the longer end of the curve. At the shorter end of the yield curves for these markets, yields either fell or the gains were outpaced by movements at the longer end.

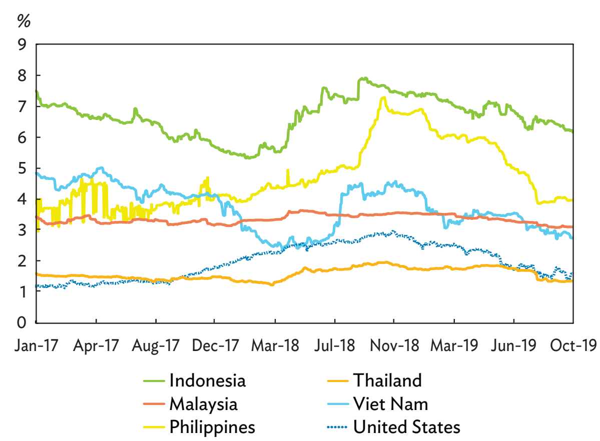
The rise in yields in both the PRC and the Republic of Korea was mainly driven by news of progress in negotiations between the PRC and the US in their ongoing trade dispute. In the case of the PRC, yields also gained on the People's Bank of China (PBOC) not being as dovish as markets had expected. In the Republic of Korea and Hong Kong, China, yields were pushed up on announcements of fiscal stimulus measures to boost the domestic economy.

Figure 7a: 2-Year Local Currency Government Bond Yields



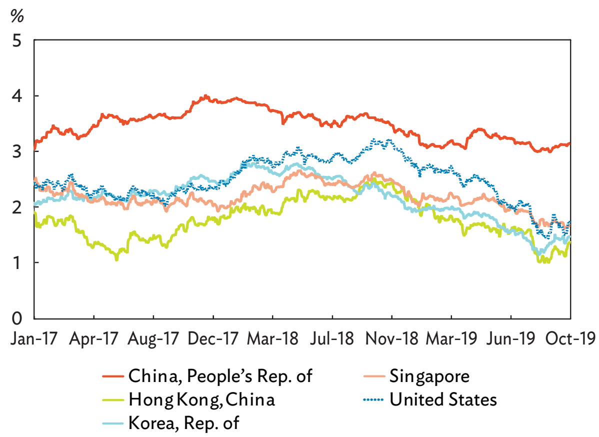
Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

Figure 7b: 2-Year Local Currency Government Bond Yields



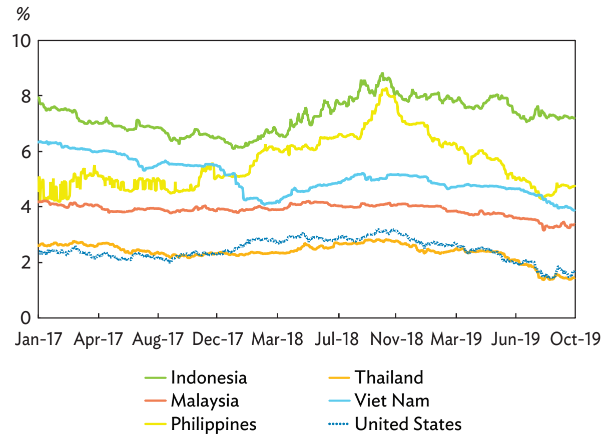
Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

Figure 8a: 10-Year Local Currency Government Bond Yields



Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

Figure 8b: 10-Year Local Currency Government Bond Yields



Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

In the Philippines, the overall rise in yields was due to expectations that there would be no further easing by the BSP, leading to investors taking profits.

In Malaysia, yields rose prior to the release of FTSE Russell's decision to keep Malaysian government bonds on its watchlist until the next review in March 2020.

In Indonesia and Singapore, steepening yield curves were primarily due to relatively faster declines in short-term yields. In Indonesia, the decline in yields was driven both by continued easing by Bank Indonesia, in response to slowing growth, and worsening trade data. In Singapore, yields fell as MAS adjusted the slope of the Singapore dollar nominal effective exchange rate band on 14 October to help strengthen the economy.

The slowdown in global economic growth led to a decline in inflation rates for most markets in emerging East Asia. The exceptions to this trend included Indonesia and Hong Kong, China (**Figure 10a**), where inflation was largely stable. In addition, the PRC's inflation trended upward during the review period, largely due to supply shocks stemming from the African swine flu and its impact on pork prices (**Figure 10b**).

Lower inflation and a decline in the growth outlook for most economies in emerging East Asia led most central banks in the region to reduce policy rates. From August to October, all central banks in the region except for Bank Negara Malaysia and the PBOC reduced policy rates at least once.

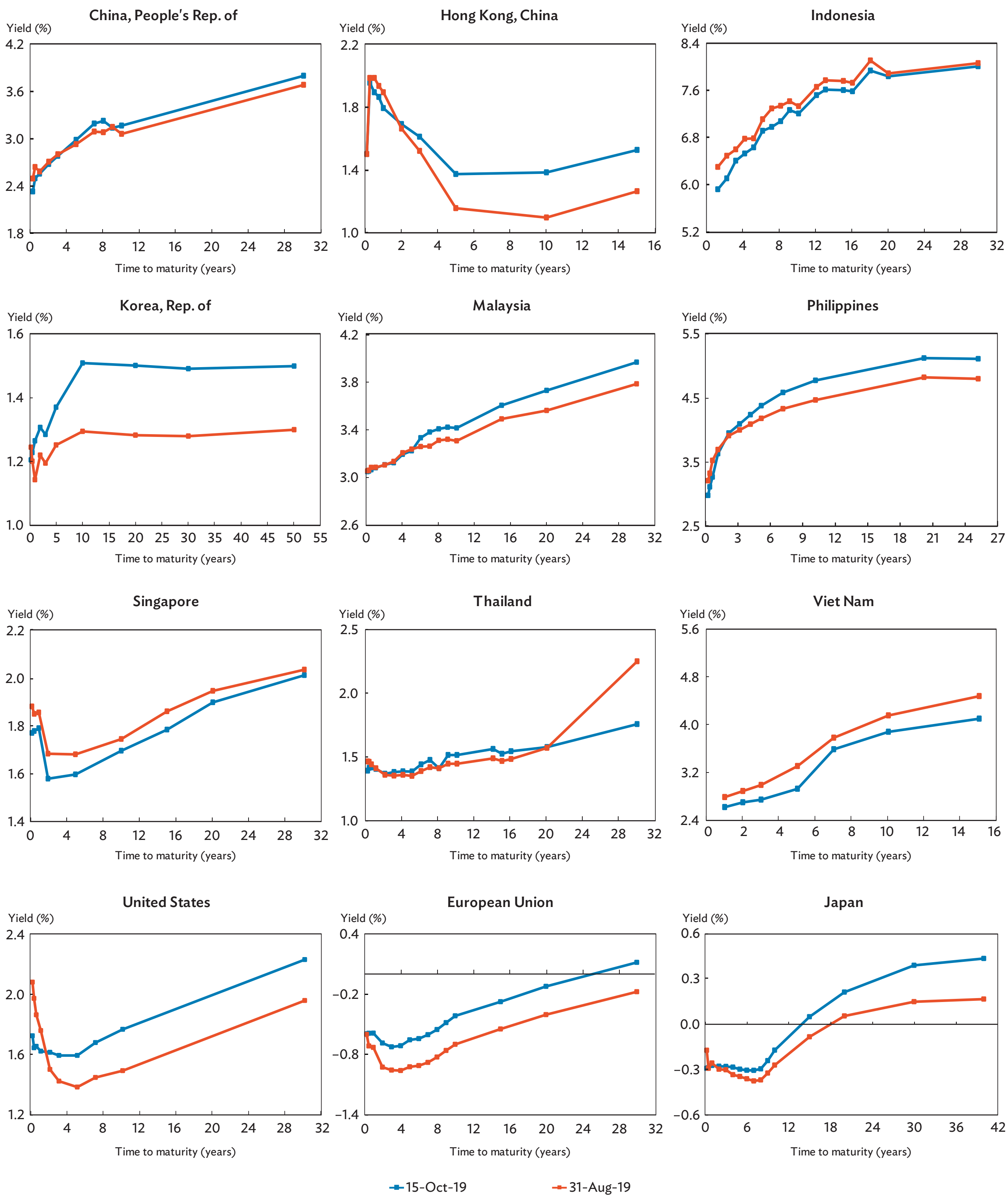
While GDP figures for Q3 2019 have not yet been released, there are indications of reduced growth throughout the region. One exception is Malaysia, where the central bank last reduced policy rates on 7 May (**Figure 11a**). During its 12 September meeting, Bank Negara Malaysia left policy rates unchanged, noting that Q2 2019 GDP growth was strong at 4.9% y-o-y, up from 4.5% y-o-y in the previous quarter, and that forecasts for the second half of 2019 remain unchanged.

While the BSP also reduced policy rates in the Philippines on 26 September by 25 bps, it noted that inflation risks are on the upside in 2020. However, in a surprise to markets, the BSP reduced reserve requirement ratios by 100 bps on 24 October.

In the Republic of Korea, the central bank reduced policy rates on 16 October by 25 bps and indicated that updated economic forecasts were lower than those made in July.

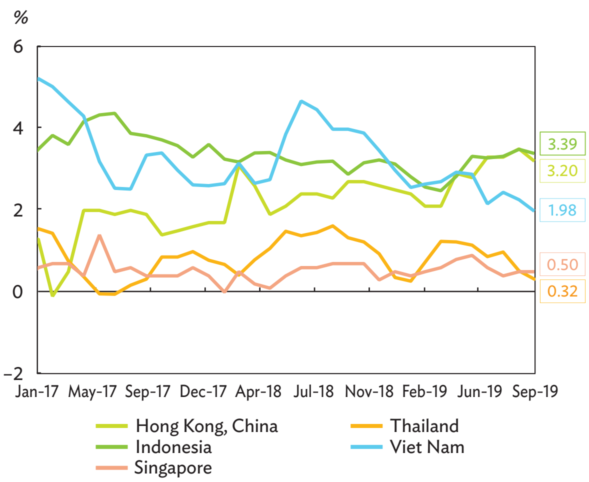
During the August–October period, Bank Indonesia was the most aggressive in reducing policy rates, with a cut in each of the 4 months, the last coming on 24 October due to benign inflation and slowing economic growth (**Figure 11b**). The International

Figure 9: Benchmark Yield Curves—Local Currency Government Bonds



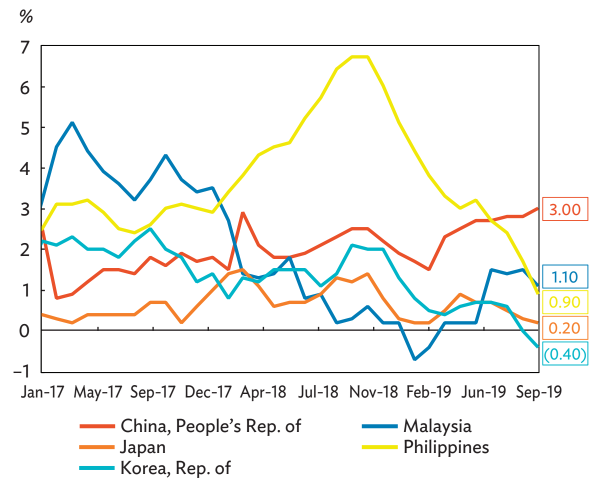
Sources: Based on data from Bloomberg LP and Thai Bond Market Association.

Figure 10a: Headline Inflation Rates



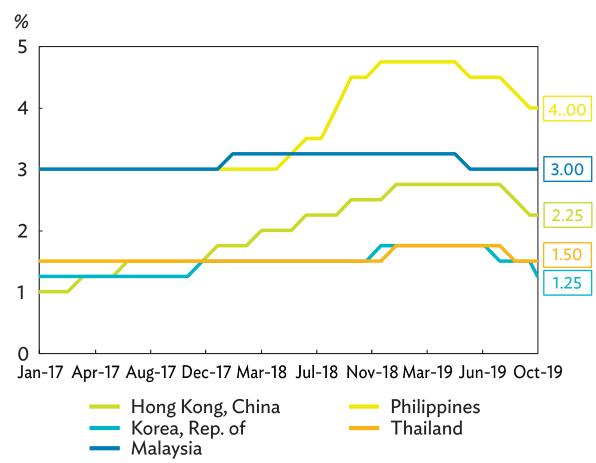
Note: Data as of September 2019.
Source: Based on data from Bloomberg LP.

Figure 10b: Headline Inflation Rates



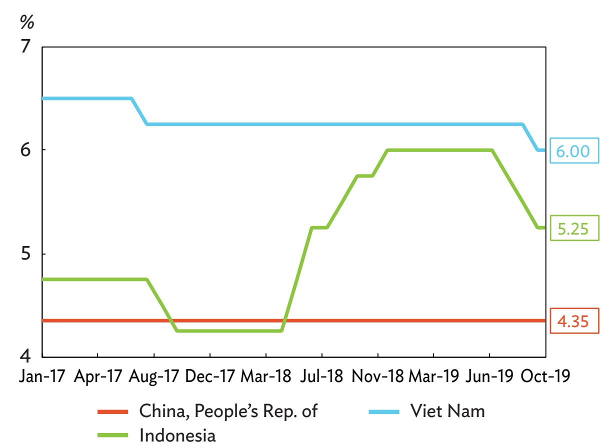
Note: Data as of September 2019.
Source: Based on data from Bloomberg LP.

Figure 11a: Policy Rates



Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

Figure 11b: Policy Rates



Note: Data as of 15 October 2019.
Source: Based on data from Bloomberg LP.

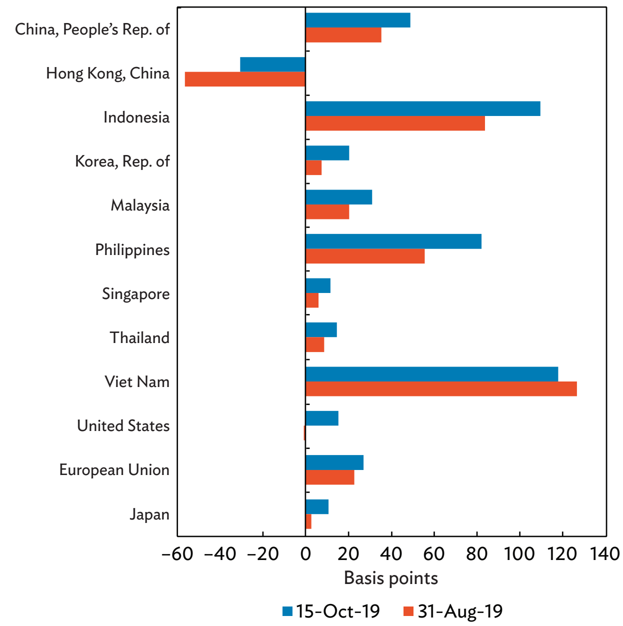
Monetary Fund on 19 October downgraded its 2019 GDP forecast for Indonesia to 5.0% from the 5.2% forecast made in July.

In Viet Nam, markets reacted to the State Bank of Vietnam's 25 bps rate cut in September, which followed monetary easing in advanced economies. It was the first rate cut in Viet Nam since August 2017. This led to a steep decline in yields in Viet Nam, with the yield curve falling an average of 26 bps. In comparison, Indonesia's yield curve shifted downward an average of 19 bps during the review period.

The PRC has yet to significantly adjust policy rates despite a decline in Q3 2019 GDP growth to 6.0% y-o-y from 6.2% y-o-y in the previous quarter. The PBOC did reduce reserve requirement ratios by 50 bps on 9 September, with an additional 100 bps cut for select banks. On 19 September, the PBOC reduced its 1-year loan prime rate a marginal 5 bps to 4.20%.

The 2-year versus 10-year yield spread steepened in all markets except Viet Nam and Hong Kong, China (**Figure 12**).

Figure 12: Yield Spreads Between 2-Year and 10-Year Government Bonds



Source: Based on data from Bloomberg LP.

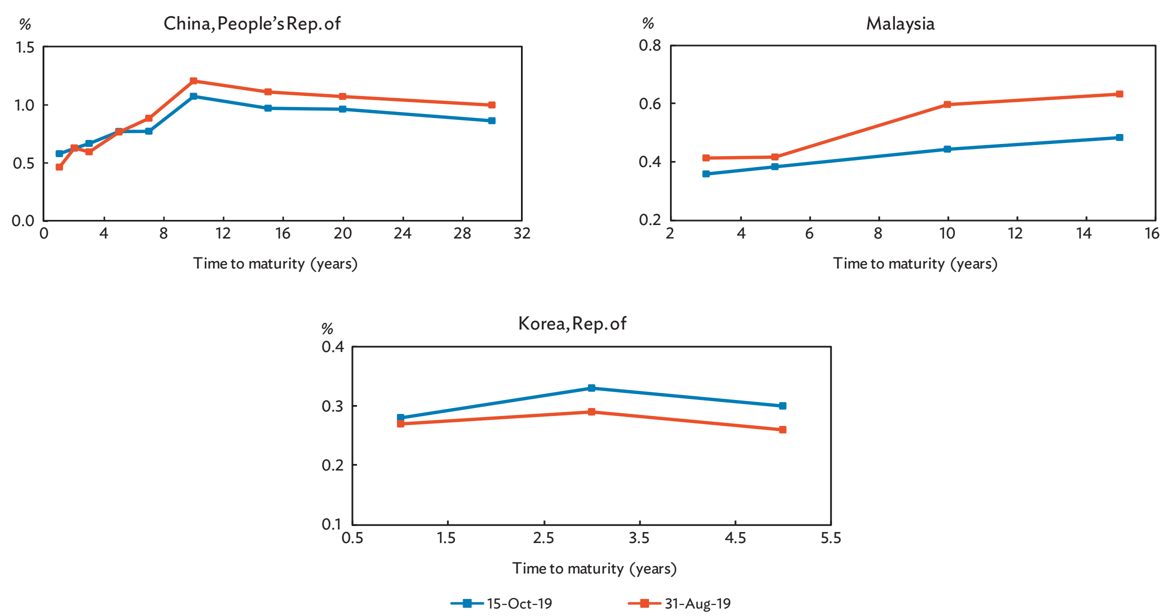
Corporate Bond Credit Spreads

The AAA-rated corporate versus government bond yield spread fell in the PRC and Malaysia, and rose in the Republic of Korea.

In the PRC, the AAA-rated corporate versus government bond yield spread fell, as the improved sentiment surrounding PRC–US trade relations led to increased demand for corporate bonds (**Figure 13a**). In Malaysia, the fall was driven largely by enduring positive sentiment over Malaysia's economic prospects. On the other hand, the spread worsened in the Republic of Korea over concerns about the domestic economy.

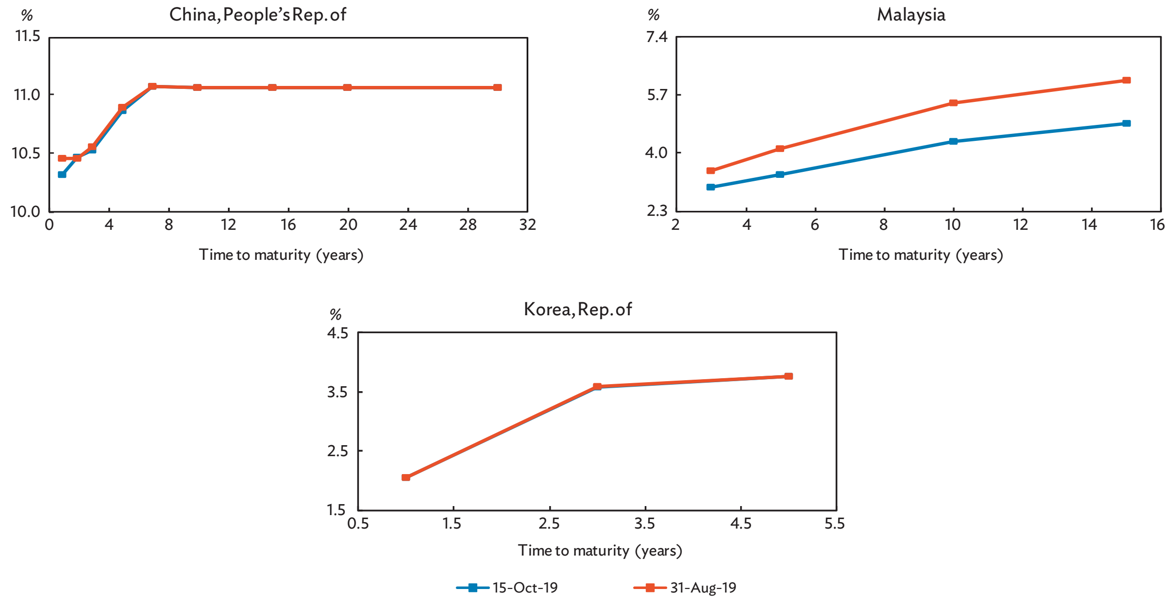
For lower-rated versus AAA-rated corporates, the credit spread was largely unchanged in the PRC, where investors continued to shun riskier credit, and in the Republic of Korea (**Figure 13b**). In Malaysia, the spread declined.

Figure 13a: Credit Spreads—Local Currency Corporates Rated AAA vs. Government Bonds



Notes:
1. Credit spreads are obtained by subtracting government yields from corporate indicative yields.
2. For the Republic of Korea and Malaysia, data on corporate bonds yields are as of 31 August 2019 and 14 October 2019.
Sources: People's Republic of China (*Wind Information*), Republic of Korea (*EDAILY BondWeb*), and Malaysia (Bank Negara Malaysia).

Figure 13b: Credit Spreads—Lower-Rated Local Currency Corporates vs. AAA



Notes:

1. For the People's Republic of China and the Republic of Korea, credit spreads are obtained by subtracting corporate indicative yields rated AAA from corporate indicative yields rated BBB+.
2. For the Republic of Korea and Malaysia, data on corporate bonds yields are as of 31 August 2019 and 14 October2019.

Sources: People's Republic of China (*Wind Information*), Republic of Korea (*EDAILY BondWeb*), and Malaysia (Bank Negara Malaysia).

Policy and Regulatory Developments

People's Republic of China

The People's Bank of China Reduces Reserve Requirement Ratio for Banks

On 6 September, the People's Bank of China (PBOC) announced that it would reduce by 50 basis points (bps) the reserve requirement ratio of financial institutions, effective 16 September. In addition, rural commercial banks operating solely within provincial administrative regions would be entitled to an additional 100 bps cut, with the reduction to be phased in on 15 October and 15 November.

The People's Republic of China Removes Quota on Some Foreign Investor Programs

On 10 September, the State Administration of Foreign Exchange announced that it would remove quota limits on its Qualified Foreign Institutional Investor and Renminbi Qualified Foreign Institutional Investor programs. The government said that this would make it easier for foreign investors to participate in the domestic market of the People's Republic of China's (PRC).

China Securities Regulatory Commission Places Limit on Private Corporate Bond Issuance

On 15 October, the China Securities Regulatory Commission announced that the total amount of outstanding corporate bonds sold privately would be limited to 40% of a company's net assets. Additional bonds issued exceeding this ratio may only be used to repay existing debt.

Hong Kong, China

Government Unveils HKD19.1 Billion Economic Support Package

On 15 August, the Government of the Hong Kong Special Administrative Region of the People's Republic of China unveiled fiscal support measures worth HKD19.1 billion to provide support to citizens and businesses affected by the economic downturn. The measures for citizens include extra payments to social security recipients, subsidies for students from the primary and secondary levels, 1 month of free rent for low-income tenants of government housing, and a one-off electricity subsidy worth HKD2,000. The support for businesses includes waivers for 27 groups of fees and charges for the retail, catering, and tourism sectors; a reduction of rent for short-term tenancies of government lands; a new loan guarantee for small businesses; and retraining for workers.

Hong Kong Monetary Authority Cuts Countercyclical Capital Buffer by 50 bps to 2.0%

On 14 October, the Hong Kong Monetary Authority lowered the countercyclical capital buffer from 2.5% to 2.0%, the first reduction since 2015. The move was intended to allow banks to release an additional HKD200 billion–HKD300 billion of bank credit. In its press statement, the Hong Kong Monetary Authority stressed that economic conditions in Hong Kong, China have deteriorated since June and the freeing of funds will allow banks to provide support to the economy and help counter the economic downturn. The countercyclical capital buffer is an integral part of the Basel III regulatory capital framework designed to increase the resilience of the banking sector in periods of excess credit growth.

Indonesia

Government Reduces Tax on Interest Income from Bonds

In August, the Government of Indonesia signed a new regulation that will lower the tax on interest income from bond investments to 5.0% from 15.0% for infrastructure investment funds, real estate investment funds, and asset-backed securities. The reduction in taxes will take effect in 2020 and be adjusted to 10% by 2021, making the applicable tax rates for these financial products at par with those of mutual funds.

Bank Indonesia and Bank Negara Malaysia Sign Local Currency Bilateral Agreement

In September, Bank Indonesia and Bank Negara Malaysia (BNM) signed a bilateral agreement to strengthen monetary and financial cooperation. The two central banks agreed on a local currency bilateral agreement of up to USD2 billion (or the equivalent of MYR8 billion or IDR28 trillion). The local currency bilateral agreement will remain effective for 3 years and is subject to extension. Also, the two central banks signed a memorandum of understanding for the development of payment systems and digital financial innovation.

Republic of Korea

The Republic of Korea's Government Proposes KRW513.5 Trillion Budget for 2020

On 29 August, the Government of the Republic of Korea submitted its 2020 budget totaling KRW513.5 trillion for approval. The planned budget entails a 9.3% increase in government spending over 2019 levels and is focused on helping boost the economy and promoting innovation. The main policies of the 2020 budget include increased spending for research and development; support for exports, investment, and consumption; strengthened social safety nets; improved quality of life; and strengthened national defense and diplomacy. The government projects revenues to be KRW482 trillion, a marginal 1.2% annual increase, due to continued weakness in the semiconductor industry and fiscal decentralization. Correspondingly, the target fiscal budget deficit as a share of gross domestic product will rise to 3.6% in 2020 from 1.9% in 2019.

Malaysia

Bank Negara Malaysia Liberalizes Foreign Exchange Policies

On 16 August, BNM issued several new policies on foreign exchange administration to provide more flexibility and efficiency for businesses in managing their foreign exchange risks. Resident investors are allowed to hedge their foreign currency current account obligations up to their underlying tenure. Resident treasury centers may hedge on behalf of their related entities. Nonresident treasury centers may also do so, but they must register first with BNM. Nonresident investors are allowed to hedge on an anticipatory basis through an appointed overseas office for the settlement of their trades in goods and services. Finally, the definition of domestic MYR borrowing has been revised to exclude credit facilities used by corporations for miscellaneous expenses. This aims to help businesses manage their operational expenses without undue impact on their investment activities.

Philippines

Bangko Sentral ng Pilipinas Launches the First Other Financial Corporations Survey

In October, the Bangko Sentral ng Pilipinas launched the first Other Financial Corporations Survey (OFCS), a comprehensive measure of the assets and liabilities of other financial corporations. These include, among others, trust entities, private and public insurance companies, government financial institutions, and nonmoney market funds covering unit investment trust funds and investment companies. The OFCS aims to identify the concentration of vulnerabilities in the financial sector in relation to other sectors in the economy. The OFCS report will include sections on net foreign assets, domestic claims, and other liabilities of other financial corporations. It will also be publicly available to the public within 4 months after the end of each corresponding quarter.

Regional

Asian Bond Markets Initiative Holds Workshops in September and October

In September and October, the Asian Bond Markets Initiative organized a series of events to aid in the deepening of local currency bond markets in ASEAN+3.[6] A green bond workshop was held in September to present an overview of green finance and green bonds. *AsianBondsOnline* and the Ministry of Finance of Viet Nam jointly organized a capacity building workshop on developing the secondary corporate bond market and bond pricing in Viet Nam. In October, the ASEAN+3 Bond Market Forum and the Shenzhen Stock Exchange co-organized the 32nd ASEAN+3 Bond Market Forum meeting in Shenzhen.

[6] ASEAN+3 comprises the 10 member economies of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China, Japan, and the Republic of Korea.

Singapore

Singapore and the People's Republic of China to Strengthen Each Other's Financial Markets

On 15 October, the Monetary Authority of Singapore and the PBOC discussed measures to expand activities between the capital markets of the PRC and Singapore that would help strengthen both markets. The PBOC agreed to grant DBS Bank with a settlement agent license, which will allow it to trade, settle, and hold custody of debt instruments from the PRC's interbank bond market on behalf of foreign investors. The Monetary Authority of Singapore and the PBOC also agreed to develop mechanisms that would equip select Singaporean and Chinese banks with custody and trading services to help investors in the PRC's bond market.

Thailand

Mutual Funds Subject to 15% Income Tax, Effective 30 August

A tax regulation amendment affecting the bond market came into effect on 30 August. Investments in mutual funds became subject to a 15.0% withholding tax on gross income. The amendment was intended to reduce discrepancies in the tax burdens imposed on direct investments in debt instruments compared to investments in debt instruments through mutual funds. Prior to the amendment, direct investments in debt instruments were subject to a 15.0% withholding tax on interest, profits, or discount, while investments in mutual funds with an asset allocation in debt instruments were tax-exempt.

Government of Thailand Approves Fiscal Stimulus Package to Boost Growth

On 20 August, the Thai cabinet approved a THB316.0 billion stimulus package to boost the sluggish economy. The stimulus package included additional allowances for low-income earners and the elderly, debt relief and loans for farmers affected by the ongoing drought, incentives for domestic tourism and investment, credit support for small- and medium-sized enterprises, and low-interest loans for home buyers. The government estimates that the stimulus measures will raise full-year 2019 growth by 0.5–0.6 percentage points to at least 3.5%.

Viet Nam

State Treasury Plans to Issue VND70 Trillion Worth of Government Bonds in the Third Quarter of 2019

In August, the State Treasury announced its plan to issue VND70 trillion worth of government bonds in the third quarter of 2019. The issuance plan comprises (i) 5-year Treasury bonds worth VND4 trillion, (ii) 7-year Treasury bonds worth VND2 trillion, (iii) 10-year Treasury bonds worth VND27 trillion, (iv) 15-year Treasury bonds worth VND26 trillion, (v) 20-year Treasury bonds worth VND6 trillion, and (vi) 30-year Treasury bonds worth VND5 trillion. The volume of issuance, however, may be adjusted subject to market conditions and the funding needs of the government.

AsianBondsOnline Annual Bond Market Liquidity Survey

Introduction

AsianBondsOnline conducts an annual bond market liquidity survey to provide an updated and deeper assessment of the local currency (LCY) bond market environment in emerging East Asia markets.[7] The survey aims to identify key issues and possible areas for improvement in enhancing liquidity in the region's LCY bond markets. The survey is also expected to assist regulators and policy makers in the further deepening of the region's LCY bond markets.

As in past years, the annual bond market liquidity survey was conducted through face-to-face meetings and e-mail correspondence with various bond market participants in emerging East Asia. Survey respondents include bond traders, brokers, research houses, fund managers, bond pricing agencies, and supervisory institutions. The survey was conducted simultaneously across the region's economies from the last week of September through the middle of October.

The survey comprises two parts—a quantitative section and a qualitative section—with each section covering both LCY government and corporate bond markets. The quantitative part analyzes market data on bid–ask spreads and transaction sizes, which are used as a gauge for assessing the state of liquidity in each of the region's LCY bond markets. The qualitative section presents the views of market participants on the degree of development of their respective bond market based on key structural factors.

As most advanced economies' central banks have become dovish and are maintaining an accommodative monetary policy stance, the region's bond markets benefited from the shift in investor appetite toward emerging market assets. Survey results showed increased liquidity in 2019 in all of the region's LCY bond markets except for Hong Kong, China; the Republic of Korea; and Singapore. Trading volumes also increased in 2019 from the previous year, largely due to easing monetary policies by central banks in advanced economies and in emerging East Asia.

In Hong Kong, China, there was a decline in trading activity amid negative sentiment owing to the domestic political environment. The negative sentiment also led to capital outflows, with some foreign investors staying on the sidelines.

In the Republic of Korea, trading activity was relatively similar to the previous year. While other markets benefited from the general dovish trends of central banks in the region, sentiment in the Republic of Korea's bond market was negatively affected by the slowdown in its economy.

In Singapore, liquidity was mostly unchanged, which participants attributed to the relative depth of the bond market.

All other markets in emerging East Asia enjoyed improved liquidity in 2019, recovering from the previous year's downturn.

Quantitative Indicators for Government Bond Markets

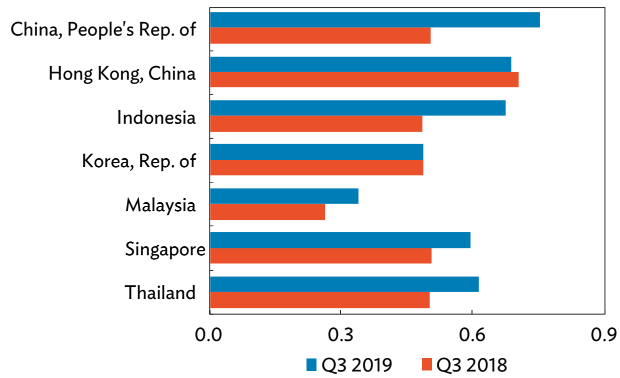
One of the indicators used to measure bond market liquidity is trading volume, or the value of bonds traded in the secondary market. However, in a region where bond markets are continually expanding in size, and with some still in the midst of development, the turnover ratio may be a more appropriate measure of trading activity. The turnover ratio allows us to determine how active trading is relative to bond market size. *AsianBondsOnline* calculates the turnover ratio by taking the quarterly trading volume (one side of the trade only) and dividing it by the average amount of bonds outstanding in the current and previous quarters. A higher turnover ratio indicates a more liquid market and greater trading activity.

[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 14 presents the quarterly turnover ratios for emerging East Asian markets in which data are available. Changes in government bond market liquidity, as reflected by changes in turnover ratios from the same period last year, were mixed. Turnover ratios in the third quarter (Q3) of 2019 were up for the People's Republic of China (PRC), Indonesia, Malaysia, Singapore, and Thailand; the ratio was unchanged for the Republic of Korea and down for Hong Kong, China. For the PRC, Indonesia, Malaysia, Singapore, and Thailand, most survey respondents observed improved liquidity brought about by increased demand for emerging market sovereign bonds due to expectations of a global economic slowdown. For Hong Kong, China, liquidity was adversely affected by political uncertainties brought about by several months of protests. The PRC; Hong Kong, China; and Indonesia were the most active markets in the region in Q3 2019, posting turnover ratios of 0.75, 0.69, and 0.67, respectively. Aside from risk-off sentiment that increased demand for safer assets, market observers in the PRC attributed the improvement in liquidity to the gradual opening up of the domestic bond market to foreign investors. Survey respondents also noted that foreign investor participation and bond market liquidity increased following the inclusion of PRC bonds in the Bloomberg Barclays Global Aggregate Index in April.

Another indicator used to measure liquidity in a bond market is the bid–ask spread, or the cost of executing a trade. This is the difference between the bid and ask price of a bond; it is typically quoted in basis points (bps). A narrower spread indicates higher liquidity. The average bid–ask spreads for Treasury bonds for the different markets in the region are presented in **Table 5**. The regional average bid–ask spread for on-the-run

Figure 14: 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 between the preceding and current quarters.
2. For the Republic of Korea and Thailand, Q3 2019 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).

Table 5: Local Currency Government Bond Market Quantitative Indicators

		PRC	HKG	INO	KOR	MAL	PHI	SIN	THA	VIE	Regional
Typical Bid–Ask Spread On-the-Run	Average (bps)	1.1	4.0	4.1	0.4	2.7	2.8	2.1	2.7	5.5	2.8
	SD	1.1	1.7	1.5	0.3	1.6	1.6	0.5	1.3	1.1	1.6
	CV	1.0	0.4	0.4	0.8	0.6	0.6	0.2	0.5	0.2	0.6
Typical Bid–Ask Spread Off-the-Run	Average (bps)	4.1	4.7	7.7	0.6	4.3	8.3	2.4	6.6	10.8	5.5
	SD	4.2	2.5	2.2	0.6	0.8	3.0	0.7	3.5	10.8	3.1
	CV	1.0	0.5	0.3	0.9	0.2	0.4	0.3	0.5	1.0	0.6
Accepted LCY Bond Transaction Size On-the-Run	Average (USD million)	11.5	91.4	1.4	8.4	4.1	1.9	8.1	5.2	2.8	15.0
	SD	7.5	62.6	0.7	–	2.3	1.0	6.5	1.6	1.0	28.9
	CV	0.7	0.7	0.5	0.0	0.6	0.6	0.8	0.3	0.3	1.9
Accepted LCY Bond Transaction Size Off-the-Run	Average (USD million)	7.3	65.9	1.1	8.3	2.9	1.1	8.1	3.4	2.5	11.2
	SD	5.2	60.6	0.5	0.0	1.1	0.4	6.5	1.4	0.6	20.7
	CV	0.7	0.9	0.5	0.0	0.4	0.3	0.8	0.4	0.2	1.9

– = 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.
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 emerging East Asian markets. Bid–ask spreads for government bonds are most often expressed in terms of "cents" in the Indonesian market.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

government bonds for this year's survey narrowed to 2.8 bps from 4.7 bps in 2018, as the majority of markets posted a lower bid–ask spread. The most developed bond markets in the region continued to have the lowest bid–ask spreads, with the Republic of Korea, the PRC, and Singapore posting bid–ask spreads of 0.4 bps, 1.1 bps, and 2.1 bps, respectively.

Bid–ask spreads for off-the-run securities tend to be wider than those for on-the-run securities. Declines in bid–ask spreads for off-the-run government bonds were also observed for most markets in the 2019 survey compared with the previous year, resulting in a narrowing of the regional average bid–ask spread for off-the-run government bonds to 5.5 bps from 8.5 bps in 2018. Similar to on-the-run government bonds, the markets that registered the lowest bid–ask spreads were the most developed bond markets in the region. The Republic of Korea, Singapore, and the PRC posted average bid–ask spreads for off-the-run government bonds of 0.6 bps, 2.4 bps, and 4.1 bps, respectively.

Transaction size is another measure of market liquidity. A relatively higher average value for a single transaction indicates the participation of large-scale market players, making the market more liquid. The average transaction size for on-the-run government bonds rose in 2019 in four out of nine markets compared with last year. This resulted in a regional average transaction size that increased more than three times to USD15.0 million in 2019 from USD4.8 million in 2018. The PRC saw the largest increase in transaction size, followed by the Philippines and Thailand. For the PRC and Thailand, the rise in average transaction size reflected increased trading activity brought about by there being more market players, including offshore investors. In the Philippines, the jump in average trading size reflected the rally in government bonds following the central bank's monetary policy easing as well as the increased issuance of government bonds in 2019.

Characteristics of Individual Government Bond Markets

People's Republic of China

Market participants for the *AsianBondsOnline* 2019 annual bond market liquidity survey in the PRC indicated that trading activity significantly increased compared with last year.

The increased activity was largely due to both domestic and external factors. At the macro level, the ongoing trade dispute between the PRC and the United States (US) has led to a decline in the PRC's exports, impacting its economic growth. The slower economic growth has led to increased demand for the PRC's government bonds as yields fell. The ongoing PRC–US trade dispute also increased expectations of further easing by the People's Bank of China (PBOC).

In response to slowing economic growth, the PBOC has engaged mostly in targeted easing measures while restraining from implementing more broad-based easing, largely due to concerns over credit risk. For example, in May, the PBOC announced that a preferential reserve requirement ratio cut would apply to small- and medium-sized banks operating at the county-level. In September, the PBOC announced a broad-based 50 bps reduction in the reserve requirement ratio but stated that this was mainly in anticipation of tax payments. There was also an additional targeted cut for rural and commercial banks.

Market participants believe that the PBOC needs to engage in further easing and that a recent PBOC move to tie the loan prime rate to the medium-term lending facility will help achieve more effective policy rate transmission, with the next preferred step being a reduction in the medium-term lending facility rates.

Participants also noted that the improved liquidity in 2019 was the result of increased activity from offshore players, in particular, as the result of the gradual opening up of the PRC's bond market to foreign investors. Survey respondents noted increased activity from participants in the Bond Connect program and cited the removal of quotas from the Qualified Foreign Institutional Investor and Renminbi Qualified Foreign Institutional Investor programs as another move highlighting government efforts to increase foreign investor participation.

Respondents also said that foreign investor participation and bond liquidity improved following the inclusion of the PRC bond market in the Bloomberg Barclays Global Aggregate Index in April. The PRC's government bonds are also being evaluated for possible inclusion in JP Morgan's bond indices and the FTSE World Government Bond Index.

As a result of these factors, bid–ask spreads for the PRC's government bonds have largely fallen (**Table 6**).

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

	Treasury Bills	Treasury Bonds	Policy Bank Bonds	Local Government Bonds
On-the-Run				
Bid–Ask Spread (bps)	1.5	1.1	1.0	5.0
Average Trading Size (CNY million)	82.0	82.0	82.0	100.0
Off-the-Run				
Bid–Ask Spread (bps)	3.9	4.1	4.0	10.0
Average Trading Size (CNY million)	52.5	52.5	50.0	100.0

bps = basis points, CNY = Chinese yuan.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

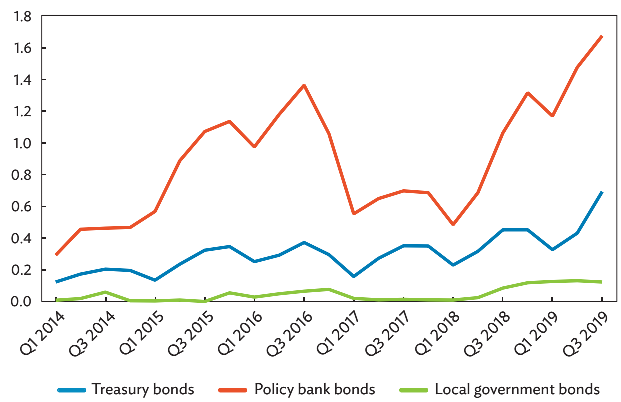
Bid–ask spreads fell the most for Treasury bills, with the average bid–ask spread declining to 1.5 bps in 2019 from 2.8 bps in 2018. The bid–ask spread for Treasury bonds fell to 1.1 bps from 1.9 bps during the review period. Policy bank bonds maintained the lowest bid–ask spread among the different types of government bonds, with the spread narrowing to 1.0 bps in 2019 from 1.4 bps in the previous year. Participants cited the relatively larger pool of policy bank bonds and consistent issuance as factors for their attractiveness to investors.

Local government bond bid–ask spreads roughly remained the same at 5.0 bps in 2019 and are the least liquid type of government bond. This is due to their narrow investor base; nearly 80% of local government bonds are held by banks, with banks largely pursuing a buy-and-hold strategy.

Bid–ask spreads for off-the-run securities tend to be higher than spreads for on-the-run securities, but declines were also noted in 2019 for Treasury bills and policy bank bonds. The bid–ask spreads for off-the-run Treasury bonds and local government bonds were roughly unchanged from last year.

Average trading sizes rose across all types of government securities. The average trading size for on-the-run Treasury bills rose to CNY82.0 million in 2019 from CNY43.0 million in the previous year. The average trading size for Treasury bonds rose to CNY82.0 million from CNY34.0 million, while the trading size for policy bank bonds rose to CNY82.0 million from CNY33.0 million. The local government bond trading size rose to CNY100.0 million in 2019 from CNY40.0 million in 2018.

Figure 15: Turnover Ratios for the Spot Market in the People's Republic of China



Q1 = first quarter, Q3 = third quarter.
Source: *ChinaBond*.

Increased volatility and demand for safer assets led to increased turnover in government bonds as evidenced by higher turnover ratios in 2019 than in 2018 (**Figure 15**).

Hong Kong, China

Hong Kong, China's survey participants noted a decline in liquidity conditions in 2019 from the previous year. Domestic political events in Hong Kong, China are fueling protests that have led to increased risk aversion for Hong Kong dollar assets and a decline in overall trading activity.

Interbank liquidity also declined in 2019 due to negative sentiment and seasonal factors such as upcoming initial public offerings. Capital flight and weakness in the Hong Kong dollar has led to a decline in the aggregate balance, but market participants do not view the decline as a concern.

Based on survey responses, Exchange Fund Bills (EFBs) remained the most liquid instrument, with bid–ask spreads unchanged at 4.0 bps (**Table 7**). There was an increase in bid–ask spreads for Exchange Fund Notes (EFNs) to 7.2 bps in 2019 from 6.6 bps in 2018, while bid–ask spreads for Hong Kong Special Administrative Region (HKSAR) bonds were roughly unchanged. Investor interest in EFBs remains relatively high owing to their consistent issuance.

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)	4.0	7.2	11.3
Average Trading Size (HKD million)	716.7	100.0	37.5
Off-the-Run			
Bid–Ask Spread (bps)	4.7	7.8	13.8
Average Trading Size (HKD million)	516.7	58.3	25.0

bps = basis points, HKD = Hong Kong dollar, HKSAR = Hong Kong Special Administrative Region.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Average trading size increased significantly for EFBs, with the average trading size rising to HKD716.7 million in 2019 from HKD537.5 million in 2018. The average trading size for EFNs was unchanged during the review period at HKD100.0 million. The average trading size for HKSAR bonds, on the other hand, fell to HKD37.5 million from HKD41.7 million.

Off-the-run bid–ask spreads for EFBs rose to 4.7 bps in 2019 from 4.4 bps in 2018. A slight increase in average trading size was also noted, with the average rising to HKD516.7 million from HKD512.5 million. EFN off-the-run bid–ask spreads were roughly unchanged in 2019 at 7.8 bps versus 7.6 bps in the previous year. EFN liquidity remains considerably lower compared to that of EFB due to limited supply, as issuance is restricted to the 2-year tenor.

Despite efforts to align HKSAR bonds with the EFN market, liquidity and investor interest remain relatively poor owing to structural factors. EFBs and EFNs are accepted as collateral for intraday or overnight funding at a 2% haircut, while HKSAR bonds can be used for term borrowing at a 5% haircut.

Indonesia

Survey respondents in Indonesia noted an improvement in liquidity conditions in the LCY bond market in 2019 compared with last year, buoyed by a reversal in investor sentiment toward emerging markets. As most advanced economies turned dovish and shifted to an accommodative monetary stance in 2019, foreign investors rebalanced their portfolios toward higher-yielding emerging market assets. The Indonesian LCY bond market benefited as foreign investors shored up their holdings of IDR-denominated bonds, leading the foreign holdings share of such bonds to breach 37.0%. The sovereign ratings upgrade from S&P Global Ratings on 31 May also fueled further interest in Indonesia's LCY bond market. Some participants observed that more (and bigger) players are now actively participating in the bond market.

Survey respondents also noted the more active participation of domestic investors this year vis-à-vis 2018. The bond market saw support not just from domestic banks but also from insurance companies and pension funds. The government's active issuance of retail bonds in 2019 also contributed to further interest among retail investors, reflecting increased awareness of the bond market as an alternative investment option. Liquidity conditions for Islamic Treasury instruments also improved, although they attracted interest largely from local investors. *Sukuk* (Islamic bonds) saw a good yield pickup in 2019, paving the way for the government to consider releasing a benchmark series for *sukuk* in 2020.

The improved investor sentiment in the LCY bond market was also influenced by Bank Indonesia's timely action and support to ensure adequate liquidity in domestic financial markets. Survey respondents noted that the central bank stood ready to intervene in the foreign currency market via the domestic nondeliverable forward and in the bond market by engaging in bond buybacks. In addition, Bank Indonesia lowered its policy rate 4 months in a row between July and October, for a cumulative reduction of 100 bps to date in 2019. Market participants opined that the quick action of the central bank helped investors gain more confidence in trading bonds. As for the policy rate, survey respondents were unanimous in saying there is still room to further reduce policy rates, with a possible cut toward the end of this year. In 2020, however, Bank Indonesia is expected to be less aggressive in cutting rates. Despite the four rate cuts, there was no significant rally in the bond market as the rate cut had already been priced in by investors. The cut in the reserve requirement ratio in 2019 provided additional liquidity to the market, particularly for banks by giving them additional funds to place in the bond market.

Amid this backdrop, Indonesia's LCY bond market is facing headwinds as global economic conditions remain sluggish. The prolonged trade spat between the PRC and the US continues to pose a threat and contributes to risk-off sentiment in emerging markets. Indonesia remains vulnerable given the high share of foreign holdings in its LCY bond market. The Indonesian financial market is highly sensitive to global events and external risks that contribute to risk-off sentiment. Once risk-off comes into play, the Indonesian rupiah immediately weakens and a sell-off ensues in the LCY bond market.

The slowdown in global economic conditions has dragged down Indonesia's economic growth and resulted in a weakening trade performance. Real gross domestic product (GDP) growth hit 5.07% y-o-y in the first quarter (Q1) of 2019 and 5.05% in the second quarter (Q2). Most survey participants believed that the full-year 2019 economic growth target of 5.2% set by the government will be difficult to achieve due largely to external factors. Domestic demand remains the driver of growth. However, there is upside pressure on inflation as the government is set to impose a higher tax on cigarettes in 2020. Nonetheless, survey participants welcomed the timely action of the central bank in lowering rates to support economic growth and its other actions to help ensure financial stability. Year-to-date through 15 October, bond yields trended lower, equities market slightly weakened, and the Indonesian rupiah strengthened against the US dollar.

Bid–ask spreads for Treasury bills and Treasury bonds narrowed in 2019 compared with results from the 2018 survey. Survey respondents quoted an average bid–ask spread of 4.1 bps in 2019 versus 5.3 bps in 2018 for on-the-run Treasury bonds and 7.7 bps versus 8.6 bps, respectively, for off-the-run Treasury bonds (**Table 8**). A narrowing of spreads was also observed for both on-the-run and off-the-run Treasury bills this year. Some survey participants, however, only quoted off-the-run bid–ask spreads for Treasury bills. The trading of Treasury bills was not active in 2019, as noted by survey respondents, because of the less attractive yields.

In 2019, the average transaction size for on-the-run and off-the-run Treasury bonds declined compared with the 2018 survey results, from IDR35.5 billion to IDR20.3 billion. However, most survey respondents mentioned that a single trade transaction for Treasury bonds could reach as high as IDR50.0 billion, mostly for short-term tenors, or even IDR100.0 billion for offshore

Table 8: Local Currency Government Bond Survey Results—Indonesia

	Treasury Bills	Treasury Bonds
On-the-Run		
Bid–Ask Spread (bps)	10.5	4.1
Average Trading Size (IDR billion)	62.9	20.3
Off-the-Run		
Bid–Ask Spread (bps)	7.9	7.7
Average Trading Size (IDR billion)	55.0	16.0

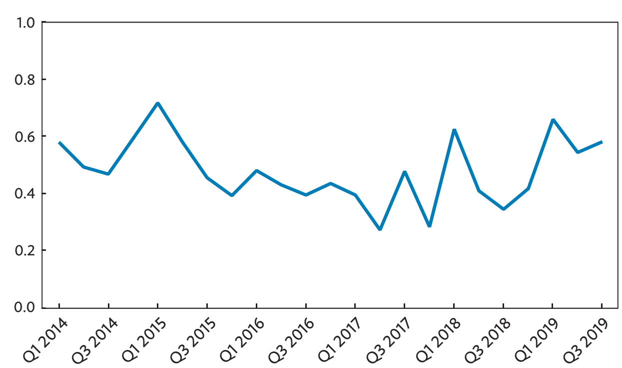
bps = basis points, IDR = Indonesian rupiah.
Notes: The bid–ask spreads for Indonesian Treasury bonds presented above are expressed in terms of yields or basis points to make them comparable with bid–ask spreads in other emerging East Asian markets. Bid–ask spreads for government bonds are most often expressed in terms of "cents" in the Indonesian market. The Indonesian market quotes bid–ask spread for Treasury bills in terms of yields or basis points.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

transactions. For long-term bonds, the typical ticket size could be as low as IDR10.0 billion.

Similar with the trend for Treasury bonds, the average transaction size also declined for Treasury bills. As in past surveys, the average transaction size remained higher for Treasury bills than Treasury bonds.

The LCY government bond market in Indonesia saw more active trading activities in the first 3 quarters of this year compared with 2018. Trading volume for government bonds was up 37.0% y-o-y, rising to IDR5,161.1 trillion in the first 3 quarters of 2019 from IDR3,765.3 trillion in the same period a year earlier. The quarterly turnover ratio also improved strongly in Q1 2019 to 0.7 from 0.5 in the previous quarter (**Figure 16**).

Figure 16: Quarterly Government Bond Turnover Ratio in Indonesia



Q1 = first quarter, Q3 = third quarter.
Sources: Indonesia Stock Exchange and *AsianBondsOnline*.

Republic of Korea

In the Republic of Korea, survey respondents noted that liquidity conditions in the LCY government bond market in 2019 were almost the same as last year, with most respondents citing little improvement. Despite declining yields and higher bond prices, traders remained cautious due to continued volatility and heightened risks. The average bid–ask spreads for on-the-run and off-the-run Korea Treasury Bonds marginally declined in 2019 to 0.4 bps and 0.6 bps, respectively, from 0.5 bps and 0.7 bps in 2018 (**Table 9**). The same was observed for the average trading sizes for on-the-run and off-the-run Korea Treasury Bonds, which held steady at KRW10 billion each. The bid–ask spreads and average trading sizes for Monetary Stabilization Bonds issued by the Bank of Korea were also mostly unchanged from last year.

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

	Treasury Bonds	Central Bank Bonds
On-the-Run		
Bid–Ask Spread (bps)	0.4	0.5
Average Trading Size (KRW billion)	10.0	10.0
Off-the-Run		
Bid–Ask Spread (bps)	0.6	0.3
Average Trading Size (KRW billion)	10.0	10.0

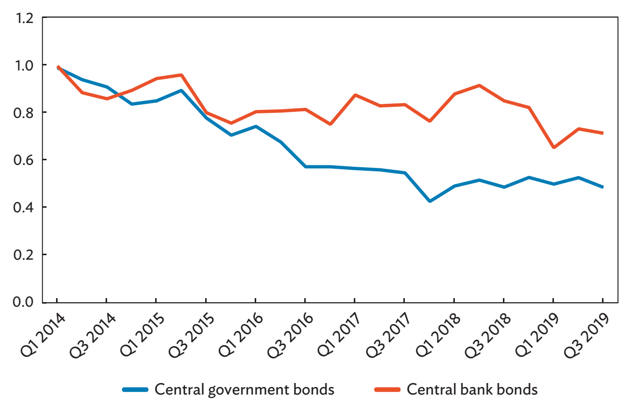
bps = basis points, KRW = Korean won.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

The ongoing trade dispute between the PRC and the US, as well as volatility in US Treasury yields, weighed on trading activity for LCY government bonds in the Republic of Korea. Other events, such as developments in Brexit and in other major emerging markets, had minimal impact on the domestic bond market as the Republic of Korea remained a safe-haven for investors.

The slowdown in both global and domestic economic growth also contributed to the tepid trading activity in the bond market. Economic growth in the Republic of Korea contracted 0.4% quarter-on-quarter in Q1 2019 due to the continued deterioration in exports. Inflation also continued to ease in 2019, remaining below 1.0% for the year before turning negative in September at –0.4% y-o-y. These developments allowed the Bank of Korea to cut its base rate by 25 bps in July, following a rate hike in November 2018, to support economic growth. The Bank of Korea also lowered its GDP forecasts for 2019 and 2020 to 2.2% and 2.5%, respectively.

The continued decline in turnover ratios also reflected the lack of improvement in trading activity in the LCY government bond market (**Figure 17**). Quarterly trading volumes were mostly similar in 2019 as in 2018, with a slight uptick in Q2 2019 due to expectations of a rate cut by the Bank of Korea in its July meeting. Meanwhile, the size of the bond market continued to grow as the government issued more bonds in 2019 to aid the slowing economy.

Figure 17: Quarterly Government Bond Turnover Ratios in the Republic of Korea



Q1 = first quarter, Q3 = third quarter.
Note: Data for Q3 2019 based on *AsianBondsOnline* estimates.
Source: The Bank of Korea.

In the short term, market participants were pricing in a rate cut by the Bank of Korea in its October meeting and another one in the first half of 2020, which together would lower the policy rate to 1.00%.[8] Yields are expected to be range-bound with a slight uptick through the end of the year as the market has already priced in the expected rate cuts. Moreover, the government plans to increase spending next year, targeting a higher budget deficit to boost economic growth. The additional bond supply, which the market has also priced in, is expected to contribute to the upward bias in domestic bond yields.

[8] The Bank of Korea cut its base rate on 16 October by 25 bps to 1.25%.

The Korean won has been one of the worst-performing currencies in the region in 2019, depreciating 6.0% year-to-date as of 15 October, reaching a low of KRW1,221.99 per USD1 on 13 August. The won's depreciation reflects the domestic economy's vulnerability to external factors, particularly the impact of the PRC–US trade dispute. Lower-than-expected GDP growth in 2019, along with expectations of this continued trajectory, drove the currency's weakness. Market participants expect the exchange rate to remain in the range of KRW1,180–KRW1,220 per USD1. Despite the depreciation, the Bank of Korea is perceived to be comfortable with the won at this range and has intervened only when the currency depreciates to a lower range.

The recent trade dispute between Japan and the Republic of Korea is contributing to the risks to economic outlook, particularly exports. Market participants believe that further impacts would immediately be reflected in the currency and the stock market. The bond market would also be affected by any negative sentiment toward domestic economic growth.

Survey respondents noted a few measures to further improve liquidity in the bond market, including the intention of the government to lessen restrictions in the repurchase (repo) market in the coming years and plans for foreign investors to participate directly in the trading platform. Respondents also suggested that longer-dated tenors should be included in the futures market.

Malaysia

Liquidity in Malaysia's LCY government bond market improved in 2019, according to respondents to this year's LCY bond market liquidity survey. Investor confidence improved following uncertainties resulting from the general election in 2018. As drivers of market activity, foreign investors have been encouraged by the liberalized foreign exchange policies instituted by the Government of Malaysia after being placed on the watch list for exclusion from the FTSE World Government Bond Index in April.

Among on-the-run government securities, liquidity declined for Malaysia Government Securities (MGS) and Government Investment Issues (GII), while Bank Negara Malaysia (BNM) bills and Treasury bills showed improvements. Despite renewed investor confidence, the decline in liquidity in MGS and GII reflected cautiousness toward LCY government bonds following Malaysia's inclusion on the FTSE Russell watch list. Average bid–ask spreads for on-the-run MGS and GII in 2019 increased to 2.7 bps and 3.1 bps, respectively, from 2.3 bps and 2.5 bps in 2018 (**Table 10**). On the other hand, average spreads for BNM bills and Treasury bills decreased to 2.5 bps and 2.7 bps, respectively, from 2.7 bps and 5.7 bps in 2018.

Table 10: Local Currency Government Bond Survey Results—Malaysia

	MGS	GII	BNM Bills	Treasury Bills
On-the-Run				
Bid–Ask Spread (bps)	2.7	3.1	2.5	2.7
Average Trading Size (MYR million)	17.0	14.0	56.7	50.0
Off-the-Run				
Bid–Ask Spread (bps)	4.3	4.6	4.0	4.0
Average Trading Size (MYR million)	12.0	13.0	62.5	62.5

BNM = Bank Negara Malaysia, bps = basis points, GII = Government Investment Issues, MGS = Malaysia Government Securities, MYR= Malaysian ringgit.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

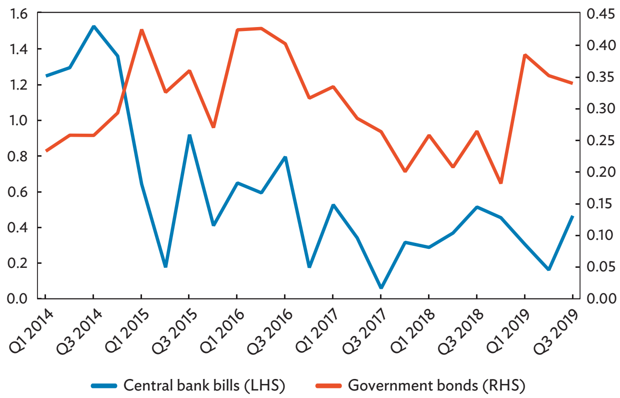
Trading activities in 2019 were largely unchanged from the previous year. Average trading sizes for MGS and GII slightly decreased to MYR17.0 million and MYR14.0 million, respectively, from MYR18.0 million and MYR14.9 million. For BNM bills and Treasury bills, average trading sizes grew to MYR56.7 million and MYR50.0 million, respectively, from MYR48.3 million and MYR49.2 million.

Results for off-the-run government securities showed more consistent results, with average bid–ask spreads declining across all four security types as average trading sizes increased for all except MGS, which saw a slight decrease.

The turnover ratio for central bank bills increased to 0.46 in Q3 2019 from 0.16 in Q2 2019 as the quarterly trading volume of central bank bills improved (**Figure 18**). The quarterly trading volume of central bank bills went up to MYR4.5 billion from MYR2.1 billion, while quarterly average central bank bills outstanding decreased to MYR9.7 billion from MYR13.3 billion.

The turnover ratio for government bonds increased from 0.26 in Q3 2018 to 0.34 in Q3 2019 as the quarterly trading volume increased faster than the quarterly average for government bonds outstanding.

Figure 18: Quarterly Government Bond Turnover Ratios in Malaysia



LHS = left-hand side, RHS = right-hand side. Q1 = first quarter, Q3 = third quarter.
Source: Bank Negara Malaysia.

Quarterly trading volume jumped to MYR248.0 billion from MYR175.9 billion, while the quarterly average for government bonds outstanding increased to MYR736.8 billion from MYR671.0 billion. The increased quarterly trading volume in 2019 may be attributed to improved investor confidence as BNM rolled out measures to increase market liquidity and access.

Foreign fund inflows have not improved since BNM's crackdown on Malaysian ringgit trading in the offshore nondeliverable forward market in November 2016. With Malaysia's inclusion on the FTSE Russell watch list, BNM instituted several new measures in both May and August to improve market liquidity and accessibility. Survey participants acknowledged the positive response by local and foreign investors to these measures, but it will take some time for their effects to be reflected fully in the marketplace. Hence, survey respondents expect liquidity in the LCY government bond market to continue to improve over the next 6 months. To further develop the LCY government bond market, survey participants hope for improved access to, and the increased availability of, hedging tools. Retail participation must also be encouraged to broaden the investor base.

Other economies in the region have been easing their monetary policies in response to the slowdown in the global economy. BNM, however, has refrained from being dovish. Furthermore, Malaysia has been resilient to global events affecting other economies. As such, survey participants had mixed views on BNM's possible move in its next monetary policy committee meeting in November. Some see room to cut interest rates as the introduction of fiscal stimulus has been slow. Others expect no movement in the overnight policy rate due to Malaysia's higher-than-expected economic growth and the economy's resilience to the PRC–US trade war. Finally, some believe BNM will first assess the 2020 budget that was released on 11 October before deciding if a policy rate cut is necessary.

Philippines

Liquidity in the Philippine LCY government bond market improved significantly in 2019, largely due to the rally in government bonds driven by the Bangko Sentral ng Pilipinas' (BSP) monetary policy easing. The average bid–ask spread for on-the-run and off-the-run Treasury bonds fell to 2.8 bps and 8.3 bps, respectively, in 2019 from 6.9 bps and 17.5 bps in 2018 (**Table 11**). Correspondingly, the average trading sizes also rose to PHP96.9 million and PHP59.4 million, respectively, in 2019 from PHP56.1 million and PHP42.5 million in 2018. The same trend was observed for Treasury bills, with the average bid–ask spread for on-the-run securities declining to 4.3 bps in 2019 from 14.3 bps in 2018; the average trading size increased to PHP90.6 million from PHP53.8 million during the same period in review.

Table 11: Local Currency Government Bond Survey Results—Philippines

	Treasury Bonds	Treasury Bills
On-the-Run		
Bid–Ask Spread (bps)	2.8	4.3
Average Trading Size (PHP million)	96.9	90.6
Off-the-Run		
Bid–Ask Spread (bps)	8.3	10.0
Average Trading Size (PHP million)	59.4	59.4

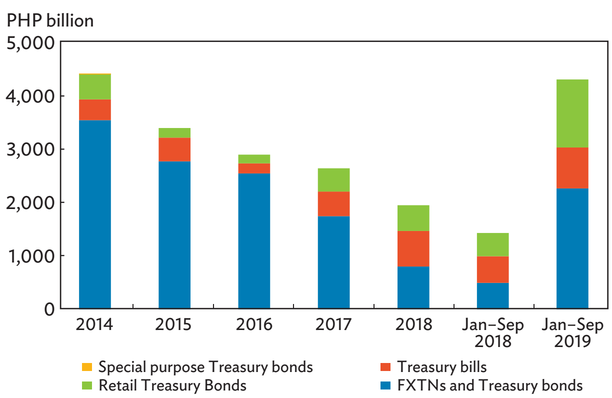
bps = basis points, PHP = Philippine peso.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

The market environment in 2018 was marked by high inflation, peaking at 6.7% y-o-y in September 2018, and by the BSP's monetary policy tightening response. The central bank raised its key interest rates a total of 175 bps in 2018, which led to tightening liquidity in the market. Inflation eased in 2019, decelerating to as low as 0.9% y-o-y in September. The easing inflation allowed the BSP to cut its key interest rates by a total of 75 bps in three monetary policy meetings. Moreover, the BSP also cut the reserve requirement ratio for banks by 200 bps in tranches starting in May, and by another 100 bps effective in November. This further boosted market liquidity and provided support to the LCY government bond market.

Data from the Philippine Dealing and Exchange Corporation show the aggregate trading volume of government bonds for the first 9 months of 2019 jumping to PHP4.3 trillion from PHP1.4 trillion in the same period in 2018 and PHP1.9 trillion for full-year 2018 (**Figure 19**). Trading volume for Treasury bonds in the first 9 months of the year grew more than three times to PHP2.2 trillion from PHP493.5 billion in the same period in 2018. Trading of Treasury bills also saw 54.1% y-o-y growth from the same period in the previous year. Trading volume for retail Treasury bonds rose two-fold to PHP1.3 trillion in the first 3 quarter of the year. In addition to abundant liquidity, the increased issuance of government bonds in 2019, particularly Treasury bonds and retail Treasury bonds, also drove the significant rise in trading activity in the market. Total issuance of central government bonds rose 52.8% y-o-y in the first 3 quarters of 2019.

In the short term, market participants expect economic fundamentals to support a downward bias in domestic bond yields. The new 100 bps cut in the reserve requirement ratio effective in November will flush more liquidity into the market and support government bonds. The market also expects the BSP to continue its monetary easing through 2020 via cuts in the policy rates and the reserve requirement ratio, as inflation is expected to remain subdued. Some are pricing in another policy rate cut in November and another 100 bps cut in reserve requirement ratio in December, while most are saying that the BSP is done for the year and will cut anew in 2020. The risk to this outlook is still largely driven by any potential change in the monetary policy direction of the Federal Reserve and other major central banks, and by trade talk developments between the PRC and the US.

Figure 19: Philippine Dealing and Exchange Corporation Trading Volume Trends—Government Securities in the Philippines



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

To further improve liquidity in the Philippine government bond market, survey respondents suggested addressing the final withholding tax on interest income, which discourages foreign participants from investing in LCY bonds. As with previous years, respondents also emphasized the need to further develop the repurchase market to deepen liquidity in the bond market.

Singapore

Liquidity in Singapore's LCY government bond market did not change significantly in 2019, according to survey respondents. The LCY government bond market has been relatively stable for years and few new developments have emerged. Market participants continue to view both Singapore Government Securities (SGS) bills and Monetary Authority of Singapore (MAS) bills as being very liquid.

Due to their short-term nature, most market participants do not trade SGS bills and MAS bills, as reflected in wide bid–ask spreads. Average bid–ask spreads for on-the-run SGS bonds, SGS bills, and MAS bills in 2019 were 2.1 bps, 11.0 bps, and 11.5 bps, respectively (**Table 12**). The spread for SGS bonds was largely unchanged from 2018. However, the marked increases in the spreads of SGS bills and MAS bills (up from 1.5 bps each in 2018) were due to more survey participants being able to provide data this year compared to last year, not due to liquidity concerns. The same trend was also observed for off-the-run SGS bonds, SGS bills, and MAS bills.

Compared with the previous year, trading activities were roughly unchanged in 2019 since the LCY government bond market is well developed. Average trading sizes were down slightly as primary dealers became cautious due to general uncertainties brought about by the slowdown in global economic growth.

Table 12: Local Currency Government Bond Survey Results—Singapore

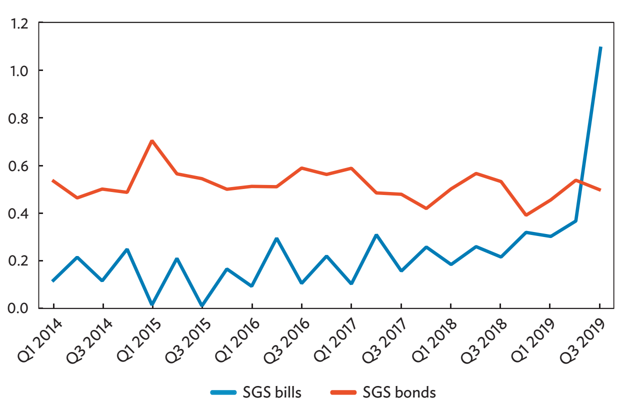
	SGS Bonds	SGS Bills	MAS Bills
On-the-Run			
Bid–Ask Spread (bps)	2.1	11.0	11.5
Average Trading Size (SGD million)	11.1	32.5	32.5
Off-the-Run			
Bid–Ask Spread (bps)	2.4	12.5	11.5
Average Trading Size (SGD million)	11.1	32.5	32.5

bps = basis points, MAS = Monetary Authority of Singapore, SGD = Singapore dollar, SGS = Singapore Government Securities.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

The average trading size for on-the-run SGS bonds was SGD11.1 million in 2019, down from SGD12.9 million a year earlier, while the average was SGD32.5 million for both SGS bills and MAS bills, down by SGD2.5 million for each from a year earlier. The same values in 2019 were observed for the average trading sizes of off-the-run SGS bonds, SGS bills, and MAS bills.

The turnover ratio for SGS bills spiked to 1.10 in Q3 2019 from 0.21 in Q3 2018 as growth in the quarterly trading volume of SGS bills outpaced the increase in the quarterly average of SGS bills outstanding (**Figure 20**). The jump in quarterly trading volume to SGD26.0 billion from SGD2.1 billion during the review period was due to gains in daily outright purchases and sales of SGS bills from July to September. This coincided with the replacement of the 24-week MAS bills with 6-month SGS bills, which started in July, making the SGS bills accessible to retail investors. The switch expanded the quarterly average for SGS bills outstanding to SGD23.7 billion from SGD10.0 billion.

Figure 20: Quarterly Government Bond Turnover Ratios in Singapore



SGS = Singapore Government Securities, Q1 = first quarter, Q3 = third quarter.
Sources: Monetary Authority of Singapore, Singapore Government Securities.

The turnover ratio for SGS bonds declined to 0.49 in Q3 2019 from 0.53 in Q3 2018 as the quarterly average for SGS bonds outstanding gaining more than quarterly trading volume. The quarterly average for SGS bonds outstanding increased to SGD122.3 billion from SGD112.7 billion, while quarterly trading volume jumped to SGD60.3 billion from SGD59.7 billion.

The introduction of the 6-month SGS bill was meant to attract retail investors and therefore did not have much impact on institutional investors. On the other hand, the lower turnover ratio for SGS bonds supported survey respondents' view that market players are not taking risks while the global economy slows. Survey respondents believe that liquidity in the Singapore government bond market over the next 6 months will remain stable. Although the investor profile is well developed, survey respondents wish for a broader range of investors in the LCY government bond market to further improve liquidity.

Despite the slowdown in global economic growth, the LCY government bond market in Singapore has remained resilient. On the domestic side, supported by economic growth and consumer price inflation assessments, market participants correctly anticipated the move by MAS to ease on 14 October when it slightly decreased the slope of the Singapore dollar nominal effective exchange rate and kept the width and center of the policy band unchanged. Market players had already priced in this monetary policy move in their investments. Internationally, the global events that have impacted Singapore in 2019 are the PRC–US trade war and the protests in Hong Kong, China, with the latter having a potential positive financial impact as more funds may flow into Singapore. As for other global events, authorities are taking a wait-and-see approach as it assesses the consequences of these events for domestic growth prospects.

Thailand

Survey respondents in Thailand reported that liquidity in the government bond market generally improved in 2019 compared with 2018. Respondents noted an increase in the number of market players, particularly nonresident investors. Based on data from the Thai Bond Market

Association, daily average trading volume of government bonds rose from THB77.1 billion in January–September 2018 to THB86.2 billion in January–September 2019. Market participants attributed the increased liquidity to heightened demand for safe assets, from both foreign and domestic investors, amid rising expectations of a global economic slowdown. Survey respondents saw improvements in liquidity, particularly for Bank of Thailand (BOT) bills, BOT bonds, and long-term government bonds. Government bonds included in the JP Morgan Government Bond Index-Emerging Markets were among the most actively traded bonds in the Thai bond market.

Foreign flows into Thailand's bond market eased in 2019 compared with 2018. From January to September, net foreign outflows reached THB9.3 billion, a reversal of the THB225.8 billion of net inflows during the same period in 2018. Despite the foreign outflows, the Thai government bond market remains strongly supported by domestic investors, particularly pension funds. Market participants continue to have a positive outlook on foreign investor demand for Thai bonds due to the country's robust external position. Thailand enjoys a large current account surplus, ample foreign reserves, and low external debt, making Thai government bonds safe-haven assets for both foreign and domestic investors.

Based on 2019 liquidity survey data, the average bid–ask spread for on-the-run government bonds, BOT bonds, and state-owned-enterprise (SOE) bonds were 2.7 bps, 3.3 bps, and 3.5 bps, respectively (**Table 13**). Compared with data from 2018, the bid–ask spread widened slightly for government bonds but narrowed for BOT bonds.

Table 13: Local Currency Government Bond Survey Results—Thailand

	Government Bonds	BOT Bonds	SOE Bonds
On-the-Run			
Bid–Ask Spread (bps)	2.7	3.3	3.5
Average Trading Size (THB million)	158.3	254.2	87.5
Off-the-Run			
Bid–Ask Spread (bps)	6.6	4.8	6.8
Average Trading Size (THB million)	105.0	183.3	58.1

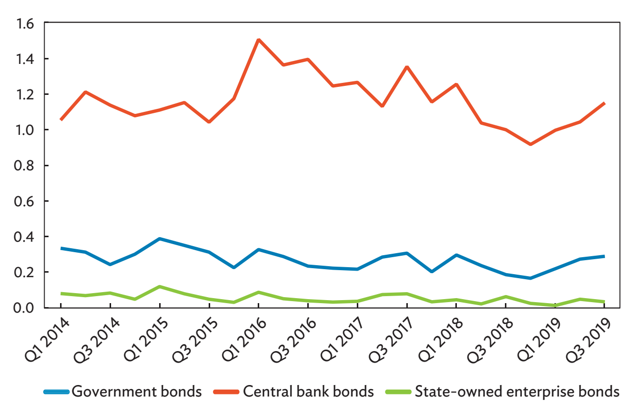
BOT = Bank of Thailand, bps = basis points, SOE = state-owned enterprise, THB = Thai baht.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

When measured in terms of trading size, liquidity in the government bond market improved in 2019 compared with 2018. The average trading size for on-the-run government bonds increased to THB158.3 million in 2019 from THB130.0 million in 2018. For on-the-run BOT bonds, the average trading size more than doubled to THB254.2 million in 2019 from THB125.0 million in 2018. The typical trading size for SOE bonds in 2019 ranged from THB50.0 million to THB125.0 million.

The turnover ratio for government bonds and BOT bonds increased in Q3 2019 compared with a year earlier. For government bonds, the turnover ratio rose to 0.30 in Q3 2019 from 0.19 in Q3 2018 (**Figure 21**). For BOT bonds, the turnover ratio increased to 1.15 in Q3 2019 from 1.00 in Q3 2018. On the other hand, the turnover ratio for SOE bonds dipped to 0.04 in Q3 2019 from 0.07 a year earlier. The outstanding amounts of each of the three types of government bonds rose in Q3 2019 compared with Q3 2018. The gains in the turnover ratios for government and BOT bonds were driven by increased trading volumes, while the decline in the turnover ratio for SOE bonds stemmed from a decrease in turnover volume.

Several policy changes affected the Thai government bond market in 2019. On 1 July, the BOT announced a reduction in its issuance of short-term BOT bonds to slow capital inflows and curb the baht's appreciation. Since the beginning of the year through 30 September, the Thai baht appreciated 5.8% against the US dollar,

Figure 21: Quarterly Government Bond Turnover Ratios in Thailand



Q1 = first quarter, Q3 = third quarter.
Sources: Bank of Thailand and Thai Bond Market Association.

outperforming its regional peers. The baht's persistent strength negatively affects exports, creating additional headwinds for the export-driven economy. Since July, the BOT has reduced its monthly issuance of 3-month, 6-month, and 1-year bonds.

On 12 July, the BOT implemented additional measures to enhance surveillance of short-term capital flows. The limit on the outstanding balance of nonresident baht accounts and nonresident baht accounts for securities was lowered to THB200.0 million for each account from THB300.0 million previously. The BOT also tightened its reporting requirements for nonresident holdings of debt securities. Most participants observed that these measures have had limited impact thus far, mainly affecting short-term bonds.

A tax regulation amendment that affects the bond market came into effect on 20 August when investments in mutual funds became subject to a 15% withholding tax on gross income. The amendment was intended to reduce discrepancies on tax burdens imposed on direct investment in debt instruments compared with investment in debt instruments through mutual funds. Prior to the amendment, direct investments in debt instruments were subject to a 15% withholding tax on interest, profits, or discount, while investments in mutual funds with an asset allocation in debt instruments were tax-exempt. Survey respondents observed minimal short-term effect from the tax amendment but expect a more pronounced impact on trading activities and bond market liquidity in the next 1–2 years.

On 7 August, the BOT decided to cut its policy rate by 25 bps to 1.50% as escalating trade tensions and weak global growth continued to exert downward pressure on the economy. The BOT held its policy rate steady during its latest policy meeting held on 25 September. Per survey respondents, the monetary stimulus had very limited impact on the overall economy and thus the market expects one more policy rate cut before the end of 2019.

Most survey respondents viewed global events, aside from the more dovish stance in US monetary policy and the continuing trade dispute between the PRC and the US, to have limited effect on Thailand's bond market. External risks such as fear of recession in the European Union brought about by uncertainties over Brexit affects the Thai bond market through increased demand for emerging market bonds. Observers view that the market has already priced in the prevailing risks, which has been reflected in the flattening of the Thai government bond yield curve.

In August, the government approved a THB316.0 billion stimulus package, which includes additional allowances for low-income earners and the elderly, debt relief and loans for farmers affected by the ongoing drought, incentives for domestic tourism and investment, credit support for small and medium-sized enterprises, and low-interest loans for home buyers. Survey respondents felt that delays in disbursements hinder the effectiveness of the fiscal stimulus package. Some of the respondents believe that more aggressive fiscal policies are needed to boost the lagging economy.

Viet Nam

Viet Nam's LCY government bond market saw an improvement in liquidity conditions in 2019 compared with 2018, according to respondents to this year's survey. Improved liquidity was largely driven by the State Bank of Vietnam's efforts to manage liquidity and ensure a more stable Vietnamese dong–US dollar exchange rate. Amid ample liquidity in the banking system, demand for government bonds increased in 2019. This allowed the government to significantly increase government bond issuance, which in turn resulted in an expansion in the overall size of the government bond market and the lengthening of the yield curve. Previously, much of the issuance was concentrated in medium-dated tenors. Beginning this year, however, investors shifted to longer positions, with much of the issuance moving toward the 10-year and 15-year maturities. Also, market participants noted an influx of new and bigger counterparties in the LCY government bond market.

While trade tensions between the PRC and the US dragged down most economies, Viet Nam's economy benefited from capital inflows via foreign direct investment. Macroeconomic fundamentals in Viet Nam remained strong despite the overall slowdown in the global economy. Viet Nam continued to post robust growth in Q3 2019 as the economy expanded 7.3% y-o-y, the highest among its regional peers in emerging East Asia. Other global events were viewed by market participants to have minimal impact on Viet Nam's economy and financial markets.

As a preemptive measure, the State Bank of Vietnam lowered its refinancing rate by 25 bps in September. The policy rate cut was taken in response to other central banks' monetary policy actions. Survey respondents do not expect further adjustments in the policy rate this year as Viet Nam's economic outlook continues to be positive. However, policy action will likely be dependent on the monetary policy direction of advanced economies and other central banks

In line with improved liquidity conditions, the average on-the-run bid–ask spread for Treasury bonds narrowed to 5.5 bps in 2019 from 8.3 bps in 2018 (**Table 14**). In the same period, the on-the-run bid–ask spreads for government-guaranteed bonds also narrowed to 12.3 bps from 18.3 bps.

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

	Treasury Bonds	Government-Guaranteed Bonds
On-the-Run		
Bid–Ask Spread (bps)	5.5	12.3
Average Trading Size (VND billion)	65.0	62.5
Off-the-Run		
Bid–Ask Spread (bps)	10.8	23.0
Average Trading Size (VND billion)	58.3	50.0

bps = basis points, VND = Vietnamese dong.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

For off-the-run issues, bid–ask spreads for Treasury bonds narrowed to 10.8 bps in 2019 from 13.8 bps a year earlier. On the other hand, off-the-run government-guaranteed bonds had a wider bid–ask spread of 23.0 bps this year versus 17.5 bps in 2018.

In terms of transaction size, the average single trade ticket was slightly lower this year at VND65.0 billion for on-the-run Treasury bonds, while it was higher for off-the-run issues. For government-guaranteed bonds, the on-the-run transaction size was slightly lower at VND62.5 but remained steady at VND50.0 billion for off-the-run issues.

Market participants welcomed the merger of Ha Noi Stock Exchange and Ho Chi Minh Stock Exchange. Most survey respondents believe that it will be beneficial for market players to have a single bourse as it will help facilitate payment and settlement processes. Also, the merged bourse is expected to improve information disclosure and provide more transparency. While there are short-term challenges that need to be addressed, in the long term the merger is viewed as being good for the market.

Viet Nam launched a government bond futures market in July this year; however, market participants noted that it was not yet active. The futures market is expected to contribute to improved liquidity in the bond market by allowing investors to hedge against risk. The Vietnam Bond Market Association introduced a new regulation allowing market makers to quote up to seven bond tenors versus four previously. This helped to increase market liquidity, particularly for long-term maturities. A new regulation to improve transparency, which requires market participants to report trades on a timely basis, was also cited as aiding in improving bond market liquidity.

Qualitative Indicators for Government Bond Markets

The *AsianBondsOnline* annual bond market liquidity survey includes an assessment of qualitative indicators that can aid in gauging the depth of development in each of the region's LCY bond markets. Each survey respondent was asked to provide their perception of how their respective market fares for each of eight identified structural factors. A high score is indicative of the presence of such structural factors and a low rating reflects the need for further development and policy action. A short description of each structural factor is discussed below.

i. **Greater Diversity of Investor Profile: the extent of participation from various investor groups.** A low rating reflects a less diverse investor profile with only a few participants holding bonds, while a high rating means that the investor profile is diversified with participation from various investor groups.

ii. **Market Access: the degree of ease or difficulty for investors to participate in the LCY bond market, taking into account investor registration and investment quotas.** A low rating indicates very limited access or the presence of restrictions on investments, while a high rating indicates the absence of restrictions or limits on investments.

iii. **Foreign Exchange Regulations: the extent of liberal or restrictive foreign exchange, capital**

investment, and repatriation policies. A low rating indicates restrictions in the capital inflow and outflow of foreign currency in relation to bond investments, while a high rating means there are no restrictions on capital inflows and outflows.

iv. **Transaction Funding: the need for funding availability through active and developed money and repurchase markets.** A low rating reflects the absence of or limits in funding availability, while a high rating indicates easy access and the availability of funding options.

v. **Tax Treatment: the importance of reducing withholding taxes on LCY bonds.** A low rating indicates the presence of high tax rates on income, while a high rating means there are reasonable tax rates or no taxes on investment gains.

vi. **Settlement and Custody: the significance of straight-through clearing processes, timely bond trade settlements, and a global custodian or accredited custodian(s).** A low rating indicates slow settlement procedures, while a high rating indicates efficient settlement processes.

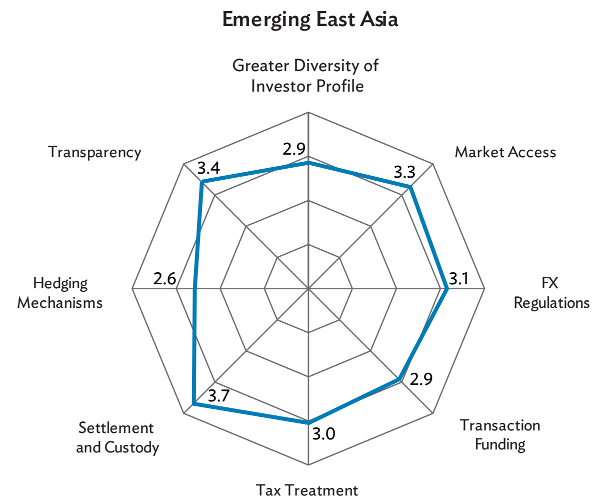
vii. **Hedging Mechanisms: the need to have an active and efficient derivatives market.** A low rating reflects the absence of hedging instruments or limited access to hedging, while a high rating indicates the availability of derivative instruments to hedge against risks.

viii. **Transparency: the importance of gaining access to daily information on bond market activity, including bond prices, as well as of bonds having credit ratings.** A low rating indicates that pricing and trading information is not publicly disclosed or is very limited, while a high rating means that pricing and trading information is available and reliable.

Survey participants were asked to rate each structural indicator on a scale of 1 to 4, with the lowest rating as 1 and the highest as 4. The ratings are defined as follows: 1–not available or not developed, 2–somewhat developed, 3–fairly developed but needs enhancements, and 4–developed.

Hedging Mechanisms tallied the lowest score among the eight qualitative indicators for government bonds. It obtained a regional average of 2.6 for this year's survey, broadly comparable with the 2.5 score from 2018 (**Figure 22**). The Philippines (1.9) continued to lag on this indicator due to the lack of suitable instruments to hedge against adverse bond price changes. The PRC's (2.2) government bond market also ranked low on this indicator as banks are not allowed to purchase bond futures. In the case of Indonesia (2.3), hedging tools are only available for banks that have signed a global master repurchase agreement with Bank Indonesia. In Viet Nam (2.3), while a government bond futures market was launched in July, it is still a relatively new hedging tool and the market remains illiquid given the small volume of transactions. Most other emerging East Asian markets obtained a rating of between 2.7 and 2.9, except for the Republic of Korea, which garnered the region's highest score of 3.4 due to the more developed state of its bond market.

Figure 22: 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* 2019 Annual Bond Market Liquidity Survey.

Greater Diversity of Investor Profile received a relatively low regional average of 2.9 in this year's survey, which was up slightly from a rating of 2.8 in 2018. Viet Nam scored the lowest at 2.0 for this indicator, owing to its government bonds being largely held and dominated by only two major investor groups: banking institutions and the Vietnam Social Security Fund. Hong Kong, China was also perceived to have a less diverse set of investors due to ongoing political unrest, which drove investors, particularly offshore funds, away from the market. Most other emerging East Asian markets obtained an average rating of between 2.7 and 2.9 as investor holdings remained dominated by a few investor groups (**Figure 23**). The exceptions were the markets of the PRC, the Republic of Korea, and Thailand, with each obtaining a rating of 3.2 or higher. In the case of Thailand (3.3)and the PRC (3.2), the higher ratings were driven by an increase in the number of foreign players this year.

Transaction Funding was also ranked relatively low among structural issues in the region's government bond market with a regional average score of 2.9. Thailand obtained the lowest score at 2.3, followed by the Philippines and Viet Nam, with each receiving an average rating of 2.6. Indonesia obtained an average of 2.8. All other government bond markets in the region were given a rating of 3.0 or above, with the Republic of Korea receiving the region's highest score at 3.7.

Tax Treatment obtained a regional average of 3.0 for this year's survey versus 3.1 in 2018. The Philippines obtained the lowest rating at 2.1 due to it having the highest withholding tax on interest income among the region's government bond markets. Next were Thailand (2.5) and Indonesia (2.6). In Indonesia, market participants cited the differences in tax rates for each investor type as the reason for the low rating. Similarly, the PRC obtained an average score of 2.8 for this structural factor due to differences between taxes applied to domestic

Figure 23: Structural Issues for Individual Local Currency Government Bond Markets

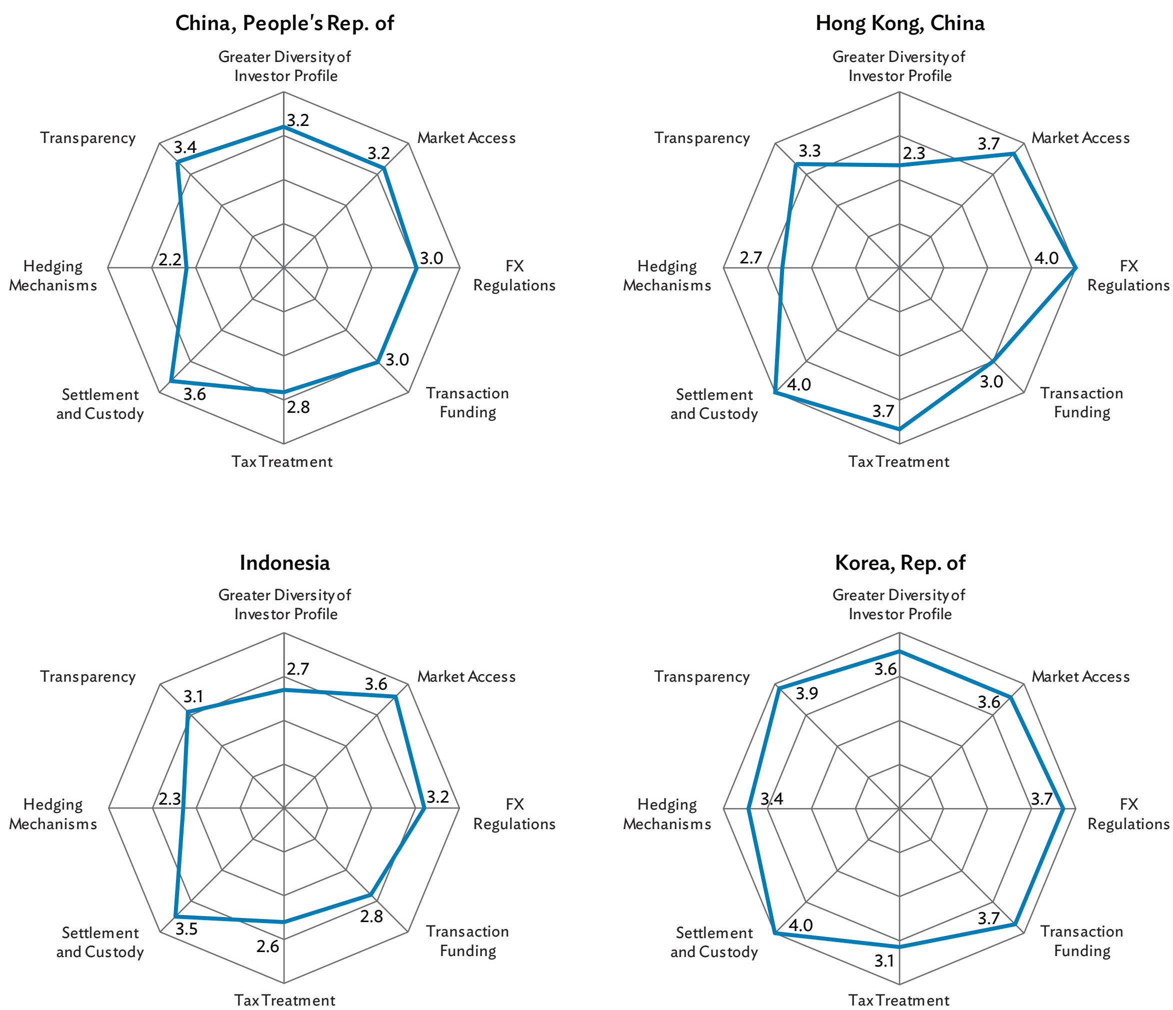


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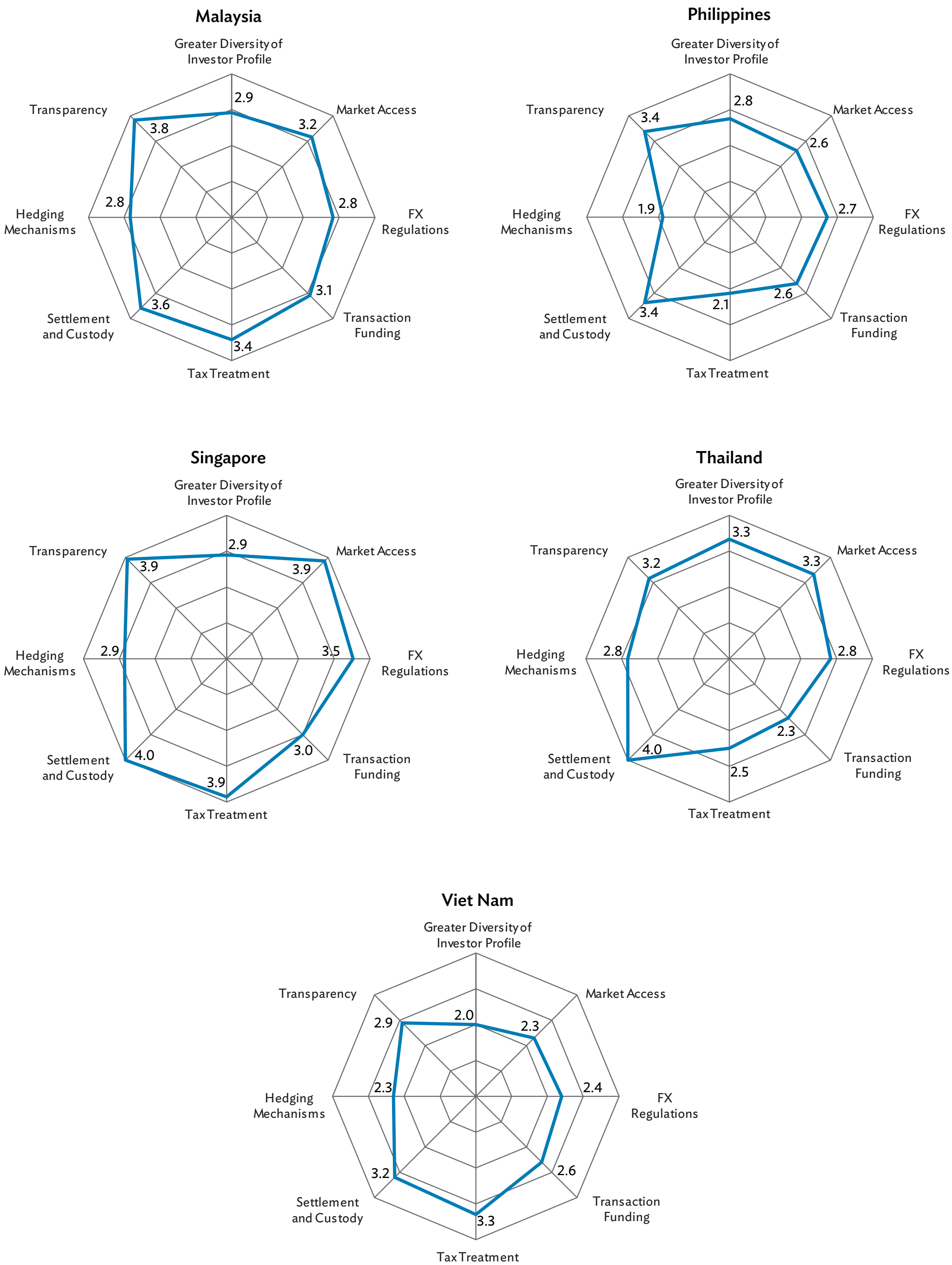
Figure 23 *continued*



FX = foreign exchange.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

and foreign investors. Malaysia (3.4), Singapore (3.9), and Viet Nam (3.3) obtained relatively higher scores as government bond holders are exempt from withholding taxes on interest income. **Table 15** presents information on applicable withholding taxes on interest income for emerging East Asia's bond markets.

FX Regulations tallied a regional average of 3.1, the same score from the 2018 survey. The government bond markets of Viet Nam (2.4), the Philippines (2.7), Malaysia (2.8), and Thailand (2.8) were rated fairly low on this structural factor. All other markets in the region obtained a rating of 3.0 or above, with Hong Kong, China obtaining the highest score possible (4.0). A summary of regulations regarding cross-border portfolio investments in the region is presented in **Table 16**.

Market Access scored the third-highest among the structural issues, garnering a regional average of 3.3, the same rating as in 2018. All of the region's government

Table 15: Tax Treatments in Emerging East Asian Markets

Market	Withholding Tax on Interest Income	
	Government	Corporate
China, People's Rep. of	Exempt from tax	A 10% withholding tax generally applies to interest paid to a nonresident unless the rate is reduced under a tax treaty. A 6% value-added tax generally is imposed. Bond interest derived by foreign institutional investors from the PRC bond market may be exempt from both income tax and value-added tax for the period from 7 November 2018 through 6 November 2021.
Hong Kong, China	Exempt from tax	There is no withholding tax on interest payments from a Hong Kong, China-based entity to a resident or nonresident.
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. For sovereign foreign currency bonds, residents and nonresidents are exempt from tax.	Interest paid to a nonresident is subject to a 20% withholding tax unless the rate is reduced under a tax treaty. Interest paid by a domestic taxpayer to a resident is subject to a 15% withholding tax, which generally represents an advance payment of tax liability. Certain recipients are exempt from withholding tax (e.g., resident banks). Interest paid by a bank in Indonesia to a tax resident is subject to a 20% final withholding tax.
Korea, Rep. of	Interest income arising from bonds issued by the government or local authority and local company is subject to a 15.4% withholding tax including local income tax. Withholding tax rates may be reduced under the provision of double taxation treaties.	Interest on a regular loan paid to a nonresident company or individual is subject to a 22% withholding tax (including the local surtax). Interest on bonds is subject to a 15.4% withholding tax (including the local surtax). The rate may be reduced under a tax treaty, although withholding at the domestic rate rather than the treaty rate may be required for certain payments to jurisdictions regarded as tax havens.
Malaysia	Exempt from tax	A withholding tax of 15% applies to interest paid to a nonresident, unless the rate is reduced under a tax treaty. However, interest paid to a nonresident by a bank operating in Malaysia is exempt from tax, except for interest accruing to the nonresident's place of business in Malaysia and interest paid on funds required to maintain net working funds, as prescribed by the central bank. Certain other interest paid to a nonresident also may be exempt.
Philippines	For individuals, interest income from bonds earned by citizens, resident aliens, and nonresident aliens engaged in trade and business in the Philippines is subject to 20% final withholding tax, while a 25% final tax is imposed on nonresident aliens not engaged in trade or business.	Interest paid to a nonresident is subject to a 20% withholding tax. The rate may be reduced under a tax treaty, subject to the submission of a Certificate of Residence for Tax Treaty Relief form with the Bureau of Internal Revenue.
Singapore	Under the Qualifying Debt Securities scheme, interest income on SGS and MAS bills is tax-exempt for individuals, while institutions qualify for tax incentives for SGS and MAS bills issued until 31 December 2023. Individual residents and nonresidents do not need to pay tax on interest and other qualifying income gained from SGS and MAS bills, except where such income is derived through a partnership in Singapore or is derived from the carrying on of a trade, business, or profession.	Interest paid to a nonresident is subject to a 15% withholding tax, unless the rate is reduced under a tax treaty or an exemption applies under certain domestic concessions. The 15% withholding tax is a final tax and applies only to interest not derived by the nonresident from a business carried on in Singapore and not effectively connected to a permanent establishment in Singapore. Any other interest that does not qualify for the final rate will be taxed at the prevailing corporate tax rate.
Thailand	Domestic and foreign individuals are subject to 15% withholding tax.	Interest paid to a nonresident company is subject to a 15% withholding tax, unless the rate is reduced under a tax treaty. Interest paid on loans from a bank, financial institution, or an insurance company is subject to a 10% withholding tax if the lender is resident in a country that has concluded a tax treaty with Thailand, but an exemption applies if the interest is paid by a Thai financial institution on loans granted under a law intended to promote agriculture, industry, or commerce. A 1% advance withholding tax applies to interest payments made by a corporation to a corporation carrying on business in Thailand or by a corporation to a financial institution for interest on debentures or bonds, except for interest on deposits or negotiable instruments paid between banks or finance companies.
Viet Nam	Exempt from tax	Interest paid to a nonresident is subject to a 5% withholding tax unless the rate is reduced under a tax treaty.

MAS = Monetary Authority of Singapore, PRC = People's Republic of China, SGS = Singapore Government Securities.
Source: Various local sources.

Table 16: 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 may purchase money market funds. Effective 12 June 2018, the lockup period requirement on invested principal was lifted.	Qualified Foreign Institutional Investors and Renminbi Qualified Foreign Institutional Investors may invest in CNY-denominated bonds and fixed-income products traded on the interbank bond market. Such investments are subject to the upper limits on individual institutions. Effective 3 July 2017, a direct investment could be made by foreign investors in the interbank bond market, and an indirect investment could be made in the domestic foreign exchange market by foreign investors through Bond Market Connect, a scheme that provides mutual market access and allows investors from the PRC and overseas to participate in each other's bond markets. Domestic financial institutions (legal persons) may issue CNY-denominated bonds abroad with People's Bank of China approval. Financial institutions and enterprises in the PRC can freely carry out cross-border financing in domestic or foreign currencies within the limit determined by their capital and net assets, without being subject to advance review and approval from the People's Bank of China and the State Administration of Foreign Exchange.	Qualified Foreign Institutional Investors and Renminbi Qualified Foreign Institutional Investors may invest domestically in A shares, subject to restrictions on equity holdings. Effective 12 June 2018, the lockup period requirement on invested principal was lifted. Renminbi Qualified Foreign Institutional Investors may invest in domestic securities using CNY funds raised abroad. Since November 2014, investors from the PRC and Hong Kong, China can invest in Hong Kong, China and Shanghai stock markets, respectively, under certain conditions and within the limit published by the China Securities Regulatory Commission. The China Securities Regulatory Commission approved the abolishment of the overall limit on Shanghai–Hong Kong Stock Connect and the Shenzhen–Hong Kong Stock Connect, but the daily limits are still in place. Approval by the China Securities Regulatory Commission and registration with the State Administration of Foreign Exchange are required for the issuance of shares abroad by resident enterprises. Funds originating from such issuance are not subject to repatriation requirement but may be converted to renminbi and used in the PRC.	Qualified Domestic Institutional Investors may purchase money market instruments permitted by regulation, subject to their respective foreign exchange quotas and regulatory limits. Overseas-listed companies controlled by foreign shareholders may repurchase their overseas-listed and traded shares, provided the State Administration of Foreign Exchange verifies the source of the funds and approves payment abroad. On approval, qualified fund management firms and other securities management organizations may, within limits, combine foreign exchange funds and renminbi funds of resident entities and individuals, and use the funds to engage in portfolio investment, including in stocks. In the context of large capital outflows, the People's Bank of China suspended the approval of new Renminbi Qualified Domestic Institutional Investors quota applications in December 2015.	Nonresidents are not allowed to sell or issue money market instruments. Foreign-owned firms in the PRC may also issue bonds. Foreign sovereign governments, nonresident foreign firms, and international development institutions were authorized to issue CNY-denominated bonds in the Chinese interbank bond market on a pilot basis. Since December 2015, foreign institutions can issue CNY-denominated bonds in the bond exchange market on a pilot basis in line with the current corporate bond framework. The China Securities Regulatory Commission is in the process of launching a pilot program for the issuance of Chinese Depository Receipts by innovative enterprises, making arrangements for the issuance, public offering, and trading of Chinese Depository Receipts, setting forth the basic conditions and procedures for Chinese Depository Receipt offerings, and producing the general requirements for the use of Chinese Depository Receipts to engage in refinancing.
Hong Kong, China	There are no restrictions on the purchase of money market instruments.	There are no restrictions on the purchase of bond market instruments.	There are no restrictions on the purchase of equity instruments.	There are no restrictions on investments by residents.	There are no restrictions on investments by nonresidents.
Indonesia	Nonresidents may purchase Bank Indonesia certificates in the secondary market. However, the minimum holding period for all investors for purchases of Bank Indonesia certificates in the primary and secondary markets is 1 week. In addition, nonresidents are not allowed to buy foreign exchange against Indonesia depository receipts with underlying	Investment in other domestic bond markets and debt securities is not clearly regulated in the context of nonresident transactions. The sale of bonds or other debt securities abroad by residents is not clearly regulated. Thus, such transactions are carried out in practice and are considered free of capital controls.	Foreign investors are allowed to purchase without limit shares issued by Indonesian companies in the Indonesian capital market. There is a limit on the ownership of joint securities companies that are also finance companies. No controls apply as long as the shares are not listed on the Indonesia Stock Exchange.	Purchases of money market instruments by residents abroad is prohibited. Pension funds may not invest in securities abroad, and mutual funds may invest abroad only up to 15% of their net asset value. Purchases of bonds and other debt securities abroad are regulated only for pension funds, which may	The sale and issuance of money market instruments, bonds, and other debt securities by nonresidents is not clearly regulated and thus is considered to be free of capital controls. Foreign companies are permitted to issue Indonesian depository receipts through custodian banks in Indonesia.

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Table 16 *continued*

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
Indonesia	transactions of negotiable certificates of deposit. The absence of regulations concerning the sale or issuance of money market instruments abroad indicates that the activity is free of capital controls, with the exception of those issued by nonbank corporate entities, which must fulfill prudential requirements and must report the activity to the Bank Indonesia.		Securities listed on the Indonesia Stock Exchange must comply with the Capital Market Law and with the requirement concerning the maximum percentage of foreign ownership of shares. Indonesian companies do not issue shares. They issue US depository receipts in US capital markets and global depository receipts in the London Stock Exchange.	not invest in securities abroad, and domestic mutual fund companies. No regulations explicitly limit purchases abroad by other resident investors. Pension funds may not invest in securities abroad, and collective investment scheme mutual funds may invest abroad only up to 15% of their net asset value. Protected mutual funds and guaranteed mutual funds may invest up to 30% of their net asset value abroad.	
Japan	There are no restrictions on the purchase of money market instruments.	There are no restrictions on the purchase of bond market instruments.	Controls apply to the extent that the purchase of shares is affected by laws on inward direct investment.	There are no restrictions on investments by residents.	There are no restrictions on investments by nonresidents.
Korea, Republic of	Sale or issuance of foreign-currency-denominated money market instruments abroad by residents requires notification to a designated foreign exchange bank. Sale or issuance of foreign-currency-denominated money market instruments exceeding the equivalent of USD30 million or of KRW-denominated money market instruments abroad by residents requires notification to the Ministry of Economy and Finance.	Nonresidents may freely purchase bonds and other debt securities issued by residents, but purchases that are not made through an account exclusively for investment must be reported to a designated foreign exchange bank or the Bank of Korea. Sale or issuance of foreign-currency-denominated bonds abroad by residents requires notification to a designated foreign exchange bank. Sale or issuance of foreign-currency-denominated bonds exceeding the equivalent of USD30 million or of KRW-denominated bonds abroad by residents requires notification to the Ministry of Economy and Finance.	Nonresidents may purchase shares issued by Korean companies freely, but purchases that are not made through an account exclusively for investment must be reported to a designated foreign exchange bank or the Bank of Korea. Sale or issuance of foreign-currency-denominated shares abroad by residents requires notification to a designated foreign exchange bank. Sale or issuance of foreign-currency-denominated shares exceeding the equivalent of USD30 million or of KRW-denominated shares abroad by residents requires notification to the Ministry of Economy and Finance.	Residents may freely purchase money market instruments, bonds, and shares abroad, but purchases that are not made through an account exclusively for investment must be reported to the Bank of Korea.	Nonresidents may issue money market instruments and in the domestic market, and they are eligible to list their shares on the Korea Exchange in the form of depository receipts. However, the issuer must notify the Ministry of Economy and Finance.
Malaysia	Resident entities may issue foreign-currency-denominated money market instruments abroad. Approval from Bank Negara Malaysia is required for issuance or sale of MYR-denominated money market instruments by residents outside Malaysia.	There is no minimum holding period requirement for investing in bond instruments. Resident entities may issue foreign currency bonds or *sukuk* (Islamic bond) abroad.	Nonresidents may purchase securities listed on Bursa Malaysia. Based on Bank Negara Malaysia's Foreign Exchange Administration rules, nonresidents are free to invest in any form of MYR assets in Malaysia. Resident entities may issue shares denominated in foreign currency on foreign stock exchanges. Approval is required only for issuance of MYR-denominated securities by residents outside Malaysia.	Resident entities with ringgit borrowings are subject to the prudential limit of up to the amount sourced from proceeds of an initial public offering on the main market of Bursa Malaysia, and up to MYR50 million or its equivalent in aggregate on a corporate group basis a calendar year.	Nonresidents may issue foreign-currency-denominated securities. Approval is required only for issuance of MYR-denominated securities by nonresidents. Issuance or offering of shares for sale locally by nonresidents requires Securities Commission approval. Approval from Bank Negara Malaysia is also required for issuance of MYR-denominated securities by nonresidents.

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Table 16 *continued*

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
Philippines	Registration of money market securities purchased is necessary only if the foreign exchange needed for capital repatriation and remittance of profits and earnings that accrue thereon will be purchased from authorized agent banks and authorized agent banks-foreign exchange corporations. Banks are prohibited from investing in the Bangko Sentral ng Pilipinas Term Deposit Facility funds sourced from nonresidents.	There is no minimum holding period for bonds and other debt securities purchased locally by nonresidents. Banks that wish to issue unsecured subordinated debt must secure the approval of the Bangko Sentral ng Pilipinas.	If at least one of the parties in a securities transaction is a bank or a nonbank financial institution under Bangko Sentral ng Pilipinas supervision, securities purchased must be held by a Bangko Sentral ng Pilipinas-accredited securities custodian or registry or Securities and Exchange Commission-authorized central securities depository that is a third party. Registration of the shares purchased is necessary only if the foreign exchange needed for capital repatriation and remittance of dividends, profits, and earnings thereon will be purchased from authorized agent banks and authorized agent bank-foreign exchange corporations. Investments of residents that require settlement in foreign currency in favor of another resident shall be governed by the rules on resident-to-resident transactions.	Residents are free to invest abroad without restriction. Residents may purchase foreign exchange from authorized agent banks and authorized agent bank-foreign exchange corporations without Bangko Sentral ng Pilipinas approval for investment in bonds or other debt securities money market instruments abroad, provided these do not exceed USD60 million per investor a year when aggregated with other allowable outward investments. Foreign exchange purchases to fund outward investments exceeding the limit require prior Bangko Sentral ng Pilipinas approval. Residents may also purchase foreign exchange from foreign exchange dealers and money changers for outward investment, including investment in bonds and notes of the Philippines and of other Philippine entities requiring settlement in foreign currency, regardless of the amount, with documentation.	Nonresidents may issue bonds and other debt securities locally after approval or license to do business in the Philippines is secured from the appropriate government agency. Nonresidents' issuance of notes and bonds or similar instruments in the domestic market requires Bangko Sentral ng Pilipinas approval before execution. Philippine branches and subsidiaries of foreign banks must inform the Bangko Sentral ng Pilipinas if their parent bank and branches abroad of their parent bank offer or market products in the Philippines that are duly-registered. The shares or securities issued or sold by nonresidents are subject to the same Securities and Exchange Commission approval and registration requirements as those issued by local companies. Payment for redemption of such shares or securities must not, however, involve the purchase of foreign exchange from authorized agent banks and authorized agent bank-foreign exchange corporations. Foreign firms whose securities are listed and traded on a local stock exchange must designate a transfer agent and registrar in the Philippines.
Singapore	There are no restrictions on the purchase of money market instruments.	There is no minimum holding period requirement for debt securities purchased locally by nonresidents.	There are no restrictions on the purchase of equity instruments.	There are no restrictions on investments by residents.	There are no restrictions on sales and issuance of bonds and debt securities locally by nonresidents. Nonresident financial entities must convert proceeds from SGD-denominated loans exceeding SGD5 million, equity listings, and bond issuances to foreign currency before using such funds to finance activities outside Singapore. Offers of capital market securities to investors in Singapore require a prospectus, unless exempt. Offers to institutional and accredited investors, for example, may be exempt under certain conditions. If a prospectus is required, the issuer must lodge and register it with the Monetary Authority of Singapore before offering the securities.

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Table 16 *continued*

Market	Capital Inflow			Capital Outflow	
	Money Market Instruments	Bond Market Instruments	Equity Instruments	Resident Investors	Nonresident Investors
Thailand	Nonresidents may freely invest in THB-denominated money market instruments without a minimum holding period requirement. However, investment in such instruments issued by domestic financial institutions is subject to the overall outstanding borrowing limit of THB10 million for a domestic financial institution from a nonresident group. Domestic financial institutions may not issue or sell bills of exchange denominated in Thai baht to nonresidents.	Nonresidents may invest in THB-denominated debt securities without a minimum holding period requirement. However, investment in THB-denominated bonds issued by domestic financial institutions is subject to the overall outstanding borrowing limit of THB10 million. Nonresident issuers of newly issued bonds must submit an application for approval to the Securities and Exchange Commission and demonstrate that an offer for sale or resale of such bonds will be made to investors in foreign countries. Only finance companies are allowed to issue negotiable certificates of deposit in foreign currency with more than a 1-year maturity for sale to the public abroad or for sale to institutions that are authorized to deal in foreign exchange.	Nonresidents may purchase shares. However, foreign equity participation may be limited if a company engaged in business is subject to the provisions of the Foreign Business Act or other laws. Investment exceeding the limit may be made by holding nonvoting depository receipts. Thai-incorporated companies require Securities and Exchange Commission approval to issue equities for offering abroad.	Institutional investors may invest freely in foreign securities abroad, up to the limit set by each institutional investor's supervisory authority. Effective 16 February 2017, qualified investors in accordance with the Bank of Thailand's definition may invest in securities abroad without the need to go through local intermediaries in the limit up to gross flow of USD1 million a year. Any individuals and corporate investors may invest in foreign securities through private funds, securities companies, or commercial banks holding relevant securities business licenses.	Money market transactions may be made with Ministry of Finance, Bank of Thailand, and Securities and Exchange Commission approval. For THB-denominated debt securities issuances, these transactions may be made with the approval of the Ministry of Finance, Bank of Thailand, and Securities and Exchange Commission. The Ministry of Finance allows foreign entities to issue THB-denominated bonds domestically with a minimum maturity of 3 years. Foreign-currency-denominated debt securities of foreign issuers require Securities and Exchange approval. Foreign-incorporated companies require Securities and Exchange approval to issue equity for offering in Thailand.
Viet Nam	Foreign organizations and individuals must open a portfolio investment capital account denominated in Vietnamese dong to sell or purchase listed securities on the stock exchange. All payments for and receipts from securities transactions must be effected through these accounts. Resident organizations that issue or sell foreign-currency-denominated securities abroad must open a securities issuance account in foreign currency, and payments and receipts must be effected through this account.	Foreign investors can invest in government, government-guaranteed, local government, and corporate bonds without limitation. Companies and government-owned commercial banks must receive approval from the appropriate authority and the State Bank of Vietnam, respectively, before issuing international or foreign bonds that are not guaranteed by the government and must follow guidelines and restrictions.	Foreign organizations and individuals must open a portfolio investment capital account in Vietnamese dong to sell or purchase listed securities on the stock exchange. Payments for and receipts from securities transactions must take place through these accounts. Foreign indirect investment in Viet Nam must continue to be executed in Vietnamese dong through an account at a licensed bank in Viet Nam. Foreign investors must register with, and receive a trading code from, the Vietnam Securities Depository through depository members prior to investing in the Viet Nam stock market.	The State Bank of Vietnam provides guidance on the use of accounts, transfers of investment capital overseas, and transfers of the original capital and profits from outward portfolio investment activities to Viet Nam. Resident individuals and entities may invest abroad in securities, subject to the requirements set by the State Bank of Vietnam.	Foreign organizations' securities offered through initial public offering in Viet Nam must be placed in accordance with the Vietnamese Law on Securities. Prior to taking investment activities in Viet Nam's stock market, foreign investors must register for a trading code with Vietnam Securities Depository through depository members. After receiving a permit to issue securities in Viet Nam, nonresident organizations must open a VND-denominated securities trading account to sell or issue listed securities on the stock exchange. All transactions related to security issuance in Viet Nam must be conducted via this account. Nonresidents must comply with regulations in the Law on Securities and other related regulations on issuing securities by nonresidents in Viet Nam.

CNY = Chinese yuan, KRW = Korean won, MYR = Malaysian ringgit, PRC = People's Republic of China, SGD = Singapore dollar, THB = Thai baht, US = United States, USD = United States dollar, VND = Vietnamese dong.
Sources: Market reports from International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions Online.*

bond markets obtained a rating of 3.2 and above except for Viet Nam (2.3) and the Philippines (2.6). For Viet Nam, survey participants rated this factor low as restrictions on investments apply to foreign investors, including foreign banks. Local commercial banks are also restricted from investing in government bonds pending compliance with certain ratios prescribed by the State Bank of Vietnam.

Transparency had a regional average rating of 3.4 for this year's survey versus 3.2 in the 2018 survey. All markets were rated 3.1 or above by survey respondents, except for Viet Nam, which obtained a rating of 2.9.

Among all structural issues, Settlement and Custody was the highest-rated structural factor in emerging East Asia, tallying a score of 3.7. Survey participants gave every economy a rating of 3.2 or above. Survey respondents from Hong Kong, China; the Republic of Korea; Singapore; and Thailand rated it as 4.0, reflecting the sophisticated technology employed in these markets to ensure timely settlement of bond transactions.

Quantitative Indicators for Corporate Bond Markets

Corporate bond markets in the region have developed over the years, both in size and trading activity, but are still considered to be less liquid than government bond markets. In the 2019 survey, most respondents noted an active secondary market for their respective corporate bond markets, albeit with limits due to various factors that determine bond liquidity. Moreover, market conditions have also affected the liquidity of corporate bonds in the region.

As in previous years, respondents from economies that have an active secondary market note that liquidity is still very much concentrated in the higher investment-grade space and is determined by the name and industry origin of the issuer. These factors may also be demand-driven as the largest investors of corporate bonds in the region are still pension funds, insurance companies, and financial institutions that must adhere to internal compliance and regulations. In economies such as the PRC, Indonesia, and Malaysia, liquidity is higher for bonds issued by government-related institutions, particularly those with an attached government guarantee. Given the longer investment duration requirements of large pension funds and insurance companies, particularly for economies like the Republic of Korea, corporate bonds are held for a longer period. For smaller markets such as Indonesia, the Philippines, and Viet Nam, a common behavior among retail investors in terms of trading knowledge and risk appetite is to hold corporate bonds until maturity.

The average size of a corporate bond issuance, or the float, is also a major determinant of liquidity in the market. A larger size tends to translate to relative ease in buying and liquidating bonds. In most markets, trading activity is observed post-issuance, with the amount of time trading remains active varying from a few days to 1–2 months, depending on market conditions and the bond issuer. Investors typically hold the bonds until maturity.

Global market developments and various domestic conditions also affect liquidity in corporate bond markets in the region. In the PRC, recent defaults in the corporate bond market have reduced trading activity for lower-rated bonds, in contrast with prior years when risk appetite for high-yielding, lower-rated bonds was still fairly active. In 2019, trading activity in the PRC has been concentrated among higher-rated bonds. Elsewhere in the region, markets that experienced declining yields in 2019 saw improved liquidity due to profit-taking at certain points in the year.

Despite corporate bond markets in the region remaining less active and underdeveloped than the government bond segment, data and survey results indicate an overall improvement in market liquidity. The regional average bid–ask spread in 2019 fell to 11.6 bps in 2019 from 16.9 bps in 2018 (**Table 17**). All corporate bond markets in the region noted declines in their average bid–ask spreads except for Singapore, Thailand, and Viet Nam. Indonesia, Viet Nam, and the Philippines registered the widest bid–ask spreads. As the smallest corporate bond markets in emerging East Asia, they are still fairly underdeveloped compared with the region's other larger markets.

Viet Nam had the widest average bid–ask spread in the region in 2019 at 70.0 bps. Viet Nam also posted the most significant widening over the 2018 spread, gaining 25.0 bps as its corporate bond market remained illiquid and underdeveloped. The quoted bid–ask spreads in the

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)	168.8	54.6	35.7	47.3	114.2	147.1	197.2	73.6	50.3	98.8
Typical Bid–Ask Spread for Corporate Bonds	Average (bps)	4.0	7.5	21.6	1.2	7.1	32.0	10.8	8.8	70.0	11.6
	SD	1.0	–	5.7	0.4	2.5	19.8	5.2	3.9	42.4	10.2
	CV	0.3	–	0.3	0.4	0.4	0.6	0.5	0.4	0.6	0.9
Typical Transaction Size of LCY Corporate Bonds	Average (USD million)	8.6	5.7	0.8	8.4	1.8	0.3	2.9	1.0	64.6	10.5
	SD	6.5	–	0.2	–	0.7	0.2	0.7	0.6	–	20.6
	CV	0.8	–	0.2	–	0.4	0.6	0.2	0.6	–	2.0

– = 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.
Note: For Viet Nam, bid-ask spread and typical transaction size for corporate bonds refer to the spread when the bonds were newly issued due to limited liquidity.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

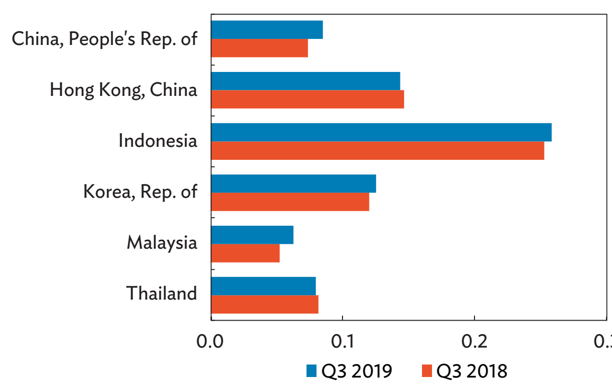
Viet Nam were based on new issuance given the lack of an active secondary market.

The Philippines had the region's second-widest average bid–ask spread at 32.0 bps as investors still tend to hold securities until maturity. However, the average spread narrowed from 65.0 bps in 2018 due to the improvement in liquidity. On the other hand, the Republic of Korea had the tightest bid–ask spread at 1.2 bps, given that it is a structurally developed bond market.

The regional average transaction size was marginally changed at USD10.5 million, compared with USD11.2 million in 2018, as five economies posted larger transaction sizes and four economies registered declines. Viet Nam continued to have the highest average transaction size at USD64.6 million. This was due to the absence of a secondary market, with respondents citing trade volumes based solely on newly issued corporate bonds, which are normally taken up by a small number of underwriters. Excluding Viet Nam, the two largest bond markets in the region—the PRC and the Republic of Korea—had the largest average transaction sizes at USD8.6 million and USD8.4 million, respectively. Correspondingly, the region's two smallest corporate bond markets—Indonesia and the Philippines—continued to have the smallest average transaction sizes at USD0.8 million and USD0.3 million, respectively. The region's average issue size was up slightly in 2019 to USD98.8 million from USD91.8 million in 2018, as all markets posted larger average issuances except for Hong Kong, China; Indonesia; and Thailand.

Turnover ratios for the corporate bond markets in the region for which data are available were marginally up in 2019, with the exception of Thailand and Hong Kong, China. The PRC registered the largest increase in its turnover ratio—from 0.07 to 0.08—due to higher trading volume in 2019 than in 2018 (**Figure 24**). Indonesia, the Republic of Korea, and Malaysia also posted slightly higher turnover ratios in 2019 on higher trading volumes.

Figure 24: 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 between the preceding and current quarters.
2. For Hong Kong, China, data for third quarter of 2019 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).

Characteristics of Individual Corporate Bond Markets

People's Republic of China

The PRC corporate bond market was fairly liquid in 2019, according to market participants surveyed. However, trading was uneven due to heightened risk aversion amid a number of bond defaults in both 2018 and 2019. As a result, trading activity has been largely confined to higher-rated corporates. Market participants have noted that this is a positive development as it will lead to better pricing of credit risk. Heightened risk aversion also led to increased investor interest in Credit Risk Mitigation Warrants (CMRW) as a way of hedging credit risk. However, market participants noted that problems with the CMRW remain, limiting their usefulness as a hedging tool. One example is that, unlike the traditional credit default swap, CMRW protection is tied to a specific bond issued by a corporation, whereas a credit default swap typically covers all bonds issued by a corporation.

Movements in bid–ask spreads were mixed in the PRC in 2019. Bid–ask spreads for enterprise bonds rose to 9.7 bps from 6.1 bps in 2018, while bid–ask spreads for listed corporate bonds fell to 9.7 bps from 11.4 bps in 2018 (**Table 18**).

Bid–ask spreads for medium-term notes fell to 4.0 bps in 2019 from 9.2 bps in the previous year, while spreads for commercial paper fell to 2.3 bps from 7.9 bps. Bank bonds saw a rise in bid–ask spreads to 10.2 bps from 8.9 bps during the review period.

Movements in average trading sizes for different corporate bonds were also mixed, with the average trading size rising to CNY61.7 million for enterprise bonds, medium-term notes, and commercial paper from CNY33.3 million, CNY27.2 million, and CNY37.8 million, respectively. In contrast, average trading size fell for bank bonds and was roughly unchanged for listed corporate bonds.

Indonesia

Survey respondents noted improved liquidity conditions for corporate bonds in 2019 compared with last year in line with the overall positive sentiment in the LCY bond market in Indonesia amid the low-interest-rate environment. Market participants provided mixed responses when asked if there was an active secondary market for corporate bonds. Some noted that there is an active secondary market for corporate bonds. However, liquidity in this market segment pales in comparison with that of its government counterpart, partly due to the limited issuance size of corporate bonds. Most corporates in Indonesia issue in multiple tranches, with most tranches having a size of IDR1 billion or less. A single tranche could easily be taken up in full by the underwriter or by only a few investors.

The average bid–ask spread for corporate bonds narrowed to 21.6 bps in 2019 from 24.0 bps in 2018 (**Table 19**). Some participants explained that bid–ask spreads could widen to as much as 25–30 bps depending on the issuer's name, tenor, and credit ratings. Financial companies and banking institutions rated AAA would normally command a narrower spread over those corporates from other industries and/or with a lower rating. State-owned companies also garner narrower spreads than other firms due to the ultimate guarantee provided by the government.

Survey respondents noted that while there is an active secondary market for corporate bonds, there are also times when it is difficult to find bonds to trade. The corporate bond market largely comprises investors who buy and hold bonds until maturity. Even banking

Table 18: Local Currency Corporate Bond Survey Results—People's Republic of China

	Enterprise Bonds	Local Corporate Bonds	MTNs	Commercial Bank Bonds	Commercial Paper
Average Issue Size (CNY million)	895.8	1,068.3	1,206.6	4,135.4	1,015.9
Bid–Ask Spread (bps)	9.7	9.7	4.0	10.2	2.3
Average Trading Size (CNY million)	61.7	30.0	61.7	33.3	61.7

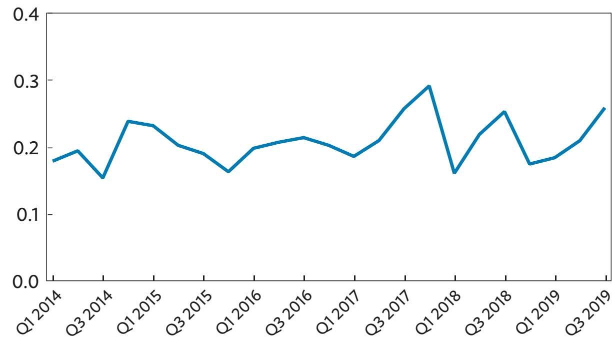
bps = basis points, CNY = Chinese yuan, MTNs = medium-term notes.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Table 19: Local Currency Corporate Bond Survey Results—Indonesia

	Corporate Bonds
Average Issue Size (IDR billion)	506.6
Bid–Ask Spread (bps)	
Corporate Bond	21.6
Newly Issued Corporate Bond	18.8
Average Trading Size (IDR billion)	
Corporate Bond	11.7
Newly Issued Corporate Bond	15.0

bps = basis points, IDR = Indonesian rupiah.
Sources: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey and Indonesia Stock Exchange.

Figure 25: Quarterly Government Bond Turnover Ratios in Indonesia



Q1 = first quarter, Q3 = third quarter.
Note: Data for Q3 2019 based on *AsianBondsOnline* estimates.
Sources: Indonesia Stock Exchange and *AsianBondsOnline*.

institutions purchase bonds for their books and hold them until redemption.

Some respondents to the 2019 survey perceived that there is no active secondary market for corporate bonds. As such, the bid–ask spreads they cited were that for newly issued corporate bonds. In their view, bid–ask spreads for newly issued corporate bonds could vary depending on the tenor and issue, with some reaching as high as 25 bps. Liquidity for newly issued corporate bond is also quite limited, with some corporate bonds being traded during a period as short as a few days to up to 2 months.

Most survey respondents cited issuer name and credit rating as crucial factors for determining liquidity in the corporate bond market. Bonds issued by state-owned firms, or those with government support, had greater liquidity compared with other corporates. Bonds from banks and financial institutions also command higher liquidity than bonds from other industries. Some participants also mentioned issue size as an important factor for determining liquidity. Firms who frequently tapped the bond market normally attract more liquidity over those who have only issued once or twice, as investors are more confident trading the bonds of corporates who issue frequently.

The average single trade transaction size for corporate bonds was slightly lower in 2019 at IDR11.7 billion versus IDR12.5 billion in 2018. On the other hand, for a newly issued corporate bond, the average single trade transaction size was up in 2019. In terms of typical issue size, the average fell to IDR506.6 billion in 2019 from IDR540.9 billion in 2018. Trading activity slightly picked up in the first 3 quarters of the year, with total trade volume rising 8.0% to IDR275.5 billion. The quarterly turnover ratio exhibited a rising trend throughout 2019, climbing to 0.26 in Q3 2019 from 0.17 in the fourth quarter of 2018 (**Figure 25**).

To help improve liquidity in the corporate bond market, survey respondents identified the need to increase the market's overall size. In line with this, market participants suggested streamlining the lengthy procedures required for issuing bonds. Corporate issuers are discouraged from tapping the bond market for funding as it takes about 3–4 months for the entire process. Thus, some corporates opt for bank loans instead. Some survey respondents also suggested the need for market makers for corporate bonds.

Republic of Korea

In the Republic of Korea, survey respondents noted higher trading activity in the corporate bond market at the start of 2019 with a slowdown as the year progressed. The average bid–ask spread for corporate bonds fell to 1.2 bps in 2019 from 1.9 bps in 2018 (**Table 20**). Meanwhile, the average trading size in 2019 was almost at par with last year's at KRW10 billion.

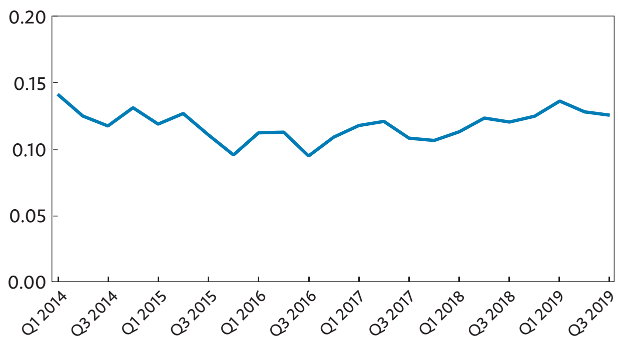
The quarterly turnover ratios for 2019 were slightly up, particularly in Q1 2019. Trading volume for the first 9 months of 2019 was also up 16.6% y-o-y to KRW531.7 trillion (**Figure 26**). Meanwhile, the average corporate bonds outstanding only grew 8.6% y-o-y.

Table 20: Local Currency Corporate Bond Survey Results—Republic of Korea

	Corporate Bonds
Average Issue Size (KRW billion)	56.6
Bid–Ask Spread (bps)	1.2
Average Trading Size (KRW billion)	10.0

bps = basis points, KRW = Korean won.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Figure 26: Turnover Ratio for Corporate Bonds in the Republic of Korea



Q1 = first quarter, Q3 = third quarter.
Note: Corporate bonds include equity-linked securities and derivatives-linked securities.
Source: *EDAILY BondWeb*.

LCY corporate bond trading volumes in the Republic of Korea remained lower than in the government bond market. The driver of trading activity in the corporate bond market in 2019 was the decline in yields and the attractiveness of corporate bonds due to their relatively higher yields. Trading is still very much concentrated in the highly-rated corporate bonds space, particularly AA– and higher. This trend is highly demand-driven given that major investors such as insurance companies and pension funds have internal compliance requirements. Credit rating and issuer name remain the main factors determining the attractiveness and liquidity of corporate bonds in the Republic of Korea.

Malaysia

Liquidity in the Malaysian LCY corporate bond improved in 2019. However, most survey respondents see an inactive secondary market for trading corporate bonds as liquidity is limited to investment-grade paper.

Improved liquidity in the LCY corporate bond market was noted in this year's survey as investor confidence in Malaysia returned. Compared with the previous year, the average issue size increased to MYR478.3 million from MYR397.6 million as corporations took advantage of the low-interest-rate environment (**Table 21**). Against this backdrop, several companies have set up medium-term note programs to be prepared to issue once they see favorable market conditions. The average bid–ask spread decreased to 7.1 bps in 2019 from 8.0 bps in 2018, while the average trading size increased to MYR7.5 million from MYR5.1 million.

Table 21: Local Currency Corporate Bond Survey Results—Malaysia

	Corporate Bonds
Average Issue Size (MYR million)	478.3
Bid–Ask Spread (bps)	7.1
Average Trading Size (MYR million)	7.5

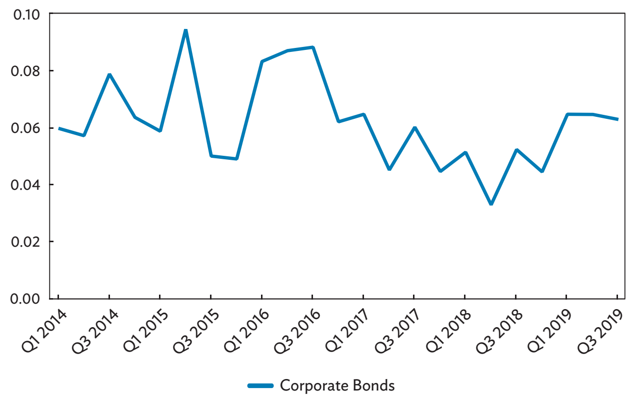
bps = basis points, MYR = Malaysian ringgit.
Sources: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey and Bank Negara Malaysia Fully Automated System for Issuing/Tendering.

The liquidity of LCY corporate bonds mainly depends on the credit rating of the issuance. Investment-grade ratings are favored by investors in Malaysia. Issuer name, the frequency of issuance, and issuance size also determine a bond's liquidity. More seasoned and frequent issuers attract more investor confidence. Large issuance sizes allow the bond supply to meet investor demand in the market.

The turnover ratio for corporate bonds slightly increased to 0.06 in Q3 2019 from 0.05 in Q3 2018 as the growth in the quarterly trading volume of corporate bonds outpaced the increase in quarterly average corporate bonds outstanding (**Figure 27**). The jump in quarterly trading volume to MYR44.5 billion in Q3 2019 from MYR34.0 billion in Q3 2018 occurred as post-election jitters subsided. Investors see it as a positive sign that infrastructure projects are slowly being rolled out following the new government's review of the past administration's projects. Quarterly average corporate bonds outstanding increased to MYR708.2 billion in Q3 2019 from MYR649.9 billion in Q3 2018.

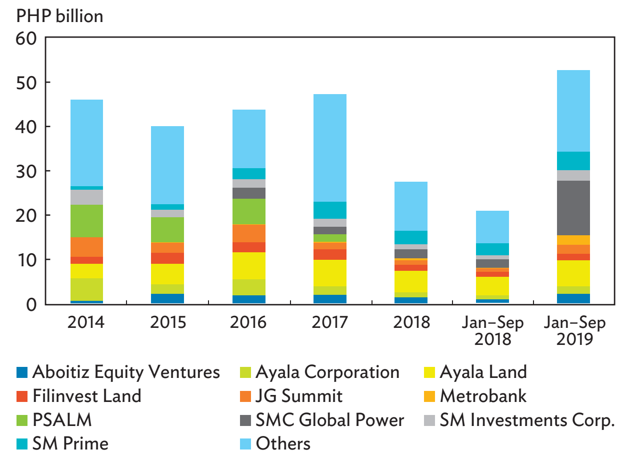
The LCY corporate bond market in Malaysia has been doing well, with local investors preferring Islamic bonds over conventional ones due to the former's marketability, liquidity, and availability. Survey respondents, however, want to see government initiatives to improve market perceptions of and appreciation for hedging mechanisms.

Figure 27: Quarterly Corporate Bond Turnover Ratio in Malaysia



Q1 = first quarter, Q3 = third quarter.
Sources: Bank Negara Malaysia–Bond Info Hub.

Figure 28: Philippine Dealing and Exchange Corporation Trading Volume Trends—Corporate Bonds in the Philippines



PSALM = Power Sector Assets and Liabilities Management Corporation, SMC = San Miguel Corporation.
Note: PDEx reports one side of the trade only.
Source: Philippine Dealing and Exchange Corporation.

They also noted that the LCY corporate bond market could be further improved by encouraging foreign participation to broaden the investor base.

Philippines

Most survey respondents noted an active corporate bond market in the Philippines, though it is still not as liquid nor as developed as the government bond market. Liquidity in the Philippine corporate bond market improved in 2019 versus 2018. The average bid–ask spread for corporate bonds remained wide but declined to 32 bps from 65 bps in 2018 (**Table 22**). The average trading size also saw improvement, rising to PHP14.2 million in 2019 from PHP6.9 million in the previous year.

Trading volume data from the Philippine Dealing and Exchange Corporation for listed corporate bonds in its platform show that the aggregate trading volume of corporate bonds surged to PHP52.7 billion in the first 9 months of 2019, up from PHP20.9 billion in the same period in 2018 and PHP27.4 billion for full-year 2018 (**Figure 28**). This development can be attributed to the larger volume of issuance in 2019, which amounted to PHP316.4 billion during the first 3 quarters of 2019, up from PHP159.2 billion in the same period last year.

Table 22: Local Currency Corporate Bond Survey Results—Philippines

	Corporate Bonds
Average Issue Size (PHP million)	7,627.0
Bid–Ask Spread (bps)	32.0
Average Trading Size (PHP million)	14.2

bps = basis points, PHP = Philippine peso.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Corporate bonds issued by SMC Global Power registered the highest aggregate trading volume during the first 9 months of 2019 at PHP12.4 billion, driven by a large issuance totaling PHP30.0 billion in April. Data show that trading volume was particularly high in May, remaining high in both June and July. The other largely traded securities in the review period include Ayala Land (PHP5.9 billion), SM Prime (PHP4.2 billion), and SM Investments Corp. (PHP2.4 billion).

This trend of limited secondary trading in corporate bonds is one of the primary reasons why the Philippine corporate bond market is still considered underdeveloped. Secondary trading activity has improved over the years, but domestic corporate bonds remain a hold-to-maturity investment given their high returns relative to government bonds. Market participants cited issuer name, coupon rate, credit rating, and the issue float as the primary determinants of liquidity. Bonds from companies with a high credit rating and with relatively large offer sizes are the most liquid and may even have some secondary market trading upon issuance. However, most survey respondents noted that such trading generally only lasts for 1 month.

Singapore

The Singapore LCY corporate bond market was lackluster in 2019. Most survey participants agreed that Singapore has an active secondary market for trading corporate bonds due to the presence of market makers. However, the environment is not ideal in terms of liquidity and trading as the supply of corporate bonds does not match existing demand. Issue sizes have been small, causing secondary liquidity to quickly dry up.

The average issue size increased to SGD272.5 million in 2019 from SGD259.0 million in 2018 as corporations took advantage of the low-interest-rate environment (**Table 23**). The average bid–ask spread, however, increased to 10.8 bps from 6.0 bps, while the average trading size declined to SGD4.1 million from SGD4.7 million. The increased spread and subdued trading size support survey respondents' assessment that trading has been tight, as investors have been risk-averse amid the weakening global economy.

Table 23: Local Currency Corporate Bond Survey Results—Singapore

	Corporate Bonds
Average Issue Size (SGD million)	272.5
Bid–Ask Spread (bps)	10.8
Average Trading Size (SGD million)	4.1

bps = basis points, SGD = Singapore dollar.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

The liquidity of corporate bonds continues to depend on the issuer's name. More seasoned issuers tend to be more liquid. Bond ratings, however, are not significant in terms of liquidity, as most corporate bonds in Singapore are unrated. Institutional investors prefer rated ones, but retail investors are largely indifferent and continue to invest even in unrated corporate bonds. At present, issuers do not have an incentive to have their bonds rated.

To improve the LCY corporate bond market, survey respondents believe that corporate issuers should have their bonds rated. This would help build investor confidence and widen the investor base. More and bigger issuances would help deepen the LCY corporate bond market. Following global trends, some survey respondents recommended the issuance of corporate bonds that incorporate environmental, social, and corporate governance objectives.

Thailand

Though not as liquid as government bonds, trading activity in Thailand's corporate bond market has increased steadily over the years, according to survey respondents. Liquidity in the corporate bond market generally increased in 2019, particularly for long-term tenors. The average daily trading volume rose moderately to THB5.1 billion in January–September from THB4.9 billion in the same period in 2018. Survey respondents noted that in 2019, secondary market trading was particularly active for tenors of less than 3 years and for securities with a credit rating of A– or higher.

At the end of June, the top four holders of corporate bonds were individual investors (31.0%), insurance companies (18.0%), mutual funds (13.0%), and the government pension fund and provident fund (12.0%). In terms of trading activities, asset management companies have been the most active players in 2019, accounting for 78.0% of total trading.

The average bid–ask spread for trading corporate bonds in 2019 was 8.8, while the average trading size was THB31.3 million (**Table 24**). Compared with 2018, the average bid–ask spread widened from 6.6 bps, while the average trading size increased from THB20.8 million. The corporate turnover ratio was 0.08 in Q3 2019, the same rate posted in Q3 2018. Trading volume rose to THB291.2 billion in Q3 2019 from THB271.5 billion in Q3 2018 (**Figure 29**).

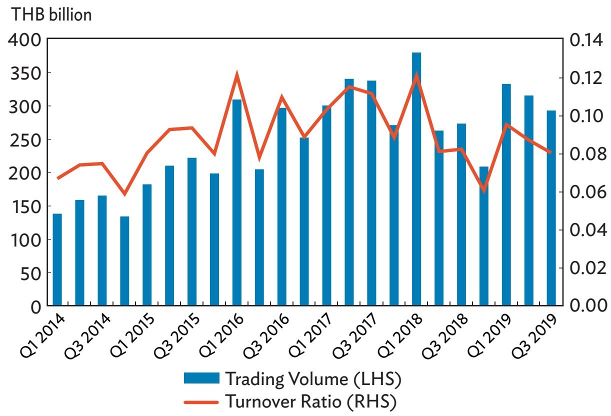
According to market participants, liquidity for newly issued corporate bonds usually lasts from 1 week to 3 months. Liquidity is driven by several factors including issuer name, tenor, and credit rating. Short-term paper with tenors of less than 1 year tend to be very liquid

Table 24: Local Currency Corporate Bond Survey Results—Thailand

	Corporate Bonds
Average Issue Size (THB million)	2,252.4
Bid–Ask Spread (bps)	8.8
Average Trading Size (THB million)	31.3

bps = basis points, THB = Thai baht.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Figure 29: Trading Volume and Turnover Ratio for Local Currency Corporate Bonds in Thailand



LHS = left-hand side, RHS = right-hand side, THB = Thai baht, Q1 = first quarter, Q3 = third quarter.
Note: Q3 2019 figures are from preliminary data.
Sources: Bank of Thailand and Thai Bond Market Association.

since money market funds, which invest in short-term instruments, can actively trade them. Corporate bonds with credit a rating of A– or above tend to be more liquid than those with a lower rating. Individual investors, the primary holder of corporate bonds with a 31.0% share of the total, tend to buy and hold corporate bonds.

Survey respondents identified the recent tax amendment, which imposed a 15% withholding tax on gross income from investment in mutual funds, as an important regulatory development that could have a significant impact on corporate bond liquidity. The new tax was implemented on 22 August and directly affects mutual funds, with the most active players accounting for about 78% of total corporate bond trading and holding about 13% of total corporate bonds. One respondent observed that trading activity in short-term commercial paper had already declined slightly under the new tax rule. Most participants predict that the impact of the new tax will be more pronounced in the next 1–2 years.

Viet Nam

Survey respondents noted that the corporate bond market in Viet Nam remained illiquid in 2019. There is hardly a secondary market for the trading of corporate bonds. Most corporate bond issues are sold at issuance and held until maturity by investors. While the buy-and-hold approach is quite typical of other corporate bonds in the region, survey respondents shared that in Viet Nam, after the primary offering, there is little or no trading.

The average bid–ask spread for newly issued corporate bonds climbed to 70.0 bps in 2019 from 45.0 bps in 2018. The wider bid–ask spread reflected the generally illiquid nature of Viet Nam's corporate bond market. Some respondents mentioned that the bid–ask spread could rise as high as 100 bps for some issues.

In terms of transaction size, a slight decline was noted compared with 2018, but the average transaction size remained large at between VND1.0 trillion and VND2.0 trillion. Large transaction sizes stem from issuances usually being fully taken up at the time of offering either by the underwriter or by one or two investors, resulting in the bonds being traded as an entire lot.

Most survey respondents believed that credit rating and issuer name are important factors for determining liquidity for corporate bonds. But since a credit rating is not required, only a few corporate bonds in Viet Nam have been rated. Large corporates with bank affiliations also obtain better liquidity and support when they issue bonds.

Most qualitative indicators for Viet Nam's corporate bond market were rated low or fairly low by most survey participants in 2019, indicating the need for its further deepening and development. The lowest rating was tallied for Hedging Mechanisms (1.5), as there are no hedging tools available to guard against risk. Market Access was also rated low at 1.8. All other structural issues were rated fairly low at between 2.0 and 2.2, except for Transaction Funding, which obtained an average score of 2.8.

Qualitative Indicators for Corporate Bond Markets

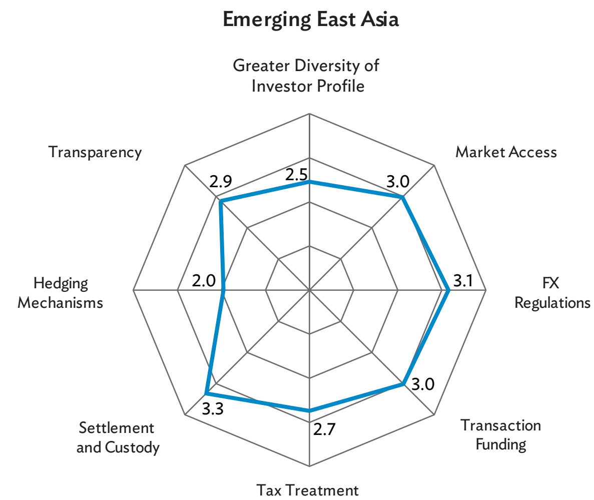
For emerging East Asia in general, corporate bond liquidity lags that of government bonds as nearly all bond markets in the region are still in the developing stage in which the government segment tends to develop ahead of the corporate segment.

There are considerably more challenges in developing corporate bond markets as opposed to government bond markets. One factor is that in government bond markets' issuance is dominated by the central government. For corporate bonds, different firms will issue bonds with differing characteristics in terms of credit rating and issue size, among others. Corporate bonds tend to be issued in volumes smaller than that of government bonds, which has an impact on liquidity as well. Depending on the degree of regulation, issuances in the corporate bond market may also be constrained, making bond issuance more tedious for corporates.

The variety of issuers also means that additional effort must be made to evaluate credit worthiness and the likelihood of repayment. Typically, the risk of nonpayment is held to be virtually nil for government bonds; the same cannot be said for corporate bonds.

The regional averages for structural issues show that emerging East Asia's corporate bonds scored the highest in Settlement and Custody (3.3), FX Regulations (3.1), Market Access (3.0), and Transaction Funding (3.0) (**Figure 30**).

Figure 30: 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* 2019 Annual Bond Market Liquidity Survey.

Settlement and Custody received a high average score due to improvements in technology that have made trading easier, such as the use of delivery-versus-payment and online communication for trading. In fact, all markets scored at least 3.0 in this category except for the Philippines (2.9) and Viet Nam (2.0) (**Figure 31**).

FX Regulations had the next highest regional average at 3.1, reflecting the ongoing liberalization of bond markets to enable more participation by foreign investors. Among individual markets, Hong Kong, China received the highest score possible (4.0), reflecting its status as an international finance center. The Republic of Korea was the next highest at 3.7, followed by Singapore at 3.5, reflecting financial market development in both of these economies as well.

Market Access had a regional average of 3.0. Again, Hong Kong, China attained the region's highest score at 4.0, with the Republic of Korea next at 3.6.

Transaction Funding received a regional average of 3.0, with most markets scoring fairly well except for Thailand (2.3), the Philippines (2.6), and Viet Nam (2.8).

One area in which the regional corporate bond market tends to score poorly is Hedging Mechanisms, with a regional average of only 2.0. In general, investors consider credit risk one of the biggest risk factors when investing in corporate bonds. In all emerging East Asian markets, there is a lack of a credit risk hedging tool such as credit default swaps. The PRC, which earned one of the lowest scores at 1.5, has had its corporate bond market rocked by multiple corporate defaults since 2018. These defaults have resulted in increased investor interest in a new hedging tool known as CMRW. However, the PRC still scored poorly in this category in 2019 as market participants believe that the limitations of CMRW constrain their usefulness.

Another area that the region's corporate bond markets scored relatively poorly in is Greater Diversity of Investor Profile, with a regional average of 2.5. This is because corporate bonds tend to carry credit risk, and credit risk evaluation poses challenges for investors, particularly foreign investors. As a result, the foreign investor share of the corporate bond market tends to be lower than for government bond markets.

The regional average for Tax Treatment was 2.7 in 2019. The markets that scored the highest were Hong Kong, China (3.5); Singapore (3.5); Malaysia (3.3); and the Republic of Korea (3.0); all of which are highly developed and fairly liberalized bond markets. Thailand scored the lowest at 1.8 due to a new withholding tax for funds investing in bonds, including corporate bonds.

Figure 31: Structural Issues for Individual Local Currency Corporate Bond Markets

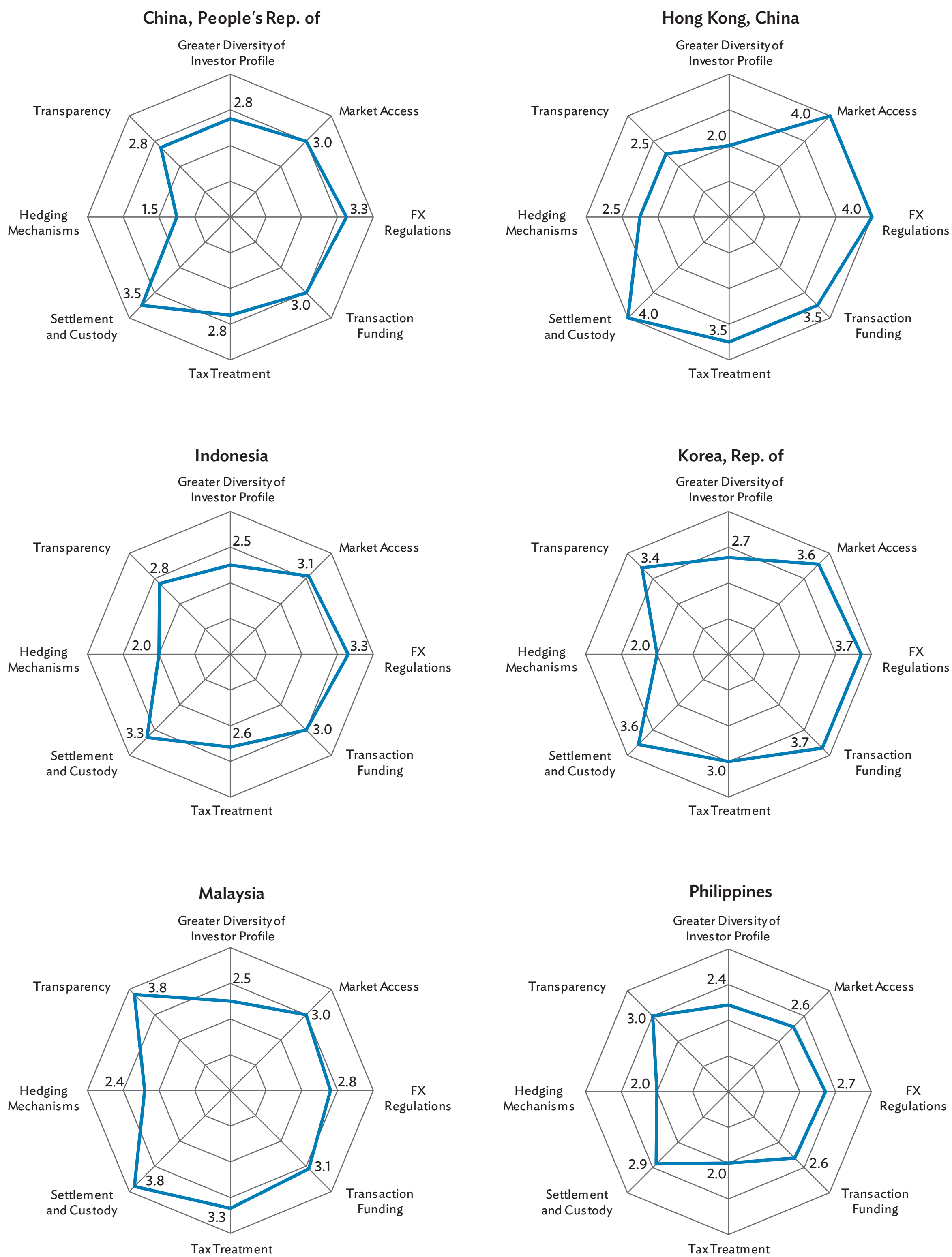


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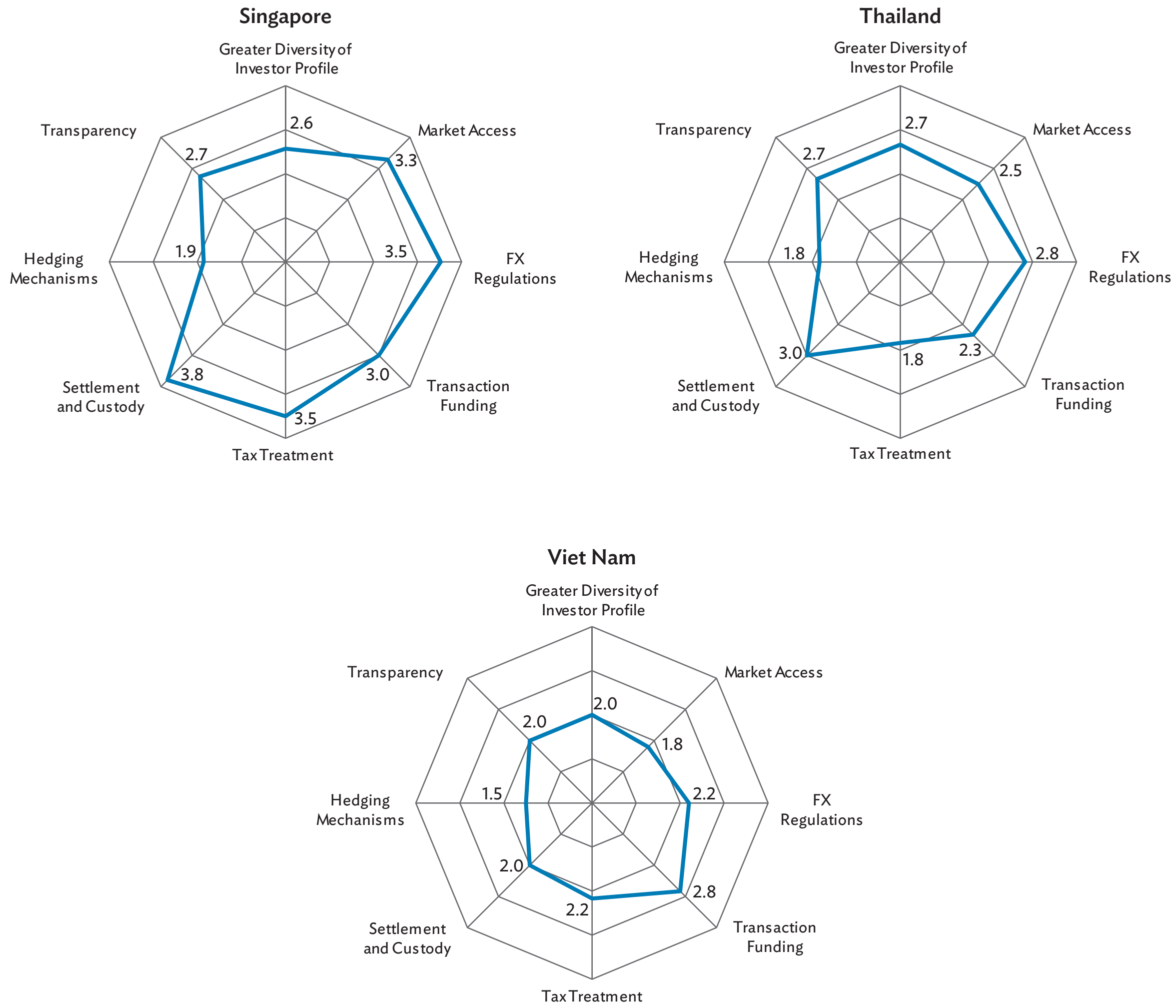
Figure 31 *continued*



FX = foreign exchange.
Source: *AsianBondsOnline* 2019 Annual Bond Market Liquidity Survey.

Bond Market Development and Bank Risk-Taking: Evidence from Developing Markets

1. Introduction

Liquidity management is key to banks' successful operation. A shortage of liquidity is a major threat to the soundness of financial institutions and systematic financial stability. Both the 1997/98 Asian financial crisis and the global financial crisis (GFC) showed how the drying up of liquidity can challenge financial stability and harm the real economy when the financial sector, in particular banks, failed to function as a liquidity provider (Acharya and Mora 2015). During a crisis when liquidity is tight, banks face increased financial constraints and their own liquidity positions can worsen (Drehmann and Nikolaou 2013). Ivashina and Scharfstein (2010) show that, during the GFC, credit supply in the banking sector dropped significantly under liquidity pressure from credit-line drawdowns by existing borrowers and a run by short-term depositors. Cornett et al. (2011) document that banks with less liquid asset portfolios tend to reduce their credit supply and increase asset liquidity during financial crises, and only banks with stable funding sources continue lending activities. This evidence points to the importance of liquidity management instruments that can enhance bank resilience to liquidity shocks and contribute to a well-functioning financial system.

Liquidity risk reflects a maturity mismatch that is naturally embedded in banks' business model. Diamond and Rajan (2001) model bank business structure and show that banks create liquidity by financing long-term projects with short-term demand deposits. Their ability to transform illiquid loans into liquid deposits lies in their collection skills and demand deposit issuances. Diamond and Rajan (2005) further show that such a business structure exposes banks to a natural maturity mismatch between demand deposits and loan assets. The maturity mismatch arising from liquidity transformation and creation is the main reason for banks to hold liquidity reserves and for regulators to monitor bank liquidity risk.

The risk that liquidity demand cannot be met not only affects banks' continuous operation, it also heightens systemic financial instability. In the case of a systemic liquidity shortage, affected banks may become insolvent, which worsens the aggregate liquidity situation and in turn causes contagious bank failures (Hong, Huang, and Wu 2014). Imbierowicz and Rauch (2014) also suggest that liquidity risk contributes to bank failures independently from credit risk.

Following the lessons learned from the 1997/98 Asian financial crisis and the GFC, policy makers and regulators around the world adopted various measures to strengthen banks' balance sheets and improve their liquidity positions. For example, in the aftermath of the 1997/98 Asian financial crisis, ASEAN+3 governments recognized that currency and maturity mismatches were key contributors to the regional financial crisis.[9] They jointly launched the ASEAN Bond Markets Initiative in 2002 to develop bond markets as a long-term local currency (LCY) funding source to boost financial resilience. Similarly, after the GFC, the Basel Committee on Banking Supervision (BCBS) (2010) noted that during the "liquidity phase" of the GFC, many banks faced liquidity difficulties although they held a sufficient capital buffer. To strengthen sound liquidity management and supervision, BCBS introduced an international framework for liquidity risk management and monitoring in 2010.

Although bank liquidity risk has been identified as a major contributor to bank failures, especially in periods of turmoil (Imbierowicz and Rauch 2014), literature that articulates the factors affecting bank portfolio risk and liquidity risk is relatively sparse. A few studies have discussed the role of liability portfolio structure on bank risks and consistently found that a portfolio structure with a heightened maturity mismatch exposes banks to greater risks.

[9] ASEAN+3 refers to member economies of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China; Japan; the Republic of Korea.

On the liability side, a greater reliability on deposits as a source of funding is related to heightened bank fragility. Acharya and Naqvi (2012) develop a model indicating that abundant deposits on a bank's balance sheet encourages it to underprice loan risks and increase risk-taking. Khan, Scheule, and Wu (2017) examine a sample of banks in the United States (US) and find that when banks rely more on deposits as funding sources to support bank loans (i.e., higher deposit-to-total-assets ratios), they tend to hold more risk-weighted assets and, thus, take more risk.

On the asset side, the illiquid nature of bank loans creates incentives for banks to convert illiquid assets on their balance sheets to liquid assets via refinancing such as loan sales and securitization. However, such refinancing is not found to reduce banks' risk. Wagner (2007) models loan sales as a means to increase asset liquidity but finds that loan sales and related credit derivatives may cause contagion among banks in crisis as the risks are only transferred among banks while remaining in system. Casu et al. (2011) examine the role of securitization on banks' credit risk-taking using a sample of US banks and find that securitization can have a negative or insignificant impact on bank credit risk, depending on the type of assets being securitized. They indicate that securitization is used by banks more as a financing tool rather than a risk management tool.

From an asset–liability perspective, Vazquez and Federico (2015) use a liquidity risk proxy that is similar to the net stable funding ratio (NSFR) required under Basel III to investigate the role of bank funding liquidity on bank failures. Using a sample of US and European banks, they find that a weaker funding structure, captured by a lower liquidity risk proxy and higher short-term funding ratio, is a significant contributor to bank failure during crisis.

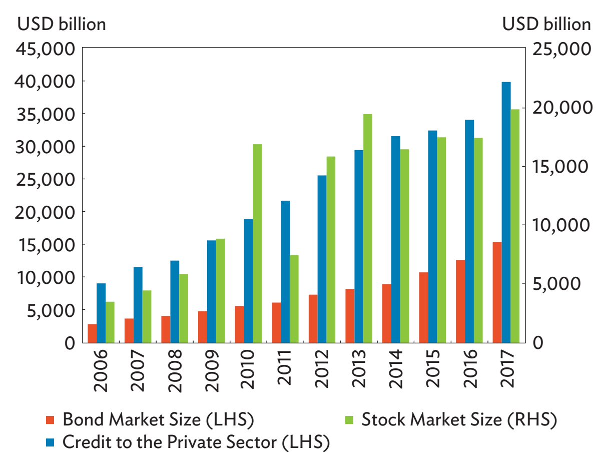
These studies point to the importance of stable funding other than deposits (Acharya and Naqvi 2012; Khan, Scheule, and Wu 2017) and liquid assets other than loans (Wagner 2007; Casu et al. 2011) in mitigating maturity mismatches and reducing liquidity risk in bank balance sheets. However, as a source of liquid assets and stable funding, the impact of bond market on bank risk-taking has not been discussed in the literature.

This study expands upon extant knowledge and provides the very first direct evidence on the role of bond market development in shaping bank portfolio structure and improving risk profile via investment and financing instruments that mitigate maturity mismatches in bank balance sheets. According to Diamond and Rajan (2001), "narrow banking" helps enhance financial stability by matching illiquid assets with longer-maturity liabilities and by reducing bank liquidity risk-taking. Bond markets provide alternative asset classes that can be used to reduce maturity mismatches and enhance liquidity management with government bonds serving as a liquid asset and corporate bonds serving as stable liability.

People may argue that capital market development challenges banks' role in liquidity creation, known as disintermediation. However, Berger and Bouwman (2009) show that banks' ability to create liquidity does not decline as the capital market evolves. **Figure 32** illustrates capital market development and bank credit growth in developing markets from 2006 to 2017. Capital market development, especially bond market development, does not hinder the expansion of bank credit to the private sector.

Motivated by the lack of discussion on bond market development and bank risk-taking, this study aims to understand the following research questions: First, does bond market development help increase bank stability by lowering banks' overall risk and strengthening their

Figure 32: Bond Markets, Bank Credit, and Equity Markets in Developing Markets



LHS = left-hand side, RHS = right-hand side, USD = Unites States dollar.
Note: This figure plots total bond market size and credit to the private sector among 26 global developing markets from 2006 to 2017.
Sources: Bank for International Settlements and World Federation of Exchanges.

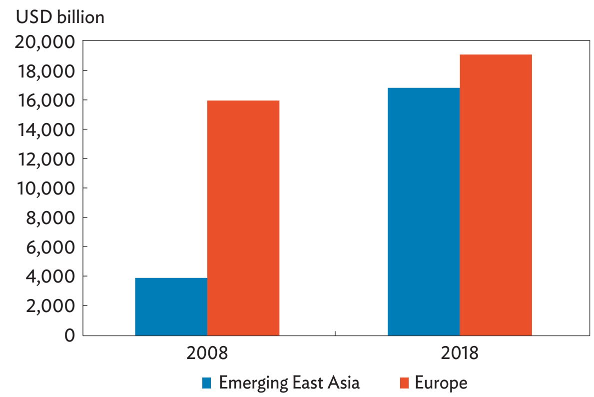
portfolio structures and liquidity positions? Second, do different bond market segments (i.e., government bonds and corporate bonds) influence risk-taking in different ways? Third, is the bond market's role in shaping bank risk-taking consistent across different bank sizes and levels of capital sufficiency? Finally, does bond market structure affect bank risk-taking?

This paper empirically examines the role of bond markets on bank risk-taking using a sample of 432 banks in 26 developing markets from 2006 to 2016. Focusing on bank risk-taking proxies, we find that bond market development significantly lowers risk in banks' asset and deposit portfolios, reduces bank liquidity risk exposure, and increases bank stability. Specifically, a 1% increase in bond market size is associated with 0.04%, 0.03%, and 0.05% decreases in banks' risky asset ratio, deposit ratio, and liquidity risk ratio (LRR), respectively. A 1% increase in bond market size is also related to 0.53% and 0.32% increases in banks' NSFR and ZSCORE, respectively.

Further investigation indicates that government bonds and corporate bonds work differently in contributing to banking sector stability. In particular, the government bond market serves as a source of liquid assets that increases liquidity in banks' asset portfolios without worsening banks' liquidity positions. Also, as an important liquid asset that generates yields, government bonds allow banks to expand their asset portfolios without facing risk and liquidity regulatory constraints. Meanwhile, corporate bonds serve as an alternative stable funding source that allows banks to mitigate maturity mismatches when taking on risky assets. In addition, corporate bonds are an alternative risky asset class that can increase the diversification of a bank's risky-asset portfolio. Overall, the findings imply that bond markets play a complementary role to the banking sector by offering liquid assets and stable liabilities, hence providing banks with more scope in risk management and liquidity creation while maintaining stability and resilience.

This paper is the first study that focuses on the impact of bond market development on banks' risk-taking. Bond markets offer alternative instruments to bank asset–liability management; however, no direct evidence has been produced supporting this perspective. This paper extends the current research by filling this void and focusing on bond market development, offering clear policy implications. The 1997/98 Asian financial crisis highlighted the importance of LCY bond markets in mitigating the currency and maturity mismatch problems in the financial system. Recent decades have witnessed the fast expansion of LCY bond markets worldwide, especially in emerging East Asia. After 2 decades of rapid development, the aggregate size of LCY bond markets in 2018 in ASEAN plus the People's Republic of China; Hong Kong, China; and the Republic of Korea is comparable to the amount of EUR-denominated bonds outstanding in the European bond market by 2018. (**Figure 33**)

Figure 33: Bond Market Development in Emerging East Asia



EUR = euro, USD = United States dollar.
Notes:
1. 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.
2. This figure plots local currency bond market size of ASEAN plus the People's Republic of China; the Republic of Korea; and Hong Kong, China (ASEAN+3), against EUR-denominated bond market size for two periods. Over a period of 10 years, the local currency bond market has grown to a closer size of that in the EUR-denominated bond market in Europe.

Source: Authors' calculations based on Bloomberg LP data.

While LCY bond markets have mitigated currency mismatches and stabilized foreign exchange markets against external shocks (Park, Shin, and Tian 2018), little is known about how effective bond market development is in tackling maturity mismatches. This study therefore presents direct evidence of how bond market development benefits banking stability by mitigating maturity mismatches. The evidence is useful for regulators in supporting the development of a well-diversified and resilient financial sector, especially in emerging markets that heavily rely on bank loans as a major financing channel. Consistent with Berger and Bouwman (2009), this study shows that the role of the banking sector in liquidity creation is not weakened as capital markets develop; rather, banks benefit from bond market development via the provision of liquid assets with yields, diversified risky asset pools, and a stable funding source.

The remainder of this study is organized as follows. Section 2 develops testable hypotheses based on theoretical frameworks. Section 3 describes the sample construction and research methods. Empirical evidence and extensional tests are presented and discussed in sections 4, 5, and 6. Section 7 concludes.

2. Theoretical Implications and Hypothesis Development

This paper is motivated by the existing bank management theoretical framework. As shown in the model of Diamond and Rajan (2001), banks create liquidity and supply credit using relatively short-term deposits to leverage long-term assets (loans). A maturity mismatch can cause funding constraints when there is liquidity stress, such as credit-line drawdowns and creditor withdrawals (Ivashina and Scharfstein 2010). A liquidity shortfall can lead to a fire sale of bank assets, rising external financing costs, or even bank failure.

In the bank management framework documented in Koch and MacDonald (2014) and Rose and Hudgins (2013), asset–liability management helps banks tackle possible liquidity constraints arising from maturity mismatch. More developed bond markets offer banks a wider range of asset choices in terms of diversity; and liquidity, return, and maturity in support of asset–liability management. More developed bond markets also feature reliable bond-pricing mechanisms and a better information environment, which reduces banks risk-taking in general.

Banks store liquidity in their asset portfolios to meet unexpected funding demands. Haan and Van den End (2013) developed a bank liquidity model where banks hold liquid assets to tackle liquidity pressure arising from loan makers and depositors, finding that most banks hold more than the required amount of liquid assets against liquid liabilities. Among the many liquid assets, government bonds in a well-developed bond market is a typical asset class that generates reasonable yields and carries good liquidity, compared to other liquid assets such as cash and reserve deposits at the central bank. Hence, a well-developed government bond market can effectively improve asset liquidity and shorten the maturity profile of banks' asset portfolios by mitigating maturity mismatches on their balance sheets. Moreover, while government bonds help improve the liquidity of asset portfolios, holding government bonds also allows banks to expand their loan portfolio without breaking regulatory liquidity requirements or losing too much revenue. In addition, holding government bonds does not introduce excess credit risk into the financial system that may be transferred to other banks when the bonds are sold, as in the case of loan sales and securitization, especially during crisis periods. Thus, a bigger and deeper bond market, especially a government bond market, offers commercial banks liquid assets to invest in, which lowers banks' risk-taking and liquidity risk.

In terms of liability portfolios, theoretical work by Acharya and Naqvi (2012) shows that when banks hold excess deposits, they tend to take more risk. Excess deposits make bank managers overconfident about their liquidity situation. In line with the principal–agent theory, bank managers take more risk by relaxing loan standards to gain more personal compensation. In addition, since deposits are covered by deposit insurance, which works like a put option, it induces moral hazard by encouraging banks to take excess risk (Khan, Scheule, and Wu 2017; Keeley 1990). Moreover, excess deposits, especially demand deposits, expose banks to greater liquidity pressure during periods of turmoil when depositors make withdrawals. Banks with more stable funding sources are less prone to such a liquidity run (Cornett et al. 2011). While deposits are largely determined by depositors' behavior, a corporate bond market offers banks instruments for active liability management in terms of the quantity and timing of liability. Banks can issue corporate bonds in planned amounts and at desired maturities to match asset portfolios. With predefined repayment cash flows, corporate bonds not only avoid moral hazard induced by deposit insurance, but also prevent liquidity runs in times of turmoil. Hence, corporate bonds serve as a stable funding source that helps reduce maturity mismatch and prevent excess risk-taking. In addition, corporate bonds themselves are also risky investment assets that offer diversification opportunities for a bank's risky asset portfolio. Given limited resources to conduct loan due diligence, investing in corporate bonds also fosters diversification of banks' risky assets in terms of geographic scope and sector diversification. When banks have more stable funding sources, they can hold more risky assets without deteriorating their liquidity positions. Overall, a well-functioning bond market helps banks with a strengthened asset and liability structure, as well as more resilient liquidity positions. This study therefore develops the following two hypotheses:

> *Hypothesis 1: Larger bond markets improve banks' asset and liability portfolio structures, strengthen banks' liquidity positions, and reduce overall bank risk.*

> *Hypothesis 2: Larger government bond markets reduce risk in banks' asset portfolios and improve their liquidity positions. Larger corporate bond markets reduce banks' risk-taking and can facilitate risky asset holdings without heightening banks' risk exposure.*

3. Sample Construction and Empirical Design

Data Collection

Bank financial statement information has been collected from S&P Global Market Intelligence. Bond market development information was obtained from Bloomberg. Market-level macroeconomic attributes were collected from various sources, including World Development Indicators, International Country Risk Guide (ICRG), Bloomberg, and Bruegel. Bank-level data were matched with bond market development and macroeconomic variables. To get reasonable data coverage for each market, bond markets with data for fewer than three banks were excluded. The final sample is an annual panel data covering 26 developing markets worldwide from 2006 to 2016. The sample consists of 432 unique commercial banks and 2,794 bank-year observations.

Variable Construction

Bank Risk-Taking

According to Imbierowicz and Rauch (2014), there are two major types of bank risk that separately affect bank solvency risk—liquidity risk and credit risk; there is no significant reciprocal relationship between the two. This paper focuses on bank portfolio risk, liquidity risk, and overall risk—areas in which bond market development is very relevant.

Portfolio Risk

Asset portfolio risk. Asset portfolio structure directly relates to risks in bank assets. Basel II used the ratio of risk-weighted assets to total assets (RWA) to determine the minimum amount of capital that banks need to hold to reduce insolvency risk. RWA reflects the quality and structure of a bank's asset portfolio by assigning a risk weight to each asset class according to its inherent potential to default and the likely losses in case of default. In the empirical analysis, we use bank-reported RWA to capture risks embedded in the asset portfolio.

Liability portfolio risk. Liability portfolio structure matters for bank risk-taking. It has been documented that banks with excess deposits in their liability portfolio tend to relax loan standards and take more risk (Acharya and Naqvi 2012). Khan, Scheule, and Wu (2017) find that US banks with greater reliance on deposits take greater risks. Corporate bonds enhance banks' liability portfolios as active liability management instruments. Unlike demand deposits, corporate bonds have stable and predictable cash flows. In developed bond markets, banks can issue corporate bonds to obtain desired funding with predetermined cash flow patterns that better match asset portfolios. Unlike insurance-covered deposits that could induce moral hazard and excess risk-taking, debt funding introduces market monitoring to avoid excess risk-taking. In addition, corporate bonds themselves serve as an alternative pool of risky assets to invest in other than bank loans, which also offers diversification benefits to banks' asset portfolios. In our empirical analysis, the ratio of deposits to total assets (DEP) is used to reflect the liability portfolio risk of banks.[10]

Liquidity Risk

Funding stability. In the aftermath of the GFC, the Basel Committee introduced two liquidity risk measures under the Basel III framework to capture the liquidity position of a bank in terms of asset and liability portfolios (BCBS 2010a). The first measure is the NSFR, which reflects the level of funding liquidity and requires banks to fund their activities with sufficiently stable funding

[10] We also use the ratio of deposits to total liabilities as a proxy, which generates similarly results as DEP. We report the results estimated using DEP for brevity. Results generated using the ratio of deposits to total liabilities are available upon request.

sources over a medium- or long-term horizon (BCBS 2014). A higher NSFR indicates less reliance on short-term funding and a sound liquidity position. The other measure is the liquidity coverage ratio, which captures assets' liquidity and gauges whether banks hold enough high-quality liquid assets to cover short-term net cash flows.

Given that the granular information on assets and liabilities required to calculate these measures is very limited for banks in our sample of developing markets, we follow Vasquez and Federico (2015) and construct a proxy for the NSFR as the ratio between stability-weighted bank liabilities (L_i) and assets (A_i):

$$NSFR = \frac{\sum_i w_i L_i}{\sum_i w_i A_i} \tag{1}$$

where w_i is the weight reflecting relative stability of each balance sheet item, and $0 \leq w_i \leq 1$. Larger weights are assigned to assets that are less liquid and liabilities that are more stable funding sources. Thus, a higher NSFR indicates greater funding stability.

Liquidity risk-taking. Banks create liquidity via taking risks that arise from an inherent maturity mismatch in their balance sheets. Liquidity creation therefore describes the extent to which banks finance relatively illiquid assets with relatively liquid liabilities (Khan, Scheule, and Wu 2017). Liquidity creation is a widely used proxy for bank risk-taking in literature (Berger and Bouwman 2009; Berger and Bouwman 2013; Distinguin, Roulet, and Tarazi 2013; Horváth, Seidler, and Weill 2014; Khan, Scheule, and Wu 2017). Since bond market offers commercial banks with liquid assets as well as illiquid liabilities in the form of government and corporate bonds, a larger and more developed bond market could shape banks' liquidity risk-taking behavior. In the empirical analysis, we follow Berger and Bouwman (2009) to gauge a bank's LRR as the liquidity-creation-to-total-assets ratio in equation (2), where a higher LRR indicates greater liquidity risk in a bank's balance sheet:

$$\begin{aligned} \text{LRR} = (&[\textit{illiquid assets} + \textit{liquid liabilities}] \\ &- [\textit{liquid assets} + \textit{illiquid liabilities}] \\ &- \textit{equity}) / 2 \times \textit{total assets} \end{aligned} \tag{2}$$

Overall Risk

Z-score. A widely used Z-score is found in the literature to gauge overall bank risks (see, among others, Yeyati and Micco 2007; Laeven and Levine 2009; Fiordelisi and Mare 2014; Ramayandi, Rawat, and Tang 2014; Khan, Scheule, and Wu 2017). As a bond market helps improve banks' portfolio structure and enhance their liquidity management, it may also mitigate overall bank risk-taking. A Z-score comprehensively considers a bank's earnings performance (return on assets) as well as its earnings volatility and leverage, reflecting the distance of a bank from insolvency (Laeven and Levine 2009). A lower Z-score implies that a bank has a larger probability of insolvency. To capture overall bank risk, this study uses the natural logarithm of the Z-score constructed following the methodology in Fiordelisi and Mare (2014) and Yeyati and Micco (2007):

$$\ln\left(Z - score_{i,t}\right) = \ln\left(\frac{\mu(ROA_{c,t}) + CAR_{i,t}}{\sigma(ROA_{c,t})}\right) \tag{3}$$

where $\mu(ROA_{c,t})$ is the mean of all banks' return on assets (ROA) in market c at period t, while $\sigma(ROA_{c,t})$ is the standard deviation of the ROAs of all banks in market c at period t. CAR_{it} is the capital-to-asset ratio for bank i at period t. The Z-score captures the level of bank stability, with a higher Z-score indicating the greater soundness of a bank.

Bond Market Development

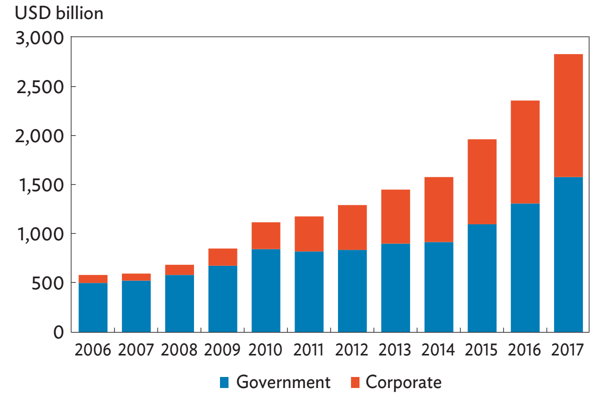
In our empirical study, bond market development is proxied by bond market size (Bond), which is measured as total bonds outstanding as a share of gross domestic product (GDP) for each market. To examine the different roles of government bonds and corporate bonds, we categorize bond markets into government and corporate segments, following the Bloomberg Industry Classification Standards (BICS) Level 1 classification, and calculate the outstanding amount of government bonds (GovB) and corporate bonds (CorpB) as a share of GDP. **Table 25** lists the average bond market size—government, corporate, and total—across 26 developing economies. **Figure 34** depicts our sample's aggregate bonds outstanding from 2006 to 2017, broken down into government and corporate bond segments.

Table 25: Bond Market Development in Developing Markets (USD billion)

Market	Government	Corporate	Total
Argentina	252.3	27.7	279.9
Bangladesh	17.2	0.3	17.5
Brazil	1,250.3	641.6	1,892.0
Bulgaria	11.5	1.7	13.2
Chile	34.3	72.5	106.8
China, People's Rep. of	3,363.6	2,508.9	5,872.6
Colombia	99.8	56.1	155.9
Croatia	26.9	3.9	30.8
Hungary	113.5	19.8	133.3
India	1,162.3	344.0	1,506.4
Indonesia	186.1	46.5	232.7
Malaysia	183.5	161.3	344.8
Mexico	523.7	278.8	802.5
Pakistan	63.2	2.5	65.7
Panama	18.7	16.6	35.3
Peru	38.2	33.5	71.7
Philippines	116.3	35.1	151.3
Poland	270.2	23.9	294.0
Romania	57.7	2.0	59.7
Russian Federation	275.8	314.0	589.8
Serbia	15.5	0.4	15.9
Sri Lanka	38.4	3.5	41.9
Thailand	202.5	84.1	286.6
Turkey	295.3	33.5	328.8
Ukraine	45.3	11.1	56.3
Viet Nam	46.7	3.3	50.0

Source: Authors' calculations based on Bloomberg LP data.

Figure 34: Bond Market Development in Developing Markets



USD = United States dollar.
Source: Authors' calculations based on Bloomberg LP data.

Control Variables

To control for other widely acknowledged factors that also contribute to bank portfolio decision-making and risk-taking, we include variables at the bank and market levels in our analysis, following the path of existing studies such as Khan, Scheule, and Wu (2017); Vasquez and Federico (2015); Fu, Lin, and Molyneux (2014); and Konishi and Yasuda (2004). At the bank level, we include size, profitability, and capital sufficiency as major bank-specific attributes. At the market level, we control for banking industry concentration as well as macroeconomic conditions such as GDP growth, interest rates, exchange rate stability, and economic stability.

Bank-Specific Attributes

Size significantly affects banks' operational decisions because it shapes scale and scope economies. It is also related to access to capital markets. In the empirical analysis, bank size (Size) is defined as the natural logarithm of a bank's total assets. Bank profitability reflects the decision-making and risk-management quality of a bank's operation. Following Fu, Lin, and Molyneux (2014), we include bank ROA and net interest margin (NIM) to track the profitability of bank investment and lending activities. As a key dimension of bank regulation, capital buffer affects and reflects a bank's risk-taking decisions. Following Vasquez and Federico (2015), we construct the bank capital sufficiency ratio (CSR) as the ratio of Tier 1 capital to RWA.

Market-Level Attributes

The impact of banking sector concentration on bank stability has been widely documented yet remains controversial. The concentration-stability view suggests a positive impact of bank concentration on bank stability (Yeyati and Micco 2007, Berger and Bouwman 2009), while the concentration-fragility view argues for a negative impact of concentration on bank stability (Fu, Lin, and Molyneux 2014; Schaeck and Cihák 2014). Our study follows Fu, Lin, and Molyneux (2014) and uses concentration ratio (CR3) to measure banking sector concentration, which is defined as the ratio of loans held by the three largest banks to total loans held by the entire banking sector.

To account for macroeconomic conditions, this study includes GDP growth (GDPG) as a broad measure of economic development that depicts the general soundness of real sector performance. The interest rate level determines the liquidity situation in the entire economic system. Lower interest rates encourage investment and bank risk-taking, and generate a lower default probability for existing loans (Ramayandi, Rawat, and Tang 2014). In our analysis, 1-year government bond yield (IR) is used to capture the benchmark interest rate level.

Exchange rate uncertainty affects banks' risk-taking behavior and impairs investment appetite. Excessive exchange rate volatility signals weakening economic and financial stability, and can induce a banking crisis in many countries (Lindgren, Garcia, and Saal 1996). In our empirical analysis, exchange rate volatility (FXV) is included and defined as the standard deviation of monthly real effective exchange rate changes during a single year. To capture overall market risk— such as governance, political, economic, and financial risk—the study also includes the natural logarithm of composite risk score constructed by ICRG. The ICRG composite risk score ranges from 0 to 100, with higher ratings suggesting greater soundness of a market.

Descriptive statistics of the key variables in the sample are reported in **Table 26**. To address outlier problems, bank-level variables are winsorized at three standard deviations around the mean. Extreme values for RWA are winsorized at the top 3%. Pearson's pairwise correlation coefficients between the variables are presented in **Table 27**. The low-to-moderate correlation among most of the control variables indicates that multicollinearity is not an issue in the analysis.

Table 26: Descriptive Statistics

	N	Mean	SD	Min	Max	Percentile				
						5th	10th	50th	90th	95th
Dependent Variables										
RWA	2,794	0.67	0.16	0.03	1.00	0.42	0.48	0.67	0.88	0.95
DEP	2,790	0.66	0.19	0.00	0.92	0.23	0.43	0.70	0.84	0.86
NSFR	2,794	0.75	0.59	0.00	10.14	0.17	0.26	0.62	1.31	1.53
LRR	2,794	0.15	0.18	−0.70	0.68	−0.18	−0.07	0.19	0.34	0.38
ZSCORE	2,789	2.59	0.75	−1.82	4.23	1.20	1.50	2.73	3.40	3.57
Key Independent Variables										
Bond	2,794	0.59	0.26	0.09	1.37	0.21	0.27	0.56	0.93	1.10
GovB	2,794	0.41	0.17	0.01	0.96	0.15	0.17	0.40	0.63	0.68
CorpB	2,794	0.18	0.14	0.00	0.67	0.01	0.03	0.15	0.38	0.47
Microeconomic Control Variables										
Size	2,794	16.49	1.61	11.68	21.39	13.52	14.41	16.48	18.32	19.23
CSR	2,794	0.13	0.05	0.02	0.52	0.08	0.08	0.12	0.18	0.21
ROA	2,794	0.01	0.01	−0.32	0.09	−0.01	0.00	0.01	0.02	0.03
NIM	2,794	0.04	0.02	−0.06	0.16	0.01	0.02	0.03	0.06	0.07
Macroeconomic Control Variables										
CR3	2,794	0.50	0.14	0.35	1.00	0.36	0.37	0.44	0.72	0.75
GDPG	2,794	0.05	0.03	−0.10	0.14	−0.02	0.01	0.05	0.09	0.10
ICRG	2,794	4.25	0.07	3.98	4.39	4.12	4.15	4.26	4.34	4.35
IR	2,794	0.06	0.06	0.00	1.06	0.01	0.02	0.04	0.10	0.12
FXV	2,794	0.02	0.01	0.00	0.14	0.01	0.01	0.01	0.03	0.04

Notes: This table lists summary statistics of the variables included in our models. Observations are bank-year combinations. The dependent variables are RWA, which is the risky-assets-to-total-assets ratio; DEP, which is the deposit-to-total-assets ratio; NSFR, which is the net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets; LRR, which is bank liquidity risk-taking as a share of total assets; and ZSCORE, which is the natural logarithm of Z-score. Bond is total bonds outstanding as a share of GDP. GovB is government bonds outstanding as a share of GDP. CorpB is corporate bonds outstanding as a share of GDP. Size is bank size measured using the natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is loans held by top three largest banks to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. The sample covers 432 banks from 26 developing markets for the period 2006–2016. Outliers for all other variables were winsorized at three standard deviations around the mean. Extreme values for RWA are winsorized at the top 3%.
Sources: Authors' calculations based on data from Bloomberg LP, S&P Global Market Intelligence, and World Bank *World Development Indicators*.

Table 27: Pearson's Pairwise Correlation Coefficients

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	RWA	1.000																
2	DEP	−0.090	1.000															
3	NSFR	−0.243	−0.270	1.000														
4	LRR	0.354	0.524	−0.395	1.000													
5	ZSCORE	0.073	0.210	0.031	0.112	1.000												
6	Bond	−0.187	−0.147	−0.002	−0.186	0.146	1.000											
7	GovB	−0.208	−0.102	−0.057	−0.095	0.034	0.876	1.000										
8	CorpB	−0.099	−0.153	0.066	−0.233	0.233	0.814	0.434	1.000									
9	Size	−0.055	−0.011	0.190	0.024	0.235	0.211	0.121	0.248	1.000								
10	CSR	−0.127	−0.210	−0.060	−0.222	−0.005	−0.091	−0.043	−0.119	−0.406	1.000							
11	ROA	0.080	−0.001	0.036	0.010	0.326	−0.101	−0.126	−0.038	0.128	0.138	1.000						
12	NIM	0.319	−0.057	−0.191	0.243	−0.054	−0.208	−0.172	−0.181	−0.174	0.251	0.325	1.000					
13	CR3	0.179	−0.036	−0.039	0.182	−0.192	−0.325	−0.219	−0.343	−0.280	0.092	−0.119	0.131	1.000				
14	GDPG	−0.185	0.339	0.110	0.028	0.359	−0.115	−0.122	−0.067	0.284	−0.211	0.127	−0.173	−0.451	1.000			
15	ICRG	−0.209	0.105	0.108	−0.131	0.261	0.302	0.158	0.375	0.272	−0.149	0.035	−0.248	−0.314	0.401	1.000		
16	IR	0.109	−0.131	−0.036	0.037	−0.209	−0.048	0.035	−0.133	−0.123	0.076	−0.097	0.145	0.258	−0.382	−0.539	1.000	
17	FXV	0.177	−0.268	−0.038	−0.027	−0.383	0.031	0.011	0.045	−0.085	0.049	−0.122	0.154	0.185	−0.469	−0.385	0.678	1.000

Notes: This table presents the Pearson's correlation coefficients for each pair of variables. A total of 2,794 observations from 432 banks covering the period 2006-2016 were used in the calculations. RWA is bank risky-assets-to-total-assets ratio. DEP is bank deposit-to-total-assets ratio. NSFR is net stable funding ratio which is the ratio between stability-weighted bank liabilities and assets. LRR is bank liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. Bond is total bonds outstanding as a share of GDP. GovB is government bonds outstanding as a share of GDP. CorpB is corporate bonds outstanding as a share of GDP. Size is bank size measured using natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is loans held by top three largest bank to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as standard deviation of monthly real effective exchange rate changes within a year.
Sources: Authors' calculations based on data from Bloomberg LP, S&P Global Market Intelligence, and World Bank *World Development Indicators*.

Model Specification

To empirically test whether bond markets mitigate bank risk-taking, this study estimated the following baseline model specification:

$$Risk_{i,t} = \alpha_{i,t} + \phi Risk_{i,t-1} + \beta Bond_{i,t} + \gamma Controls_{i,t} + \phi Bank_i + \delta Year_t + \epsilon_{i,t}, \tag{4}$$

where $Risk_{i,t}$ is a vector of bank portfolio risk, liquidity risk, and overall risk measures for bank i at time t (i.e., RWA as a proxy for risks in banks' asset portfolio); DEP is a proxy for risk in banks' liability portfolio; NSFR is a proxy for banks' funding liquidity; LRR measures liquidity risk-taking; and ZSCORE is the natural logarithm of the Z-score to measure bank overall risk. $Risk_{i,t-1}$ is included to account for potential autocorrelation in risk measures.

$Bond_{i,t}$ is a vector of bond market development variables for a particular market in which bank i registers at time t, including Bond, GovB, and CorpB as the ratios of aggregate bonds outstanding, government bonds outstanding, and corporate bonds outstanding to GDP, respectively. The vector $Control_{i,t}$ contains bank-level and market-level characteristics that are widely established in the literature to influence bank risk-taking, which includes bank size, profitability, capital sufficiency, banking sector concentration, GDP growth, interest rate level, exchange rate volatility, and composite market risk. $Bank_i$ is a vector of bank-specific fixed effects that account for time-invariant bank-specific heterogeneities, $Year_t$ is a vector of time fixed effects, and $\epsilon_{i,t}$ is the error term for bank i at time t. This baseline dynamic panel model specification is estimated using a panel fixed-effects regression.[11] Standard errors are clustered at the bank level.

[11] In order to choose between fixed and random effects, we conducted a (cluster) robust version of the Hausman test using a bootstrap procedure, as well as the Sargan–Hansen test of overidentifying restrictions that are robust to heteroscedasticity. The Sargan–Hansen test showed more consistent results for different model specifications. For all models, the Sargan–Hansen test favors fixed effects over random effects.

4. The Bond Market's Impact on Bank Risk-Taking

This section discusses the results of the analysis to understand how bond market development shapes bank portfolio risk, liquidity risk, and overall risk. The analysis focuses on five dependent variables: RWA, DEP, NSFR, LRR, and ZSCORE.

Table 28 reports the estimated results of the baseline model in equation (4) analyzing the impacts of bond market size (Bond) and related control variables on

Table 28: Bond Market Development, Bank Portfolio Structure, and Bank Risk-Taking

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE	(6) RWA	(7) DEP	(8) NSFR	(9) LRR	(10) ZSCORE
Bond						−0.0402*	−0.0335*	0.534***	−0.0488**	0.317*
						(−1.86)	(−1.90)	(5.53)	(−2.33)	(1.93)
RWA_{t-1}	0.528***					0.527***				
	(23.78)					(24.26)				
DEP_{t-1}		0.505***					0.502***			
		(12.81)					(12.65)			
$NSFR_{t-1}$			0.300**					0.291**		
			(2.09)					(2.03)		
LRR_{t-1}				0.504***					0.499***	
				(15.82)					(15.58)	
$ZSCORE_{t-1}$					0.169***					0.170***
					(6.07)					(6.03)
Size	−0.00526	−0.0686***	0.117***	−0.0463***	0.221***	−0.00476	−0.0685***	0.112***	−0.0461***	0.216***
	(−0.53)	(−8.57)	(3.68)	(−4.50)	(3.84)	(−0.48)	(−8.59)	(3.71)	(−4.48)	(3.66)
CSR	−0.683***	−0.196***	0.504	−0.539***	3.251***	−0.679***	−0.193***	0.447	−0.535***	3.209***
	(−8.51)	(−3.79)	(1.31)	(−6.18)	(9.08)	(−8.49)	(−3.68)	(1.16)	(−6.14)	(8.92)
ROA	0.256*	−0.298***	−1.280***	−0.289	10.21***	0.251*	−0.301***	−1.216***	−0.293	10.26***
	(1.71)	(−2.88)	(−3.06)	(−1.43)	(6.31)	(1.68)	(−2.85)	(−2.85)	(−1.41)	(6.21)
NIM	0.846***	−0.0604	−1.637**	0.900***	−0.102	0.833***	−0.0738	−1.465**	0.890***	−0.0182
	(2.81)	(−0.30)	(−2.45)	(3.11)	(−0.09)	(2.78)	(−0.36)	(−2.29)	(3.08)	(−0.02)
CR3	−0.207***	−0.0519	−0.0417	−0.228***	−1.408***	−0.213***	−0.0565	0.0390	−0.235***	−1.365***
	(−3.44)	(−1.17)	(−0.19)	(−4.41)	(−3.34)	(−3.56)	(−1.27)	(0.18)	(−4.64)	(−3.19)
GDPG	−0.00145	0.0882	−0.522*	0.289***	−0.592	−0.0191	0.0748	−0.300	0.269***	−0.433
	(−0.02)	(1.23)	(−1.68)	(3.48)	(−0.87)	(−0.20)	(1.06)	(−0.94)	(3.31)	(−0.59)
ICRG	−0.0758	0.163***	0.313	0.118*	−0.392	−0.112*	0.134***	0.792***	0.0761	−0.124
	(−1.28)	(3.48)	(1.07)	(1.86)	(−0.79)	(−1.82)	(2.81)	(2.84)	(1.13)	(−0.28)
IR	−0.0312	0.0886***	0.109	−0.0212	1.764***	−0.0280	0.0916***	0.0679	−0.0172	1.743***
	(−0.74)	(3.14)	(1.01)	(−0.61)	(8.87)	(−0.67)	(3.25)	(0.65)	(−0.49)	(8.86)
FXV	−0.498**	−0.371**	0.258	0.199	−9.277***	−0.470**	−0.350**	−0.100	0.236	−9.530***
	(−2.25)	(−2.37)	(0.31)	(1.00)	(−6.72)	(−2.09)	(−2.20)	(−0.12)	(1.18)	(−6.71)
Constant	0.899***	0.766***	−2.531*	0.439	1.103	1.071***	0.912***	−4.819***	0.648*	−0.165
	(3.03)	(3.20)	(−1.94)	(1.41)	(0.41)	(3.59)	(3.64)	(−3.69)	(1.94)	(−0.07)
Observations	2,794	2,790	2,794	2,794	2,789	2,794	2,790	2,794	2,794	2,789
Number of banks	432	432	432	432	432	432	432	432	432	432
Adjusted R^2	0.426	0.490	0.148	0.421	0.293	0.427	0.491	0.160	0.423	0.295
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of panel fixed-effects regressions of the baseline model. RWA is risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. Bond is total bonds outstanding as a share of GDP. Size is bank size measured using the natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is ratio of loans held by top three largest banks to total loans held by all banks in an economy. GDPG is gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by the 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors clustered at the bank level.
Sources: Authors' calculations.

bank portfolio structure and risk-taking. Specifications (1)–(5) show how various bank- and market-level control variables affect bank portfolio decisions and risks. It is All the lagged terms of portfolio structures and risks are significantly positively related to their current levels, indicating that banks' portfolio style and risk-taking behavior tend to be relatively stable and persistent.

Compared to small banks, large banks tend to hold a smaller share of deposits in their liability portfolio and have a higher NSFR, lower LRR, and higher Z-score, confirming that large banks are more sound than smaller banks. As for capital buffer levels, in line with the widely documented evidence that well-capitalized banks are more prudent in risk-taking (Lee and Hsieh 2013; Lindquist 2004; Khan, Scheule, and Wu 2017), we find consistent results that a higher capital buffer level is significantly associated with lower asset risk, a smaller share of deposits in a bank's portfolio, less liquidity risk-taking, and a higher Z-score. Moreover, bank profitability signals a bank's decision-making and risk management quality. More profitable banks are in a better position to tackle asset and liquidity risks and hold more risky assets, while maintaining good risk management quality through less deposit-taking, a higher stable funding ratio, and a higher Z-score.

Among the market-level variables, banking sector concentration (CR3) has mixed impacts on bank risk-taking. A higher concentration is associated with less risky asset holdings and lower liquidity risk, but also with a lower Z-score; this could indicate that banks are liquidity-wise stable amid higher industry concentration, but concentration can also deteriorate credit risk, weighing down the Z-score. Macroeconomic variables also show significant impacts on bank portfolio decisions and risk-taking. When the economy is performing well—with higher GDP growth, higher interest rate levels, and a higher ICRG score—banks take more risks but remain sound, as shown in the associated lower net funding stability, more liquidity risk-taking, more deposit holdings, and higher Z-score. Consistently, when exchange rate volatility is high, which signals unstable macroeconomic and financial conditions, banks become more prudent and less stable, with lower risky asset ratios and lower deposit ratios in their portfolios as well as lower Z-scores, which together echo weak economic conditions. Overall, the control variables show intuitive and consistent evidence with the extant literature.

Specifications (6)–(10) of Table 28 include bond market size and report its impact on banks' RWA, DEP, NSFR, LRR, and Z-score, respectively. While the control variables' impacts remain largely consistent, the size of the bond market significantly reduces risk-taking, with fewer risky assets in banks' asset portfolios, lower deposit-to-liability portfolio ratios, and improved bank liquidity positions and overall stability. In particular, a 1% increase in bond market size will significantly reduce banks' RWA and DEP by 0.04% and 0.03%, respectively; a 1% increase is also associated with a 0.53% increase in banks' NSFR, a 0.05% decrease in LRR, and a 0.32% increase in ZSCORE. Overall, Table 28 indicates that a bond market improves banks' portfolio structure and reduces risk-taking in both asset and liability portfolios, highlighting the role of a bond market in improving bank stability.

To further investigate the different roles of corporate and government bond market development on banks' portfolio structure and risk-taking, **Table 29** separately reports the impacts of the two types of bond market segments.

A larger government bond market significantly reduces risks in banks' asset portfolios and improves banks' stable funding ratios. In particular, a 1% increase in government bond market size is associated with a 0.15% decrease in risky asset ratios and a 0.51% increase in NSFRs. This is intuitive and consistent with the role of government bonds as a liquid investment instrument for commercial banks, allowing them to improve liquidity in asset portfolios. Meanwhile, we find that a larger corporate bond market plays a significant role in lowering banking sector risk via lower deposit-to-liability portfolio ratios, less liquidity risk-taking, and higher overall stability. A 1% increase in corporate bond market size reduces the deposit ratio by 0.07%, which supports the hypothesis that corporate bond markets serve as a stable financing source for commercial banks other than deposits. As a stable funding source and alternative risky asset class, corporate bonds enable banks to hold more risky assets with potential diversification benefits while maintaining lower liquidity risk and overall soundness. In particular, a 1% increase in corporate bond market size is associated with a 0.14% increase in risky asset holdings in banks' asset portfolios; a 0.06% reduction in liquidity risk levels; and an increase in NSFRs and Z-scores of 0.57% and 1.00%, respectively.

Table 29: Impacts of Government and Corporate Bond Markets on Bank Risk-Taking

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE
GovB	−0.150***	−0.0104	0.510***	−0.0415	−0.117
	(−5.03)	(−0.44)	(5.42)	(−1.57)	(−0.36)
CorpB	0.136***	−0.0715***	0.574***	−0.0611*	1.004**
	(3.10)	(−2.63)	(3.79)	(−1.70)	(2.22)
RWA_{t-1}	0.506***				
	(22.30)				
DEP_{t-1}		0.498***			
		(12.57)			
$NSFR_{t-1}$			0.291**		
			(2.03)		
LRR_{t-1}				0.498***	
				(15.46)	
$ZSCORE_{t-1}$					0.171***
					(6.08)
Size	−0.0194*	−0.0655***	0.108***	−0.0451***	0.158**
	(−1.66)	(−7.82)	(3.52)	(−4.20)	(2.31)
CSR	−0.678***	−0.195***	0.449	−0.536***	3.258***
	(−8.38)	(−3.73)	(1.17)	(−6.14)	(9.18)
ROA	0.211	−0.291***	−1.224***	−0.290	10.09***
	(1.37)	(−2.77)	(−2.87)	(−1.40)	(6.02)
NIM	0.862***	−0.0756	−1.464**	0.891***	0.0629
	(2.73)	(−0.37)	(−2.30)	(3.09)	(0.06)
CR3	−0.139***	−0.0727	0.0562	−0.240***	−1.058***
	(−2.65)	(−1.57)	(0.26)	(−4.80)	(−2.73)
GDPG	0.0160	0.0690	−0.293	0.267***	−0.334
	(0.18)	(0.98)	(−0.92)	(3.29)	(−0.47)
ICRG	0.0119	0.106**	0.822***	0.0671	0.407
	(0.17)	(2.06)	(2.82)	(0.97)	(0.69)
IR	0.0198	0.0818***	0.0786	−0.0204	1.923***
	(0.46)	(3.01)	(0.74)	(−0.57)	(9.26)
FXV	−0.443**	−0.357**	−0.0942	0.235	−9.332***
	(−2.00)	(−2.24)	(−0.11)	(1.18)	(−6.41)
Constant	0.743**	0.996***	−4.902***	0.674**	−1.695
	(2.54)	(3.92)	(−3.68)	(2.02)	(−0.64)
Observations	2,794	2,790	2,794	2,794	2,789
Number of banks	432	432	432	432	432
Adjusted R^2	0.438	0.492	0.160	0.423	0.301
Year Fixed Effects	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of panel fixed-effects regressions of the baseline model. RWA is risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. GovB is government bond outstanding as a share of GDP. CorpB is corporate bond outstanding as a share of GDP. Size is bank size measured using the natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is the ratio of loans held by top three largest banks to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors clustered at the bank level.

Sources: Authors' calculations.

Results for the roles of control variables are generally consistent with the results in Table 28. Better profitability and good economic performance are related with greater risk-taking, while larger bank size, higher capital sufficiency ratios, greater market concentration, and higher exchange rate risk will sour banks' risk appetite, leading to them hold fewer risky assets, take fewer deposits, and reduce risk-taking overall. Table 29 not only highlights the role of a government bond market as a source of liquid asset class, but also underscores the role of a corporate bond market as a good source of stable funding that allows banks to both take and mitigate risks.

Corporate bond markets may be biased toward larger banks with better access to capital markets and therefore may not be as relevant to smaller banks. The literature has extensively documented that banks of different size and with different capital buffer levels pursue heterogeneous business strategies, profit models, and risk profiles. It is thus interesting to know whether important bank attributes such as size and capital sufficiency affect the impact of bond markets on bank risk-taking. To uncover the answer, the next section conducts further investigation.

5. Extensional Test: The Role of Bond Market Development across Different Bank Attributes

The Role of Bond Market Development across Different Bank Sizes

In the literature, bank size is an important factor that shapes banks' business models and risk-taking strategies. Large banks enjoy greater scale and scope economies than small banks. They have a comparative advantage in capital markets for financing and advanced risk management technique under the Basel Accords (Hakenes and Schnabel 2011). According to Koch and MacDonald (2014) and Rose and Hudgins (2013), large banks normally have a more diversified asset portfolio in terms of geography, sector, and asset classes, as well as better access to capital markets, which helps reduce their risk. Empirical evidence shows that larger bank size is associated with greater stability (Mercieca, Schaeck, and Wolfe 2007; Khan, Scheule, and Wu 2017); less asset volatility (Boyd and Runkle 1993); and less earning volatility (De Haan and Poghosyan 2012).

As the bond market develops, large banks can make better use of the capital market to actively manage their asset and liability portfolios, thus better tackling liquidity risk while also creating liquidity. Given that bond market development shapes banks' portfolio structures and liquidity positions, it can affect different types of banks in different ways. To understand how the portfolio and liquidity risk-taking behavior of big and small banks is related to bond market development, we follow Khan, Scheule, and Wu (2017) and construct a dummy variable (BIG) which is equal to 1 if a bank's total assets fall in the largest quartile and 0 otherwise. **Table 30** reports the interaction term for BIG and bond market development.

Model specifications (1)–(5) of Table 30 show the impacts of total bond market size and the interaction between bond market size and BIG on bank risks. As seen in model specifications (3) and (4), bond market size significantly lowers bank liquidity risk regardless of bank size. Model specifications (2) and (5) reveal interesting findings as well. Bond market size has a significant impact on deposit ratios and Z-scores only when interacted with BIG. A 1% increase in bond market size will reduce deposit ratios by 0.04% more and increase ZSCORE by 0.27% more among big banks than small banks. This implies that large banks can benefit from bond market development through reduced liability portfolio risk and improved overall stability. This evidence also indicates that both large and small banks can tap the bond market to manage liquidity risks; however, large banks seem to be able to better utilize corporate bond markets for fund-raising and risk management.

Columns (6)–(10) report evidence on the individual roles of government and corporate bond market segments, as well as their interaction with BIG. Government bond markets reduce asset risk and improve net funding ratios for all banks. They allow large banks to increase liquidity (LRR) while still improving overall stability (ZSCORE) due to better access to capital markets and improved risk management. In addition, a larger government bond market allows banks to take more deposits due to increased liquidity in their asset portfolios.

Turning to corporate bond markets, the results are consistent with Table 29. Corporate bonds serve as a stable funding source contributing to overall bank stability regardless of bank size. A 1% increase in corporate bond market size is linked to a 0.16% reduction in bank deposit ratios, an 0.11% decrease in bank liquidity risks, a 0.79% increase in NSFRs, and a 1.46% increase in ZSCORE. While larger corporate bond markets play a stabilizing role for banks, they do not negatively impact banks' risky assets holdings. Larger corporate bond markets allow banks to take risk without weakening their risk profile. Interestingly, large banks have lower risky asset ratios, which may be largely related to their competitive advantage in risk management.

The results for control variables are largely consistent with those documented in the previous section. A more concentrated market environment and a volatile exchange rate make banks prudent, while better macroeconomic performance encourages banks to take

Table 30: The Role of Bond Market Development across Different Bank Sizes

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE	(6) RWA	(7) DEP	(8) NSFR	(9) LRR	(10) ZSCORE
Bond	−0.0371	−0.0191	0.563***	−0.0473**	0.240					
	(−1.56)	(−0.98)	(5.43)	(−2.14)	(1.23)					
BIGxBond	−0.00867	−0.0385**	−0.0405	−0.00698	0.274**					
	(−0.48)	(−2.25)	(−0.63)	(−0.35)	(1.97)					
GovB						−0.143***	0.0596***	0.436***	−0.0197	−0.576
						(−4.27)	(2.30)	(4.22)	(−0.67)	(−1.50)
BIGxGovB						0.0253	−0.0372	−0.0991	0.0580*	0.860**
						(0.74)	(−1.48)	(−0.96)	(1.72)	(2.01)
CorpB						0.134***	−0.157***	0.793***	−0.113***	1.458***
						(3.58)	(−4.72)	(4.38)	(−2.73)	(3.40)
BIGxCorpB						−0.0682**	−0.0201	−0.0298	−0.0552	−0.448
						(−2.08)	(−0.63)	(−0.21)	(−1.47)	(−1.41)
BIG	0.00297	0.00412	0.0290	−0.00790	−0.184**	−0.000816	0.000373	0.0504	−0.0261	−0.297**
	(0.21)	(0.32)	(0.66)	(−0.49)	(−2.01)	(−0.05)	(0.03)	(1.03)	(−1.52)	(−2.10)
RWA_{t-1}	0.525***					0.503***				
	(23.68)					(22.36)				
DEP_{t-1}		0.574***					0.551***			
		(14.33)					(13.57)			
$NSFR_{t-1}$			0.293**					0.292**		
			(2.03)					(2.03)		
LRR_{t-1}				0.527***					0.513***	
				(17.90)					(16.87)	
$ZSCORE_{t-1}$					0.184***					0.179***
					(6.46)					(6.62)
CSR	−0.672***	−0.0899*	0.265	−0.455***	2.809***	−0.647***	−0.114**	0.311	−0.470***	3.075***
	(−8.70)	(−1.81)	(0.70)	(−5.10)	(8.25)	(−8.32)	(−2.33)	(0.81)	(−5.28)	(8.82)
ROA	0.232	−0.594***	−0.718*	−0.491**	11.18***	0.142	−0.519***	−0.850**	−0.450**	10.55***
	(1.63)	(−4.76)	(−1.67)	(−2.30)	(7.16)	(0.96)	(−4.23)	(−2.00)	(−2.12)	(6.32)
NIM	0.853***	0.184	−1.875***	1.008***	−0.986	0.933***	0.139	−1.787***	1.004***	−0.514
	(2.80)	(0.86)	(−2.87)	(3.68)	(−0.86)	(2.96)	(0.63)	(−2.78)	(3.67)	(−0.45)
CR3	−0.209***	0.0258	−0.168	−0.167***	−1.658***	−0.124**	−0.0440	−0.0425	−0.204***	−1.031***
	(−3.50)	(0.63)	(−0.85)	(−3.23)	(−3.80)	(−2.32)	(−1.00)	(−0.21)	(−3.99)	(−2.60)
GDPG	−0.00864	0.200***	−0.568*	0.365***	−0.806	0.0461	0.163***	−0.479	0.337***	−0.588
	(−0.10)	(2.77)	(−1.94)	(4.29)	(−1.01)	(0.52)	(2.34)	(−1.59)	(4.04)	(−0.77)
ICRG	−0.112*	0.133**	0.767***	0.0825	−0.202	−0.00423	0.0368	0.947***	0.0217	0.596
	(−1.82)	(2.59)	(2.69)	(1.24)	(−0.46)	(−0.06)	(0.67)	(3.22)	(0.32)	(1.01)
IR	−0.0299	0.0722**	0.0753	−0.0246	1.838***	0.0135	0.0410	0.128	−0.0366	2.142***
	(−0.71)	(2.55)	(0.70)	(−0.68)	(9.40)	(0.31)	(1.50)	(1.15)	(−0.99)	(10.51)
FXV	−0.434**	0.167	−1.010	0.561***	−11.32***	−0.328	0.0671	−0.795	0.490***	−10.60***
	(−2.03)	(1.04)	(−1.17)	(3.03)	(−8.72)	(−1.53)	(0.42)	(−0.93)	(2.61)	(−7.15)
Constant	0.990***	−0.303	−2.789**	−0.171	3.881**	0.489*	0.173	−3.645***	0.118	0.0778
	(3.64)	(−1.35)	(−2.20)	(−0.58)	(2.08)	(1.71)	(0.71)	(−2.79)	(0.39)	(0.03)
Observations	2,794	2,790	2,794	2,794	2,789	2,794	2,790	2,794	2,794	2,789
Number of banks	432	432	432	432	432	432	432	432	432	432
Adjusted R^2	0.427	0.441	0.154	0.406	0.285	0.436	0.451	0.155	0.409	0.300
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of fixed-effects regressions of models including the interaction of bank size with total bond market in model specifications (1) to (5), and government and corporate bond markets in model specifications (6) to (10). RWA is risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. Bond is total bond outstanding as a share of GDP. GovB is government bond outstanding as a share of GDP. CorpB is corporate bond outstanding as a share of GDP. BIG represents a dummy variable denoting the top 25% of banks based on size of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is the ratio of loans held by top three largest banks to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors clustered at the bank level.

Sources: Authors' calculations.

more risk. Overall, bond market development is found to reduce bank risk-taking regardless of bank size. Yet, government bond markets and corporate bond markets work differently in shaping banks' risk-taking. Corporate bonds serve as a source of stable funding that contribute to bank stability without repressing liquidity creation for large banks.

The Role of Bond Market Development across Different Capital Buffer Levels

The capital buffer is another key attribute that affects a bank's solvency risk and risk-taking behavior. The theoretical and empirical literature has been mixed regarding the association between capital and bank risk. A strand of studies argues that banks holding higher capital buffers tend to be less risky, following a "skin in the game" logic (Berger and Bouwman 2013; Demirgüç-Kunt, Detragiache, and Merrouche 2013; Tan and Floros 2013; Lee and Hsieh 2013; Horváth, Seidler, and Weill 2014). In contrast, moral hazard induced by deposit insurance and the "too big to fail" phenomenon describes banks' excessive risk-taking to increase shareholder value at the cost of depositors and taxpayers. Thus, when banks are required to hold capital to back risks, a higher capital ratio would mean greater risk-taking (Iannotta, Nocera, and Sironi 2007; Altunbas et al. 2007). Other studies do not find significant association between capital and bank risk-taking (Bitar, Pukthuanthong, and Walker 2018).

The role of capital buffer on bank risk is also related to a bank's portfolio structure. Khan, Scheule, and Wu (2017) argue that while banks with larger capital buffers are able to take more risk, they take less risk when their liquidity position is weaker (e.g., when they have greater deposits). Kim and Sohn (2017) further show that when large banks keep sufficient liquidity in their asset portfolios, capital will positively increase lending, especially during crisis periods. It is therefore interesting to learn whether banks with different capital buffer levels utilize bond markets differently, in terms of risk-taking strategy and liquidity creation, if presented with more liquidity management instruments to tackle liquidity risks.

This section examines whether bond market development affects bank risk-taking across various capital buffer levels. In the spirit of Khan, Scheule, and Wu (2017), we construct a dummy variable (CAP) which equals 1 if the capital sufficiency ratio falls in the highest quartile and 0 otherwise. Greater capital sufficiency indicates that banks are well-capitalized and relatively safer. **Table 31** reports the results of how capital buffers affect the association between a bond market and bank risk-taking by including both the CAP and an interaction term between bond market and CAP in the analysis.

Columns (1)–(5) of Table 31 show estimated results for the aggregated bond market and its interaction with CAP. Consistent with the results in Table 28, regardless of capital buffer levels, bond market development helps banks mitigate risk. A 1% increase in bond market size will reduce the respective banking sector's risky asset ratio, deposit ratio, and LRR by 0.04%, 0.04% and 0.05%, respectively, and increase stable funding ratio and Z-score by 0.53% and 0.39%, respectively. At the same time, a larger bond market encourages banks that hold more capital to take risk, as signified by a 0.28% reduction in the Z-score when the aggregate bond market is interacted with CAP.

Columns (6)–(10) reveal the results for the separate impacts of government and corporate bond markets and their interaction with CAP. Government bonds improve asset risks as well as the net funding ratio regardless of the capital buffer level. When the government bond market is larger, more capitalized banks tend to take more deposits given that they have more liquid assets for investment. Corporate bonds reduce deposit-taking, improve bank liquidity, and reduce overall risk, while allowing for more risky asset holdings without impairing bank stability, regardless of capital buffer levels. More capitalized banks tend to utilize corporate bond markets to strengthen their liability portfolios. This evidence suggests that larger government bond markets allow well-capitalized banks to take more deposits by providing more liquid assets to invest in, while corporate bonds are being utilized more by well-capitalized banks to manage risks in their liability portfolio.

Control variables report consistent evidence with better economic performance positively contributing to bank risk-taking, while greater market concentration and heightened exchange rate risk negatively affects bank risk-taking. Overall, the evidence in Table 31 suggests that the bond market's role in mitigating banks' risk-taking is not much affected by different capital buffer levels.

Table 31: The Role of Bond Market Development across Different Capital Buffer Levels

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE	(6) RWA	(7) DEP	(8) NSFR	(9) LRR	(10) ZSCORE
Bond	−0.0414*	−0.0379**	0.530***	−0.0488**	0.394**					
	(−1.92)	(−2.12)	(5.37)	(−2.28)	(2.40)					
CAPxBond	0.00004	0.0146	0.0337	−0.00867	−0.281**					
	(0.00)	(1.26)	(0.85)	(−0.57)	(−2.20)					
GovB						−0.152***	−0.0356	0.486***	−0.0346	−0.0437
						(−4.78)	(−1.55)	(5.16)	(−1.21)	(−0.15)
CAPxGovB						0.0181	0.0691***	0.0756	−0.0273	−0.197
						(0.59)	(3.34)	(1.03)	(−0.93)	(−0.54)
CorpB						0.129***	−0.0587**	0.588***	−0.0667*	1.060**
						(2.97)	(−2.06)	(3.75)	(−1.81)	(2.39)
CAPxCorpB						−0.0184	−0.0609**	−0.0212	0.0162	−0.366
						(−0.51)	(−2.17)	(−0.17)	(0.49)	(−1.04)
CAP	−0.0394***	−0.0127	0.00977	−0.0210**	0.269***	−0.0426***	−0.0233***	0.00185	−0.0175	0.255**
	(−3.91)	(−1.55)	(0.38)	(−2.11)	(3.17)	(−3.64)	(−2.82)	(0.06)	(−1.51)	(2.10)
RWA_{t-1}	0.541***					0.522***				
	(23.72)					(22.35)				
DEP_{t-1}		0.502***					0.496***			
		(12.48)					(12.53)			
$NSFR_{t-1}$			0.291**					0.291**		
			(2.02)					(2.02)		
LRR_{t-1}				0.511***					0.510***	
				(15.66)					(15.49)	
$ZSCORE_{t-1}$					0.172***					0.174***
					(6.06)					(6.09)
Size	0.00250	−0.0644***	0.108***	−0.0384***	0.151***	−0.0113	−0.0628***	0.104***	−0.0372***	0.0957
	(0.25)	(−7.98)	(3.29)	(−3.70)	(2.62)	(−0.97)	(−7.42)	(3.05)	(−3.43)	(1.39)
ROA	0.106	−0.358***	−1.117**	−0.429**	11.16***	0.0640	−0.354***	−1.132**	−0.424**	11.01***
	(0.83)	(−3.16)	(−2.32)	(−2.08)	(6.41)	(0.50)	(−3.20)	(−2.36)	(−2.04)	(6.26)
NIM	0.766***	−0.0870	−1.419**	0.821***	0.0305	0.795***	−0.0882	−1.416**	0.823***	0.108
	(2.64)	(−0.43)	(−2.28)	(2.97)	(0.03)	(2.61)	(−0.43)	(−2.27)	(2.97)	(0.10)
CR3	−0.205***	−0.0577	0.0316	−0.230***	−1.356***	−0.136**	−0.0722	0.0526	−0.236***	−1.068***
	(−3.27)	(−1.28)	(0.15)	(−4.45)	(−3.24)	(−2.42)	(−1.57)	(0.25)	(−4.57)	(−2.82)
GDPG	0.00688	0.0932	−0.316	0.296***	−0.622	0.0446	0.0979	−0.299	0.291***	−0.507
	(0.07)	(1.34)	(−0.93)	(3.49)	(−0.85)	(0.48)	(1.45)	(−0.89)	(3.42)	(−0.69)
ICRG	−0.160**	0.112**	0.829***	0.0257	0.166	−0.0439	0.0843	0.862***	0.0172	0.663
	(−2.41)	(2.33)	(2.68)	(0.36)	(0.38)	(−0.59)	(1.61)	(2.70)	(0.23)	(1.13)
IR	−0.0385	0.0847***	0.0683	−0.0254	1.897***	0.00579	0.0748***	0.0801	−0.0284	2.064***
	(−0.93)	(2.98)	(0.68)	(−0.82)	(7.74)	(0.14)	(2.71)	(0.77)	(−0.89)	(8.20)
FXV	−0.398*	−0.303*	−0.120	0.289	−10.35***	−0.367	−0.311**	−0.111	0.289	−10.15***
	(−1.71)	(−1.94)	(−0.15)	(1.47)	(−7.36)	(−1.60)	(−2.01)	(−0.14)	(1.46)	(−7.02)
Constant	1.081***	0.922***	−4.875***	0.685*	−0.103	0.777**	1.035***	−4.952***	0.704**	−1.510
	(3.35)	(3.56)	(−3.66)	(1.96)	(−0.04)	(2.41)	(3.93)	(−3.67)	(2.00)	(−0.57)
Observations	2,794	2,790	2,794	2,794	2,789	2,794	2,790	2,794	2,794	2,789
Number of banks	432	432	432	432	432	432	432	432	432	432
Adjusted R^2	0.398	0.485	0.159	0.399	0.267	0.407	0.488	0.159	0.399	0.271
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of fixed-effects regressions of models including the interaction of capital buffer with total bond market in model specifications (1) to (5), and government and corporate bond markets in model specifications (6) to (10). RWA is risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. Bond is total bond outstanding as a share of GDP. GovB is government bond outstanding as a share of GDP. CorpB is corporate bond outstanding as a share of GDP. CAP represents a dummy variable denoting the top 25% of banks with high capital buffer based on the level of their capital sufficiency ratio. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is the ratio of loans held by top three largest banks to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors clustered at the bank level.
Sources: Authors' calculations.

6. The Role of Bond Market Structure: Is the Bond Market a Friend or Foe?

Previous evidence has shown that government and corporate bond markets help strengthen banks' portfolio structure and mitigate risk-taking via different mechanisms. While government and corporate bonds improve liquidity risk positions, their impacts on risk-taking in asset portfolios are different. Government bonds reduce risk in asset portfolios by adding low-risk liquid assets, while corporate bonds encourage risk-taking without impairing bank stability. One can also argue that corporate bonds may serve as a potential competitor for bank loans by providing direct financing to borrowing companies, which could repress bank liquidity creation.

To further reveal the role of corporate bond markets in bank risk-taking, this section investigates how bond market structure, such as corporate bonds' share of the total bond market and bank-issued bonds share of total corporate bonds, is related to bank portfolio decisions and risk-taking. In our empirical test, the share of corporate bonds in the total bond market is included in the analysis after controlling for the size of the bond market to test the potential competitor effect of corporate bonds. As government bonds mainly support liquidity in asset portfolios, a larger government bond market will encourage more loans without deteriorating bank liquidity status. However, if a corporate bond market is relatively big, its role as a source of stable funding and alternative risky assets, as well as a potential competitor to bank loans, will be more pronounced. This test will demonstrate the role of the relative size of a corporate bond market to total bond market size on bank risk-taking. The results are reported in **Table 32**.

Results in Table 32 suggests that while overall bond market development reduces bank risk-taking—via reduced assets and liability portfolio risks, reduced liquidity risk, and strengthened banking sector stability—a larger corporate bond market (as a share of the total market) increases banks' risky asset holdings without weakening their liquidity positions. A 1% increase in the corporate bond markets' share of total bonds outstanding is associated with an 0.08% increase in RWA, a 0.05% decrease in the LRR, and an 0.84% decrease in ZSCORE. As banks take on more risky assets, it can be confirmed that a corporate bond market does not crowd out liquidity creation in the banking sector. However, as liquidity risk improves and overall Z-scores fall, this may indicate the potential for competition from the corporate bond market for quality loan makers. As corporate bonds serve as an alternative direct financing option for both banks and their clients, a more developed corporate bond market can also pressure banks to take risks as clients may otherwise turn to the bond market for direct financing.

Interestingly, while a larger bond market is shown to reduce bank deposit-taking, a larger corporate bond market (as a share of the total bond market) is not significantly related to bank deposit-taking. This may indicate that how banks utilize the corporate bond market matters. More bank-issued bonds not only provide more stable funding but also indicate less disintermediation. To further investigate the role of the corporate bond market in bank risk-taking, another test is conducted to examine whether the share of bank-issued corporate bonds affects the impact of bond markets on bank risk-taking. Empirically, the share of bank-issued corporate bonds to total corporate bonds is included in the analysis after controlling for the size of the corporate bond market. The results are reported in **Table 33**.

The reported impacts in Table 33 of corporate bond market size on bank portfolio decisions and liquidity risk are consistent with the results in Table 29. Larger corporate bond markets, on the whole, facilitate banks' risky asset holdings while reducing risk-taking and deposit-taking, enhancing liquidity positions, and increasing overall stability. Bank-issued corporate bonds further lower deposit-taking and enhance Z-scores. A 1% increase in bank-issued bonds as a share of total corporate bonds is associated with a 0.08% decrease in the deposit ratio and a 0.31% increase in ZSCORE. This evidence indicates that bank bonds serve as an alternative stable funding source and contribute to bank stability. The bank-issued bond share is not significantly related to bank asset risk, while banks' risky asset holdings increase as the size of the overall corporate bond market expands. This evidence suggests that more nonbank corporate bond issuance may encourage banks to take on additional risky assets. However, as banks also utilize corporate bond markets to obtain stable funding, their liquidity risks and overall risks are not heightened.

The results revealed in Tables 32 and 33 confirm the view that corporate bonds do not crowd out banks' loan

Table 32: Relative Size of a Corporate Bond Market on Bank Risk-Taking

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE
Bond	−0.0420*	−0.0333*	0.534***	−0.0485**	0.339**
	(−1.93)	(−1.89)	(5.57)	(−2.30)	(2.10)
CorpB%	0.0825**	−0.0120	0.00428	−0.0462**	−0.841*
	(2.58)	(−0.68)	(0.07)	(−1.98)	(−1.84)
RWA_{t-1}	0.523***				
	(23.78)				
DEP_{t-1}		0.501***			
		(12.63)			
$NSFR_{t-1}$			0.291**		
			(2.03)		
LRR_{t-1}				0.494***	
				(15.18)	
$ZSCORE_{t-1}$					0.168***
					(5.98)
Size	−0.0105	−0.0677***	0.111***	−0.0432***	0.275***
	(−0.97)	(−8.27)	(3.76)	(−4.21)	(3.78)
CSR	−0.673***	−0.194***	0.447	−0.541***	3.119***
	(−8.42)	(−3.70)	(1.16)	(−6.20)	(8.22)
ROA	0.239	−0.298***	−1.216***	−0.285	10.39***
	(1.59)	(−2.83)	(−2.85)	(−1.38)	(6.28)
NIM	0.833***	−0.0735	−1.465**	0.901***	−0.0199
	(2.72)	(−0.36)	(−2.29)	(3.13)	(−0.02)
CR3	−0.180***	−0.0614	0.0408	−0.254***	−1.718***
	(−3.25)	(−1.35)	(0.19)	(−5.02)	(−3.40)
GDPG	−0.00535	0.0732	−0.299	0.264***	−0.554
	(−0.06)	(1.04)	(−0.93)	(3.25)	(−0.75)
ICRG	−0.0690	0.128***	0.794***	0.0515	−0.582
	(−1.07)	(2.63)	(2.88)	(0.76)	(−1.13)
IR	−0.0175	0.0901***	0.0685	−0.0228	1.641***
	(−0.42)	(3.23)	(0.64)	(−0.64)	(7.91)
FXV	−0.437*	−0.355**	−0.0985	0.223	−9.944***
	(−1.96)	(−2.23)	(−0.12)	(1.11)	(−6.65)
Constant	0.937***	0.934***	−4.827***	0.733**	1.334
	(3.19)	(3.74)	(−3.71)	(2.17)	(0.51)
Observations	2,794	2,790	2,794	2,794	2,789
Number of banks	432	432	432	432	432
Adjusted R^2	0.430	0.491	0.160	0.424	0.307
Year Fixed Effects	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of panel fixed-effects regressions of the baseline models including the share of corporate bonds to total bonds. RWA is risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. Bond is total bond outstanding as a share of GDP. CorpB% is share of corporate bond to total bond outstanding. Size is bank size measured using the natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is the ratio of loans held by the top three largest banks to total loans held by all banks in an economy. GDPG is the gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes within a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors clustered at the bank level.
Sources: Authors' calculations.

Table 33: Bank Bonds' Market Share on Bank Risk-Taking

Variables	(1) RWA	(2) DEP	(3) NSFR	(4) LRR	(5) ZSCORE
CorpB	0.103** (2.55)	− 0.0659** (− 2.26)	0.667*** (4.12)	− 0.0744** (− 2.09)	0.940** (2.25)
BankB%	0.00965 (0.42)	− 0.0805*** (− 4.67)	0.00770 (0.12)	0.0308 (1.43)	0.309** (2.13)
RWA_{t-1}	0.521*** (22.06)				
DEP_{t-1}		0.485*** (12.52)			
$NSFR_{t-1}$			0.295** (2.06)		
LRR_{t-1}				0.493*** (15.30)	
$ZSCORE_{t-1}$					0.167*** (6.10)
Size	− 0.0109 (− 0.97)	− 0.0669*** (− 8.46)	0.0790*** (2.75)	− 0.0428*** (− 4.16)	0.168** (2.52)
CSR	− 0.682*** (− 8.30)	− 0.229*** (− 4.66)	0.500 (1.28)	− 0.529*** (− 5.94)	3.364*** (9.17)
ROA	0.236 (1.56)	− 0.271*** (− 2.70)	− 1.293*** (− 3.16)	− 0.294 (− 1.44)	10.04*** (6.07)
NIM	0.884*** (2.79)	− 0.156 (− 0.77)	− 1.545** (− 2.38)	0.937*** (3.18)	0.413 (0.36)
CR3	− 0.174*** (− 3.02)	− 0.0826* (− 1.74)	0.173 (0.75)	− 0.248*** (− 4.91)	− 1.059*** (− 2.87)
GDPG	0.0149 (0.15)	0.187*** (2.67)	− 0.349 (− 1.01)	0.228** (2.50)	− 0.782 (− 1.07)
ICRG	0.00565 (0.08)	0.0774 (1.50)	0.839*** (2.80)	0.0771 (1.08)	0.547 (0.97)
IR	− 0.0159 (− 0.38)	0.0768*** (2.69)	0.202* (1.74)	− 0.0294 (− 0.84)	1.897*** (9.81)
FXV	− 0.529** (− 2.40)	− 0.334** (− 2.16)	0.149 (0.18)	0.201 (1.01)	− 9.515*** (− 7.19)
Constant	0.602** (1.99)	1.170*** (4.64)	− 4.442*** (− 3.22)	0.582* (1.72)	− 2.539 (− 0.91)
Observations	2,788	2,784	2,788	2,788	2,783
Number of banks	432	432	432	432	432
Adjusted R^2	0.428	0.497	0.153	0.423	0.301
Time Fixed Effects	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES

Notes: This table reports parameter estimates of fixed-effects regressions of the corporate bond models including the share of bank bonds to total bonds. RWA is bank risky-assets-to-total-assets ratio. DEP is deposit-to-total-assets ratio. NSFR is net stable funding ratio defined as the ratio between stability-weighted bank liabilities and assets. LRR is liquidity risk-taking as a share of total assets. ZSCORE is the natural logarithm of Z-score. CorpB is corporate bond outstanding as a share of GDP. BankB% is share of bank-issued bonds to total corporate bonds. Size is bank size measured using natural logarithm of total assets. CSR is capital sufficiency ratio. ROA is return on assets. NIM is net interest margin. CR3 is the ratio of loans held by top three largest bank to total loans held by all banks in an economy. GDPG is gross domestic product growth of an economy. ICRG is the natural logarithm of composite risk score from the International Country Risk Guide. IR is interest rate measured by 1-year government bond yield. FXV is exchange rate volatility defined as the standard deviation of monthly real effective exchange rate changes during a year. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. t-statistics in parentheses are calculated from robust standard errors at the bank level.
Sources: Authors' calculations.

business, rather they help mitigate risks in bank portfolios and liquidity positions by providing an additional source of stable funding. In general, a corporate bond market is more a friend than foe of the banking sector, but banks also need to prepare for the challenge of disintermediation, especially from quality clients.

7. Conclusion and Discussion

This paper examines the role of bond market development on banks' risk-taking. There is evidence that bond markets play a significant role in mitigating risks in banks' balance sheets and reducing banks' risk exposure. With regard to bank asset portfolios, a larger bond market is associated with less risky asset holdings; while for liability portfolios, a larger bond market is associated with lower deposit ratios. Larger bond markets are also found to strengthen banks' liquidity positions and mitigate overall risk.

Government bonds and corporate bonds function differently in shaping banks' risk-taking. While government bonds serve as liquid assets, corporate bonds function as a stable funding source for active liability management as well as an alternative risky asset class that offers diversification benefits.

The impact of the bond market on risk-taking in the banking sector is related to bank size and capital buffer levels. In particular, bond markets help larger and more cautious banks take risk without impairing their liquidity position. In addition, corporate bonds generally supplement rather than substitute for bank loans. Larger corporate bond markets support banks to expand loans without introducing excess liquidity risk, while also offering diversified risky assets to invest in. More bank-issued corporate bonds also help improve banking sector stability.

In sum, this study supports the view that bond markets play a complementary role to the banking sector by improving the structure of banks' portfolios and reducing their risk exposure. Compared to cash and central bank reserve deposits, liquid and yield-generating government bonds are an important asset class for banks, especially when banks need to expand loan portfolios to meet liquidity requirements such as the liquidity coverage ratio. Government bond holdings enable banks to make loans while maintaining sound liquidity in their asset portfolios. However, under extreme circumstances, such as when government bond yields are high enough to offer a wide margin, banks may prefer to hold government bonds over loans, which would dampen bank loan creation. Corporate bonds offer stable funding and mitigate maturity mismatches. Furthermore, evidence shows that corporate bonds are not a substitute for bank loans. As an important corporate bond issuer class, banks can utilize corporate bond markets to take more risk and make loans while maintaining sound liquidity positions.

This study provides new evidence on how bond market development can contribute to banking sector stability. The findings also have important policy implications. First, bond markets complement the banking sector. Banks' role in creating liquidity is not weakened as the capital market develops, rather banks benefit from the capital market as a source of liquid assets, risk management tools, and stable funding for capital and debt financing. Second, a balanced bond market structure matters. The government and corporate bond market segments each improve banking stability in different ways while also fostering risky asset holdings via different mechanisms. Such evidence is helpful to regulators and policy makers in designing a financial sector development road map and regulatory framework to foster a well-functioning and well-balanced financial sector that better contributes to economic development.

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Market Summaries

People's Republic of China

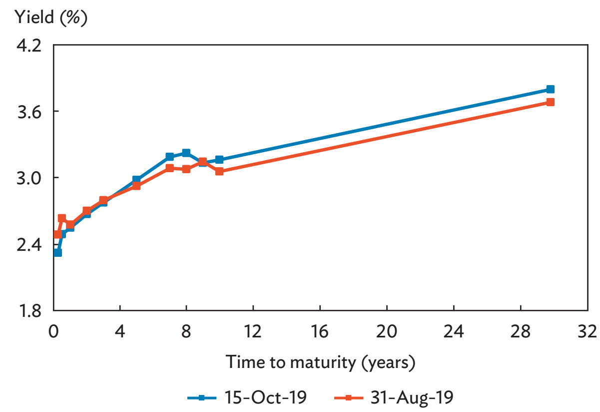
Yield Movements

The People's Republic of China's (PRC) yield curve for local currency (LCY) bonds steepened between 31 August and 15 October, driven by a rise in yields at the longer end of the curve and a decline in yields for shorter-dated tenors (**Figure 1**). Yields rose for tenors of 5 years or longer by an average of 10 basis points (bps), excluding the 9-year tenor, which fell 1 bps. For tenors of 3 years or shorter, yields fell an average of 8 bps. The steepening of the yield curve led to a rise in the 2-year versus 10-year spread to 49 bps on 15 October from 35 bps in 31 August.

Yields at the longer end of the curve rose on investor optimism that the PRC's economy would benefit from news that trade tensions between the PRC and the United States (US) were abating. On 4 September, it was announced that trade talks between the PRC and the US had resumed. Following the announcement, the prospects of a trade deal progressed. On 11 September, the PRC announced an exemption of some US products from tariffs for 1 year, while the US reciprocated with a delay of scheduled tariffs from 1 October to 15 October. On 11 October, the US announced a tentative agreement as the first phase of a potentially larger settlement. The US suspended tariffs scheduled set for 15 October, while the PRC agreed to purchase USD50 billion worth of US goods.

The news of softening trade tensions between the two economies provided a boost to longer-term yields on hopes that the PRC's economic growth would improve. Gross domestic product growth in the PRC slowed to 6.0% year-on-year (y-o-y) in the third quarter (Q3) of 2019 from 6.2% y-o-y in Q2 2019. While industrial production growth recovered somewhat in September to 5.8% y-o-y from 4.4% y-o-y in August, the overall growth trend in industrial production remains headed in a downward direction. In September, the PRC's y-o-y export growth fell to –3.2% from –1.0% y-o-y in August. For the first 9 months of the year, export growth fluctuated, but export growth was negative in 5 of those months.

Figure 1: The People's Republic of China's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

Outside of the trade news, yields rose amid the reluctance of the People's Bank of China (PBOC) to engage in aggressive broad-based easing. On 6 September, the PBOC announced a 50 bps reserve requirement ratio cut, with an additional 100 bps cut for smaller banks. The PBOC said that the 50 bps cut was mostly to help liquidity in anticipation of corporate tax payments during the month as opposed to a shift in monetary policy. In addition, the PBOC also reduced the 1-year loan prime rate, a new benchmark interest rate, by 5 bps to 4.20% on 20 September and left the 5-year rate unchanged.

Inflation also remains a concern in the PRC as it has been trending upward. The rise in inflation has been solely due to a supply shock as pork prices have risen due to the impact of swine flu. Consumer price inflation in the PRC rose to 3.0% y-o-y in September from 2.8% y-o-y in August, with food prices rising 8.4% y-o-y during the month.

Yields at the shorter end of the curve fell during the review period as the PBOC sought to stabilize liquidity amid investor concerns following a government takeover of a bank as well as well as corporate tax payments in September that raised demand for funds.

Size and Composition

LCY bonds outstanding in the PRC rose 3.6% quarter-on-quarter (q-o-q) in Q3 2019 after gaining 4.0% q-o-q in the second quarter (Q2) of 2019. On a y-o-y basis, LCY bonds grew 14.9% y-o-y (**Table 1**).

Government bonds. The PRC's government bond market continued to grow; however, growth moderated to 3.5% q-o-q from 4.2% q-o-q in Q2 2019. The slowing growth was due to a decline in government bond issuance during Q3 2019. The slowest government bond growth came from policy bank bonds, which grew 1.5% q-o-q in the quarter as issuance declined 17.2% q-o-q. Local government bond growth was the fastest among all government bond categories at 5.1% q-o-q, while issuance fell 5.9% q-o-q as local governments were asked to fulfill their bond quotas by the end of September to help speed up the implementation of infrastructure projects. The government is also requiring local governments to allocate the proceeds raised from special bonds to infrastructure projects by the end of October.

Corporate bonds. In contrast to the PRC's government bonds, corporate bonds outstanding grew 3.9% q-o-q in Q3 2019, accelerating from Q2 2019's 3.6% q-o-q growth.

The growth was largely driven by an in increase in financial bonds (9.2% q-o-q), medium-term notes (3.8% q-o-q), and listed corporate bonds (3.2% q-o-q) (**Table 2**).

Table 1: Size and Composition of the Local Currency Bond Market in the People's Republic of China

	Outstanding Amount (billion)						Growth Rates (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	CNY	USD	CNY	USD	CNY	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**71,319**	**10,383**	**79,049**	**11,512**	**81,916**	**11,459**	**5.3**	**15.4**	**3.6**	**14.9**
Government	46,869	6,823	51,135	7,447	52,913	7,402	6.2	16.6	3.5	12.9
Treasury Bonds and Other Government Bonds	14,357	2,090	15,461	2,252	15,963	2,233	3.7	11.1	3.3	11.2
Central Bank Bonds	0	0	4	1	14	2	–	–	250.0	–
Policy Bank Bonds	14,184	2,065	15,213	2,215	15,445	2,161	1.3	8.3	1.5	8.9
Local Government Bonds	18,327	2,668	20,457	2,979	21,491	3,006	12.7	29.3	5.1	17.3
Corporate	24,450	3,560	27,914	4,065	29,003	4,057	3.6	13.1	3.9	18.6
Policy Bank Bonds										
China Development Bank	7,979	1,162	8,580	1,250	8,665	1,212	3.0	8.8	1.0	8.6
Export–Import Bank of China	2,299	335	2,533	369	2,601	364	(2.9)	0.8	2.7	13.2
Agricultural Devt. Bank of China	3,907	569	4,100	597	4,179	585	0.3	12.0	1.9	7.0

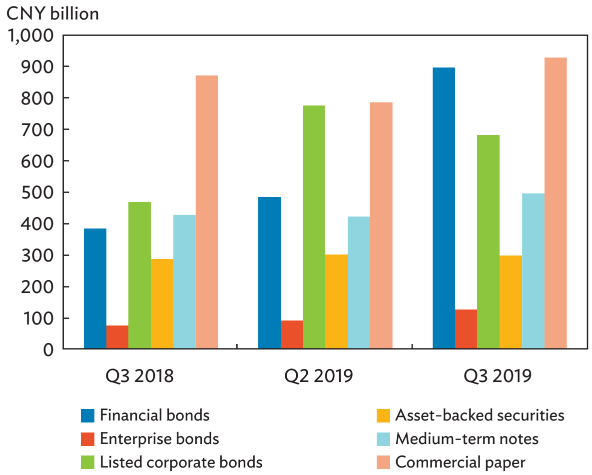
( ) = negative, – = not applicable, CNY = Chinese yuan, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Treasury bonds include savings bonds and local government bonds.
3. Bloomberg LP end-of-period local currency–USD rates are used.
4. Growth rates are calculated from local currency base and do not include currency effects.
Sources: CEIC and Bloomberg LP.

Table 2: Corporate Bonds Outstanding in Key Categories

	Amount (CNY billion)			Growth Rate (%)			
				Q3 2018		Q3 2019	
	Q3 2018	Q2 2019	Q3 2019	q-o-q	y-o-y	q-o-q	y-o-y
Financial Bonds	4,123	5,042	5,505	1.1	20.3	9.2	33.5
Enterprise Bonds	3,968	3,834	3,840	0.9	(14.4)	0.2	(3.2)
Listed Corporate Bonds	5,963	7,024	7,250	1.0	18.1	3.2	21.6
Commercial Paper	1,896	2,197	2,152	1.1	24.1	(2.0)	13.5
Medium-Term Notes	5,270	5,919	6,141	1.0	13.4	3.8	16.5
Asset-Backed Securities	1,343	1,924	2,081	1.2	74.5	8.1	54.9

( ) = negative, CNY = Chinese yuan, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, y-o-y = year-on-year.
Source: CEIC.

Figure 2: Corporate Bond Issuance in Key Sectors



CNY = Chinese yuan, Q2 = second quarter, Q3 = third quarter.
Source: CEIC.

The rise in financial bonds has been largely driven by perpetual bonds issued by commercial banks as part of its efforts to replenish capital after write-downs of bad assets. Asset-backed securities grew strongly at 8.1% q-o-q, but the contribution to growth was smaller given this category's overall size (**Figure 2**).

The PRC's LCY corporate bond market continued to be dominated by a few big issuers (**Table 3**). At the end of Q3 2019, the top 30 corporate bond issuers accounted for a combined CNY7.7 trillion worth of corporate bonds outstanding, or about 26.5% of the total market. Of the top 30, the 10 largest issuers accounted for an aggregate CNY4.9 trillion. China Railway, the top issuer, had more than three times the outstanding amount of bonds as Agricultural Bank of China, the second-largest issuer. The top 30 issuers included 14 banks, which continued to generate funding to strengthen their capital bases, improve liquidity, and lengthen their maturity profiles.

Table 4 lists the largest corporate bond issuances in Q3 2019. The top issuers consisted largely of banks and state-owned enterprises as banks sought to improve their funding and capital bases.

Investor Profile

Among the major government bond categories, banks were the single-largest holder at the end of September (**Figure 3**), with banks owning at least 73.4% of all outstanding government bonds. The concentration of bank ownership was the highest for local government bonds (87.9%), as banks are being asked by the government to help support the funding efforts of local governments. Policy banks were the next largest holder of local government bonds. Unincorporated products were the second-largest holder of policy bank bonds after banks.[12]

The volume of interest rate swaps rose 11.7% q-o-q in Q3 2019. The 7-day repurchase remained the most used interest rate swap, comprising a 70.7% share of the total interest rate swap volume during the quarter (**Table 5**).

Policy, Institutional, and Regulatory Developments

People's Bank of China Reduces Reserve Requirement Ratio for Banks

On 6 September, the PBOC announced that it would reduce by 50 bps the reserve requirement ratio of financial institutions, effective 16 September. In addition, rural commercial banks operating solely within provincial administrative regions would be entitled to an additional 100 bps cut, with the reduction to be phased in on 15 October and 15 November.

The People's Republic of China Removes Quota on Some Foreign Investor Programs

On 10 September, the State Administration of Foreign Exchange announced that it would remove quota limits on its Qualified Foreign Institutional Investor and Renminbi Qualified Foreign Institutional Investor programs. The government said that this would make it easier for foreign investors to participate in the domestic market of the PRC.

China Securities Regulatory Commission Places Limit on Private Corporate Bond Issuance

On 15 October, the China Securities Regulatory Commission announced that the total amount of outstanding corporate bonds sold privately would be limited to 40% of a company's net assets. Additional bonds issued exceeding this ratio may only be used to repay existing debt.

[12] Unincorporated products include banks' wealth management products, securities investment funds, trust funds, and insurance products.

Table 3: Top 30 Issuers of Local Currency Corporate Bonds in the People's Republic of China

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (CNY billion)	LCY Bonds (USD billion)			
1.	China Railway	1,715.5	240.0	Yes	No	Transportation
2.	Agricultural Bank of China	453.1	63.4	Yes	Yes	Banking
3.	Industrial and Commercial Bank of China	450.7	63.0	Yes	Yes	Banking
4.	Bank of China	423.1	59.2	Yes	Yes	Banking
5.	Central Huijin Investment	371.0	51.9	Yes	No	Asset Management
6.	China Construction Bank	333.3	46.6	Yes	Yes	Banking
7.	China Minsheng Banking	305.3	42.7	No	Yes	Banking
8.	State Grid Corporation of China	292.7	40.9	Yes	No	Public Utilities
9.	China CITIC Bank	267.5	37.4	No	Yes	Banking
10.	Shanghai Pudong Development Bank	260.5	36.4	No	Yes	Banking
11.	Bank of Communications	254.3	35.6	No	Yes	Banking
12.	China National Petroleum	225.0	31.5	Yes	No	Energy
13.	Industrial Bank	183.0	25.6	No	Yes	Banking
14.	Huaxia Bank	173.4	24.3	Yes	No	Banking
15.	China Everbright Bank	173.3	24.2	Yes	Yes	Banking
16.	Tianjin Infrastructure Construction and Investment Group	170.7	23.9	Yes	No	Industrial
17.	State Power Investment	161.6	22.6	Yes	No	Energy
18.	Ping An Bank	158.7	22.2	No	Yes	Banking
19.	China Merchants Bank	143.5	20.1	Yes	Yes	Banking
20.	PetroChina	135.0	18.9	Yes	Yes	Energy
21.	CITIC Securities	135.0	18.9	Yes	Yes	Brokerage
22.	Datong Coal Mine Group	117.6	16.5	Yes	No	Coal
23.	China Datang	113.5	15.9	Yes	Yes	Energy
24.	China Life Insurance	103.0	14.4	Yes	Yes	Insurance
25.	China Three Gorges Corporation	99.0	13.8	Yes	No	Power
26.	China Merchants Securities	93.2	13.0	No	Yes	Brokerage
27.	Bank of Beijing	93.0	13.0	No	Yes	Banking
28.	Guotai Junan Securities	90.2	12.6	No	Yes	Financial
29.	Guangzhou R&F Properties	90.1	12.6	No	Yes	Real Estate
30.	China Cinda Asset Management	90.0	12.6	Yes	Yes	Asset Management
Total Top 30 LCY Corporate Issuers		**7,675.8**	**1,073.8**			
Total LCY Corporate Bonds		**29,003.0**	**4,057.3**			
Top 30 as % of Total LCY Corporate Bonds		**26.5%**	**26.5%**			

CNY = Chinese yuan, LCY = local currency, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

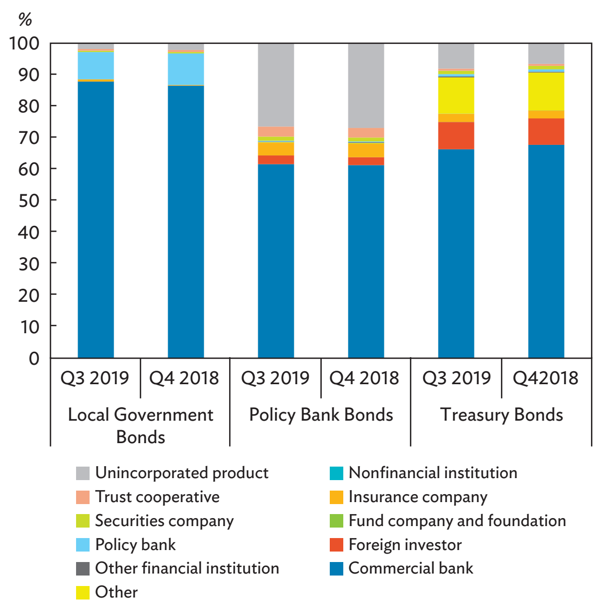
Table 4: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (CNY billion)
China State Railway Group		
5-year bond	3.50	10
5-year bond	3.45	10
5-year bond	3.34	10
5-year bond	3.35	13
5-year bond	3.37	12
5-year bond	3.41	12
20-year bond	4.07	5
20-year bond	4.10	5
20-year bond	4.02	5
20-year bond	3.99	13
20-year bond	4.03	8

Corporate Issuers	Coupon Rate (%)	Issued Amount (CNY billion)
Industrial Bank		
3-year bond	3.55	20
10-year bond	4.15	30
10-year bond	4.12	20
Bank of Communications		
10-year bond	4.10	30
15-year bond	4.49	10
Industrial Bank		
10-year bond	3.98	30
15-year bond	4.34	10
China Merchants Bank		
3-year bond	3.45	30
3-year bond	3.33	20

CNY = Chinese yuan.
Source: Based on data from Bloomberg LP.

Figure 3: Government Bonds Investor Profile



Q3 = third quarter, Q4 = fourth quarter.
Source: Bloomberg LP.

Table 5: Notional Values of the People's Republic of China's Interest Rate Swap Market in the Third Quarter of 2019

Interest Rate Swap Benchmarks	Notional Amount (CNY billion)	Share of Total Notional Amount (%)	Growth Rate (%)
	Q3 2019		q-o-q
7-Day Repo Rate	3,557.9	70.7	5.0
Overnight SHIBOR	16.3	0.3	(51.9)
3-Month SHIBOR	1,397.4	27.8	33.2
1-Year Lending Rate	34.2	0.7	(100.0)
Loan Interest Rate, 1 Year	0.1	0.001	(100.0)
5-Year Lending Rate	1.7	0.03	(100.0)
10-Year Bond Yield	10.6	0.2	(20.0)
10-Year Treasury Yield	11.4	0.2	(27.9)
3-Year AAA Short-Term Notes/ Government Debt	0.7	0.01	(100.0)
10-Year Bond Yield/ 10-Year Government Bond Yield	0.2	0.004	(93.1)
Total	**5,030.5**	**100.0**	**11.7**

( ) = negative, – = not applicable, CNY = Chinese yuan, q-o-q = quarter-on-quarter, Q3 = third quarter, Repo = repurchase, SHIBOR = Shanghai Interbank Offered Rate.
Note: Growth rate computed based on notional amounts.
Sources: *AsianBondsOnline* and *ChinaMoney*.

Hong Kong, China

Yield Movements

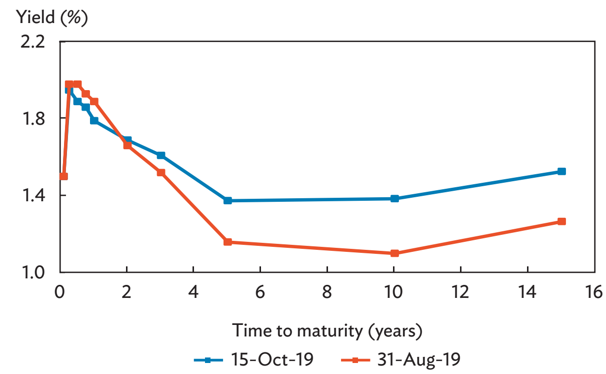
Between 31 August and 15 October, local currency (LCY) government bond yields in Hong Kong, China fell slightly for shorter-dated tenors and jumped for medium- to longer-dated tenors (**Figure 1**). Tenors with maturities of 1 year or below shed an average of 7 basis points (bps), while tenors with maturities of 2 years or longer gained 18 bps on average. Yield movements tracked the movements of United States (US) Treasury yields as the Hong Kong dollar is pegged to the US dollar. During the review period, US yields dropped for maturities below 2 years and rose for Treasuries with longer maturities.

Hong Kong, China's yield curve has been inverted since the second quarter (Q2) of the year, though the negative spread between the 2-year and 10-year yield narrowed during the review period from 56 bps on 31 August to 30 bps on 15 October.

The inverted yield curve reflects expectations of an economic downturn in Hong Kong, China. Months of unrelenting political protests has caused declines in tourism earnings and retail sales, adding pressure to the economy that has already been weakened by the continuing trade dispute between the People's Republic of China and the US. Based on advanced estimates, Hong Kong, China's gross domestic product growth contracted 2.9% year-on-year (y-o-y) in the third quarter (Q3) of 2019. In quarter-on-quarter (q-o-q) seasonally adjusted terms, Hong Kong, China's GDP contracted 3.2% q-o-q in Q3 2019 following a 0.5% q-o-q drop in Q2 2019. The two consecutive quarters of negative growth indicated that the economy has fallen into a technical recession.

The rise in yields for medium- to longer-term bonds also reflected higher borrowing costs as investors factor in risks associated with political uncertainties. In September, Fitch Ratings downgraded Hong Kong, China's issuer default rating one notch from AA+ to AA amid months of social protests that have undermined political stability and the business environment.

Figure 1: Hong Kong, China's Benchmark Yield Curve—Exchange Fund Bills and Notes



Source: Based on data from Bloomberg LP.

To match rate adjustments by the US Federal Reserve, the Hong Kong Monetary Authority (HKMA) lowered its policy rate by 25 bps each in August, September, and October. The rate cuts lowered the base rate from 2.75% to 2.00%.

Inflation remained moderate in Q3 2019. The composite consumer price inflation growth rate eased to 3.2% y-o-y in September from 3.5% y-o-y in August.

To boost sluggish economic growth, the government implemented several policies during the review period. In August, the government announced fiscal support measures worth HKD19.1 billion to aid citizens and businesses affected by the economic downturn. In September, the government-owned Hong Kong Mortgage Corporation (HKMC) introduced a relief measure targeted to small and medium-sized enterprises (SMEs) facing cash flow pressure. The relief measure allowed SME borrowers a temporary moratorium on principal payments for up to 12 months.

On 14 October, the HKMA lowered the countercyclical capital buffer (CCyB)—the amount of cash that banks are required to keep as reserves—from 2.5% to 2.0%, releasing capital that had previously built up in the banking sector. The move injected an additional HKD200 billion–HKD300 billion into the economy.

Size and Composition

Hong Kong, China's LCY bonds outstanding dropped slightly to HKD1,954.7 (USD249.4) at the end of Q3 2019 from HKD1,955.5 billion (USD250.4) in Q2 2019 (**Table 1**). The 0.04% q-o-q dip in Q3 2019 was smaller than the 0.2% q-o-q drop in the prior quarter and was largely driven by contractions in Exchange Fund Notes (EFNs) and corporate bonds outstanding. Annual growth rose to 2.1% y-o-y in Q3 2019 from 1.4% y-o-y in Q2 2019 due to stronger growth in both government and corporate bonds. Government bonds, accounted for 59.9% of LCY bonds outstanding at the end of September.

Government bonds. The outstanding stock of LCY government bonds stood at HKD1,170.4 billion at the end of September on growth of 0.5% q-o-q and 1.4% y-o-y. The growth was driven by the expansion of outstanding Exchange Fund Bills (EFBs) and Hong Kong Administrative Special Administrative Region (HKSAR) bonds, which rose 0.6% q-o-q and 1.0% q-o-q, respectively. Outstanding EFNs dropped 3.4% q-o-q during the review period due to maturities.

Total government issuance amounted to HKD838.5 billion in Q3 2019 on growth of 1.0% q-o-q and 2.9% y-o-y. Issuance of EFBs and EFNs by the HKMA increased 1.0% q-o-q, while issuance of HKSAR bonds dropped 52.5% q-o-q from a high base in the previous quarter.

Exchange Fund Bills. In Q3 2019, outstanding EFBs rose 0.6% q-o-q to reach HKD1,048.4 billion at the end of September, driven by strong issuance. New issuance edged up to HKD833.5 billion from HKD825.5 billion in the previous quarter. Due to maturities, the growth was slower than the 1.9% rise in outstanding EFBs recorded in the previous quarter.

Exchange Fund Notes. Since January 2015, the HKMA has streamlined issuance of EFNs and HKSAR bonds to avoid overlaps in longer tenors and to establish a single benchmark yield curve. EFN issuance has been limited to the 2-year tenor at an average of HKD1.2 billion EFNs per quarter. As a result, outstanding EFNs declined steadily. Outstanding EFNs stood at HKD28.4 billion at the end of September, down 3.4% q-o-q from HKD29.4 billion at the end of Q2 2019.

Hong Kong Special Administrative Region Bonds. HKSAR bonds outstanding stood at HKD93.7 billion at the end of September, up 1.0% q-o-q from HKD92.7 billion in the previous quarter. In Q3 2019, the government issued a total of HKD3.8 billion of HKSAR bonds. HKD3.0 billion comprised Silver Bonds, an investment instrument intended for senior citizens, while HKD0.8 billion came from the issuance of 15-year HKSAR bonds.

Corporate bonds. Corporate bonds outstanding reached HKD784.3 billion at the end of September. The 0.9% q-o-q contraction in Q3 2019 reversed the 1.2% q-o-q growth in the previous quarter.

The outstanding bonds of the top 30 nonbank corporate issuers in Hong Kong, China amounted to HKD217.6 billion in Q3 2019, comprising 27.7% of the total corporate bond market (**Table 2**). Government-owned financial firm HKMC remained the top issuer,

Table 1: Size and Composition of the Local Currency Bond Market in Hong Kong, China

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	HKD	USD	HKD	USD	HKD	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**1,915**	**245**	**1,956**	**250**	**1,955**	**249**	**(0.7)**	**1.5**	**(0.04)**	**2.1**
Government	1,154	147	1,164	149	1,170	149	(0.4)	3.4	0.5	1.4
Exchange Fund Bills	1,024	131	1,042	133	1,048	134	0.5	5.2	0.6	2.4
Exchange Fund Notes	34	4	29	4	28	4	(2.9)	(16.7)	(3.4)	(16.5)
HKSAR Bonds	96	12	93	12	94	12	(7.9)	(4.9)	1.0	(2.9)
Corporate	761	97	791	101	784	100	(1.2)	(1.2)	(0.9)	3.1

( ) = negative, HKD = Hong Kong dollar, HKSAR = Hong Kong Special Administrative Region, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.

Notes:
1. Calculated using data from national sources.
2. Bloomberg LP end-of-period local currency–USD rates are used.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. Q3 data for corporate bonds outstanding are based on *AsianBondsOnline* estimates.

Source: Hong Kong Monetary Authority.

Table 2: Top 30 Nonbank Corporate Issuers of Local Currency Corporate Bonds in Hong Kong, China

Issuers		Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (HKD billion)	LCY Bonds (USD billion)			
1.	Hong Kong Mortgage Corporation	29.8	3.8	Yes	No	Finance
2.	Sun Hung Kai & Co., Limited	16.7	2.1	No	Yes	Finance
3.	Link Holdings	12.5	1.6	No	No	Finance
4.	MTR Corporation	12.4	1.6	Yes	Yes	Transportation
5.	New World Development	12.1	1.5	No	Yes	Diversified
6.	Hong Kong Land	11.6	1.5	No	No	Real Estate
7.	The Hong Kong and China Gas Company	11.1	1.4	No	Yes	Utilities
8.	Swire Pacific	9.4	1.2	No	Yes	Diversified
9.	The Wharf (Holdings)	8.6	1.1	No	Yes	Finance
10.	Henderson Land Development	8.3	1.1	No	No	Real Estate
11.	CLP Power Hong Kong Financing	7.7	1.0	No	No	Finance
12.	Haitong International Securities Group	7.0	0.9	No	Yes	Finance
13.	Smart Edge	6.8	0.9	No	No	Finance
14.	AIA Group	6.3	0.8	No	Yes	Insurance
15.	CK Asset Holdings	6.2	0.8	No	Yes	Real Estate
16.	Swire Properties	5.6	0.7	No	Yes	Diversified
17.	Hongkong Electric	5.5	0.7	No	No	Utilities
18.	China Merchants Port Holdings	5.5	0.7	No	Yes	Transportation
19.	Hang Lung Properties	4.6	0.6	No	Yes	Real Estate
20.	Hysan Development Company	4.4	0.6	No	Yes	Real Estate
21.	IFC Development Corporation	3.5	0.4	No	No	Finance
22.	Lerthai Group	3.0	0.4	No	Yes	Real Estate
23.	Emperor International Holdings	2.9	0.4	No	Yes	Real Estate
24.	Wharf Real Estate Investment	2.6	0.3	No	Yes	Real Estate
25.	Champion REIT	2.5	0.3	No	Yes	Real Estate
26.	China Dynamics Holdings	2.4	0.3	No	Yes	Automotive
27.	Urban Renewal Authority	2.3	0.3	Yes	No	Real Estate
28.	South Shore Holdings	2.2	0.3	No	Yes	Industrial
29.	CK Hutchison Holdings	2.0	0.3	No	Yes	Diversified
30.	Gluon Xima International	2.0	0.3	No	No	Real Estate
Total Top 30 Nonbank LCY Corporate Issuers		**217.6**	**27.8**			
Total LCY Corporate Bonds		**784.3**	**100.0**			
Top 31 as % of Total LCY Corporate Bonds		**27.7%**	**27.7%**			

HKD = Hong Kong dollar, LCY = local currency, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

with outstanding bonds amounting to HKD29.8 billion. The top 30 issuers in Q3 2019 were mostly finance and real estate companies. A distant second was Sun Hung Kai & Co., with outstanding bonds of HKD16.7 billion. Link Holdings, MTR Corporation, New World Development, and Hong Kong Land were the next four largest issuers, with outstanding bonds exceeding HKD10.0 billion each. Of the top 30, two-thirds are listed on the Hong Kong Stock Exchange and three are government-owned corporations.

Corporate issuance amounted to HKD53.1 billion in Q3 2019, down from HKD75.9 billion in the previous quarter. The top nonbank issuer, HKMC, issued a total of HKD2.2 billion bonds from eight issuances during the quarter, including a 30-year bond carrying a 2.65% coupon (**Table 3**). The single-largest issuance was a 7-year bond carrying a 2.50% coupon from Link Holdings. Swire Pacific, Hysan Development Company, and Sun Hung Kai & Co. were the next largest issuers with aggregate issuance amounts of HKD1.1 billion, HKD0.7 billion, and HKD0.4 billion, respectively.

Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (HKD million)
Hong Kong Mortgage Corporation		
3-month bond	0.00	660.00
3-month bond	1.92	380.00
3-month bond	0.00	370.00
3-month bond	1.99	50.00
1-year bond	2.09	55.00
1-year bond	2.04	85.50
10-year bond	1.57	375.00
30-year bond	2.65	200.00
Link Holdings		
5-year bond	2.28	716.00
7-year bond	2.50	1,000.00
Swire Pacific		
10-year bond	2.95	331.00
10-year bond	2.83	350.00
10-year bond	2.50	400.00
Hysan Development Company		
12-year bond	2.90	400.00
15-year bond	2.81	250.00
Sun Hung Kai & Co., Limited		
10-year bond	2.75	442.00

HKD = Hong Kong dollar.
Source: Bloomberg LP.

Ratings Update

Fitch Downgrades Hong Kong, China's Credit Rating amid Political Unrest

On 5 September, global credit rating agency Fitch Ratings Inc. (Fitch) downgraded Hong Kong, China's issuer default rating after months of antigovernment political protests. Hong Kong, China's long-term LCY issuer default rating was downgraded one notch to AA from AA+ and given a negative outlook. According to Fitch, the persistent political unrest undermined "international perceptions of the quality and effectiveness of [Hong Kong, China's] governance system and rule of law, and have called into question the stability and dynamism of its business environment." The last time Fitch downgraded Hong Kong, China's rating was before the return of the former British colony to the People's Republic of China. The negative outlook reflected Fitch's view that a degree of social discontent is likely to persist, possibly sparking renewed eruptions of political unrest.

Policy, Institutional, and Regulatory Developments

Government Unveils HKD19.1 Billion Economic Support Package

On 15 August, the Government of the Hong Kong Special Administrative Region of the People's Republic of China unveiled fiscal support measures worth HKD19.1 billion to provide support to citizens and businesses affected by the economic downturn. The measures for citizens include extra payments to social security recipients, subsidies for students from the primary and secondary levels, 1 month of free rent for low-income tenants of government housing, and a one-off electricity subsidy worth HKD2,000. The support for businesses includes waivers for 27 groups of fees and charges for the retail, catering, and tourism sectors; a reduction of rent for short-term tenancies of government lands; a new loan guarantee for small businesses; and retraining for workers.

HKMC Introduces Relief Measures for Small and Medium-Sized Enterprises

On 4 September, HKMC Insurance Limited, a subsidiary of HKMC, unveiled a new relief measure—the 80% Guarantee Product of the SME Financing Guarantee Scheme—to assist SMEs facing cash flow pressures. Under the relief measure, SME borrowers may apply to their lenders to temporarily pay only the interest on their loans, deferring repayment of the principal for a maximum of 12 months. The relief measure was designed to help SMEs facing cash flow pressures due to the heightened uncertainties affecting the domestic economy.

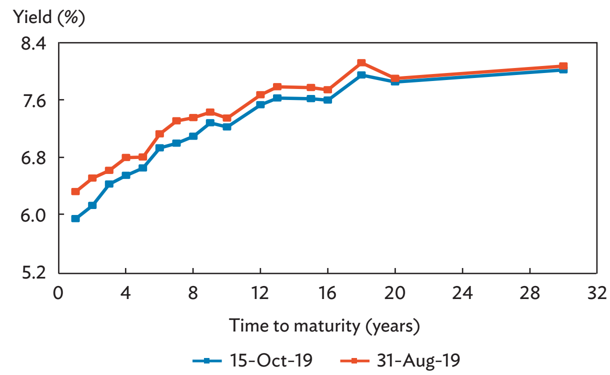
HKMA Cuts Countercyclical Capital Buffer by 50 bps to 2.0%

On 14 October, the HKMA lowered the CCyB from 2.5% to 2.0%, the first reduction since 2015. The move was intended to allow banks to release an additional HKD200 billion–HKD300 billion of bank credit. In its press statement, the HKMA stressed that economic conditions in Hong Kong, China have deteriorated since June and the freeing of funds will allow banks to provide support to the economy and help counter the economic downturn. The CCyB is an integral part of the Basel III regulatory capital framework designed to increase the resilience of the banking sector in periods of excess credit growth.

Indonesia

Local currency (LCY) government bond yields in Indonesia continued to decline between 31 August and 15 October (**Figure 1**). Yields declined the most at the shorter end of the curve (2 years and below), with declines averaging 38 basis points (bps), and fell the least at the longer end (20 years and 30 years). For maturities of 3 years to 18 years, bond yields shed an average of 18 bps. Due to the faster decline at the shorter end than the longer end, the spread between the 2-year and 10-year tenors widened to 109 bps on 15 October from 84 bps on 31 August.

Figure 1: Indonesia's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

The overall decline in Indonesia's LCY government bond yields was largely driven by the accommodative monetary policy stance of Bank Indonesia. The central bank lowered the policy rate four times, by 25 bps each, during the monthly Board of Governors meetings from July to October. The policy rate has now been reduced by a cumulative 100 bps year-to-date. (In 2018, Bank Indonesia raised its policy rate six times by a cumulative 175 bps.) The decisions to lower rates were taken to bolster economic growth and boost lending activities as the global economic outlook weakened.

In the Board of Governors meeting held on 23–24 October, the rate cut brought the 7-day reverse repurchase rate to 5.00%, the deposit facility rate to 4.25%, and the lending facility rate to 5.75%. At these levels, the policy rates remain supportive of keeping inflation within the target range, ensuring the attractiveness of the domestic financial assets, and boosting economic growth. Respondents to the *AsianBondsOnline* annual bond market liquidity survey noted that there remains space for further monetary policy easing. Market participants expect one more rate cut by the end of the year. Survey respondents, however, cited that policy rate cuts had been mostly priced in by investors, thus the absence of a significant rally in the bond market.

The decline in bond yields was also influenced by the accommodative monetary stance of central banks in advanced economies. Both the United States (US) Federal Reserve and the European Central Bank lowered their respective policy rates this year. In the case of the European Central Bank, it also announced the resumption of its bond purchase program beginning 1 November. As a low-interest-rate environment prevailed, foreign funds shifted toward higher-yielding emerging market assets. Relative to its emerging East Asian peers, bond yields in Indonesia remain high, making it a favored destination of foreign funds. The foreign holdings share rose to 38.6% at the end of September, up from 36.9% from the same period a year earlier but slightly down from a share of 39.1% at the end of June.

During the review period, the Indonesian rupiah was stable and credit default swap spreads slightly declined. The equity market however was slightly down.

Consumer price inflation has been relatively tame thus far this year. Bank Indonesia expects inflation to come in below the midpoint of its 2.5%–4.5% target range for 2019. Economic growth hovered at about 5.0% year-on-year (y-o-y) in the first (Q1) and second (Q2) quarters of 2019, with domestic demand as the main driver for growth. Bank Indonesia estimates economic growth for 2019 will come in at the lower end of the forecasted 5.0%–5.4% range. Indonesia's trade performance remained weak, as monthly exports continued to contract. For the first 9 months of the year, a trade deficit of USD1.9 billion was recorded.

Size and Composition

At the end of September, the LCY bond market in Indonesia expanded to a size of IDR3,229.9 trillion (USD227.5 billion), as growth rebounded strongly to 5.2% quarter-on-quarter (q-o-q) in the third quarter (Q3) of 2019 after contracting 0.5% q-o-q in Q2 2019 (**Table 1**). The robust growth during the quarter largely stemmed from growth in central government bonds and, to a lesser extent, central bank bonds and corporate bonds. On an annual basis, the bond market grew 16.8% y-o-y in Q3 2019, slipping from 17.6% y-o-y growth in the preceding quarter. Indonesia was the region's fastest-growing bond market in Q3 2019 on both a q-o-q and y-o-y basis.

The LCY bond market in Indonesia remains dominated by government bonds, which represented an 86.5% share of the aggregate bond stock at the end of September. The corporate bond market accounted for the remaining 13.5% share. The LCY bond market is also largely dominated by conventional bonds, which accounted for an 84.1% share of the bond total at the end of September. *Sukuk* (Islamic bonds) increased their share from 15.1% in Q2 2019 to 15.9% in Q3 2019. All bond segments posted positive growth during the review period.

Government bonds. At the end of September, total governments outstanding climbed to IDR2,792.3 trillion on growth of 5.3% q-o-q and 19.1% y-o-y. Much of the growth was contributed by central government bonds, comprising Treasury bills and Treasury bonds issued by the Ministry of Finance, to fund the budget gap. Central bank bonds also posted positive growth, although their contribution to the overall growth was relatively smaller.

Central government bonds. The outstanding size of central government bonds climbed to IDR2,664.3 trillion at the end of September, gaining 5.3% q-o-q and 15.5% y-o-y. The faster q-o-q growth came about as a result of hefty issuance of Treasury bills and bonds during the quarter.

In Q3 2019, aggregate central government bond issuance totaled IDR185.3 trillion, rising 23.2% q-o-q and 17.3% y-o-y. The government accepted bids exceeding its targeted amount during its weekly auctions, as it took advantage of increased demand for IDR-denominated bonds. After issuing a relatively lower volume in Q2 2019, the government sought to raise more funds to help finance its budget deficit. The government expects a wider budget deficit due to a shortfall in tax collection. The government plans to fund the budget gap by tapping both the LCY and foreign currency bond markets. During the quarter, central government bond issuance came from the auction of Treasury bills and bonds.

Central bank bonds. Total outstanding central bank bonds, which comprise conventional and shari'ah-compliant Sertifikat Bank Indonesia (SBI) and Sukuk Bank Indonesia (SuKBI), climbed to IDR128.0 trillion at the end of September. On a q-o-q basis, central bank bonds

Table 1: Size and Composition of the Local Currency Bond Market in Indonesia

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	IDR	USD	IDR	USD	IDR	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**2,764,341**	**185**	**3,069,867**	**217**	**3,229,879**	**228**	**5.9**	**13.9**	**5.2**	**16.8**
Government	2,345,354	157	2,652,610	188	2,792,335	197	6.2	13.5	5.3	19.1
Central Govt. Bonds	2,306,641	155	2,531,039	179	2,664,332	188	5.0	12.7	5.3	15.5
of which: *Sukuk*	378,115	25	420,064	30	456,844	32	6.7	14.9	8.8	20.8
Central Bank Bonds	38,713	3	121,571	9	128,003	9	223.5	99.9	5.3	230.6
of which: *Sukuk*	10,642	0.7	21,938	2	25,674	2	(11.1)	(15.7)	17.0	141.3
Corporate	418,987	28	417,257	30	437,544	31	4.1	16.5	4.9	4.4
of which: *Sukuk*	16,982	1	22,683	2	30,654	2	15.6	21.7	35.1	80.5

( ) = negative, IDR = Indonesian rupiah, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Bloomberg LP end-of-period local currency–USD rates are used.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. The total stock of nontradable bonds as of 30 September 2019 stood at IDR210.5 trillion.
Sources: Bank Indonesia; Directorate General of Budget Financing and Risk Management, Ministry of Finance; Indonesia Stock Exchange; and Bloomberg LP.

grew 5.3% q-o-q in Q3 2019, reversing the 7.7% q-o-q contraction posted in Q2 2019. On a y-o-y basis, the stock of central bank bonds surged more than three-fold from a low base in Q3 2018. (Bank Indonesia only resumed issuance of conventional SBI beginning in July 2018 to attract foreign portfolio investments.) In Q3 2019, central bank bond issuance surged 96.4% q-o-q after declining 44.6% q-o-q in the preceding quarter. Issuance of both SBI and SuKBI accelerated during the quarter.

Corporate bonds. The outstanding size of corporate bonds reached IDR437.5 trillion at the end of September, posting growth of 4.9% q-o-q and 4.4% y-o-y. Corporate bond issuance was quite active during the quarter, leading to an expansion in the corporate bond stock during the review period.

At the end of September, the 30 leading corporate bond issuers had aggregate bonds outstanding of IDR329.4 trillion, up from IDR311.6 trillion at the end of June (**Table 2**). The 30 largest corporate bond issuers accounted for 75.3% of the corporate total during the review period. Most firms on the list came from the banking and financial sector, while the rest were from highly capitalized sectors such as energy, telecommunications, and building construction. More than half of the firms in the top 30 list also tapped the equity market for funding. Some 16 state-owned firms were included in the list, 8 of which landed in the top 10.

Five state-owned institutions landed at the top of the list, led by Indonesia Eximbank with an outstanding bond stock of IDR36.6 trillion. Next was energy firm Perusahaan Listrik Negara with outstanding bonds of IDR27.0 trillion. Rising to the third spot was financing firm Sarana Multi Infrastruktur (IDR22.4 trillion), bumping Bank Rakyat Indonesia (IDR21.0 trillion) to the fourth place. Bank Tabungan Negara held on to the fifth spot with its bond stock of IDR19.8 trillion.

New corporate bond issues tallied IDR44.2 trillion in Q3 2019, up from IDR28.8 trillion in the previous quarter. Corporate bond issuance growth surged 53.7% q-o-q and 32.6% y-o-y in Q3 2019. There were 23 firms that borrowed via the debt market in Q3 2019 versus 17 corporates in Q2 2019. Aside from conventional bonds, which accounted for a larger share of issuance during the quarter, new corporate bond issues also included bonds structured as *sukuk mudharabah* (Islamic bonds backed by a profit-sharing scheme from a business venture or partnership) and *sukuk ijarah* (Islamic bonds backed by lease agreements).

State-owned firms topped the list of new corporate bond issuers during the quarter (**Table 3**). Financing firm Sarana Multi Infrastruktur raised a total of IDR5.1 trillion from the issuance of multitranche bonds in August. Next on the list was another financing firm, Sarana Multigriya Finansial, with issuance worth IDR4.3 trillion also in multiple tranches in July and August. Both Sarana Multi Infrastruktur and Sarana Multigriya Finansial issued conventional bonds and *sukuk mudharabah*. Perusahaan Listrik Negara sold a total of IDR4.2 trillion in multiple tranches of conventional bonds and *sukuk ijarah* in August.

Investor Profiles

Offshore investors continued to account for the largest investor share in Indonesia's LCY government bond market. The foreign holdings share rose to 38.6% of the total at the end of September from 36.9% a year earlier (**Figure 2**). Offshore investors remained attracted to Indonesian government bonds due to their relatively high yields.

In nominal terms, foreign holdings in LCY government bonds totaled IDR1,029.4 trillion at the end of September versus IDR850.9 trillion a year earlier. Of this amount, foreign governments and central banks accounted for IDR184.3 trillion, or 17.9% of the aggregate holdings of foreign investors. The share of foreign ownership in conventional bonds (45.7%) was higher than for Islamic bonds (4.4%).

In terms of maturities, foreign holders were largely positioned in longer-dated maturities. Bonds with maturities of 5 years to 10 years accounted for a 34.6% share of offshore holdings and those with maturities of 10 years or more represented 33.8% (**Figure 3**). Maturities of more than 2 years to 5 years had a 22.7% share of the foreign holdings total. The smallest foreign ownership share was observed for bonds with maturities of 2 years or less, which accounted for a share of 8.8% of the foreign total.

Among domestic investors, banking institutions continued to have the largest bond holdings, although

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in Indonesia

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (IDR billion)	LCY Bonds (USD billion)			
1.	Indonesia Eximbank	36,627	2.58	Yes	No	Banking
2.	Perusahaan Listrik Negara	26,987	1.90	Yes	No	Energy
3.	Sarana Multi Infrastruktur	22,441	1.58	Yes	No	Finance
4.	Bank Rakyat Indonesia	20,990	1.48	Yes	Yes	Banking
5.	Bank Tabungan Negara	19,847	1.40	Yes	Yes	Banking
6.	Indosat	17,645	1.24	No	Yes	Telecommunications
7.	Bank Pan Indonesia	15,427	1.09	No	Yes	Banking
8.	Sarana Multigriya Finansial	14,923	1.05	Yes	No	Finance
9.	Bank Mandiri	14,000	0.99	Yes	Yes	Banking
10.	Waskita Karya	13,707	0.97	Yes	Yes	Building Construction
11.	Adira Dinamika Multifinance	9,947	0.70	No	Yes	Finance
12.	Federal International Finance	9,616	0.68	No	No	Finance
13.	Telekomunikasi Indonesia	8,995	0.63	Yes	Yes	Telecommunications
14.	Bank CIMB Niaga	8,271	0.58	No	Yes	Banking
15.	Pupuk Indonesia	7,945	0.56	Yes	No	Chemical Manufacturing
16.	Permodalan Nasional Madani	7,746	0.55	Yes	No	Finance
17.	Semen Indonesia	7,078	0.50	Yes	Yes	Cement Manufacturing
18.	Bank Maybank Indonesia	7,066	0.50	No	Yes	Banking
19.	Perum Pegadaian	6,851	0.48	Yes	No	Finance
20.	Hutama Karya	6,825	0.48	Yes	No	Nonbuilding Construction
21.	Astra Sedaya Finance	6,125	0.43	No	No	Finance
22.	Medco-Energi Internasional	5,578	0.39	No	Yes	Petroleum and Natural Gas
23.	XL Axiata	5,162	0.36	No	Yes	Telecommunications
24.	Mandiri Tunas Finance	5,130	0.36	No	No	Finance
25.	Adhi Karya	4,527	0.32	Yes	Yes	Building Construction
26.	BFI Finance Indonesia	4,414	0.31	No	Yes	Finance
27.	Maybank Indonesia Finance	4,350	0.31	No	No	Finance
28.	Bank Pembangunan Daerah Jawa Barat Dan Banten	4,252	0.30	Yes	Yes	Banking
29.	Tower Bersama Infrastructure	3,616	0.25	No	Yes	Telecommunications Infrastructure Provider
30.	Bank Permata	3,360	0.24	No	Yes	Banking
Total Top 30 LCY Corporate Issuers		**329,448**	**23.21**			
Total LCY Corporate Bonds		**437,544**	**30.82**			
Top 30 as % of Total LCY Corporate Bonds		**75.3%**	**75.3%**			

IDR = Indonesian rupiah, LCY = local currency, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Indonesia Stock Exchange data.

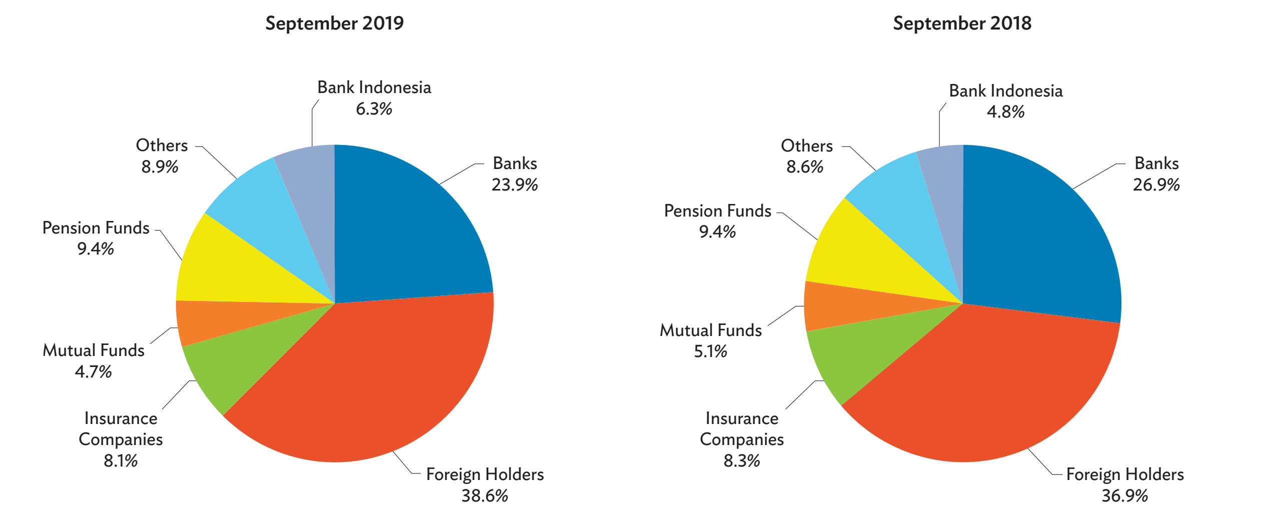
Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (IDR billion)
Sarana Multi Infrastruktur		
370-day bond	7.00	463.00
370-day *sukuk mudharabah*	7.00	423.00
3-year bond	7.80	1,308.00
3-year *sukuk mudharabah*	7.80	417.00
5-year bond	8.10	1,033.00
5-year *sukuk mudharabah*	8.10	84.00
7-year bond	8.50	1,292.00
7-year *sukuk mudharabah*	8.50	76.00
Sarana Multigriya Finansial		
370-day bond	7.50	428.00
370-day *sukuk mudharabah*	7.50	100.00
3-year bond	8.50	640.00
3-year bond	7.80	1,423.00
5-year bond	8.75	932.00
5-year bond	8.10	780.00

Corporate Issuers	Coupon Rate (%)	Issued Amount (IDR billion)
Perusahaan Listrik Negara		
5-year bond	8.00	637.00
5-year *sukuk ijarah*	8.00	274.00
7-year bond	8.50	315.25
7-year *sukuk ijarah*	8.50	368.00
10-year bond	8.70	549.00
10-year *sukuk ijarah*	8.70	20.00
15-year bond	9.50	395.00
15-year *sukuk ijarah*	9.50	49.00
20-year bond	9.98	1,057.37
20-year *sukuk ijarah*	9.98	539.00

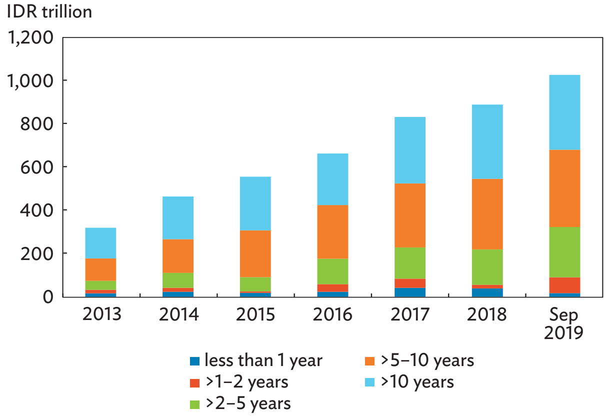
IDR = Indonesian rupiah.
Notes:
1. *Sukuk mudharabah* are Islamic bonds backed by a profit-sharing scheme from a business venture or partnership.
2. *Sukuk ijarah* are Islamic bonds backed by lease agreements.
Source: Indonesia Stock Exchange.

Figure 2: Local Currency Central Government Bonds Investor Profile



Source: Directorate General of Budget Financing and Risk Management, Ministry of Finance.

Figure 3: Foreign Holdings of Local Currency Central Government Bonds by Maturity



IDR = Indonesian rupiah.
Source: Directorate General of Budget Financing and Risk Management, Ministry of Finance.

their holdings declined to 23.9% of the total at the end of September from a 26.9% share a year earlier. Marginal declines in the holdings of insurance companies (8.1%) and mutual funds (4.7%) were also noted during the review period.

Bank Indonesia posted the largest increase in bond holdings among domestic investors, gaining 1.5 percentage points to climb to a 6.3% share at the end of September from 4.8% a year earlier.

Policy, Institutional, and Regulatory Developments

Government Reduces Tax on Interest Income from Bonds

In August, the Government of Indonesia signed a new regulation that will lower the tax on interest income from bond investments to 5.0% from 15.0% for infrastructure investment funds, real estate investment funds, and asset-backed securities. The reduction in taxes will take effect in 2020 and be adjusted to 10.0% by 2021, making the applicable tax rates for these financial products at par with those of mutual funds.

Bank Indonesia and Bank Negara Malaysia Sign Local Currency Bilateral Agreement

In September, Bank Indonesia and Bank Negara Malaysia signed a bilateral agreement to strengthen monetary and financial cooperation. The two central banks agreed on an LCY bilateral agreement of up to USD2.0 billion (or the equivalent of MYR8.0 billion or IDR28.0 trillion). The LCY bilateral agreement will remain effective for 3 years and is subject to extension. Also, the two central banks signed a memorandum of understanding for the development of payment systems and digital financial innovation.

Bank Indonesia and Monetary Authority of Singapore Extends Bilateral Financial Cooperation

In November, Bank Indonesia and Monetary Authority of Singapore extended their bilateral financial cooperation agreement for another year. The arrangement was established in November 2018, which allows access for foreign currency liquidity between the two parties. The bilateral financial cooperation comprises an LCY bilateral swap arrangement of up to USD7.0 billion (SGD9.5 billion or IDR100 trillion) and a bilateral repo line worth USD3.0 billion (SGD4.1 billion or IDR43 trillion).

Republic of Korea

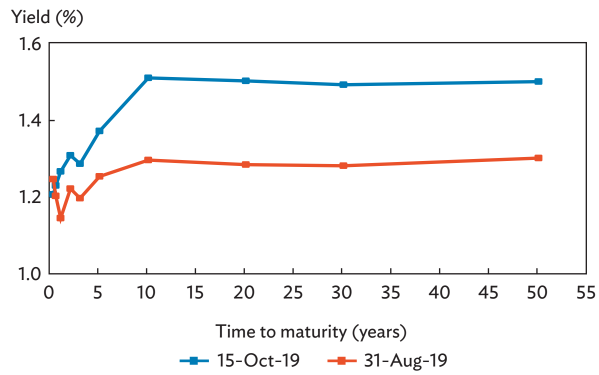
Yield Movements

Between 31 August and 15 October, local currency (LCY) government bond yields in the Republic of Korea rose for all tenors except 3-month paper, which fell 4 basis points (bps). The rise in yields was more pronounced at the longer end of the curve, with the yields of 10-year to 50-year securities up 21 bps on average. The yield for the 6-month tenor rose 3 bps, while yields for bonds with tenors of between 1 year and 5 years increased at an average of 10 bps. The yield spread between the 2-year and 10-year tenors rose to 20 bps from 8 bps.

Yields rose during the review period as domestic bond yields tracked United States (US) Treasury yield movements, which gained in both early September and early October on positive news about trade talks between the People's Republic of China (PRC) and the US. Market participants took profits as the expected rate cut by the Bank of Korea on 16 October had already been priced in and on expectations of a pause in monetary easing for the year. The rise in yields was also driven by (i) expectations of increased bond issuance during the remainder of the year to fund the recently approved supplementary budget, and (ii) a higher bond issuance target next year to fund the 2020 budget passed by the government. The government submitted a KRW513.5 trillion budget for 2020, a 9.3% annual increase in spending, to help boost the economy as growth continues to slow.

At its monetary policy meeting on 16 October, the Bank of Korea decided to cut the base rate by another 25 bps to 1.25%, which followed a 25 bps rate cut in July. The Bank of Korea noted the slowdown in global economic growth due to the decline in global trade. It also highlighted the increased volatility in global financial markets, largely driven by the continued PRC–US trade dispute. On the domestic front, growth continued to slow due to weak consumption growth, exports, and facilities investments, leading to expectations by the Bank of Korea for growth to be below the projections announced in July. In September, consumer price inflation was negative; it is expected to remain near zero in the near-term and settle below the July projections.

Figure 1: The Republic of Korea's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

The Republic of Korea's real gross domestic product growth eased to 0.4% quarter-on-quarter (q-o-q) in the third quarter (Q3) of 2019 from 1.0% q-o-q in the second quarter (Q2), based on advance estimates by the Bank of Korea. The lower growth was driven by the contraction in gross fixed capital formation, which declined 2.3% q-o-q in Q3 2019, following marginal 0.6% q-o-q growth in the previous quarter. In addition, final consumption expenditure growth eased as both private and government expenditure posted slower annual increases in Q3 2019. Meanwhile, export growth rose to 4.1% q-o-q from 2.0% q-o-q in the same period. On a year-on-year (y-o-y) basis, the Republic of Korea's economy grew 2.0% in Q3 2019, the same pace recorded in Q2 2019. Consumer price inflation eased from 0.6% y-o-y in July to zero in August, before posting a negative rate of –0.4% in September.

The Korean won had been one of the worst-performing currencies in the region year-to-date, depreciating 6.0% as of 15 October. However, the won experienced a reprieve in early September on positive developments in PRC–US trade talks. The currency remains volatile, and its appreciation is expected to be limited given the continued slowdown in domestic economic growth and fears of further deflation. The Korean won appreciated 2.2% between 31 August and 15 October.

Size and Composition

The Republic of Korea's LCY bond market posted growth of 2.0% q-o-q to reach KRW2,378.2 trillion (USD1,987.9 billion) at the end of September (**Table 1**). The growth was primarily driven by the 2.3% q-o-q rise in corporate bonds in Q3 2019, while the government bond segment rose at a slower pace of 1.6% q-o-q.

Government bonds. The Republic of Korea's LCY government bonds outstanding increased 1.6% q-o-q to reach KRW961.4 trillion at the end of September, largely driven by the 2.3% q-o-q rise in the stock of central government bonds to KRW613.5 trillion. The outstanding amount of Monetary Stabilization Bonds issued by the central bank rose 0.8% q-o-q to KRW172.9 trillion. Meanwhile, bonds issued by government-related entities declined 0.2% q-o-q to KRW175.0 trillion.

Based on estimates, issuance of government bonds in Q3 2019 was almost at par with the previous quarter at KRW81.1 trillion. Issuance of central bank bonds in Q3 2019 reached KRW36.5 billion and was also at par with issuance in the previous quarter.

Corporate bonds. The size of the Republic of Korea's LCY corporate bond market rose 2.3% q-o-q in Q3 2019 to reach KRW1.4 trillion at the end of September on new issuance that remained relatively high. **Table 2** lists the top 30 LCY corporate bond issuers at the end of September, with aggregate bonds outstanding of KRW875.7 trillion, which comprised 61.8% of the total LCY corporate bond market. Financial companies such as banks and securities and investment firms continued to comprise a majority of the 30 largest corporate bond issuers. Korea Housing Finance Corporation remained the largest issuer with outstanding bonds valued at KRW119 trillion.

Issuance of corporate bonds fell 10.0% q-o-q in Q3 2019 to KRW120.8 trillion, but still exceeded first quarter bond issuance. There was a surge in issuance in Q2 2019 as companies took advantage of declining interest rates. This trend continued into July before slightly easing in August and September as yields rose. The continued slowdown and pessimistic outlook for economic growth also contributed to the relatively lower issuance volume in Q3 2019 as companies borrowed less. **Table 3** lists the notable corporate bond issuances in Q3 2019. Major banks in the Republic of Korea such as NongHyup Bank, Kookmin Bank, and Woori Bank continued to be among the top issuers of bonds during the quarter.

Investor Profile

Insurance companies and pension funds comprised the largest investor group in the LCY government bond market in the Republic of Korea's, with a holdings share of 34.4% at the end of June, which was almost at par with

Table 1: Size and Composition of the Local Currency Bond Market in the Republic of Korea

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	KRW	USD	KRW	USD	KRW	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**2,223,799**	**2,005**	**2,331,705**	**2,019**	**2,378,232**	**1,988**	**0.1**	**3.6**	**2.0**	**6.9**
Government	928,209	837	946,417	820	961,420	804	(1.0)	5.4	1.6	3.6
Central Government Bonds	579,104	522	599,552	519	613,509	513	(1.8)	5.4	2.3	5.9
Central Bank Bonds	174,600	157	171,580	149	172,930	145	(0.02)	5.1	0.8	(1.0)
Others	174,505	157	175,285	152	174,981	146	0.7	5.7	(0.2)	0.3
Corporate	1,295,590	1,168	1,385,288	1,200	1,416,812	1,184	0.9	2.4	2.3	9.4

( ) = negative, KRW = Korean won, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = first quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Q3 2019 government data are as of August 2019.
2. Calculated using data from national sources.
3. Bloomberg LP end-of-period local currency–USD rates are used.
4. Growth rates are calculated from local currency base and do not include currency effects.
5. "Others" comprise Korea Development Bank Bonds, National Housing Bonds, and Seoul Metro Bonds.
6. Corporate bonds include equity-linked securities and derivatives-linked securities.
Sources: The Bank of Korea and *EDAILY BondWeb*.

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in the Republic of Korea

	Issuers	Outstanding Amount		State-Owned	Listed on		Type of Industry
		LCY Bonds (KRW billion)	LCY Bonds (USD billion)		KOSPI	KOSDAQ	
1.	Korea Housing Finance Corporation	119,019	99.5	Yes	No	No	Housing Finance
2.	Mirae Asset Daewoo Co.	76,760	64.2	No	Yes	No	Securities
3.	Korea Investment and Securities	65,311	54.6	No	No	No	Securities
4.	Industrial Bank of Korea	56,670	47.4	Yes	Yes	No	Banking
5.	KB Securities	52,357	43.8	No	No	No	Securities
6.	NH Investment & Securities	49,477	41.4	Yes	Yes	No	Securities
7.	Hana Financial Investment	46,857	39.2	No	No	No	Securities
8.	Samsung Securities	32,554	27.2	No	Yes	No	Securities
9.	Shinhan Bank	31,172	26.1	No	No	No	Banking
10.	Korea Land & Housing Corporation	28,905	24.2	Yes	No	No	Real Estate
11.	Korea Electric Power Corporation	26,440	22.1	Yes	Yes	No	Electricity, Energy, and Power
12.	Korea Expressway	22,050	18.4	Yes	No	No	Transport Infrastructure
13.	Woori Bank	21,050	17.6	Yes	Yes	No	Banking
14.	KEB Hana Bank	19,870	16.6	No	No	No	Banking
15.	Shinyoung Securities	19,527	16.3	No	Yes	No	Securities
16.	Korea Rail Network Authority	18,480	15.4	Yes	No	No	Transport Infrastructure
17.	Kookmin Bank	17,694	14.8	No	No	No	Banking
18.	The Export–Import Bank of Korea	15,905	13.3	Yes	No	No	Banking
19.	Hyundai Capital Services	15,206	12.7	No	No	No	Consumer Finance
20.	Shinhan Card	14,455	12.1	No	No	No	Credit Card
21.	Korea Deposit Insurance Corporation	14,330	12.0	Yes	No	No	Insurance
22.	NongHyup Bank	14,300	12.0	Yes	No	No	Banking
23.	Korea SMEs and Startups Agency	13,573	11.3	Yes	No	No	SME Development
24.	Hanwha Investment and Securities	13,429	11.2	No	No	No	Securities
25.	KB Kookmin Bank Card	13,000	10.9	No	No	No	Consumer Finance
26.	Standard Chartered Bank Korea	11,910	10.0	No	No	No	Banking
27.	Korea Gas Corporation	11,799	9.9	Yes	Yes	No	Gas Utility
28.	Nonghyup	11,600	9.7	Yes	No	No	Banking
29.	Meritz Securities Co.	11,029	9.2	No	Yes	No	Securities
30.	Korea Student Aid Foundation	11,000	9.2	Yes	No	No	Student Loan
Total Top 30 LCY Corporate Issuers		**875,731**	**732**				
Total LCY Corporate Bonds		**1,416,812**	**1,184**				
Top 30 as % of Total LCY Corporate Bonds		**61.8%**	**61.8%**				

KOSDAQ = Korean Securities Dealers Automated Quotations, KOSPI = Korea Composite Stock Price Index, KRW = Korean won, LCY = local currency, SME = small and medium-sized enterprise, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
3. Corporate bonds include equity-linked securities and derivatives-linked securities.
Sources: *AsianBondsOnline* calculations based on Bloomberg LP and *EDAILY BondWeb* data.

Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (KRW billion)
NongHyup Bank		
1.5-year bond	1.52	667
2-year bond	1.56	508
2-year bond	1.60	427
3-year bond	1.57	255
5-year bond	1.50	339
Woori Bank		
1.5-year bond	1.54	334
1.5-year bond	1.41	304
2-year bond	1.42	296
LG Uplus Corp.		
3-year bond	1.81	437
Hanwha Life Insurance		
30-year bond	3.69	428
Kookmin Bank		
5-year bond	1.50	339
Shinhan Bank		
2-year bond	1.31	305
GS Engineering & Construction		
3-year bond	2.00	255

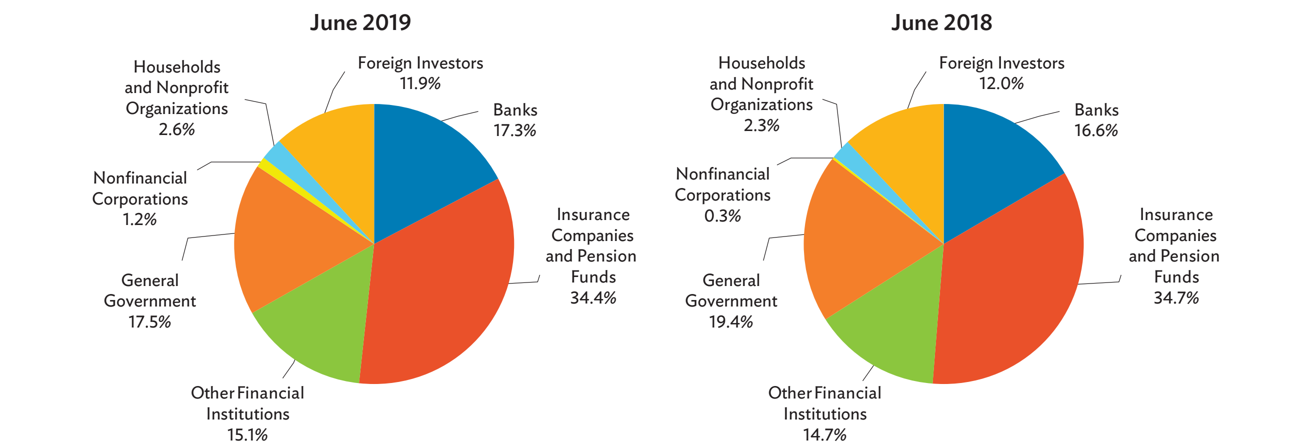
KRW = Korean won.
Source: Based on data from Bloomberg LP.

June 2018 (**Figure 2**). The general government remained the second-largest holder of government bonds at the end of June, even though its share fell to 17.5% from 19.4% in June 2018. Banks accounted for a 17.3% share at the end of the review period, up from 16.6% in June 2018. The share of other financial institutions was slightly up to 15.1% from 14.7%, while the share of foreign investor holdings was marginally changed at 11.9% versus 12.0%.

Insurance companies and pension funds, and other financial institutions remained the two largest holders of the Republic of Korea's LCY corporate bonds (**Table 3**). The share of insurance companies and pension funds fell to 38.1% at the end of June from 39.4% in June 2018, while the share of other financial institutions inched up to 35.6% from 34.9%. The share of the general government was mostly unchanged at 13.4%, while that of banks was up slightly to 8.0% from 7.2%. The share of foreign investors remained negligible at 0.1%.

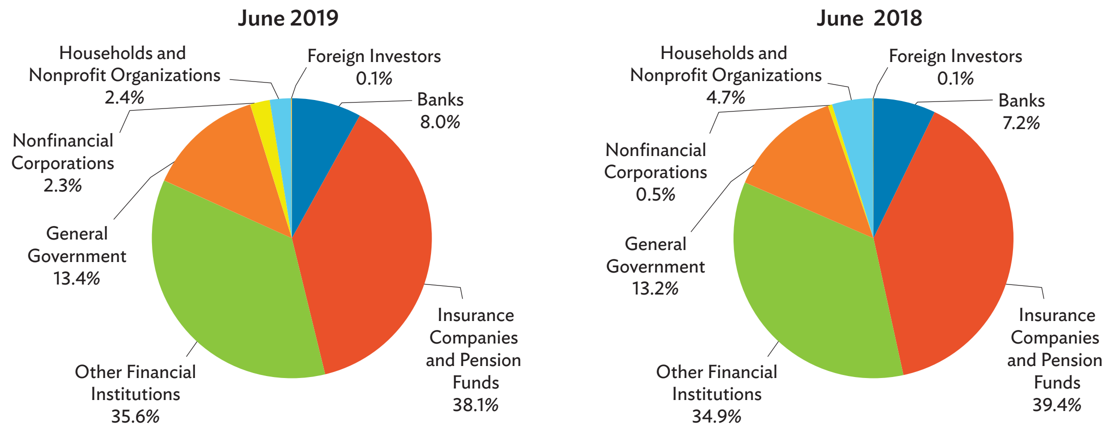
The Republic of Korea's LCY bond market registered net outflows of KRW421 billion in July following a rate cut by the Bank of Korea as well as a large volume of maturities (**Table 4**). The direction of foreign fund flows reversed in August on net inflows of KRW1,741.0 billion. Net inflows of KRW1,416.0 billion were recorded in September. The reversal can be attributed to the strengthening of the Korean won and the reinvestment by a large foreign institutional fund of its holdings of domestic bonds.

Figure 2: Local Currency Government Bonds Investor Profile



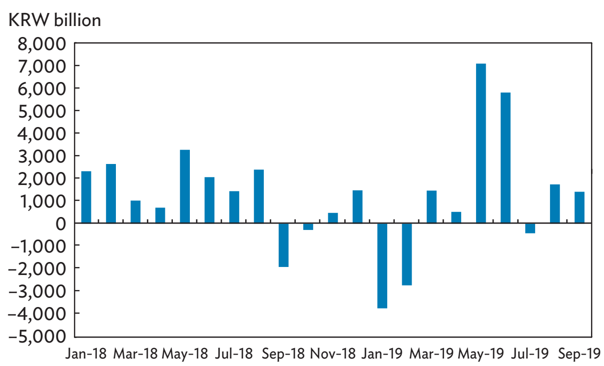
Sources: *AsianBondsOnline* and the Bank of Korea.

Figure 3: Local Currency Corporate Bonds Investor Profile



Sources: *AsianBondsOnline* and the Bank of Korea.

Figure 4: Net Foreign Investment in Local Currency Bonds in the Republic of Korea



KRW = Korean won.
Source: Financial Supervisory Service.

Policy, Institutional, and Regulatory Developments

The Republic of Korea's Government Proposes KRW513.5 Trillion Budget for 2020

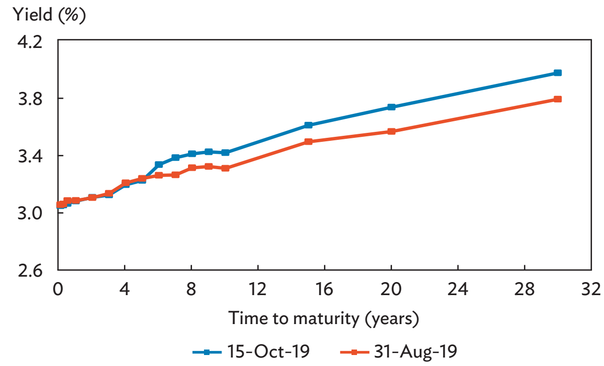
On 29 August, the Government of the Republic of Korea submitted its 2020 budget totaling KRW513.5 trillion for approval. The planned budget entails a 9.3% increase in government spending over 2019 levels and is focused on helping boost the economy and promoting innovation. The main policies of the 2020 budget include increased spending for research and development; support for exports, investment, and consumption; strengthened social safety nets; improved quality of life; and strengthened national defense and diplomacy. The government projects revenues to be KRW482 trillion, a marginal 1.2% annual increase, due to continued weakness in the semiconductor industry and fiscal decentralization. Correspondingly, the target fiscal budget deficit as a share of gross domestic product will rise to 3.6% in 2020 from 1.9% in 2019.

Malaysia

Yield Movements

Between 31 August and 15 October, movements in Malaysia's local currency (LCY) government bond yields were mixed (**Figure 1**). The shorter end of the yield curve (from 1 month to 5 years) declined an average of 1 basis point (bp). Yields of long-term tenors (from 6 years to 30 years) increased an average of 12 bps. The yield spread between 2-year and 10-year government bonds expanded from 20 bps on 31 August to 31 bps on 15 October.

Figure 1: Malaysia's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

The movements in the yield curve in Malaysia are reflective of the trend in the United States during the review period where the shorter end of the yield curve dropped while the longer end rose. Uncertainty over the upcoming Bank Negara Malaysia's (BNM) monetary policy committee meeting in November may have contributed to investors preferring shorter duration tenors over long-term investments, as assessed by some market participants, and as evidenced by short-term yields falling and long-term yield rising toward the end of the review period.

At its monetary policy committee meeting on 12 September, BNM decided to keep its overnight policy rate at 3.00% on the back of strong economic growth and low inflation. The central bank has refrained from being too dovish despite the accommodative stances of major global central banks.

Malaysia's economic growth accelerated to 4.9% year-on-year (y-o-y) in the second quarter (Q2) of 2019 from 4.5% y-o-y in the first quarter. To support economic growth, the Government of Malaysia widened its 2020 fiscal deficit target to 3.2% of gross domestic product from 3.0%, which was announced during its budget meeting on 11 October. Malaysia's minister of finance also stated that the government is planning on issuing samurai bonds next year to raise funds instead of raising additional tax revenues.

Consumer price inflation eased to 1.1% y-o-y in September from 1.5% y-o-y in August. Core inflation also eased to 1.5% y-o-y in September from 2.0% y-o-y in August. The Sales and Services Tax, which was introduced on 1 September 2018, did not significantly affect inflation.

Size and Composition

Malaysia's LCY bond market expanded 0.3% quarter-on-quarter (q-o-q) in the third quarter (Q3) of 2019 to reach a size of MYR1,493.1 billion (USD356.5 billion), up from MYR1,488.1 billion at the end of Q2 2019 (**Table 1**). The growth corresponds to an 8.3% y-o-y jump from MYR1,378.6 billion at the end of Q3 2018. On a y-o-y basis, the growth in the LCY bond market in Q3 2019 was supported by growth in both LCY government and corporate bonds, which accounted for 52.6% and 47.4%, respectively, of total LCY bonds outstanding at the end of September. Total outstanding *sukuk* (Islamic bonds) at the end of the review period stood at MYR920.2 billion on growth of 0.3% q-o-q from MYR917.5 billion at the end of the previous quarter, spurred by increased stocks of corporate *sukuk*.

Issuance of LCY bonds in Q3 2019 decreased 25.2% q-o-q to MYR84.7 billion from MYR113.1 billion in Q2 2019, driven by the contraction of LCY government and corporate bond issuance.

Government bonds. The LCY government bond market grew 0.8% q-o-q to MYR785.7 billion in Q3 2019, up from MYR779.1 billion in the previous quarter. The

Table 1: Size and Composition of the Local Currency Bond Market in Malaysia

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	MYR	USD	MYR	USD	MYR	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**1,379**	**333**	**1,488**	**360**	**1,493**	**357**	**0.7**	**9.1**	**0.3**	**8.3**
Government	725	175	779	189	786	188	0.4	8.1	0.8	8.3
Central Government Bonds	681	165	742	180	749	179	0.8	7.0	0.9	9.9
of which: *Sukuk*	301	73	333	81	331	79	2.0	13.2	(0.6)	10.1
Central Bank Bills	16	4	9	2	10	2	(15.3)	189.7	10.9	(34.2)
of which: *Sukuk*	3	0.7	2	0.4	4	0.8	(45.5)	–	133.3	16.7
Sukuk Perumahan Kerajaan	28	7	28	7	27	6	0.0	0.0	(3.9)	(5.6)
Corporate	653	158	709	172	707	169	1.1	10.2	(0.2)	8.3
of which: *Sukuk*	493	119	555	134	559	133	1.0	12.3	0.7	13.2

( ) = negative, – = not applicable, MYR = Malaysian ringgit, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Bloomberg LP end-of-period local currency–USD rates are used.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. Sukuk Perumahan Kerajaan are Islamic bonds issued by the Government of Malaysia to refinance funding for housing loans to government employees and to extend new housing loans.
Sources: Bank Negara Malaysia Fully Automated System for Issuing/Tendering and Bloomberg LP.

growth was mainly due to the 0.9% q-o-q increase in outstanding central government bonds, which comprised 95.3% of total outstanding LCY government bonds. Outstanding central bank bills, which comprised only a 1.3% share of total LCY government bonds outstanding, grew 10.9% q-o-q. On the other hand, the outstanding stock of Sukuk Perumahan Kerajaan (3.4% of total outstanding LCY government bonds) declined 3.9% q-o-q.

LCY government bonds issued in Q3 2019 declined 6.3% q-o-q as issuances of central government bonds decreased. Issuance of Malaysia Government Securities and Government Investment Issues dropped compared to the previous quarter. These declines were partially offset by the growth in Treasury bills and central bank bills.

Corporate bonds. LCY corporate bonds outstanding fell 0.2% q-o-q to MYR707.4 billion in Q3 2019 from MYR709.0 billion in Q2 2019. However, outstanding corporate *sukuk* rose 0.7% q-o-q to MYR558.6 billion at the end of September from MYR554.8 billion in the prior quarter.

The top 30 LCY corporate bond issuers in Malaysia accounted for an aggregate MYR417.1 billion of corporate bonds outstanding at the end of Q3 2019, or 59.0% of the total corporate bond market (**Table 2**). Government institutions Danainfra Nasional and Cagamas continued to dominate all issuers with outstanding LCY corporate bonds amounting to MYR60.0 billion (8.5% of total LCY corporate bonds outstanding) and MYR33.0 billion (4.7% of total LCY corporate bonds outstanding), respectively. By industry, finance companies comprised the largest share (52.7%) of the top 30 issuers with MYR219.6 billion in outstanding LCY corporate bonds at the end of September. This was followed by the energy, gas, and water industry with MYR66.4 billion, which represented a share of 15.9% of total LCY corporate bonds outstanding at the end of Q3 2019.

Issuance of LCY corporate bonds declined 36.0% q-o-q in Q3 2019 from a high base when state-owned finance company Urusharta Jamaah issued a large dual-tranche zero-coupon bond in May.

Lembaga Pembiayaan Perumahan Sektor Awam (Public Sector Housing Financing Board) had the largest total issuance (MYR3.0 billion) in Q3 2019 (**Table 3**). The state-owned property and real estate company issued several Islamic medium-term notes with tenors ranging from 21 years to 29 years and with coupon rates from 3.69% to 3.86%. Maybank issued two perpetual Islamic medium-term notes totaling MYR2.8 billion and with coupon rates of 4.08% and 4.13%. Proceeds from the issuance will be used to fund the bank's investments in Islamic financial instruments and other Islamic business activities. Danainfra Nasional, the government-owned institution in charge of funding public infrastructure

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in Malaysia

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (MYR billion)	LCY Bonds (USD billion)			
1.	Danainfra Nasional	60.0	14.3	Yes	No	Finance
2.	Cagamas	33.0	7.9	Yes	No	Finance
3.	Prasarana	30.4	7.2	Yes	No	Transport, Storage, and Communications
4.	Project Lebuhraya Usahasama	29.9	7.1	No	No	Transport, Storage, and Communications
5.	Urusharta Jamaah	27.6	6.6	Yes	No	Finance
6.	Lembaga Pembiayaan Perumahan Sektor Awam	22.5	5.4	Yes	No	Property and Real Estate
7.	Perbadanan Tabung Pendidikan Tinggi Nasional	21.6	5.2	Yes	No	Finance
8.	Pengurusan Air	17.3	4.1	Yes	No	Energy, Gas, and Water
9.	CIMB Bank	13.3	3.2	Yes	No	Finance
10.	Khazanah	12.5	3.0	Yes	No	Finance
11.	Maybank Islamic	11.4	2.7	No	Yes	Banking
12.	Maybank	11.3	2.7	No	Yes	Banking
13.	Sarawak Energy	11.1	2.7	Yes	No	Energy, Gas, and Water
14.	CIMB Group Holdings	10.4	2.5	Yes	No	Finance
15.	Danga Capital	10.0	2.4	Yes	No	Finance
16.	Jimah East Power	9.0	2.1	Yes	No	Energy, Gas, and Water
17.	GENM Capital	7.6	1.8	No	No	Finance
18.	Public Bank	7.4	1.8	No	No	Banking
19.	Bank Pembangunan Malaysia	7.3	1.7	Yes	No	Banking
20.	GOVCO Holdings	7.2	1.7	Yes	No	Finance
21.	Tenaga Nasional	7.0	1.7	No	Yes	Energy, Gas, and Water
22.	Bakun Hydro Power Generation	6.3	1.5	No	No	Energy, Gas, and Water
23.	YTL Power International	6.1	1.4	No	Yes	Energy, Gas, and Water
24.	ValueCap	6.0	1.4	Yes	No	Finance
25.	Telekom Malaysia	5.8	1.4	No	Yes	Telecommunications
26.	Rantau Abang Capital	5.5	1.3	Yes	No	Finance
27.	Turus Pesawat	5.3	1.3	Yes	No	Transport, Storage, and Communications
28.	EDRA Energy	5.1	1.2	No	Yes	Energy, Gas, and Water
29.	1Malaysia Development	5.0	1.2	Yes	No	Finance
30.	Kuala Lumpur Kepong Berhad	4.6	1.1	No	Yes	Energy, Gas, and Water
Total Top 30 LCY Corporate Issuers		**417.1**	**99.6**			
Total LCY Corporate Bonds		**707.4**	**168.9**			
Top 30 as % of Total LCY Corporate Bonds		**59.0%**	**59.0%**			

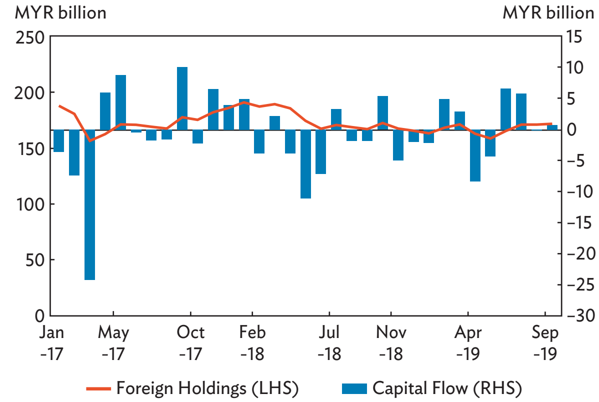
LCY = local currency, MYR = Malaysian ringgit, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bank Negara Malaysia Fully Automated System for Issuing/Tendering data.

Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (MYR billion)
Lembaga Pembiayaan Perumahan Sektor Awam		
21-year Islamic MTN	3.69	1.3
25-year Islamic MTN	3.77	0.7
29-year Islamic MTN	3.86	1.0
Maybank		
Perpetual Islamic MTN	4.08	1.2
Perpetual Islamic MTN	4.13	1.6
Danainfra Nasional		
7-year Islamic MTN	3.34	0.3
10-year Islamic MTN	3.47	0.4
15-year Islamic MTN	3.62	0.4
20-year Islamic MTN	3.69	0.4
25-year Islamic MTN	3.80	0.5
30-year Islamic MTN	3.90	0.6

MTN = medium-term note, MYR = Malaysian ringgit.
Source: Bank Negara Malaysia Bond Info Hub.

Figure 2: Foreign Holdings and Capital Flows of Local Currency Central Government Bonds in Malaysia



LHS = left-hand side, MYR = Malaysian ringgit, RHS = right-hand side.
Notes:
1. Figures exclude foreign holdings of Bank Negara Malaysia bills.
2. Month-on-month changes in foreign holdings of local currency government bonds were used as a proxy for bond flows.

Source: Bank Negara Malaysia Monthly Statistical Bulletin.

projects, issued another six tranches of *sukuk* in September. Its tenors ranged from 7 years to 30 years with coupon rates from 3.34% to 3.90%. Proceeds from the issuance will be used for costs related to the construction of the Pan Borneo Highway Project.

Investor Profile

Foreign holdings of LCY government bonds in Q3 2019 jumped to MYR514.9 billion from MYR487.7 billion in Q2 2019 due to a large capital inflow in July (**Figure 2**). In May and August, BNM introduced measures to liberalize foreign exchange administration policies after FTSE Russell's announcement in April that Malaysian government bonds were being reviewed for exclusion from its World Government Bond Index. Capital inflows slowed in September as FTSE Russell kept Malaysia on its watch list until the next review in 2020. Although good news for Malaysia, the risk of being downgraded and removed from the World Government Bond Index remains a concern for investors. A total of MYR6.5 billion in net capital inflows were recorded in Q3 2019, reversing the net capital outflows of MYR5.9 billion posted in the previous quarter. As a share of LCY government bonds, foreign holdings of LCY government bonds increased to 23.0% at the end of Q3 2019 from 22.3% at the end of Q2 2019.

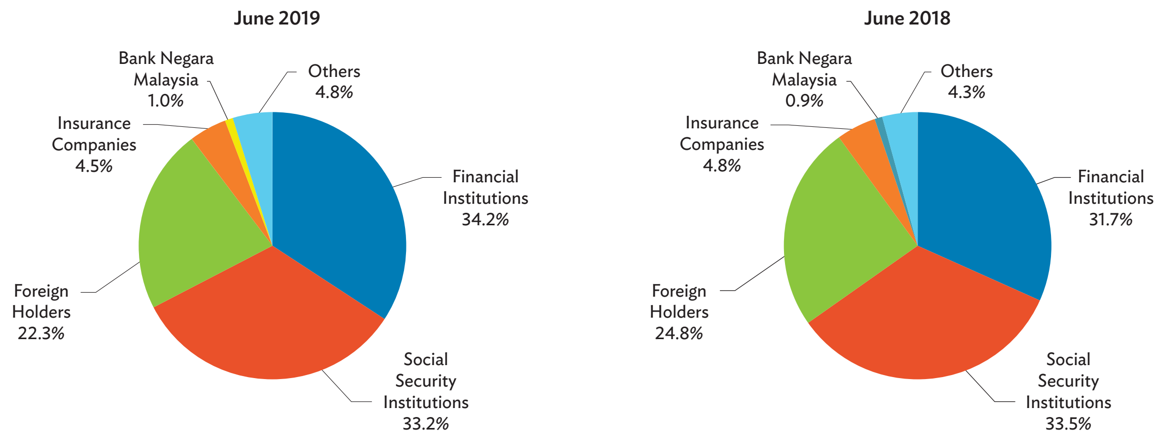
Financial institutions overtook social security institutions at the end of Q2 2019 to lead all investors in LCY government bonds with a 34.2% share of the total, up from 31.7% at the end of Q2 2018 (**Figure 3**). Social security institutions dropped to the second spot with a share of 33.2% at the end of Q2 2019, down from 33.5% at the end of Q2 2018. Shares of foreign holders and insurance companies fell to 22.3% and 4.5%, respectively, from 24.8% and 4.8% during the review period. BNM's holdings of LCY government bonds increased to 1.0% of the total at the end of Q2 2019 from 0.9% a year earlier.

Policy, Institutional, and Regulatory Developments

Bank Negara Malaysia Liberalizes Foreign Exchange Policies

On 16 August, BNM issued several new policies on foreign exchange administration to provide more flexibility and efficiency for businesses in managing their foreign exchange risks. Resident investors are allowed to hedge their foreign currency current account obligations up to their underlying tenure. Resident treasury centers may hedge on behalf of their related entities. Nonresident treasury centers may also do so, but they must register first with BNM. Nonresident investors

Figure 3: Local Currency Government Bonds Investor Profile



Note: "Others" include statutory bodies, nominees and trustee companies, and cooperatives and unclassified items.
Source: Bank Negara Malaysia.

are allowed to hedge on an anticipatory basis through an appointed overseas office for the settlement of their trades in goods and services. Finally, the definition of domestic MYR borrowing has been revised to exclude credit facilities used by corporations for miscellaneous expenses. This aims to help businesses manage their operational expenses without undue impact on their investment activities.

Bank Indonesia and Bank Negara Malaysia Sign Local Currency Bilateral Swap Agreement

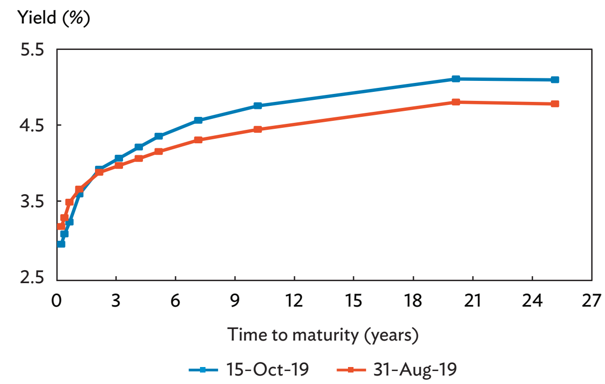
On 27 September, Bank Indonesia and BNM agreed to develop measures to strengthen monetary and financial cooperation between the two central banks. They signed a LCY bilateral swap agreement that grants both central banks access to foreign currency liquidity from each other. Up to IDR28.0 trillion or MYR8.0 billion may be exchanged in order to support the wide use of the domestic currency for cross-border economic activities between Indonesia and Malaysia. The agreement is effective for 3 years and can be extended upon mutual agreement between the two central banks. On the backdrop of the increasing use of technology in the financial markets, Bank Indonesia and BNM signed a memorandum of understanding to help each other in developing innovations in payments and digital financial services, enhancing anti-money laundering mechanisms, and combating the financing of terrorism.

Philippines

Yield Movements

Between 31 August and 15 October, the Philippines' local currency (LCY) government bond yield curve steepened as yields at the shorter end of the curve declined and those at the longer end rose (**Figure 1**). Yields for securities with tenors of less than 1 year fell 23 basis points (bps) on average, while the yield for the 1-year tenor fell 6 bps. Yields for bonds with tenors of 2 years to 5 years rose an average of 12 bps. The rise in yields was most pronounced for tenors from 10 years to 25 years, which gained 31 bps on average. The spread between the 2-year and 10-year yields widened from 56 bps to 82 bps during the review period.

Figure 1: Philippines' Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

Yields rose in early September, particularly among longer tenors, as the market tracked movements in United States (US) Treasury yields, which rose due to positive developments in the trade talks between the People's Republic of China and the US. Market participants also started to take profits following the rally in government bonds since the start of the year, which was brought about by the monetary easing conducted by the Bangko Sentral ng Pilipinas (BSP). Most participants had also priced in the BSP's policy rate cut from its 26 September meeting and expected a pause in monetary easing until 2020.

The rise in yields was tapered after the BSP announced on 27 September a new 100 bps cut in reserve requirement ratios effective on the first day of the first reserve week of November, which is expected to provide more liquidity in the market, and the release of September inflation data, which decelerated to 0.9% y-o-y. Meanwhile, yields at the shorter end of the curve fell due to continued demand for shorter-dated papers amid abundant liquidity and market uncertainties.

On 26 September, the BSP cut the interest rate on its overnight reverse repurchase facility by 25 bps to 4.00%. The interest rates for the overnight deposit and lending facilities were also reduced to 3.50% and 4.50%, respectively. This was the third cut by the central bank in 2019, bringing the reduction in key interest rates to a total of 75 bps. The BSP stated its decision to cut rates was due to easing inflation, with the baseline forecast expected to remain in the annual target range of 2.0%–4.0% in 2019 and 2020.

Inflation eased throughout the third quarter (Q3) of 2019 from 2.4% year-on-year (y-o-y) in July to 1.7% y-o-y in August and 0.9% y-o-y in September, the lowest level since June 2016. Year-to-date average inflation was 2.8% y-o-y at the end of September, which was at the lower end of the government's target range for full-year 2019.

The Philippines' real gross domestic product growth accelerated to 6.2% y-o-y in Q3 2019 from 5.5% y-o-y in the second quarter (Q2) of 2019. The faster growth was a result of increased government spending following the approval of the 2019 budget. The delay in the passage of the budget resulted in lower growth in the first half of the year. Government consumption posted growth of 9.6% y-o-y in Q3 2019, up from 7.3% y-o-y in the previous quarter. Private consumption also posted higher annual growth in Q3 2019, while export growth slowed. Investments continued to contract in Q3 2019, albeit at a slower pace of 2.1% y-o-y versus 8.5% y-o-y in the previous quarter.

The Philippine peso rebounded in late August following a sharp depreciation in the early part of the month. The Philippine peso then traded sideways between PHP51.6 and PHP52.3 per USD1.0 during the review period on both domestic and international economic developments, including trade talks between the People's Republic of China and the US and the monetary policy direction of the Federal Reserve. Meanwhile, easing inflation and the policy rate cut and reduction in reserve requirement ratios by the BSP provided support to the Philippine peso.

Size and Composition

LCY bonds outstanding in the Philippine market marginally declined 0.1% quarter-on-quarter (q-o-q) to PHP6.69 trillion (USD129.2 billion) at the end of September from PHP6.71 trillion at the end of June (**Table 1**). This was driven by a 0.7% q-o-q decline in government bonds outstanding to PHP5.3 trillion. Meanwhile, corporate bonds outstanding rose 2.1% q-o-q to PHP1.4 trillion at the end of September.

Government bonds. The size of the Philippine LCY government bond market contracted 0.7% q-o-q to PHP5.2 trillion, largely driven by the 15.3% q-o-q decline in the stock of Treasury bills. Treasury bonds rose marginally by 1.3% q-o-q in Q3 2019, while bonds issued by government-related entities fell 0.03% q-o-q.

Total issuance of government bonds fell to PHP273.4 billion in Q3 2019 from PHP312.4 billion in the previous quarter, primarily due to the lower planned auction schedule for the quarter by the Bureau of the Treasury (BTr). The BTr stated that the smaller borrowing program resulted from government underspending in the first half of 2019, given the delay in the passage of the 2019 budget. The government also had enough of a cash buffer from the large issuances conducted in the first half of 2019.

Corporate bonds. The Philippine LCY corporate bond market expanded 2.1% q-o-q in Q3 2019 to PHP1.4 trillion despite the lower issuance volume during the quarter. Banks, with aggregate bonds of PHP548.9 billion, continued to comprise the largest share of the Philippine corporate bond market with a 37.9% share, up from the 28.6% share at the end of Q3 2018 (**Figure 2**). Property firms remained the second-largest sector in the corporate bond market with PHP356.1 billion of bonds outstanding, but their share declined to 24.6% from 28.4% a year earlier. The share of holding firms also fell to 15.9% at the end of September from 21.5% in September 2018, while the share of utilities companies rose to 15.5% from 11.7% in the same period.

At the end of September 2019, only 56 companies in the Philippines were actively tapping the bond market. The top 30 bond issuers accounted for 89.4% of LCY corporate bonds outstanding at the end of Q3 2019 (**Table 2**). Of the top 30 companies, only four are private companies, while the rest are public companies listed on the Philippine Stock Exchange. Banks continued to account for one-third of the list, followed by property firms and holding companies. Metropolitan Bank, with total bonds outstanding of PHP114.6 billion at the end of Q3 2019, surpassed Ayala Land (PHP106.9 billion) and SM Prime Holdings (PHP103.7 billion) as the single-largest bond issuer.

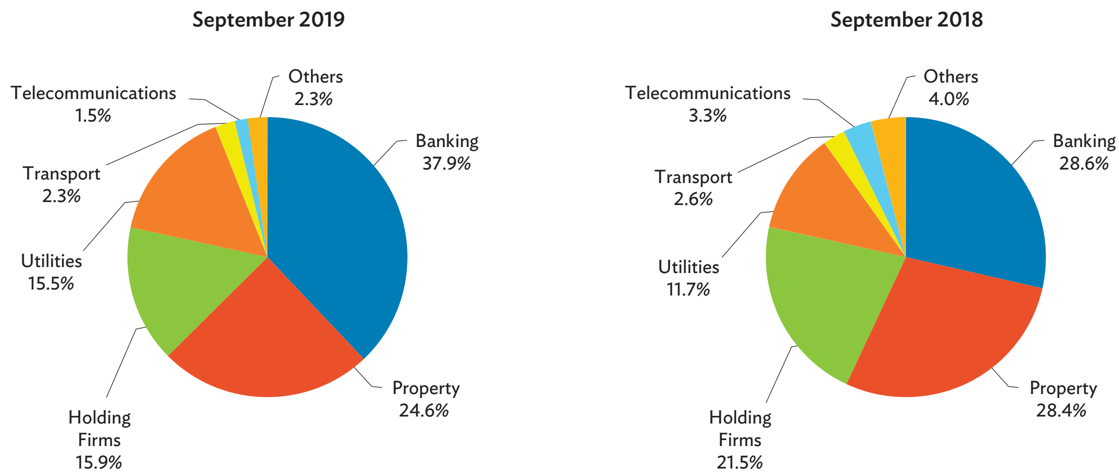
Corporate bond issuance fell to PHP74.7 billion in Q3 2019 from PHP126.5 billion in Q2 2019. The decline in issuance can be attributed to the tepid issuance in August with only one entity issuing bonds, as well as the rise in interest rates through September that made it costly to borrow. **Table 3** lists all corporate bond

Table 1: Size and Composition of the Local Currency Bond Market in the Philippines

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	PHP	USD	PHP	USD	PHP	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**5,792**	**107**	**6,707**	**131**	**6,699**	**129**	**0.9**	**11.2**	**(0.1)**	**15.7**
Government	4,593	85	5,290	103	5,253	101	0.04	9.0	(0.7)	14.4
Treasury Bills	439	8	652	13	553	11	15.3	29.2	(15.3)	25.9
Treasury Bonds	4,121	76	4,616	90	4,678	90	(1.2)	7.8	1.3	13.5
Others	34	1	22	0.4	22	0.4	(16.2)	(33.0)	(0.03)	(35.5)
Corporate	1,198	22	1,417	28	1,447	28	4.3	20.1	2.1	20.7

( ) = negative, PHP = Philippine peso, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Bloomberg end-of-period local currency–USD rates are used.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. "Others" comprise bonds issued by government agencies, entities, and corporations for which repayment is guaranteed by the Government of the Philippines. This includes bonds issued by Power Sector Assets and Liabilities Management and the National Food Authority, among others.
5. Peso Global Bonds (PHP-denominated bonds payable in US dollars) are not included.
Sources: Bloomberg LP and Bureau of the Treasury.

Figure 2: Local Currency Corporate Bonds Outstanding by Sector



Source: Based on data from Bloomberg LP.

issuances in Q3 2019. Banks were the largest issuers of bonds during the quarter, led by China Bank with a PHP30 billion offer of 1.5-year bonds with a coupon rate of 5.70%. Other banks that issued bonds during the quarter were Metrobank, BDO, Philippine Savings Bank, and Robinsons Bank.

Investor Profile

Banks and investment houses remained the largest investor group in the Philippine LCY government bond market in Q3 2019, with an investment share slightly rising to 42.6% at the end of September from 41.9% a year earlier. Contractual savings institutions (including the Social Security System, Government Service Insurance System, Pag-IBIG, and life insurance companies) and tax-exempt institution (such as trusts and other tax-exempt entities) were the second-largest holders of government bonds. However, their share fell to 23.9% from 27.2% during the same period. The share of brokers and custodians was almost at par at 11.5% during the review period, while that of funds managed by the BTr inched up to 10.0% from 9.4%.

Policy, Institutional, and Regulatory Developments

Bangko Sentral ng Pilipinas Cuts Reserve Requirement Ratios by 200 bps

On 27 September, the BSP announced a 100 bps-reduction in the reserve requirement ratios of universal and commercial banks to 15%, thrift banks to 5%, and rural banks to 3%, effective on the first day of the first reserve week of November. On 24 October, the BSP cut anew the reserve requirement ratios another 100 bps for universal and commercial banks to 14%, nonbank financial institutions with quasi-banking functions to 14%, and thrift banks to 4%, effective on the first day of the first reserve week of December.

Bangko Sentral ng Pilipinas Launches the First Other Financial Corporations Survey

In October, the BSP launched the first Other Financial Corporations Survey (OFCS), a comprehensive measure of the assets and liabilities of other financial corporations. These include, among others, trust entities, private and public insurance companies, government financial institutions, and nonmoney market funds covering unit investment trust funds and investment companies. The OFCS aims to identify the concentration of vulnerabilities in the financial sector in relation to other

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in the Philippines

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (PHP billion)	LCY Bonds (USD billion)			
1.	Metropolitan Bank	114.6	2.2	No	Yes	Banking
2.	Ayala Land	106.9	2.1	No	Yes	Property
3.	SM Prime Holdings	103.7	2.0	No	Yes	Property
4.	BDO Unibank	96.3	1.9	No	Yes	Banking
5.	SMC Global Power	80.0	1.5	No	No	Electricity, Energy, and Power
6.	San Miguel	60.0	1.2	No	Yes	Holding Firms
7.	Philippine National Bank	56.2	1.1	No	Yes	Banking
8.	Security Bank	54.6	1.1	No	Yes	Banking
9.	SM Investments	48.4	0.9	No	Yes	Holding Firms
10.	Petron	42.9	0.8	No	Yes	Electricity, Energy, and Power
11.	China Bank	42.7	0.8	No	Yes	Banking
12.	Rizal Commercial Banking Corporation	41.2	0.8	No	Yes	Banking
13.	Ayala Corporation	40.0	0.8	No	Yes	Holding Firms
14.	Vista Land	38.0	0.7	No	Yes	Property
15.	Bank of the Philippine Islands	37.2	0.7	No	Yes	Banking
16.	Aboitiz Equity Ventures	37.0	0.7	No	Yes	Holding Firms
17.	Maynilad	33.0	0.6	No	No	Water
18.	Union Bank of the Philippines	30.8	0.6	No	Yes	Banking
19.	East West Banking	28.8	0.6	No	Yes	Banking
20.	Aboitiz Power	23.2	0.4	No	Yes	Electricity, Energy, and Power
21.	Manila Electric Company	23.0	0.4	No	Yes	Electricity, Energy, and Power
22.	Filinvest Land	22.0	0.4	No	Yes	Property
23.	GT Capital	22.0	0.4	No	Yes	Holding Firms
24.	San Miguel Brewery	22.0	0.4	No	No	Brewery
25.	Philippine Savings Bank	20.8	0.4	No	Yes	Banking
26.	Doubledragon	15.0	0.3	No	Yes	Property
27.	PLDT	15.0	0.3	No	Yes	Telecommunications
28.	NLEX Corporation	13.9	0.3	No	No	Transport
29.	Megaworld	12.0	0.2	No	Yes	Property
30.	Robinsons Land	12.0	0.2	No	Yes	Property
Total Top 30 LCY Corporate Issuers		**1,293.2**	**24.9**			
Total LCY Corporate Bonds		**1,446.7**	**27.9**			
Top 30 as % of Total LCY Corporate Bonds		**89.4%**	**89.4%**			

LCY = local currency, PHP = Philippine peso, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

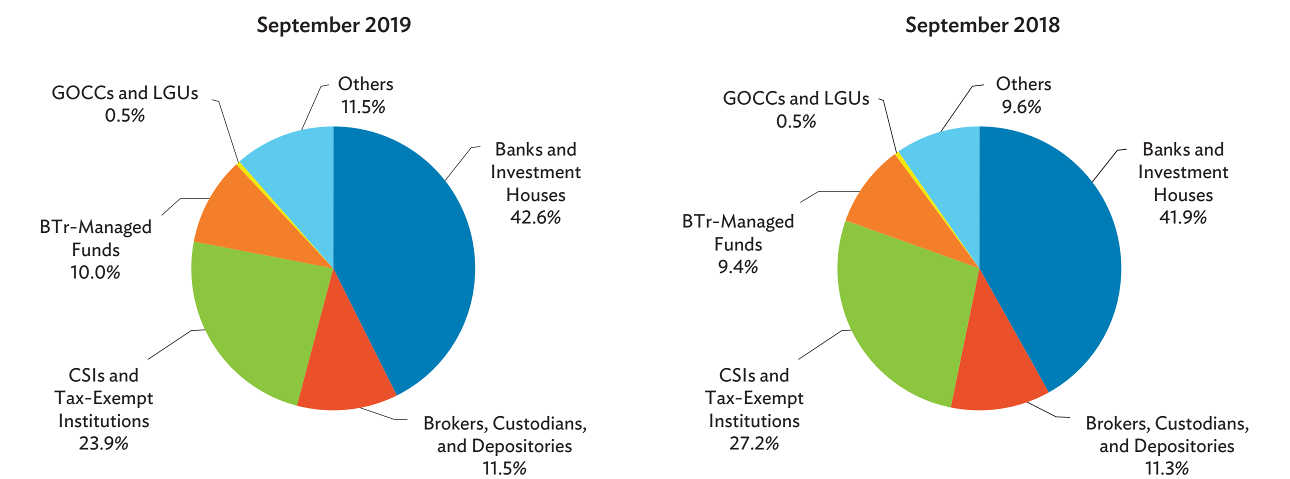
Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (PHP billion)
China Bank		
1.5-year bond	5.70	30.00
Metrobank		
2-year bond	6.30	11.25
BDO Unibank		
5.5-year bond	4.00	6.50
Philippine Savings Bank		
2-year bond	5.60	6.30
Robinsons Bank		
2-year bond	5.13	5.00
Phoenix Petroleum		
1-year bond	0.00	3.50
Ayala Land		
5-year bond	4.76	3.00
SL Agritech		
0.25-year bond	0.00	0.20
0.50-year bond	0.00	0.20
1-year bond	0.00	1.60
Alsons Consolidated		
0.25-year bond	0.00	0.20
0.50-year bond	0.00	0.29
1-year bond	0.00	0.61

PHP = Philippine peso.
Source: Bloomberg LP.

sectors in the economy. The OFCS report will include sections on net foreign assets, domestic claims, and other liabilities of other financial corporations. It will also be publicly available to the public within 4 months after the end of each corresponding quarter.

Figure 3: Local Currency Government Bonds Investor Profile



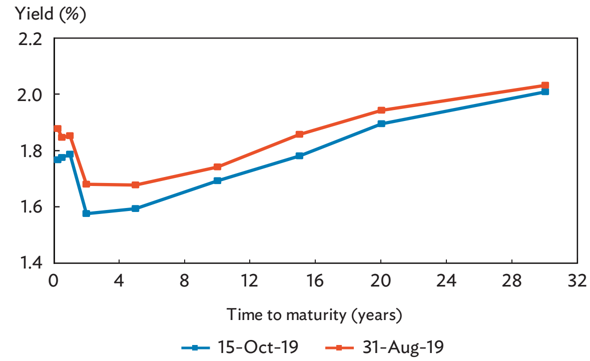
BTr = Bureau of the Treasury, CSIs = contractual savings institutions, GOCCs = government-owned or -controlled corporations, LGUs = local government units.
Source: Bureau of the Treasury.

Singapore

Yield Movements

Between 31 August and 15 October, Singapore's local currency (LCY) government bond yields declined for all tenors (**Figure 1**). The shorter end of the yield curve (from 3 months to 1 year) declined an average of 8 basis points (bps). The slightly falling yields reflected improving liquidity, supported by the declining 6-month swap offer rate, which is a benchmark borrowing cost for offshore investors. Yields of longer-term tenors (from 2 years to 30 years) recorded smaller declines, decreasing an average of 6 bps. The yield spread between 2-year and 10-year government bonds expanded from 6 bps on 31 August to 12 bps on 15 October.

Figure 1: Singapore's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

The yield curve for Singapore LCY government bonds shifted downward during the review period amid policy easing by Monetary Authority of Singapore (MAS). During its monetary policy meeting on 14 October, MAS decided to reduce slightly the appreciation rate of the Singapore dollar nominal effective exchange rate policy band. The width and center of the policy band were unchanged. The decision came with the economy growing below its potential and core inflation remaining low. Investors' flight to safety contributed as well, spurred by a weak global economic growth outlook and geopolitical risks in the region.

Advance estimates showed that Singapore's economy grew 0.1% year-on-year (y-o-y) in the third quarter (Q3) of 2019, the same growth rate recorded in the second quarter (Q2) of 2019. On a quarter-on-quarter (q-o-q) seasonally adjusted basis, annualized gross domestic product grew 0.6% in Q3 2019, a reversal from the decline of 2.7% in the previous quarter. This alleviated concerns that Singapore's economy was about to enter recession. MAS expects Singapore's 2019 gross domestic product growth to fall within the 0.0%–1.0% range. Economic growth was slow during the first 9 months of the year but is expected to pick up in 2020.

The manufacturing sector continued to depress economic growth due to a downturn in the global electronics cycle and the effects of the trade war between the People's Republic of China (PRC) and the United States. On the other hand, the construction sector is expected to recover as infrastructure projects roll out during the latter part of the year. MAS expressed concerns that the poor performance of the global economy may weaken domestic demand in some of Singapore's major trading partners.

Core inflation eased in September to 0.7% y-o-y from 0.8% y-o-y in August. Core inflation fell below the forecast range and is expected to remain low for the rest of the year. Weak demand conditions, volatility in oil prices, softening labor market conditions, and subdued retail rents are contributing to the low inflation. For 2019, MAS expects core inflation to be in the lower half of the 1.0%–2.0% range.

As such, MAS deemed the reduction in the slope of the Singapore dollar nominal effective exchange rate as being appropriate. The monetary policy easing is meant to promote medium-term price stability.

Size and Composition

Singapore's LCY bond market expanded 4.9% q-o-q in Q3 2019 to reach SGD445.6 billion (USD322.4 billion) at the end of September from SGD424.7 billion at the end of June (**Table 1**). On an annual basis, growth was up 11.9% y-o-y. The rise in the LCY bond market was supported by growth in both government and corporate bonds, which accounted for 62.2% and 37.8%, respectively, of total LCY bonds outstanding at the end of Q3 2019.

Table 1: Size and Composition of the Local Currency Bond Market in Singapore

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	SGD	USD	SGD	USD	SGD	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**398**	**291**	**425**	**314**	**446**	**322**	**2.0**	**9.8**	**4.9**	**11.9**
Government	241	176	262	194	277	200	1.6	9.3	5.6	15.0
SGS Bills and Bonds	122	89	129	96	163	118	(0.6)	4.4	25.8	33.0
MAS Bills	119	87	133	98	114	83	3.9	14.7	(14.0)	(3.5)
Corporate	157	115	162	120	169	122	2.5	10.7	3.8	7.2

( ) = negative, MAS = Monetary Authority of Singapore, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, SGD = Singapore dollar, SGS = Singapore Government Securities, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Government bonds are calculated using data from national sources. Corporate bonds are based on *AsianBondsOnline* estimates.
2. SGS bills and bonds do not include the special issue of SGS held by the Singapore Central Provident Fund.
3. Bloomberg LP end-of-period local currency–USD rates are used.
4. Growth rates are calculated from local currency base and do not include currency effects.
Sources: Bloomberg LP, Monetary Authority of Singapore, and Singapore Government Securities.

Issuance of LCY bonds in Q3 2019 increased 8.4% q-o-q to SGD170.7 billion from SGD157.5 billion in Q2 2019, driven by the expansion of both LCY government and corporate bond issuance.

Government bonds. The LCY government bond market grew 5.6% q-o-q to SGD277.0 billion in Q3 2019 from SGD262.3 billion in the previous quarter. The growth was mainly due to the 25.8% q-o-q increase in outstanding Singapore Government Securities (SGS) bills and bonds, which comprised 58.7% of total outstanding LCY government bonds, overtaking the share of MAS bills during the quarter. In July, MAS introduced 6-month SGS bills to gradually replace the 24-week MAS bills. This caused the 14.0% q-o-q decline in outstanding MAS bills, which comprised a 41.3% share of total LCY government bonds outstanding at the end of September.

LCY government bond issuance in Q3 2019 rose 8.5% q-o-q as total SGS bills and bond issuance increased with the introduction of 6-month SGS bills.

Corporate bonds. LCY corporate bonds outstanding increased 3.8% q-o-q to SGD168.6 billion in Q3 2019 from SGD162.4 billion in Q2 2019, helped by the increase in outstanding corporate bonds in the financial and industrial sectors.

The top 30 LCY corporate bond issuers in Singapore accounted for combined outstanding bonds of SGD81.4 billion, or 48.3% of total LCY corporate bonds outstanding at the end of Q3 2019 (**Table 2**). Government institutions such as the Housing & Development Board and the Land Transport Authority continued to dominate all issuers with outstanding LCY corporate bonds amounting to SGD23.0 billion (13.6% of total LCY corporate bonds outstanding) and SGD10.4 billion (6.2% of total LCY corporate bonds outstanding), respectively. By industry type, real estate companies comprised the largest share (43.2%) among the top 30 issuers of LCY corporate bonds with SGD35.2 billion of total LCY corporate bonds outstanding at the end of Q3 2019. This was followed by the transportation industry with SGD15.6 billion and a share of 19.1%.

Issuance of LCY corporate bonds jumped 4.8% q-o-q in Q3 2019 due to a surge in issuance in July. Companies continued to offer large issuances, taking advantage of the low-interest-rate environment.

Sembcorp Financial Services issued the single-largest LCY corporate bond in Q3 2019 (**Table 3**). It issued a SGD1,500.0 million 5-year bond with a coupon rate of 0.55%. Maxi-Cash Financial Services issued an LCY corporate bond with the highest coupon rate during the review period: a SGD50.0 million 3-year bond with a 6.35% coupon rate. Proceeds will be used to pay for Maxi-Cash's buyback of its SGD14.0 million worth of existing notes. Several companies issued perpetual bonds in amounts ranging from SGD150.0 million to SGD750.0 million and with coupon rates between 3.58% and 4.10%. United Overseas Bank issued a perpetual bond under its USD15.0 billion global medium-term note program. Proceeds from SPH REIT's perpetual bond issuance will be used for financing general working

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in Singapore

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (SGD billion)	LCY Bonds (USD billion)			
1.	Housing & Development Board	23.0	16.6	Yes	No	Real Estate
2.	Land Transport Authority	10.4	7.5	Yes	No	Transportation
3.	Singapore Airlines	4.4	3.2	Yes	Yes	Transportation
4.	Frasers Property	4.0	2.9	No	Yes	Real Estate
5.	Temasek Financial	3.6	2.6	Yes	No	Finance
6.	United Overseas Bank	3.3	2.4	No	Yes	Banking
7.	Mapletree Treasury Services	2.7	1.9	No	No	Finance
8.	DBS Group Holdings	2.5	1.8	No	Yes	Banking
9.	Capitaland Treasury	2.4	1.7	No	No	Finance
10.	Sembcorp Financial Services	2.4	1.7	No	No	Engineering
11.	Keppel Corporation	2.2	1.6	No	Yes	Diversified
12.	Capitaland	1.8	1.3	Yes	Yes	Real Estate
13.	Oversea-Chinese Banking Corporation	1.5	1.1	No	Yes	Banking
14.	City Developments Limited	1.5	1.1	No	Yes	Real Estate
15.	CMT MTN	1.4	1.0	No	No	Finance
16.	SP Powerassets	1.3	0.9	No	No	Utilities
17.	Public Utilities Board	1.3	0.9	Yes	No	Utilities
18.	GLL IHT	1.2	0.8	No	No	Real Estate
19.	Singtel Group Treasury	1.2	0.8	No	No	Finance
20.	Shangri-La Hotel	1.1	0.8	No	Yes	Real Estate
21.	Suntec REIT	0.9	0.7	No	Yes	Real Estate
22.	Hyflux	0.9	0.7	No	Yes	Utilities
23.	Ascendas	0.9	0.6	No	Yes	Finance
24.	Mapletree Commercial Trust	0.9	0.6	No	Yes	Real Estate
25.	Olam International	0.8	0.6	No	Yes	Consumer Goods
26.	Overseas Union Enterprise	0.8	0.6	No	Yes	Real Estate
27.	DBS Bank	0.8	0.6	No	Yes	Banking
28.	Sembcorp Industries	0.8	0.6	No	Yes	Shipbuilding
29.	Singapore Technologies Telemedia	0.8	0.6	Yes	No	Utilities
30.	SMRT Capital	0.8	0.6	No	No	Transportation
Total Top 30 LCY Corporate Issuers		**81.4**	**58.9**			
Total LCY Corporate Bonds		**168.6**	**122.0**			
Top 30 as % of Total LCY Corporate Bonds		**48.3%**	**48.3%**			

LCY = local currency, SGD = Singapore dollar, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

Corporate Issuers	Coupon Rate (%)	Issued Amount (SGD million)
Sembcorp Financial Services		
5-year bond	0.55	1,500
United Overseas Bank		
Perpetual bond	3.58	750
SPH REIT		
Perpetual bond	4.10	300
Thomson Medical Group		
3-year bond	4.80	225
Ascott Residence Trust		
Perpetual bond	3.88	150
Maxi-Cash Financial Services		
3-year bond	6.35	50

SGD = Singapore dollar.
Source: Bloomberg LP.

capital, capital expenditure, and corporate requirements. Ascott Residence Trust will use the proceeds from its perpetual bond issuance for general corporate purposes, including the redemption of its existing SGD150.0 million 5.0% perpetual securities.

Policy, Institutional, and Regulatory Developments

Monetary Authority of Singapore Issues Guidelines to Enhance Cyber Security in the Financial Industry

On 6 August, MAS issued new rules to enhance the cyber resilience of the financial sector. These rules are meant to manage the risks of cyber threats. Financial institutions are required to develop and implement security measures for their information technology systems. They must also ensure timely responses to security flaws in their system, preventing external attacks and malware risks. Industry players are expected to develop measures that prevent unauthorized access to data, enhance the security of access to accounts, and improve user authentication and access to customer information. Financial institutions must comply with the new rules starting 6 August 2020.

Singapore and the People's Republic of China to Strengthen Each Other's Financial Markets

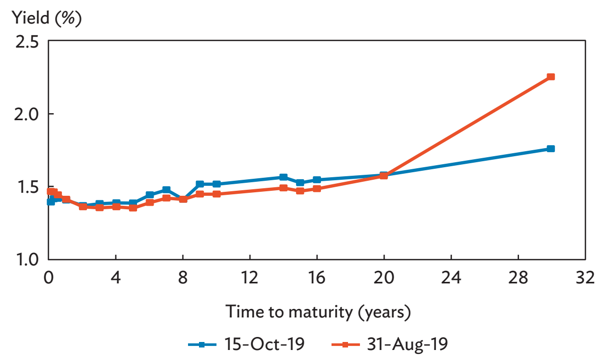
On 15 October, MAS and the People's Bank of China (PBOC) discussed measures to expand activities between the capital markets of the PRC and Singapore that would help strengthen both markets. The PBOC agreed to grant DBS Bank with a settlement agent license, which will allow it to trade, settle, and hold custody of debt instruments from the PRC's interbank bond market on behalf of foreign investors. The MAS and the PBOC also agreed to develop mechanisms that would equip select Singaporean and Chinese banks with custody and trading services to help investors in the PRC's bond market.

Thailand

Yield Movements

Thailand's local currency (LCY) government bond yield curve flattened between 31 August and 15 October. Yields rose an average of 4 basis points (bps) for bonds with maturities between 2 years and 20 years, with the 10-year yield gaining 7 bps (**Figure 1**). In contrast, yields dropped at the shorter and longer ends of the curve. Short-term tenors with maturities of up to 1 year shed an average of 4 bps, while the 30-year tenor saw its yield drop 49 bps. The spread between the 2-year and 10-year tenors increased from 9 bps on 31 August to 15 bps on 15 October.

Figure 1: Thailand's Benchmark Yield Curve—Local Currency Government Bonds



Sources: Based on data from Bloomberg LP and Thai Bond Market Association.

The drop in short-term yields followed the Bank of Thailand's (BOT) policy rate cut in early August, when the BOT reduced its policy rate by 25 bps to 1.5% as escalating trade tensions and weak global growth continued to weaken the trade-dependent economy. The reduction in issuance of short-term BOT bills, intended to stem speculative capital flows and curb currency appreciation, added downward pressure on short-term yields. Declining yields on the shorter end of the curve reflected market expectations of another rate cut in the near-term.

The rise in yields of medium-term and long-term bonds was partly driven by capital outflows from the Thai bond market. The review period saw net foreign outflows totaling THB16.9 billion following the implementation of policies designed to rein in the Thai baht. From January to September, the baht appreciated 5.8% against the US dollar, negatively affecting exports and tourism, and thus adding a headwind for the domestic economy. In response, the BOT lowered the cap for the outstanding balance of nonresident baht accounts and nonresident baht accounts for securities. The BOT also tightened its reporting requirements for nonresident holdings of debt securities.

The sharp 49 bps drop in the 30-year bond yield reflected the weakened growth outlook for the Thai economy. Thailand's gross domestic product growth slowed to 2.3% year-on-year (y-o-y) in the second quarter (Q2) of 2019 from 2.8% y-o-y in the first quarter amid a continuing slowdown in domestic and external demand. The government revised its full-year 2019 growth forecast to 2.7%–3.0% from 2.9%–3.3%.

Thailand's headline inflation slowed to 0.4% y-o-y in September from 0.5% y-o-y in August, falling below the Bank of Thailand's target range of 1.0%–4.0% y-o-y for a fourth straight month. The weakening inflation stemmed primarily from declining energy prices, which fell for a fifth straight month due to falling global oil prices. The Ministry of Commerce revised it expected full-year inflation rate for 2019 to a range of 0.7%–1.0%, down from an earlier forecast of 0.7%–1.3%. The BOT likewise lowered its inflation forecast for full-year 2019 to 0.8% from 1.0%.

The government rolled out expansionary fiscal policies to boost the sluggish economy. In August, the government approved a THB316.0 billion stimulus package that includes additional allowances for low-income earners and the elderly, debt relief and loans for farmers affected by the ongoing drought, incentives for domestic tourism and investment, credit support for small and medium-sized enterprises, and low-interest loans for home buyers. A key part of the package was a THB1,000 cash giveaway and a 15.0% cash rebate on tourism-related spending. In October, the government announced an additional stimulus scheme valued at THB5.8 billion for consumption promotion and low-interest housing loan support.

The BOT decided to keep its benchmark interest rate unchanged at 1.50% during its September policy meeting, preserving policy space for future risks. The continued appreciation of the baht remains one of the central bank's main concerns. During the review period, the baht appreciated 0.7% against the US dollar despite the policies implemented to dampen its strength.

Size and Composition

Thailand's LCY bonds outstanding amounted to THB12,857.3 billion (USD420.1 billion) at the end of the third quarter (Q3) of 2019, down from THB13,036.9 (USD424.9 billion) at the end of Q2 2019 (**Table 1**). The 1.4% quarter-on-quarter (q-o-q) contraction in Q3 2019 reversed the 3.1% q-o-q growth posted in the previous quarter, driven by a 0.5% q-o-q drop in government bonds outstanding and a 3.5% q-o-q decline in corporate bonds outstanding. The bond market in Thailand remains dominated by government bonds, which accounted for 72.1% of the LCY bonds outstanding in Q3 2019. On a y-o-y basis, Thailand's LCY bond market expanded 5.9% in Q3 2019, down from the 9.4% growth posted in Q2 2019.

Government bonds. The outstanding stock of LCY government bonds declined slightly to THB9,270.4 billion at the end of Q3 2019 from THB9,319.3 billion at the end of Q2 2019. The 0.5% q-o-q decline in Q3 2019 reversed the 2.3% q-o-q growth recorded in the previous quarter. The drop in government bonds outstanding stemmed from a 3.6% q-o-q contraction in BOT bonds outstanding, which offset the modest growth in outstanding government bonds and Treasury bills (1.5% q-o-q) and state-owned enterprise and other bonds (1.8% q-o-q).

The decline in BOT bonds outstanding was mainly due to lower issuance volume during the quarter. Starting in July, the BOT reduced the amount of 91-day, 182-day, and 1-year bonds it issues in an effort to curb speculative capital flows and stem the appreciation of the Thai baht. Issuance of BOT bonds dropped 9.3% q-o-q in Q3 2019 compared to the prior quarter. In the same period, issuance of government bonds and state-owned enterprise bonds also declined 52.6% q-o-q and 40.2% q-o-q, respectively. Total government bond issuance contracted 15.0% q-o-q in Q3 2019.

Corporate bonds. The outstanding stock of LCY corporate bonds in Thailand dropped to THB3,586.8 billion at the end of Q3 2019 from THB3,717.5 in Q2 2019. The 3.5% q-o-q contraction reversed the 5.1% q-o-q growth recorded in the previous quarter. Annual growth eased to 4.2% y-o-y from 13.2% y-o-y in the prior quarter. The decline in corporate bonds outstanding was due to maturities and less issuance of corporate debt during the quarter. Issuance of corporate bonds contracted 21.4% q-o-q and 10.5% y-o-y in Q3 2019.

The top 30 issuers of LCY bonds in Thailand accounted for 57.9% of the total outstanding stock of LCY corporate bonds, with a combined amount of outstanding bonds worth THB2,078.4 billion (**Table 2**). Food and beverages, communications, banking, finance, and property and construction firms together comprised more than half of the top 30 issuers. A majority of the companies were

Table 1: Size and Composition of the Local Currency Bond Market in Thailand

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	THB	USD	THB	USD	THB	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	**12,141**	**376**	**13,037**	**425**	**12,857**	**420**	**1.9**	**10.0**	**(1.4)**	**5.9**
Government	8,699	269	9,319	304	9,270	303	0.8	9.0	(0.5)	6.6
Government Bonds and Treasury Bills	4,614	143	4,754	155	4,827	158	1.8	7.4	1.5	4.6
Central Bank Bonds	3,322	103	3,772	123	3,636	119	1.7	15.1	(3.6)	9.4
State-Owned Enterprise and Other Bonds	762	24	794	26	807	26	(8.6)	(4.5)	1.8	5.9
Corporate	3,442	106	3,718	121	3,587	117	4.8	12.7	(3.5)	4.2

( ) = negative, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, THB = Thai baht, USD = United States dollar, y-o-y = year-on-year.
Notes:
1. Calculated using data from national sources.
2. Bloomberg LP end-of-period local currency–USD rates are used.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. Q3 figures are based on *AsianBondsOnline* estimates.
Source: Bank of Thailand.

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in Thailand

Issuers		Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (THB billion)	LCY Bonds (USD billion)			
1.	Siam Cement	181.5	5.9	Yes	Yes	Construction Materials
2.	Thai Beverage	180.0	5.9	No	No	Food and Beverage
3.	CP All	152.9	5.0	No	Yes	Commerce
4.	Bank of Ayudhya	130.8	4.3	No	Yes	Banking
5.	Berli Jucker	121.8	4.0	No	Yes	Commerce
6.	Charoen Pokphand Foods	101.0	3.3	No	Yes	Food and Beverage
7.	True Move H Universal Communication	93.5	3.1	No	No	Communications
8.	PTT	84.7	2.8	Yes	Yes	Energy and Utilities
9.	Toyota Leasing Thailand	82.2	2.7	No	No	Finance and Securities
10.	True Corp	75.1	2.5	No	No	Communications
11.	Thai Airways International	68.6	2.2	Yes	Yes	Transportation and Logistics
12.	Minor International	66.0	2.2	No	Yes	Hospitality and Leisure
13.	Indorama Ventures	63.9	2.1	No	Yes	Petrochemical and Chemicals
14.	CPF Thailand	61.0	2.0	No	No	Food and Beverage
15.	Banpu	48.9	1.6	No	Yes	Energy and Utilities
16.	Bangkok Commercial Asset Management	48.2	1.6	No	Yes	Finance and Securities
17.	Land and Houses	47.5	1.6	No	Yes	Property and Construction
18.	Krungthai Card	44.1	1.4	Yes	Yes	Banking
19.	Krung Thai Bank	44.0	1.4	Yes	Yes	Banking
20.	PTT Global Chemical	40.0	1.3	No	Yes	Petrochemical and Chemicals
21.	Mintr Phol Sugar	39.4	1.3	No	No	Food and Beverage
22.	Bangkok Expressway and Metro	38.2	1.2	No	Yes	Transportation and Logistics
23.	TPI Polene	37.9	1.2	No	Yes	Property and Construction
24.	TMB Bank	35.4	1.2	No	Yes	Finance and Securities
25.	Muangthai Capital	33.1	1.1	No	Yes	Finance and Securities
26.	Total Access Communication	33.0	1.1	No	Yes	Communications
27.	CH. Karnchang	32.9	1.1	No	Yes	Property and Construction
28.	Advanced Info Service	32.4	1.1	No	Yes	Communications
29.	Sansiri	31.1	1.0	No	Yes	Property and Construction
30.	BTS Group	29.5	1.0	No	Yes	Hospitality and Leisure
Total Top 30 LCY Corporate Issuers		**2,078.4**	**67.9**			
Total LCY Corporate Bonds		**3,586.8**	**117.2**			
Top 30 as % of Total LCY Corporate Bonds		**57.9%**	**57.9%**			

LCY = local currency, THB = Thai baht, USD = United States dollar.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Source: *AsianBondsOnline* calculations based on Bloomberg LP data.

listed private companies; only five were state-owned firms. Among the top issuers, six had outstanding LCY bond stocks exceeding THB100 billion at the end of Q3 2019: Siam Cement (THB181.5 billion), Thai Beverage (THB180.0 billion), CP All (THB152.9 billion), Bank of Ayudhya (THB130.8 billion), Berli Jucker (THB121.8 billion), and Charoen Pokphand Foods (THB101.0 billion).

Table 3 lists the largest corporate bond issuances in Q3 2019. Krung Thai Bank topped the list with its issuance of a 10-year bond with 3.70% coupon. The next largest issuer during the quarter was Berli Jucker, a consumer product maker, which borrowed a total of THB22.0 billion from a five-tranche issuance intended to refinance a bond that matured in September. True Corp., a communications company, followed with a multitranche issuance totaling THB21.0 billion from bonds with tenors ranging from 1 years to 5.25 years, and carrying coupons ranging from 3.15% to 5.00%. PTT Global, a petrochemical company, was the fourth-largest issuer during the quarter, with a multitranche issuance amounting to THB20.0 billion.

Table 3: Notable Local Currency Corporate Bond Issuance in the Third Quarter of 2019

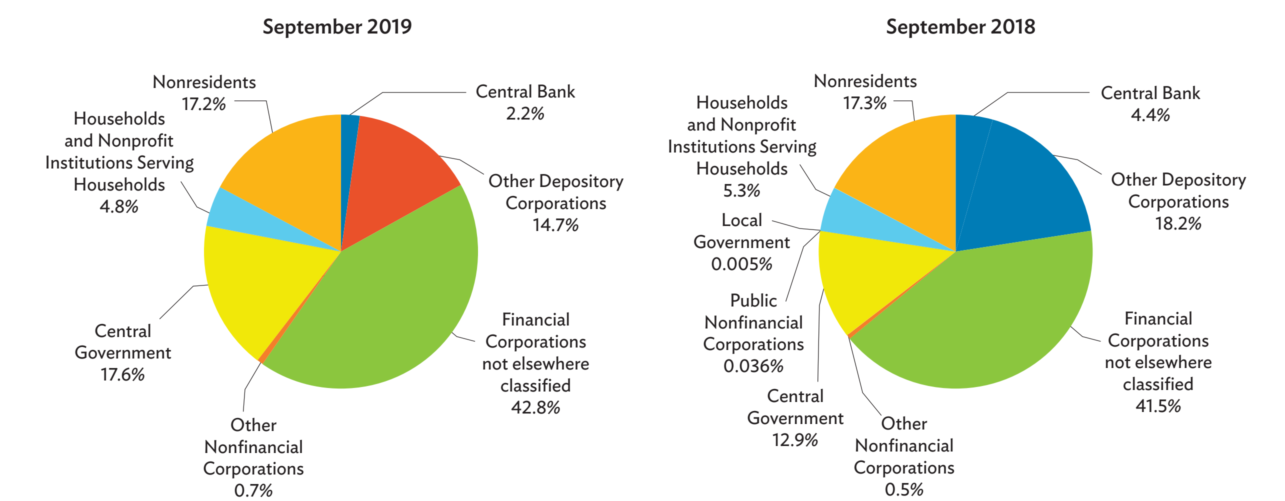
Corporate Issuers	Coupon Rate (%)	Issued Amount (THB billion)
Krung Thai Bank		
10-year bond	3.70	24.0
Berli Jucker		
4-year bond	3.00	4.0
5-year bond	2.65	7.0
6-year bond	2.86	3.0
8-year bond	2.99	1.0
10-year bond	3.32	7.0
True Corp.		
1-year bond	3.15	5.1
1.25-year bond	3.30	2.2
1.9-year bond	3.69	9.0
2-year bond	3.70	1.6
3-year bond	3.80	0.9
3-year bond	3.80	0.8
5.25-year bond	5.00	1.3
PTT Global Chemical		
5-year bond	2.90	10.0
5-year bond	2.20	1.5
7-year bond	2.43	7.0
10-year bond	2.75	1.5

THB = Thai baht.
Source: Bloomberg LP.

Investor Profile

Financial corporations and nonresidents together held 60.0% of Thailand's LCY government bonds at the end of September (**Figure 2**). Financial corporations continued to hold the single-largest share of LCY government bonds. Their share rose to 42.8% of the total at the end of September from 41.5% a year earlier. Between September 2018 and September 2019, the central

Figure 2: Local Currency Government Bonds Investor Profile



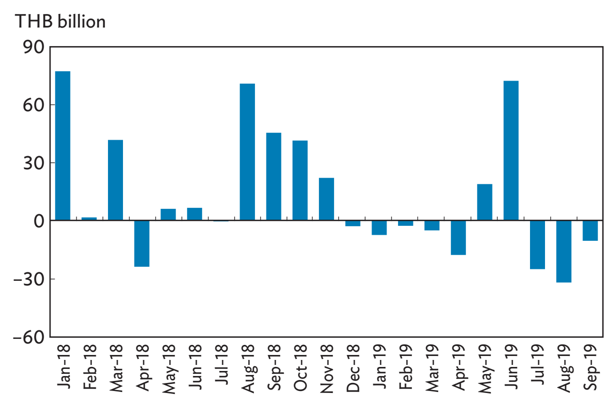
Note: Government bonds include Treasury bills and bonds.
Sources: *AsianBondsOnline* and Bank of Thailand.

government's share of holdings increased from 12.9% to 17.6%. During the same period, the share of nonresidents dipped slightly from 17.3% to 17.2%, while the share of other depository corporations dropped from 18.2% to 14.7%. Together, these four groups accounted for 92.3% of LCY government bonds outstanding at the end of June, up from 89.8% a year earlier.

Central bank bonds. The distribution of LCY central bank securities remained stable between September 2018 and September 2019 (**Figure 3**). At the end of September 2019, other depository corporations held the largest share of LCY central bank bonds at 42.5%, followed by financial corporations (29.5%), the central bank (12.4%), and the central government (9.7%). These four investor groups cumulatively held 94.1% of the total LCY central bank bonds at the end of September 2019, up from 89.2% a year earlier. Foreign holdings of central bank securities are significantly lower than their share of government bonds. Nonresident's share of central bank bonds dropped to 2.3% in September 2019 from 4.4% a year earlier.

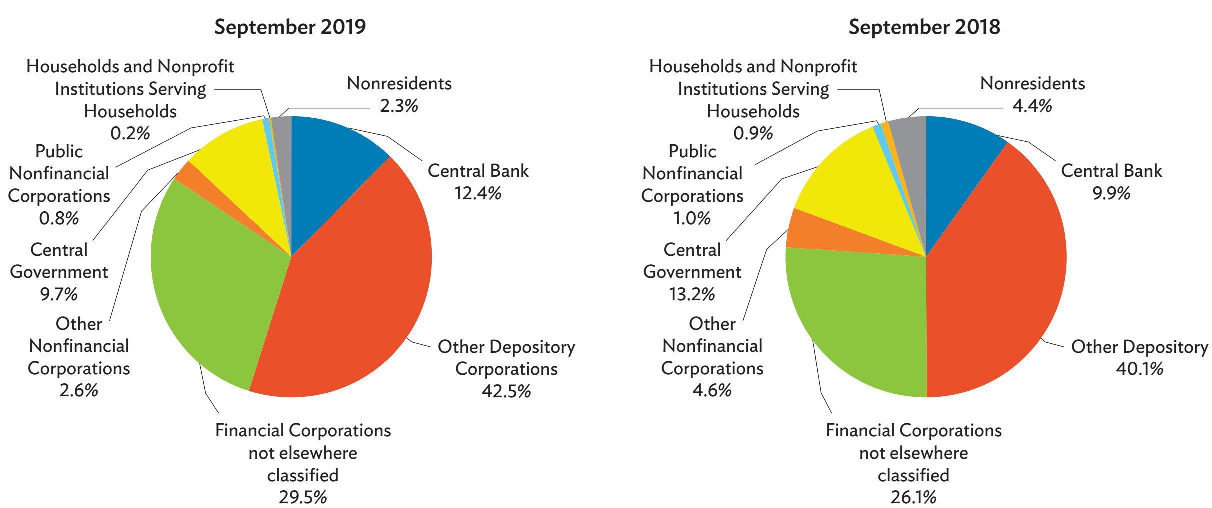
Foreign investors in Thailand's LCY bond market recorded net outflows of THB67.7 billion in Q3 2019, reversing the net inflows of THB73.6 billion in the previous quarter (**Figure 4**). Concern over the sharp appreciation of the baht prompted the BOT to implement several measures to stem speculative capital flows and curb the baht's strength. The BOT reduced its supply of 3-month, 6-month, and 1-year bonds by a total of THB60.0 billion in July and an additional THB20.0 billion in August. It also lowered the limit on the outstanding balance of nonresident baht accounts and nonresident securities accounts to THB200.0 billion from THB300.0 billion. In addition, the BOT tightened reporting requirements for nonresident holdings of Thai debt securities. As a result, foreign trading of LCY bonds logged net outflows in July (THB25.1 billion), August (THB32.1 billion), and September (THB10.4 billion), which reversed the cumulative net inflows of THB91.4 billion in May and June.

Figure 4: Foreign Investor Net Trading of Local Currency Bonds in Thailand



THB = Thai baht.
Source: Thai Bond Market Association.

Figure 3: Local Currency Central Bank Securities Investor Profile



Source: Bank of Thailand.

Policy, Institutional, and Regulatory Developments

Mutual Funds Subject to 15% Income Tax, Effective 30 August

A tax regulation amendment affecting the bond market came into effect on August 20. Investments in mutual funds became subject to a 15.0% withholding tax on gross income. The amendment was intended to reduce discrepancies in the tax burden imposed on direct investments in debt instruments compared to investments in debt instruments through mutual funds. Prior to the amendment, direct investments in debt instruments were subject to a 15.0% withholding tax on interest, profits, or discount, while investments in mutual funds with an asset allocation in debt instruments were tax-exempt.

Government of Thailand Approves Fiscal Stimulus Package to Boost Growth

On 20 August, the Thai cabinet approved a THB316.0 billion stimulus package to boost the sluggish economy. The stimulus package included additional allowances for low-income earners and the elderly, debt relief and loans for farmers affected by the ongoing drought, incentives for domestic tourism and investment, credit support for small- and medium-sized enterprises, and low-interest loans for home buyers. The government estimates that the stimulus measures will raise full-year 2019 growth by 0.5–0.6 percentage points to at least 3.5%.

Viet Nam

Yield Movements

Viet Nam's local currency (LCY) government bond yield curve shifted downward between 31 August and 15 October (**Figure 1**). Bond yields for all tenors fell, with yields shedding an average of 26 basis points (bps) across the curve. The 5-year tenor and 15-year tenor declined the most at 38 bps each. Yields generally fell more at the longer end than the shorter end of the curve, leading to a narrowing of the 2-year versus 10-year yield spread from 126 bps on 31 August to 118 bps on 15 October.

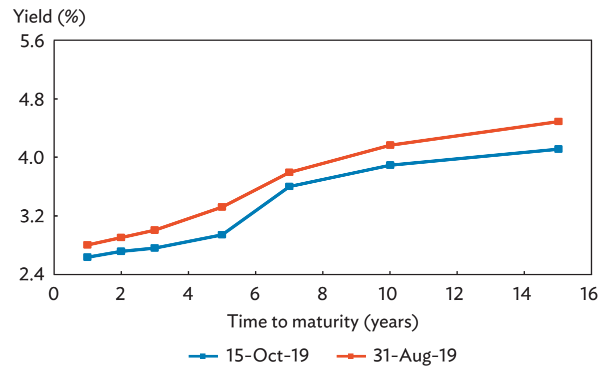
The downward yield movement was driven largely by a policy rate cut by the State Bank of Vietnam (SBV) on 13 September. The SBV reduced its key policy rates 25 bps each, bringing the refinancing rate to 6.0%, the rediscounting rate to 4.0%, and the overnight rate to 7.0%. Unlike other central banks in the region, the SBV's move was largely in response to easing monetary policies in advanced economies as opposed to declines in domestic growth. The SBV cited negative developments in the global economy and easing monetary policy in the United States (US) and European Central Bank. The SBV also noted that the domestic economy remains stable with inflation controlled.

Viet Nam's gross domestic product growth remained strong in 2019. In the third quarter (Q3) of 2019, Viet Nam's economy grew 7.3% year-on-year (y-o-y) after rising 6.7% y-o-y in the second quarter (Q2) of 2019.

Viet Nam continues to be a beneficiary of the ongoing People's Republic of China–US trade war as businesses reallocate production to Viet Nam. The government indicated that for the first 3 quarters of 2019, manufacturing was the main driver of economic growth. Exports grew 8.3% y-o-y during the same period.

Despite Viet Nam's strong economic growth, inflation remained manageable. Consumer price inflation rose slightly to 2.2% y-o-y in October from 2.0% y-o-y in the prior month. For the first 10 months of the year, inflation was 2.5% y-o-y.

Figure 1: Viet Nam's Benchmark Yield Curve—Local Currency Government Bonds



Source: Based on data from Bloomberg LP.

Size and Composition

Viet Nam continued to have the smallest LCY bond market in emerging East Asia, with outstanding bonds of VND1,277.7 trillion (USD55.1 billion) at the end of September (**Table 1**). The overall growth of the LCY bond market accelerated to 3.4% quarter-on-quarter (q-o-q) in Q3 2019 from 2.6% q-o-q in Q2 2019. The gain was solely driven by government bonds as corporate bonds posted a q-o-q decline. On a y-o-y basis, total bonds outstanding grew 1.9% y-o-y.

Government bonds. At the end of Q3 2019, the outstanding stock of LCY government bonds climbed to VND1,172.5 trillion, growing 4.0% q-o-q after rising 3.2% q-o-q in Q2 2019. The bulk of the q-o-q growth was driven by significant gains in central bank bills, which expanded 118.2% q-o-q in Q3 2019, while Treasury bonds only grew 0.9% q-o-q. Government-guaranteed and municipal bonds, on the other hand, contracted 1.7% q-o-q. On a y-o-y basis, total government bonds grew 1.7% in Q3 2019.

Treasury bonds remained the largest contributor to the stock of government bonds, accounting for an 80.2% share at the end of Q3 2019. Total outstanding Treasury bonds reached VND940.8 trillion at the end

Table 1: Size and Composition of the Local Currency Bond Market in Viet Nam

	Outstanding Amount (billion)						Growth Rate (%)			
	Q3 2018		Q2 2019		Q3 2019		Q3 2018		Q3 2019	
	VND	USD	VND	USD	VND	USD	q-o-q	y-o-y	q-o-q	y-o-y
Total	1,254,004	54	1,235,789	53	1,277,742	55	9.2	17.7	3.4	1.9
Government	1,152,989	49	1,127,565	48	1,172,498	51	8.9	14.7	4.0	1.7
Treasury Bonds	896,681	38	932,040	40	940,811	41	4.6	12.5	0.9	4.9
Central Bank Bills	75,010	3	32,999	1	71,997	3	257.2	257.2	118.2	(4.0)
Government-Guaranteed and Municipal Bonds	181,298	8	162,526	7	159,690	7	0.7	(2.9)	(1.7)	(11.9)
Corporate	101,015	4	108,224	5	105,244	5	13.1	67.2	(2.8)	4.2

– = not applicable, ( ) = negative, q-o-q = quarter-on-quarter, Q2 = second quarter, Q3 = third quarter, USD = United States dollar, VND = Vietnamese dong, y-o-y = year-on-year.
Notes:
1. Bloomberg LP end-of-period local currency–USD rates are used.
2. Growth rates are calculated from local currency base and do not include currency effects.
Sources: Bloomberg LP and Vietnam Bond Market Association.

of September. Growth in the government bond stock was capped by a decline in planned issuance of the State Treasury during the quarter. In August, the number of auctions was reduced from weekly to once every 2 weeks.

While the amount of outstanding central bank bills grew significantly at 118.2% q-o-q to VND72.0 trillion, growth moderated from 573.5% q-o-q (coming from a low base) in Q2 2019. Growth in central bank bills also declined 4.0% y-o-y.

Corporate bonds. The outstanding amount of LCY corporate bonds fell 2.8% q-o-q in Q3 2019 to VND105.2 trillion. On a y-o-y basis, however, corporate bonds grew 4.2%. *AsianBondsOnline* data on corporate bonds in Viet Nam, obtained from Bloomberg, showed that the entire corporate bond market comprised 45 institutions. Many corporates in Viet Nam issue bonds through private placements in which information is mostly undisclosed.[13]

The aggregate bonds outstanding of the 30 largest bond issuers in Viet Nam amounted to VND101.1 trillion (**Table 2**), accounting for 96.1% of the corporate bond total at the end of September. In the top spot was Vinhomes, with outstanding bonds of VND12.5 trillion, followed by Masan Consumer Holdings at VND11.1 trillion. Vingroup, which previously held the top spot, dropped to the third spot at VND10.1 trillion. Together, the top three firms accounted for 32.0% of the corporate bond total. The top 30 list was dominated by firms from the banking and real estate sectors. Of the list, 4 are state-owned firms and 20 are listed with the Ha Noi Stock Exchange.

Policy, Institutional, and Regulatory Developments

State Treasury Plans to Issue VND70 Trillion Worth of Government Bonds in Q3 2019

In August, the State Treasury announced its plan to issue VND70 trillion worth of government bonds in Q3 2019. The issuance plan comprises (i) 5-year Treasury bonds worth VND4 trillion, (ii) 7-year Treasury bonds worth VND2 trillion, (iii) 10-year Treasury bonds worth VND27 trillion, (iv) 15-year Treasury bonds worth VND26 trillion, (v) 20-year Treasury bonds worth VND6 trillion, and (vi) 30-year Treasury bonds worth VND5 trillion. The volume of issuance, however, may be adjusted subject to market conditions and the funding needs of the government.

[13] As most bonds in Viet Nam are issued via private placement, our data on corporate bonds may be understated.

Table 2: Top 30 Issuers of Local Currency Corporate Bonds in Viet Nam

	Issuers	Outstanding Amount		State-Owned	Listed Company	Type of Industry
		LCY Bonds (VND billion)	LCY Bonds (USD billion)			
1.	Vinhomes	12,500	0.54	No	Yes	Real Estate
2.	Masan Consumer Holdings	11,100	0.48	No	No	Diversified Operations
3.	Vingroup	10,100	0.44	No	Yes	Real Estate
4.	Vietnam Joint Stock Commercial Bank for Industry and Trade	8,200	0.35	Yes	Yes	Banking
5.	Vinpearl	7,500	0.32	No	No	Hotel Operator
6.	Asia Commercial Joint Stock Bank	6,800	0.29	No	No	Banking
7.	Lien Viet Post Joint Stock Commercial Bank	3,100	0.13	No	Yes	Banking
8.	Hoang Anh Gia Lai	3,000	0.13	No	Yes	Real Estate
9.	Vietnam Technological and Commercial Joint Stock Bank	3,000	0.13	No	No	Banking
10.	Vietnam Prosperity Joint Stock Commercial Bank	3,000	0.13	No	Yes	Banking
11.	Bank for Investment and Development of Vietnam	2,700	0.12	Yes	Yes	Banking
12.	Sai Dong Urban Investment and Development	2,600	0.11	No	No	Real Estate
13.	Ho Chi Minh City Infrastructure Investment	2,570	0.11	No	Yes	Infrastructure
14.	Hoan My Medical	2,330	0.10	No	No	Healthcare Services
15.	Refrigeration Electrical	2,318	0.10	No	Yes	Manufacturing
16.	Vietnam International Commercial Bank	2,203	0.09	No	Yes	Agriculture
17.	Agro Nutrition International	2,000	0.09	No	No	Agriculture
18.	Joint Stock Commercial Bank for Foreign Trade of Vietnam	2,000	0.09	Yes	Yes	Banking
19.	Vietnam Electrical Equipment	1,800	0.08	No	Yes	Manufacturing
20.	Masan Group	1,500	0.06	No	Yes	Finance
21.	Masan Resources	1,500	0.06	No	Yes	Mining
22	Nui Phao Mining	1,500	0.06	No	No	Mining
23.	Saigon-Hanoi Securities	1,150	0.05	No	Yes	Finance
24.	SSI Securities	1,150	0.05	No	Yes	Finance
25.	Mobile World Investment	1,135	0.05	No	Yes	Manufacturing
26.	Pan Group	1,135	0.05	No	Yes	Consumer Services
27.	TTC Education Joint Stock Company	951	0.04	No	No	Education Services
28.	Sai Gon Thuong Tin Real Estate	870	0.04	No	Yes	Real Estate
29.	Vietnam Bank for Agriculture and Rural Development	760	0.03	Yes	No	Banking
30.	Nam Long Investment	660	0.03	No	Yes	Real Estate
Total Top 30 LCY Corporate Issuers		**101,132**	**4.36**			
Total LCY Corporate Bonds		**105,244**	**4.54**			
Top 30 as % of Total LCY Corporate Bonds		**96.1%**	**96.1%**			

LCY = local currency, USD = United States dollar, VND = Vietnamese dong.
Notes:
1. Data as of 30 September 2019.
2. State-owned firms are defined as those in which the government has more than a 50% ownership stake.
Sources: *AsianBondsOnline* calculations based on Bloomberg LP and Vietnam Bond Market Association data.

Asia Bond Monitor
November 2019

This publication reviews recent developments in East Asian local currency bond markets along with the outlook, risks, and policy options. It covers the 10 members of the Association of Southeast Asian Nations and the People's Republic of China; Hong Kong, China; and the Republic of Korea.

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