Asian Credit Strategy

Asian Credit Market Primer

Primer

07 October 2019

Global Emerging Markets | Corporate Credit
Asia

Credit Research
Joyce Liang
Research Analyst
Merrill Lynch (Hong Kong)
+852 3508 3817
joyce.liang@bofa.com

Ingrid Hsu
Research Analyst
Merrill Lynch (Hong Kong)
+852 3508 2573
ingrid.hsu@bofa.com

Katherine Tai
Research Analyst
Merrill Lynch (Hong Kong)
+852 3508 4439
katherine.tai@bofa.com

GEMS Corporate Credit Rsch
BofAS
+1 646 855 4096

Derivatives Research
Michael Youngworth, CFA
Equity-Linked Analyst
BofAS
michael.youngworth@bofa.com

See Team Page for List of Analysts

We look at growth & changes across Asian credit markets

For the past 10 years since the global financial crisis, the Asian credit market has experienced extensive growth on the back of quantitative easing, falling interest rates and plentiful liquidity which reduced funding costs, while in the past three years, we have started to see global central banks and policy makers seeking balance between containing credit risks and supporting economic growth. On this update, we look at what changes this has brought to the markets. Overall, we have seen the Asian (ex-Japan) credit market grow by 194% since the end of 2009 to reach an outstanding size of US$49.2trn in July 2019. There have been a few key changes of note: (1) we've seen a shift towards corporates borrowing in bond markets, and domestic corporate bonds have showed strong growth in the past 10 years, increasing from 9% to 14% of the total credit market, (2) despite the growth in absolute amount, the share of international bonds and international loans has remained largely unchanged at around 7-8% in the past 10 years, (3) China has become a driving force in the region, and (4) we see diverging trends in market developments in the region.

International bonds: China showed the fastest growth

The total outstanding size of the Asian bond market (G3 currencies) as at end July 2019 was US$1.49tn, according to Dealogic. The size of the outstanding market has grown by 87% since end 2014 (US$798bn) and the issuance trend has been driven by high yield corporates and financials. Today, high grade corporate credit accounts for about 58% of the market, sovereigns/quasi-sovereigns about 23% and HY corporate credit about 18%. China has been by far the fastest growing issuer country and today accounts for 52% of the outstanding market (up from 31% in 2014).

International loan markets

The size of the outstanding syndicated loan market stood at US$2.4trn as at 1H19. The proportion of local currency loans has increased to 65% as Asian lenders now account for 81% of total syndicated loans issued. China was the largest borrower, accounting for 39% of new loans in 2018 despite political developments which raised concern amongst lenders about lending to Chinese exporters in the manufacturing and technology sectors. Given the weak economic outlook, refinancing also became the top loan purpose as Asian companies took advantage of the lending appetite to amend existing deals.

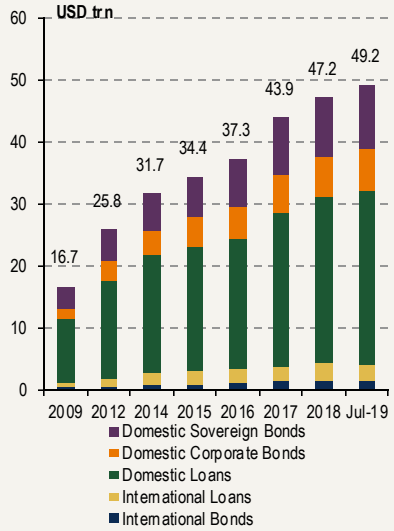
Domestic bonds: Korea & Malaysia with highest % to GDP

The domestic bond market in Asia was US$16.9trn as of July 2019, expanding 177% from the end of 2009. Unlike international bond markets, government bonds accounted for the majority of outstanding size (61%). China accounts for a dominating 69% of the Asian domestic bond market, while Korea, Malaysia, Singapore and Hong Kong are relatively small but considered highly developed. This is illustrated in (1) their outstanding corporate bonds as a percentage of GDP being close to or over 30% (vs 15% average for the rest of the countries), and (2) domestic corporate bonds accounting for more than 40% of the total local currency bond market size (vs 26% average for the rest of the countries).

Domestic loan markets: the largest source of funding

Local loans remain the largest of Asia's credit markets with US$28.3trn in aggregated outstanding domestic loans as of July 2019. China has been the fastest growing market with an average growth rate of 14%, while Hong Kong, Philippines, India and Indonesia have also grown at an above average rate.

Chart 1: Asian credit market size



Source: Dealogic, ICE Data Indices, LLC., ADB, various central banks, BofA Merrill Lynch Global Research

In this latest Asian credit primer, we examine the different credit markets in Asia from the perspectives of size, growth, country/sector composition, investor base, price movement, products, structures, credit performance and covenants

BofA Merrill Lynch does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 104 to 106.

12049084

Timestamp: 06 October 2019 11:22AM EDT

Unauthorized redistribution of this report is prohibited. This report is intended for brian.fagan@mackayshields.com

Contents

Forward 3

Diverging developments among countries 4

International bond market 6

Size and growth 6

Investor base 9

Default and recovery experience 10

Spread history 13

Historical returns 14

Risk-adjusted returns 14

Asian high-grade bond market 18

Asian high-yield bond market 24

Latest products & structures 35

Various structures seen for Chinese issuers 35

Basel III bank capital 39

Corporate perpetuals 41

Chinese government-related entities 43

Convertible bonds market 45

Asia convertibles market overview 45

Primary market 48

Performance 50

Appendix 52

International loan markets 54

Syndicated loan markets 54

High-yield private placement market 60

Domestic bond markets 63

Size and growth 63

Market characteristics 64

Individual local bond markets 70

China 70

Hong Kong 81

India 83

Indonesia 86

Korea 88

Malaysia 90

Philippines 93

Singapore 94

Taiwan 96

Thailand 98

Vietnam 100

Domestic loan markets 102

Size and growth 102

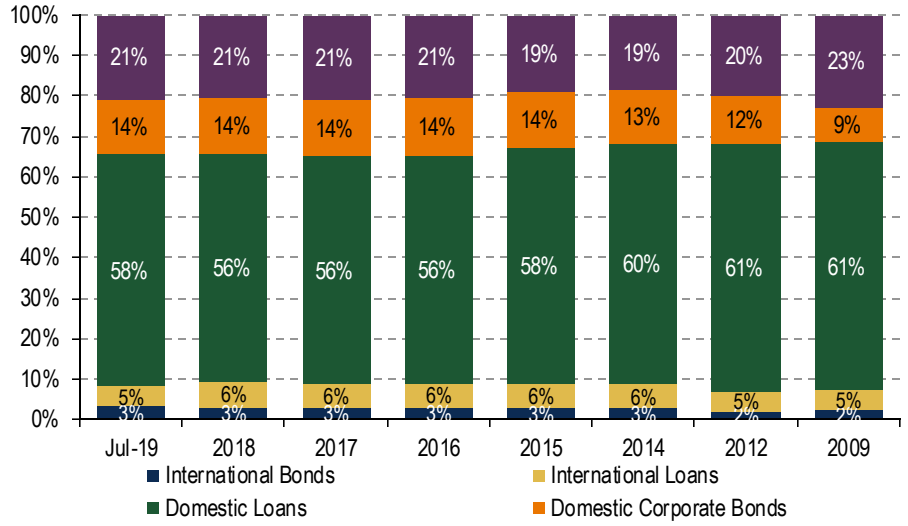
Research Analysts 107

Forward

The Asian credit market has experienced tremendous growth since 2009 after the global financial crisis (GFC). Since then, we've had quantitative easing by three major central banks and global interest rates have fallen to rock bottom levels. As a consequence, credit market growth has expanded (and in many cases exploded) across the region driven by cheap financing. We started to see the US embark on its current tightening cycle back in December 2015, and China has turned its focus to de-leverage its financial system. But with a slowing macro backdrop, global policy makers are struggling to find a balance between growth stimulus and preventing another potential crisis. The growth of credit markets is hence becoming more dependant on policy stances.

On this update, we look at what changes this has brought to the markets. Overall, we've seen the Asian credit market grow by 194% since the end of 2009. However, there have been a few key changes of note: (1) we've seen a shift towards corporates borrowing in bond markets, and domestic corporate bonds have showed strong growth in the last 10 years, increasing from 9% to 14% of the total credit market and, (2) despite the growth in absolute amount, the share of international bonds and international loans has remained largely unchanged at around 7-8% in the past 10 years, (3) China has become a driving force in the region, and (4) we see diverging trends in market developments in the region.

Chart 2: Composition of the Asian credit markets in terms of outstanding



Source: Dealogic, ICE Data Indices, LLC, ADB, People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, Central Bank of the Philippines, Bank Indonesia, BofA Merrill Lynch Global Research

Looking specifically at the different parts of the Asian credit market, we find that the convertible bond market is the only credit market which has shrunk in size from ten years ago as cheap funding has provided companies with the option of going to the straight bond market. The strongest growth has been in the international investment grade bond market (+438%) followed by the domestic corporate bond market (+355%). The slowest growing markets have been the high yield bond market (note the slow growth of HY USD fixed rate bonds could be due to the fact that the number here does not include unrated bonds due to index rules) and the domestic government bond market as their shares have declined, despite experiencing166% growth since 2009.

Table 1: Asian credit market

Growth and composition

(USDbn)	Jul-19	2018	2017	2016	2015	2014	2012	2009	% Change from 2009
International bond market (G3)	1,489	1,407	1,261	1,034	892	798	455	312	377%
Investment grade (USD fixed rate)*	656	627	617	535	497	421	257	122	438%
High yield (USD fixed rate)*	177	140	124	102	93	96	89	66	169%
Convertible bond market	30	29	24	19	18	28	39	41	-27%
International loan markets	2,418	2,961	2,507	2,268	2,159	1,883	1,272	860	181%
Domestic bond market	16,949	16,165	15,411	12,963	11,268	10,039	8,228	5,290	220%
Government bonds	10,262	9,756	9,334	7,707	6,560	5,925	5,154	3,820	169%
Corporate bonds	6,687	6,409	6,078	5,256	4,707	4,113	3,074	1,469	355%
Domestic loan market	28,331	26,651	24,720	21,053	20,059	18,926	15,855	10,220	177%
Total Asia credit market	**49,219**	**47,213**	**43,923**	**37,337**	**34,396**	**31,674**	**25,849**	**16,724**	**194%**

Source: Dealogic, ICE Data Indices, LLC, ADB, People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, Central Bank of the Philippines, Bank Indonesia, BofA Merrill Lynch Global Research. *USD fixed rate bond sizes are based on ICE BofAML index which include only fixed coupon and rated bonds

Note: We have made the assumption that the international syndicated loans bought by Asian banks would also be included in the domestic loan market statistics. Therefore, in order to avoid double counting, we reduced the outstanding size of the domestic loan markets by these figures in order to calculate the total size of the Asian credit market.

Table 2: Asian outstanding credit market size by country (Jul-19)

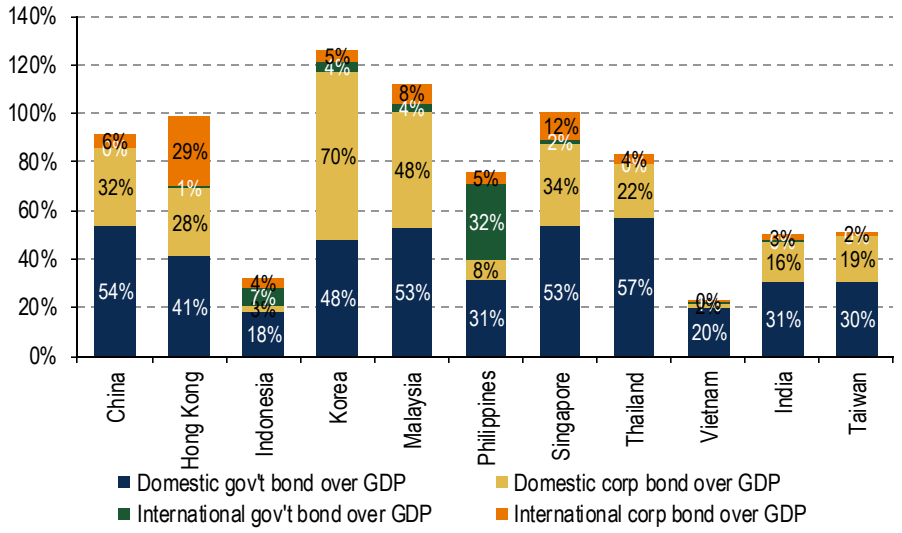
Country	USD bn	% of market
China	34,703	71%
Hong Kong	1,850	4%
India	3,276	7%
Indonesia	839	2%
Korea	3,727	8%
Malaysia	877	2%
Philippines	470	1%
Singapore	1,047	2%
Taiwan	1,391	3%
Thailand	940	2%
Vietnam	99	0%
Total	**49,219**	

Source: Dealogic, ICE Data Indices, LLC, ADB, People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, Central Bank of the Philippines, Bank Indonesia, BofA Merrill Lynch Global Research

Diverging developments among countries

One way to assess the development of the bond market is by looking into the outstanding bond size (both domestic and international bonds) as a percentage of GDP. We see developments vary across countries: (1) Countries with the highest percentages are Korea, Malaysia, and Hong Kong. For Korea and Malaysia, their domestic corporate bonds as % of GDP are also the highest two in the region (70% and 48%, respectively), suggesting that the local bond market is relatively developed. (2) For most countries, international bonds only account for less than 10% of GDP, while Hong Kong and Philippines are the only two countries with this ratio more than 30%. Hong Kong's 30% ratio is driven by corporate bonds, while the Philippines' 36% is mainly from government bonds. (3) For China, despite its dominant position in overall market size, its outstanding bond market as % of GDP is the fifth highest within Asia at 92% of GDP, with domestic government bonds accounting for more than half of the total outstanding amount.

Chart 3: Outstanding bonds as percentage of GDP



Source: Dealogic, ICE Data Indices, LLC, ADB, People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, Central Bank of the Philippines, Bank Indonesia, BofA Merrill Lynch Global Research

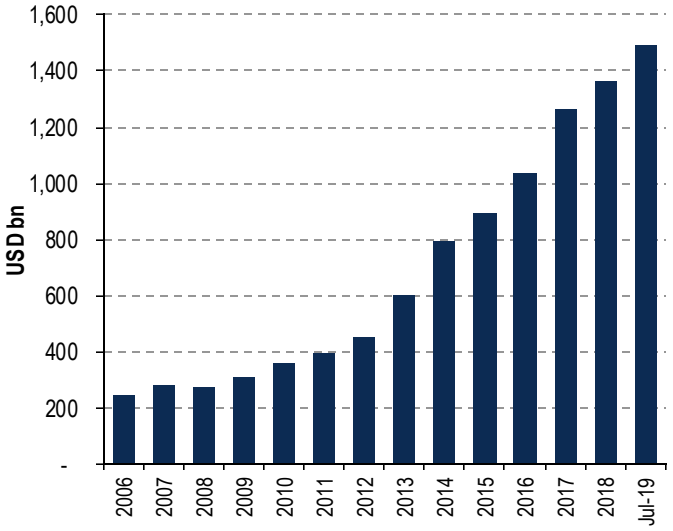
International bond market

Size and growth

The total outstanding size of the Asian bond market (G3 currencies) as at end July 2019 was US$1.49tn, according to Dealogic. The size of the outstanding market has grown by 87% since end 2014 (US$798bn).

In terms of issuance trend, fixed-rate issuance accounted for 81% of the market in 2018 and floating rate made up the remaining 19%. Appetite for floating rate supply usually picks up when investors expect rates to rise. The 19% share was the highest level since 2009 given strong expectations of rising interest rates in 2018, but has slowed down to 9% YTD on lower interest rate outlook this year. For outstanding amount by currency, USD-denominated bonds accounted for 92%, with EUR accounting for 7% and JPY 1%. By geography, China dominates with 52% of the market, followed by Korea and Indonesia. Together, these three countries accounted for 70% of the outstanding G3 bond market. The share of the top-three countries rose from 58% in 2014, but the country mix has changed as China has continued to grow significantly over the past few years at the expense of Korea, Hong Kong, and the Philippines, which accounted for larger proportions of the market in 2014 (Chart 5).

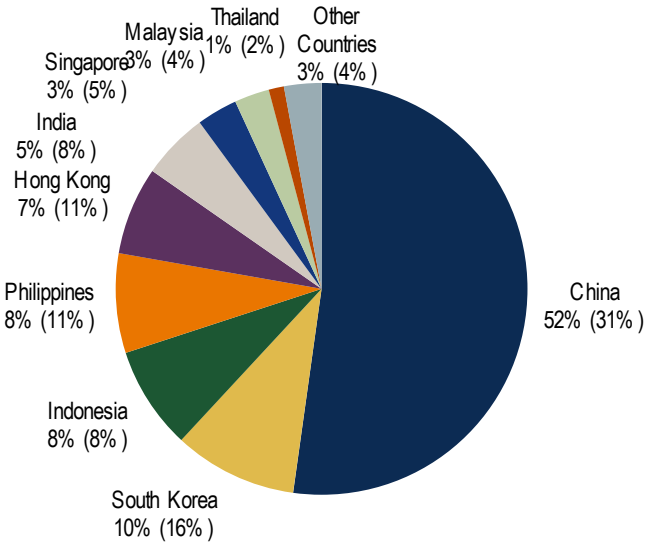
Chart 4: Outstanding Asian international bond (G3) market size



Source: Dealogic

Chart 5: Outstanding G3 bond market by geography

As of July 2019 (vs. end of 2014)

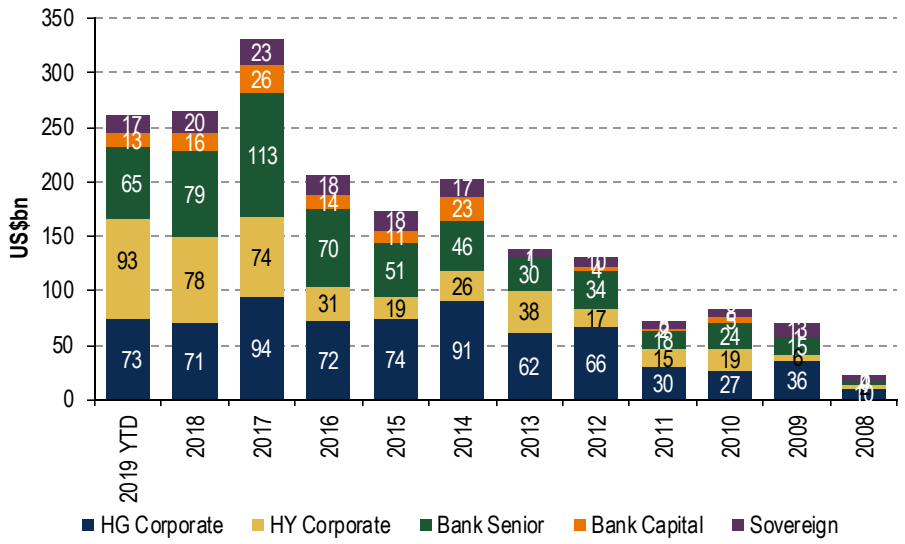


Source: Dealogic

Looking at the historical issuance pattern, there was a rebound in Asian G3 supply in 2009 after the market slowed down significantly in 2008 due to the global financial crisis. Supply averaged nearly US$76bn pa between 2009 and 2011, and around US$134bn between 2012 and 2013, but then rose to on average US$197bn between 2014 and 2016 as credit yields fell to an all-time low in 2016. But overall issuance declined in 2015 for the first time since 2011 as Asian companies slowed down their capital expenditure given overall slowing economic growth. Issuance reached the strongest level in 2017, growing 61% YoY to US$330bn as the lower interest rate environment boosted bond sales. Average annual issuance came in at nearly US$297bn between 2017 and 2018. We note that the increase was driven by stronger HY corporate and bank capital issuances over the past few years.

Bank of America Merrill Lynch

Chart 6: Asia G3 bond issuance trend



Source: Bloomberg *YTD 2019 as of September 30th 2019

There have been a number of contributing factors to why bond supply increased after the global financial crisis, including the following:

1. The lower rate environment became attractive for issuers to lock in long-term funding. Given the ultra-low US interest rates, yields have become attractive relative to many Asian onshore markets.

2. The increasing M&A activities and overseas expansion by Asian companies also drove the supply for G3 currency bonds. China has absolutely dominated new issue supply (accounting for about 63% of the supply in 2019), driven by an opening up of the Chinese economy, tighter onshore liquidity, attractive funding levels offshore and offshore M&A activity.

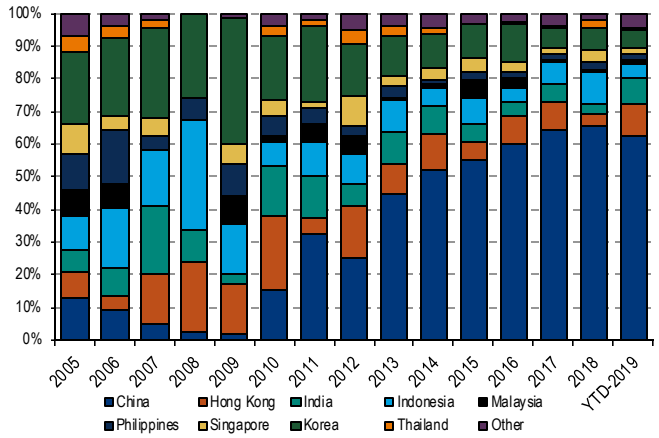
3. Disintermediation of the loan markets. Companies have been taking advantage of the low interest rate environment and growth in corporate bond markets to diversify their funding bases. While we have seen a pick-up in USD lending in the syndicated loan market over the past few years, bond issuance accounted for 40-50% of the total USD funding after the GFC compared with 20-30% in the earlier years.

YTD 2019, high-yield corporates and financials have seen the biggest YoY increase in issuance at 75% and 65%, respectively. Despite China's policy easing, China onshore liquidity condition has remained tight for the private sector. This has been the main factor driving YTD strong USD funding demand of the Chinese HY issuers, in our view. For Asian financials, the robust YTD YoY growth is ascribed to strong issuance in China leasing companies and Indian non-banking financial institutions (NBFIs), low-base effect and some deals being frontloaded.

By country, Malaysia, Hong Kong, and India saw the largest YoY increase in USD supply in 2019 YTD (967%, 257% and 245% YoY, respectively), while the Philippines and Indonesia showed declines (-18% and -8% YoY, respectively). However, China was the single-biggest issuer of new supply in 2019, and accounted for 63% of the total G3 supply, while Hong Kong and Korea each accounted for 10% and 6%, respectively. The increase in supply from Chinese issuers was largely driven by stricter onshore access, while banks' issuance was driven by NBFIs. Despite the strong supply seen from China over the past few years, USD bond issuance as a percentage of GDP appears to be

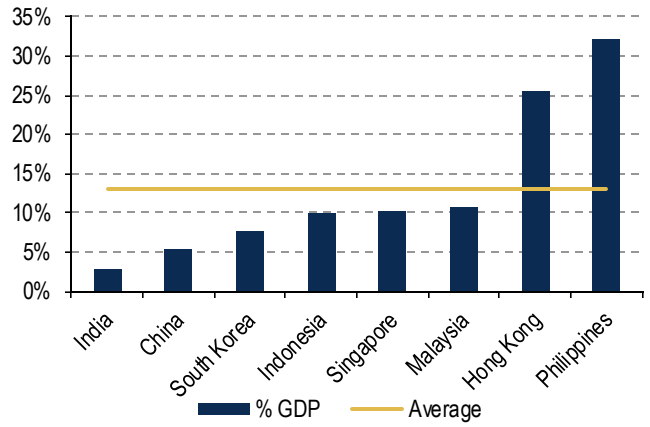
among the lowest in Asia. We expect strong issuance from China to continue; the regulator's attitude toward offshore issuance and onshore market accessibility should also be a major swing factor.

Chart 7: Geographic breakdown of Asian supply



Source: BofA Merrill Lynch Global Research, Bloomberg. *Note: USD fixed rate issuance only

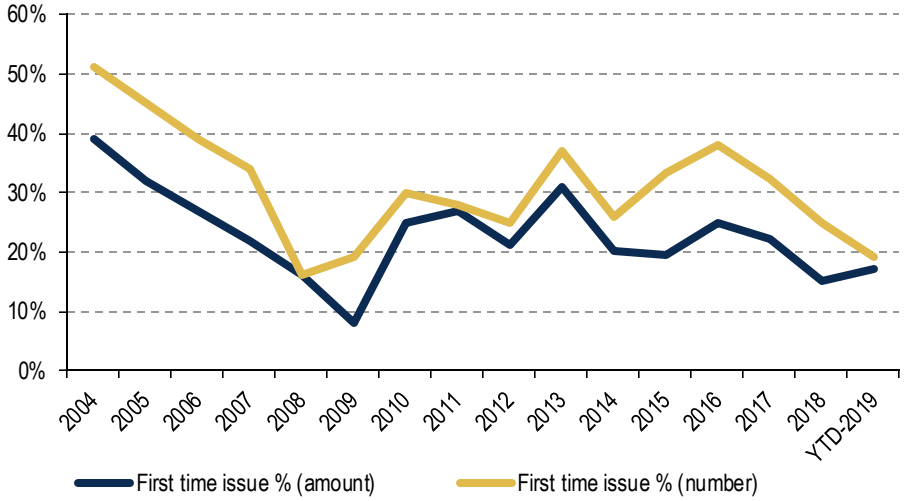
Chart 8: Asia USD outstanding bonds as % of GDP in 2018



Source: BofA Merrill Lynch Global Research, Bloomberg

The percentage of first-time issuers (by number and by amount) peaked in 2016, driven by the low interest rates, while the trend saw a decline in 2017 and further in 2018 and 2019. This could be explained by the rising market yield in 2018, weaker market sentiment and declining capital expenditure on slowing economy for Asian credit issuers, which discouraged some issuers from tapping the USD bond market.

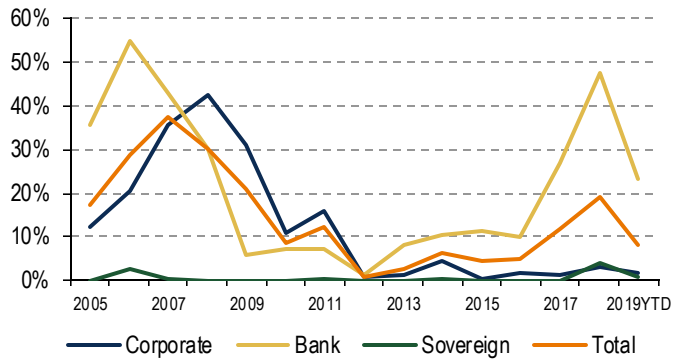
Chart 9: First-time issuers as a proportion of total supply



Source: Bloomberg, BofA Merrill Lynch Global Research

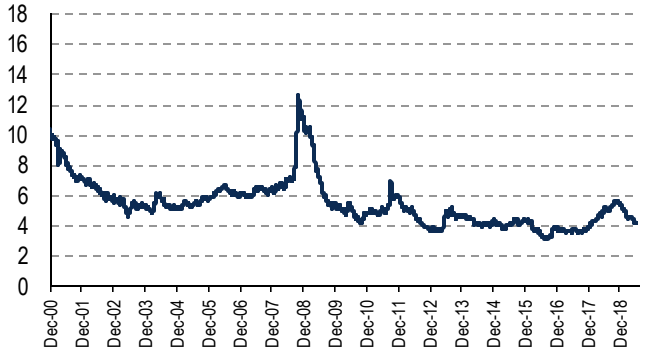
We have seen an increase in floating rate supply as a percentage of total debt issuance in Asia from 5% in 2016 to 19% in 2018, the highest level since 2010, as the overall yield for Asian corporates reached the highest level since end 2011. However, entering into 2019, the slowing economy has driven interest rates down and issuance of floaters also declined to below 10%.

Chart 10: Floating rate bonds as a proportion of total supply



Source: Dealogic, BofA Merrill Lynch Global Research

Chart 11: All-in yields close to the lowest level historically



Source: ICE Data Indices, LLC (ACOR index used for corporate yields)

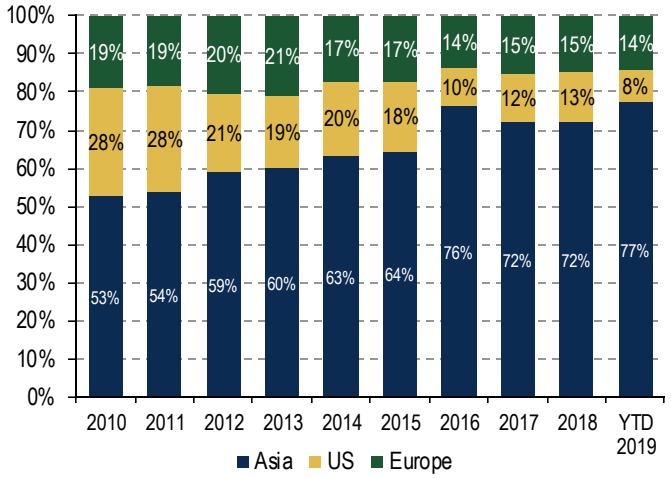
Investor base

Asia-based investors are the predominant buyers of Asian credit, accounting for more than 70% of new issue supply. In the past decade, Asia-based investors' dominance of USD bond primary deals has been growing progressively to 77% in the first seven months of 2019 – a significant rise from 53% in 2010 and 64% in 2015, while the new order books from both the US and Europe accounts have been shrinking in recent years, partly because more global funds have established their presence in Asia and fewer 144A issuances. In our view, the main driver has been the increasing participation from Chinese investors, led by the appreciation of the USD against RMB in the past few years.

By investor type, fund managers are the main buyers, taking about half of the new issues. Insurance companies have been seeing strong premium growth (note we have yet to see onshore China insurance buying offshore although they do have the ability to do so). The surge in banks' participation rate from 16-18% in 2010-14 to 27-33% in 2015-16 was mainly due to an influx of demand from Chinese banks. Given Chinese banks' dominant presence in Asia, this represents increasing participation by Chinese banks which are most active in Chinese deals, especially in China financials (>55%), reflecting the common crossholding of each other's senior paper given the lower risk weight of 25-50% for financial senior paper than 100% for corporates. We think the overall increasing participation of banks in the past few years may be due to the decline in trade finance and currency depreciation, which has left banks with some USD liquidity to put to work. This could also explain why the participation of banks declined to 27% in 2017 and 23% in 2018 after the CNY became more stable, in our view.

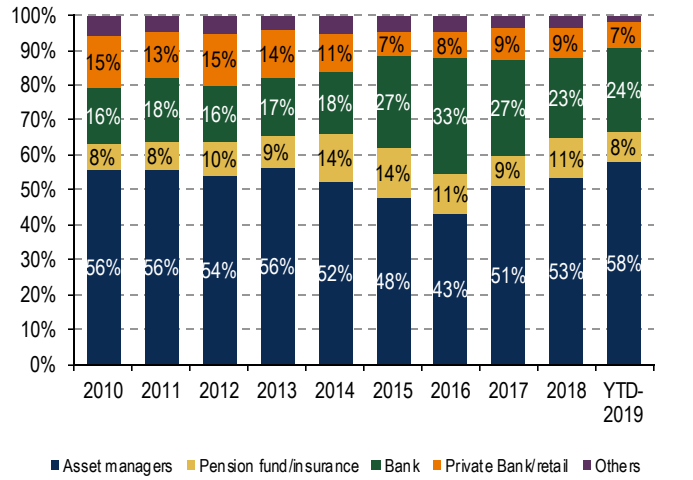
Private wealth investors have become less prevalent as spreads have tightened/yields have fallen, which make bonds less attractive, and asset allocation preference shifting more to equity given the outperformance of equity vs bond over the past few years. Private wealth investors currently account for 7% of new issuance, down from around 15% in 2012 to 2013.

Chart 12: Asian market investor distribution by geography



Source: Dealogic, BofA Merrill Lynch Global Research (2019 as of July data)

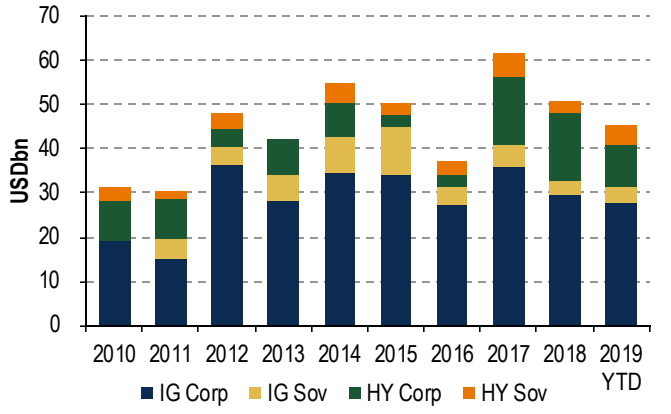
Chart 13: Market breakdown by investor type



Source: Dealogic, BofA Merrill Lynch Global Research (2019 as of July data)

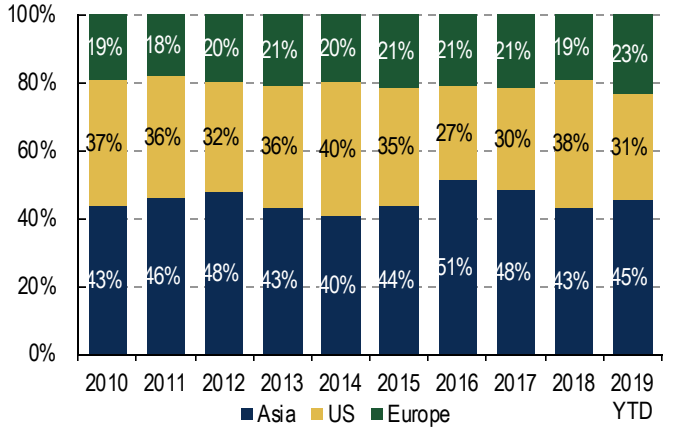
Note that US demand has been weakening at a faster pace than Europe's, partly due to the declining share of 144A issuance. Despite the overall trend of declining foreign participation in Asian USD new issuances, foreign investors were more involved in deals from Indonesia and India, followed by the Philippines and Korea; but largely shunned Chinese deals. By security type, foreign investors have been most active in Asian sovereigns, buying 62% of the new issuance, while they were least involved in Asian financials, subscribing to less than 20% of the new deals in the space. For a more detailed analysis on the investor base for Asian credit, see our report Asian Credit Strategy: An update of investor base for Asian USD issuance – locals continued to dominate 05 June 2019.

Chart 14: Asian 144A issuance



Source: Bloomberg, BofA Merrill Lynch Global Research. YTD to end of Aug 2019

Chart 15: Asian 144A ex sovereign investors by geography



Source: Bloomberg, BofA Merrill Lynch Global Research. YTD to end of Aug 2019

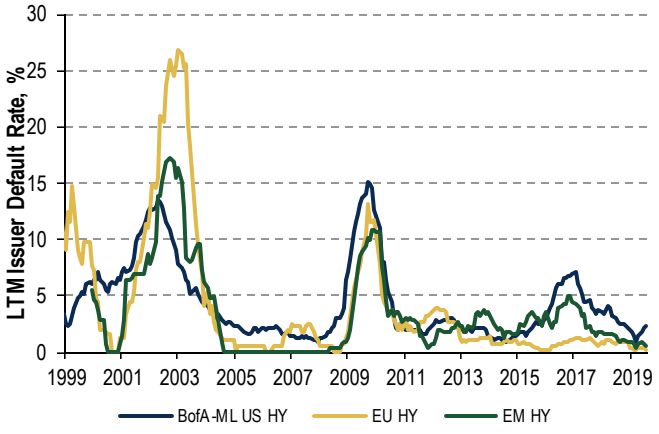
Default and recovery experience

Historical global speculative (high yield) default rates have seen two major peaks, hitting highs of 13.4% in June 2002 and 13.8% in September 2009. Emerging market speculative default rates hit a high of 19.1% in September 2002 and 11.9% in December 2009. In 2016, the global default rate spiked again to 4.6% at year-end, and the emerging market default rate reached 5.0% during October, led by LATAM, before it stabilized to the current 0.68% as overall interest rates remained low with better access to refinancing for issuers.

Bank of America Merrill Lynch

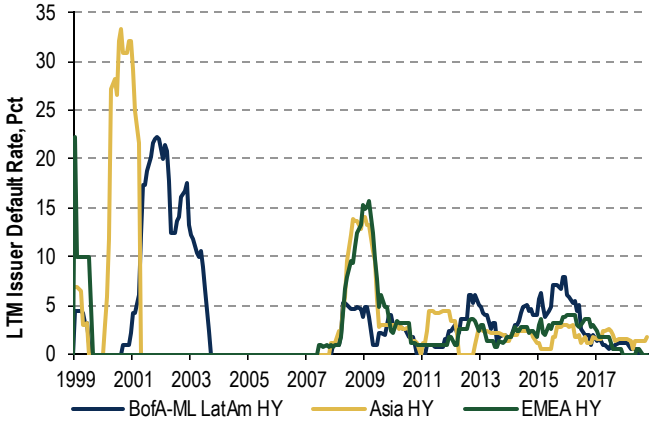
Asia's default rate peaked at 3.7% in 2013 after bottoming out in late 2011 after the global financial crisis. Throughout most of 2018, the default rate remained low compared to history despite some idiosyncratic credit events and concerns about spill-over effect from rising Chinese onshore defaults. Year-to-date 2019, the default rate was at 1.3% as of end August with three defaulters from China: Reward International (RWINTL), China Minsheng Investments (CHMINV), and Top Wise Excellence Enterprise (KANGDE). Defaults are usually well correlated with distress levels as companies denied access to the bond market for refinancing fall into default. In September 2011, distress levels in the Asian HY bond market hit over 50%. While default levels increased, it still remained below 5%, with only four defaulters by November 2011 out of a universe of 90 issues. As at end August 2019, distress levels increased to 19.85%, triggered by rising yields from trade war tensions and a weak economic outlook.

Chart 16: Last 12-month speculative default rate, DM and EM



Source: BofA Merrill Lynch Global Research

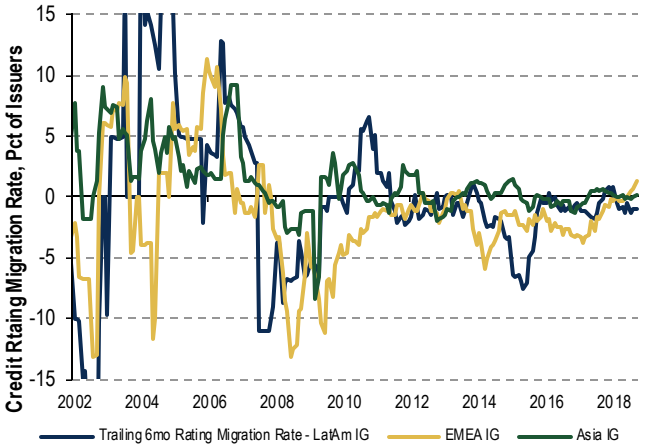
Chart 17: Last 12-month speculative default rate, EM by regions



Source: BofA Merrill Lynch Global Research

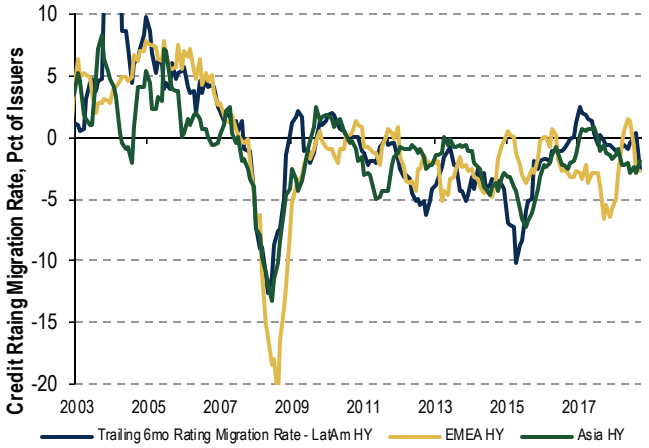
The Asian HY ratings migration trend has been negative since mid-2011, although it touched zero in 1Q/2Q14 only to trend down again. Given the customarily stronger credit fundamentals of investment grade vs high yield, the rating migration rate of Asia IG is currently above that of Asia HY.

Chart 18: Trailing 6-month rating migration rate for EM IG



Source: BofA Merrill Lynch Global Research

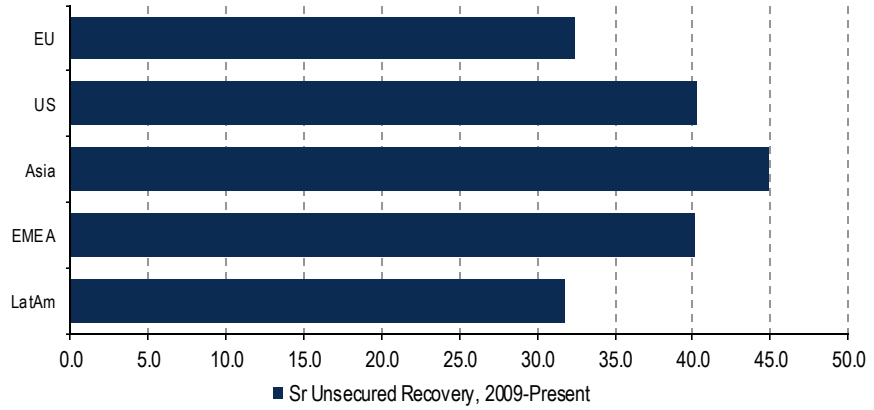
Chart 19: Trailing 6-month rating migration rate for EM HY



Source: BofA Merrill Lynch Global Research

Turning to recoveries on bond defaults, we looked at all the defaulted bonds which were included in the ICE BofA Merrill Lynch Asian Non-Financial Index (ANHY) since 2009. In our analysis, we focused on senior unsecured bonds using prices 30 days after the default as the recovery price (unless an actual recovery was available). On this basis, the average recovery for Asia was 44.9, which compared favorably to most markets. This may come as a surprise to some investors given the historically poor recoveries for Indonesian bonds and defaulted Chinese bonds in 2007/08 (which was cents on the dollar) along with concerns about structural subordination for Chinese issuers to onshore creditors.

Chart 20: Senior unsecured bond recovery



Source: BofA Merrill Lynch Global Research

To add some context to recoveries (although not directly bond related), we look at the latest World Bank Doing Business Report (2018) focused on resolving insolvency. It comes as no surprise that Asia, Korea, Taiwan, Singapore, Hong Kong and Malaysia show recovery rates for insolvency situations that are quite high with relatively low costs involved and fewer years to resolution. The countries in Asia that show up on the weaker end include Mongolia, Vietnam, the Philippines, and India. The rest of the region falls somewhere in between, ie. 30-45% recovery.

Table 3: World Bank Doing Business Report 2018 - Resolving Insolvency

Region or Economy	Time (years)	Cost (% of estate)	Recovery rate (cents on $)	Resolving Insolvency Rank*
China	1.7	22	36.9	61
Hong Kong	0.8	5	87.2	44
India	4.3	9	26.5	108
Indonesia	1.1	21.6	65.2	36
Korea	1.5	3.5	84.6	11
Malaysia	1	10	81.3	41
Mongolia	4	15	16.9	152
Philippines	2.7	32	21.3	63
Singapore	0.8	4	88.8	27
Sri Lanka	1.7	10	43.1	92
Taiwan	1.9	4	82.2	23
Thailand	1.5	18	69.8	24
Vietnam	5	14.5	21.3	133

Source: IFC, The World Bank *Note: out of 189 economies

Bank of America Merrill Lynch

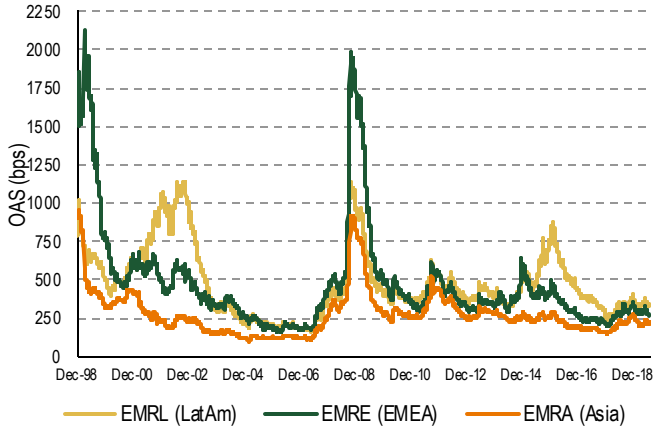
Spread history

Looking at the historical spread performance for US corporate bonds compared with Asia, we see that the significant widening in 1997/98 was not mirrored in the US, although we did see a spike in spreads. In 2002, US spreads widened while Asian spreads remained relatively stable as Asian corporates continued to de-leverage after the Asian crisis, while the US was going through a recession. However, since the start of 2004, the correlation between Asian corporate spreads and US corporate spreads has been high at 98%. Asian bond spreads started to move slightly inside of US corporate bond spreads in 2005. During the global financial crisis, we saw Asian spreads peak above US spreads and the gap closed as Asian spreads traded tighter than US again at the start of 2016 when strong local investor base supported the performance among global risk-off due to concerns about China, commodities and currency. The spread pick-up returned gradually to normal levels after 2017, and currently trades at around 70bps as at end of July 2019, higher than the historical average of 63bps.

Chart 21: Asian Dollar Corporate Index (ACOR) historical spread movement versus US Corporate and High Yield Master Index (IUC0)

Source: ICE Data Indices, LLC.

Chart 22: Comparing Emerging Market spread movements



Source: ICE Data Indices, LLC.

Comparing corporate spreads across emerging markets, Asia has historically traded inside of the EMEA and LatAm markets. This was mainly due to the higher average ratings for the Asian index (BBB1) compared with EMEA (BBB3) and LatAm (BB1). LatAm widened out back in 2001/02, in line with the US recession, while the other two regions generally continued to tighten. During the global financial crisis, EMEA spreads peaked at the widest levels (no surprise given the bank/sovereign crisis in Europe) but then moved back inside of LatAm until 2014.

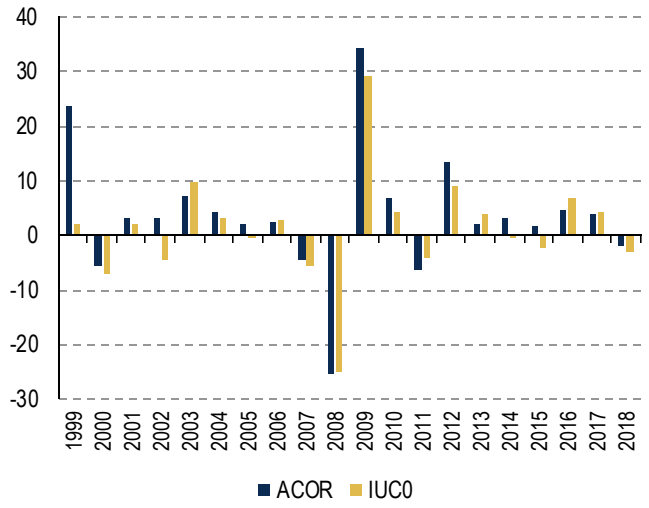
As at end-July 2019, the Asian Corporate Bond index was trading at a spread of 227bp (average rating of BBB1), while the ICE BofAML US Corporate & High Yield Index (average rating of BBB1) was trading at 155bp. The Asia spread level is inside of the 20-year average for the US of 232bp and Asia of 313bp. The duration of the Asian index is shorter (5.8 years) than the US index (9.9 years). The EM LatAm (BB1), EM EMEA (BBB3) and EM Asia (BBB1) corporate indices were trading at 335bp, 266bp and 212bp, respectively. Asia has the shortest duration at 5.6 years, vs. 6.1years for EMEA and 9.4 years for LatAm. All are trading inside their 20-year average of 475bp (LatAm), 472bp (EMEA) and 273bp (Asia).

Historical returns

Asian credit suffered a loss in excess returns (coupon income and spread change) in 2018. The -1.8% of loss was lower than the long-term yearly average of 3.7%, but last year, the Asian Corporate Bond index still managed to outperform the US Corporate and High Yield Master index. In fact, Asia has outperformed the US in 13 out of the last 20 years. Return volatility has been higher for Asia, with a standard deviation of 11.4, compared with 9.7 for the US.

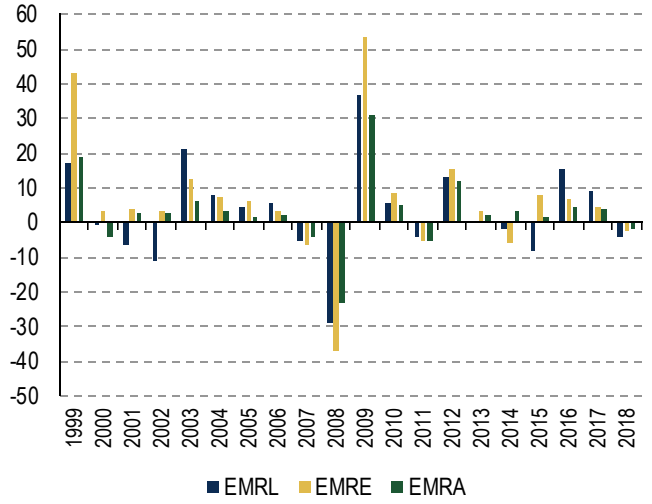
In the emerging market context, Asia also outperformed EMEA and LatAm in 2018. However, Asia's performance has been less impressive in general, outperforming in only four out of the last 18 years and underperforming in 10 of the last 18 years. EMEA has had the most number of years of outperformance at 10 out of the last 18 years, underperforming in only four years. LatAm outperformed in six years and underperformed in six years. Return volatility is significantly higher for EMEA with a standard deviation of 17.5, vs. 13.6 for LatAm and 10.3 for Asia. On a risk-adjusted return basis, Asia's returns have been higher.

Chart 23: Yearly excess returns for the Asian Dollar Bond Index (ACOR) versus US Corporate and High Yield Master Index (IUC0)



Source: ICE Data Indices, LLC.

Chart 24: Yearly excess returns for EM Asia (EMRA) compared to EM LatAm (EMRL) and EM EMEA (EMRE) bond indices



Source: ICE Data Indices, LLC.

Risk-adjusted returns

Despite the higher volatility, we find that on a risk-adjusted basis, Asia credit returns compare quite favorably in the global context over the past 10 years.

Table 4: Risk adjusted (excess) returns for corporates in Asia, EM and US (Annualized)

	Last 1 year 2018-2019			Last 3 year 2016-2019			Last 5 year 2014-2019			Last 10 year 2009-2019		
	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio
Asia IG	2.20%	1.56%	1.41	1.82%	1.38%	1.32	2.14%	1.67%	1.28	2.77%	2.21%	1.25
AA	1.77%	0.97%	1.81	0.97%	0.90%	1.08	0.99%	1.37%	0.72	1.48%	1.92%	0.77
A	1.63%	1.50%	1.09	1.56%	1.29%	1.21	1.92%	1.48%	1.29	2.37%	1.94%	1.22
BBB	2.86%	1.85%	1.54	2.27%	1.67%	1.36	2.70%	2.07%	1.31	3.67%	2.80%	1.31
US IG	1.19%	2.44%	0.49	1.89%	1.86%	1.02	1.03%	2.05%	0.50	1.91%	2.38%	0.80
AA	0.88%	1.51%	0.58	1.26%	1.22%	1.03	0.88%	1.33%	0.66	1.19%	1.81%	0.66
A	1.01%	2.02%	0.50	1.46%	1.55%	0.94	0.94%	1.60%	0.59	1.62%	2.15%	0.75
BBB	1.39%	2.98%	0.47	2.41%	2.26%	1.07	1.12%	2.69%	0.42	2.45%	2.90%	0.85
LATAM IG	-0.44%	4.66%	-0.09	2.46%	4.16%	0.59	0.63%	5.69%	0.11	1.68%	5.68%	0.30
EMEA IG	3.24%	2.55%	1.27	1.97%	2.25%	0.88	1.60%	3.56%	0.45	2.88%	4.22%	0.68
EM IG	1.75%	2.15%	0.81	1.95%	1.85%	1.06	1.42%	2.78%	0.51	2.44%	3.38%	0.72
A	1.93%	1.78%	1.09	1.97%	1.49%	1.32	1.85%	1.93%	0.96	2.37%	2.23%	1.06
BBB	1.70%	2.99%	0.57	2.26%	2.63%	0.86	1.39%	3.98%	0.35	2.70%	4.69%	0.58
Asia HY	3.93%	4.27%	0.92	3.24%	3.74%	0.87	4.04%	4.83%	0.84	5.97%	6.88%	0.87
BB	3.48%	3.30%	1.06	2.67%	3.00%	0.89	2.91%	4.13%	0.70	4.97%	6.83%	0.73

Table 4: Risk adjusted (excess) returns for corporates in Asia, EM and US (Annualized)

	Last 1 year 2018-2019			Last 3 year 2016-2019			Last 5 year 2014-2019			Last 10 year 2009-2019		
	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio
B	3.80%	5.52%	0.69	2.79%	4.79%	0.58	5.17%	6.09%	0.85	7.21%	7.13%	1.01
US HY	-0.74%	5.90%	-0.13	4.36%	4.60%	0.95	2.80%	6.16%	0.45	5.18%	6.21%	0.83
BB	1.68%	5.24%	0.32	4.08%	4.10%	1.00	3.28%	5.57%	0.59	4.88%	5.56%	0.88
B	-0.85%	6.17%	-0.14	4.44%	4.82%	0.92	2.58%	6.45%	0.40	4.71%	6.23%	0.76
LATAM HY	1.13%	6.21%	0.18	3.75%	5.16%	0.73	1.28%	8.63%	0.15	4.64%	8.26%	0.56
EMEA HY	4.77%	4.95%	**0.96**	3.14%	3.90%	0.81	4.35%	5.37%	0.81	6.62%	6.20%	1.07
EM HY	3.12%	4.57%	0.68	3.56%	3.75%	0.95	3.17%	5.89%	0.54	5.71%	6.51%	0.88
BB	4.12%	3.92%	1.05	3.90%	3.38%	1.15	3.47%	5.43%	0.64	4.95%	6.03%	0.82
B	2.29%	6.49%	0.35	3.03%	4.80%	0.63	2.48%	6.78%	0.37	6.29%	7.42%	0.85

Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Table 5: Risk adjusted (excess) returns for non-financial corporates in Asia, EM and US (Annualized)

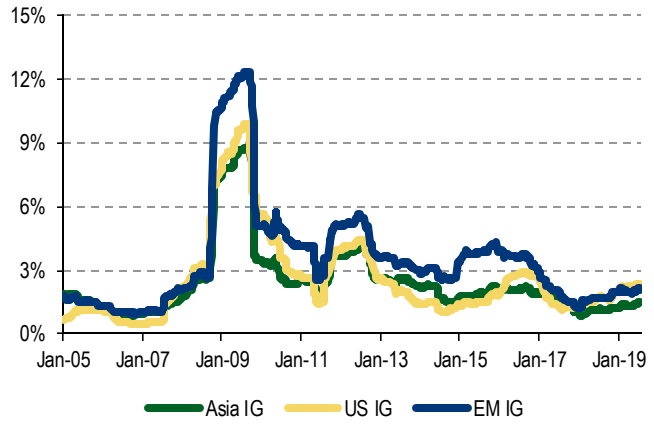
	Last 1 year 2018-2019			Last 3 year 2016-2019			Last 5 year 2014-2019			Last 10 year 2009-2019		
	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio	Avg return	Std Dev	Sharpe Ratio
Asia IG	2.26%	1.73%	1.31	1.84%	1.55%	1.19	2.13%	1.89%	1.13	2.53%	2.36%	1.07
AA	1.83%	1.01%	1.81	0.98%	0.94%	1.04	1.02%	1.43%	0.71	1.22%	2.28%	0.53
A	1.53%	1.70%	0.90	1.52%	1.47%	1.04	1.88%	1.66%	1.13	2.24%	2.01%	1.11
BBB	3.04%	2.09%	1.45	2.42%	1.96%	1.24	2.81%	2.50%	1.12	3.39%	3.17%	1.07
US IG	0.94%	2.66%	0.35	1.84%	2.02%	0.91	0.85%	2.27%	0.37	1.53%	2.29%	0.67
AA	0.78%	1.93%	0.41	1.28%	1.59%	0.81	0.85%	1.69%	0.50	0.71%	1.74%	0.41
A	0.34%	2.09%	0.16	1.19%	1.61%	0.74	0.65%	1.70%	0.38	1.05%	1.81%	0.58
BBB	1.27%	3.10%	0.41	2.32%	2.34%	0.99	0.95%	2.80%	0.34	2.01%	2.81%	0.72
Asia HY	3.87%	4.54%	0.85	3.26%	4.06%	0.80	4.09%	5.36%	0.76	6.07%	7.52%	0.81
US HY	-1.07%	5.95%	-0.18	4.25%	4.67%	0.91	2.63%	6.34%	0.42	4.84%	6.24%	0.78

Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Return volatility

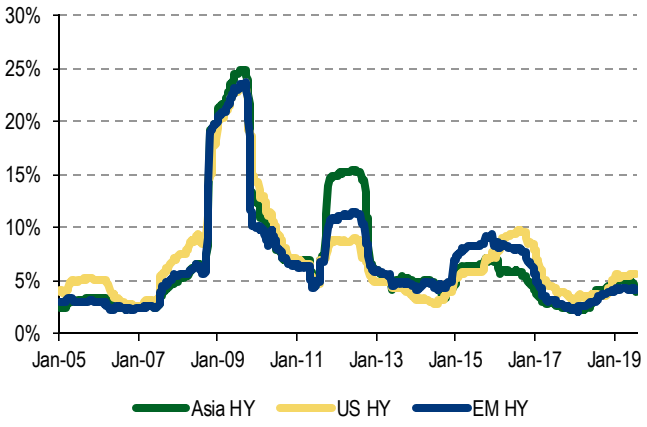
We measure 52-week trailing standard deviations of weekly excess returns to measure mark-to-market volatility. Asian volatility has historically been higher than that of the US, although during the global financial crisis period, it was slightly lower on the investment grade side as banks drove volatility higher in the US. Volatility has historically been higher for EM although we note that it was higher for Asia HY in 2008/09 and 2011/12. US volatilities have been higher than Asia year to date in 2019.

Chart 25: Investment grade volatility in Asia, EM and US



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Chart 26: High yield volatility in Asia, EM and US

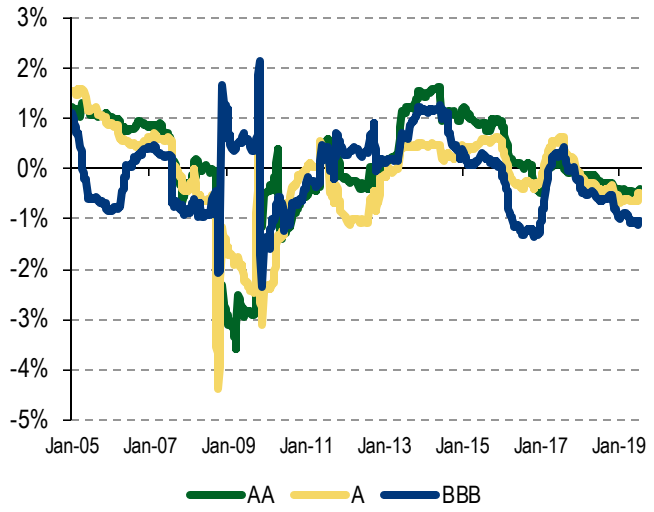


Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Comparing volatility by rating category for Asia vs the US, we find that for investment-grade credit, Asian volatility was lower than the US during the GFC (although BBBs were the exception at the height of the crisis). Post GFC, Asian volatility was generally slightly higher, but dropped around 2016 when global volatilities were high while Asian volatility remained stable driven by a strong local investor base. Asia vs US volatilities bottomed at end 2016 and increased to slightly higher in 2017, then shortly declined to a lower level again. Both single-As and BBBs have been trading below US levels since 2018.

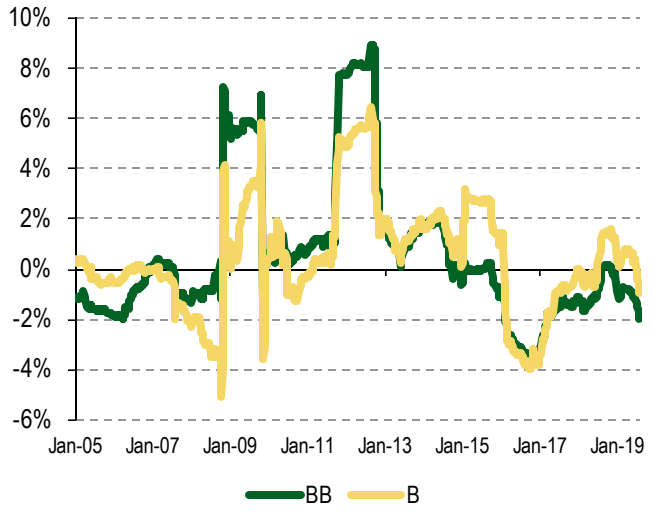
On the high-yield side, volatility has generally been higher for Asia since the GFC. Both single-Bs and BBs have dropped significantly vs the US since 2H15 and bottomed at the beginning of 2017. It has increased since then and single-Bs returned to higher volatilities than US, and the difference peaked in mid-2018. Currently, both BBs and Bs are showing lower volatilities than the US.

Chart 27: Volatility for Asia – US (Investment Grade)



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Chart 28: Volatility for Asia – US (High Yield)

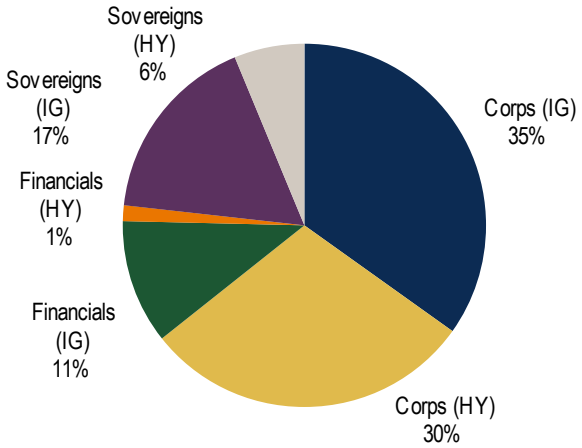


Source: ICE Data Indices, LLC., BofA Merrill Lynch Global Research

Return drivers

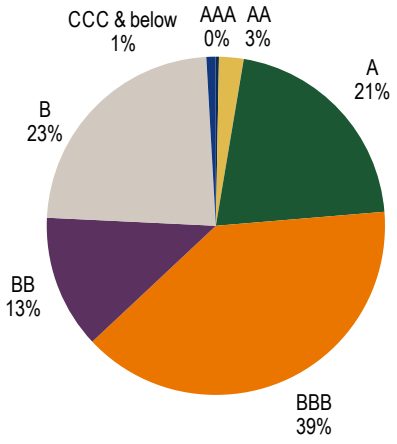
We break down the ADOL index in different ways to assess which part of the market has the greatest impact on market returns based on risk. Corporates have a 65% impact on the overall market risk. IG credit contributes 35% of the risk vs. HY's 30%. By rating, BBBs have the greatest impact on Asia credit risk (39%), followed by Bs (23%).

Chart 29: Risk contribution by broad sector (July 2019)



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Chart 30: Risk contribution by rating category (July 2019)

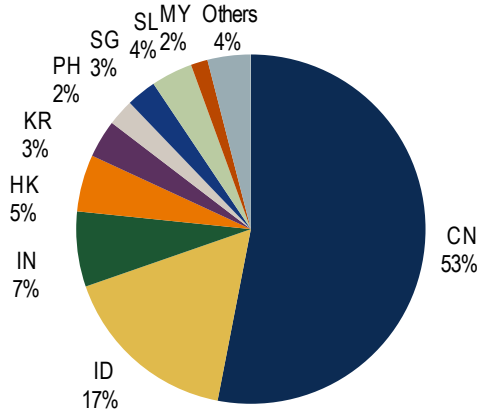


Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Bank of America Merrill Lynch

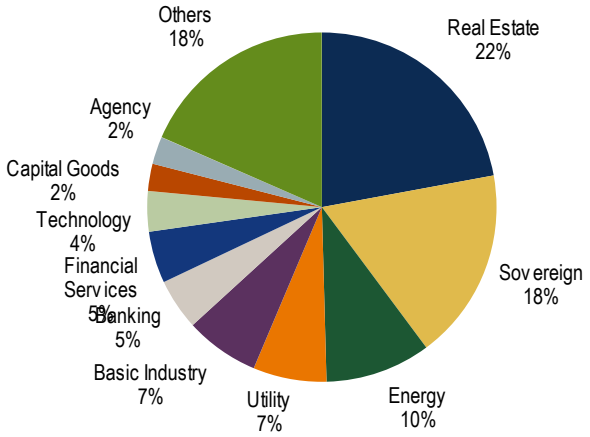
China and Indonesia account for 70% of the market risk in credit portfolios, with India and HK providing a moderate contribution (7% and 5%, respectively). By sector, real estate and sovereigns are the main drivers of credit risk.

Chart 31: Risk contribution by country (July 2019)



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

Chart 32: Risk contribution by sector (Level 3) (July 2019)



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

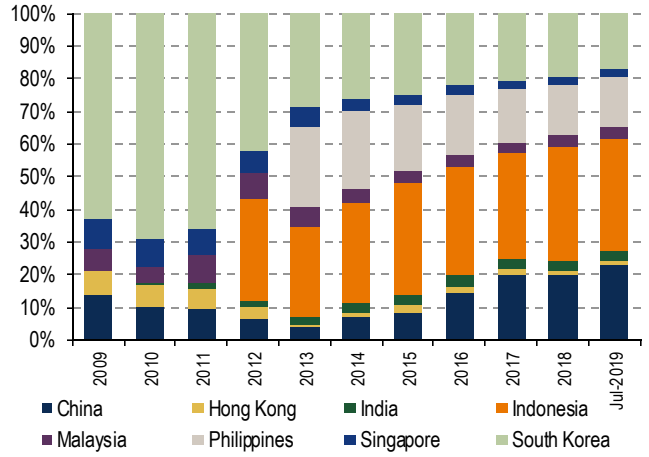
Asian high-grade bond market

The total outstanding size of the investment grade Asian USD fixed rate bond market as of end of July 2019 was US$656bn, which consists of outstanding issuance of US$167.2bn in sovereign debt (which includes quasi-sovereign), US$332.1bn in corporate and US$152.9bn in financial bonds.

Indonesia currently accounts for 34% of the ICE BofAML Asian Dollar Investment Grade Government Index (AGIG) as the largest country, taking over Korea after its sovereign rating was upgraded in December 2011 to BBB- by Fitch, followed by Moody's in January 2012 to Baa3.

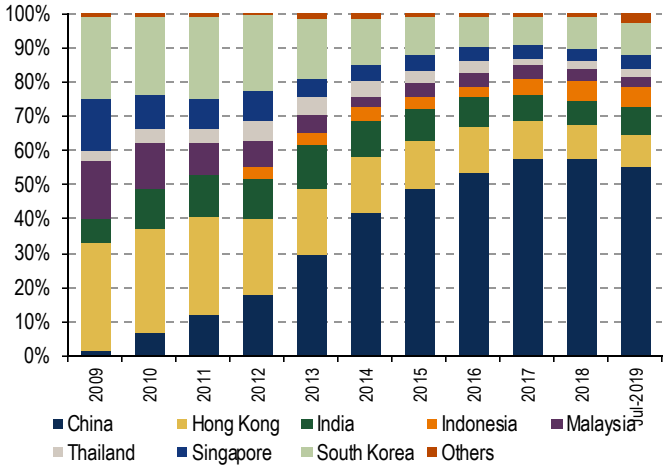
For corporate bonds only (including financials), the country breakdown is dominated by China, with a 55% share for the Asian IG corporate index (ACIG). Compared with YE14, we have seen the share of Hong Kong, Korea, and India decline by 7%, 4%, and 3% of the index, respectively, while China has increased by 13% from 42%. On an industry basis, energy is the largest sector at 19% of total outstanding, followed by banking and financial services at 16% and 13%, respectively.

Chart 33: Asian Sovereign Investment Grade Index (AGIG): Country Breakdown



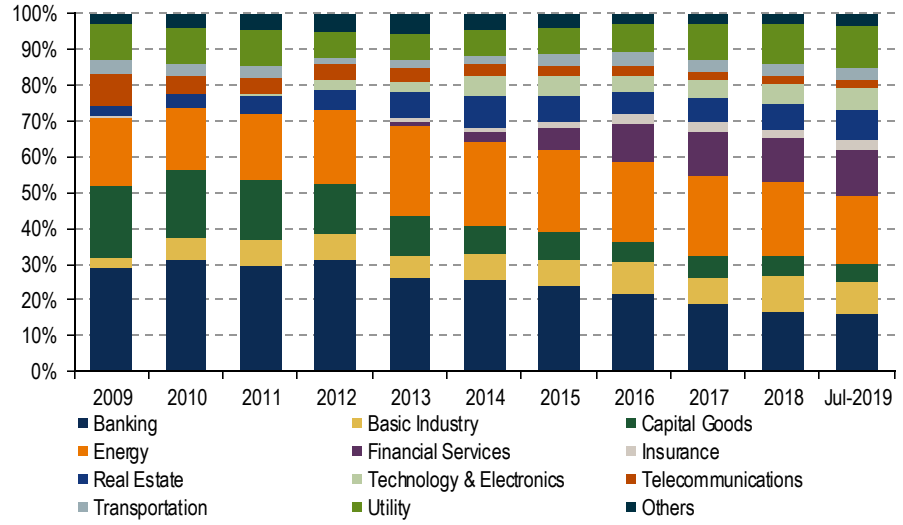
Source: ICE Data Indices, LLC

Chart 34: Asian Corporate Investment Grade Index (ACIG): Country Breakdown



Source: ICE Data Indices, LLC. Others includes countries with current market share <2%: Macau, Philippines and Taiwan

Chart 35: Asian Corporate Investment Grade Index (ACIG): Sector Breakdown

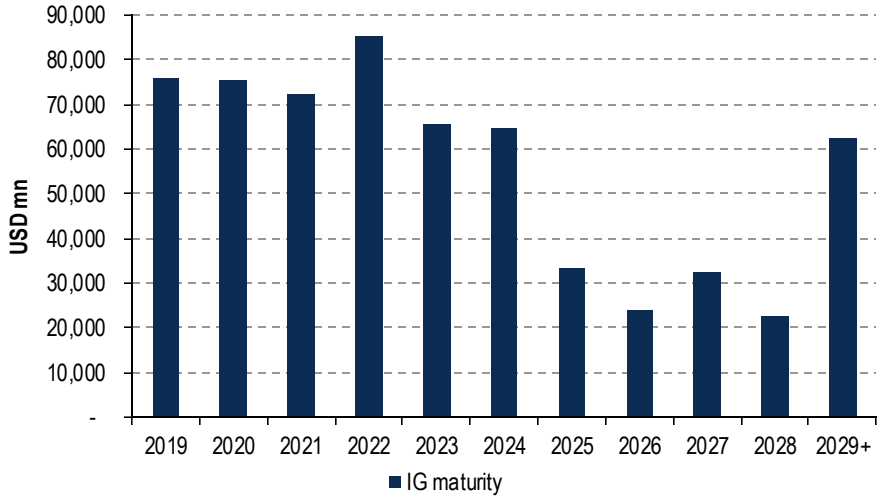


Source: ICE Data Indices, LLC. Others includes industries with current market share <2%: Auto, Consumer, Leisure, Retail and Services

Bank of America Merrill Lynch

The debt maturity profile of the Asian corporate bond markets has tended to be shorter than that of the US and LatAm bond markets. This has historically been due to a preference for 5yr bonds over 10yr bonds as many investors in the region may not be able to hedge interest-rate risk (and therefore tend to favor shorter duration) and banks as a major investor prefer shorter duration bonds.

Chart 36: Asian investment grade corporate debt maturity profile



Source: ICE Data Indices, LLC,BofA Merrill Lynch Global Research

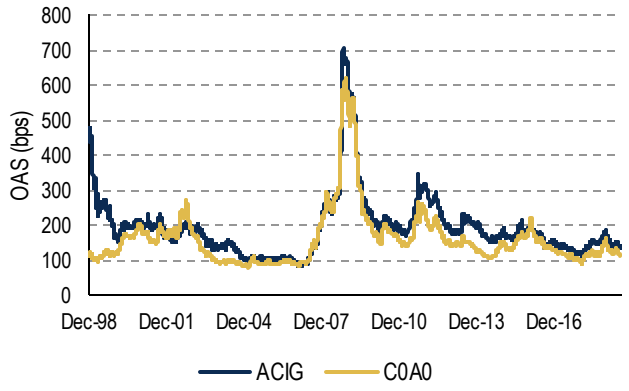
Spread history

Looking at the spread performance for investment grade credit spreads, we find that Asian spreads diverged from the US in 1997/98 as Asia was hit by the Asian financial crisis but broadly converged starting 1999. There was a short period in late-2002/early 2003 when the US, LatAm and EMEA credit spreads widened out while Asian spreads remained relatively stable, which we would largely attribute to the World Com/Enron bankruptcies in the US and the resulting recession that impacted the other two emerging markets. By early 2005, Asian and US investment grade spreads were trading at similar levels, while LatAm and EMEA did not quite reach the same spread levels given their lower average ratings.

During the global financial crisis, we saw Asian spreads peak out at significantly higher levels than US spreads (801bp vs. 656bp), although EMEA peaked at the widest levels among the three emerging market regions. We believe the high proportion of Korean names in the Asian corporate index pushed Asia wide to the US and LatAm as there were concerns about the amount of short-term foreign currency debt in the economy relative to reserves, which put pressure on all Korean debt. EMEA was hard hit by the banking crisis in Europe.

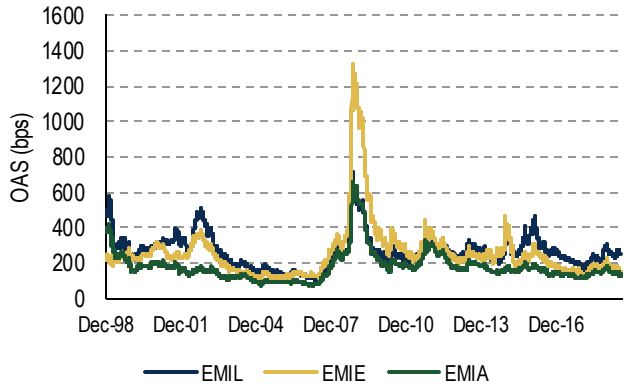
After peaking in late 2008, investment grade spreads tightened considerably but were hit again in 2011 due to the European sovereign and banking crisis along with the first concerns about a potential China hard landing, and in 2013 from the taper tantrum. During early 2016, Asia IG spreads were trading tighter than the US IG amidst a market sell-off from concerns on China, commodity prices and a global slowdown. The outperformance was driven by the higher proportion of government-supported companies in Asia vs the US, and Asia credit was a recipient of money outflows from China as CNY depreciation further boosted the demand for USD bonds. The spread of Asia IG over US picked up and has remained at around 20bp since late-2016, as rising interest rate and FX volatilities led the outflows of EM.

Chart 37: Asian High Grade Corporate Index (ACIG) spreads vs. US Corporate Master Index (C0A0) spreads



Source: ICE Data Indices

Chart 38: Asian EM High Grade Corporate Index (EMIA) spreads vs. LatAm (EMIL) and EMEA (EMIE)



Source: ICE Data Indices

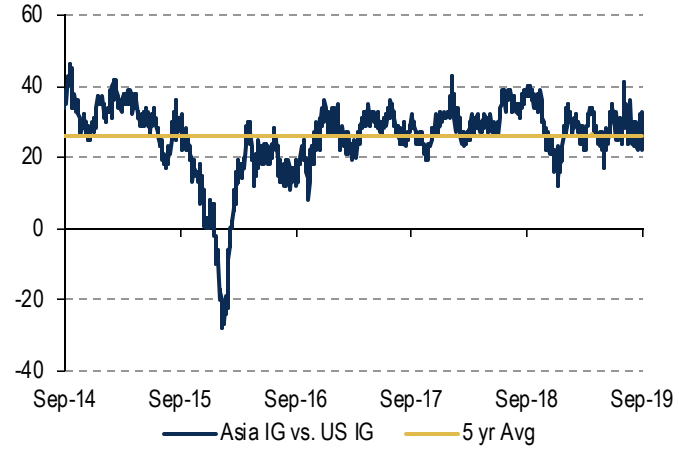
At end August 2019, Asian IG corporate credit were trading more than 30bp wider from the last five-year tight, and compared with the US, spreads traded about 29bp wide of the US, which is slightly wider than the average of 26bp.

LatAm and EMEA remain about 123bp and 12bp wider than Asia, respectively. Asia and the US have the same average rating (A3) but the US has a longer duration to Asia (Asia 6.6yrs vs. US: 11.0yrs). EMEA and LatAm average ratings are BBB1 and BBB2, and the durations are 7yrs and 11.5yrs, respectively. Spread correlation is high between Asia and the US (97% since the start of 2009). Correlation for Asia vs. EMEA and Asia vs. LatAm is at 95% and 81%, respectively.

Chart 39: Asia IG corporate spreads

Source: ICE Data Indices, LLC

Chart 40: Asian IG spread pickup over US IG



Source: ICE Data Indices, LLC

Trading, liquidity and investor base

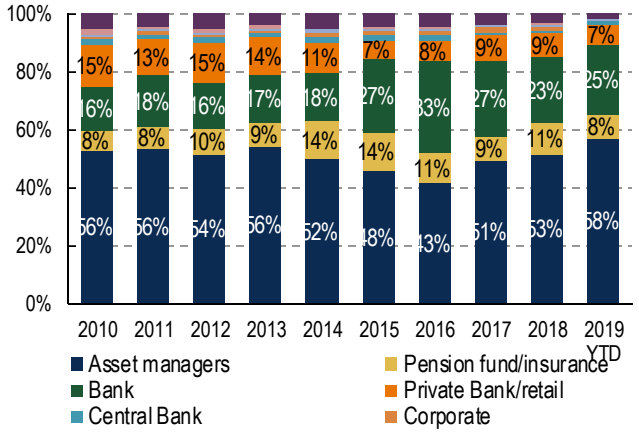
There have been changes in the trading and liquidity of the Asian investment grade bond market from the pre-crisis period compared with today. While the deal sizes for new issues have increased to an average of $1bn from $300-500mn pre-crisis, the average trade size has declined for 'on-the-run' bonds to $5mn from $10mn, although depending on the bonds, it is still possible to move blocks of $10-20mn. The rest of the market has fallen to around $2-3mn ticket sizes from $5mn, although old issues with deal sizes of $500mn or less trade in much smaller sizes ($1-2mn).

Bank of America Merrill Lynch

The decline in trading size mainly reflects the increasing balance sheet restriction of many dealers. However, in Asia, the dealer community has changed quite substantially of late. There are fewer European names but they have been replaced by local dealers, particularly China and Singapore, although there are some Japanese security companies becoming more active in the market. Based on discussions with market participants, they can face up to 40 counterparties. This has helped liquidity to some degree, giving investors more options if they need to sell, but bids can dry up in volatile markets. Bid/offers are currently around 3-5bp for 'on-the-run' names, but more generally 5-10bp, which is much wider than the 1-2bp pre-crisis. Liquidity drops quite quickly for seasoned bonds, which can push out bid/offers to 10-20bp or more. As a consequence, customers are trading less given the wider bid/offers.

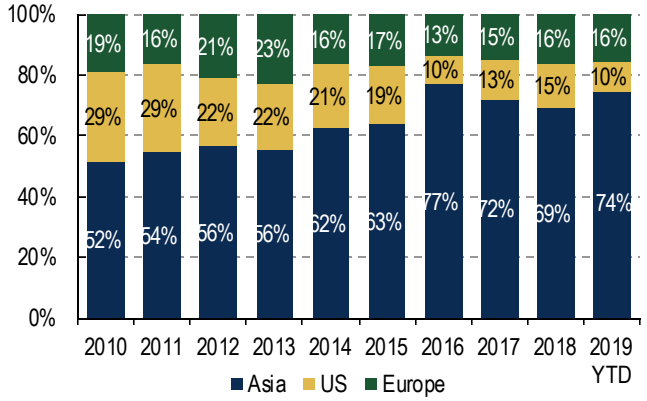
Asset managers and banks are the main investors in Asian investment grade credit. We see that the participation of Asian banks has increased materially from around 16% in 2010 to the high of more than 30% in 2016, mainly driven by Chinese banks deploying excess USD deposits due to CNY depreciation. The ratio has declined to about 23% in 2018 as the CNY depreciation trend stabilized in the following years. Private banks and retail investors used to be major participants, accounting for about 15% 10 years ago. With the declining interest rates prevailing over the past five years and the growing high-yield market, participation of private banks and retail investors in IG has declined to 7% currently.

Chart 41: Investor base for Asia IG



Source: Dealogic, BofA Merrill Lynch Global Research

Chart 42: Investor base by region for Asia IG

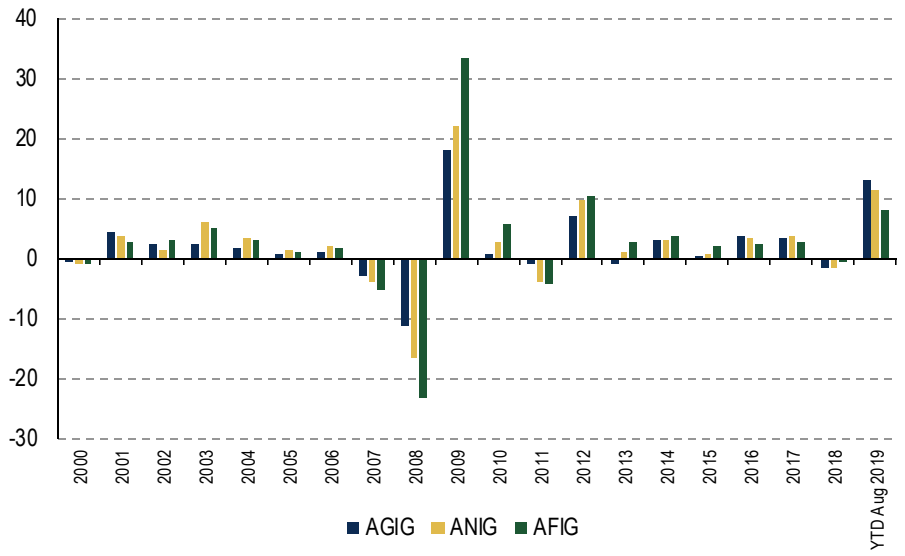


Source: Dealogic, BofA Merrill Lynch Global Research

Historical returns

In 2018, excess returns (coupon income and spread change) for the three ICE BofAML Asian Investment Grade Dollar Bond indices turned negative after decent returns in the previous two years, as rising interest rates, geopolitical risks and trade war tensions hurt sentiment. Excess returns in 2018 were -1.36% for sovereigns, -1.47% for corporates and -0.2% for financials, all below the average for the last 18 years (1.96% for sovereigns, 2.33% for corporates and 2.71% for financials). Return volatility has been the highest for banks (driven by the GFC) with a standard deviation of 10.3, compared to 5.6 for AGIG and 7.3 for ANIG. Year-to-date at end August 2019, excess return has been stronger due to easing monetary policy globally, with excess returns of 3.75% for sovereigns, 3.74% for corporates and 2.78% for financials.

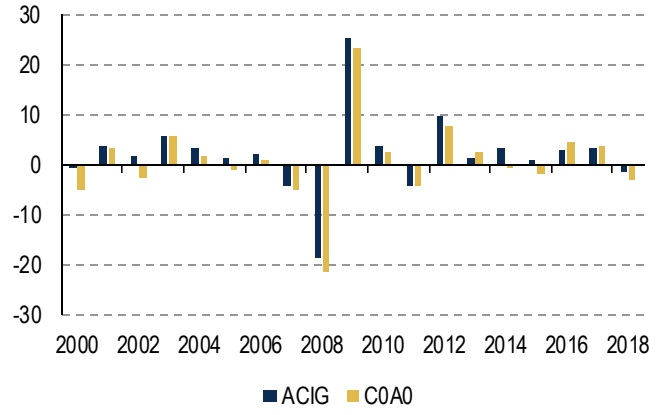
Chart 43: Historical Returns from the Asian investment grade indices (AGIG: Sovereign, ANIG: Corporate, AFIG: Banks)



Source: ICE Data Indices, LLC

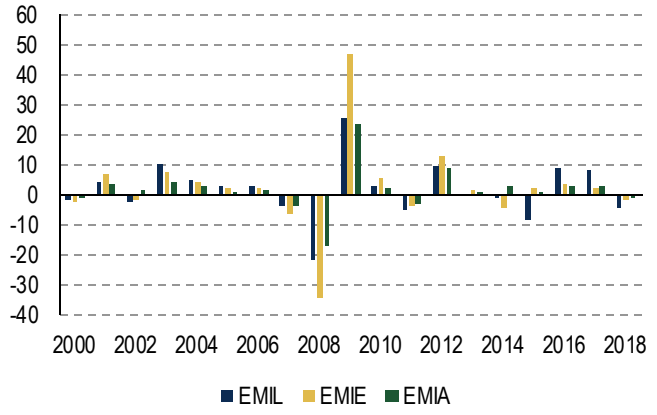
Looking at the historical returns between Asian investment grade credit and US investment grade credit, we find that Asia has outperformed most of the years since 2000 except 2013, 2016 and 2017, and Asia has outperformed the US when both Asia and the US had a loss year (2000, 2007, 2008, 2011 and 2018). The average return over the last 18 years for the US was 0.78% while Asia was higher at 2.22%, and the return volatility has been slightly lower for Asia with a standard deviation of 8.0 (compared to 8.3 for the US). In an emerging market context, Asia only outperformed six times over the last 18 years and underperformed in ten years. Generally speaking, Asia has tended to outperform in the weaker years and underperform in the stronger years. This can be explained by the higher average ratings for Asia (A3) compared with LatAm (BBB2) and EMEA (BBB1). Thus, the return volatility has been lower for Asia with a standard deviation of 7.3, vs. 9.5 for LatAm and 14.3 for EMEA.

Chart 44: Yearly excess returns for the Asian Dollar Corporate IG Index (ACIG) vs US Corporate Master Index (C0A0)



Source: ICE Data Indices, LLC

Chart 45: Yearly excess returns for the EM corporate IG Index for Asia (EMIA) vs LatAm (EMIL) and EMEA (EMIE)



Source: ICE Data Indices, LLC

Bond covenants

Similar to the US high-grade bond markets, Asian high-grade bonds do not tend to have a significant number of covenants. Most commonly found covenants include:

- **Limitation on liens or negative pledges:** Limits the issuer from using assets of the company or its subsidiaries to secure further borrowings which would effectively subordinate bondholders. This may also include limitations on sale and leaseback transactions.

- **Mergers, consolidations and certain sale of assets:** Usually limits the issuer from merging, consolidating or selling off a substantial amount of its assets unless the issuer remains the surviving entity, the company into which it is merged assumes all of the company's obligations and that the transaction would not result in an event of default. There may be defeasance and discharge options in the notes allowing the issuer to discharge its obligations under most of the covenants by irrevocably depositing in trust with the Trustee or Fiscal Agent money sufficient to pay principal and interest on the notes to maturity or redemption.

- **Minimum shareholding requirement:** Prevents shareholders from reducing their stakes below a certain amount without triggering an event of default, which is more commonly seen for issuers having some form of government ownership. This covenant is not generally seen in US bond documentation.

- **Change of control (CoC) put:** Ability to put back a bond if there is a change of control by the main shareholder. Historically, this has been more a US-style covenant given the large number of leveraged buyouts that were taking place in 2006/07 and has become a focus again. In Asia, this covenant is being used more often with more quasi-sovereign/SOE issuance where ratings are supported by government ownership. CoC puts offer some comfort to bondholders in the event of a change in ownership (or privatization). In some cases, a CoC may only be triggered if coupled with a rating downgrade.

We provide more detail on the different structures seen in the market in the "Latest products & structures" section.

Asian high-yield bond market

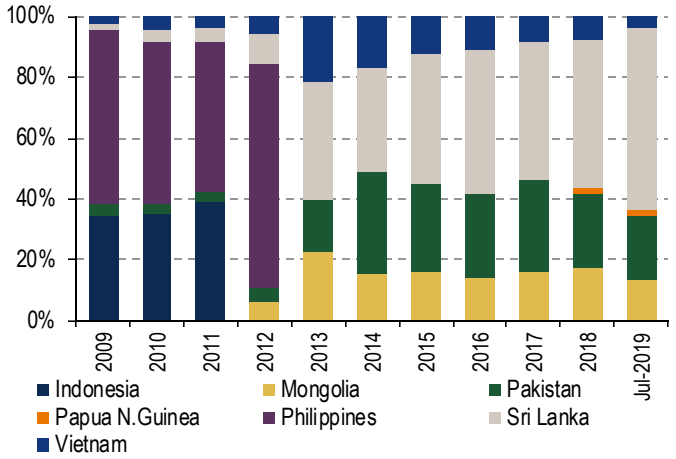
The total outstanding size of the Asian high-yield USD fixed-rate bond market as of end July 2019 was US$177.19bn, and consisted of outstanding issuance of US$25.3bn in sovereign debt (includes quasi-sovereign), US$138.2bn in corporate bonds and US$13.7bn in bank bonds.

Over the last few years, the representation by sovereigns in the Asian high-yield bond universe has fallen from 70% to 13% due mainly to the upgrades of Indonesia and the Philippines to investment grade, although we have generally seen more corporate than sovereign issuances. Currently, Sri Lanka accounts for 60% of outstanding high-yield sovereign bonds, followed by Pakistan (21%) and Mongolia (13%), while Vietnam and Papua New Guinea account for 4% and 2%, respectively.

On the corporate side, there has been quite a large shift in country dominance in the past 10 years. China has become the largest issuing country in high yield, accounting for 70% of the outstanding market vs only 12% in YE09. Indonesia, which accounted for the largest proportion of the market in 2009 at 35%, has fallen to the third largest issuing country, with 6% share. India representation has remained relatively stable at 11%, while market share of the rest of the region is generally lower than YE09.

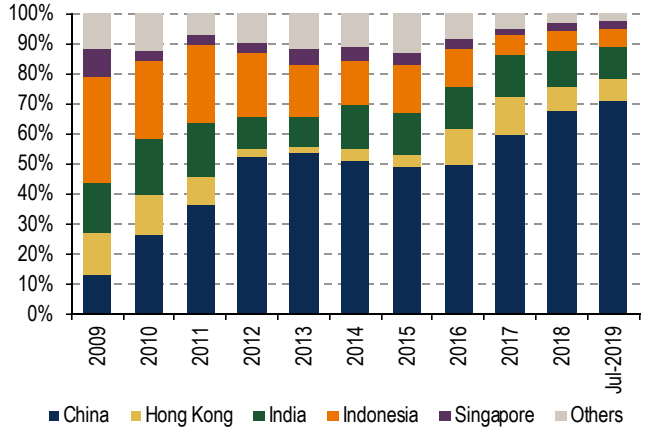
On an industry basis, real estate dominates with 60% of total corporate outstanding, increasing from only 13% back in YE09. Basic industry is the second largest sector, with a share of 10% (down from 21% YE09), while banks round out the top three with 5% (down from 14% in YE09). Transportation has seen the biggest decrease in market share since YE09, from 18% to 5%.

Chart 46: Asian Sovereign High Yield Index (AGHY): Country Breakdown



Source: ICE Data Indices, LLC., Ticker: AGHY

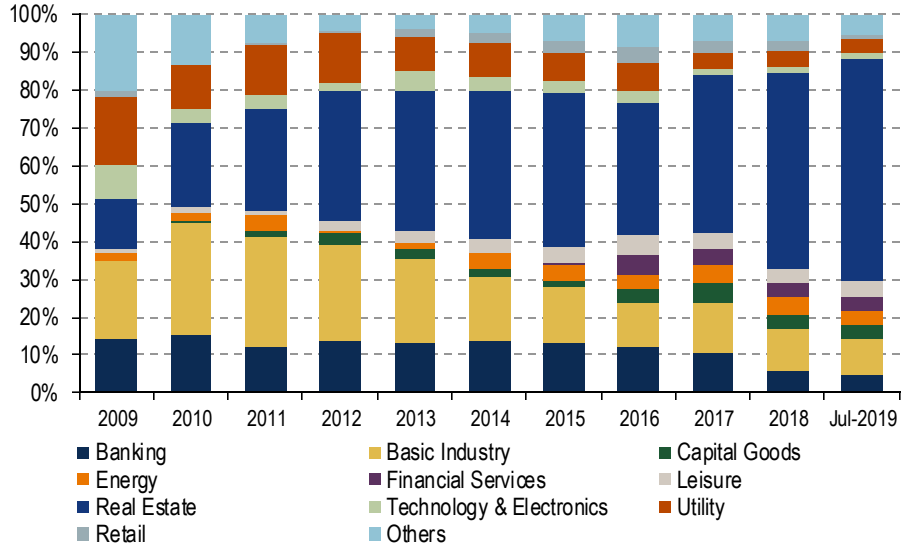
Chart 47: Asian Corporate High Yield Index (ACHY): Country Breakdown



Source: ICE Data Indices, LLC.; Ticker: ACHY (Other consists of countries with current market share <2% including Macau, Malaysia, Mongolia,, Cambodia, Taiwan, Thailand, Vietnam, South Korea)

Bank of America Merrill Lynch

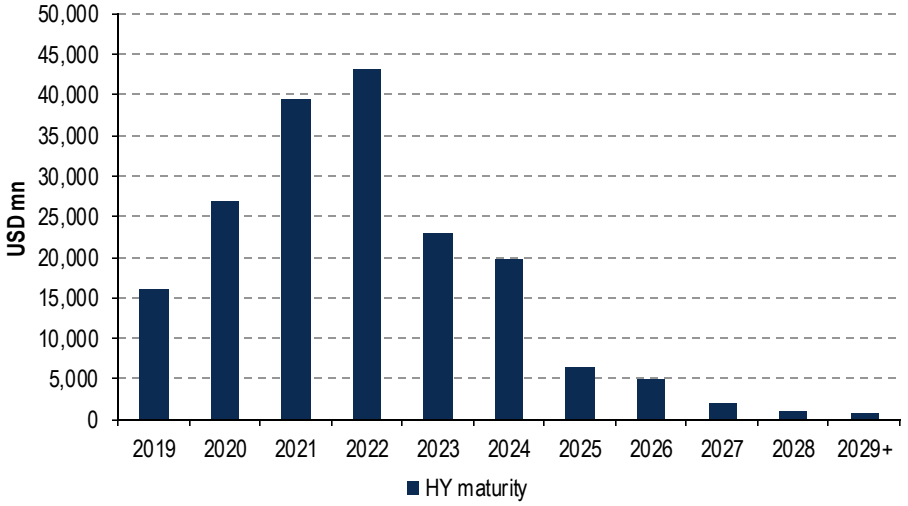
Chart 48: Asian Corporate High Yield Index (ACHY): Sector Breakdown



Source: ICE Data Indices, LLC.; Ticker: ACHY (Other consists of industries with current market share of <3% including Auto, Consumer, Healthcare, Insurance, Services, Telecom, transportation, Technology & Electronics)

Looking forward, refinancing amounts will likely increase rapidly in the next few years and peak in 2022 as high-yield corporate issuance has been strong over the past few years.

Chart 49: Asian high-yield corporate maturity profile



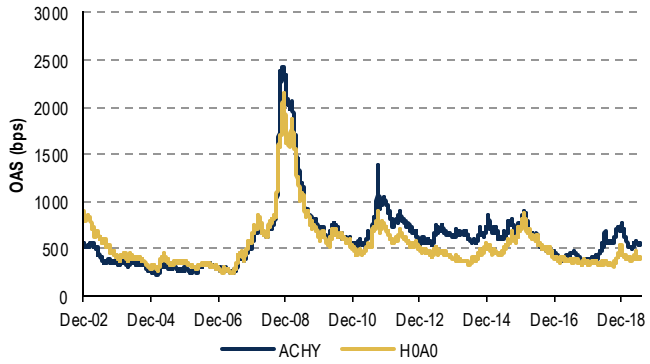
Source: ICE Data Indices, LLC, BofA Merrill Lynch Global Research

Spread history

Looking at the spread performance of high-yield credit, we find Asian spreads diverged from the US in 1997/98 as Asia was hit by the Asian financial crisis. We started to see Asian spreads tighten in late 1998 to late 1999 but never reached the tighter levels in the US. Asian spreads then widened out, in line with US credit spreads in early 2000. Asian spreads peaked in March 2001 as Asia Pulp & Paper (APP) and its associated companies fell out of the index after defaulting, and by August 2001, were inside of the US HY index as Asia started to recover. US default rates continued to rise until mid-2002 and the US HY index did not peak until later in the year. By early 2004, the two indices more or less converged. LatAm widened vs. Asia and EMEA in the early 2000s on the back of the crisis in Argentina. However, all three emerging market indices converged with the US in early 2004.

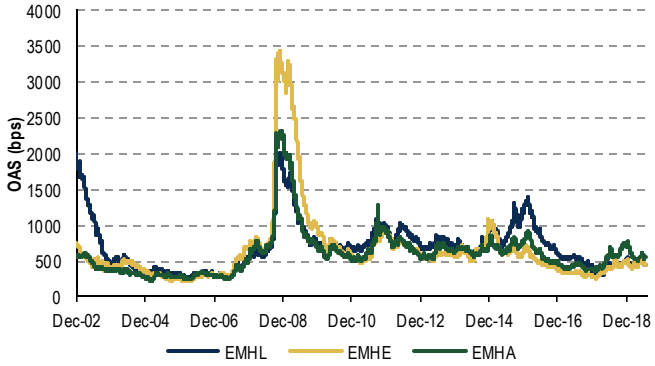
During the global financial crisis, Asian spreads peaked out at higher levels than US spreads (2,493bp vs. 2,182bp). We believe this was due to a combination of lower liquidity, and the majority of the index being exposed to countries with weaker/untested bankruptcy regimes. However, EMEA peaked out higher than Asia given its proximity to Europe and the pullback of European banks from the region. After peaking in late 2008, Asian high-yield spreads tightened in to US levels by 3Q10 along with EMEA, while LatAm lagged slightly.

Chart 50: Asian High Yield Corporate Index (ACHY) spreads vs. US High Yield master (H0A0) spreads



Source: ICE Data Indices, LLC

Chart 51: Asian EM High Yield Corporate Index (EMHA) spreads vs. LatAm (EMHL) and EMEA (EMHE)



Source: ICE Data Indices, LLC

Bank of America Merrill Lynch

In late 2010 and throughout most of 2011, Asian spreads widened aggressively against US high yield as concerns about a hard landing in China and corporate governance pushed out spreads. LatAm and EMEA spreads also widened in the risk-off environment driven by the Greek debt crisis but Asia peaked at higher levels (~200bp higher) in late-2011. By end 2014, Asian high-yield spreads were lower than the other two emerging market regions but remained about 200bp wide to US high-yield spreads.

Asia HY spreads widened again from end 2014 due to weak oil price, economic growth concerns and credit defaults, and remained wider than the US in 2015 when China surprised with currency devaluation, which drove a market sell-off. But at the start of 2016, Asian HY tightened extensively, trading in line with US HY as strong local bids supported valuation and with a shorter duration compared with the US. The spread pickup widened again in 2018 on concerns about a China slowdown and potential credit default, while Indonesia suffered from EM outflows due to the weak IDR. Currently, as at end August 2019, Asian high-yield spreads were about 247bp wider vs US high yield despite a higher average rating and shorter duration (BB3/3.2yrs vs. B1/4.6yrs in the US).

At end August 2019, Asia compared with the other two emerging market regions was about 37bp wider than LatAm and 185bp wider than EMEA with a shorter duration (Asia: BB3/3.2yrs vs. LatAM BB3/7.3yrs, EMEA: BB3/4.9yrs. Similar to investment grade spreads, spread correlations since 2009 between Asia and EMEA, and Asia and the US, have been high at 95% and 94%, respectively, while correlation with LatAm has been lower at about 84%.

Chart 52: Asian HY corporate spread vs. average

Source: ICE Data Indices, LLC

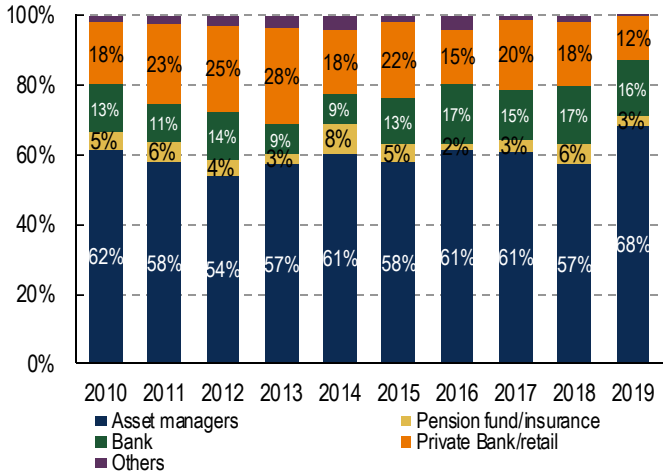
Chart 53: Asia HY spread pickup over US

Source: ICE Data Indices, LLC

Trading, liquidity and investor base

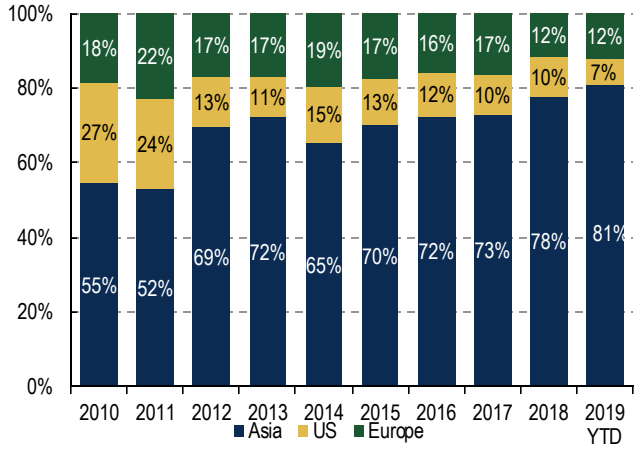
The Asian high-yield bond market has never been overly liquid. Prior to the global financial crisis, bonds traded 5x5; today, the market averages about 1x1 although the more liquid on-the-run bonds tend to trade in larger sizes (2x2). Pre-crisis, bid/offers were around 25 cents. Currently, the most-liquid names trade around 50 cents, with the less-liquid names trading around a point. After the first week of trading, on-the-run bonds generally tend to trade in a 3/8th point range. After three to six months, liquidity tends to drop, with bid/offers falling to 50 cents to 1 point. Generally, investors 'work an order' rather than cross a 1 point bid/offer in the market for the less-liquid bonds unless there is an event and they are looking to exit.

Chart 54: Investor base for Asian credit HY



Source: Dealogic

Chart 55: Investor base for Asian credit HY by geography



Source: Dealogic

Similar to the investment grade market, Asian high-yield bond deal sizes have increased from the pre-GFC period, with an average size of $500-750mn now compared with $200-300mn then, although trading volumes are higher. This is mainly due to the change in the number of dealers in the market, which has increased quite significantly (up from 5-10 to now as many as 30 via Market Access driven by an increase in regional names).

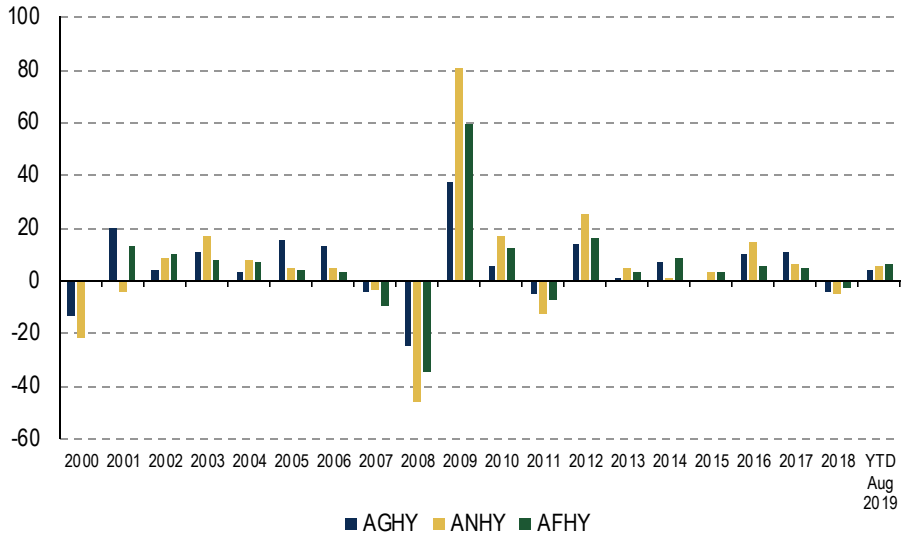
Another difference we have seen from the pre-crisis period is the shift in investor base. In general, the investor base has become more Asia-centric, with asset managers increasing at the expense of hedge fund/prop fund and private banks/retail investors. Asian real money accounts have become more active given the large inflows and greater allocations to Asian high-yield credit. Participation of asset managers has increased from around 50% 10 years ago to 68% YTD 2019. In addition, private banks' participation in primary deals has declined meaningfully to low-teens now from a peak of close to 30% in 2013, as overall yield has been grinding tighter across the board. But they continue to support Chinese property and have been buying roughly 25% of the new issuance from the sector the past five years.

Historical returns

In 2018, excess returns (coupon income and spread change) for the three ICE BofAML Asian High Yield Dollar Bond Indices turned negative after two years of strong returns. Excess returns in 2018 were -4.53% for sovereigns, -4.97% for corporates and -2.38% for banks, which were well below the averages over the last 19 years (5.4% for sovereigns, 5.4% for corporates and 5.6% for financials). Return volatility has been the highest for corporates with a standard deviation of 24.2 (13.3 AGHY and 17.0 AFHY).

Bank of America Merrill Lynch

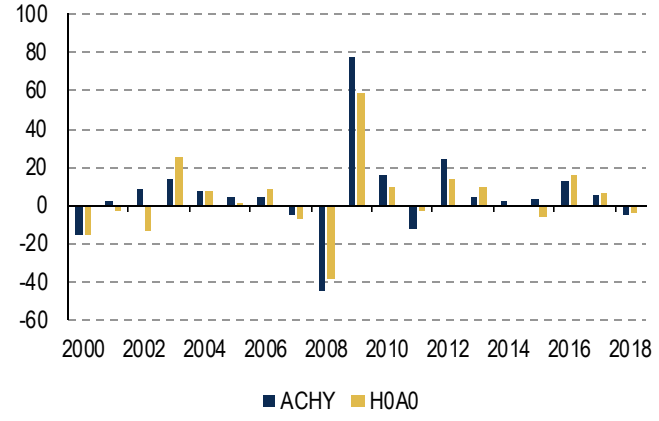
Chart 56: Historical excess returns from the Asian high yield indices (AGHY: Sovereign, ANHY: Corporate, AFHY: Banks)



Source: ICE Data Indices, LLC

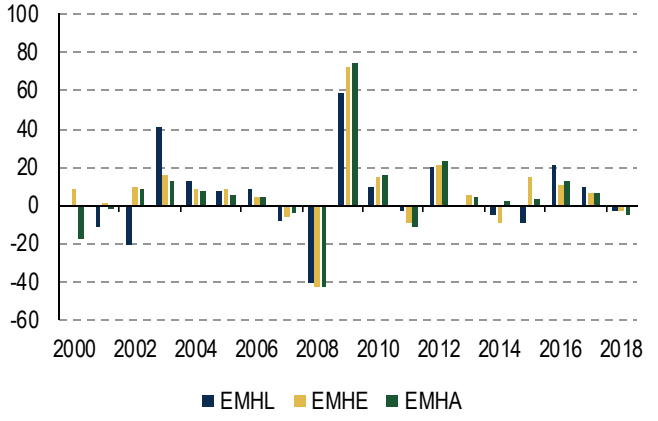
Looking at historical returns between Asian and US high yield credit, we find Asia outperformed nine out of the past 19 years, while for the last three years (2016-18) Asia underperformed the US. The average return over the last 19 years for the US was 3.4% while Asia was higher at 5.6%, although the return volatility has been higher for Asia with a standard deviation of 22.7 (compared with 19.3 for the US). In the emerging market context, Asia outperformed in six of the last 19 years and underperformed in eight years. LatAm outperformed in seven years while underperforming in 10 years. EMEA outperformed in eight years and only underperformed in three years. Return volatilities are similar for the three regions with 22.1 for Asia, 21.7 for LatAm, and 21.0 for EMEA. Currently all three regions have the same ratings of BB3.

Chart 57: Historical returns for the Asian Dollar Corporate HY Index (ACHY) vs. US HY Corporate Master Index (H0A0)



Source: ICE Data Indices, LLC.

Chart 58: Historical returns for the Emerging Market Asian Corporate HY Index (EMHA) vs. LatAm (EMHL) and EMEA (EMHE)

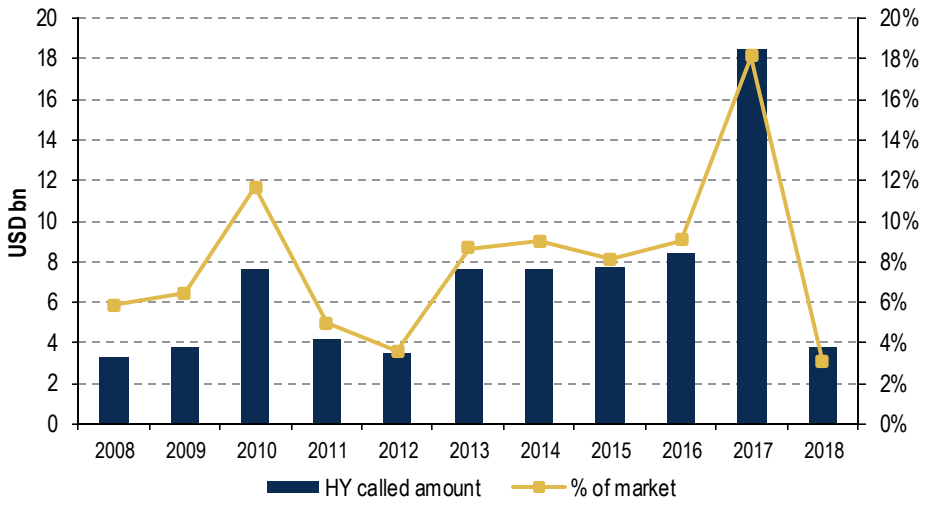


Source: ICE Data Indices, LLC.

Corporates called their bonds when interest rates declined

Prior to the global financial crisis, the number and amount of bonds being called by issuers were relatively low. In fact, a number of the bonds called by Indonesian issuers were called due to changes in tax requirements (see more below). However, as spreads have tightened and yields have fallen, we have seen more issuers call their bonds and refinance at lower rates. In 2017, the call amounts and percentage rose to the highest level as average Asian HY yield dropped to the lowest level ever (5.47% in March 2017). The call percentage declined in 2018 after interest rates and bond yields increased from previous years due to tighter monetary policies.

Chart 59: Seeing more HY companies calling their bonds



Source: BofA Merrill Lynch Global Research

Bond covenants

Covenants in Asian high-yield bonds are largely financial in nature, with a focus on restricting/regulating the borrower's financial activities within pre-determined limits. A large majority of the HY issuances are unsecured, and thus there are no asset pledge covenants for these bonds. Generally, covenants fall into one of three categories:

- **Affirmative:** These covenants outline company requirements while the bonds are outstanding, and would include requirements such as maintenance and submission of quarterly accounts, payment of taxes, maintenance of insurance, payment of bank interest and fees, etc.

- **Negative:** These covenants limit company activities. Examples include limits on new investments/acquisitions, asset sales or dividend up-streaming. Negative covenants are typically structured and customized to reflect the financial condition of the borrower and its industry.

- **Financial:** These covenants require that the borrower maintain some minimum financial conditions, usually in the form of ratios. Maintenance covenants require borrowers to meet certain minimum financial conditions or suffer a technical default on the loan, while incurrence covenants require that borrowers must meet certain conditions before they can add more debt.

Financial covenants for Asian HY bonds are relatively standard, having restrictions on debt incurrence, capital expenditure, and inter-company transactions, to name a few. Typical covenants would include some or all of the following:

- **Restriction on debt incurrence:** This is usually enforced by a minimum fixed-charge coverage ratio, or a leverage ratio, and is usually an incurrence test.

Bank of America Merrill Lynch

- **Restricted payments:** Dividends or contributions and repurchase of capital stock are usually restricted subject to a profitability test and limited to 50% of net profits earned since the date of the bond issue.
- **Restriction on asset sales:** Disposals of productive assets are restricted unless the proceeds are used for debt refinancing or asset replacement.
- **Related-party transactions:** Restricted beyond a threshold limit unless approved by the Board and independent audit firms.
- **Cash escrow account:** Although not the norm, some bond issues have a pre-defined cash trap and waterfall mechanism which restricts the usage of cash from operations for the company and mandates prioritized interest servicing and possibly early amortization based on excess free cash flows.

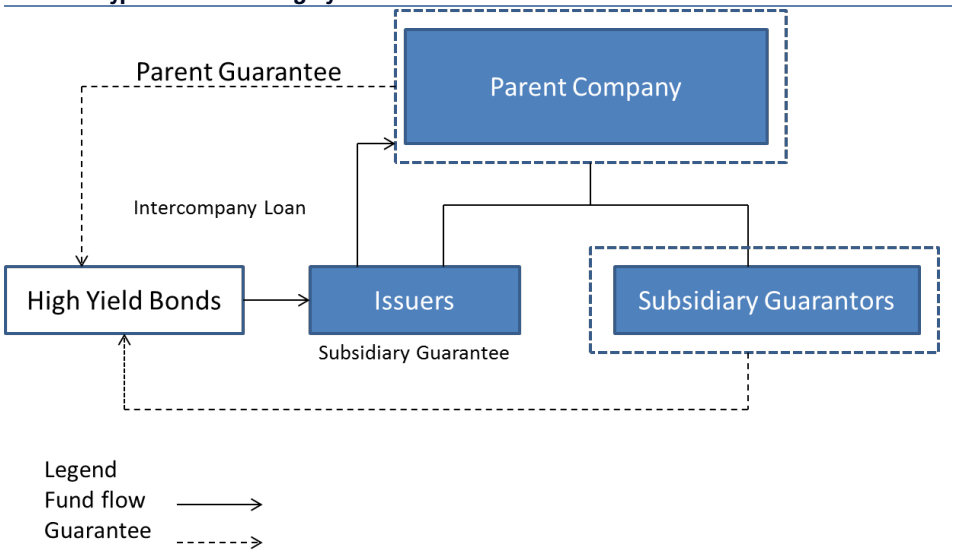
It is also customary for the bond covenants to include certain carve-outs which allow the company a relief from the bond covenants for certain defined corporate actions. These carve-outs are usually incorporated to allow management reasonable leeway to run the company, and usually include allowances for short-term working capital borrowings, debt-funded capex up to a defined limit, etc. However, liberal carve-outs have the potential to negate the effectiveness of the original covenants, and have been utilized in certain cases for aggressive borrowing/growth funding by issuers to the detriment of the existing creditors.

Indonesia

Enforcement of creditor rights uncertain: cash sweep mechanisms used

Enforceability of creditor rights, especially unsecured international creditors, has proven to be elusive in Indonesia due to a convoluted legal system and difficulties in implementing regulations. Against this backdrop, one way of securing creditor interests has been to have a tightly structured cash-trap mechanism which ensures cash flows from operations are collected in a specified bank account. Such structures should ensure creditor control over the cash flows of the borrower and minimize chances of cash leakage. This is most effective for exporters where cash can be collected and paid offshore. However, in the two cases used for Bumi Investment and Berau Capital Resources, this mechanism has not averted the default of the bonds. Further, it may not help in terms of recovery.

Exhibit 1: Typical Indonesian high-yield bond structure



Source: BofA Merrill Lynch Global Research, Fitch

Tax regulations create idiosyncratic risks

HY issuers from Asia have typically issued bonds via a special purpose vehicle (SPV) that takes advantage of tax treaties in place between tax-efficient jurisdictions and their home country, to reduce withholding tax incidence. SPVs for most of the Southeast Asian issuers are therefore based in locations such as the Netherlands, Cayman Islands, Singapore or Mauritius. Given the capital controls prevalent in these countries, these structures allow servicing of their international borrowings in a tax-efficient manner by reducing the amount of withholding taxes that the company needs to pay.

Historically, bond structures have incorporated a tax call, which allows for par redemption in case of higher tax liabilities, which could get triggered due to a change in the tax treaty with such tax havens or a change in interpretation of the treaty concessions. These bond calls pose a risk for investors and are especially relevant for issuance out of countries where the bond proceeds are on-lent onshore as a loan (as opposed to China where domestic withholding taxes are less relevant as offshore borrowings are sent onshore as equity injection).

Tax calls have historically posed a tangible refinancing risk for bonds from Southeast Asia trading above par. We have seen a number of older vintage bonds from issuers such as Aneka Tambang, Ciliandra Perkasa, PGN and Matahari exercise these tax calls. Bond structures for most bonds after crisis, however, offer more protection for investors as the tax call is linked to the based withholding tax incidence in the home country rather than on a reduced tax charge due to the bond structuring. Withholding tax rules are much more infrequently changed, and therefore refinancing risks are commensurately lower at present.

From an issuer's perspective, tax calls are likely if: 1) the company is in a position to replace these borrowings by onshore bank facilities, 2) the onshore borrowing rate is expected to be materially lower than the effective overseas borrowing rate, and 3) in the case of bonds trading well above par, management's perception of their need to access the international market in the future is low.

Regulations impact Indo issuers' ability to borrow in USD, especially low rated

In October 2014, Bank Indonesia announced new regulations to mitigate the risks of foreign borrowings undertaken by non-bank corporations. According to the new regulations, Indonesian firms that plan to borrow in US dollars should meet three criteria: (i) liquidity strength with a minimum liquidity ratio of 50% effective January 2015 and 70% by 2016; (ii) hedging ratio – companies planning to undertake foreign borrowings are required to hedge at least 20% of short-term dollar debt effective January 2015, to be raised to 25% by 2016; and (iii) only firms with a rating of BB- or above will be allowed to borrow in foreign currency. Note that credit ratings provided by domestic rating agencies are treated equally to those of foreign or international rating agencies. The rating rule, however, does not apply to firms borrowing for infrastructure-related projects or for refinancing.

India

Regulatory restrictions on offshore issuance

Under the Reserve Bank of India (RBI) regulations, Indian issuers wanting to raise money offshore are capped at the all-in-cost ceiling of 450bp over six-month Libor for dollar bonds and loans. This continues to limit high-yield issuance from onshore entities, forcing issuance via offshore entities. This is usually done by companies that are a part of large Indian conglomerates with business offshore.

China

Standard covenants but structural subordination

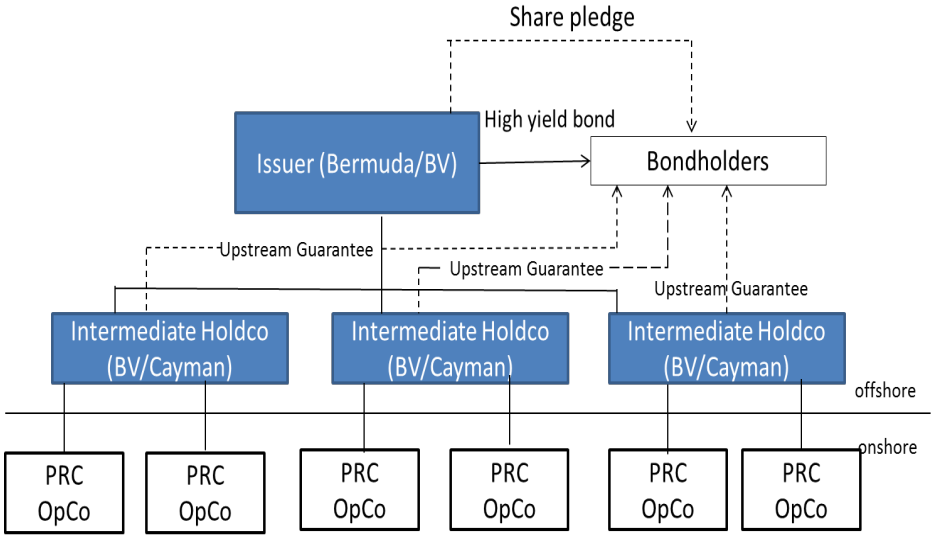
Covenants in China HY bonds are quite standardized and similar to those found in other Asian markets. One differentiating characteristic of China HY bonds is that offshore corporate bonds for Chinese companies are generally structurally subordinated to

onshore creditors despite the name 'senior guaranteed'. This is due to the more closed nature of the Chinese economy and capital markets. The majority of bonds are issued by an offshore holding company with a subsidiary guarantee from an intermediate offshore holding company comprising the company's equity in onshore operating subsidiaries. However, we have begun to see bonds issued in either CNH or USD bond markets (sometimes both) using other structures, some of which have enhanced the offshore bondholder's position on the capital structure. Not all these structures have been used by high-yield issuers.

Typical Chinese HY bond structure

Prior to issuing offshore bonds to overseas investors, mainland China companies go through what is formerly known as a 'red-chip' route – this involves incorporating a shell (BVI) parent company (holdco) outside Mainland China, which holds the onshore operating companies (opcos). The bonds are issued out of the holdco. These bonds benefit from subsidiary guarantees.

Exhibit 2: Typical Chinese bond structure



Source: BofA Merrill Lynch Global Research, Clifford Chance, Fitch

However, due to regulations which prohibit onshore operating companies in China from extending guarantees for offshore obligations (although this is easing as we discuss later), cash flow-generating onshore subsidiaries (generally classified as restricted subsidiaries) are excluded from the group of subsidiary guarantors. Subsidiary guarantors therefore comprise intermediate offshore holding companies, and the security pledged is these companies' equity in the onshore operating subsidiaries. There is typically other indebtedness at the opco, the bulk of which is local bank borrowings, which is typically secured. So, bondholders are generally subject to both effective and structural subordination.

Funds can be repatriated to mainland China through: (1) an inter-company loan to the mainland subsidiary, or (2) equity capital injections into the mainland subsidiary. It is important that investors understand how bond proceeds are transferred onshore as this has implications for how companies service debt and pay the principal on maturity.

- **Transfer and repatriation of bond funds using inter-company loans:** If the funds were down-streamed via an intercompany loan, and the loan carries no fixed repayment terms (i.e. payable on demand), this should offer the greatest flexibility to management. If there are fixed repayment dates, the ability to repatriate cash offshore in the form of loan repayments would follow the terms of the inter-company loan. We understand that as long as the appropriate documents are duly registered with the State Administration of Foreign Exchange (SAFE) upon fund injection, obtaining approval for repatriating loan repayments should be fairly straightforward.

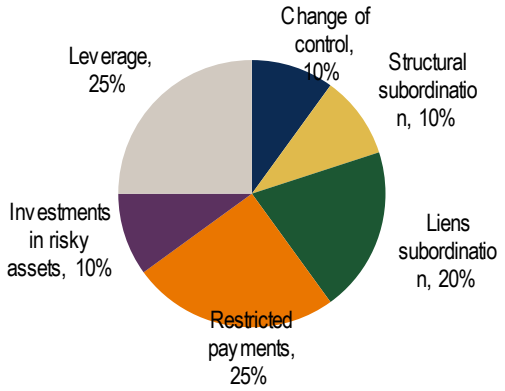
- Transfer and repatriation of bond funds via equity capital injections: Cash flows to service the bond coupons would be via dividends up-streamed from the opcos. Cash flows to finance principal repayments would either come from repatriation of equity injected into the opcos (i.e. after the opcos are liquidated), other internal cash sources or refinancing. All fund transfers out of the country (requiring conversion from RMB into a foreign currency) requires approval from the SAFE. For dividend up-streaming (or capital reduction/company liquidation), the process is more complicated and lengthy than inter-company loan repayments, particularly in the case of liquidation. Dividend payments are approved by the SAFE upon evidence of approval from the relevant tax bureaus to ensure all taxes have been paid. This process alone can take a few months.

Asia covenant quality stronger than other regions

Moody's has identified six key covenant risk factors (Chart 60) and assigned covenant quality scores based on the weighted average score of these factors. If we look at the average score from 2011 to 2Q19, the Asian cumulative score is stronger than the global average and other regions despite having weakened since 2011.

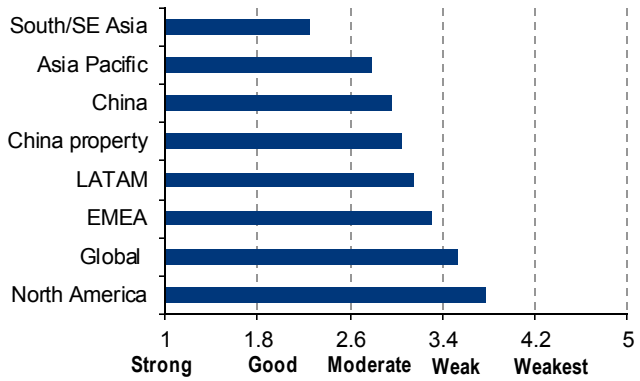
Within Asia HY, Chinese property covenants are weaker than the Asia average, but still score well on a global scale. According to Moody's, one driver for weakening credit score is that liens subordination scores weakened considerably in 2Q 2019 from the previous quarter, as more Chinese property bonds included credit facility carve-outs that can be secured under permitted liens, resulting in large potential liens subordination.

Chart 60: Moody's covenant scoring key



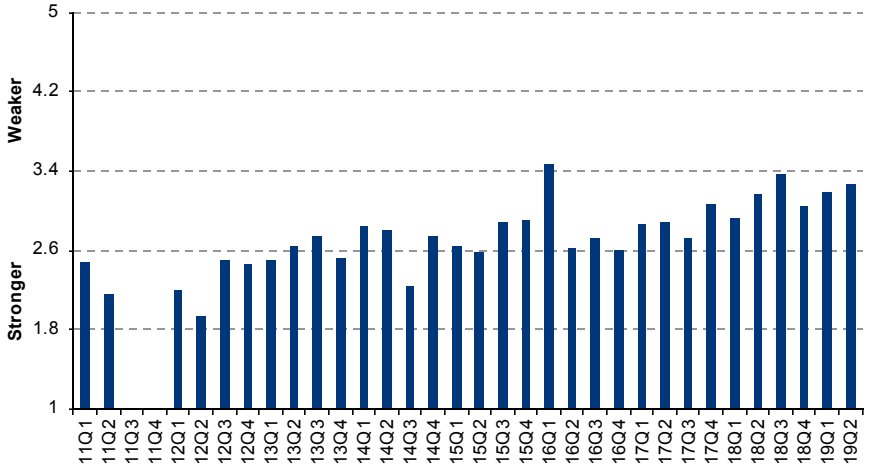
Source: Moody's

Chart 61: Cumulative regional covenant quality score



Source: Moody's, *cumulative scores from 2011 to Q2 2019

Chart 62: Asian quarterly average covenant quality score



Source: Moody's

Bank of America Merrill Lynch

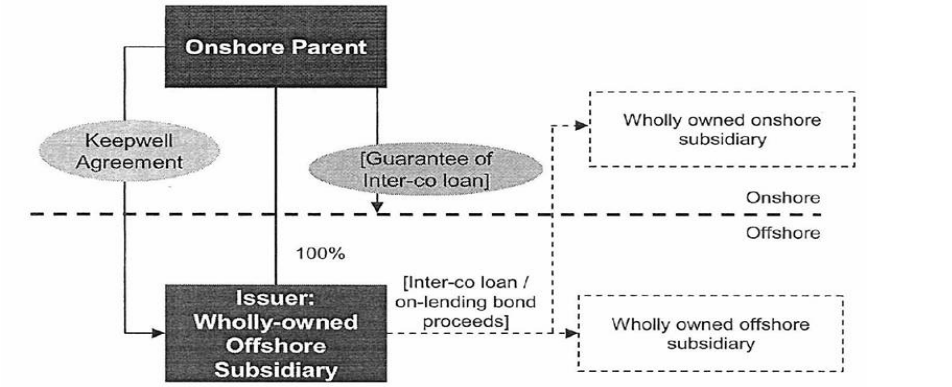
Latest products & structures

Various structures seen for Chinese issuers

On-shore parent as a Keepwell provider

In the event of default on the part of the wholly-owned off-shore subsidiary, the on-shore parent will be obligated to make sufficient funds available to the wholly-owned off-shore subsidiary. To strengthen the structure, the issuer can on-lend the proceeds from the bond offering to a separate wholly-owned off-shore subsidiary. The on-shore parent may unconditionally and irrevocably guarantee this intercompany loan (although this requires approval from SAFE).

Exhibit 3: On-shore parent as keepwell provider



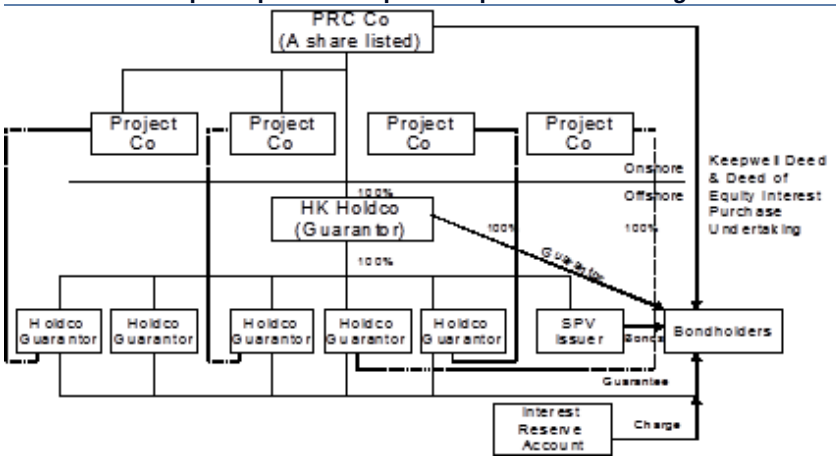
Source: BofA Merrill Lynch Global Research, bond documentation

There is no regulatory approval needed for a Keepwell Agreement structure and no restrictions on how much of the bond proceeds can be brought on-shore. A Keepwell Agreement is enforceable under international law and a breach of any undertakings by the on-shore parent will represent an event of default under the notes. However, the enforcement of the Keepwell Agreement may require consent or approvals from relevant PRC regulators including SAFE.

Keepwell & repurchasing agreement from on-shore parent

This structure requires the bond to be issued by an SPV with a private HK Holdco providing a guarantee while the on-shore listed parent provides a Keepwell and repurchasing undertaking. In the event of default, under the repurchasing undertaking, bondholders may require the PRC company to purchase equity interest in on-shore entities from off-shore subsidiaries for an agreed price with the proceeds of sale for use in debt service. Approvals are required from Ministry of Commerce (MOC) and SAFE on acquisition of the projects for on-shore acquisition/intragroup transfer. This structure can be used to raise both CNH and USD bonds and it allows the company to remit funds on-shore.

Exhibit 4: On-shore parent provides Keepwell & repurchase undertaking

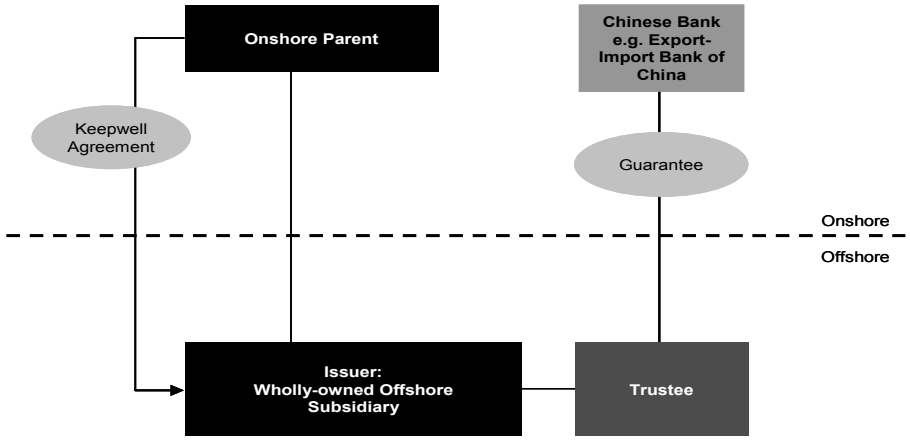


Source: BofA Merrill Lynch Global Research, bond documentation

Chinese bank as a guarantor

Under this structure a bond has the unconditional and irrevocable guarantee from a Chinese bank. A cross border RMB guarantee is not considered a foreign debt and so is not subject to a bank's off-shore quota. In addition, a Keepwell Agreement is issued by the on-shore parent to the off-shore, wholly-owned subsidiary to ensure that the issuer has sufficient liquidity. For bonds which may be issued in USD, the guarantee would be an RMB amount based on the USD bond amount plus interest and fees using the FX spot rate at the demand date. Depending on the demand date ascribed by the documentation, investors may or may not take FX risk if the demand date is based on the date of issuance rather than maturity. While the rules do not prohibit companies from bringing the funds on-shore, SAFE registration is required, and it is uncertain how this would be viewed as this has not been tested.

Exhibit 5: Chinese bank guarantee structure



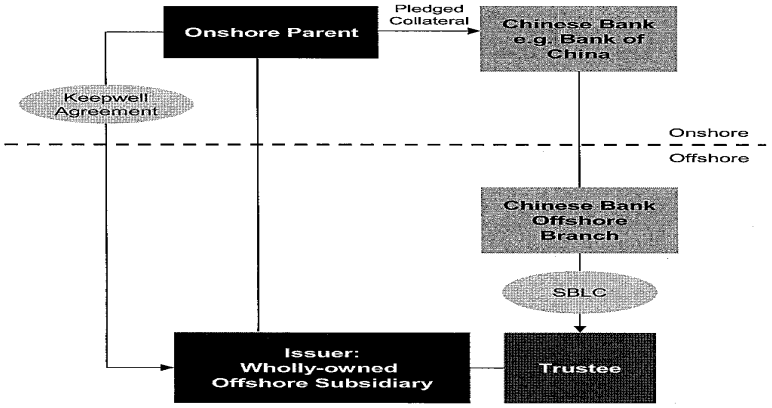
Source BofA Merrill Lynch Global Research, bond documentation

Bank as provider of standby-letter-of-credit (SBLC)

Bonds under this structure can have an unconditional and irrevocable standby-letter-of-credit (SBLC) from a Chinese bank's off-shore branch, a non-Chinese bank or an on-shore bank issued in favor of the trustee. The SBLC can be drawn if the issuer fails to comply with the requirements in relation to the pre-funding amount as required for the interest reserve fund or an event of default. The on-shore parent also enters into a Keepwell Agreement to ensure that the issuer has sufficient liquidity.

Bank of America Merrill Lynch

Exhibit 6: Chinese bank as provider of standby-letter-of-credit



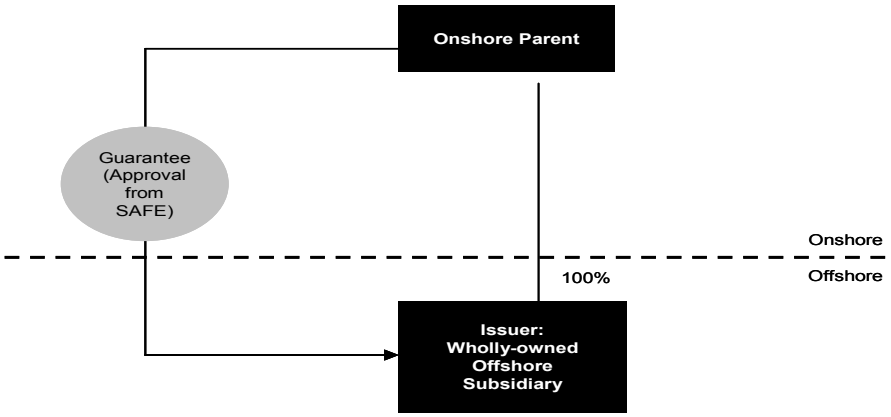
Source: BofA Merrill Lynch Global Research, bond documentation

The guarantee does not fall within the foreign guarantee quota of the bank as it is issued off-shore so no SAFE approval is required. The off-shore branch can give the guarantee as long as it is authorized by the headquarters. While there are technically no restrictions on remitting the proceeds on-shore, on-shore remittance could put pressure on this structure given a lack of precedent. The issuer's credit profile is enhanced by the SBLC from the higher rating of the bank. In the case of an on-shore bank providing the SBLC, if the SBLC is in RMB, it is not considered a foreign debt and therefore it does not fall under the PRC Bank quota. While remittance back on-shore is possible in this instance, it requires SAFE registration which at this point has been untested.

On-shore parent as a guarantor

This requires Central SAFE approval and both the National Development and Reform Commission (NDRC) and Ministry of Commerce (MOC) are required to pre-approve overseas projects. The guarantee quota can be used for USD or CNH bonds and can be no more than 50% of consolidated net assets. The entity to be guaranteed has to have been profitable for two out of the last three years or the entity can be a newly set up SPV. This enables a company with no material operations off-shore to issue off-shore bonds. Bond proceeds cannot be remitted on-shore directly or indirectly (e.g. acquisition of equity in an off-shore entity holding on-shore assets is not allowed). However, we understand that there are more companies using this structure with off-shore borrowings used to guarantee an on-shore loan. It is believed that property developers are not eligible to use this structure. The bonds rank *pari passu* with all other unsecured debt of the parent company.

Exhibit 7: On-shore parent guarantee structure



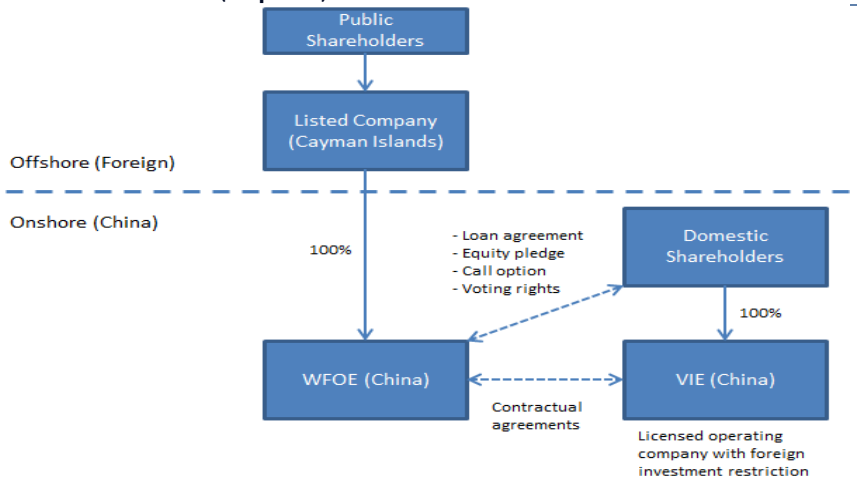
Source: BofA Merrill Lynch Global Research, bond documentation

Variable Interest Entity structures

The Variable Interest Entity (VIE) structures are employed by Chinese internet companies. VIE structures were first introduced by Chinese companies listing in the US over a decade ago as a way to bypass Chinese government restrictions on foreign investment in certain industries (internet-related industries being one of them, with education, financial services and real estate among others). SINA was the first Chinese company to feature the structure when it had its IPO on the NASDAQ in 2000 and since then, the practice has become commonplace among offshore listed companies, with roughly half of Chinese companies listing on the NASDAQ using a VIE structure. Baidu and Tencent both use this structure.

The VIE structure (Exhibit 9) typically involves the offshore listed entity forming a wholly foreign-owned entity (WFOE) in China, which takes effective control of the domestic VIE via a series of contractual arrangements (rather than share ownership). This in turn allows the listed company to consolidate the financials of the VIE into the group's overall financial statements. A VIE's shareholders, typically, and in the case of Baidu and Tencent, are the founders of the company, who retain Chinese nationality and hold the required licenses and permits to operate the business (ie. those that cannot legally be owned or transferred to the WFOE under Chinese foreign investment restrictions).

Exhibit 8: VIE structure (simplified)



Source: Company reports, O'Melveny & Myers, PKU

The weakness of the VIE structure is that the public company does not actually own the VIE and its operations, instead controlling the entity through contractual arrangements. Further, while the Chinese government does not explicitly prohibit the structure, it has not officially approved it either. Should the PRC government determine that the companies do not comply with applicable laws and regulations, the VIE could be prevented from being able to operate if still controlled by an overseas entity or subject it to materially harmful regulatory actions (ie. fines, confiscations, having licenses revoked, etc).

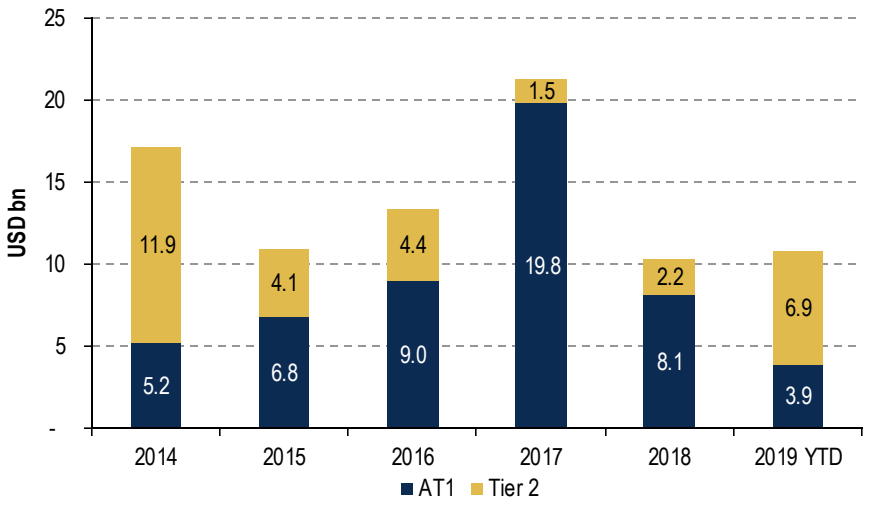
That said, a ruling as such would have widespread ramifications given all Chinese internet companies listed abroad use the VIE structure, many of which bring significant economic and entrepreneurial benefits to China. Baidu and Tencent bonds are protected by a CoC at 101% triggering if there is a change in law/regulation that materially impacts the ability to derive substantially all the economic benefit from business operations. Additionally, both Baidu and Tencent have taken steps to reduce risk associated with the VIE structures by keeping the majority of operating cash flow and unrestricted cash at the WFOE level while only keeping minimal cash required for WC purposes at VIEs. In recent years, Baidu has derived over 70% of its revenues from WFOEs.

Basel III bank capital

Size and growth

Bank capital is not a new product in Asian markets but since 2014, we have started to see Basel III compliant capital which has features which differ from Basel II bank capital. 2019 YTD, we have seen US$10.8bn of issuance, higher than full year numbers in 2018. The strong supply is mainly driven by Asian financial institutions (FIs) outside China, as well as non-bank financial institutions (NBFIs). In our view, we expect the trend to continue in 4Q19 and 2020, which could make up the lower issuance from China banks' AT1 due to China onshore bond market developments (see our report: *China Onshore Credit Bond Monthly: Robust onshore AT1 supply to alleviate offshore refinancing pressure, 17 September 2019*).

Chart 63: Asian Basel III bank capital issuance trend



Source: Bloomberg

How do Basel II & III securities differ?

Tier 2

- Tier 2 securities can no longer have step-ups or any incentive to call
- Tier 2 securities must be loss absorbing at the Point of Non-Viability (PONV)
- Upper Tier 2 (usually perpetual cumulative debt) is no longer applicable.

Table 6: Comparison for Tier 2 between Basel 3 and Basel 2 requirements

	Basel III Tier 2	Basel II Tier 2
Tenor	>=5yr	>=5yr
Restriction on call	>=5yr	None
Step-up	Not permitted	Permitted
Capital treatment	20% deduction each year for 5 years prior to final legal maturity	20% deduction each year for 5 years prior to final legal maturity
Ranking	Subordinated to depositors and general creditors	Subordinated to depositors and general creditors
Coupon deferral	None (Optional cumulative deferral)	Deferrable & cumulative for UT2 only
Loss absorption	Full & permanent write-down of principal amount or conversion to equity at the PONV	On liquidation

Source: BIS, BofA Merrill Lynch Global Research

Additional Tier 1

- AT1 securities can no longer have step-ups or any incentive to call

- Banks must have full discretion to defer coupon payments for AT1 – no dividend pusher language is allowed but dividend stopper language is okay
- Must have loss absorption in the form of write-down or conversion to equity triggered by capital ratios for liability accounted instruments
- Loss absorption at PONV similar to Tier 2

Table 7: Comparison for Additional Tier 1 between Basel 3 and Basel 2 requirements

	Basel 3 AT1	Basel 2 Tier1
Tenor	Perpetual	Perpetual
Call	>=5yr	>=5yr
Step-up	Not permitted	Permitted
Ranking	Subordinated to depositors, general creditors and subordinated debt	Subordinated to depositors, general creditors and subordinated debt
Coupon/dividend deferral	Fully discretionary, dividend stopper permitted, does not exceed distributable amount	Discretionary, dividend stopper or pusher permitted, does not exceed distributable amount
Deferral settlement	Non-cumulative	Non-cumulative
Loss absorption (Capital ratio based trigger)	For liability accounted instruments CET1<5.125% or higher, write-down of principal amount or conversion to equity with full or partial write-down and full or partial write-up	N/A
Loss absorption (PONV trigger)	Full & permanent write-down of principal amount or conversion to equity at the PONV	On liquidation

Source: BIS, BofA Merrill Lynch Global Research

Key structural features

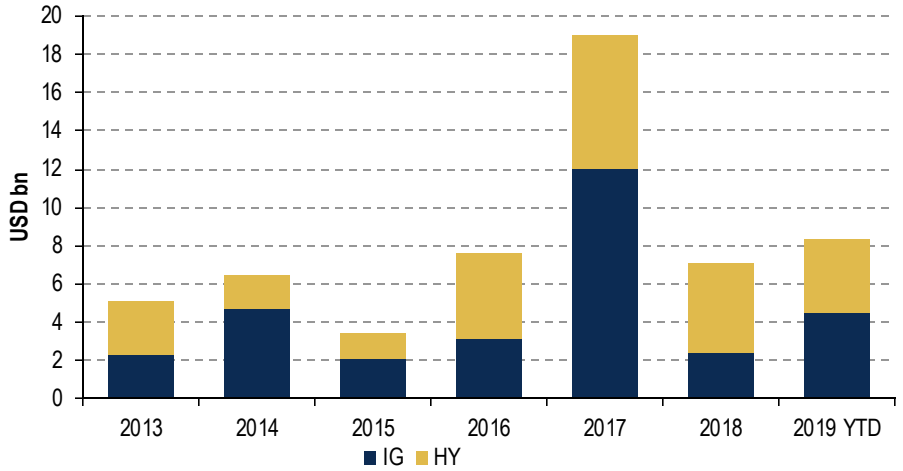
- **Point of non-viability (PONV)** – varies across regions
- **Loss absorption** – Equity conversion/temporary write-down>partial writedown>full write-down, but practically speaking, recoveries likely to be low so we think this is hard to expect this to impact valuation differentials
- **Capital ratio triggers & buffers** – Write-down if trigger hit or potential couponskip as banks eat into buffers will play a big role in valuations
- **Distributable profits** – Different regulators have different definitions impacting potential coupon skips
- **Dividend stoppers** – No stopper allows possibility for banks to pay shareholders and not bondholders.

Corporate perpetuals

Size and growth

While corporate perpetuals are not a completely new product in Asia, we did not start to see these structures issued until 2010, 13 years after Swire issued its preferred security (callable in 2017). The issuance peaked in 2017, when overall yield was low.

Chart 64: Corporate perpetual issuance trend



Source: Bloomberg

Why do companies issue perpetuals?

Companies issue hybrid bonds for various reasons. This includes:

1. Issuing a product which gets equity credit from the rating agencies in order to take near-term pressure off of ratings which may be on the verge of downgrade otherwise;

2. As a way to cure a loan covenant breach given that corporate perpetuals are usually treated as equity under accounting standards on a company's balance sheet (even senior perpetuals); and

3. To lock in longer-term funding with optionality.

Key structural features

Perpetual securities usually rank junior to senior unsecured bonds in a company's capital structure both via structural subordination as well as given their maturity profile. However, the exact ranking of a particular hybrid varies and is based on bond features that determine their place in the issuer capital structure, relative to debt and common equity in the company. Some of the common features in corporate perps are discussed below:

- **Subordination:** Senior perpetuals usually rank pari-passu with other senior unsecured obligations and are explicitly stated to be senior in nature. These bonds do not have deferral features built in, resulting in a debt-like instrument that does not get notched by the rating agencies. Subordinated perps on the other hand are more equity-like and rank junior to the issuer's senior unsecured debt. Issuance from a holdco or a SPV adds another layer of subordination to the guarantor's senior unsecured debt, and therefore such bonds should be considered subordinated.

- **Ratings:** Asian perpetuals are usually unrated instruments, as issuers are benchmark established corporates in their home markets and the target audience (Private Banks) is less ratings dependant in their investment consideration. For rated issuers, bonds usually elicit comments from the rating agencies as to the

indicative notching versus their senior unsecured debt, which is used as a surrogate to an explicit rating. Typically, subordination and optional deferral would each result in a one notch step-down for a hybrid instrument, while a mandatory deferral would cost the bond two notches.

- **Optional coupon deferrals:** Optional deferral is a common feature for corporate hybrids, which allows the company to defer the coupon payment at its own discretion. Such deferrals are usually cumulative and interest bearing, and come with a three to six month dividend restriction period to allow for the optional deferral.

- **Mandatory coupon deferral:** Under mandatory coupon deferral, interest servicing on the bonds is suspended on occurrence of a trigger event which is variously defined as coverage or leverage ratios, or a threshold rating on the issuer. Mandatory deferral is typically cumulative.

- **Mandatory cancellation:** This is an equity-like feature that results in a mandatory cancellation of bond distributions on occurrence of a trigger event.

- **Coupon step-ups**: A coupon change feature is typically incorporated into hybrid structuring to achieve multiple objectives. A step-up allows for a higher interest payment to bondholders in the event of a non-call, and is incorporated to encourage a bond call. Coupons also have re-sets, to reduce treasury sensitivity for bondholders. A higher back-end reduces the issuers' chances of getting equity credit on the instrument, and is therefore sparingly used by HG issuers (assuming they are issuing bonds to reduce ratings pressure). In some cases, the re-set switches from fixed (over UST) to floating which would make it more rate sensitive.

- **Replacement capital clause:** This clause calls for replacement of the perpetual on the call date/ maturity via similar instruments or common equity. This feature makes the issue more equity-like in nature, and is less common in a binding format amongst Asian structures. A binding RCC makes it more difficult to refinance the bonds with cheaper dated borrowings and is therefore more equity-like in nature although we note that a binding RCC after the first call date may incentivize the company to call these bonds. A non-binding RCC suggests some intent to replace the bonds with equity but this will depend on markets. In general, company management prefers to avoid diluting shareholders.

- **Dividend pushers and stoppers**: A dividend pusher clause mandates debt servicing on the hybrids if dividend is paid on common stock (thereby preempting the optional deferral feature), while a dividend stopper prevents equity distributions if the debt servicing on perpetuals is suspended. Substantially all of the Asian hybrids feature a dividend stopper, and a majority of the bonds have a dividend push feature.

Chinese government-related entities

Outstanding size of Chinese GRE dollar bonds

Based on the ICE BofAML Emerging Markets Corporate Plus Financial (EMCB) index, the size of Chinese government-related entities (GREs) is about USD260bn, nearly 20% of the whole EM space as at end March 2019. Of this USD260bn, FIs and SOEs are about 45% each, and LGFVs nearly 8%. In terms of subcategory, the universe became more diversified after 2016. The substantial segments are NBFIs (24% of GREs in March 2019), 1st tier SOEs (25%) and IG LGFVs (7%) for each of the three categories. BBB SOEs and banks senior bonds are also important sectors, at nearly 15% of each in the GRE universe. **The GREs include the following three parts:**

State-owned financial institutions (FIs): A majority of Chinese financial institutions as USD bond issuers could meet our criteria of GREs, namely being government-controlled with government holdings above 20%. These include (1) most Chinese banks, including the policy banks, the Big 5 banks, and most joint-stock banks; and (2) the Chinese non-bank financial institutions, including the four national asset management companies (AMCs), and most leasing companies, partially or fully owned by the Big 5 banks. In terms of instruments, GRE banks' seniors bonds, tier-2 bonds, AT1 and non-bank financial institutions' (NBFIs) dollar bonds are all included in our GRE data, and are referred as *FIs* later when we conduct the index analysis of the benchmark or investor base of GREs.

Local government funding vehicles (LGFVs): LGFVs are companies set up by local governments, their departments or their agencies through asset injections such as capital and land for the purpose of raising funds for public infrastructure projects. They are independent economic entities with legal personality. Given their clear policy role to promote social and economic development of the region through provision of public services and/or developing infrastructure, these companies tend to be weak in profit generation and have high debt levels. Operations of such companies rely significantly on support from local governments through periodic subsidies, grants and asset injections. Based on their rating, we divide LGFVs into investment grade (IG) LGFV and high yield (HY) LGFV.

China state-owned enterprises (SOEs): Other than LGFVs, the rest of the corporate issuers in the GRE space are SOEs. Based on their systemic importance, we classify SOEs into three categories: first-tier SOEs (1st tier SOEs), which are more like quasi-sovereign issuers, including three oil majors, two power grid companies, and two power generation companies. They have a long issuance track record since as early as the mid-2000s and are rated at 'high A', with solid fundamentals. The second tier SOEs (2nd tier SOEs) are still A-rated, but they appear less important in various industries; some are less systemically important than oil and power. The third group is BBB SOEs, or as the name implies are *BBB-rated SOEs* with weaker fundamentals.

Distinction between LGFVs and SOEs

LGFVs have many similarities with local government-owned SOEs; however, LGFVs are more policy-driven, while SOEs are more profit-driven. Usually, LGFVs only operate in more concentrated industries, which mainly support local governments' economic development strategies, e.g. infrastructure building. Meanwhile, SOE industries are more diversified across manufacturing, commodities, real estate, etc. Regarding funding, LGFVs are less diversified than SOEs, and may face more constraints since 2018. It could be easier for SOEs to give commercial banks financing, as corporate loans are a standard service for the banks. A majority (typically 100%) of LGFV revenue income, as well as receivables, is usually from local governments. In contrast, SOEs have a more diversified customer base than LGFVs. We list the opinions on the key differences between LGFVs and SOEs of one of the onshore rating agencies in the following table as a reference.

Table 8: Key differences between LGFVs vs SOEs

	SOEs	LGFVs
Responsibility	Support important industries with national strategic importance for the economic development and social stability	Primarily act as an extension of government functions while operating some market-oriented businesses
Business	Aerospace, shipping, military, petroleum, chemical engineering, heavy equipment and industrial machines, electronics, non-ferrous metals, etc.	Land development, infrastructure construction, water, heating, public transportation, etc.
Operation	Market-oriented, responsible for their own profits and losses	Rely on earnings from profitable businesses and/or government subsidies to support daily operations
Profit target	Profit focus to preserve and increase the value of state assets	Not profit focus but mainly to support local governments' policies and missions
Staff size	Generally large	Relatively small

Source: Lianhe Global, *QPIG- Is it a LGFV or SOE?* By Alex Kung, 26 FEB.'19.

Functions in economy

FIs: Providing a variety of financial services is the general function for financial institutions in any economy, e.g., taking deposits and providing credit to corporate sectors. Its general importance to the economy and social salability is very high. While, as China's GREs, FIs could (1) provide the credit growth based on the central government's guidance on loan quotas on annual basis; (2) make contribution in terms of dividend payout to the government as a shareholder; and (3) providing funding to prioritized sectors, it could be not only other GREs, e.g. SOEs/LGFVs, but also privately owned enterprises (POEs) like the policy mandates announced in 2H18. Having explained those policy functions, most listed FIs are very profit driven to maximize the interests of the shareholders.

SOEs carry more policy functions than POEs. This is especially true for the 97 State-owned Assets Supervision and Administration Commission (SASAC)-administered central SOEs. Among the 97, the top 49 are commonly known as the backbone SOEs. Their functions for the government are very important in terms of carrying out certain policy mandates, such as energy/food security, controlling inflation and push forward national strategies in key industries. Meanwhile, given the Central SOEs' mega size of operations, they also contribute meaningfully in FAI, employment and fiscal revenue via tax/dividends. Other than Central SOEs in *Strategic industries*, the local SOEs are usually in competitive sectors like manufacturing or commodity-related sectors, and their functions could be replaced by POEs. Government support is usually based on the long-term profitability of an SOE. If the SOE would be only viable on government financial aid, the support would most likely be very weak amid repeated repayment risks.

LGFVs have a very important policy function as the funding arms of local governments and also the working units conducting FAI. Having been rooted into the unbalanced fiscal system since 1990s, the importance of LGFVs is mostly due to the restrictions of government direct borrowing from banks and capital markets. The central government collects a considerable portion of fiscal revenue from local governments, but guides them to have a high FAI to support the economy and employment through LGFVs. Relative to local SOEs, their operations are unlikely to be in competitive sectors. For more details, please see *LGFVs: Cheaper funding expected in 2019*.

For details, please refer to the primer: China GREs: Primer: China government-related entities (GREs) – same, same but different 24 May 2019.

Convertible bonds market

Michael Youngworth, CFA
BofAS
michael.youngworth@bofa.com

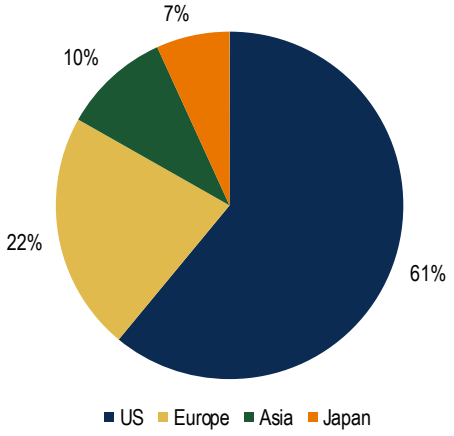
Asia convertibles market overview

Convertible securities are a hybrid financial instrument traditionally defined as an investment security which is not currently common stock, but which can be converted into common stock at the holder's option. This includes commonly known securities such as convertible bonds and preferreds but also extends to more exotic securities. Convertibles combine both equity and debt features, allowing the investor to participate in equity price appreciation with more limited downside risk, generally provided by the debt feature (derived from the convertible's stated coupon and claim to principal). In contrast, the equity feature is derived through the call option, or warrant, embedded in the bond and enables the convertible bond to participate in equity price appreciation. Accordingly, the value of individual convertible bonds and the full convertible bonds market is impacted by the performance of the underlying equities, equity volatility, credit spread and interest rates. Please refer to our full Global Convertibles Primer for a more complete explanation of convertible bond features.

While Asia is a small portion of the CB market, it has grown in the past three years

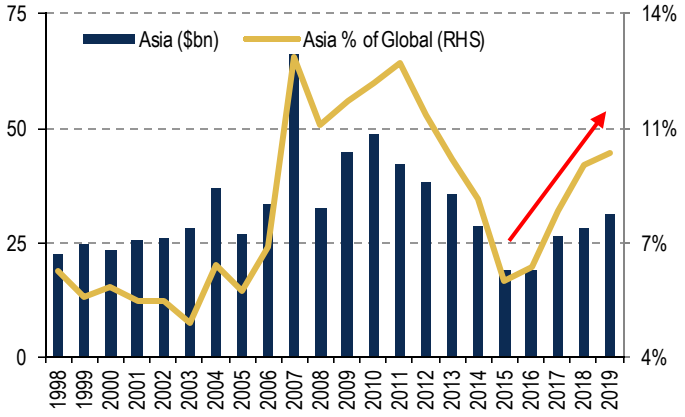
The market cap of the global convertibles market is currently about $315bn, with the majority from the US market, which is $192bn in market value and makes up 61% of the total (Chart 65). The Asia market is about $31bn in size and has been growing since its recent trough in 2016 (when its market value was only $19bn) amid better performance, improving primary issuance, and better net supply trends, which we discuss in detail below (Chart 66). Not only has the Asian market grown in absolute terms since 2016, but it has also expanded more than other regions, resulting in a larger global footprint. Today, the Asia market comprises about 10% of the total market, up largely from just 6% in 2015 (Chart 66).

Chart 65: The global convertibles market is currently about $315bn in market value with the majority concentrated in the US (61%)



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 66: While Asia only makes up 10% of the global market, its footprint has grown sizably since its trough in 2016



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Asian CBs are more equity sensitive and have higher implied vol versus history

As of July 2019, the weighted average delta (an equity-sensitivity metric that measures the relationship between a convertible's price and its underlying equity's price) of all convertibles in the Asia market was 0.33, a moderately elevated level versus history in the 66th percentile since 2000 (Chart 67). Notably, this measure dropped to nearly zero by Q4 2008, but it has been on an uptrend since, in-line with equity movements. Similarly, the average conversion premium (the premium a convertible bond trades

relative to parity, or the value if the holder were to convert his or her bonds into stock) is now 36%, somewhat narrow versus history in the 36th percentile since 2000 (Chart 68). Finally, we note that the Asia convertibles market current yield is now 1.38% (49th percentile since 2000), and its duration is 1.51 years (85th percentile since 2000).

Chart 67: The Asian convert market's average delta (a measure of sensitivity to its underlying stock) is currently 0.33, in the 66th percentile since 2000...

Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 68: ... while its average conversion premium (the premium a convertible bond trades at relative to its underlying stock) is currently 36%, in the 36th percentile since 2000

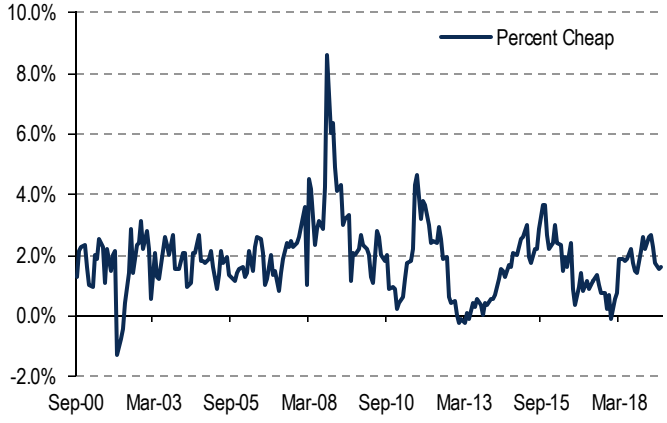
Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

The Asia market's average implied vol, or the volatility implied by the convertibles valuation model, is now about 43%, elevated compared to where it has been in the past in its 98th percentile since 2000 (Chart 69). Implied vol has risen substantially since the 2017 vol-bubble lows. Altogether, the Asia convertibles market's average percent cheap (its realized valuation versus its model-implied valuation) is currently about 1.6%, near the midpoint versus history in its 44th percentile since 2000 (Chart 70).

Chart 69: The average model-implied volatility in the Asian convertibles market is now about 43%, elevated versus history in the 98th percentile since 2000

Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 70: The Asian convertible market's percent cheap (realized valuation versus model-implied valuation) is now about 1.6%, generally average versus history in the 44th percentile since 2000



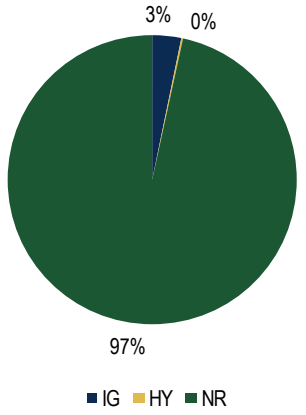
Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

The majority of Asian converts are unrated, low delta, and from larger issuers

The convertible bond markets have historically provided corporate borrowers with an alternative way to raise funds in capital markets versus the traditional fixed-or-floating methods. Compared to other fundraising channels in the debt market, convertible issuers are generally attracted by the lower coupon/yield feature. This is particularly notable in Asia given rapidly growing economies, where there are more fast-growing companies with shorter histories than borrowers in developed countries. These companies usually have an aggressive credit profile with a high demand for new

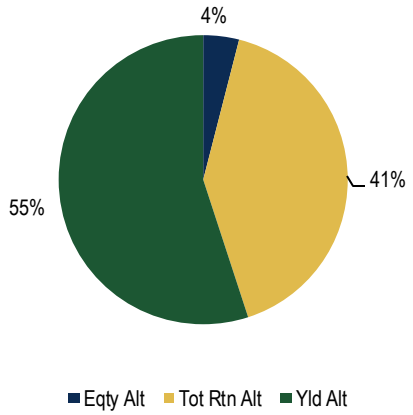
funding. As it is usually difficult and more expensive for them to tap the non-convertible debt markets, issuing convertible bonds is an attractive alternative. As a result, the majority of convertibles in Asia (97% based on market value) are not rated by credit agencies mainly due to the fact that CBs are a hybrid asset class and ratings are not required with most investor mandates (Chart 71). Separately, most converts in Asia (55% based on market value) are considered yield alternatives with deltas below 0.40 (Chart 72), and a majority (71% based on market value) are from larger-cap companies with market caps of at least $1bn (Chart 73).

Chart 71: Converts in Asia are primarily not rated by credit ratings agencies...



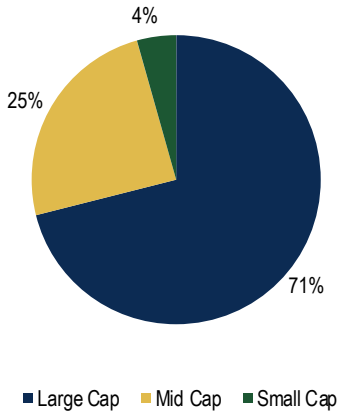
Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 72: ... are mostly low-delta (<0.4) yield alternatives...



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 73: ... and are from companies with $1bn+ market caps

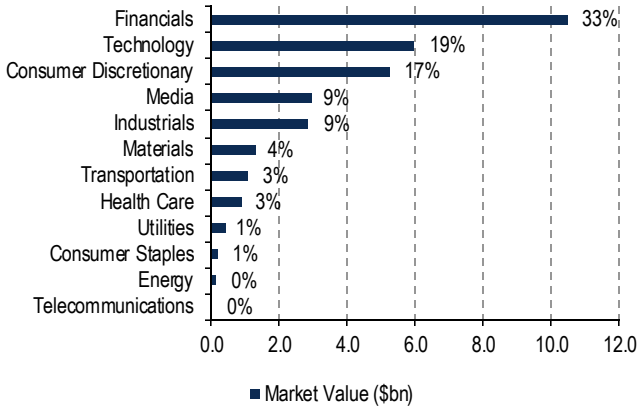


Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Borrowers are mostly financials and tech names, and are mainly from China

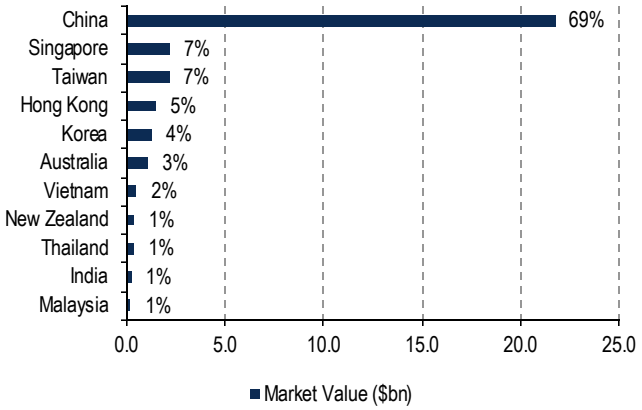
The industry breakdown in the Asia CB market is skewed heavily toward financials (including real estate), which accounts for 33% of the market, followed by tech, which accounts for 19% and consumer discretionary, which makes up 17% (Chart 74). While always a sizable portion, real estate truly came to dominate the market starting in Q1 2018 following a flurry of issuance from China property names, while tech's prominence has expanded more recently amid a wave of new supply from Chinese tech and software companies (we will discuss this in more detail in the primary market section below). Regionally, China dominates as it comprises 69% of the Asia market (Chart 75).

Chart 74: On a sector basis, most borrowers in the Asian CBs market are financials (including real estate) and technology companies



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Chart 75: Regionally, the vast majority of names that have CBs outstanding are from China



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC

Although China has been the top country in the Asia CB market for quite some time, historically, India was a leading region as well. However, the market mostly dried up after regulatory changes in late 2007 made it difficult for companies to issue converts given a minimum five year maturity, a cap on interest rates, a regulated floor on conversion price, and a higher incidence of defaults with uncertain recovery.

Shift in investor base has implications for liquidity

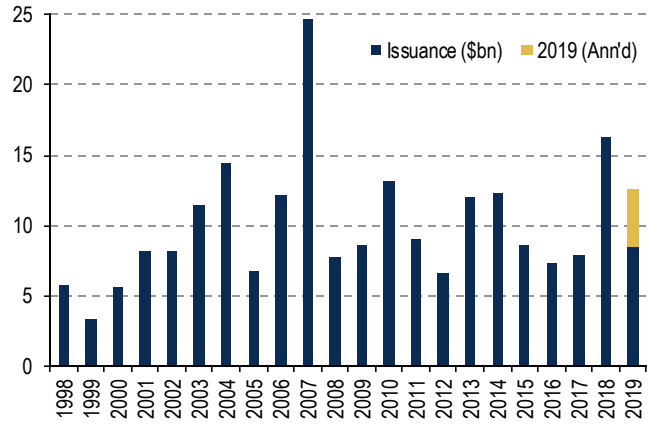
In Asia, the primary convertible bond investors are hedge funds, mutual funds, and pension funds. Hedge funds employ both arbitrage and long-only strategies while mutual and pension funds are long-only investors. Long-only funds are in general medium-to-long-term investors, while hedge funds have more complicated arbitrage strategies that are usually more short-term in nature. In line with the broader global market, the investor base has shifted somewhat from a hedge fund bias before the global financial crisis in 2008, and Asia long-only accounts have seen more inflows. This has impacted liquidity as hedge funds tend to turn their books more often than long-only funds.

Primary market

The Asia primary market has been generally strong over the past two years after suffering several disappointing years between 2015 and 2017. So far, about $8.4bn has come to market in the region, on pace for about $12.6bn by year end (Chart 76). In comparison, last year, the Asia primary market saw about $16.2bn of new paper, the most since 2007's $24.6bn. On proceeds, most paper this year (about 72%) has been used for general corporate purposes, in-line with the historical trend, while the second-most (about 10%) has been used for refis (Chart 77).

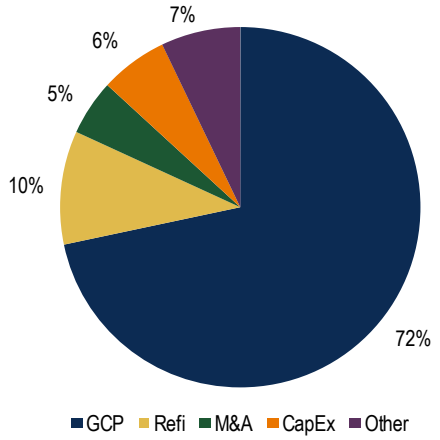
Note that convertibles primary issuance is heavily related to the level of interest rates – when borrowing costs are high, smaller and most cost-sensitive issuers tend to gravitate to converts as the embedded call option allows for cheaper financing. As such, convertible new supply has been more suppressed in the post-GFC era compared to the pre-crisis period amid record-low interest rates.

Chart 76: The Asian primary market has totaled $8.4bn so far in 2019, indicating an annualized total of $12.6bn (versus $16.2bn in 2018)



Source: BofA Merrill Lynch Global Research

Chart 77: 2019 use of proceeds data shows that other than general corporate purposes, the top uses of proceeds is for refis

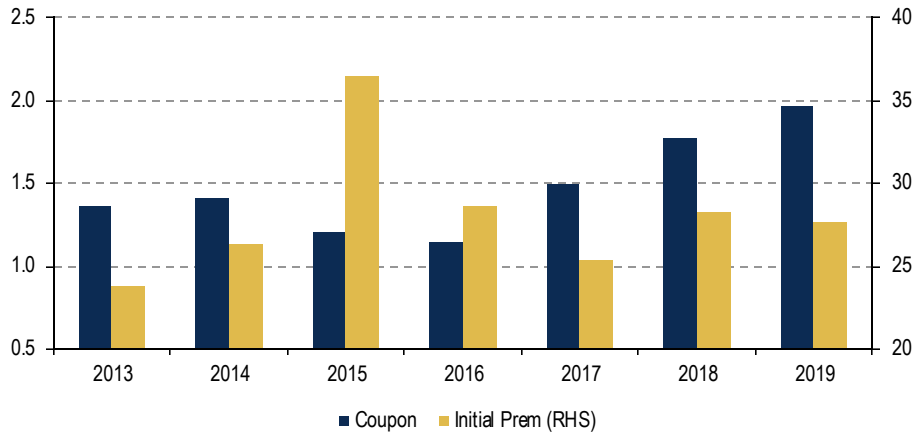


Source: BofA Merrill Lynch Global Research

On new deal terms, the Asia primary market has generally seen less aggressive terms (more investor friendly) over the past few years as new deal coupons have trended higher and initial conversion premiums have drifted lower (initial conversion premium is essentially a measure of how much the underlying stock would need to rally for the convertible's embedded call option to be in-the-money, so a narrower premium is more investor friendly than a wider one). In fact, so far in 2019, new deal coupons in Asia have a market-weighted average of nearly 2%, well above 2016's recent lows of just over 1.1%, while initial premiums are fairly low at around 28% (Chart 78).

Bank of America Merrill Lynch

Chart 78: New deal terms in Asia this year have been somewhat investor-friendly as coupons have averaged near 2% and initial conversion premiums have averaged near 28%



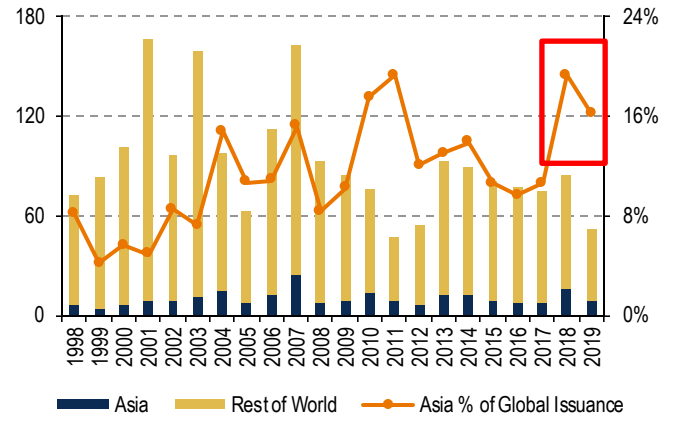
Source: BofA Merrill Lynch Global Research

2018 and 2019 saw issuance boosts from China property and tech

As we touched on earlier, several notable trends helped to boost 2018's and 2019's issuance in Asia, which were among the two best years for deal volume in the region since 2011 (Chart 79). In January 2018, the primary market activity saw a sizable surge from China property developers, which took advantage of rallying shares to raise capital via short-dated converts (mostly 1-year paper). In all, five deals totaling over $5bn were offered by China property names (COGARD, CIFI, PWRLNG, FUTLAN, and EVERRE), resulting in an all-time record $6.9bn of new Asian convert paper that month. However, these deals had generally performed poorly amid deleveraging policy and tightening control on housing prices in China, and as anticipated, the deals were not refinanced upon expiration in 2019 (though COGARD did price another convert in November 2018).

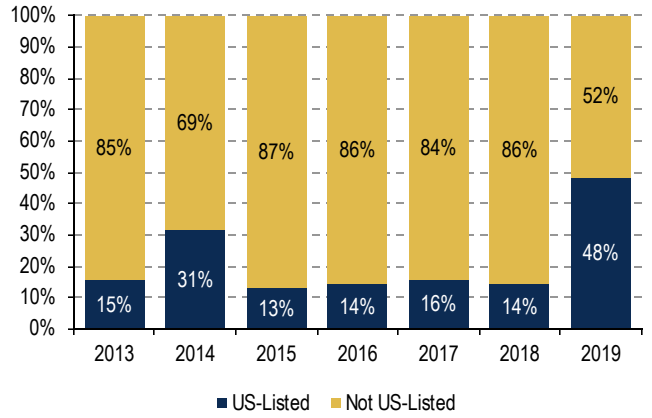
Nonetheless, 2019's primary issuance has been well supported by US-listed Chinese tech companies, which tapped the converts space at a record pace during the first half of 2019 as many sought additional capital after their IPOs last year, when market conditions were softer than they are today (IQ and BILI, two of the US-listed Chinese tech names to offer converts this year, both IPOed in March 2018, when global equities were declining after February's vol event). In fact, of the $8.4bn, nearly half is from US-listed companies, including NIO, IQ, BILI, YY, and QD, among others (Chart 80).

Chart 79: Asian primary issuance has totaled 16% of all converts new issuance in 2019, the second most since 2011, behind only 2018's 19% (an all-time record)



Source: BofA Merrill Lynch Global Research

Chart 80: About half of 2019's Asia new convertible supply is from US-listed companies, a record since at least 2013

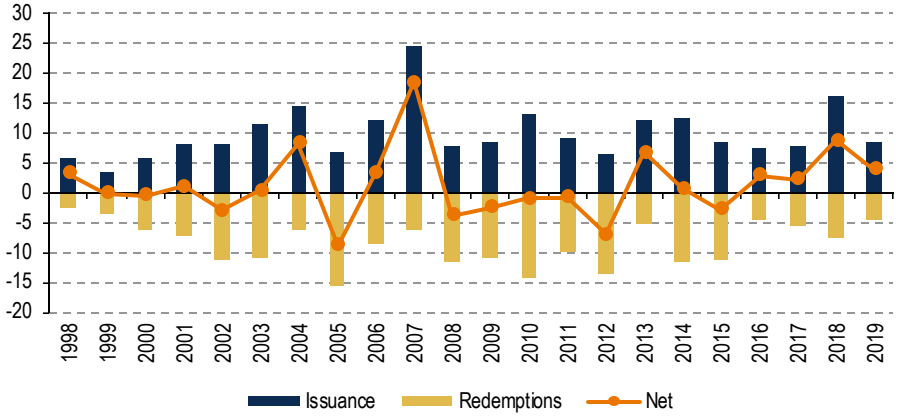


Source: BofA Merrill Lynch Global Research

Positive net supply trends have also helped to support the market's growth

In addition to improved issuance, fewer redemptions than in the past have also helped to grow the Asia convertibles market (our redemptions count includes names that have matured/converted into stock, been partially or fully repurchased by borrowers, or have been called, put, or acquired). In fact, Asia net supply (issuance – redemptions) has been positive each year since 2016 as new deals have outpaced redemptions, though in the years immediately following the GFC, net supply in Asia was largely negative amid slow primary market activity (Chart 81). Last year, Asia net supply totaled +$8.8bn, the most positive since 2007's +$18.4bn, while this year, the current net total is about +$3.9bn. However, we note that this does not include the maturity of the very large $6.6bn BABA mandatory convertible bonds, which came out of the market in early June (due to the unique structure this deal was excluded from the ICE BofAML convertible indices, and thus it was not captured in our reporting).

Chart 81: 2019 year-to-date Asia net supply (issuance – redemptions) is currently +$3.9bn, a continuation of the positive trend we've seen since 2016

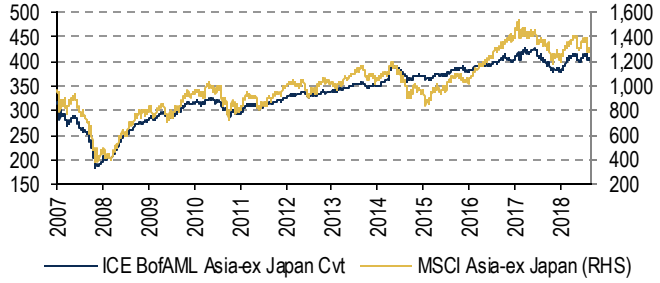


Source: BofA Merrill Lynch Global Research

Performance

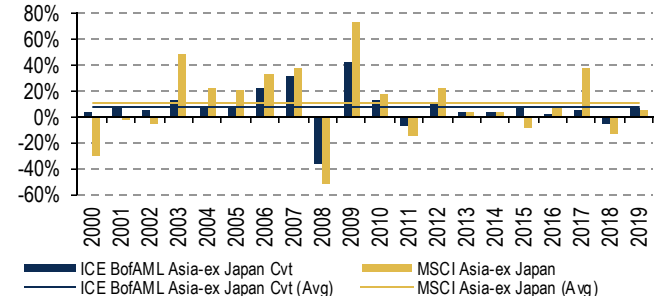
Convertible performance tends to track its corresponding equities with lower beta and lower vol as converts' bond floors protect performance on the downside while their embedded call options allow for upside participation. Indeed, the ICE BofAML All Asia-ex Japan Convertibles Index (VASI) has closely tracked the MSCI Asia-ex Japan equity index over the last 10+ years, though it generally offers more defensive returns during selloffs and underperforms during rallies (Chart 82). Overall, since 2000, Asia-ex Japan convertibles have average returns of about +7% per year on a local currency basis, while the MSCI Asia-ex Japan stock index has averaged about +10% per year (Chart 83).

Chart 82: Asian convertible (VASI) performance tracks Asia stocks closely with lower beta and vol



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC, Bloomberg. Returns in local currency terms.

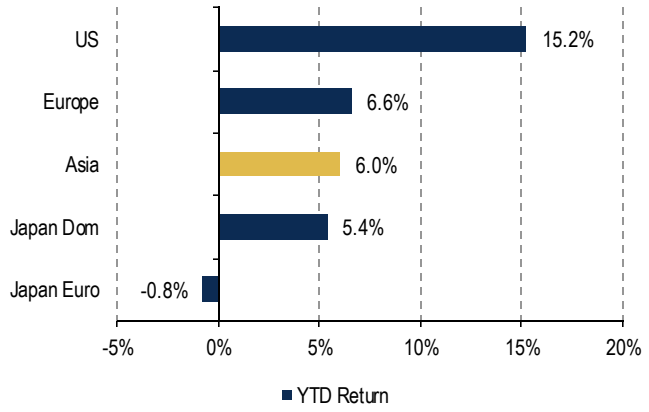
Chart 83: Asia convertibles have an annual average return of 7% since 2000, while the MSCI Asia ex-Japan stock index has averaged 10%



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC, Bloomberg. Returns in local currency terms.

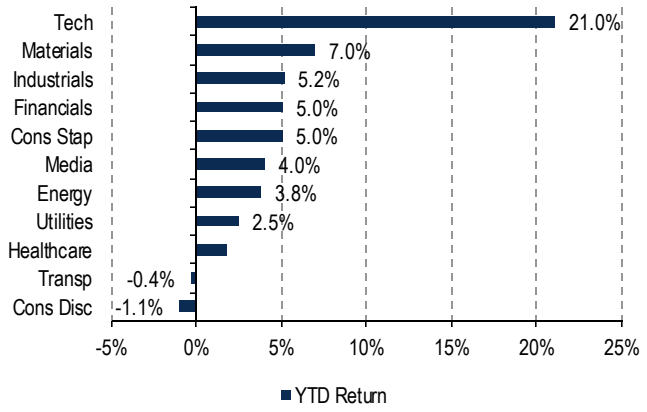
On a cross-regional basis, Asia has been the third-best performing convertibles market year-to-date with a local-currency return of about +6.0%, trailing the US's +15.2% and Europe's +6.6% (Chart 84). Global convertible performance was relatively strong during the first half of the year as the equity rebound for Q4 2018's drawdown helped to lift converts. However, Asia's performance has stalled since May amid the reescalation of the US-China trade war. In terms of sectors, tech has been far and away the best performer in Asia so far this year, gaining 21.0% year-to-date (Chart 85). Returns have been fueled by strong performance by the SEALTD (Sea Limited) 2.25% '23 notes, which have more than doubled this year amid strong growth and monetization of several of its key mobile games. Following tech is materials (+7.0%) and industrials (+5.2%), while on the contrary, consumer discretionary (-1.1%) and transportation names (-0.4%) have declined.

Chart 84: Asia is the third best-performing region in the convertibles market YTD (+6.0%), behind the US (+15.2%) and Europe (+6.6%)



Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC, Bloomberg. Returns in local currency terms.

Chart 85: Top performing sectors in Asia this year include tech (+21.0%), materials (+7.0%), and industrials (+5.2%)

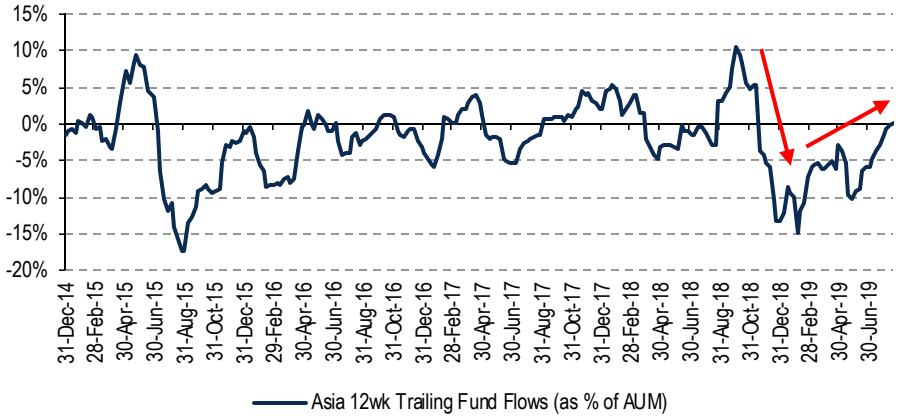


Source: BofA Merrill Lynch Global Research, ICE Data Services, LLC, Bloomberg. Returns in local currency terms.

Fund flows are now trending positive again following February 2019's bottom

As returns and fund flows are highly correlated, it is no surprise that fund flows had trended downward after touching a 3+ year high in early October last year (+10% of AUM). However, flows bottomed in February 2019 (-15% of AUM) following the year-end 2018 selloff, and have been rebounding since. In fact, over the last 12 weeks, Asia converts funds have seen a small net inflow of +0.1% of AUM, the first positive print since November 2018 (Chart 86).

Chart 86: Last 12-week trailing fund flows have been net-negative since the Q4 2018 selloff, though they have been once again trending toward net-positive



Source: EPFR Global

Appendix

Below, we include an appendix with some more detailed information about the features, structures, and liquidity of the Asian convertible bonds market. For more information on the global convertible bond market, please refer to our Global Convertibles Primer.

Typical structure

There are various types of structures for convertible bonds in the global CB market: OID (original issue discount), step up/down convertible bonds, trust preferreds, PERCS-type (preferred equity redemption cumulative stock), PRIDES-type (preferred redeemable increased dividend equity securities), reverse convertibles, etc. However, in Asia, CB structures remain rather simple.

Tenor

Majority of the Asian CBs are relatively short dated – typically five to seven years to maturity. Both issuers and investors are focused on an underlying rally in the stock allowing for conversion sooner rather than later.

Coupon and yield

Coupon and yield are generally set below what the issuer would have to pay in the non-convertible debt market. The total yield of CBs can be structured as coupon only, premium redemption, or a combination of both.

Put: investors' early redemption option

This is a very common feature in Asian CBs, usually after three years. This is viewed as an extra protection for investors, particularly for issuers with less appealing credit profiles.

Call: issuers' early redemption option

This is a very common feature for CBs in all regions. For example, "3 year softcall with hurdle 130" means, after the third anniversary, the issuer has the right to call/redeem early the issue, assuming the underlying stock price has risen to at least 130% of the conversion price. In this case, investors will typically convert the CBs into stock. It can also be in the form of "hardcall," which means issuers can unconditionally early redeem the issue after the hardcall date.

Conversion premium/price

Conversion premium refers to the difference between the convertible bond price and parity. The typical range of conversion premium is 20-40%.

Reset/refix

This is a special feature, usually with smaller and riskier companies in Asia, allowing the initial conversion price to be reset to a lower level after a certain period of time. This would be used in the event that the stock price falls allowing the conversion price to be reduced in order to retain the equity value of the CB or in lieu of credit or equity hedgeability.

Dividend protection

Some issuers offer dividend protection to CB investors. This is normally in the form of conversion price/ratio adjustment.

Anti-dilution protection

Standard protection against capital distribution, bonus issues, consolidation, rights, options, warrants, shares issued at a discount and other dilutive events.

Change of control protection

Standard change of control put option with investors. Some issuers also offer takeover protection since CB investors may lose their option value in the event of a takeover. Compensation is usually in the form of additional shares or cash.

Ranking

CBs can rank at various levels of seniority within the capital structure. However, the majority of Asian CBs are senior unsecured debt.

RMB denominated, USD-settled CBs

PRC companies listed in HK which use RMB as the operating currency can avoid the mark-to-market associated with the imbedded conversion option under HKAS 39 booked through the P&L A/C by issuing CBs denominated in RMB but settled in USD. Investors initially pay USD to the issuer using the current USD/RMB exchange rate. At the put or redemption date, the issuer pays the investors a USD amount which is calculated as the accreted RMB principal amount converted into USD using the prevailing exchange rate.

Investors benefit from the potential future RMB appreciation while issuers (1) avoid MTM through the P&L A/C of the imbedded option and reduce the related earnings volatility, (2) achieve better terms due to a lower RMB swap rate given the expectation of RMB appreciation, and (3) avoid FX risk by matching the currency between assets and liabilities.

Liquidity and trading

There are a number of factors determining the liquidity of a convertible bond:

- **At-the-money:** Balanced CBs, which mean the CBs having reasonable sensitivity to credit and equity moves, are likely to be more liquid than equity or credit alternatives.
- **Stock borrow:** CBs with underlying stock borrow available are usually more liquid than names without as arbitrage investors can also participate.
- **CDS/asset swap:** CBs with credit hedging available tend to be more liquid than names without. Similar to stock borrow, this allows more investors with different investment strategies to trade the bonds.
- **Deal size:** Issues of size smaller than $100mn are likely to be illiquid as mutual funds generally avoid buying smaller deals due to liquidity.
- **New issue:** The first one to two months of a new issue are usually heavily traded.
- **High grade issuers:** They tend to be more liquid as issue sizes are usually larger and they tend to have more stable bond floors.
- **US-listed:** Asia CBs with US-listed underlying stock are typically more liquid as they trade off larger US desks, may be added to US indices, and are more appealing to US-based investors (the largest convertibles market).

Covenants

Unlike corporate bonds, CB issuers generally do not offer protection in the form of financial covenants to holders. Issuers have more financial flexibility in terms of adding debt, selling assets, etc. that can have significant effect to their gearing ratio. However, this is not as important as for straight debt holders because CBs, to some extent, are viewed as equity alternatives. Very often, investors are more concerned with dividend payouts and dilution protection instead.

International loan markets

Typically, loan deals are considered private transactions where the number of investors tends to be relatively small, e.g. 5-20 investors. Syndicated loan lenders are usually commercial banks, although hedge fund investors dominate the high-yield private placement market (similar to the leveraged loan market in the US). Ratings are generally not required for loans.

It is usually more efficient for companies with ratings in the A to high-BB range to raise money in the syndicated loan markets, and those in the BB- and below range in the high-yield private placement market. Although public bond deals offer the most efficient pricing in the AA or higher ratings category and in the BB- to BB+ range, bond issuers are subject to higher premiums over the syndicated loan markets for various reasons, including longer tenor, larger deal size, and investor base diversification.

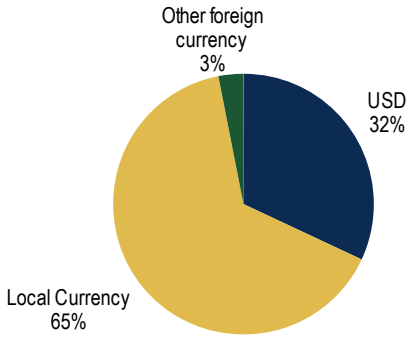
In Asia, unlike the US leveraged loan markets, where institutional investors and collateralized loan obligations (CLOs) are the predominant investors, there tends to be a greater overlap between the syndicated loan market and high-yield private placement market. Asian commercial banks will invest in high-yield private placements for borrowers with credit fundamentals as low as high-single-B. In this report, we differentiate between the syndicated loan markets (commercial bank investors) and the high-yield private placement market (hedge fund investors), although it is difficult to extract the amount of high-yield loans that are included in the syndicated loan data where the overlap takes place.

Syndicated loan markets

Size and growth

The total outstanding size of the Asian syndicated loan market as of 1H2019 was US$2.4tn, according to Dealogic. Local currency loans accounted for 65% of the total outstanding, USD loans represented 32% and the remaining 3% by other foreign currency (including AUD, EUR, JPY and GBP). From the issuance trend, we see the proportion of local currency loans rose from 47% of YE13 to 60% as of 1H19, which we attribute to a shift toward domestic lenders away from overseas banks because of lowering funding costs and sufficient liquidity domestically. USD borrowing continued to decline to 35% in 1H19 from 51% in YE13, as USD fund-raisings and growth of Asian companies' overseas business slowed down over the past five years.

Chart 87: Outstanding syndicated loan market broken down by currency (1H19)



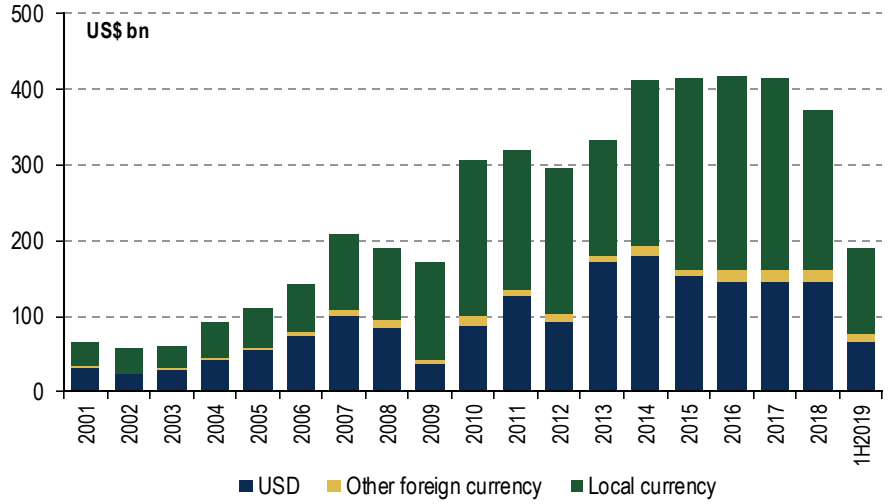
Source: Dealogic, BofA Merrill Lynch Global Research

After the 2008/09 financial crisis, there was a resurgence in syndicated lending in 2010. In 2011, the bond market was all but closed in the second half of the year due to renewed concerns of a European sovereign/banking crisis. Despite this, the syndicated loan market grew slightly, at 4% YoY, but in 2012, when the bond market bounced back, the syndicated loan market saw less supply. This was due to a combination of factors, including falling yields in the bond market, a withdrawal of the European banks from lending in Asia, and tight liquidity for the Hong Kong banks in the early part of the year,

Bank of America Merrill Lynch

pushing companies into the bond market to refinance syndicated loans. Annual loan issuance grew strongly in 2014 and remained at a similar level from 2014 to 2017 until declining about 10% YoY in 2018, likely due to the weak economic outlook which drove weak demand for loans.

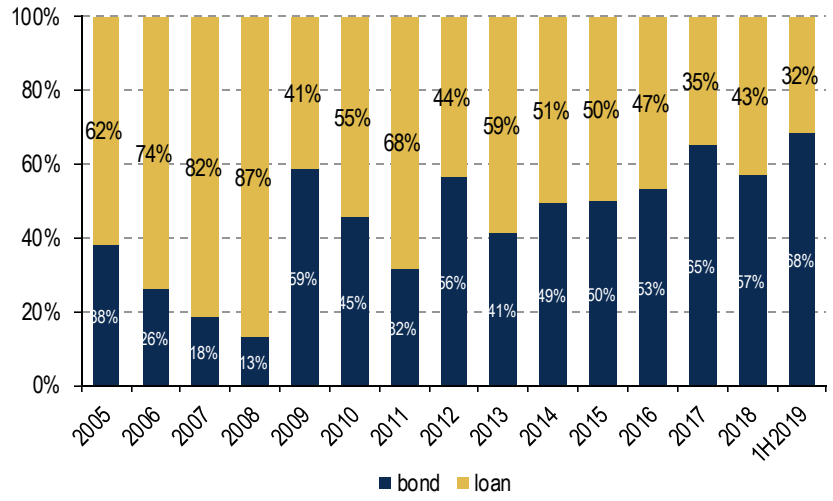
Chart 88: Asian loan issuance



Source: Dealogic, BofA Merrill Lynch Global Research

USD lending as a proportion of total fell from an average of 48% of issuance in 2004-08 to 30% in 2009-12. The drop in USD lending was due to the USD liquidity squeeze in the banking sector and the withdrawal of European lenders. The trend then improved again in 2013, leading to an average of 40% in 2015-18. It is interesting to note that in terms of USD supply between the loan market and bond market, there has been a shift with more supply coming from the bond market. Over the last five years, the bond market has accounted for about 59% of Asian USD funding, vs ~31% in 2005-09. In 1H19, it accounted for 68%, the highest level since 2005, as bond issuance has been strong in the past two years given falling interest rates.

Chart 89: USD supply comparison across the loan and bond markets



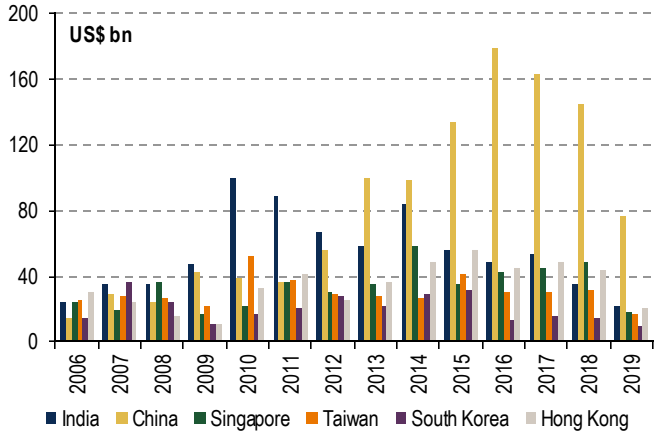
Source: Dealogic, BofA Merrill Lynch Global Research

Borrower nationality

Over the last five years, Chinese borrowers have accounted for more than 39% of the total syndicated loan supply on average, with the uptrend continuing. Since 2011, Indian companies have borrowed less as the economy weakened and interest rates rose, while Chinese companies have borrowed more as onshore liquidity tightened. China's share in borrowing peaked at 2016, with 43 % of total lending, but declined in 2017 and 2018 to 39% despite still being the largest borrower. Year to date, China's share remained steady at 40%, but political developments made lenders concerned about lending to Chinese exporters in the manufacturing and technology sectors, which were seen as the most vulnerable to the effects of a trade war.

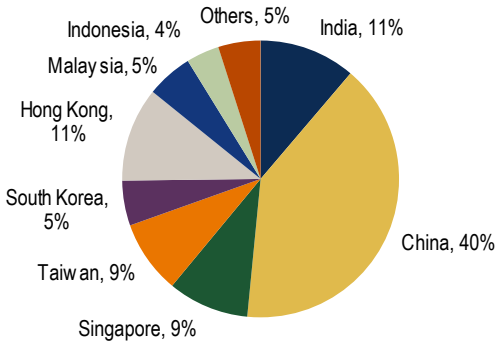
Hong Kong and Singapore market share has been pretty steady over the last few years at around 11-12%, with the blue-chip companies continuing to tap the syndicated loan markets. Taiwanese borrowers do not tend to issue bonds internationally given the withholding tax, and so are more dependent on syndicated loans or issue convertible bonds. Taiwan's share of the syndicated loan market declined slightly during 2016/17, and is currently at 9%, which is the same as the proportion of Singapore's. Korea, Malaysia and Indonesia market share declined to 5%, partly due to their relatively strong and developed local corporate bond markets within the region.

Chart 90: Loan trends for main borrowers by nationality



Source: Dealogic, BofA Merrill Lynch Global Research

Chart 91: Loan issuance by deal nationality in 1H2019



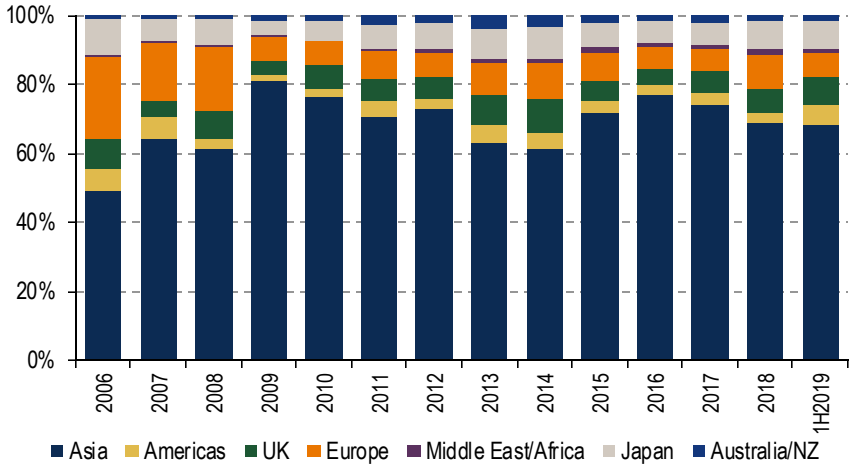
Source: Dealogic, BofA Merrill Lynch Global Research

Lender nationality

There has been shift in lender nationality trends since 2006, with Asian participation as low as 49% in 2006 to as high as 81% in 2009, at the height of the global financial crisis. Asia's share dipped and accounted for an average of 69% from 2010 to 2014, and rose again to above 70% at the expense of Europe and UK banks in the following three years. Currently, Asia's share is at 69%. Asian lenders took over from the US, the UK and European lenders during the global financial crisis when bank liquidity was hit. While foreign banks have returned to lend in Asia, the level remains well below that of the pre-global financial crisis years. Banks from Australia/NZ and the Middle East/Africa have become more active in Asia than they were prior to 2009.

Bank of America Merrill Lynch

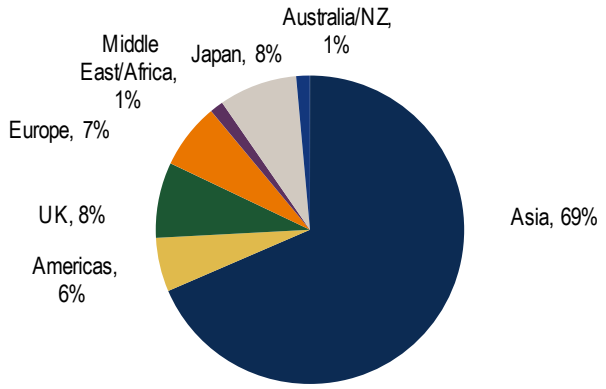
Chart 92: Trends in lender nationality



Source: Dealogic, BofA Merrill Lynch Global Research

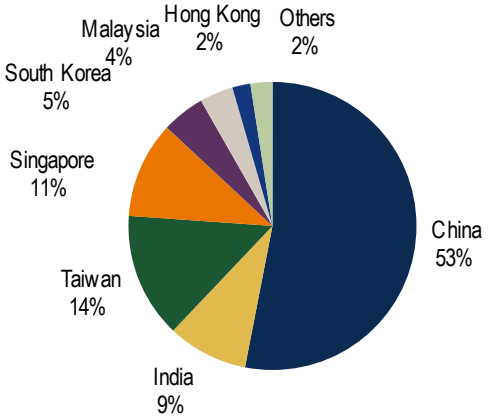
Along with borrower trends, Chinese banks have seen the largest increase in lending market share within Asian lenders over the last five years, growing from 30% in 2013 to 53% at 1H 2019, while India's share dropped significantly from 20% in 2013 to below 10% now. Taiwanese banks' share also fell despite still being the second largest lending country in Asia at 14% of the market, followed by Singapore, whose share has been stable at 11%.

Chart 93: Lender regional breakdown for Asian loans in 1H2019



Source: Dealogic, BofA Merrill Lynch Global Research

Chart 94: Breakdown for Asian lender nationality for loans in 1H2019

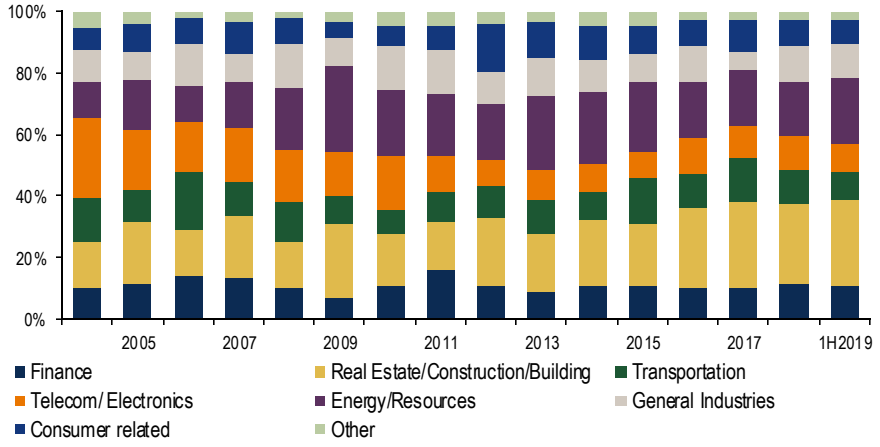


Source: Dealogic, BofA Merrill Lynch Global Research

Borrower industry

Currently, the real estate, construction and building industry is the largest borrower group, which has been fueled by the focus on infrastructure development in China and India (the two largest borrowing countries) and growing property developments. Borrowing from Energy/Resources used to be the largest borrowing industry until 2016, when it was surpassed by real estate as the commodities boom turned into a bust and it now accounts for 21% of borrowing. Finance and general industries followed as the third, with 11% share for each.

Chart 95: Loan breakdown by borrower industry



Source: Dealogic, BofA Merrill Lynch Global Research

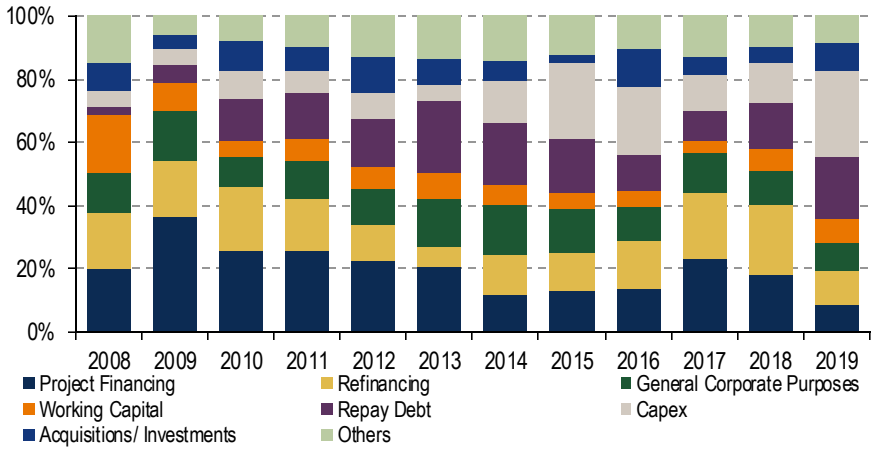
Loan purpose

Between 2008 and 2012, project financing was the main use of loan proceeds. This is not surprising as China and India have been the main borrower markets where infrastructure spending has been high. However, this has fallen quickly from 2014 as growth in China slowed. Year to date, the percentage from project financing dropped significantly to 9% from 18% in 2018, while capex increased to 27% as the top loan usage. Looking further into the data, the increase from capex-related loans has been focused on transportation development from China, likely driven by government-related projects and the energy sector from India.

We note that refinancing increased from below 10% in 2013 to 22% in 2018. Asian companies took advantage of the lending appetite among liquid banks in a lackluster deal flow environment and pushed hard to complete refinancing to amend and extend existing deals on more favorable terms. Borrowing for general corporate purposes and working capital has remained largely stable at ~10% for the last two years.

The reduction in acquisition loan percentage to below 5% in 2018 from 12% in 2016 was attributed to the declining China outbound investments to the US, Europe and Australia, amid the backdrop of China-US trade tensions, and China's tightening control on capital outflows and change of agenda to focus on industrial consolidation and reform amid tightened regulatory scrutiny since 2H16.

Chart 96: Breakdown by loan purpose



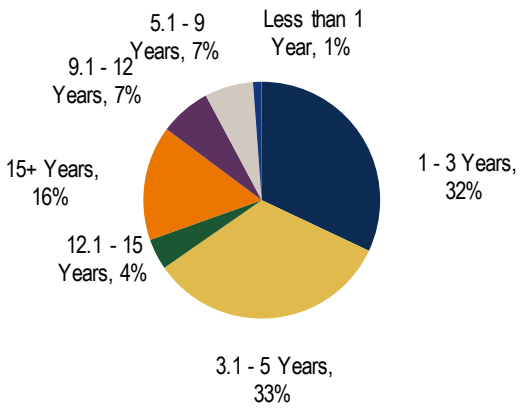
Source: Dealogic, BofA Merrill Lynch Global Research

Bank of America Merrill Lynch

Tenor

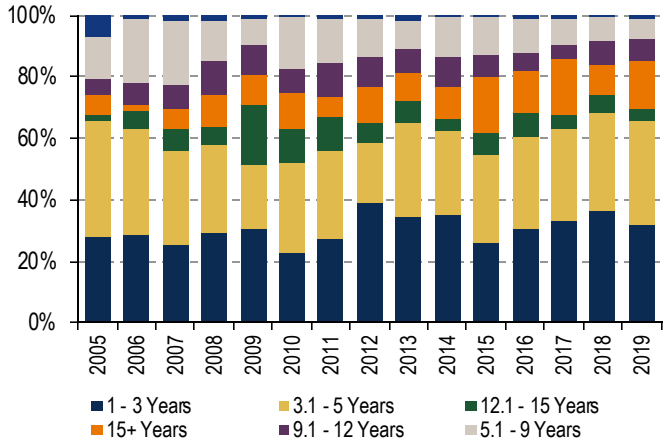
Shorter dated maturities (5 years or less) account for the majority of loans issued by Asian borrowers, accounting for 63% in the last five years on average. This proportion has showed an increasing trend from 2015 to 2018, as rising interest rates were expected. The proportion for longer dated loans has recovered slightly year to date, as 15 years and longer accounts for 16% of new loans, rising from 10% in 2018.

Chart 97: Breakdown of Asian loans Issued in 1H2019 by Tenor



Source: Dealogic, BofA Merrill Lynch Global Research

Chart 98: Asian loan breakdown by tenor



Source: Dealogic, BofA Merrill Lynch Global Research

Pricing and liquidity

Pricing for Asian loan deals is often substantially tighter than spreads on comparable credit default swaps (CDS) and/or bonds (although this differential has compressed in the last few years). This can be partially attributed to the private nature of lending resulting in lower costs for loan documentation. In comparison, bonds usually cost more due to lack of security, and are non-amortizing and generally have more relaxed covenants, with charges for legal fees, due diligence, auditors, listing, trustee, printing and roadshow. Given the relatively high level of liquidity in the banking sector throughout the region, we have seen a highly competitive environment for syndicated loans, which has been an important driver of deal pricing. Banks often price loans at tighter levels for relationship reasons – even below positive risk-adjusted return on capital (RAROC) levels. This business, often termed "a loss leader", is done with the expectation of securing higher fees from follow-on business such as IPOs, M&A mandates, global transaction services, deposits and trade facilities. Secondary trading activity in the Asian loan markets is limited.

One of the reasons for this is that loans are rarely rated, reducing institutional investor involvement. In addition, unlike international lenders, many Chinese lenders prefer to hold on to loans until maturity and rarely sell their positions as they place greater value on the relationship with the borrower than portfolio management. The fact that other regional banks in Asia also take a similar approach is one of the main reasons why Asia's secondary loans market has not flourished, unlike in the US and Europe.

There may be secondary activity just after a deal is priced if the bank syndicating out the deal takes down a larger portion of the loan to finalize the loan and sells down some of its exposure in the secondary market.

High-yield private placement market

Prior to the global financial crisis, the Asian high-yield private placement market was growing at a faster rate than the syndicated loan and high-yield bond markets, although the size was relatively small by comparison.

Hedge funds and proprietary trading desks have historically been the dominant investors in the high-yield private placement markets. The banks tend to focus on senior secured loans which form a part of the syndicated or commercial loan segments, while hedge funds and proprietary trading desks are the dominant investors in the high-yield private placement market focusing on mezzanine or second-lien loans. While the type of investor has not changed over the last few years, the active universe of investors has shrunk by about 50% since the global financial crisis due to the withdrawal of overseas hedge funds without a regional presence as they were less equipped to work on restructurings (many deals had capital market take-outs which needed to be restructured given the closure of markets) along with the closure/shutdown of funds and proprietary trading desks. We have started to see some participation from private equity funds (most prevalent new entrants), sovereign wealth funds and traditional asset managers, albeit it remains modest.

Like the US leveraged loan market, the Asian high-yield private placement market is targeted at lower rated credits. Many of these companies do not have access to the bond markets as high-yield bond markets have not developed in the respective domestic markets or their size of funding is too small for the international bond markets. Companies who do have access to international bond markets may prefer high-yield private placement deals due to the speed and flexibility of execution and less stringent disclosure requirements given the private nature of the market, or a highly structured deal may not appeal to traditional high-yield bond investors. Recent deal activity has been more concentrated in markets like India, China and SE Asia. Sector focus is mainly from the real estate, resources (including palm oil) and infrastructure.

Loan features

Typically, deal sizes vary from as small as US$30mn with one or two investors taking the whole deal, up to US$100mn with a number of investors. Occasionally, there are $200-300mn deals which are widely syndicated. Like the syndicated loan market, financing requirements in the high-yield private placement market are situational based on the needs of the borrower and, as such, structures will vary. However, most commonly, loans are secured with cash flow-based amortizing structures, with an average duration of around 2-4 years.

Collateral

Collateral usually includes all the tangible and intangible assets of the borrower ranging from property, equipment, shares/capital stock, inventories and receivables, which are often associated with asset-backed securities. In the US leveraged loan markets, the standard practice limits lending up to 50% of inventory and 80% of receivables, according to S&P. Structures can include loans ranked as:

- ***Senior secured:*** Lenders have the first call on the pledged collateral in the event of default.
- ***Second-lien loans:*** Claims on collateral rank behind first-lien loans and may have less-restrictive covenant requirements whereby maintenance covenant levels are set wide of senior secured loans. These loans tend to price at a premium to first-lien loans given the lower recovery expected.

- ***Mezzanine financing:*** There are two types of mezzanine loans: (1) operating company level loan that is contractually subordinated to first- and second-lien loans, and (2) structurally subordinated loans issued by a holding company that owns the bulk of the operating entity. The second type of mezzanine loan is more common in jurisdictions that do not recognize contractual subordination in differentiating ranking below senior secured and second-lien loans (China). Inter-creditor agreements are also used as a way for senior lenders to enforce priority were contractual subordination is not recognized. Mezzanine loans often include standstill or stop features which reduce the mezzanine loan holders' ability to call an event of default before senior unsecured lenders. Pre-payment penalties also tend to be more onerous given the riskier nature of these loans. Pay-in-kind (PIK) interest payment structures are also associated with mezzanine financing.

Mandatory prepayments: cash sweeps/debt service reserve accounts

In the US, leverage loan agreements often require a borrower to prepay loans with excess cash flow (usually defined as revenues after deducting cash operating expenses, required dividends, scheduled debt amortizations, allowable capex and changes in working capital), asset sales, debt issuance or equity issuance. These structures are generally used as a way to ensure funds are available for debt service/payment. Prepayment requirements may be waived or reduced if the borrower meets a pre-set financial hurdle – usually a debt/EBITDA test.

In Asia, these structures are also used as a way to guard against weak bankruptcy regimes. Cash sweeps or cash waterfalls are set up through offshore trust accounts designed to capture offshore revenues before they are brought back onshore. This is quite common for Indonesian commodity company loans. We have also seen some cases where debt reserve accounts have been utilized for Chinese companies requiring them to remit funds over a staggered period to (1) ensure enough cash is available for servicing the loan, and (2) to hedge against problems a company may have obtaining approval to remit funds offshore.

Regulatory restrictions limit debt pushdown

Due to onshore regulatory restrictions, it can be difficult to lever up operating companies in an acquisition/leveraged buy-out (LBO) situation. Structurally, debt would be added at the holding company level with restrictive covenants to limit/stop operating companies from taking on additional debt and requiring the up-streaming of dividends to service the debt. This has made LBOs difficult in some markets. As a result, jurisdictions allowing debt pushdown such as Hong Kong, Singapore, Taiwan and Australia, have seen more acquisition and LBO-related deals.

Covenants

Will be similar to those for syndicated loans but more numerous given the weaker credit quality of these borrowers. Unlike the US and Europe, we have not really seen any covenant-lite[1] structures in Asia.

Pricing and liquidity

There is little pricing transparency and secondary market activity in the high-yield private placement market. This market has become quite illiquid as deal sizes have become smaller and the number of names in the market has shrunk.

1 According to S&P, covenant-lite loans are loans that have bond-like financial incurrence covenants rather than traditional maintenance covenants. Incurrence covenants generally require that a company be in compliance if the borrower wants to take an action like paying a dividend, making an acquisition or taking on more debt.

Today, many of the outstanding deals trade on credit terms in the low- to mid-teens yield range with few deals having equity kickers (warrants, private placement, stock, appreciation rights, etc). Share financing is not as common as before though we do see some in Indonesia, where shareholders want to monetize their investments, and in India, where such deals are placed with local institutions. Share financings from China are rare.

We have started to see a rise in middle market deals (300-500bp spread or mid- to high-single digit yield range). Historically, there has been a gap in the middle market between the syndicated loan market (pricing up to 300bp) and the high-yield private placement market (double-digit yields). However, greater liquidity and tighter pricing in the traditional syndicated loan markets has made it easier for small-cap companies to issue middle market loans, attracting more non-traditional investors such as banks and asset managers to the high-yield private placement markets, which are starting to encroach on the private placement market. Many of the deals do have some element of refinancing risk (i.e. they do not amortize to zero over the life of the loan).

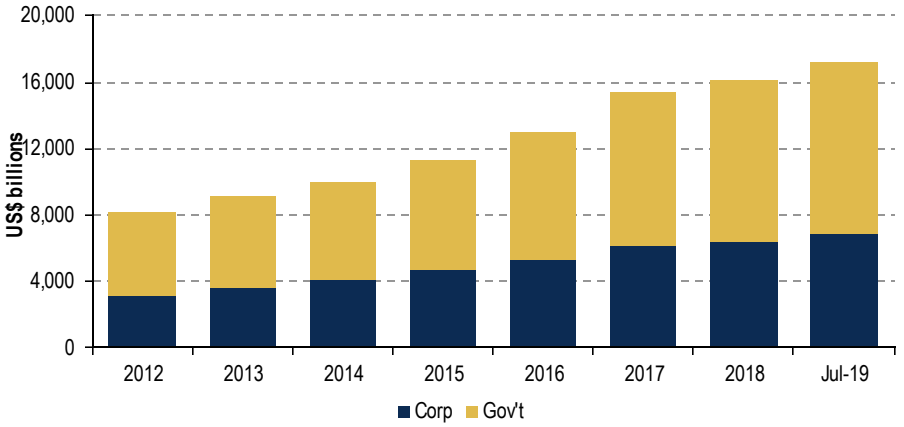
Since the global financial crisis a decade ago, pre-IPO structures have become almost non-existent. Many of the pre-IPO deals issued in 2006/07 were restructured given the lack of capital market access for equity takeout. In most cases, due to the fragmented nature of holders, the issuers had the advantage in restructuring, resulting in deals which were termed out with minimal coupons. Most were settled through consensual negotiation as restructuring was viewed as the easier option given the difficulty in enforcing credit rights on the securities in markets like China and Indonesia. In the few cases where investors took a more aggressive stance, the results were not encouraging. As a consequence, there have been few, if any, asset-light, weak collateral or pre-IPO deals closed since the global financial crisis.

Domestic bond markets

Size and growth

Promoting development of domestic bond markets has been a major focus for most Asian policymakers since the Asian financial crisis (1997/98) as a means to provide additional funding channels to government and corporations for financial intermediation outside of the banking sector and reduce the currency mismatch inherent in funding in international bond markets. Hence, there has been significant growth in the Asian local currency bond markets over the last 20 years, with the aggregate size far exceeding that of the foreign currency bond market.

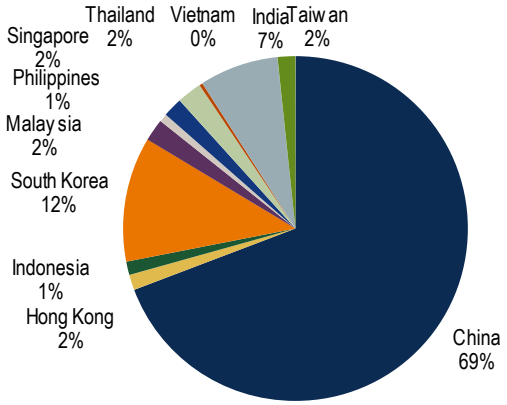
Chart 99: Asian domestic bond market: Total outstanding size (US$bn)



Source: ADB, Chinabond.com.cn, CBC Taiwan, BofA Merrill Lynch Global Research

As at end July 2019, the total outstanding aggregate value of Asia's local bond markets was US$16.9tn. While the local currency corporate bond market (LCCM) only accounts for 39% of the outstanding domestic bond market, over the last five years, it has expanded more quickly than the local currency government bond market (LCGM). Since 2013, the amount of new debt issued each year has grown an average of 10%, with corporate issuance increasing by an average of 12.3% per year, compared with a more measured 8.6% for government new issuance. Yearly corporate supply has nearly doubled since 2013, increasing from US$1,194bn to $2,135bn during this period.

Chart 100: Market share of local currency bond markets (as of July 2019)

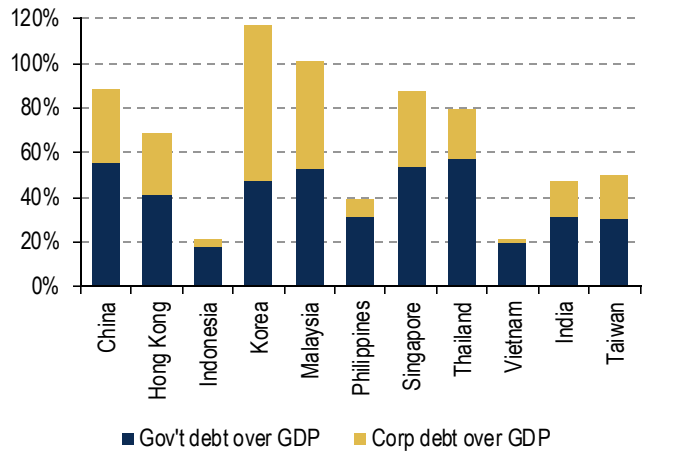


Source: ADB, Chinabond.com.cn, RBI, SEBI, CBC Taiwan, BofA Merrill Lynch Global Research

In terms of size, China's local currency bond market is the largest in the region, with a total outstanding amount of US$11.6tn as of July 2019, accounting for 69% of all regional local currency bonds currently outstanding. South Korea has the second largest local bond market in the region, with US$2.0tn outstanding, or 12% of the outstanding regional market. India follows as the third largest market with US$1.3tn, or 8% of the market. The other Asian local currency bond markets, though small relative to South Korea and China, have been growing quickly. Indonesia and Vietnam were the fastest growing markets in the last five years, with CAGR of 13% and 12%, respectively, despite their marginal share in the overall Asian local bond market.

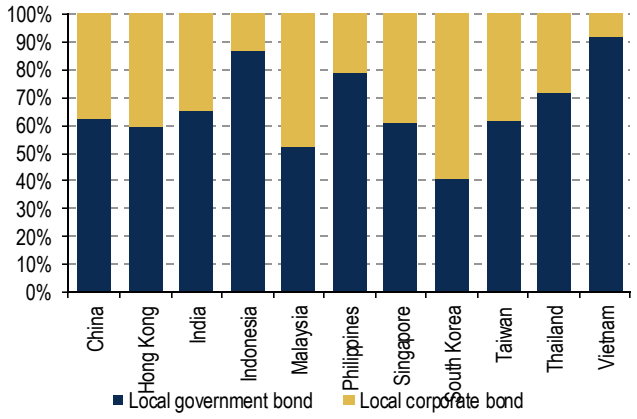
China's corporate bond market is the largest, standing at US$4.4tn as at end July 2019 (having surpassed Korea in 2011). According to BIS Monetary and Economic Department (2016), a result of hearing surveys shows the corporate bond markets of Korea, Malaysia, Singapore and Hong Kong are highly developed. This shows in (1) their outstanding corporate bonds as a percentage of GDP being close or over 30% (versus the rest of the countries with an average of 15%), and (2) domestic corporate bonds accounting for more than 40% of total local currency bond market size (versus the rest of the countries with an average of 26%). Most local currency bond markets in the region are dominated by government bonds. South Korea has the highest percentage of corporate bonds (52%), the only country with corporate bonds accounting more than half of the total market, followed by Malaysia (48%).

Chart 101: Outstanding local currency bond market % GDP (Jul-2019)



Source: ADB, BIS, Chinabond.com.cn, CBC Taiwan, BofA Merrill Lynch Global Research

Chart 102: Country breakdown: LCGM vs. LCCM outstanding size (Jul-2019)



Source: ADB, BIS, Chinabond.com.cn, CBC Taiwan, BofA Merrill Lynch Global Research

Market characteristics

Liquidity

Local market liquidity has improved over the past few years, although LCCM liquidity remains much lower than LCGM's (Table 9). Over the last year, we saw mixed progress in market liquidity in different countries. According to the Asia Development Bank (ADB), turnover ratios for government bonds declined in Malaysia and Thailand, but improved for all other emerging East Asian markets, likely due to volatilities in the market which drove demand for safer assets. For corporate bonds, turnover ratios slightly declined for China, Indonesia, and Thailand, while others remained the same.

The average government bid-ask spreads rose in all markets except for Singapore (improved) and Korea (stable) in this year's ADB survey compared with last year, driven by different reasons (such as volatilities in the local financial market driving outflows from foreign investors in Indonesia, and less trading activities for China's local government bonds). China and Korea continued to be the countries with the lowest bid-ask spreads for government bonds, at 1.9bp and 0.5bp, respectively.

Bank of America Merrill Lynch

Table 9: Asian local currency government and corporate bond market liquidity characteristics

	Typical issue size (US $mn)	Typical transaction size (US $mn)		Turnover ratio		Bid-Ask Spread (bps)	
	Corp	Gov't	Corp	Gov't	Corp	Gov't	Corp
China	175.1	4.9	4	0.5	0.1	1.9	9.2
HK	57.7	5.3	7	0.8	0.2	12.6	14.2
Indonesia	36.3	2.4	0.8	0.7	0.2	5.3	24
Korea	50.8	9	8.7	0.4	0.1	0.5	1.9
Malaysia	96.1	4.3	1.2	0.4	0.1	2.3	8
Philippines	109.1	1	0.1	NA	NA	6.9	65
Singapore	189.5	9.4	3.4	0.4	NA	2.1	6
Thailand	69.7	4	0.6	0.5	0.1	2.5	6.6

Source: ADB

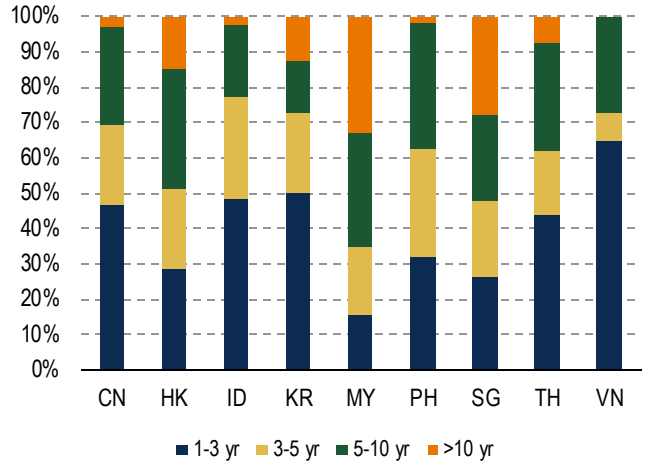
A 2018 ADB survey identified hedging mechanism was the most important structural change needed to improve market liquidity. This is especially true for smaller markets where hedging tools for government bonds are quite limited. Other major areas that need improvement, per survey respondents, include the diversity of investor profile and transaction funding. On the other hand, settlement and custody system are areas that are viewed as the most sophisticated by survey respondents.

Depth

The average tenor in Asia is five years, which can be greatly attributed to high bank investor presence in the local markets. The maturity profiles of the region's government bond markets have generally lengthened in 2018, as evidenced by a modest expansion of maturities of 10 years or more, while those of corporate bond markets remained more short-dated as outstanding bonds are mostly concentrated in 1-3 years for China, Indonesia, Korea, Thailand, and Vietnam. For most markets, liquidity exists only in higher rated papers.

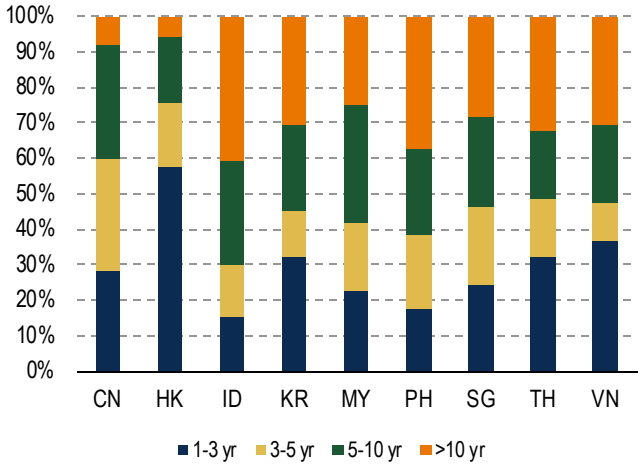
The average duration of government bonds tends to be longer than corporate securities' in local bond markets. The government bond markets in HK tend to be shorter in duration, while Indonesian and the Philippines are subject to longer duration. On the corporate side, Vietnam and Korea have the largest proportion of short-duration bonds, while Malaysia followed by Singapore have longer duration issuances. There has generally been a trend towards issuance of longer duration corporate bonds as the markets have matured and rates have fallen.

Chart 103: Corporate bond maturity profile (2018)



Source: ADB

Chart 104: Government bond maturity profile (2018)



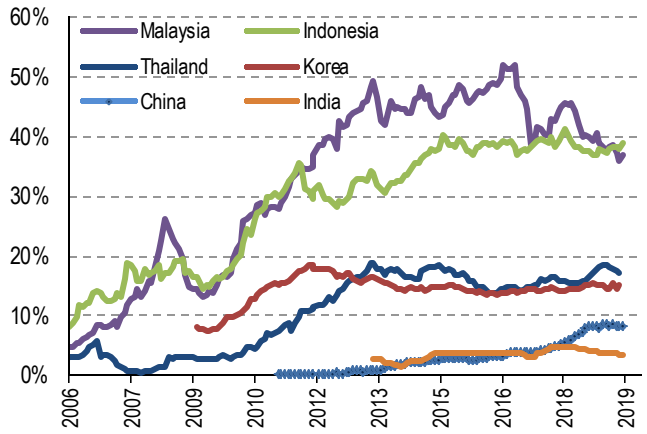
Source: ADB

The scale of institutional investors varies among countries depending on the development stage of their financial system. But, overall, the investor base in Asian local currency markets has become broader and deeper with the emergence of domestic institutional investors. Demographic changes, pension reforms and the larger role played by non-bank financial institutions have supported this development.[2] For the most part, domestic investors (commercial banks, pension funds, insurance companies and mutual funds) have been the primary purchasers of local currency bonds, especially government bonds. Bonds provide a good match for long-duration liabilities offering lower volatility than equities. Local currency bond markets have also attracted retail investors looking for relatively safe instruments with higher yields than bank deposits, which we believe can be attributed to growth in the mutual fund industry, as well as private wealth clients.

Foreign investors have continued to expand their share of bond holdings in most markets, although the focus has been predominantly on government bonds. The secular increase in the proportion of their portfolios allocated to emerging market assets by developed country institutional investors has been underpinned by a more favorable risk-return profile. Foreign participation has largely been through institutional investors such as mutual funds, pension funds, hedge funds and sovereign wealth funds.

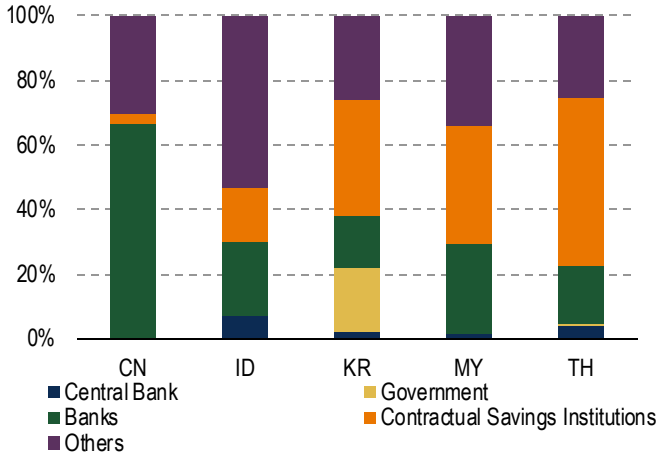
Indonesia and Malaysia have had the highest percent holding from foreign investors, while foreign participation in India and China is below 10% due to strict capital controls. While the percentage holding from foreign investors declined in 2018 due to concerns on EM and volatile FX, which drove fund outflows from the region, EM government bonds still provide attractive returns vs developed markets in a global low-yielding environment; Asian countries also provide lower volatilities. The foreign ownership trend has stabilized so far YTD 2019. In addition, the 2019 addition of China local debt into the two major global bond indices should also increase foreign demand.

Chart 105: Asia foreign bond holdings share



Source: Haver

Chart 106: Investor profile in government bonds



Source: ADB

Based on the 1997 financial crisis experience, the Asia Bond Market Initiative (ABMI) was started in 2003 to support the development of local markets. With the purpose of promoting domestic and regional demand for the bond market, the formation of a balanced financial system will lower the region's heavy reliance on banking system and help diversify risks and reduce costs of the financial system as a whole. One of the recent key developments from the ABMI is the launch of the ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF). This is an effort to integrate the bond markets for professional investors in each of the region's countries by mutual recognition.

[2] MF Working Paper 11/132, "The Development of Local Debt Markets in Asia" by Mangal Goswami and Sunil Sharma

Bank of America Merrill Lynch

Table 10: Depth in Asian local currency bond markets

	Issuance tenor	Liquidity to which local rating?	Diversity of investor base*
China	Sovereign issuance up to 50yrs but mostly between 1-10yr; corporate issuance mostly 5-7yrs	Domestic rating AA	Banks, security companies, funds and insurance companies
Hong Kong	2-15yrs for sovereign, mostly 5-7yrs for private company securities; 1-7yrs for government owned company securities	AA; some in lower	Fund managers, insurance companies and banks
India	Up to 30 years for government bonds, but mostly 10yrs. Up to 20yrs for corporate bonds, mostly 5-10yrs	AA; some liquidity in A	Fund managers, insurance companies, banks and pension funds
Indonesia	Sovereigns issue bonds up to 30 years and corporates can issue bonds of 1-15yrs, mostly 5yrs	AA; some liquidity in A	Domestic FIs predominant. Others - MFs, pension funds, foreign FIs and insurance companies
Korea	Sovereign issuance up to 30 years but mostly 5-10yrs, corporate issuance1-5yrs, select long duration issuance but mostly 3yrs	A	Domestic and foreign banks, IBs and brokerages, investment trust companies
Malaysia	1-20yrs, mostly 7yrs for conventional sovereign bonds; 3-20 years for Islamic securities- mostly 7.5yrs; 1-20 years for corporate securities, mostly 5-10yrs	AA	FIs, AMCs, insurance companies, pension funds, private wealth
Philippines	2-20yrs for sovereign, mostly 5-9yrs, up to 20 years for corporates, mostly 5-10yrs	AA	Banks, companies, statutory bodies
Singapore	1-30yrs for sovereign bonds, 1-40yrs including perpetuals for corporate bonds, mostly 5-10yrs	AA-; Money market funds can invest above this	Banks, insurance companies, AMCs (including MFs and Pension funds), private client
Thailand	2-50yrs for sovereign but mostly 5-9yrs; 2-10yrs for private company bonds and 1-20yrs for state-owned companies, mostly 5-10yrs	A	AMCs, banks, fund managers and insurance companies

Source: ADB, various financial regulators and central banks, Market Information, BofA Merrill Lynch Global Research

Note: *FI=Financial Institution, MF=Mutual Fund, Comm. banks=Commercial bank, IB=Investment bank, AMC=Asset Management Company

Regulations

China and India are the most restrictive, limiting foreign participation. Hong Kong and Singapore remain by far the most open capital markets in the region, with no capital controls on foreign investors. These markets do not require a mandatory local rating for a corporate to be able to issue debt in the local market. Most markets have some form of withholding tax, with Hong Kong and Singapore having little to no tax on this front, which helps attract foreign investors. Malaysia has made significant efforts to increase foreign participation in its local bond market, including the issuance of Islamic bonds. It also announced the removal of mandatory credit rating requirements for new corporate issues, effective 1 January 2017.

Table 11: Asian local currency bond market regulatory features

	China	Hong Kong	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand
Foreign Access								
Investor access	(1) RQFII and QFII quota open to foreign investors and SAFE announced quota removal in Sep 2019 (2) CIBM, (3) Bond Connect	No restriction	Foreign investors are allowed to purchase debt securities without limit except for retail bonds for which they are only allowed to purchase in the secondary market	Notification to a foreign exchange bank or The Bank of Korea is required if the purchase is not made through an account exclusively for investment	No restriction	No restriction	No restriction	Investment of a nonresident group in THB-denominated debt securities issued by a domestic financial institution is capped at THB10 million
Issuer access	Weak but improving, very good access to CNH market	Very Good	Moderate; no requirement for approval but subjected to regulations on FX transactions	Moderate	Good	Moderate, requires BSP approval	Very Good	Moderate, needs approval by the PDMO which is subject to an overall cap for issuances per fiscal year
Intermediary access	Poor	Very Good	Good	Very Good	Very Good	Good	Very Good	Good
Foreign capital controls	High but falling	None	Very Low	Low	Low	Low	None	Low

Table 11: Asian local currency bond market regulatory features

	China	Hong Kong	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand
Issuance Rules								
Mandatory rating needed?	Yes	No	Yes	Yes	No	Yes	No, but IG rating is one of the requirements for listed foreign debt-securities (SGX)	Yes
Taxation for foreigners								
Withholding tax	10% for corporate bonds; Under Circular 108, foreign institutional investors are exempt from withholding tax in bond market for three years (7 Mov. 2018 to 6 Nov. 2021)	No	Withholding tax on interest from conventional debt securities for non-residents; May be reduced under applicable DTA	15.40%	No	Foreigners: 20% for non-deposit substitutes; 30% for deposit substitutes	15% or exempt (for Qualifying Debt Securities)	Government bond: exempt or 15%; Corporate bond: 15%
Capital gains tax	No	No	5% of the gain upon the sale of debt securities for foreign investors	10% of gross proceeds or 22% of net capital gains, whichever is lower	No	7%	No	0%-15%, subject to DTA

Source: ADB, BIS, Market Information, BofA Merrill Lynch Global Research

Historical returns

Asian local currency government bond markets have provided an average yearly total return of about 4.7% over the last 10 years. The weakest year was 2013, when local markets were negatively impacted by the taper tantrum, followed by 2018 when interest rates rose in general. Foreign selling in onshore bonds pushed up yields and increased currency volatility, putting pressure on Asian FX vs. USD.

Table 12: Asian government yearly local currency bond total returns (LOC)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
China	-2.4	1.3	6.9	2.9	-3.1	11.3	8.6	2.1	-1.7	7.7
Hong Kong	-0.4	1.6	5.7	3.2	-3.2	2.6	2.7	0.3	1.3	1.2
India	-0.8	4.3	5.7	10.9	2.7	16.5	8.1	14.9	3.1	8.4
Indonesia	24.5	20.7	22.7	13.2	-12.9	13.3	3.3	14.1	17.3	-1.8
Korea	1.0	8.8	6.8	6.8	1.1	9.2	6.1	1.5	-0.4	6.5
Malaysia	0.7	5.0	5.0	4.2	0.5	3.9	4.3	3.6	5.2	4.1
Philippine	9.7	14.9	15.7	10.5	10.1	4.6	0.9	3.1	1.1	-5.1
Singapore	0.2	2.8	6.4	3.8	-3.7	3.5	0.8	3.0	4.1	2.6
Taiwan	1.9	2.5	2.3	3.1	-2.0	2.2	6.8	-0.6	4.6	2.1
Thailand	-3.8	5.8	5.0	3.3	2.0	10.3	5.6	1.8	5.7	1.5
Average	**3.0**	**6.8**	**8.2**	**6.2**	**-0.8**	**7.7**	**4.7**	**4.4**	**4.0**	**2.7**

Source: ICE Data Indices, LLC

If we look at total returns on a USD basis, we find the average returns are lower with a 10-year average total return of 4.3%. This is lower than the average total return for the Asian USD government bond market, which generated an average yearly return of 7.3% over the last 10 years.

Table 13: Asian government yearly local currency bond total returns (USD unhedged)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
China	-2.5	5.0	11.9	3.9	-0.3	8.6	3.8	-4.6	4.9	2.2
Hong Kong	-0.4	1.3	5.8	3.4	-3.2	2.6	2.8	0.2	0.4	1.1
India	3.9	8.6	-11.0	7.4	-9.1	14.2	3.1	12.0	9.6	-0.9
Indonesia	44.4	25.8	21.9	6.5	-31.1	11.4	-7.2	16.7	16.5	-7.3
Korea	9.2	11.6	5.2	14.9	2.6	4.9	-0.5	-1.5	12.4	2.2
Malaysia	1.7	16.6	2.1	8.0	-6.2	-2.7	-15.1	-0.8	16.7	1.9
Philippine	12.8	21.3	15.5	18.0	1.9	3.7	-4.1	-2.4	0.7	-9.9
Singapore	2.8	12.7	5.1	10.1	-6.8	-1.4	-5.9	1.2	12.6	0.6
Taiwan	4.5	12.4	-1.5	7.5	-4.5	-3.6	2.7	1.3	13.3	-1.1
Thailand	0.3	17.0	0.3	6.5	-5.0	10.1	-3.5	2.3	16.2	1.6
Average	**7.7**	**13.2**	**5.5**	**8.6**	**-6.2**	**4.8**	**-2.4**	**2.4**	**10.3**	**-1.0**

Source: ICE Data Indices, LLC

However, we note that the comparison is not apples-to-apples as a number of Asian governments do not have USD bonds outstanding. If we were to only include the markets where the government has outstanding USD bonds (i.e. China, Indonesia, Korea, Malaysia, and the Philippines), then the average 5-year return for local bonds would increase to 5.4%. This is not a perfect comparison as the USD bond index has different weightings and also includes bonds from Mongolia, Pakistan, Sri Lanka and Vietnam.

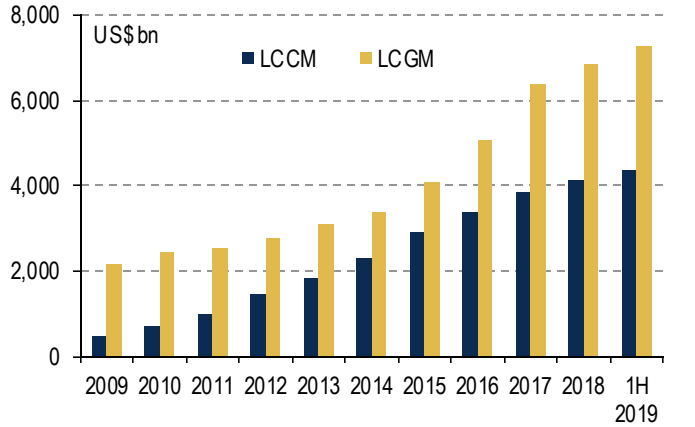
As most Asian countries' domestic corporate bond markets are subject to poor liquidity, we do not have indices tracking their respective spreads or returns. Currently, the only Asian local corporate bond market indices that ICE tracks are the onshore and offshore China bond markets.

Individual local bond markets

China

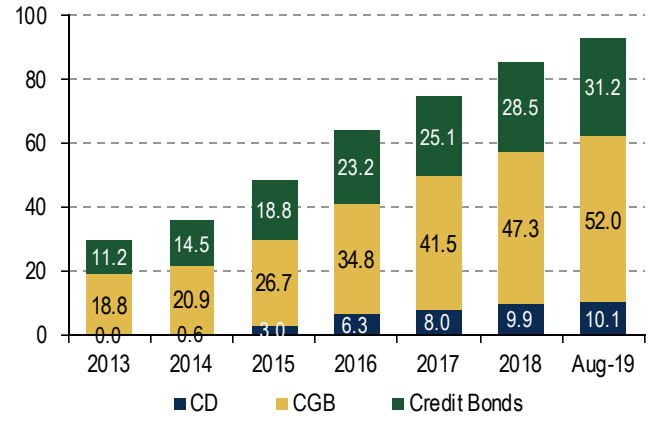
The China onshore bond market is the largest in the Asia ex-Japan region and the second largest bond market globally after the United States. As of 1H19, the onshore bond market stood at CNY83tn (US$12tn), up 8% from end 2018. Among the three major categories, the biggest share is government bonds (56% of total), then credit bonds (33%) and certificates of deposits/CDs (11%).

Chart 107: China: LCCM vs. LCGM (exclude CDs)



Source: WIND, BofA Merrill Lynch Global Research

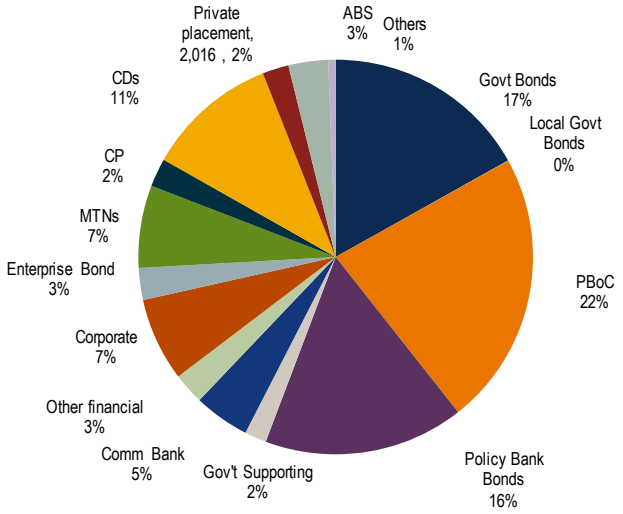
Chart 108: China onshore bond market size, CNY tn



Source: WIND, BofA Merrill Lynch Global Research

The above right chart shows the compositions of the whole China onshore bond market – government bonds, corporate bonds and CDs. In 2009, government bonds used to account for ~80% of the domestic bond market but the ratio has declined over time, reaching below 60% by 2014, and has been hovering around that level since then. In the early development stage over 2008-12, Chinese government bonds underwent a robust expansion with an average annual growth of 55% before normalizing to 10-20% in the years after. On the other hand, local corporate bonds only started flourishing in 2015-17 thanks to a more favorable policy amid an overall easing cycle. Yet growth in both markets has slowed notably since 2018, impacted by continual deleveraging efforts and deepening macro slowdown

Chart 109: Onshore bonds outstanding (CNY 93tn, as of August 2019)



Source: Wind, BofA Merrill Lynch Global Research

Table 14: China onshore bond outstanding breakdown (Aug 2019)

	Size, CNY bn	% of total
Government bonds	**51,962**	**56%**
Local Gov t Bonds	20,946	22%
Central Gov t Bonds	15,731	17%
Policy Bank Bonds	15,284	16%
Certificates of deposit	**10,064**	**11%**
Financial credit bonds	**6,626**	**7%**
Commercial Bank	4,236	5%
Other Financial	2,390	3%
Non-Financial credit bonds	**24,562**	**26%**
Corporate Bonds	6,369	7%
Medium-Term-Notes/ MTNs	6,315	7%
Asset-backed Securities/ABS	3,034	3%
Enterprise Bonds	2,432	3%
Commercial Papers	2,155	2%
Priv ate Placements	2,015	2%
Gov 't Supporting	1,675	2%
Others	567	1%
Total onshore bond market	**93,214**	100%

Source: Wind, BofA Merrill Lynch Global Research

Bank of America Merrill Lynch

Market composition

Government bonds, totaling 56% of the total onshore bond market, consist of central government bonds/CGBs (18%) issued by the Ministry of Finance (MoF) to fund the government's budget deficit; local government bonds/LGBs (22%) issued by provincial governments and some city-level governments approved by the State Council; and policy bank bonds (16%) issued by the China Development Bank, Agricultural Development Bank of China and China EXIM Bank for major infrastructure projects. LGBs have had the shortest history since they started in 2015 with the local government debt swap program and China Budget Law revision, but LGBs now carry the heaviest weight within the segment.

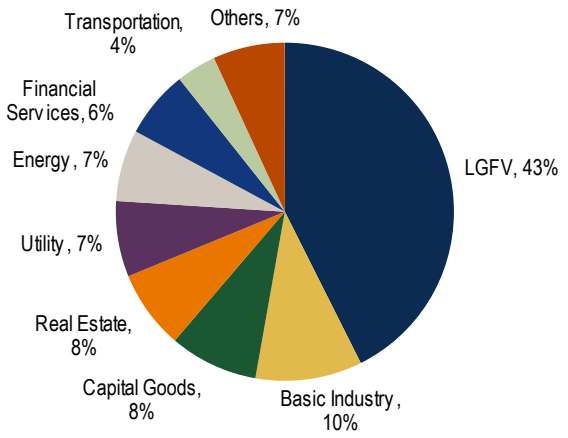
The second dominant category is **credit bonds**, accounting for 33% of the onshore market. Two main segments: (1) **non-financial credit bonds** (26%) are issued by non-financial domestic companies. This covers exchange corporate bonds (7%), medium-term notes (7%), asset-backed securities (3%), enterprises bonds (3%), short-term commercial papers (2%) and private placement notes (2%) among other minorities such as convertible bonds and government-backed securities etc. (2) **Financial credit bonds** (7%) are raised by domestic commercial banks, insurance companies and other non-bank financial institutions including securities companies, etc.

The remaining share are **certificates of deposit** (CDs), accounting for 11% of the total onshore market, issued by domestic joint-stock banks and regional banks to fund their off-balance-sheet activities given their limited branch operations and hence weaker deposit-taking abilities. CDs' durations are often short, ranging from three months up to a year.

By issuer type

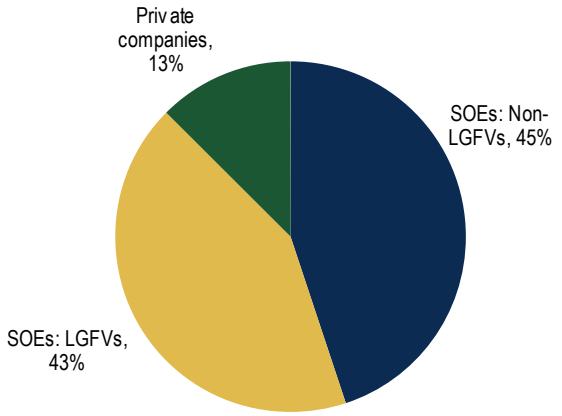
Government bonds, certificates of deposit and financial bonds are all issued by the government or state-affiliated entities. The only segment where there could be differentiation in terms of issuer type is in non-financial credit bonds. Over 80% of non-FI credit bonds are issued by state-owned enterprises/SOEs, of which half are local government financing vehicles/LGFVs. LGFVs are SOEs established by local governments with capital, land, or other public resources that in turn either borrow from banks or issue urban construction bonds. To support local economic development, LGFVs are mandated to conduct a pro-growth agenda such as local infrastructure investments and public housing construction projects. Similar to bank loan-granting practice, bond investors often favor SOEs over private enterprises backed by the potential implicit guarantees by the central government in cases of default. In the past few years, policymakers have launched various initiatives in an attempt to improve private-sector funding difficulty, but so far the impact has been minimal.

Chart 110: Non-financial credit bonds outstanding by industry



Source: Wind

Chart 111: Non-financial credit bonds outstanding by issuer type



Source: Wind

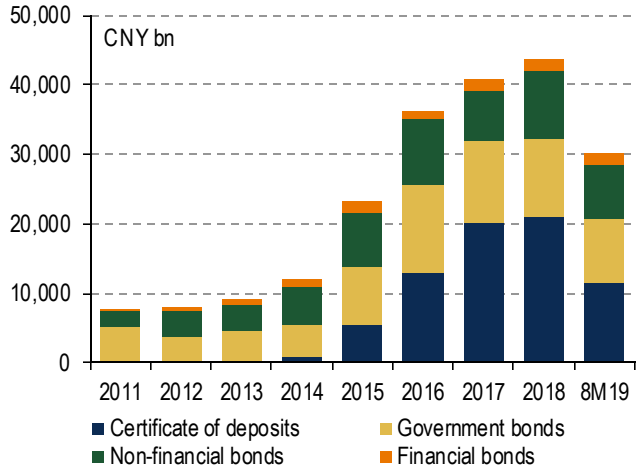
By industry

Within the non-financial credit bond market, LGFVs (43%) account for the largest category followed by basic industry (10%), capital goods (8%), property developers (8%), utilities (7%), energy (7%), and financial services (4%).

Issuance trend

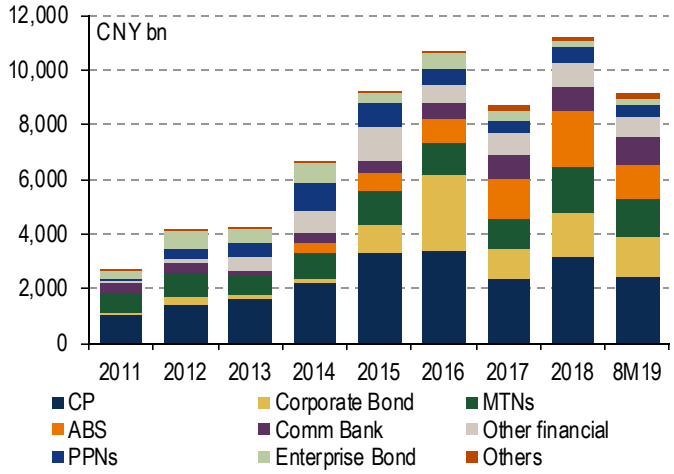
In the primary market, the volume of onshore bond issuance increased rapidly throughout the last decade from CNY7.8tn in 2011 to CNY43.8tn in 2018. Over 2011-15, government bonds were the biggest driver followed by non-financial corporate bonds. Since 2016, CD issuance ballooned quickly, overtaking government bonds to be the leading instrument, accounting for almost half of total annual issuance in the past two years. YTD (similar to the slowing overall market growth trend highlighted in the earlier section), total primary issuance growth has also been decelerating since the beginning of the year (8M19 YTD +5% vs 2018 +8%) weighed by weakening CD issuance this year. Since the Chinese regulator called for the exiting of high-risk financial institutions early this year, there have been three cases of small-city commercial bank takeovers/recaps between May and August.

Chart 112: Gross issuance of onshore bonds by type



Source: Wind, BofA Merrill Lynch Global Research

Chart 113: Gross issuance of credit bonds by type



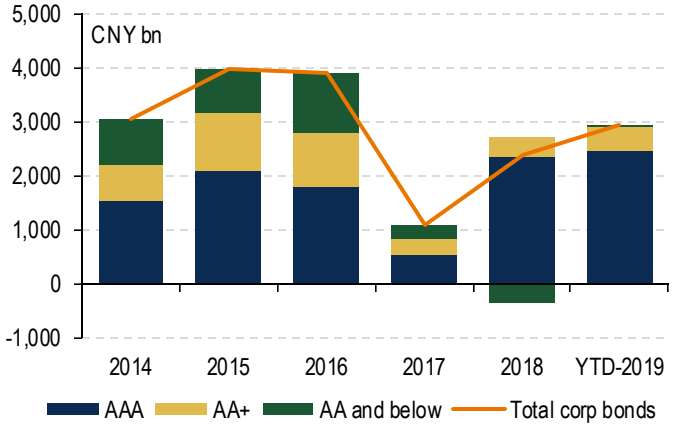
Source: Wind, BofA Merrill Lynch Global Research t

Net supply trend

The following two charts show the annual credit bond net supply trend over the past five years. In 2015-16, onshore net supply was robust at close to CNY4tn a year supported by a macro loosening cycle and RMB depreciation pressure. Then the nationwide deleveraging campaign and shadow banking activities crackdown resulted in a sharp correction in 2017 with net supply down to just over CNY1tn, followed by a rebound to CNY2.4tn in 2018 driven by more accommodative monetary measures at home to support growth (multiple required reserved ratio cuts and liquidity replenishment measures). YTD net supply has been healthy, accumulating to ~CNY3tn.

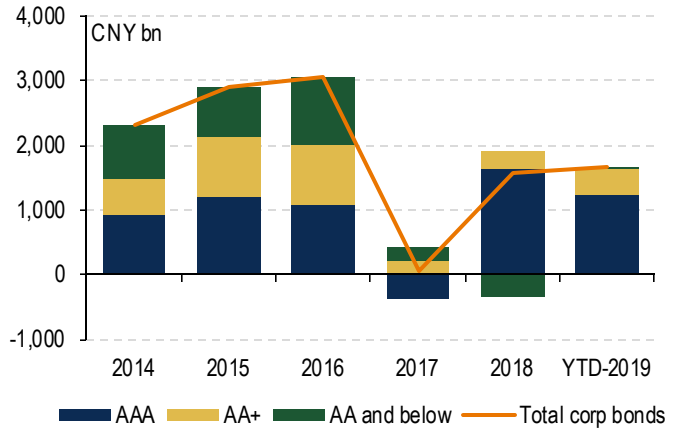
Note that the onshore bond market net supply recovery since 2018 has largely benefited high quality AAA-rating (investment-grade) issuers, while it remains challenging for the low quality non-AAA rating (high-yield) issuers to tap the onshore credit funding.

Chart 114: Net supply of credit bonds by rating



Source: Wind

Chart 115: Net supply of credit bonds (excl financial bonds) by rating



Source: Wind

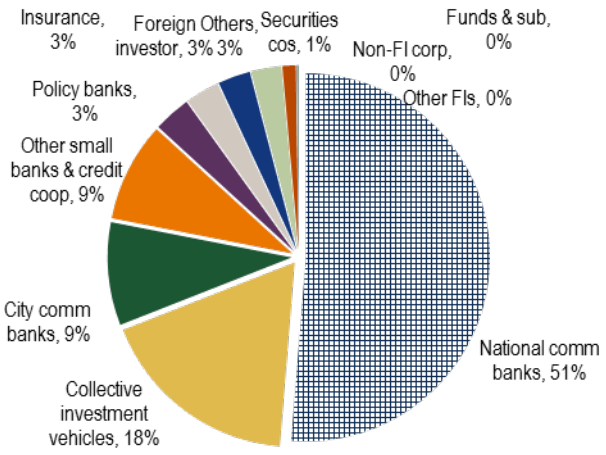
Investor profile

In the onshore bond market, the major market participants include special settlement members (SSM), commercial banks, insurance companies, securities firms, funds and fund subsidiaries, other non-bank financial institutions and non-financial institutions.

Based on the interbank bond market holding data breakdown by investor type provided by the China Securities Regulatory Commission (CSRC), the onshore bond market is almost entirely held by domestic investors, of which national commercial banks have the biggest holding (51%), followed by collective investment vehicles (18%), city commercial banks (9%) and other small banks and credit cooperatives (9%). A collective investment vehicle is a special-purpose entity to hold investments and then repackage these as financial products for retail and institutional investors (eg. banks WMPs, mutual funds by brokers and asset managers as well as savings products offered by insurers).

The table below shows that national commercial banks are the most involved in the government bond space, while collective investment vehicles are the biggest investors in financial bonds and corporate bonds, followed by the national commercial banks.

Chart 116: CSDC interbank market holding by investor type (July 2019)



Source: WIND

Table 15: CSDC interbank market holding by investor type (July 2019)

As of July-2019	**Govt bonds** (CGB, LGB, Policy bank bonds)	**Financial bonds** (ex-policy bank bonds)	**Corporate bonds** (exchange cop bonds, ABSs, MTNs)
Policy banks	4%	1%	1%
National commercial banks	56%	26%	30%
City commercial banks	10%	5%	6%
Other small banks	9%	7%	6%
Insurance companies	2%	8%	6%
Securities cos	1%	0%	4%
Funds & sub	0%	0%	0%
Other financial institutions	0%	0%	1%
Non-financial institutions	0%	0%	0%
Collective investment vehicles	11%	52%	46%
Foreign investor	3%	0%	1%
Others	3%	0%	0%

Source: WIND

Trading market

In the onshore market, trading takes place in two markets: (1) the interbank market and (2) the exchanges market – Shanghai and Shenzhen. The interbank market is dominant and most active, accounting for 99% of total transaction volume last year.

Table 16: Bond transaction volume by market in 2018

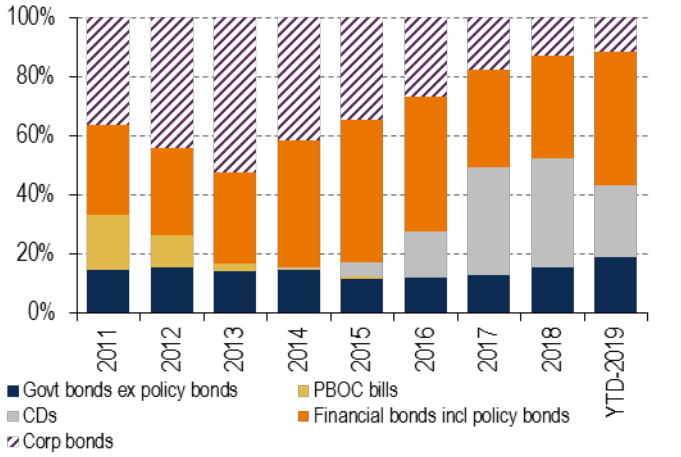
	Bond Spot Transaction	
Trading Market	Total Amount (CNY bn)	Proportion (%)
Interbank	148,129	99
SH exchange	795	0.53
SZ exchange	862	0.58
Total	**149,786**	**100**

Source: Wind

Transaction volume and liquidity

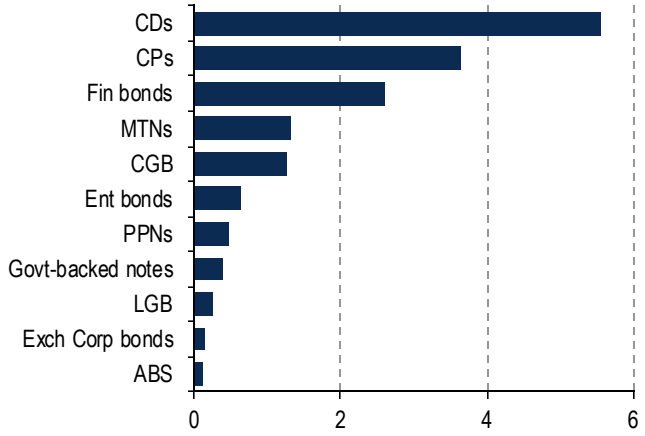
In the past decade, financial bonds (including policy banks bonds) were the most frequently traded instrument except in 2017-18, when they were overtaken by the short-duration certificates of deposits (CDs). YTD, financial bonds reclaimed the top place again (45% of total transactions) given the declining issuance of certificates of deposit resulting from recent small bank woes. In terms of bond turnover ratio, certificates of deposit and commercial papers have the highest turnover ratio as liquidity is generally higher for shorter maturity products. In third place was financial bonds, followed by different types of corporate credit bonds. Medium-term notes and enterprise bonds have a higher turnover ratio than corporate bonds as the former two are traded on the interbank market, which is dominated by large institutional investors. Overall, the liquidity of the China onshore bond market is much lower than many other countries because most domestic investors tend to hold paper until maturity.

Chart 117: Bond transaction volume by security type



Source: WIND

Chart 118: Annual bond turnover ratio (2018)



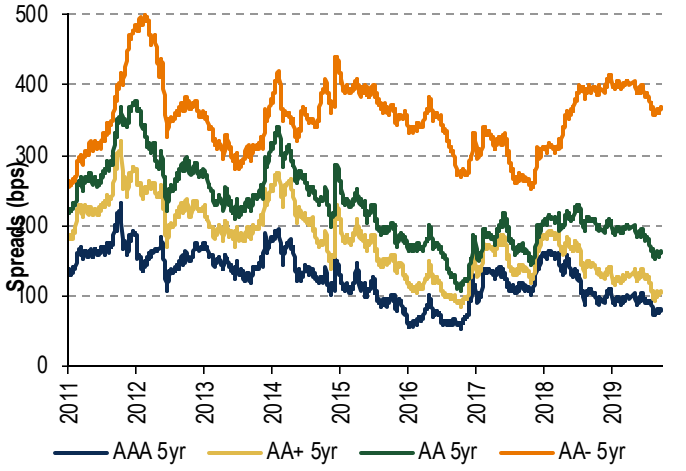
Source: WIND

Yield

For five-year duration, credit spreads for AAA, AA+ and AA have been tightening since the beginning of 2018 as credit bond yields declined faster than the CGB yield of which AAA (offshore IG equivalent) continued to trade at the tightest range. On the other hand, AA- (the lower rating of the offshore HY equivalent) saw a divergent trend that further widened over the period. As a result, spread difference between AAA and AA- widened from 150bp to 300bp.

Bank of America Merrill Lynch

Chart 119: Spreads for 5yr enterprise bonds



Source: WIND

Chart 120: Credit spread disparity between AAA and AA- remained wide

Source: WIND

Credit rating

In comparison to just three internationally recognized rating agencies (S&P, Moody's and Fitch), China has numerous domestic rating agencies of which at least eight are recognized by one or more regulators. Due to regulation and issuance constraints, initial credit ratings on bonds and issuers are generally between AAA and AA. On a national level, the high weighting of AAA-rating credit bonds (about 50% of total non-financial credit bonds outstanding) offers little credit differentiation for investors; hence global investors could call the usability of China's local credit rating system into question. Furthermore, onshore rating agencies are often not monitoring on a regularly scheduled basis, which has led to a lack of timely red flags ahead of the actual defaults.

Table 17: Rating split of onshore non-financial credit bonds outstanding

% of total	By bond rating	By issuer rating
AAA	54	49
AA+	11	19
AA	7	17
AA- or below	3	1
No rating	25	14
Total	100	100

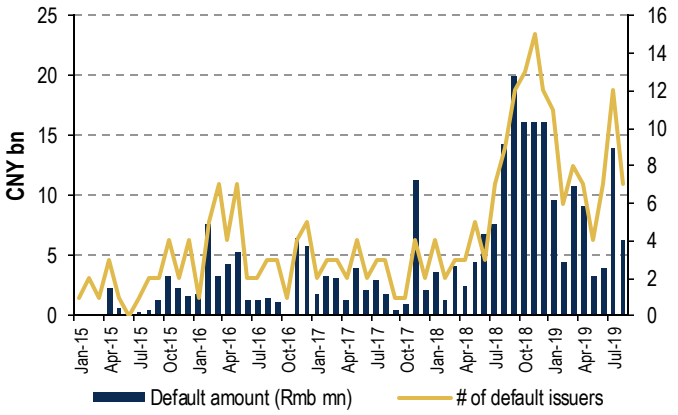
Source: WIND

In January this year, Chinese regulators granted the first approval to S&P Global to enter the domestic bond market. On 11 July 2019, S&P issued the first rating AAA to a domestic China entity (ICBC Financial Leasing Co. Ltd.) by a local Credit Rating Agency (CRA) that is wholly owned by an international investor.

Onshore default trend

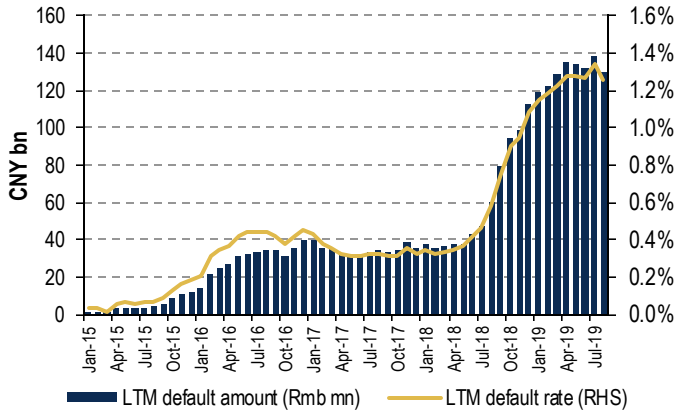
The over three year long nationwide deleveraging campaign triggered a surge in onshore bond defaults in 2018, with 36 issuers defaulting on 84 bonds totaling CNY111bn, more than triple the amount in the year prior. YTD, we have seen 39 issuers/118 bonds defaulted so far with CNY57bn outstanding. Note that YTD defaults have been more concentrated in the private sector given no improvement in the local funding situation. The last 12 month default rate came to 1.25% as of end August 2019, slightly lower than the previous high of 1.34% in July.

Chart 121: China onshore default rate



Source: Wind

Chart 122: Trailing 12-month default amount/rate



Source: Wind

Chart 123: China onshore bond return history

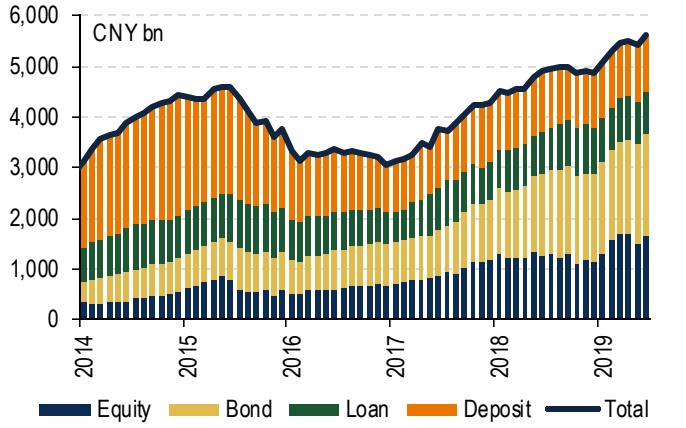
Source: ICE Data Indices, LLC

Returns

In the last decade, the China broad market has delivered on average a 4.2% increase per annum on a total return basis, while corporates bonds recorded an average of 4.5% over the same period. Chinese government bonds and policy financial bank bonds lagged at 4% and 4.2%, respectively. The best return years were 2014, 2015 and 2018, of which all happened to coincide with the policy easing cycle. Note that last year, CGB and policy bond performance was partly pushed up by a rush of capital inflow shoring up purchase of Chinese government bonds ahead of the global index inclusion event. YTD returns have been below the past 10-year average across the board.

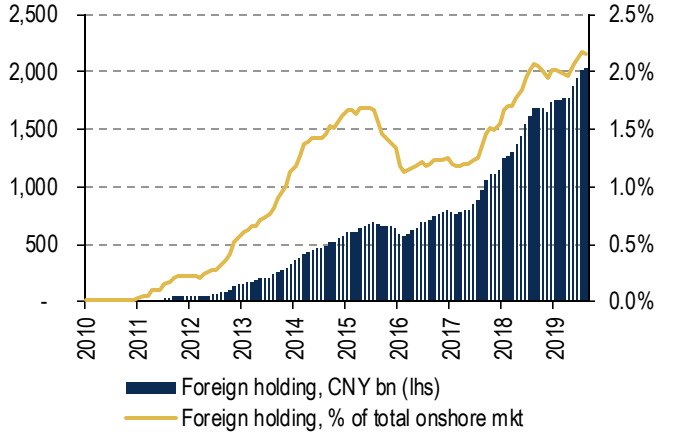
Bank of America Merrill Lynch

Chart 124: Domestic RMB financial asset held by overseas entities



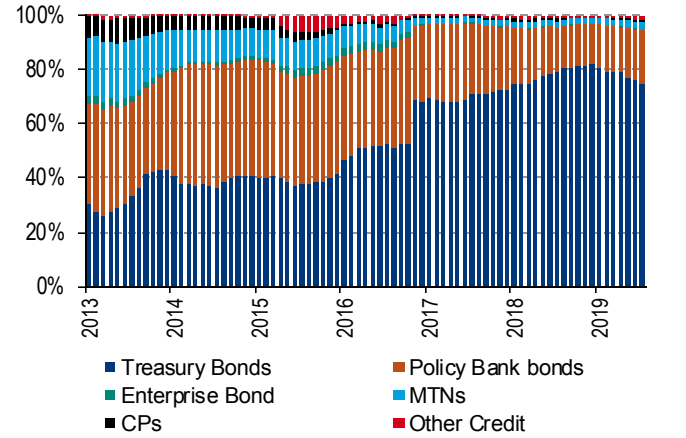
Source: Bloomberg

Chart 125: China domestic bonds held by foreign institutions



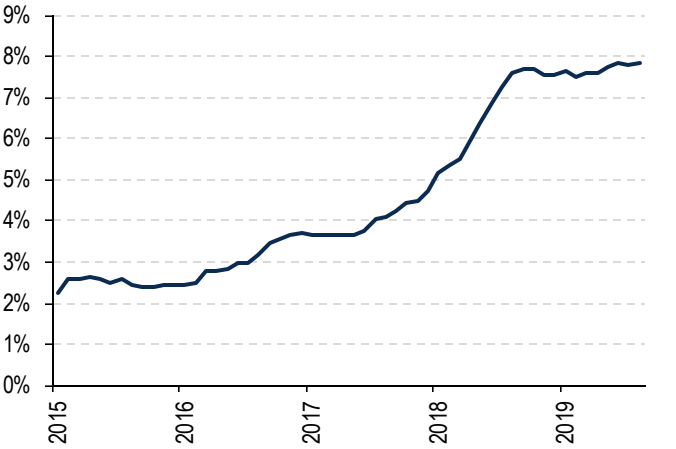
Source: CEIC WIND

Chart 126: Foreign institutions holding structure



Source: Chinabond, SH clearing

Chart 127: Foreign ownership of CGBs, %



Source: CEIC, WIND

Foreign ownership

For the China domestic bond market, foreign ownership has more than doubled since 2016 to over CNY2tn, a record high. Nevertheless, the China foreign participation ratio has remained low compared to its global peers with the latest figure at 2.2%, the highest reading on record. By security type, foreign investors are most concentrated in CGB and policy bank bonds, accounting for 94% of the total portfolio. For CGB alone, foreign participation has been increasing in the past few years, prompted by various global bond indices inclusion with latest reading at ~8%.

Despite the Chinese government's years-long efforts in promoting financial market opening, foreign investor participation in domestic CNY financial assets remain low hindered by accessibility concerns and other technical issues (unclear tax regulation, hedging capacity, low liquidity in the secondary market, currency convertibility concerns, lack of fungibility across various access programs and operational issues in onshore foreign exchange transactions, etc).

Four ways for foreigners to access the onshore market

Foreign investors have four main ways to access the onshore bond markets, but each are subject to some limitations.

Table 18: Overview of four main accesses to onshore bond market

		QFII & RQFII	CIBM	Bond Connect
Requirements	Approval/Filing	Approval	Filing	Filing
	Quota	No (removed in Sep-2019)	No	No
	Lock-up requirement	No	No	No
Product Access	**Onshore cash bonds**			
	Interbank	Yes	Yes	Yes
	Exchange	Yes	No	No
	Onshore FX			
	Spot	Yes	Yes	Yes
	Forward	Yes	Yes	Yes
	Swap	Yes	Yes	Yes
	Options	Yes	Yes	Yes
	Derivative products	No	Selected products	No

Source: IMF, ChinaBondConnect.com

1. QFII (Qualified Foreign Institutional Investor) was the first official channel offered to global investors in November 2002, which allows licensed foreign investors to buy and sell CNY-denominated equities and bonds. Almost 10 years later, RQFII (Renminbi Qualified Foreign Institutional Investor) was introduced in December 2012, which allows Chinese financial firms to establish CNY-denominated funds in Hong Kong for investment in the mainland. On 10 September 2019, the State Administration of Foreign Exchange (SAFE) scrapped the quota approval requirement and removed the US$300bn aggregate cap on both programs. Impacts are likely to be minimal given two-thirds of the quota were unutilized before.

2. The People's Bank of China (PBoC) special scheme (direct China Interbank Bond Market [CIBM] scheme) was launched in August 2010 for the CNY Clearing Bank and other permitted organizations outside of mainland China to invest in the onshore interbank bond market. Now, only registration with the PBoC is required before investment, and there is no explicit upper quota limit for these investors, but application must be submitted to the PBoC for approval and anticipated investment value.

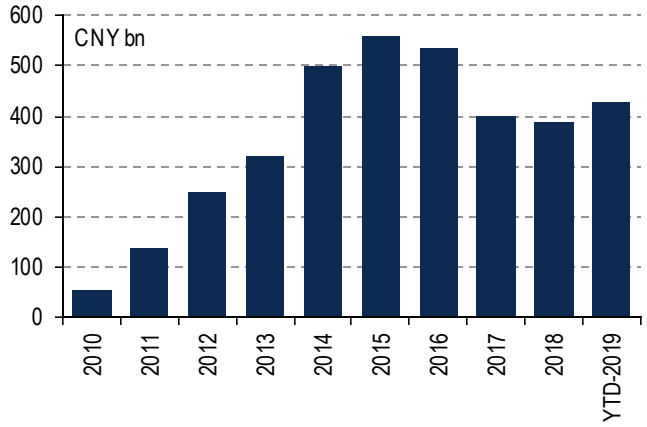
3. The Bond Connect Scheme was launched in July 2017, serving as the newest channel for foreign investors to access China's onshore interbank bond market. Compared to other channels, Bond Connect has a broader product scope, lower administrative hurdle, easier access to the market and more efficient settlement procedure. YTD-2019, northbound trading volume totaled CNY1.3tn (vs CNY884bn in 2018). By end August 2019, Bond Connect had 1,244 registered institutional investors (another 110 on board during the month) doubling the numbers in 2018. Recent data show trading is most dominant in Chinese government bonds, policy bank bonds and NCDs.

Dim-sum bond

Dim-sum bonds are issued in the offshore market (outside China) and denominated in CNY. The market was first established in 2007, but did not really take off until 2010 after the market was opened up further to facilitate the development of CNY-denominated financial services in a first step toward internationalizing the currency. The introduction of an offshore CNY bond market provides both an avenue for channeling CNY funds back to the Mainland and an investment avenue for CNY funds held in deposit accounts offshore. Dim-sum bond issuance first kicked off in Hong Kong where the CNY offshore center was first set up, and then widened to other countries including London, Singapore and Taiwan, though the majority of bond supply was largely from Hong Kong.

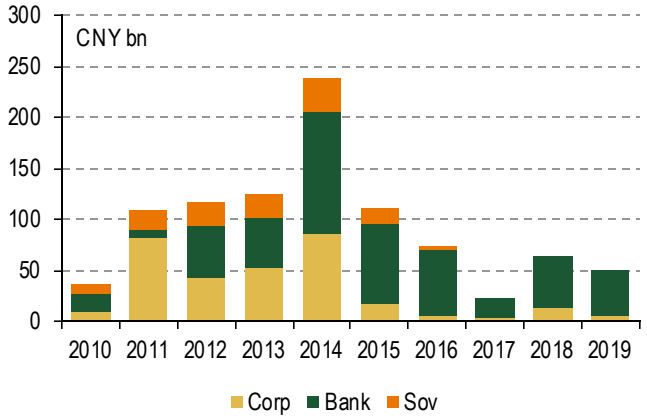
In the first half of the development phase (2010-15), the dim-sum bond market went through rapid expansion from below CNY100bn in 2010 to CNY560bn by 2015. Since peaking in 2015, the dim-sum bond total market declined 30% to CNY400bn in 2017 on a sharp drop in gross issuance resulting from CNY depreciation, diminishing policy support and an acceleration in panda bond issuance (see next section). This figure has stabilized at CNY427bn YTD 2019, up 10% from 2018. In terms of dim-sum bond issuer type, banks have been the most active issuers since 2014.

Chart 128: Dim sum bond market size



Source: Bloomberg, IMF, BofA Merrill Lynch Global Research

Chart 129: Dim-sum bond issuance trend by issuer type



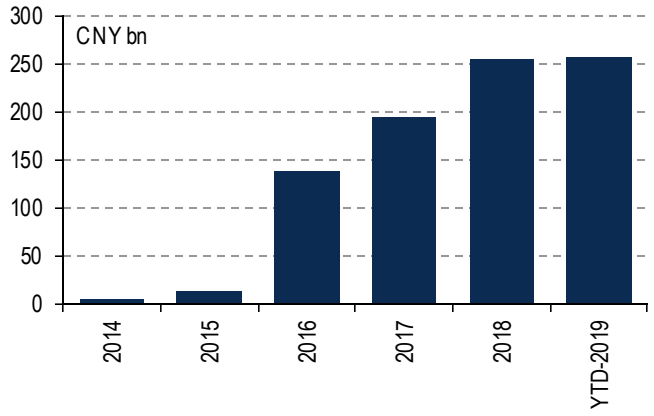
Source: Bloomberg, BofA Merrill Lynch Global Research

Panda bond

Opposite to the dim-sum bond described in the preceding section, the panda bond is a CNY-denominated bond issued by foreign entities in the onshore bond market. The first debut was in 2005 by two multilateral institutions, the Asian Development Bank and the International Finance Corporation. Despite its long history, the panda bond only truly took off in 2016 following a number of regulatory changes amid stronger policy support.

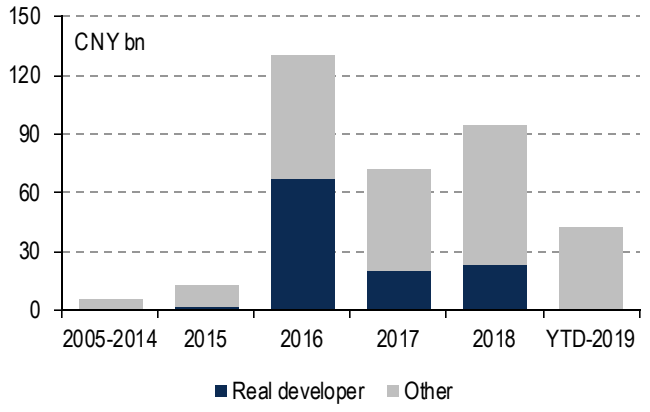
- **2015**: In July, the PBoC permitted foreign central banks, financial institutions and sovereign wealth funds to issue panda bonds in the CIBM program. In December, the panda bond was introduced to the exchange bond market for the first time.
- **2016**: In May, the PBoC allowed panda bond proceeds to be remitted to mainland China subsidiaries without utilizing their foreign debt quota. In August, the World Bank issued the first Special Drawing Rights (SDR) bond in the CIBM, ahead of the RMB's official inclusion as the fifth currency in the SDR basket in October 2016.

Chart 130: Panda bond market size



Source: WIND

Chart 131: Panda bond issuance trend



Source: Bloomberg, BofA Merrill Lynch Global Research

As a result, the panda bond market has ballooned from CNY14bn in 2015 to over CNY250bn in 2018. However, compared to the total onshore bond market, the panda bond market is still at a nascent stage and highly reliant on policy support and market environment.

YTD 2019, the market stands at a similar level to the end of 2018 mainly due to much weaker issuance YTD (number of deals: 28 in YTD 2019 vs 57 in FY18). One reason iss the absence of Chinese developers' offshore subsidiaries this year versus previous years as Chinese policymakers further tightened onshore property sector policy. Note that this group of issuers was the primary support to the sector boom during 2016-18, accounting for 51%, 28% and 24% of annual supply, respectively.

Bank of America Merrill Lynch

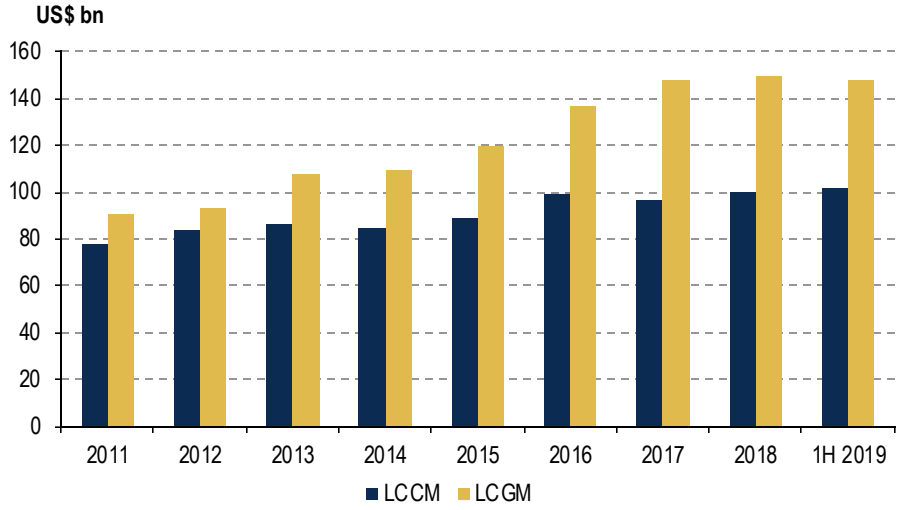
Hong Kong

In 2018, the size of the outstanding Hong Kong local bond market was HKD1.95tn (US$249bn), which grew 2% over the past year. The size of the government bonds market remained relatively stable, growing marginally by 1%, while corporate bonds increased by 3.5%. By 1H2019, the size of the outstanding Hong Kong local bond market has edged up further to HKD1.96tn (US$250bn). Despite the weak issuance trend for government bonds, government bonds still account for the majority of the bond market (59% as of 1H19).

The corporate market accounts for 41% of the total outstanding market. The top-30 nonbank corporate bond issuers in Hong Kong reached HKD212bn at 2019, accounting for about 27% of the total LCCM. The largest issuer remained Hong Kong Mortgage Corporation, with HKD32bn of bonds outstanding. The top-30 issuers continued to be dominated by real estate firms and the financing vehicles of corporates, while four of them are government-owned corporations.

Hong Kong is one of the most liberalized markets with unrestricted access to foreign issuers and investors. Bond trading takes place mostly through over-the-counter (OTC) markets, although some bonds are trading on the securities market of the Hong Kong Stock Exchanges and Clear (HKEx).

Chart 132: Hong Kong LCGM v. LCCM size



Source: ADB

The HKD market is primarily a private placement market with issue sizes of typically around HKD100-200mn. In terms of tenor, the market is dominated by 3-5 year issues. It is still mainly a high investment grade market, with single-A or better rated issues. Fund managers (predominantly pension funds including the Mandatory Provident Fund schemes), banks and government-related institutions are the major institutional investors. The retail market is separated from the institutional market. The main method of distributing retail bonds is via bank retail branch networks.

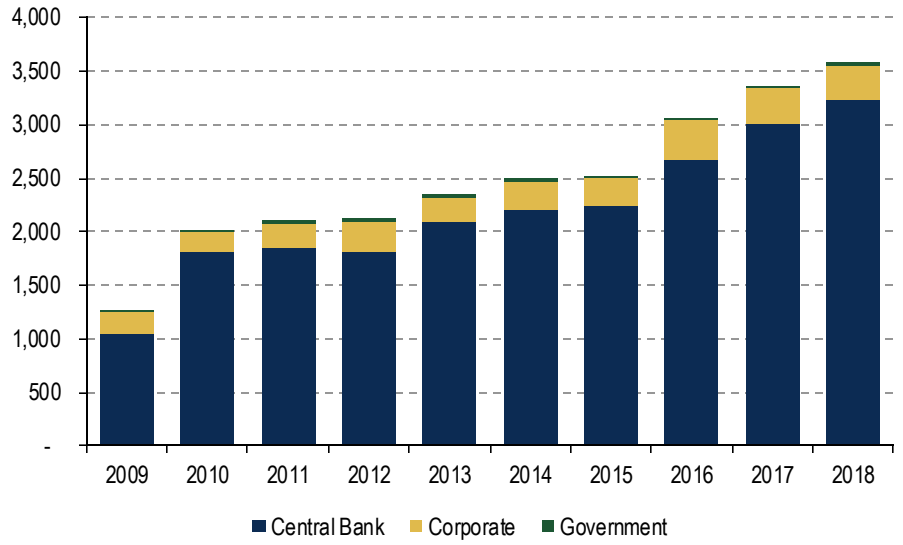
In Hong Kong, bonds issued by the public sector are from: (1) the government of the Hong Kong Special Administrative Region (HKSAR); (2) Exchange Fund Bills and Notes (EFBN) issued by the Hong Kong Monetary Authority (HKMA) as the de facto central bank and representative of the government; (3) statutory bodies (e.g. Airport Authority Hong Kong and Hong Kong Housing Authority); and (4) government-related corporations (e.g. Hong Kong Mortgage Corporation, and Hong Kong Link 2004 Limited).

The Government Bond Programme was established in 2009 in order to promote the sustainable development of the local bond market, while the EFBN Issuance Programme ensures the supply of high-quality Hong Kong dollar debt paper, which can be employed

as trading, investment, and hedging instruments. Authorized institutions that maintain Hong Kong dollar clearing accounts with the HKMA may use their holdings of EFBNs to borrow Hong Kong dollars overnight from the discount window.

The issuance of Exchange Fund Notes (EFNs) and government bonds has been streamlined to minimize overlap in longer tenors. Starting from January 2015, the HKMA has stopped new issuance of EFNs of tenors of 3 years or above, while 2-year EFN issuance continues. At the same time, new issuance of 2-year government bonds has ceased, and new issuance of government bonds will only be for tenors of 3 years and above.

Chart 133: Hong Kong local currency bond issuance size



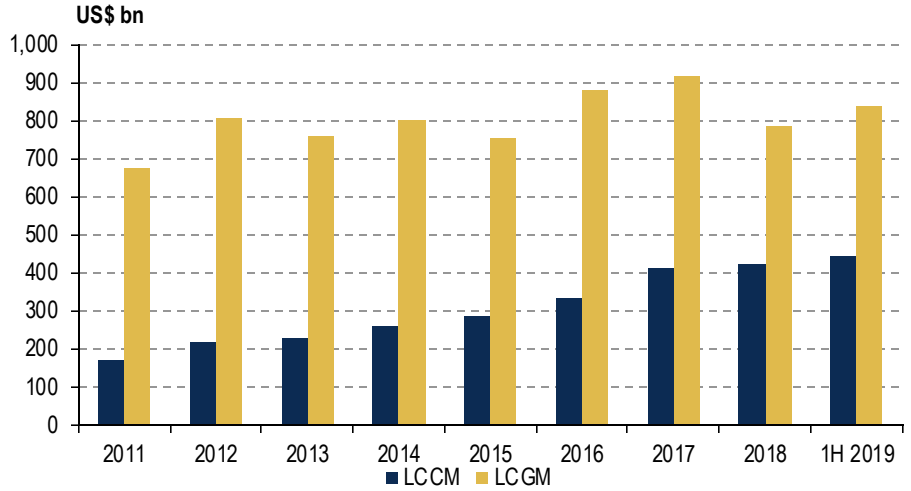
Source: ADB

Bank of America Merrill Lynch

India

India has been a key growth economy in Asia and one of the markets favored by foreign investors. India's local currency bond market has grown at an impressive pace during the past 10 years, at a CAGR of 11%, increasing from around US$426bn at end 2008 to nearly US$1.2tn by December 2018. Government securities stood at US$787bn outstanding, accounting for around 65% of the local bond market. Corporate bonds (US$423bn) accounted for the remaining 35% of the local bond market, but it represented only 16% of GDP, implying substantial upside potential for the market. As of August 2019, the outstanding local currency bond market stood at US$1.28tn (INR88tn), including government bonds at US$836bn (INR57.7tn) and corporate bonds at US$444bn (INR30.6tn).

Chart 134: India: LCCM vs. LCGM

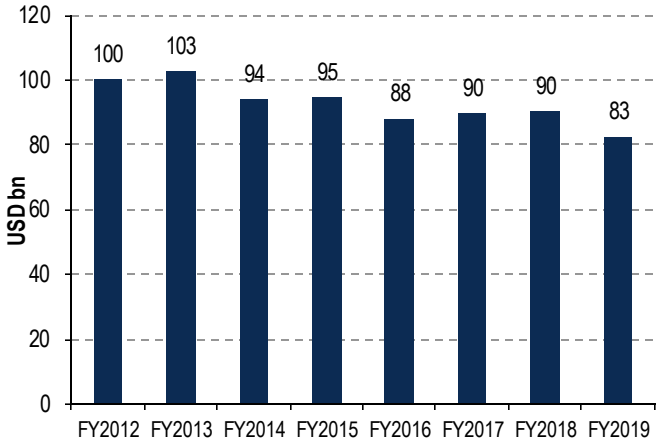


Source: RBI, SEBI

India follows an April to March financial year system and relies heavily on domestic bond issuance to finance its fiscal deficit. Government bond issuance totaled US$83bn (INR5.7tn) in FY19, and we believe the issuance amount in local currency terms has stabilized over the past few years, consistent with the declining fiscal deficit from the central government.

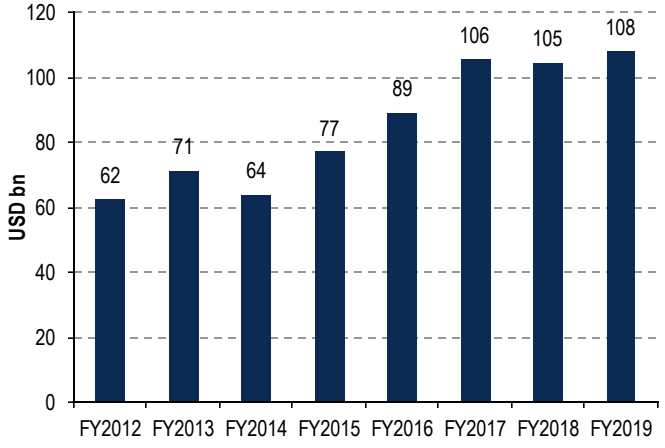
On the other hand, the issuance trend of corporate bonds shows a much stronger CAGR of 14% in the last seven years. In the recently concluded FY19, we saw the largest annual issuance amount of US$108bn (INR7.5tn). The strong issuance growth of corporate bonds coincided with the growing debt mutual funds' AUM, which played an important role in primary and secondary market. Issuances are dominated by private placements. Most issuances are in fixed-rate bonds because of the demand for these bonds, which also results in poor liquidity of the floating rate notes. Historically, 80% of the issuance used to be in the AAA and AA+ categories, but this trend has been changing with increasing mutual funds comprising lower rated bonds, while lower rated corporates are looking to tap the corporate bond markets, moving away from banks, for funding.

Chart 135: Gross annual Issuances of Indian sovereign bonds (USD Bn)



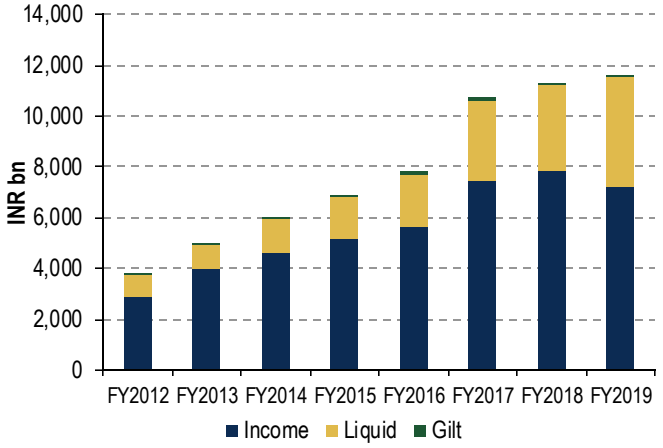
Source: RBI, (Based on YE at March)

Chart 136: Gross annual Issuances of Indian corporate bonds (USD Bn)



Source: SEBI (Based on YE at March)

Chart 137: Growth in debt mutual funds

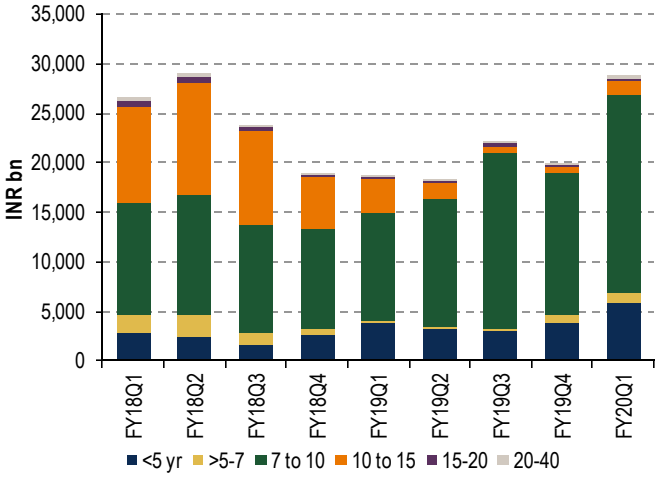


Source: ASIFMA, Association of Mutual Funds in India

Bonds trade through two platforms: 1) the Negotiated Dealing System - Order Matching System (NDS-OM) managed by the Clearance Corporation of India Limited (CCIL), where 80-85% of the market volumes go through; and 2) an interbank broker market. Foreign institutional investors cannot trade through the NDS-OM system; they must trade through an onshore licensed broker.

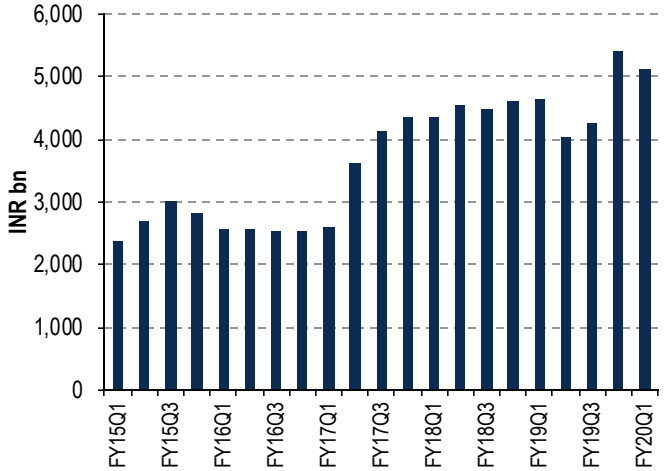
By trading volume, the benchmark 10-year has been the most traded security (7-10 years accounted for 70% of settlement value in the latest quarter, followed by <5 year (21%), while 10-15 years declined significantly in recent quarters). For corporate bonds, trading volume also showed strong growth, with a rising issuance trend overall.

Chart 138: Tenor-wise settlement volumes of G-secs



Source: Clearing Corporation of India Limited

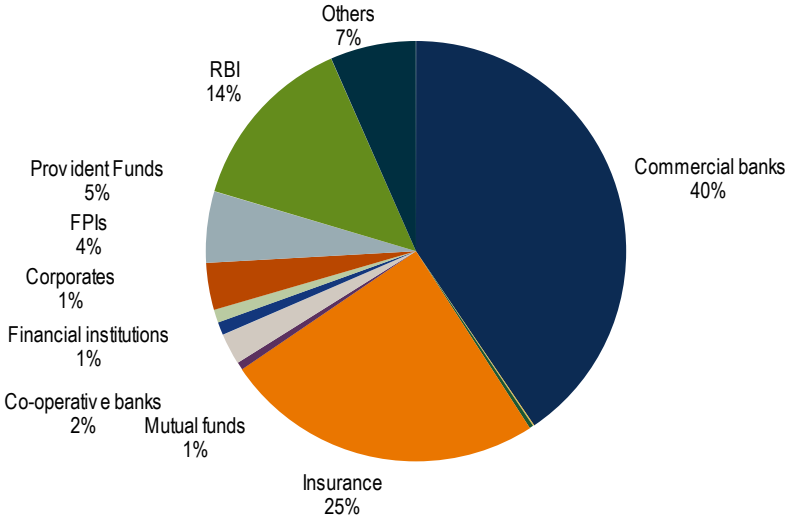
Chart 139: Trading volume in corporate bonds



Source: SEBI

Major names in the government bond market include commercial banks, insurance companies and the Reserve Bank of India. Primary dealers play an important role as market makers in the government securities market. Other participants include co-operative banks, regional rural banks, mutual funds, and provident and pension funds.

Chart 140: Holding structure of central government bond

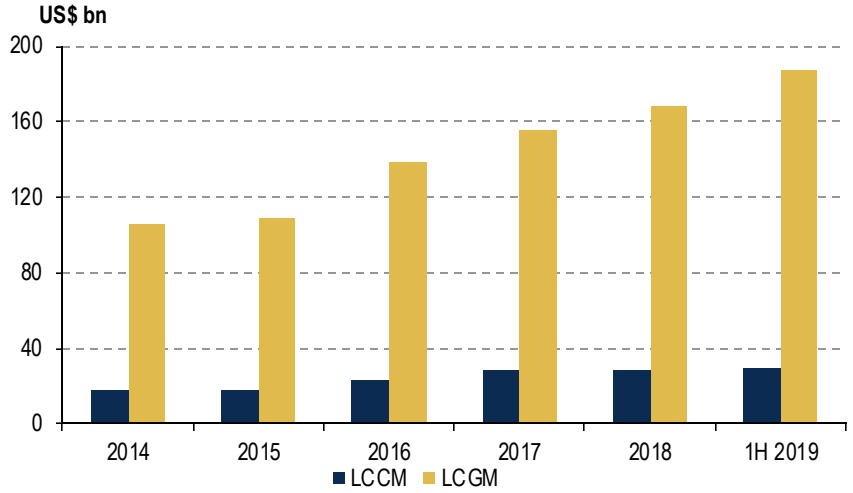


Source: Department of Economic Affairs

Indonesia

The Indonesian local bond market grew by 14% in local currency terms in 2018 to IDR2,838tn (US$197bn). Growth was driven by government bonds, which grew by 8% YoY, while the growth of corporate bonds outstanding was flat YoY. Given the dominance of government bonds and slow growth in corporates, the local corporate bond market share declined to 15% of outstanding compared with 16% in 2017. As of end June 2019, the overall market size had risen to IDR3,070tn (US$217bn), again driven by expansion in local government bonds. The majority of local currency bonds in Indonesia are conventional bonds, which account for 84.5% of the total at end 1Q 2019. Albeit at relatively low level, the share of Sukuk (Islamic bonds) rose from 13.8% in 1Q18 to 15.5% in 1Q19.

Chart 141: Indonesia: LCCM vs. LCGM size



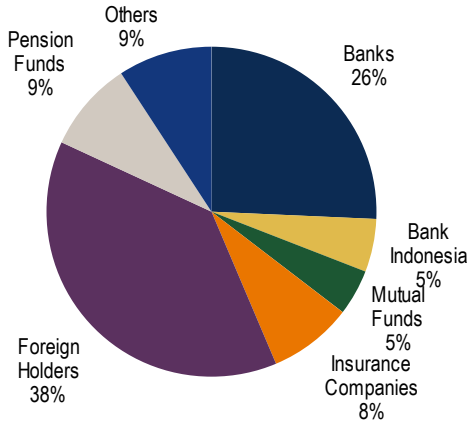
Source: ADB

The top-30 corporate bond issuers in Indonesia reached IDR315.4tn as of March 2019, accounting for nearly 75% of the total LC corporate bond market. The three largest issuers in the market are all state-owned companies and the top issuer is Indonesia Eximbank with IDR33.5tn ($2.4bn) in bonds outstanding. Financials account for the bulk of the issuance (61%) followed by infrastructure, utilities & transportation (20.5%).

Foreign investors are allowed to invest freely in the Indonesian LCCM market but they need to obtain a Single Investor Identification (SID) from Indonesia Central Securities Depository (KSEI) via their custodian or broker. Foreign investors are the largest investor type for Indonesia government bonds, holding 38% of the outstanding amount as at end March 2019. Other than foreign investors, domestic banks, pension funds and insurance companies are the major holders of government bonds (26%, 9% and 8%, respectively). Based on data recorded by the KSEI, corporate bond ownership was still dominated by mutual funds, which accounted for 25.7% of the total market.

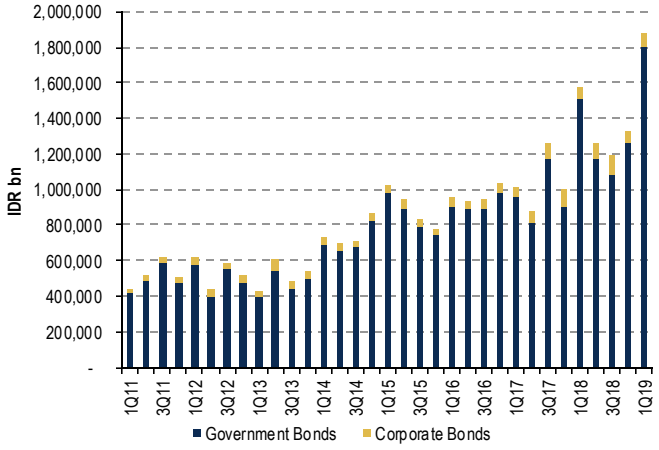
The trading of debt instruments in Indonesia may be conducted on a multitude of platforms, but is mostly concentrated in the over-the-counter (OTC) market. The trading volume of government bonds increased 31% from 2017 to IDR5,020,799bn (USD352bn) in 2018, and the turnover ratio rose from 1.98 to 2.25. Corporate bond trading volume, on the other hand, remained stable at IDR327,617bn in 2018, up 1% YoY, while turnover ratio slightly decreased from 0.93 to 0.82.

Chart 142: Indonesia government bond market ownership (Mar. 2019)



Source: ADB, Directorate General of Financing,

Chart 143: Trading volume of local currency bond

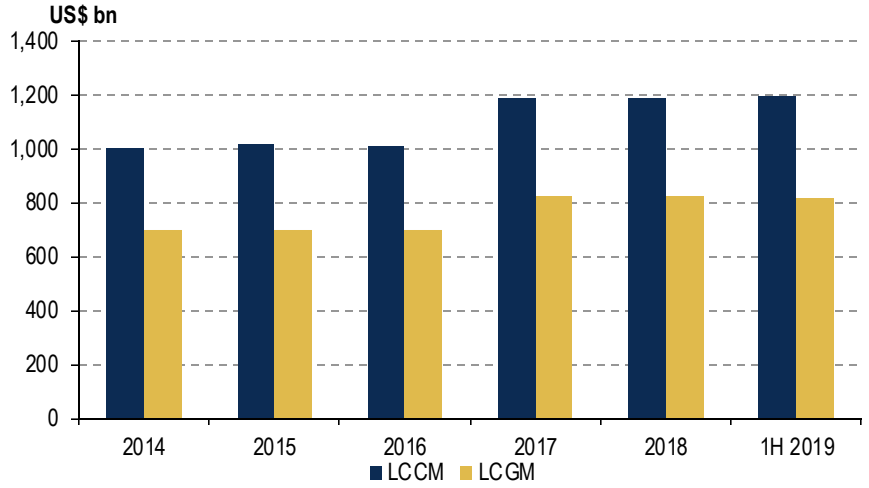


Source: ADB, Directorate General of Budget Financing and Risk Management, Ministry of Finance and Indonesia Stock Exchange

Korea

Korea is the second largest local currency bond market in Asia after China (excluding Japan). In 2018, the market grew by 3.8% on a local currency basis to KRW2,238tn, while the corporate bond market grew by 4% YoY. The overall outstanding size further increased to KRW2,331tn (US$2.0tn) as at end June 2019.

Chart 144: South Korea: LCCM vs. LCGM size

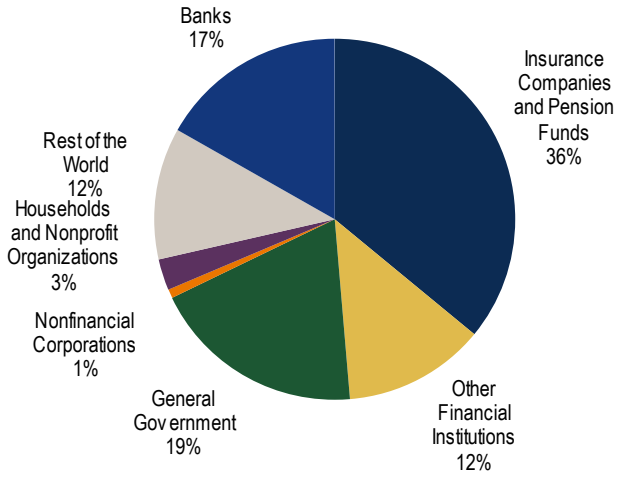


Source: ADB

In terms of size, corporates dominate the local bond market, accounting for 59% of the outstanding market. Korea is the only onshore bond market where the corporate bond market size is greater than that of sovereign bonds. The top-30 corporate issuers amounted to KRW1,104tn, representing 67% of the total outstanding corporate bonds at end-March 2019. Banks and security companies dominate the corporate issuance top-30, with Mirae Asset Daewoo Company the largest issuer as at end March 2019.

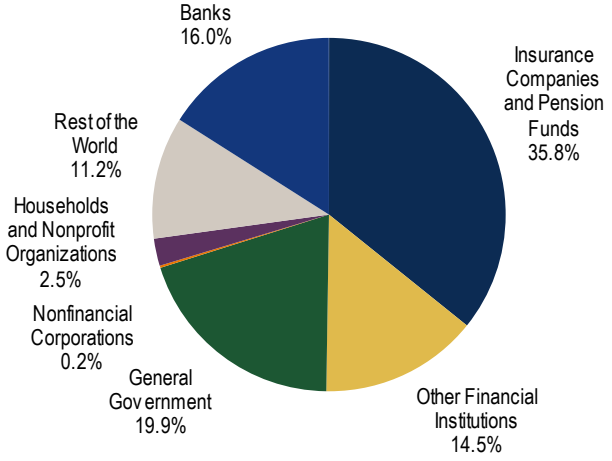
Insurance companies and pension funds own the largest share of the country's local currency government and corporate bonds (39.2% and 39.1% respectively). Other major buyers include central government, banks and other financial institutions. The pace of increase in foreign investors' exposure to local currency bonds has moderated since the re-imposition of a 14% withholding tax on foreign holdings of government bonds in January 2011. Foreign holdings of Korean government bonds currently stands at 11% of total outstanding.

Chart 145: Local currency government bond investor profile (Dec 2018)



Source: AsianBondsOnline and the Bank of Korea

Chart 146: Local currency corporate bond investor profile (Dec 2018)

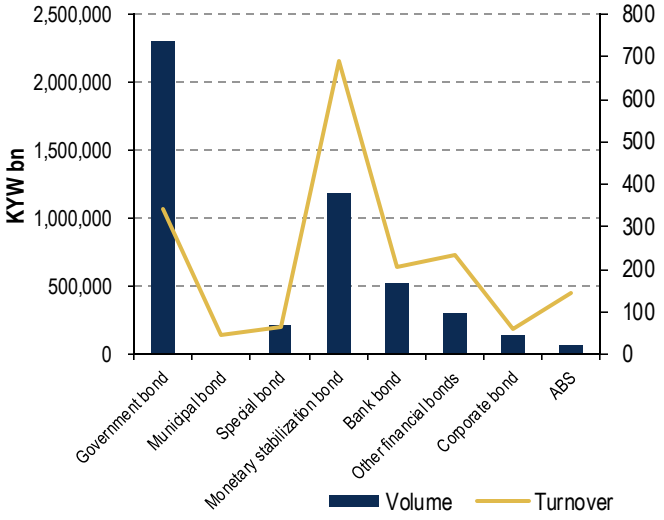


Source: AsianBondsOnline and the Bank of Korea

Bank of America Merrill Lynch

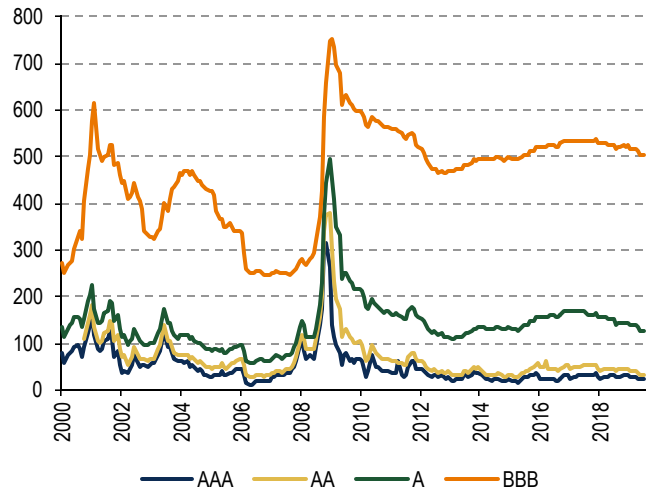
The Korean government issues treasury bonds on a regular basis There are currently six types of Korean Treasury Bonds (KTBs) issued by maturity: 3-year, 5-year, 10-year, 20-year, 30-year, and 50-year KTBs, although the 3-year bond is the most liquid. There are no restrictions on foreign participation. Most of the bonds issued are non-guaranteed and listed. When a company issues corporate bonds, it is required to obtain a credit rating from a specialized CRA for all non-guaranteed bonds. Bonds that trade on the Korea Exchange (KRX) have grown steadily to about 40% in 2018 while the rest trade over the counter (OTC). In terms of trading volume, government bonds are the most frequently traded security, accounting for about 78% of aggregate trading volume.

Chart 147: Annual trading volume in bond market (2018)



Source: Korea Financial Investment Association

Chart 148: Korean 5yr corporate spread history



Source: ADB

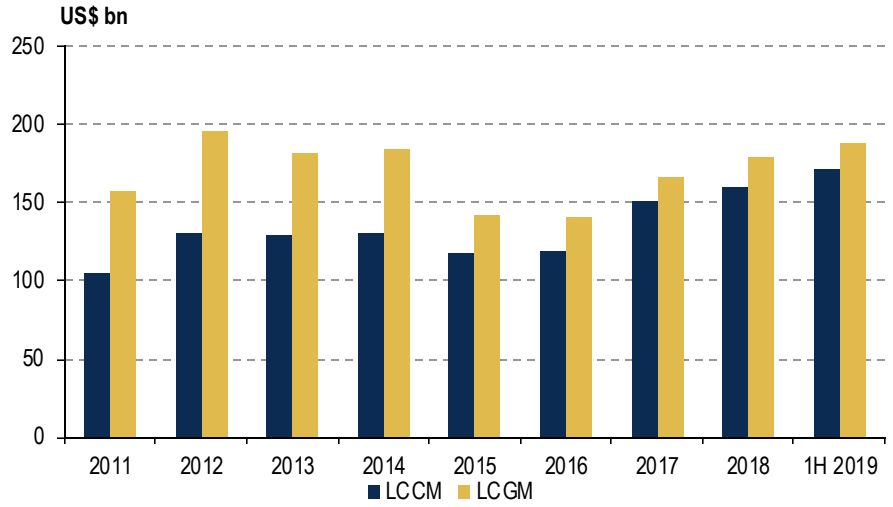
In 2018, AAA corporate 5yr paper widened by 5bp, compared with +0bp, -13bp, and -6bp movement for AA, A, and BBB-rated paper, respectively.

Malaysia

Malaysia has one of the most developed bond markets in the region. It was the largest bond market in Southeast Asia at MYR1.4tn (US$338bn) as at end 2018, up 9% YoY in local currency terms. By 1H19, the total outstanding market increased further to MYR1.5tn (US$360bn). The corporate market accounts for 48% of the total outstanding local bond market, up from 41% five years ago. Malaysia's top-30 corporate issuers totaled MYR388bn as at end March 2019, representing 58% of the corporate market. Danainfra Nasional is the largest corporate issuer, with MYR55.7bn outstanding.

There are no restrictions on foreign investments in Malaysia. Conventional and Islamic bonds are offered in the domestic bond market. Malaysia has the largest Sukuk, or Islamic bond market in the Emerging East Asia region, with 61% of total local currency bonds outstanding comprising of Sukuk. As of 1Q19, 47% of all government bonds are structured following Islamic principles, while 76.9% of corporate bonds are Sukuk.

Chart 149: Malaysia: LCGM v LCCM size

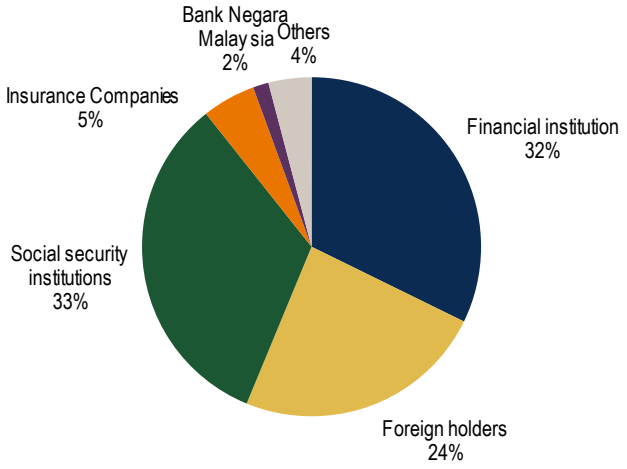


Source: ADB

Domestic and foreign investors can buy and sell conventional and Islamic bonds through OTC markets. Hedging is available. Both institutional and retail investors participate in Malaysia's local currency government bond market. Malaysian Government Securities (MGS) are mostly bought by banks and pension funds. Foreigners' holdings of MGS stood at 23.8% of total outstanding as at end March 2019. One key driver for the significance of the Malaysian fixed income market in the global bond market is its inclusion in a number of global indices, such as the MGS in the FTSE World Government Bond Index, as well as in the Barclays Global Aggregate Index and the JP Morgan Emerging Market Bond Index.

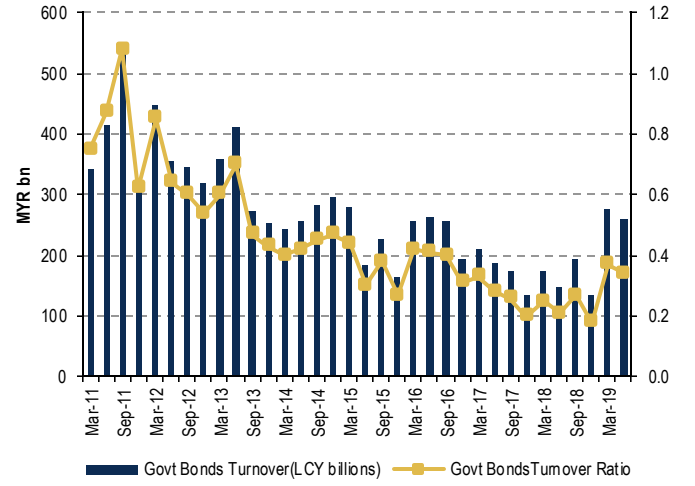
There are two credit rating agencies in Malaysia, including Malaysian Rating Corporation Berhad (MARC) and Rating Agency Malaysia Berhad (RAM). In January 2017, the Securities Commission removed the mandatory bond rating as a part of measures to liberalize the financial sector and broaden the corporate bond market. Bond, note, and *Sukuk* trading activities are conducted in the OTC market, or on Bursa Malaysia Securities (BMS). By trading volume, government bonds account for around 85% of the total trading transactions.

Chart 150: Local currency government bond investor profile (Dec. 2018)



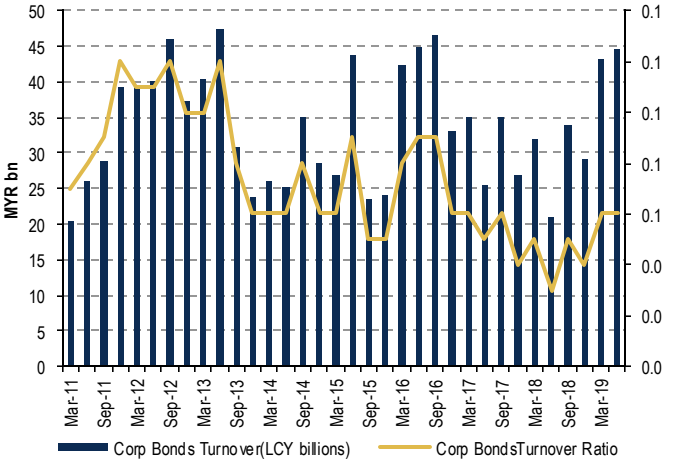
Source: ADB, Bank Negara Malaysia

Chart 151: Government bond trading volume and turnover ratio



Source: ADB, Bank Negara Malaysia

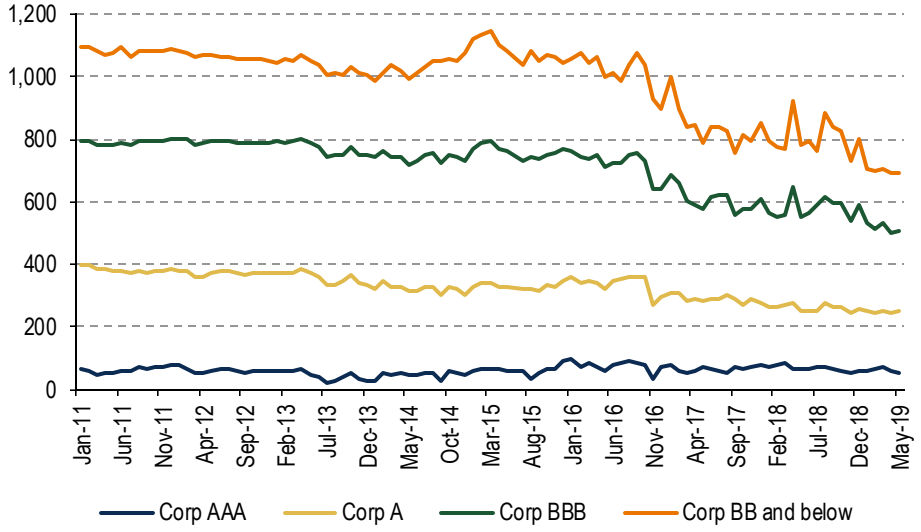
Chart 152: Corporate bond trading volume and turnover ratio



Source: ADB, Bank Negara Malaysia

In 2018, we saw sovereign bond credit spread tightening in Malaysia; while the corporate credit spreads across AAA (-16bp), A (-21bp), BBB (-19bp) and BBB & below (-50bp) have also tightened largely due to the rise in the government bond yield curve, which reflects the declining investment interest in EM sovereigns due to trade war concerns and the US Federal Reserve rate hike cycle in 2018.

Chart 153: Malaysia corporate spread (5 yr)

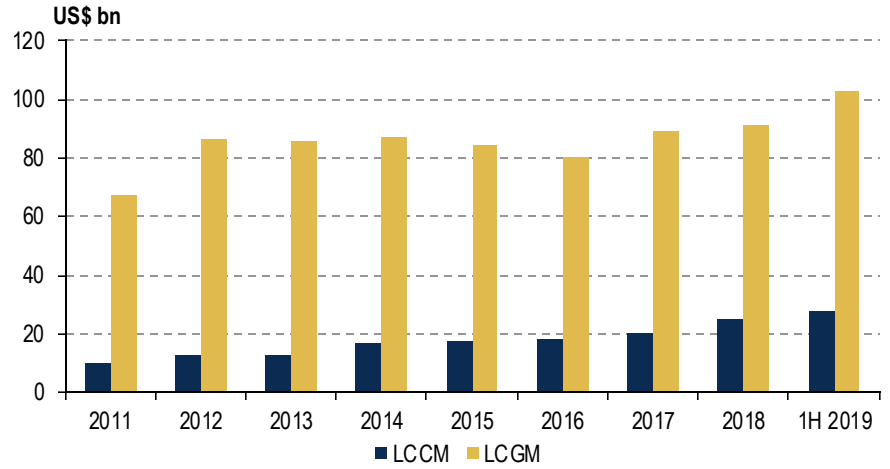


Source: ADB, Bank Negara Malaysia

Philippines

In 2018, the Philippine local bond outstanding market size grew by 11% in local currency terms to PHP6.09tn (US$98bn), with the government bond market increasing by 7% and corporate bonds growing strongly by 29%. While the corporate bond market only accounts for 22% of the outstanding bond market, it has grown by 86% in USD terms over the last five years. As of 1H19, the outstanding size of the local currency bond market increased further to PHP6.7tn (US$130bn).

Chart 154: Philippines: LCCM vs. LCGM size



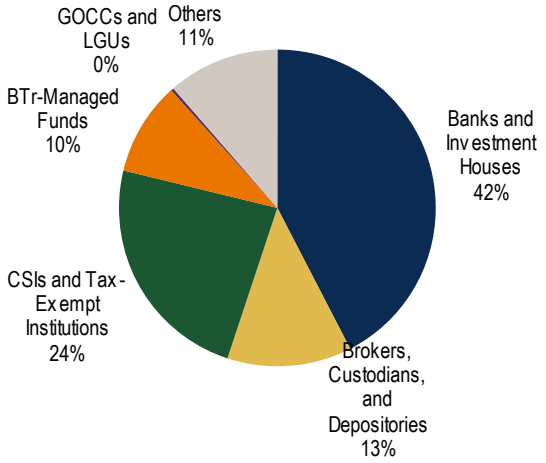
Source: ADB

The top-30 corporate issuers accounted for PHP1.22tn, representing 88% of total corporate bonds outstanding. Property developer Ayala Land was the largest issuer, with PHP109.6bn in bonds outstanding. The top-three sectors in the corporate bond market were banking (33%), property (26%), and holding firms (19%).

Both local and foreign investors may invest in the Philippine bond market. In the Philippines, government bonds are traditionally bought by banks, government agencies (i.e. contractual savings institutions like the Government Service Insurance System, Social Security System, Pag-IBIG and life insurance companies, and tax-exempt institutions such as trusts), and Bond Sinking Funds (BTr).

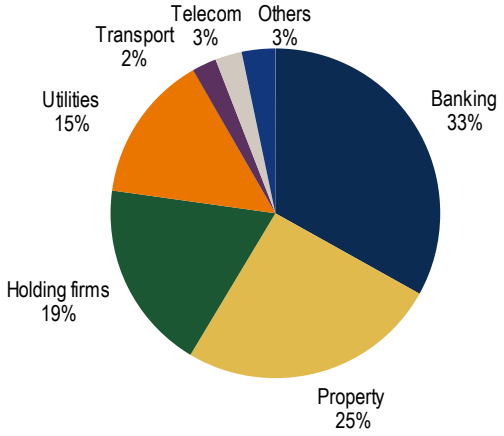
The Philippine Dealing & Exchange Corporation (PDEx) operates the organized secondary market trading for both government bonds and corporate bonds in the Philippines. The Philippine Rating Service Corporation, an affiliate of S&P, is the only domestic credit rating agency accredited by both the Bangko Sentral ng Pilipinas (BSP) and the SEC. Credit Rating and Investors Services Philippines (CRISP) is a domestic rating agency that launched and received accreditation from the SEC in 2008.

Chart 155: Local currency government bond investor profile (Mar. 2019)



Source: ADB, Bloomberg

Chart 156: Local currency corporate bond by sector (Mar. 2019)

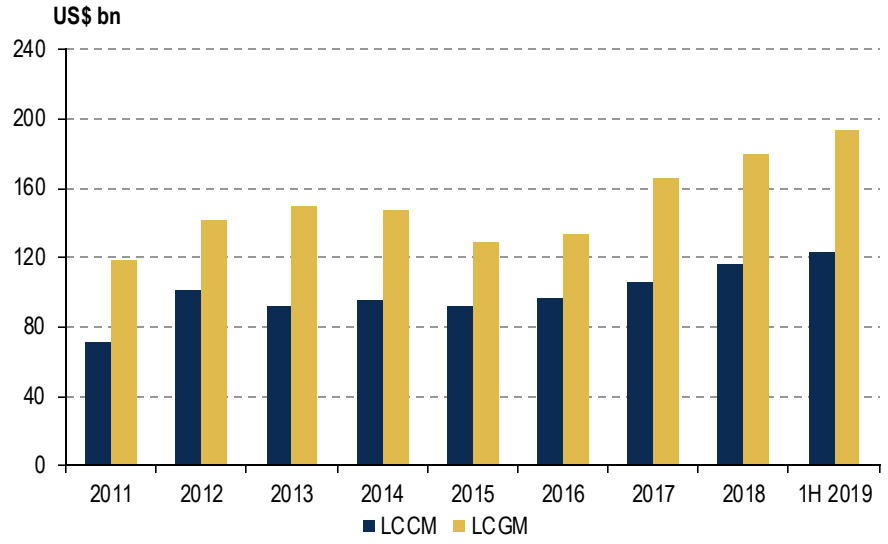


Source: ADB, Bureau of the Treasury

Singapore

Singapore's local bond market grew by 11% in 2018 in local currency terms to SGD403bn (US$295bn). This growth was driven mainly by 12% YoY growth in corporate bonds. Corporate bonds are now 39% of the outstanding local bond market. As of 1H 2019, the market size has reached SGD429bn (US$317bn).

Chart 157: Singapore: LCCM vs. LCGM size



Source: ADB

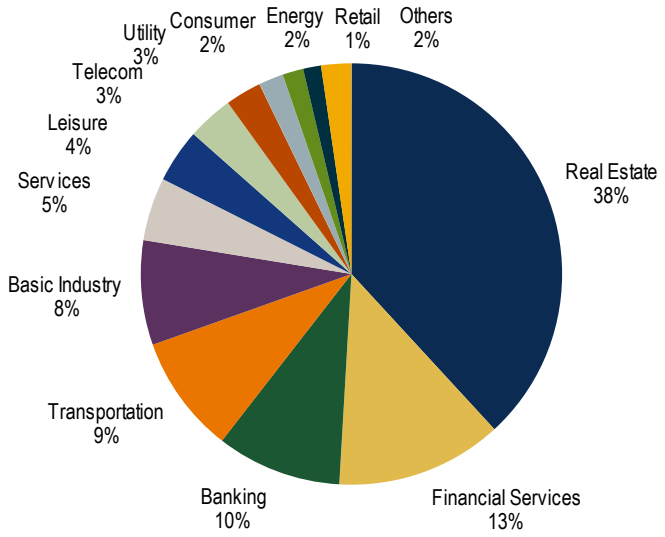
Singapore has one of the most developed bond markets in Asia. Its strong finances mean the government does not generally require deficit financing, but it issues Singapore Government Securities – bills and bonds – in order to provide market liquidity, as well as a benchmark yield curve.

As of March 2019, the top-30 local currency corporate issuers accounted for SGD75.9bn, or 46.3% of all local currency corporate bonds outstanding. The state-owned real estate company Housing & Development Board continued to be the largest issuer, accounting for 14.0% of the total local currency corporate bond market with SGD23.0bn of corporate bonds outstanding.

By sector, corporate bond issuers are mainly composed of property-related companies, statutory boards, financial institutions, and government-linked companies (GLCs) and other non-property related companies. Statutory board papers – The Housing Development Board, the Land Transport Authority and the Public Utilities Board, issued by autonomous government agencies, are considered relatively liquid in the corporate bond market.

Bank of America Merrill Lynch

Chart 158: Sector breakdown of outstanding corporate issuance



Source: Bloomberg, BofA Merrill Lynch Global Research

Traditionally, the main investors have been institutional – insurance companies and banks – as well as investment managers. However, retail investors have become more active, particularly as products are developed to attract them. There are no restrictions on foreign participation. Bonds can be hedged and there are no short-selling restrictions.

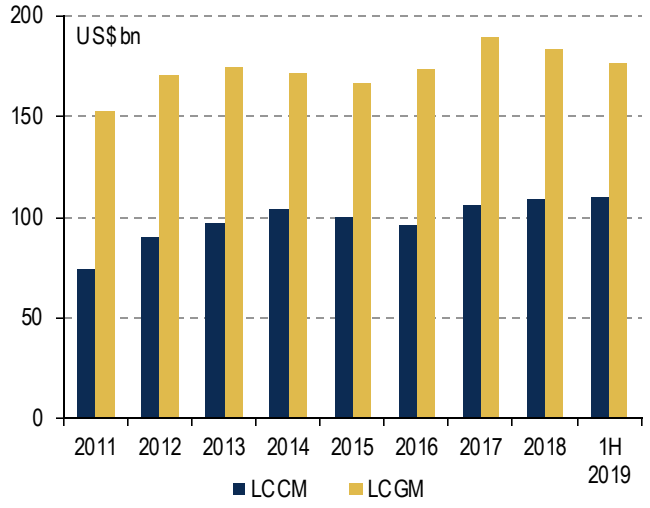
In May 2016, the Monetary Authority of Singapore (MAS) announced regulation allowing corporate issuers to sell bonds to retail investors through the Bond Seasoning Framework if the firms met the regulatory criteria. Issuers with higher eligibility criteria may also issue bonds through the Exempt Bond Issuers Framework. The changes are part of MAS' overall efforts to widen the investment options available to retail investors through better access to simple investment products that are relatively less risky.

A credit rating is not mandatary for corporate bond issuance. In June 2017, MAS launched a Singapore dollar credit rating grant to promote the issuance of rated bonds in the local currency bond market to encourage issuers to get ratings. The SGD400,000 grant per issuer will be available to qualified foreign and domestic issuers for a 5-year period and will be used to cover all expenses related to obtaining credit ratings from an international credit rating agency.

Taiwan

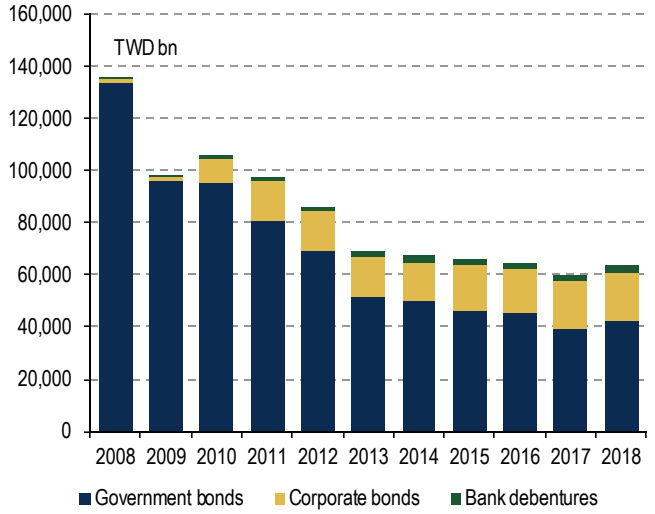
As of 1H19, the Taiwan domestic bond market size shrank slightly by 0.3% from end-2018 to TWD 8,917bn in local currency terms as the decline in government bonds (-2% to TWD5,492bn) more than offset the growth in non-government bonds (+2.6% to TWD3,426bn). Government bonds account for 62% of the total outstanding domestic market, while the non-government segment makes up the remaining 38%. Within the non-government segment, the split between corporate bonds and banks debentures has been around 60:40. Note that Taiwan is the only country in the region to see a decline in its local bond market in 1H19.

Chart 159: Taiwan: LCCM vs. LCGM



Source: CBC

Chart 160: Bond market transactions



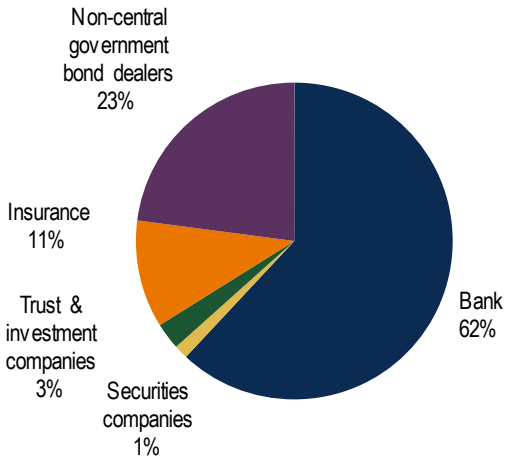
Source: CBC

Taiwan has a highly developed and relatively liberalized domestic bond market. The main participants are banks, bills finance companies, securities firms, insurance companies and pension funds. There is no restriction on foreign participation in the Taiwan local bond market, but foreign participation has historically been low vs other Asian markets given: 1) yields in Taiwan are among the lowest in Asia; and 2) foreign investments in bank debentures, corporate bonds, deposits, government bonds and money market products have been capped at 30% of the investment portfolio since November 2010. Foreign investors are not subject to securities transaction tax and capital gains tax but are required to pay 15% withholding tax on their interest income from government bonds, financial debentures, and corporate bonds.

The Taiwan Ratings Corporation (TRC), affiliated with S&P, is the main domestic credit rating agency in Taiwan. Both foreign investors and issuers have access to the local bond market.

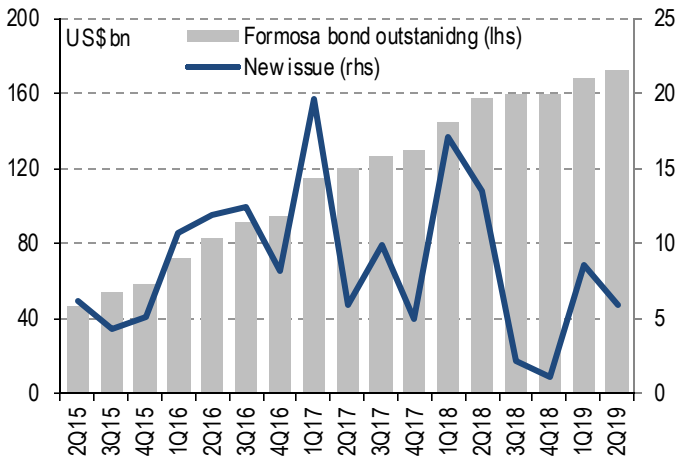
In 2018, government bonds accounted for 67% of the aggregate trading volumes, corporates 29% and bank debentures 4%. Government bonds trading volumes have been falling continuously since 2005, and last year posted the first YoY increase. In terms of investor profile, banks are the largest holders of Taiwanese government bonds, owning 62% of the total outstanding amount based on the latest breakdown, followed by non-government bond dealers and insurance companies at 23% and 11%, respectively. It is noteworthy to highlight the divergent trend of government bond holdings for banks and insurance. The latest data breakdown showed that bank holdings of Taiwan government bonds has been progressively rising to 62% from 53% in 2015, while insurance holdings have almost halved to 11% compared with 20% in 2015.

Chart 161: Government bond holding structure (Aug 2019)



Source: : CBC

Chart 162: Formosa bonds outstanding vs new issue



Source: Bloomberg, BofA Merrill Lynch Global Research

One key reason behind the sharp decline in insurers' government bond holdings in recent years was the growth in the "Formosa Bonds" market. Denominated in foreign currency, issued by foreign institutions, and sold in Taiwan domestic bond market, Formosa bonds first debuted in November 2006. A typical Formosa bond is issued with a long maturity featured with a call option after a couple of years. In the early years, Formosa bond issuance was dominated by large global financial institutions (such as Citigroup, ABN AMRO Bank, etc) and then became more popular among the international non-financial corporations (such as Apple, AT&T, Pfizer, etc) since 2014.

With a combination of favorable domestic policy and attractive yield enhancement, Taiwanese life insurers have been the major buyers of Formosa bonds. In June 2014, Taiwan's Financial Supervisory Commission completely removed the overseas investment restrictions for Taiwanese life insurers, so Formosa bonds were classified as local bond investment. However in August 2018, the regulator imposed a cap of 145% of approved overseas investment amount on insurers' combined investment in Formosa bonds and overseas assets, to caution against potential currency losses amid spiking currency volatility heightened by global trade war disputes, which had taken a huge toll on Formosa bond issuance in 2H18.

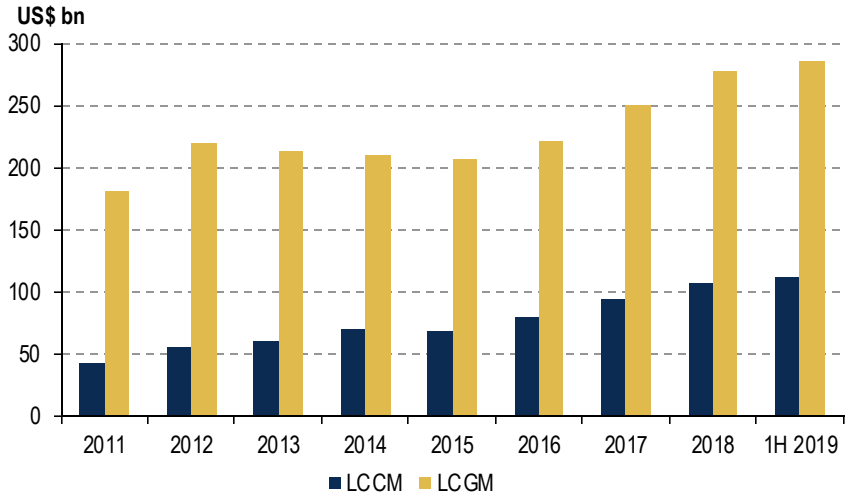
Our global fixed-income team projects the collapse in global yields since 4Q18 might increase the likelihood of Formosa bond issuers calling and replacing existing Formosa bonds with new debts at lower yields (see Situation Room: We have more issues, 4 September 2019, by Hans Mikkelsen).

Thailand

As of end 1H19, the Thailand domestic bond market grew strongly by 9% YoY/ 4.8% HoH to THB13tn in local currency terms (US$400bn). The local market has long been dominated by government bonds, which account for 72% of the total outstanding. However, in terms of growth rate, corporate bonds (1H19 13.2% YoY/7.5% HoH) demonstrated faster growth than government bonds (7.9% YoY/3.7% HoH). Note that the corporate sector began to issue bonds in the local market in 1992 after the enactment of the SEC Act. Currently, corporate bonds account for 28% of the outstanding market, up from 20% in 2010.

The top-30 corporate issuers have an outstanding amount of THB2.0tn, accounting for 54% of the total corporate bond market, of which half are in the food and beverages, banking and communication sectors.

Chart 163: Thailand: LCCM vs. LCGM size



Source: ADB

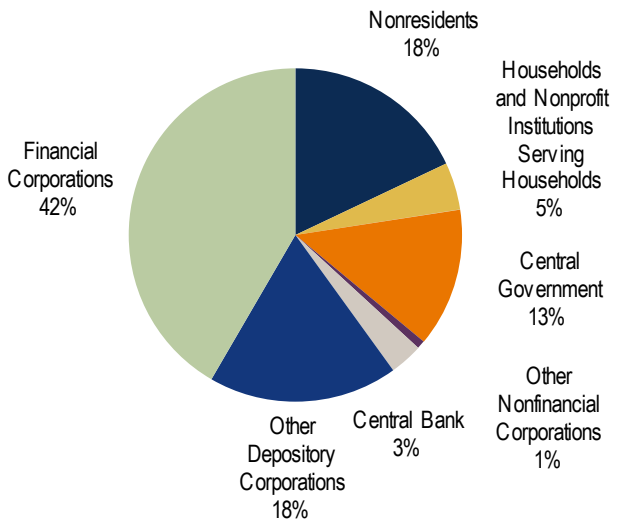
Major bond investors include pension funds or provident funds, AMCs, mutual funds, commercial banks, government savings banks, insurance companies, savings funds, corporate and retail investors. A number of authorized securities companies and a few market associations also participate in the market. Asset managers account for over half of the market trading value. Note that both local government and corporate bonds are available with tax waivers to foreign investors.

YTD, the Thai Baht has been one of the best-performing currencies globally, strengthening by ~6% vs the greenback on accelerating speculative global fund inflows. The Thai Baht is widely considered as a "safe-haven" currency, underpinned by easing political uncertainties after the national election in March 2019, rising expectations of supportive domestic policies, current account surplus and substantial foreign reserves accumulated. As a result, foreign participation in Thailand's local government bond market has been consistently on the rise in the past decade, reaching 18% by 1H19 (vs 14% in 2015 and 7% in 2010). Within the local government bonds, the largest investor groups are the local financial corporations and other depository corporations, together accounting for over 60%.

For the local corporate bond market, retail investors and individuals remain the largest category, with 31% of holding by end March 2019 (though the latest figure has been gradually declining over the past years, vs. 35% in 2016 and 45% in 2013), followed by insurers (17% of total), mutual funds (13%), pension funds (12%), other depositary financial institutions (8%), and corporates (7%) among others.

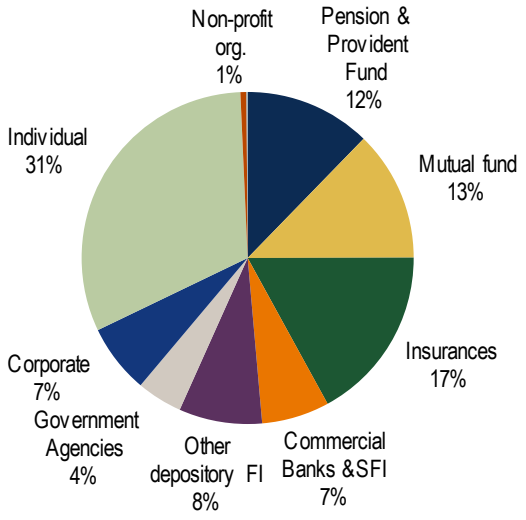
Bank of America Merrill Lynch

Chart 164: Thai government bond investor profile (March 2019)



Sources: AsianBondsOnline and Bank of Thailand

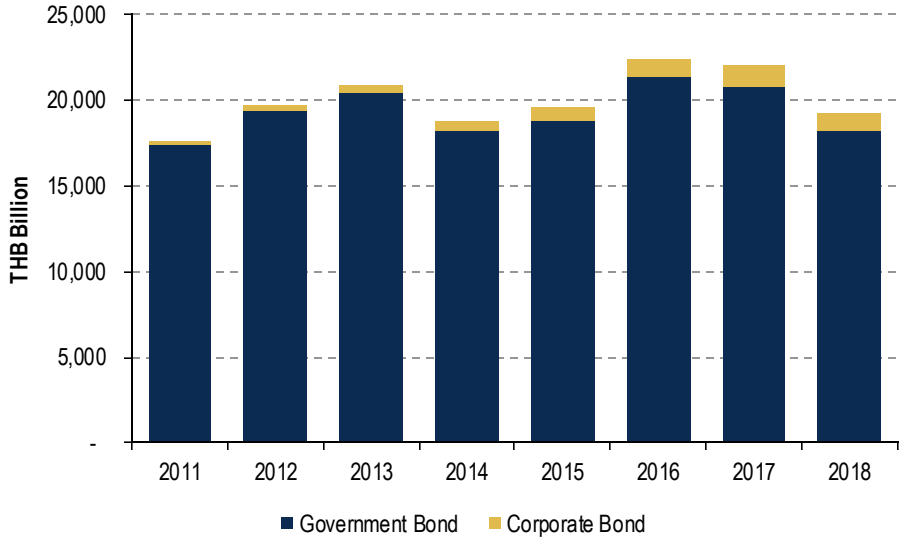
Chart 165: Thai corporate bond investor profile



Source: Thai Bond Market Association

Foreign issuers have been able to issue bonds in the THB market since 2005, although they only account for a small proportion of the market. Bond trading is conducted through OTC and the Bond Electronic Exchange (BEX) which was established in 2003. 95% of trades are executed in the OTC market, with a small portion (5%) on BEX (mostly retail bonds). Government bonds are the most actively traded instruments, accounting for over 90% of total trading on average. There are four credit rating agencies authorized by the SEC in Thailand. Other than the three global credit rating agencies (Fitch, Moody's and Standards & Poor's), the only approved local agency is Thai Rating and Information Services.

Chart 166: Thai bond market annual trading volume



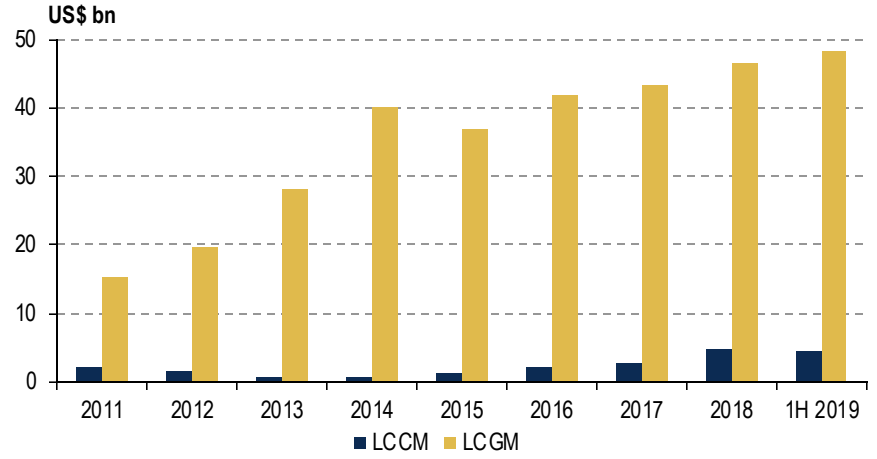
Source: Thai Bond Market Association

Vietnam

In local currency terms, Vietnam's local bond market grew 4.2% YoY/3.5% HoH to VND1.2tn (USD53bn) as of 1H19. Note that 1H19 growth momentum has weakened subsequent to the rapid expansion over the past three years (average YoY at 9%), led by weaker demand from the corporate sector. On HoH terms, the 3.6% contraction in corporate bonds was offset by the 4.2% increase in government bonds in 1H19.

In comparison to the other ASEAN countries, Vietnam's local bond market as a percentage of GDP has historically been low and stood at 21.5% as at end 2018, well below that of the 103% in Malaysia, 76% in Thailand, and 35% of the Philippines, but slightly above Indonesia of 19%. The local market consists of government bonds, government-guaranteed bonds, municipal bonds and corporate bonds, but is mainly dominated by government bonds, which account for over 90% of the total.

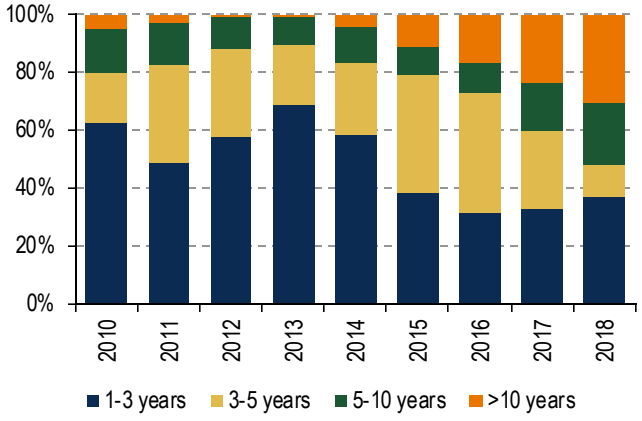
Chart 167: Vietnam: LCCM vs. LCGM size



Source: ADB

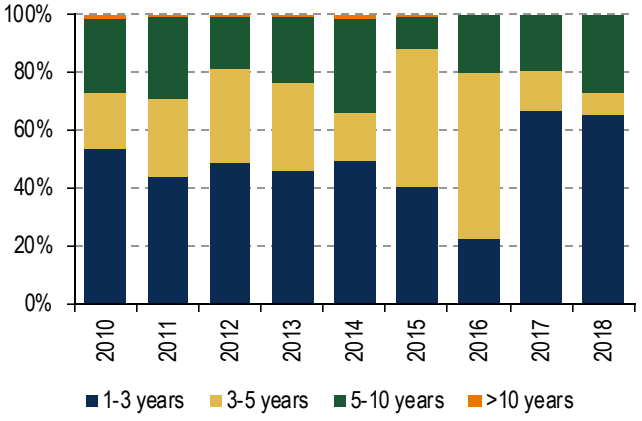
In the domestic bond market, government bonds are issued by the State Treasury of the Ministry of Finance and policy banks while municipal bonds are issued by city municipalities and provincial governments, and corporate bonds are issued by stated-owned enterprises and private enterprises. Only government entities are allowed to issue foreign-currency-denominated debt in the domestic bond market, but domestically-issued corporate bonds must be denominated in the local currency, VND.

Chart 168: Vietnam local government bonds maturity breakdown



Source: ADB

Chart 169: Vietnam local corporate bonds maturity breakdown



Source: ADB

Bank of America Merrill Lynch

On duration distribution, the government bonds' maturity profile have been gradually shifting to the long end, evident by the rising shares of >10 years. In contrast, corporate bonds' maturity is more concentrated in the short-duration 1-3 years tenor vs 3-5 years two years ago. Currently, there is no domestic credit rating agency in Vietnam; all credit ratings are provided by the three global rating agencies.

Secondary market bond trading activities are conducted in the OTC and exchange markets. Unlisted bonds are traded in the OTC market, which account for a majority of the aggregate trading volume, while the listed bonds are traded in the exchange market. Note that bond trading in the exchange market used to account for a small proportion but has been growing in recent years.

In terms of investor profile, domestic commercial banks and life insurance companies are the main investors in both government bond primary and secondary markets. Foreign participation in Vietnam local bond market remains limited, though there are no limitations on foreign holdings of bonds. Foreign institutional investors who have no legal presence in Vietnam are subject to corporate income tax (0.10% of transaction value). A 5% withholding tax applies to interest income from investment in bonds.

In August 2017, the government approved a three-year roadmap to promote growth and development in the local bond market, with the aim of aligning the bond market with the money market and the capital market. Other than the general objectives such as broadening the investor base, and ensuring transparency and publicity of market operation, some of the initiatives highlighted include:

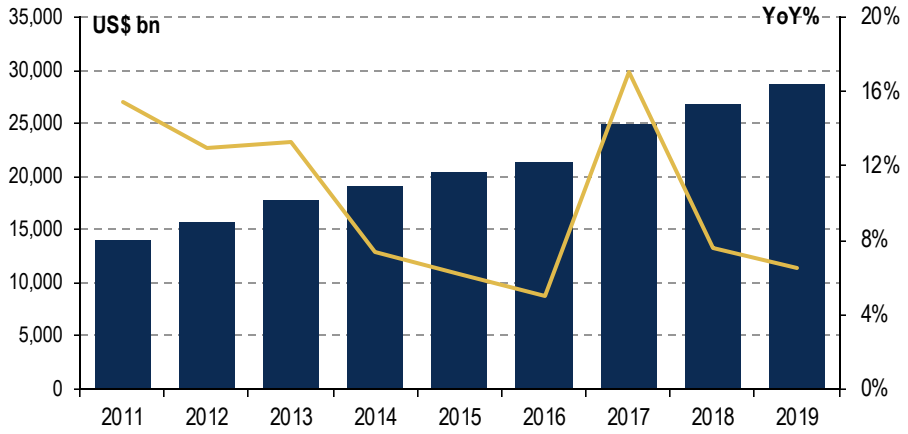
- Increasing the share of bonds to GDP to 45% by 2020 and to 65% by 2030
- Lengthening average time to maturity of domestic government bonds over time
- Raising proportion of government bonds held by insurer, Social Security Fund, pension fund and non-bank FIs to 50% in 2020 and 60% in 2030
- Shortening the time from bond issuance to bond listing to T+1 by 2025 from T+2
- Coordinating with the Hanoi Stock Exchange to develop bond derivatives
- Promoting a Shelf-Registration and Note Insurance Program, etc.

Domestic loan markets

Size and growth

Domestic loan markets in Asia are dominated by bank loans. As of end of June 2019, the total outstanding amount of the Asian domestic loan market totaled US$28.6tn, marking the largest source of funding for Asian corporates.

Chart 170: Total outstanding domestic bank loans in Asia (YoY growth RHS)



Source: People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, Central Bank of the Philippines, Bank Indonesia,, BofA Merrill Lynch Global Research (Domestic loans are converted into US Dollars)

In terms of country composition, China's domestic loan market is significantly larger than the other countries, accounting for 75% the total market, followed by South Korea, India and Hong Kong all at 5%.

Table 19: Outstanding domestic loan market (2016) and YoY change in size

	2011	2012	2013	2014	2015	2016	2017	2018	1H19	Outstanding (US$bn)	% of whole market
China	20%	17%	17%	8%	9%	5%	17%	9%	8%	21,610	75%
Korea	5%	-15%	6%	4%	0%	3%	19%	2%	-1%	1,423	5%
India	-2%	11%	-2%	9%	5%	3%	17%	4%	7%	1,431	5%
Hong Kong	20%	10%	16%	13%	3%	7%	15%	4%	4%	1,291	5%
Taiwan	2%	8%	1%	-1%	0%	5%	14%	2%	0%	908	3%
Singapore	29%	24%	13%	1%	-8%	1%	14%	1%	3%	508	2%
Malaysia	10%	14%	3%	2%	-12%	1%	15%	3%	3%	418	1%
Thailand	6%	19%	2%	3%	-6%	4%	19%	3%	4%	487	2%
Indonesia	25%	14%	-2%	9%	-1%	10%	8%	5%	5%	389	1%
Philippines	14%	20%	7%	18%	7%	8%	16%	8%	7%	200	1%
Total	**15%**	**13%**	**13%**	**7%**	**6%**	**5%**	**17%**	**8%**	**7%**	**28,666**	**100%**

Source: People's Bank of China, HKMA, Bank of Korea, CBC Taiwan, RBI India, Monetary Authority of Singapore, Bank Negara Malaysia, Bank of Thailand, *Central Bank of the Philippines, Bank Indonesia, BofA Merrill Lynch Global Research

Note: Total growth data taken from loan data converted to USD while the country growth data taken from local currency loans, therefore the total loan data is impacted by FX movements

Over the past decade, the Asian domestic loan market underwent rapid expansion. Overall, the average growth rate was 13% per annum during 2010 to 2014 before slowing to single digit growth in the last few years, with an average of 8% between 2015 and 2018. China has been the fastest growing market with an average growth rate of 14% since 2009, while Hong Kong, Philippines, India and Indonesia have also grown at an above average rate. The more mature economies like Taiwan and Korea have seen their bank loan markets grow more slowly.

Special Disclosures

Some of the securities discussed herein should only be considered for inclusion in accounts qualified for high risk investment.

Disclosures

Important Disclosures

BofA Merrill Lynch Credit Opinion Key
BofA Merrill Lynch Global Research provides recommendations on an issuer's bonds (including corporate and sovereign external debt securities), capital securities, equity preferreds and CDS as described below. Convertible securities are not rated. An issuer level recommendation may also be provided for an issuer as explained below. BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon.
Issuer Recommendations: If an issuer credit recommendation is provided, it is applicable to bonds and capital securities of the issuer except bonds and capital securities specifically referenced in the report with a different credit recommendation. Where there is no issuer credit recommendation, only individual bonds and capital securities with specific recommendations are covered. CDS and equity preferreds are rated separately and issuer recommendations do not apply to them.

BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon:
Overweight: Spreads and /or excess returns are likely to outperform the relevant and comparable market over the next three months.
Marketweight: Spreads and/or excess returns are likely to perform in-line with the relevant and comparable market over the next three months.
Underweight: Spreads and/or excess returns are likely to underperform the relevant and comparable market over the next three months.

BofA Merrill Lynch Global Research uses the following rating system with respect to Credit Default Swaps (CDS):
Buy Protection: Buy CDS, therefore going short credit risk.
Neutral: No purchase or sale of CDS is recommended.
Sell Protection: Sell CDS, therefore going long credit risk.

BofA Merrill Lynch Research Personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.
BofA Merrill Lynch fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.
Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report; or (ii) a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including Bank of America Merrill Lynch trading desks.
The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities that may not be offered or sold in one or more states or jurisdictions. Readers of this report are advised that any discussion, recommendation or other mention of such securities is not a solicitation or offer to transact in such securities. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor for information relating to fixed income securities.
Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended.
SECURITIES DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.
Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.
The securities discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale.
Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.
This report, and the securities discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors.
Information relating to Affiliates of BofAS, MLPF&S and Distribution of Affiliate Research Reports:
BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at https://rsch.baml.com/coi
"BofA Merrill Lynch" includes BofA Securities, Inc. ("BofAS"), Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.
BofAS and/or MLPF&S or may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF); BAMLI DAC (Milan): Bank of America Merrill Lynch International DAC, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado De Valores; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (India); and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. Bank of America Merrill Lynch International DAC, Frankfurt Branch (BAMLI DAC (Frankfurt)) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Merrill Lynch entities, including BAMLI DAC and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Merrill Lynch group. You may be contacted by a different BofA Merrill Lynch entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please use this link http://www.bankofamerica.com/emaildisclaimer for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Certain investment strategies and financial instruments discussed herein may only be appropriate for consideration in accounts qualified for high risk investment.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright, User Agreement and other general information related to this report:

Copyright 2019 Bank of America Corporation. All rights reserved. iQprofile℠, iQmethod℠ are service marks of Bank of America Corporation. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Merrill Lynch is under no obligation to update this information and BofA Merrill Lynch's ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Research Analysts

Credit Research

Joyce Liang
Research Analyst
Merrill Lynch (Hong Kong)
joyce.liang@bofa.com

Ingrid Hsu
Research Analyst
Merrill Lynch (Hong Kong)
ingrid.hsu@bofa.com

Katherine Tai
Research Analyst
Merrill Lynch (Hong Kong)
katherine.tai@bofa.com

Sirius Chan
Research Analyst
Merrill Lynch (Hong Kong)
sirius.chan@bofa.com

Sharon Chang
Research Analyst
Merrill Lynch (Hong Kong)
schang5@bofa.com

Lefu Li, CFA
Research Analyst
Merrill Lynch (Hong Kong)
lefu.li@bofa.com

Irene Sun, CFA
Research Analyst
Merrill Lynch (Hong Kong)
irene.sun@bofa.com

Derivatives Research

Michael Youngworth, CFA
Equity-Linked Analyst
BofAS
michael.youngworth@bofa.com