ASIA CREDIT REPORT

First Quarter 2019

PREPARED IN PARTNERSHIP WITH

sifma

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Growing Asia's Markets

ASIFMA is an independent, regional trade association with over 100 member firms comprising a diverse range of leading financial institutions from both the buy and sell side including banks, asset managers, law firms and market infrastructure service providers. Together, **we harness the shared interests of the financial industry to promote the development of liquid, deep and broad capital markets in Asia.** ASIFMA advocates stable, innovative and competitive Asian capital markets that are necessary to support the region's economic growth. We drive **consensus, advocate solutions and effect change around key issues through the collective strength and clarity of one industry voice.** Our many initiatives include consultations with regulators and exchanges, development of uniform industry standards, advocacy for enhanced markets through policy papers, and lowering the cost of doing business in the region. Through the GFMA alliance with SIFMA in the US and AFME in Europe, ASIFMA also provides insights on **global best practices and standards to benefit the region.**

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1. G3 Asia ex Developed Market Asia (Japan, Australia and New Zealand)

Market Overview and Issuance Highlights

Total G3 issuance in 1Q'19 came in at USD 80.8 billion (bn) as of March 31, up 33.7% quarter-over-quarter (qoq) from 4Q'17 (USD 60.4bn) and up 6.3% year-over-year (yoy), inclusive of high grade (HG), high yield (HY), and unrated deals.

Key trends

For the first quarter 2019, total G3 issuance stood at USD 80.8bn, an increase of 33.7% qoq and 6.3% yoy. China remains the largest issuing country in the first quarter, dominating Asian issuance at USD 49.0bn, or approximately 60.9% of G3 issuance; of first quarter volume, USD 23.9bn and USD 22.3bn were in HG and HY deals, respectively. South Korea was the second largest issuer with USD 6.2bn of issuance, followed by India with USD 5.7bn.

Real estate was the largest sector of G3 issuance in the first quarter (USD 29.4bn), followed by finance (USD 27.3bn) and sovereigns (USD 7.4bn).

In terms of ratings, within the HG space, BBB+ transactions accounted for the largest share of deals priced during the quarter, with USD 9.6bn in total issuance, followed by BBB rated transactions totaling USD 9.3bn. Within HY issuance, the B+ category led with USD 6.6bn of issuance, followed by BB- rated transactions of USD 6.4bn.

By tenor, Asia ex-Japan, Australia and NZ G3 deals with tenors of 5 years or less continued to account for the bulk of issuance in 1Q'19, with a total of USD 58.9bn in short tenor issues being priced during the quarter. Of these, USD 30.8bn were HG deals, USD 24.8bn were HY deals and the balance unrated.

Overall G3 debt outstanding in the region stood at USD 1.2tn at the end of March 2019, increasing 4.0% qoq and 13.2% yoy. High grade debt accounted for the bulk of total outstanding debt at USD 776.0bn (a 1.4% increase qoq and 8.0% increase yoy), followed by unrated debt at USD 287.9bn (a growth of 8.0% qoq and 21.3% yoy). HY debt was USD 173.7bn (an increase of 9.7% qoq and 26.2% yoy).

China (with USD 633.9bn), South Korea (with USD 130.9bn) and Indonesia (with USD 120.3bn) were the three regions with the largest shares of G3 debt outstanding, with Indonesia edging out Hong Kong for third place again in the first quarter. Ratings-wise among HG issuers, deals rated BBB- (USD 137.4bn) account for the largest share of debt outstanding, edging out deals rated A+ (USD 135.7bn), while B-rated transactions outstanding (USD 51.5bn) were the largest in the HY space. By sector, financials with a total of USD 381.6bn accounted for 31% of outstanding G3 paper, followed by sovereigns (USD 267.6bn) and real estate (USD 153.8bn). Finally, deals with remaining tenors of 5 years or less (USD 758.6bn) accounted for the bulk of total Asia (ex-Japan, Australia and NZ) debt outstanding.

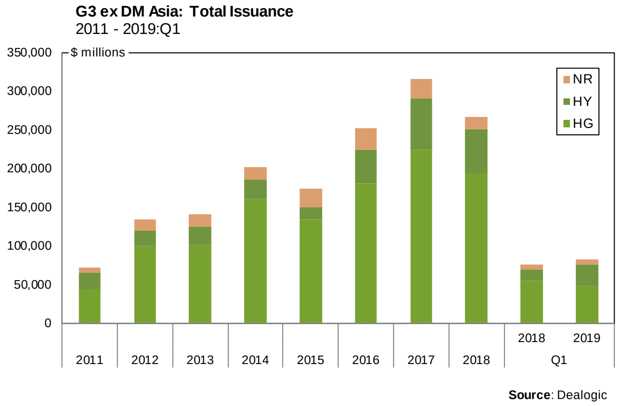
Turning to the LCY debt markets, USD 213.1bn in total LCY-denominated debt was issued in Asia (ex-Japan, Australia & NZ) in 1Q'19, a decline of 1.1% qoq (USD 215.6bn) but an increase of 10.1% yoy (USD 193.6bn). China remains the dominant issuer in the LCY debt markets in the first quarter, with USD 164.1bn issued, followed distantly behind by South Korea (USD 27.1bn) and Malaysia (USD 6.7bn). Finance continues to remain the largest category in 1Q'19 with USD 81.2bn issued, followed by construction/building (USD 20.8bn) and real estate/property (USD 20.1bn).

Total LCY debt outstanding at the end of 1Q'19 in Asia (ex-Japan, Australia and NZ) stood at USD 19.0tn, growing by 3.1% qoq, with HY and unrated debt outstanding increasing qoq by 3.0% and 3.3%, respectively, while HG debt outstanding declined 0.9%. China remains the bulk of total outstanding LCY debt at USD 13.1tn (representing more than two-thirds of all LCY debt), followed by India (USD 2.2tn) and South Korea (USD 1.6tn).

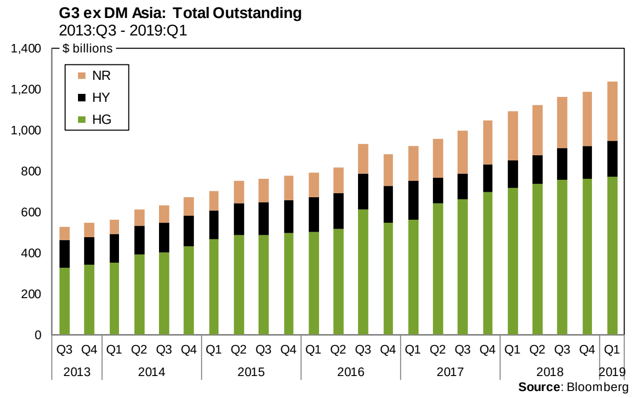
State of the Asian leveraged loan market

Asian leveraged loan debt, excluding developed market Asia, increased to USD 44.8bn in 1Q'19, an increase of 9.2% qoq but a decline of 16.6% yoy. Leading sectors in 1Q'19 issuance were real estate/property (USD 8.1bn), metal & steel (USD 5.9bn), and finance (USD 4.1bn). Leveraged loan issuance was primarily used for capital expenditures (USD 16.0bn) and acquisitions (USD 9.8bn). Sponsored loan deals, as a percentage of issuance in the first quarter, more than doubled to 9.0% (from 3.5% for 4Q'18) of deals by dollar amount.

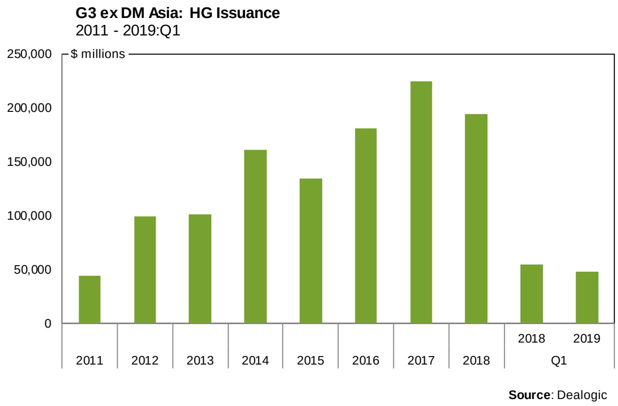
1.1. G3 ex DM Asia: Total Issuance



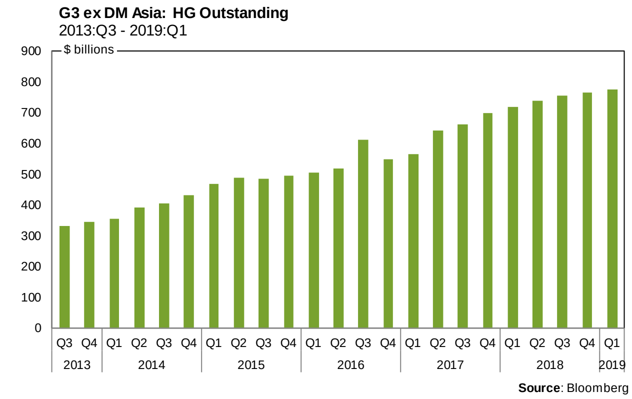
1.2. G3 ex DM Asia: Total Outstanding



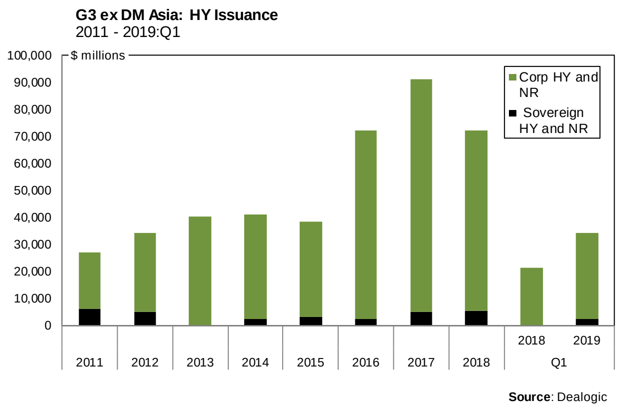
1.3. G3 ex DM Asia: HG Issuance



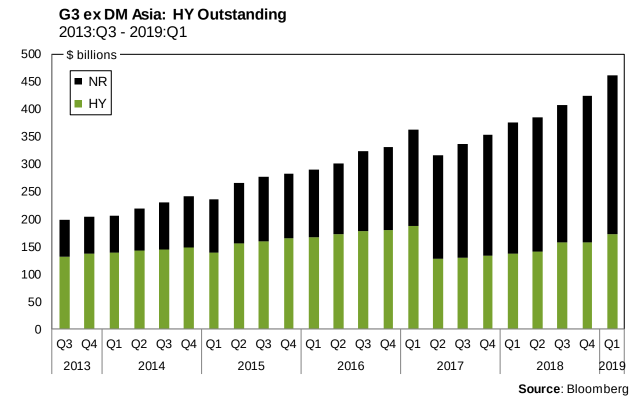
1.4. G3 ex DM Asia: HG Outstanding



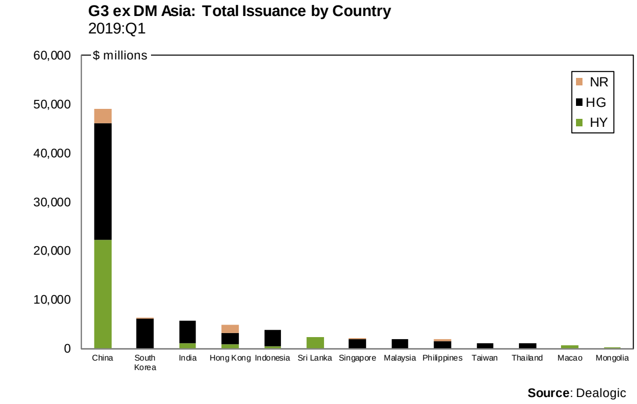
1.5. G3 ex DM Asia: HY Issuance



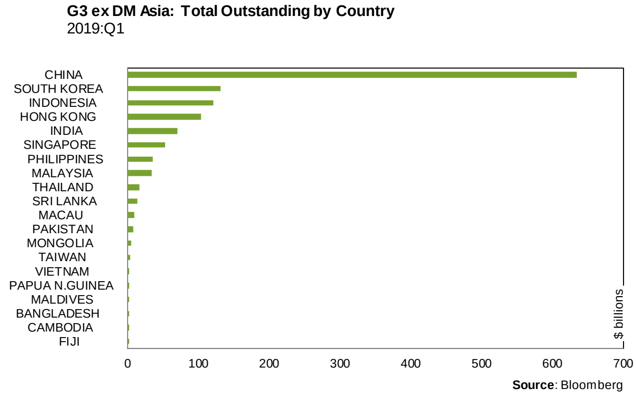
1.6. G3 ex DM Asia: HY Outstanding



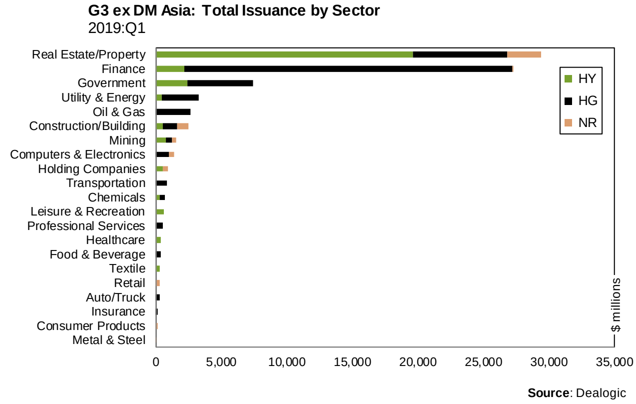
1.7. G3 ex DM Asia: Total Issuance by Country



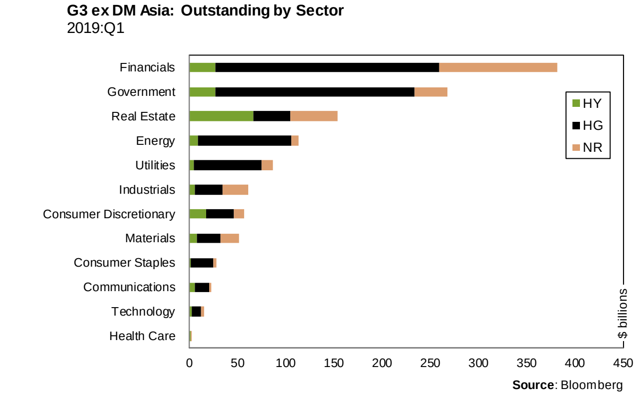
1.8. G3 ex DM Asia: Total Outstanding by Country



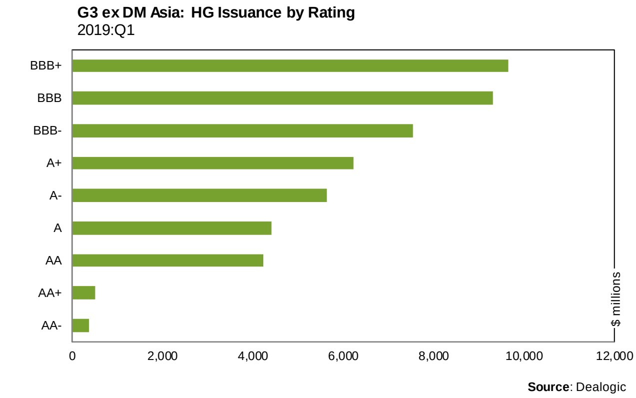
1.9. G3 ex DM Asia: Total Issuance by Sector



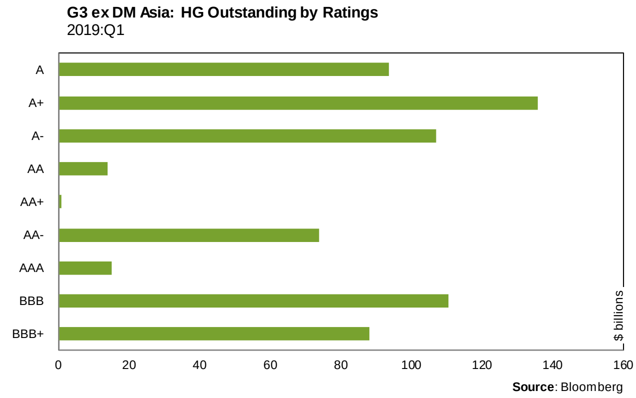
1.10. G3 ex DM Asia: Total Outstanding by Sector



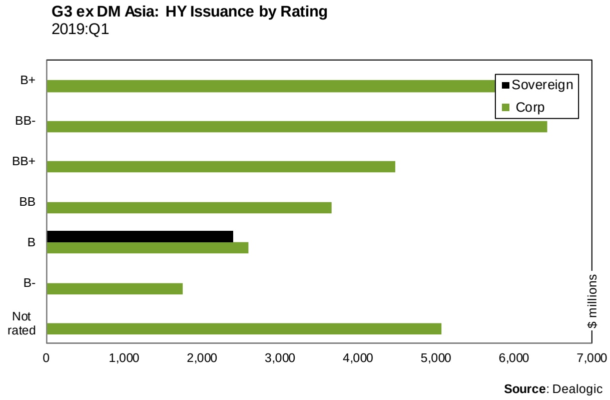
1.11. G3 ex DM Asia: HG Issuance by Rating



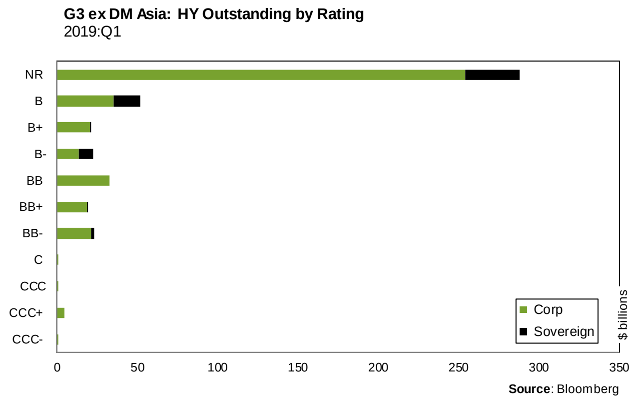
1.12. G3 ex DM Asia: HG Outstanding by Rating



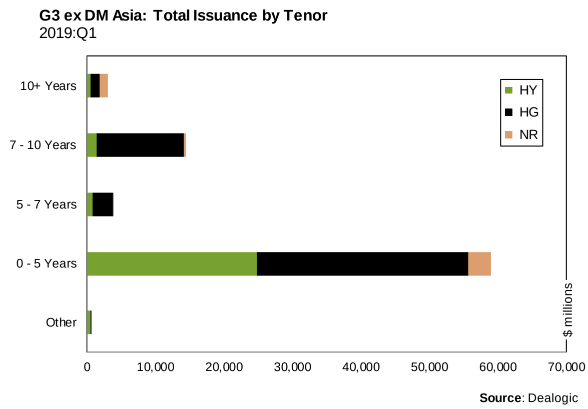
1.13. G3 ex DM Asia: HY Issuance by Rating



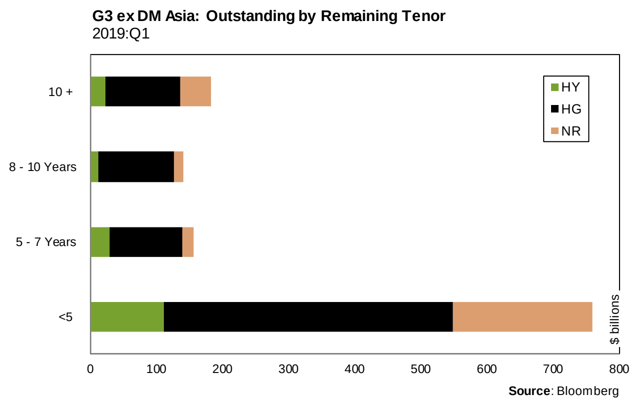
1.14. G3 ex DM Asia: HY Outstanding by Rating



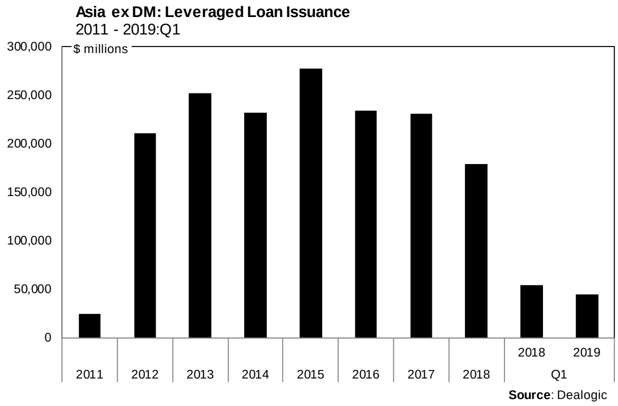
1.15. G3 ex DM Asia: Total Issuance by Tenor



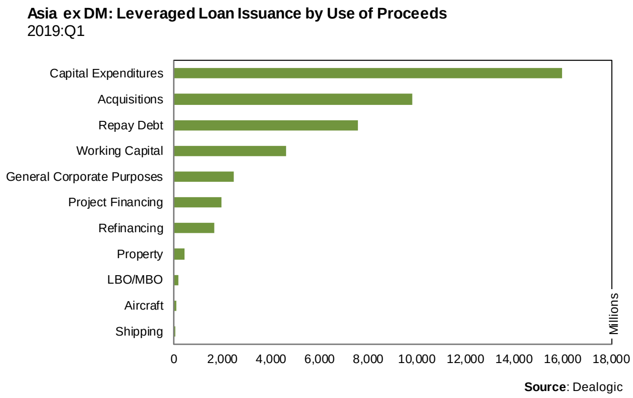
1.16. G3 ex DM Asia: Outstanding by Remaining Tenor



1.17. Asia ex DM: Total Leveraged Loan Issuance

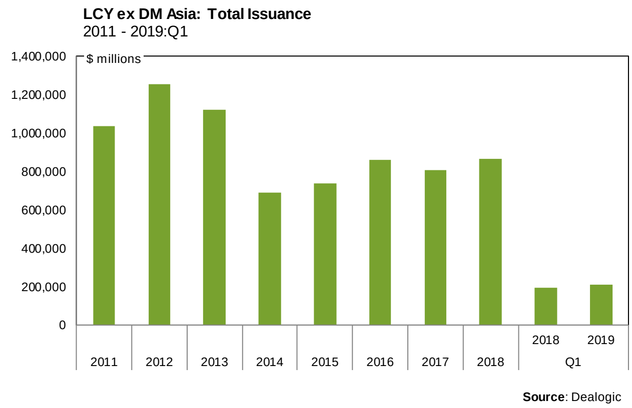


1.18. Asia ex DM: Total Leveraged Loan Issuance by Use of Proceeds

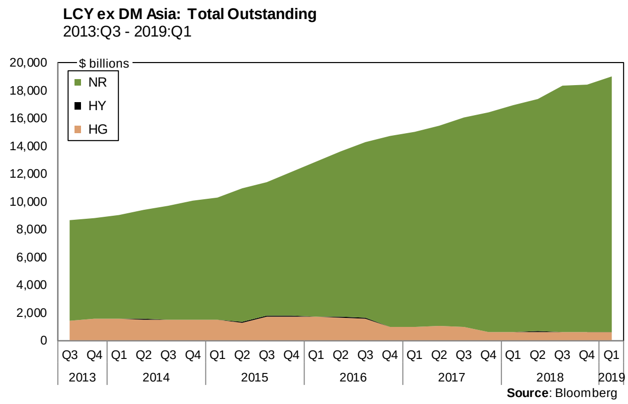


2. LCY Asia ex Developed Market Asia (Japan, Australia and New Zealand)

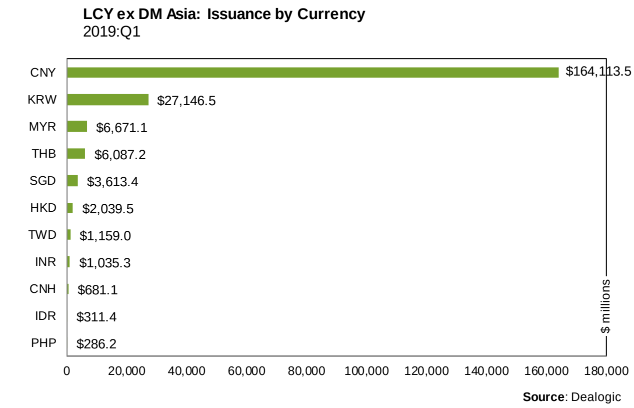
2.1. LCY ex DM Asia: Total Issuance



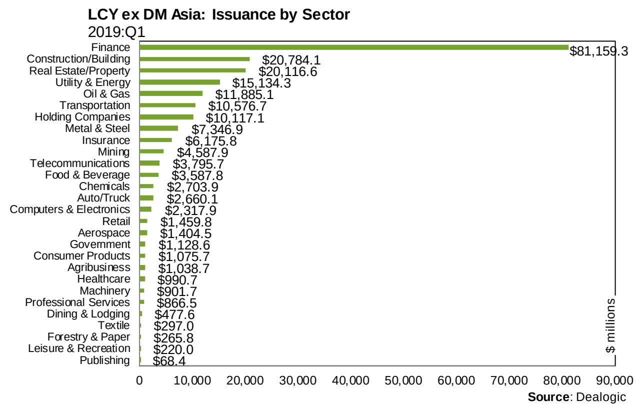
2.2. LCY ex DM Asia: Total Outstanding



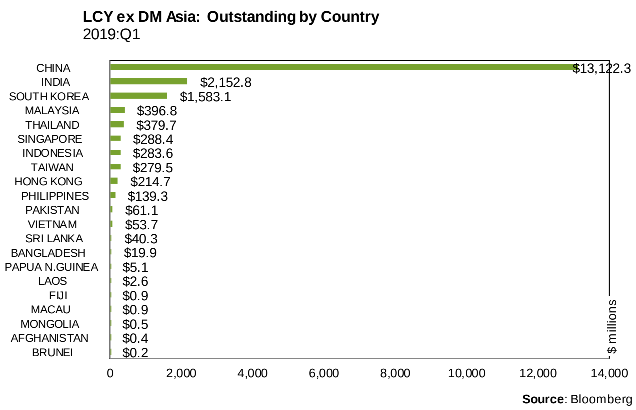
2.3. LCY ex DM Asia: Issuance by Currency



2.4. LCY ex DM Asia: Issuance by Sector



2.5. LCY ex DM Asia: Outstanding by Country



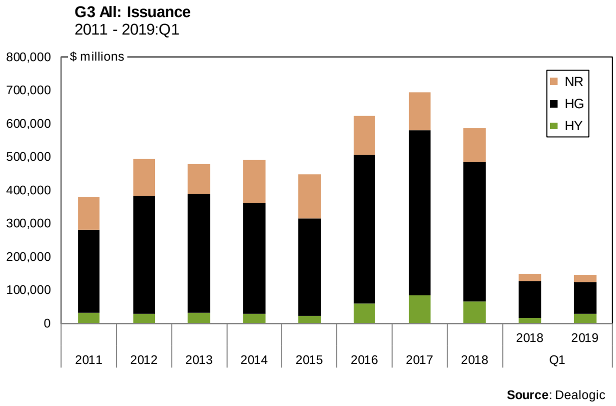
3. All Asia

Total Issuance & Outstanding – G3 and LCY

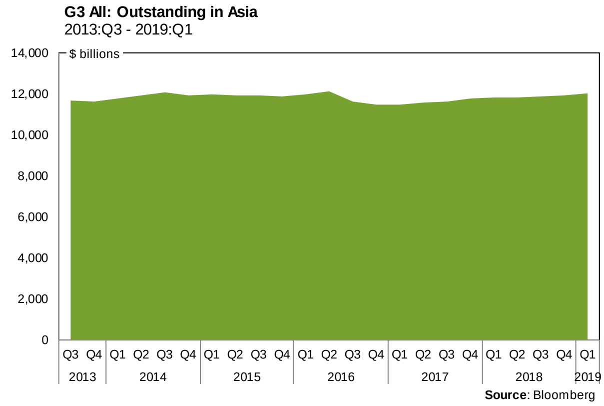
Total G3 issuance in Asia (including Japan, Australia and New Zealand) was USD 145.9bn in the first quarter of 2019, an increase of 4.1% qoq and a decline of 2.3% yoy. In 1Q'19, total HG G3 issuance in Asia was USD 94.9bn, a decline of 5.2% qoq and 14.2% yoy; HY issuance was USD 27.9bn, an increase of 218.1% qoq and 72.2% yoy; and unrated issuance was USD 23.1bn, a decline of 26.2% qoq but an increase of 2.2% yoy.

LCY debt issuance, including Japan, Australia, and New Zealand, rose to USD 433.3 bn in the first quarter of 2019, a decline of 25.1% qoq and 17.0% yoy, comprised of USD 285.4bn in HG issuance, USD 3.0bn in HY issuance and USD 145.3bn in unrated issuance.

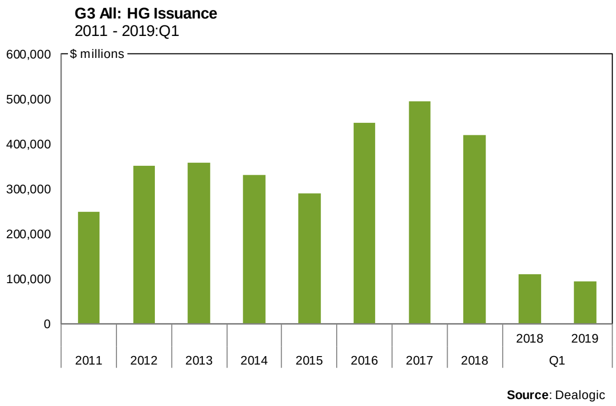
3.1. G3 All: Total Issuance



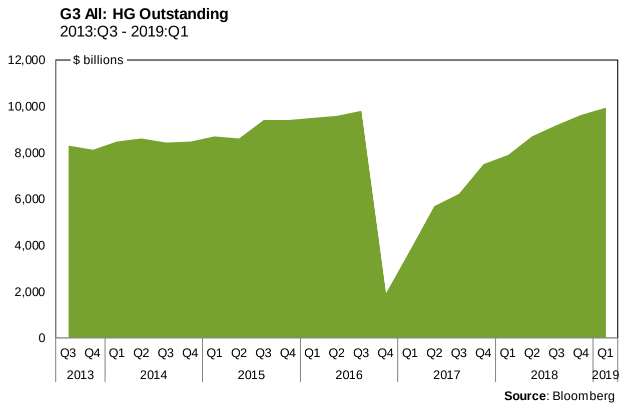
3.2. G3 All: Total Outstanding



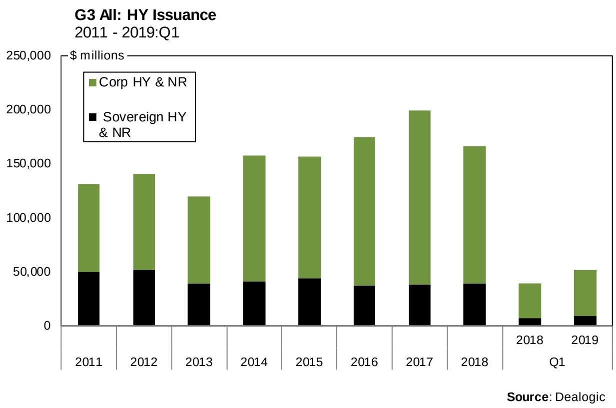
3.3. G3 All: HG Issuance



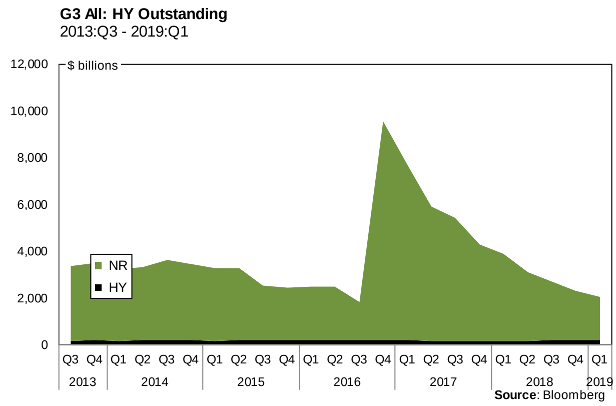
3.4. G3 All: HG Outstanding



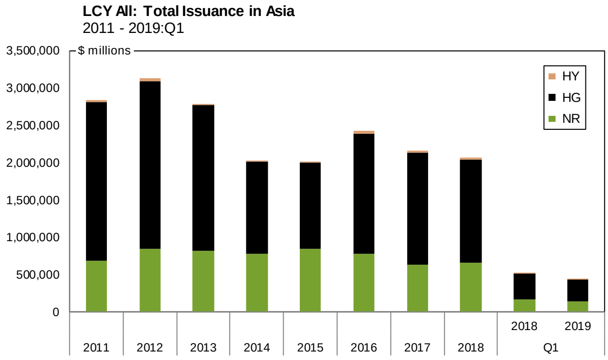
3.5. G3 All: HY Issuance



3.6. G3 All: HY Outstanding



3.7. LCY All: Total Issuance



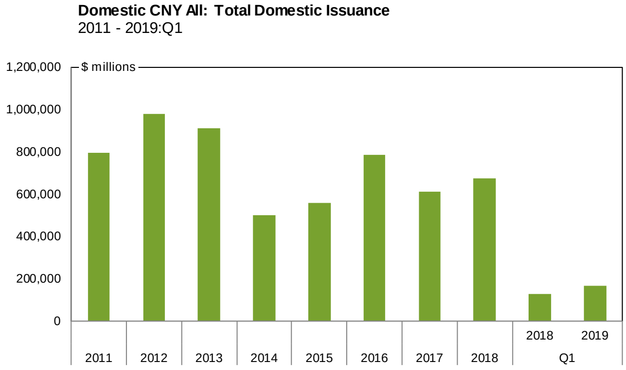
Source: Dealogic

4. China – Domestic

Total Issuance & Outstanding – Domestic CNY issuance

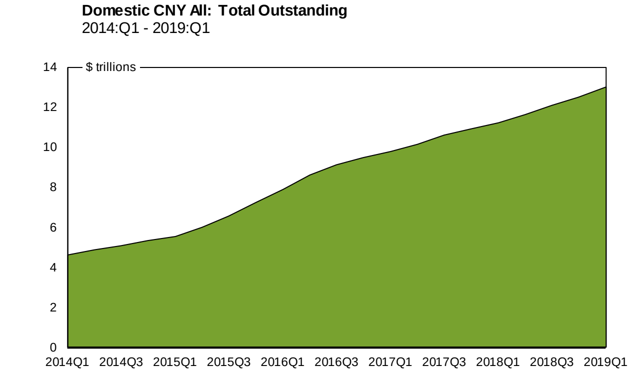
Total domestic CNY issuance stood at USD 164.4bn in the first quarter of 2019, down 7.4% from the fourth quarter (USD 177.5bn) but up 29.9% yoy (USD 126.6bn). By tenor, 69.0% of first quarter issuance (USD 113.4bn) would mature in five years or less, followed by the 7-10 year bucket (USD 23.9bn, or 14.5% of issuance). By sector, finance led issuance totals (USD 57.3bn), followed by construction (USD 19.8bn) and real estate (USD 16.5bn). Outstanding domestic CNY debt stood at USD 13.0tn at the end of first quarter 2019, with sovereigns leading totals (USD 7.4tn), followed by financials (USD 3.1tn) and industrials (USD 1.1tn).

4.1. Domestic CNY All: Total Issuance



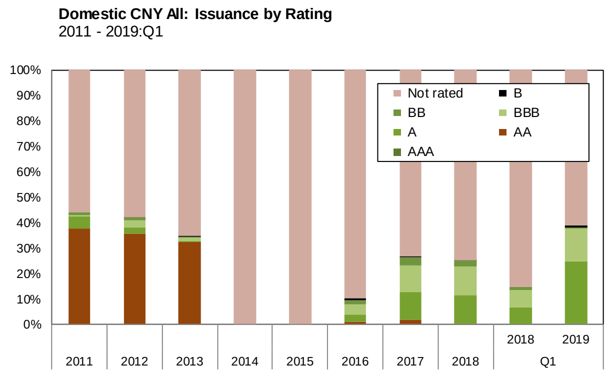
Source: Dealogic

4.2. Domestic CNY All: Total Outstanding



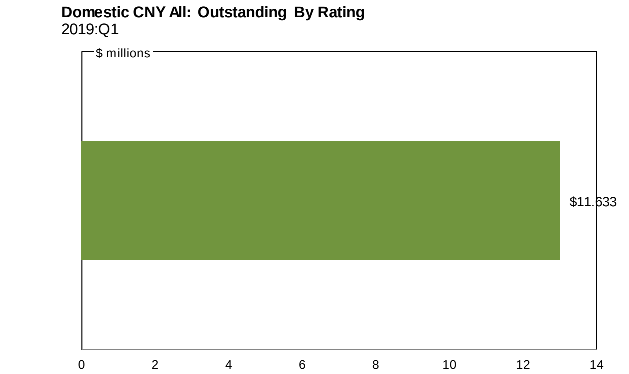
Source: Bloomberg

4.3. Domestic CNY All: Issuance by Rating



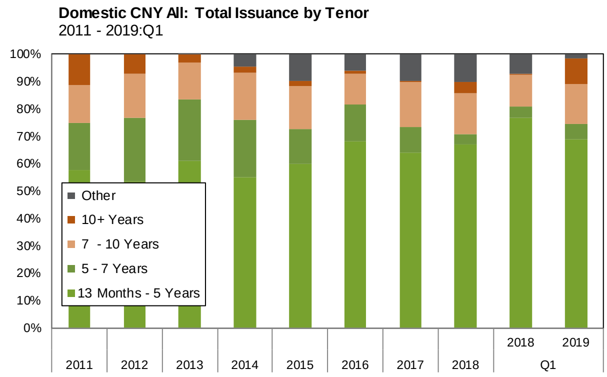
Source: Dealogic

4.4. Domestic CNY All: Outstanding by Rating



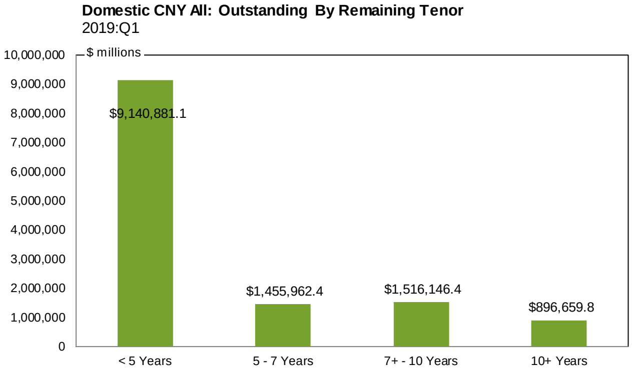
Source: Bloomberg

4.5. Domestic CNY All: Issuance by Tenor



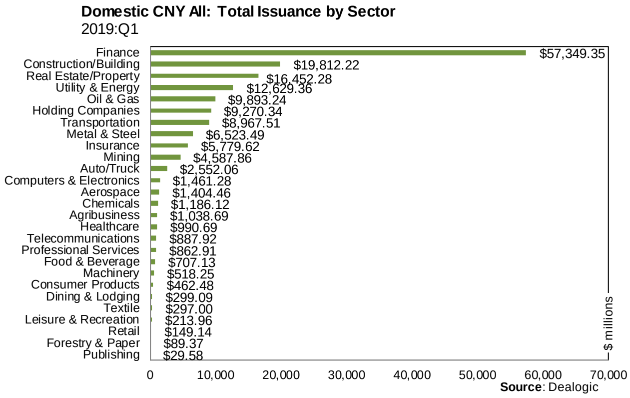
Source: Dealogic

4.6. Domestic CNY All: Outstanding by Remaining Tenor

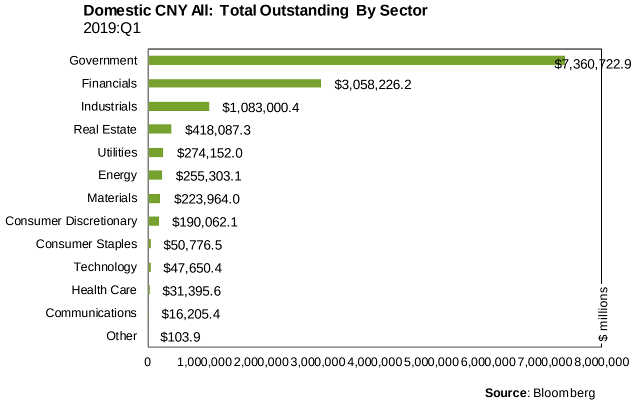


Source: Bloomberg

4.7. Domestic CNY All: Issuance by Sector



4.8. Domestic CNY All: Outstanding by Sector



5. China – Offshore Renminbi (CNH)

Key Trends in CNH and the Dim Sum Bond Markets

The pace of offshore issuance declined in the first quarter; an equivalent of USD 1.9bn in CNH bonds were issued, a decline of 57.2% qoq and 50.0% yoy. In terms of tenor, transactions with tenors of 5-years or less accounted for 74.3% of first quarter issuance. HG deals rated AA totaling USD 398.3mn had the highest rating share among deals (20.8%). In terms of sector, finance was the largest issuer in 1Q'19 (USD 1.2bn), followed by real estate (USD 670.7mn).

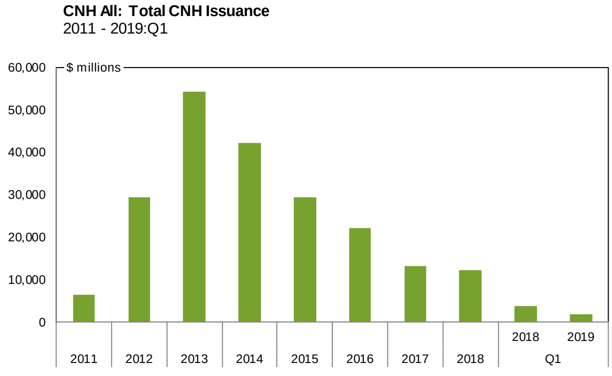
The total of dim sum bonds outstanding stood at USD 53.0bn at the end of the first quarter, a decline of 1.4% qoq and 5.5% yoy. Approximately 11.8% are short-term in tenor, while 86.5% of all bonds retire in less than 5 years. Sovereigns became the largest sector outstanding (USD 24.4bn), followed by financials (USD 23.3bn) and real estate (USD 2.5bn).

CNH Deposit Base by Location	Amt (USD bn)	As of
Hong Kong	90.6	Feb-19
Singapore	19.4	Feb-19
Taiwan	42.1	Mar-19
Korea, Republic of	1.2	Feb-19
Luxembourg	9.8	Aug-15
United Kingdom	8.4	Feb-19
France	3.0	Dec-15

Sources: HKMA (Hong Kong), MAS (Singpore), Central Bank of Republic of China (Taiwan), Bank of Korea (Korea), Luxembourg for Finance (Luxembourg), Bank of England (UK), PWC (France); Exchange Rate: CNH 6.879 = USD 1.0, GBP 1.28 = USD 1.0

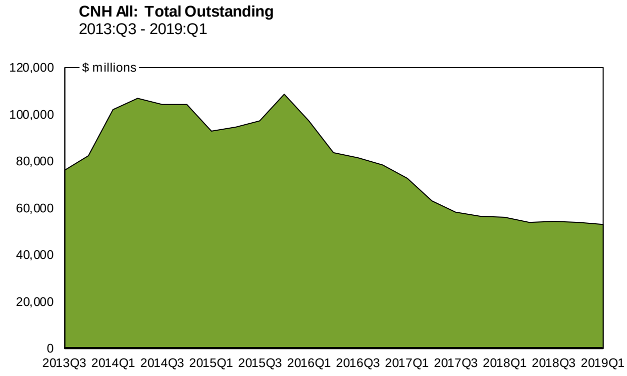
CNH deposits dropped slightly in all deposit centers in the most recent data ending the first quarter 2019.

5.1. CNH All: Total CNH Issuance



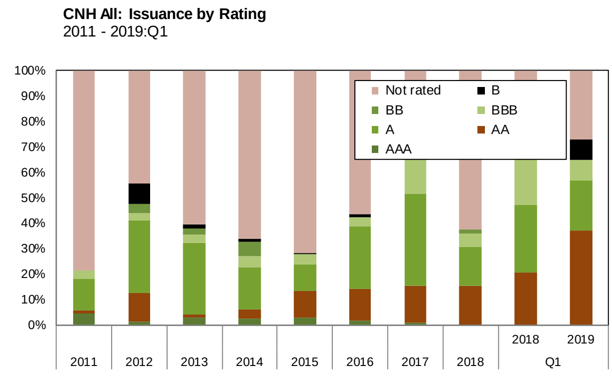
Source: Dealogic

5.2. CNH All: Total Outstanding



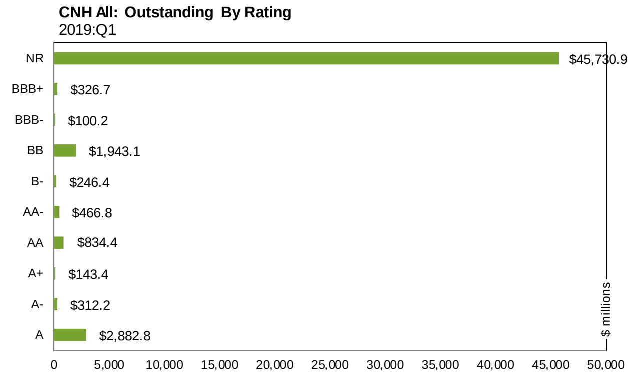
Source: Bloomberg

5.3. CNH All: Issuance by Rating



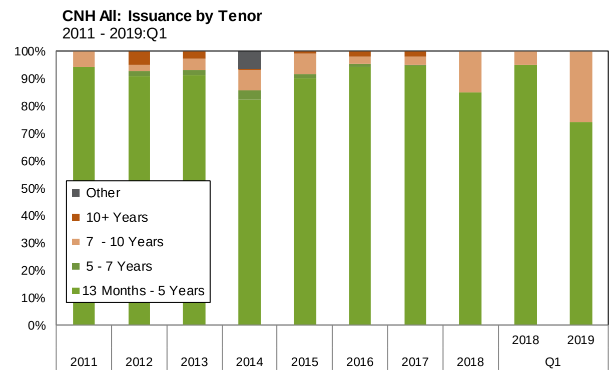
Source: Dealogic

5.4. CNH All: Outstanding by Rating



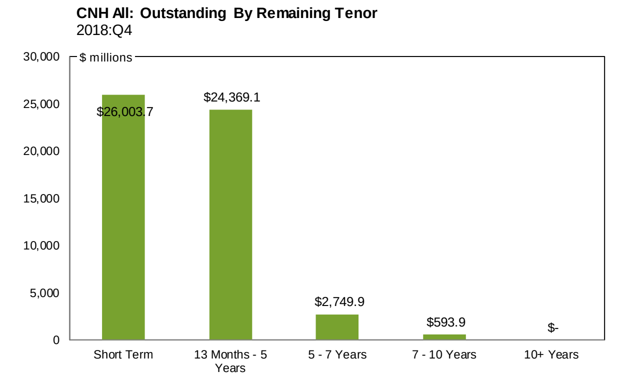
Source: Bloomberg

5.5. CNH All: Issuance by Tenor



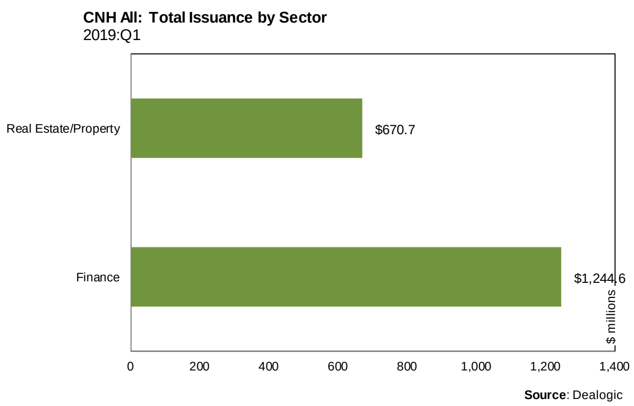
Source: Dealogic

5.6. CNH All: Outstanding by Remaining Tenor

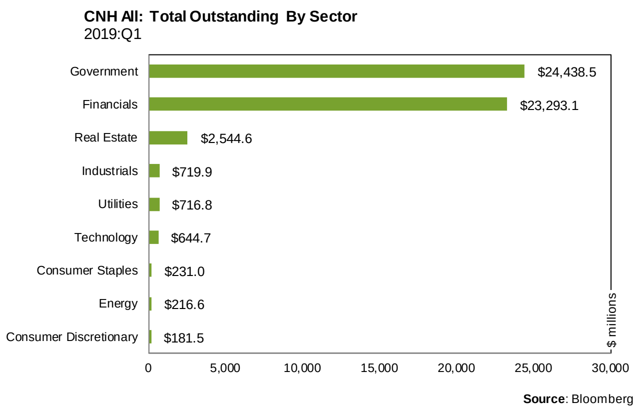


Source: Bloomberg

5.7. CNH All: Issuance by Sector



5.8. CNH All: Outstanding by Sector



6. Spreads, Credit & Total Return

Relative Value and returns (Asia ex-Japan, Australia & New Zealand G3)

Asian HG bond spreads traded tighter in 1Q'19 from the fourth quarter (151 bps vs. 157 bps); on the other hand, US and European HG bonds traded wider at 136 bps (from 132 bps) and 139 bps (from 136 bps) respectively. HY spreads tightened for Asia to 586 bps in the first quarter (from 634 bps in the fourth quarter) while US HY spreads European HY spreads widened to 424 bps (from 407 bps) and 434 bps (from 433 bps), respectively.

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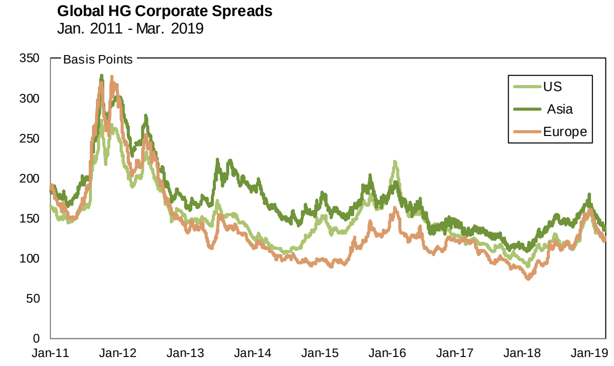
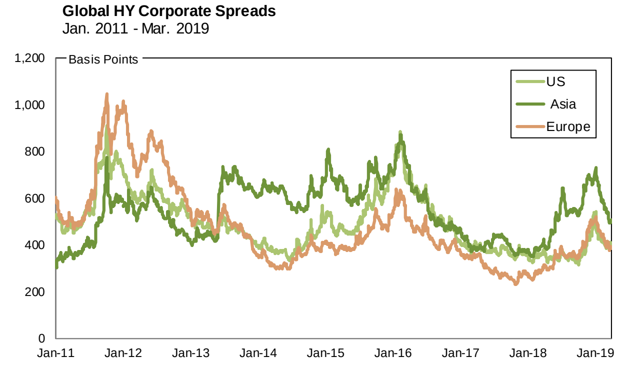
Growing Asia's Markets

6.1. Global HG Corporate Spreads



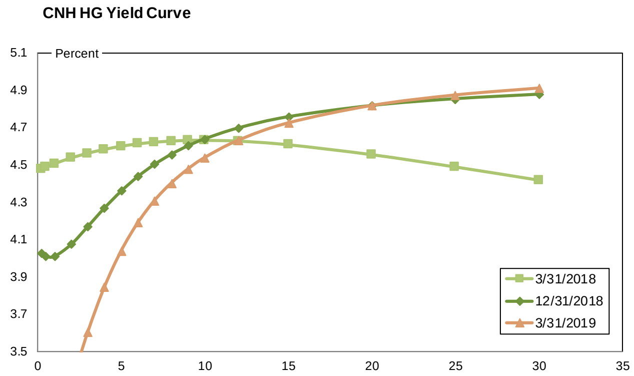
Source: ICE BofAML

6.2. Global HY Corporate Spreads



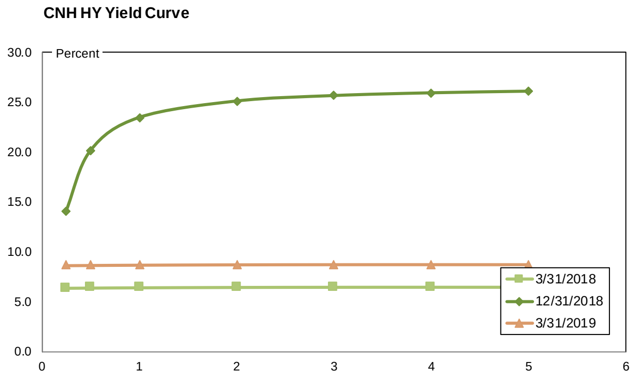
Source: ICE BofAML

6.3. CNH HG Yield Curve



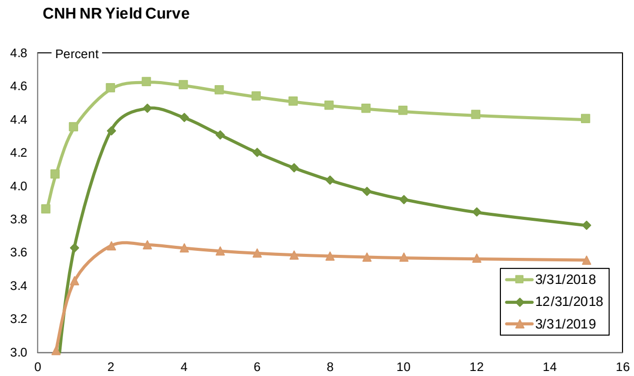
Source: Bloomberg

6.4. CNH HY Yield Curve



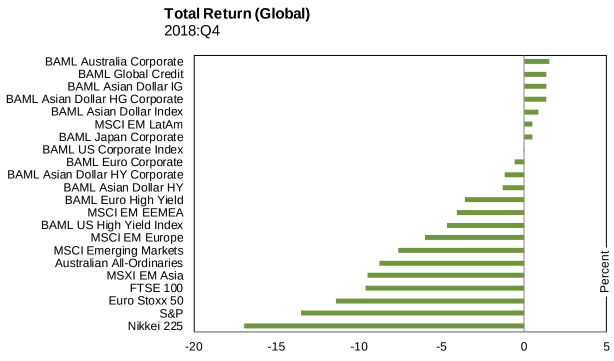
Source: Bloomberg

6.5. CNH NR Yield Curve



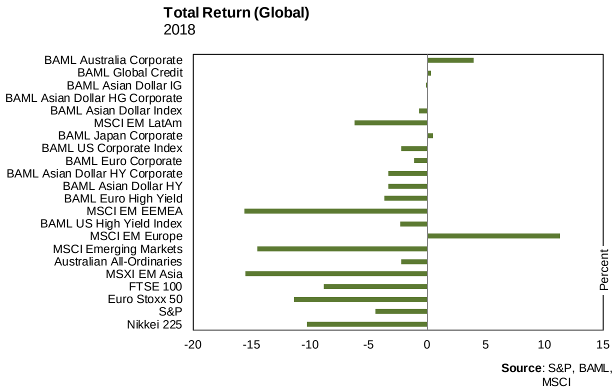
Source: Bloomberg

6.6. Global Returns, Quarter-End

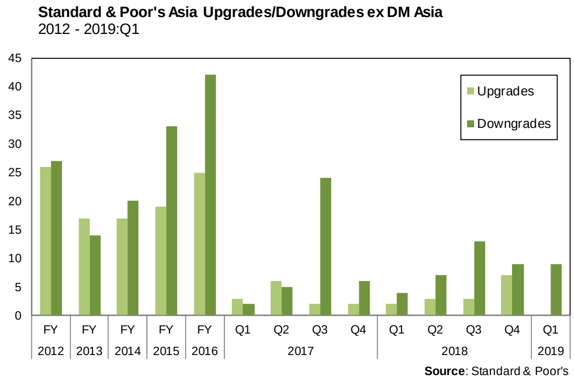


Source: S&P, BAML, MSCI

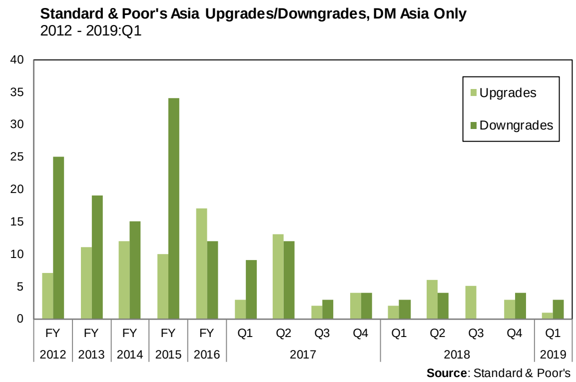
6.7. Global Returns, 2018



6.8. Asia Upgrades / Downgrades ex DM Asia



6.9. Asia Upgrades / Downgrades, DM Asia



6.10. Asian Upgrades & Downgrades, Standard & Poor's, First Quarter 2019

Upgrades	Country	Date	Rating
Tokyo Electric Power Company Holdings Inc.	Japan	1/24/2019	BB+

Downgrades	Country	Date	Rating
Takeda Pharmaceutical Company Ltd.	Japan	1/8/2019	BBB+
Tata Motors Ltd.	India	3/27/2019	B+
Yida China Holdings Ltd.	China	1/31/2019	CCC+
Guorui Properties Ltd.	China	2/3/2019	CCC
Qinghai Provincial Investment Group Co. Ltd.	China	2/25/2019	CCC+
Tunghsu Group Co. Ltd.	China	2/18/2019	B-
Dr. Peng Telecom & Media Group Co. Ltd.	China	3/14/2019	B
Honda Motor Co. Ltd.	Japan	2/6/2019	A
Nissan Motor Co. Ltd.	Japan	2/21/2019	A-
Shandong Sanxing Group Col. Ltd.	China	3/26/2019	B+
PT Lippo Karawaci Tbk.	Indonesia	1/24/2019	CCC+
Qingdao City Construction Investment (Group) Ltd.	China	2/13/2019	BBB-

7. Methodology

1. G3 Asia ex Developed Market (Japan, Australia, and New Zealand)

Issuance

Bond transactions are sourced primarily from Dealogic, with supplemental information sourced from Bloomberg. Unless otherwise noted, all issuance are long-term debt. High grade transactions are defined as transactions with a Dealogic "effective" rating of equal or greater than BBB-, and may include unrated transactions based on issuer and desk notes. High yield transactions are defined as transactions with a Dealogic "effective" rating of equal or less than BB+, and may also include unrated transactions based on issuer and desk notes. Unrated deals are those deals with no effective rating from Dealogic.

"All Asia" issuances are defined as being a corporate bond issue having a Dealogic "deal nationality" as within Asia, regardless of market, including domestic. Sovereign, sub-sovereign, medium-term notes, and agencies are also included from issuance, while supranational and ABS/MBS issuers are excluded from issuance. Loans are excluded from issuance as well.

"DM", or Developed Market Asia, include those deals with a Dealogic deal nationality from Australia, Japan, and New Zealand. "Ex DM Asia" will refer to all deals excluding those deals with a Dealogic deal nationality from Australia, Japan, and New Zealand.

G3 deals are defined a subset of deals in "All Asia" that are rank eligible, according to Dealogic's rank eligibility guidelines, with a tranche currency in US dollar (USD), European euro (EUR), or Japanese yen (JPY). There may exist deals within "All Asia" issuance that are denominated in a G3 currency but are not rank eligible and therefore not included in G3 tables but may be included in all other non-G3 exclusive tables.

"LCY", or local currency, are defined as a subset of deals in "All Asia" flagged by Dealogic local currency flag. G3 and LCY deals are not mutually exclusive and may overlap (e.g., in the case of Japanese JPY deals).

All issuances are denoted in USD equivalents based on exchange rates as of the issue date of the bond.

Outstanding

Outstanding figures are sourced from Bloomberg and contain all bonds from its corporate securities database, including private placements. Structured notes and debt secured by assets are excluded. All other criteria hew closely to the criteria for issuance.

All outstandings are denoted in USD equivalent based on exchange rates as of quarter-end.

Outstanding G3 deals are defined a subset of deals in "All Asia" that are rated with at least one rating by one of the four rating agencies: Fitch Ratings, Moody's, Standard & Poor's, or DBRS; and denominated in US dollar (USD), European euro (EUR), or Japanese yen (JPY). Deals that are not rated by one of the four rating agencies (those deals with a Bloomberg composite rating of "NA") are excluded. The "NA" exclusion is due to overlap between rank ineligible deals and those deals with no rating; a close analysis of the data reveals that the figures for data excluding "rank ineligible" deals and the figures for data excluding data rated N.A. in Bloomberg are similar.

1.1., 1.3, 1.5., 1.7., 1.9., 1.11., 1.13., 1.15., 1.17., 1.18.

Data are sourced from Dealogic.

Issuance by country is determined by Dealogic's deal nationality.

Issuance by tenor is determined by years of maturity at issuance.

Issuance by sector is defined by Dealogic's General Industry Group ("GIG") groupings and are not analogous to Bloomberg's Sector grouping.

1.2., 1.4., 1.6., 1.8., 1.10., 1.12.

Data are sourced from Bloomberg.

Outstanding by rating are by current composite rating assigned by Bloomberg. Composite ratings by Bloomberg are the average of ratings assigned by Moody's, Standard & Poor's, Fitch Ratings, and DBRS; a minimum of two ratings must be given to a bond before a composite rating is generated. "NR" denotes a bond with a single rating assigned by the four rating agencies, whereas "NA" denotes a bond with no rating from any of the four.

Outstanding by tenor are based on current tenor as quarter-end. "Other" includes those bonds with no listed maturity date and perpetuals.

2. LCY Asia ex Developed Market Asia (Japan, Australia and New Zealand)

2.1. - 2.4.

Issuance data are sourced from Dealogic according to the criteria outlined in Section 1. Outstanding data are sourced from Bloomberg according to the criteria outlined in Section 1.

3. All Asia

3.1. – 3.9.

Issuance data are sourced from Dealogic according to the criteria outlined in Section 1. Outstanding data are sourced from Bloomberg according to the criteria outlined in Section 1.

4. Domestic CNY

Issuance

Bond transactions for CNY are sourced from Dealogic and are defined as all issued debt denominated in renminbi (CNY) and in the domestic debt markets. CNY-denominated deals issued in the euro, foreign, or international markets are excluded. There are no restrictions on deal type and will include supranationals, medium-term notes, money market notes, securitisations, and commercial paper debt. Due to the lower restrictions in CNY issuance, CNY-denominated deals outside of Section 5 and 6 are a subset of the deals contained in Section 5 and 6.

Outstanding

Bond transactions for CNY are sourced from Bloomberg and are defined as debt denominated in CNY and issued in the domestic or domestic MTN markets. CNY-denominated deals issued in the euro, foreign, or international debt markets are excluded. Deals include corporate high grade bonds, high yield bonds, medium-term notes, money market and commercial paper debt. The combination of CNH and CNY debt exclude a small minority of dual-currency deals that are non-domestic, non-dim sum debt.

All outstanding are denoted in USD equivalent based on exchange rates as of quarter-end.

4.1. – 4.8.

Issuance data are sourced from Dealogic in accordance to the criteria specified in Section 5. Outstanding data are sourced from Bloomberg in accordance to the criteria specified in Section 5.

5. CNH

Issuance

Bond transactions for CNH are sourced from Dealogic and are defined as all debt denominated in renminbi (CNY) issued and in the euro, foreign, or international debt markets. CNY-denominated deals issued in the domestic market are excluded. There are no restrictions on deal type and will include supranationals, medium-term notes, money market notes, securitisations, and commercial paper debt. Due to the lower restrictions in CNH issuance, CNH-denominated deals outside of Section 5 and 6 are a subset of the deals contained in Section 5 and 6.

All issuance are denoted in USD equivalents based on exchange rates as of the issue date of the bond.

Outstanding

Bond transactions for CNH are sourced from Bloomberg and are defined as debt denominated in CNY and issued in the euro, foreign, or international debt markets. CNY-denominated deals issued in the domestic market are excluded. Deals include corporate high grade bonds, high yield bonds, medium-term notes, money market, securitisations, and commercial paper debt. The combination of CNH and CNY debt exclude a small minority of dual-currency deals that are non-domestic, non-dim sum debt.

All outstandings are denoted in USD equivalent based on exchange rates as of quarter-end.

5.1. – 5.8.

Issuance data are sourced from Dealogic in accordance to the criteria specified in Section 4. Outstanding data are sourced from Bloomberg in accordance to the criteria specified in Section 6.

6. Spreads, Credit Quality & Total Return

6.1. – 6.2. Global Corporate Spreads

High grade and high yield US and European corporate spreads are sourced from Bank of America-Merrill Lynch (ICE BofAML) indices. Spreads are over government debt.

US high grade spreads are sourced from ICE BofAML's US Corporate Index (C0A0) and tracks the performance of US dollar denominated investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch), at last 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of USD 250 million. Original issue zero coupon bonds, 144a securities (with and without registration rights), and pay-in-kind securities (including toggle notes) are included in the index. Fixed-to-floating rate securities are included provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Contingent capital securities, including those with automatic principal write-down provisions, are included in the index provided they do not have an automatic common equity conversion, unless the conversion is activated by a regulatory authority in which case they are included. Other hybrid capital securities, such as those that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Securities issued or marketed primarily to retail investors, equity-linked securities, securities in legal default, hybrid securitized corporates, Eurodollar bonds (USD securities not issued in the US domestic market), taxable and tax-exempt US municipal securities and DRD eligible securities are excluded from the index.

European high grade spreads are sourced from ICE BofAML's Euro Corporate Index (ER00) and tracks the performance of EUR denominated investment grade corporate debt publicly issued in the Eurobond or Euro member domestic markets. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch), at last 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of EUR 250 million. Original issue zero coupon bonds and pay-in-kind securities, including toggle notes, are included in the index. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Contingent capital securities are included in the index provided they do not have an automatic common equity conversion feature; these securities with triggers activated by a regulatory authority, including conversions into equity, qualify for inclusion. Also qualifying for inclusion are contingent capital securities with principal write-down triggers. Hybrid capital securities qualify for the index, including those potentially converting into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms. Euro legacy currency, equity-linked and securities in legal default are excluded from the Index. Securities issued or marketed primarily to retail investments do not qualify for inclusion in the index.

US high yield spreads are sourced from ICE BofAML's US High Yield Index (H0A0) and tracks the performance of US dollar denominated below investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch), at last 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of $100 million. In addition, qualifying securities must have risk exposure to countries that are members of the FX-G10, Western Europe or territories of the US and Western Europe. The FX-G10 includes all Euro members, the US, Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden. Original issue zero coupon bonds, 144a securities (with and without registration rights), and pay-in-kind securities (including toggle notes) are included in the index. Callable perpetual securities are included provided they are at least one year from the first call date. Fixed-to-floating rate securities are included provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Contingent capital securities, including those with automatic principal write-down provisions, are included in the index provided they do not have an automatic common equity conversion, unless the conversion is activated by a regulatory authority in which case they are included. Other hybrid capital securities, such as those that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Securities issued or marketed primarily to retail investors, equity-linked securities, securities in legal default, hybrid securitized corporates, Eurodollar bonds (USD securities not issued in the US domestic market), taxable and tax-exempt US municipal securities and DRD eligible securities are excluded from the index.

European high yield spreads are sourced from ICE BofAML's Euro High Yield Index (HE00) and tracks the performance of EUR denominated below investment grade corporate debt publicly issued in the euro domestic or eurobond markets. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch), at least 18 months to final maturity at the time of issuance. In addition, qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of EUR 100 million. Original issue zero coupon bonds, "Global" securities (debt issued simultaneously in the Eurobond and euro domestic markets), 144a securities and pay-in-kind securities, including toggle notes, qualify for inclusion in the index. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Contingent capital securities are included in the index provided they do not have an automatic common equity conversion feature; these securities with triggers activated by a regulatory authority, including conversions into equity, qualify for inclusion. Also qualifying for inclusion are contingent capital securities with principal write-down triggers. Hybrid capital securities qualify for the index, including those potentially converting into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms. Euro legacy currency, equity-linked and securities in legal default are excluded from the Index. Securities issued or marketed primarily to retail investments do not qualify for inclusion in the index.

Asian high grade and investment grade spreads are sourced from J.P. Morgan's Asia Credit Index (JACI) and tracks the performance of USD-denominated Asian debt in the Asian ex-Japan region. Qualifying countries are those Asian region excluding Japan, including: China, Hong Kong, Indonesia, India, South Korea, Sri Lanka, Mongolia, Macao, Malaysia, the Philippines, Pakistan, Singapore, Thailand, Taiwan and Vietnam. Minimum deal sizes are $150 million and at least 12 months to final maturity at time of issuance. Fixed and floating rate instruments, and debt issued by sovereign, quasi-sovereign and corporate entities qualify for inclusion. Convertible bonds do not qualify for inclusion in the index.

6.3. – 6.5. China CNH Yield Curves

The securities underlying this curve are a subset of CNH data and sourced from Bloomberg; please see section 6 for more details regarding criteria. Ratings are determined by Bloomberg composite rating. Curves are fitted using Nelson-Siegel regression on mid-yield to maturity of underlying bonds.

6.6. – 6.7. Total Return (Quarter-End and YTD)

Total return data are sourced from various global bond and equity, including, but not limited to: the Bank of America-Merrill Lynch, Standard & Poor's, J.P. Morgan, and MSCI,

6.10. – 6.10. Asian Issuer Rating Actions

European issuer upgrades and downgrades are sourced from S&P. and are a combination of both emerging market, Japan, Australia, and New Zealand rating actions. Multiple upgrades or downgrades of a single issuer are counted separately. Rating actions are inclusive of both corporate (both credit, policy, or merger-related) as well as sovereign ratings.

Due to publication timing, these data set may run on a quarter lag.

8. Disclaimer

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9. Credit

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