Corporate Bond Market in Emerging Asia
an Analysis of Growth Stimulus

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Abstract

Global Perspectives: The Corporate Bond Market has almost tripled in size globally between the years 2000 to 2013 ($49 Trillion in 2013). Expressed as a percentage of GDP, while the outstanding amount averaged 169% in the Developed countries, in the Emerging markets it was 24% only in 2013. Bank lending continues to dominate at 52% of the global corporate financing in 2012. However, in US and European Markets, Corporate Bond is substituting Bank lending since the onset of financial crisis. In 2013, the Corporate Bond Issuances by the Emerging Market comprised 30% of the Global Issuances as against 5% in 2000. In 2013, two-third of the Global issuances was processed by Non-Financial Corporate. [IOSCO Research, 2014]. Corporate Bond issue during the Q1 2016 represented 36.2% of the total Local Currency (LCY) Bond issue in the Emerging East Asia. Corporate Bond Markets registered slow growth q-o-q in Q1 2016 ranging between 0.5% (Hong Kong, China & Korea) and 3.2 %( Thailand) [Asia Bond Monitor, June’2016]. Considering Non-financial Corporate only, the global concentration of the largest Corporate Bond Markets in the developed nations is reducing and some Emerging Markets in Asia are catching up. The objective of this paper is to identify the determinant factors that gave stimulus to growth of the Non-financial corporate bond segment in some of the Emerging Markets in Asia and further stimulus needed to accelerate the pace of growth. The study reveals that the interplay of 5 “I-s” i.e. Investors, Issuers, Issuances, Intermediaries and Infrastructure is what determines the Growth pace of a Corporate Bond Market. Diversity of Investors, Issuers and Issuances are the essential preconditions for attaining a Developed Bond Market. It is the market makers i.e. Dealers/Brokers and their supportive infrastructure who can bring about these diversities. This apart, in the globalized scenario, no Corporate Bond market can attain maturity without strong macro-fundamentals viz. low long-term Treasury interest rates, GDP growth, strong domestic currency, internationalization of domestic currency as well as existence of a vibrant International Bond Market for Foreign bond issuers.

Key Words: Corporate Bond, Corporate Bond Market, Emerging Asia, Emerging Markets, Bank Lending, Non-Financial Corporate

JEL Classification: G10, G15, G18, G24
1. Introduction

This paper focuses on the study of Non-Financial Corporate Bonds Market that complements the Bank Loans for funding infrastructure Projects in some countries of the Emerging market economy (EM) in Asia.

The Corporate Bond Market has almost tripled in size globally between the years 2000 to 2013 ($49 Trillion in 2013). Expressed as a percentage of GDP, while the outstanding amount averaged 169% in the Developed countries, in the Emerging markets it was 24% only in 2013. Bank lending continues to dominate at 52% of the global corporate financing in 2012. However, in US and European Markets, Corporate Bond is substituting Bank lending since the onset of financial crisis. In 2013, the Corporate Bond Issuances by the Emerging Market comprised 30% of the Global Issuances as against 5% in 2000. In 2013, two-thirds of the Global issuances was processed by Non-Financial Corporate. [IOSCO Research, 2014]. In global perspectives, Equity finance by the Non-Financial corporate (NFC’s) dropped to 0.5 percent of Emerging market GDP in 2014 from 1.7 percent of Emerging market GDP in 2008 immediately prior to the financial crisis. But in contrast the issuance of Bond by the NFC’s increased to 3.3 percent of Emerging market GDP in 2014 from 0.8 percent in 2008. Post Financial crisis, the NFC Bond outstanding grew at a CAGR 8% and reached USD 16 Trillion in 2013. Two-thirds of the Global issuances came from the NFC issuers in 2013.

Corporate Bond issue during the Q1 2016 represented 36.2% of the total Local Currency (LCY) Bond issue in the Emerging East Asia. Corporate Bond Markets registered slow growth q-o-q in Q1 2016 ranging between 0.5% (Hong Kong, China & Korea) and 3.2% (Thailand) [Asia Bond Monitor, June’2016]. Considering Non-financial Corporate only, the global concentration of the largest Corporate Bond Markets in the developed nations is reducing and some Emerging Markets in Asia are catching up. Since about 2010, the Bonds for both LCY and FX (Almost 3.5% of GDP) have been replacing the syndicated loans (less than 1.5% of GDP) in the NFC sector of the Emerging economy globally. Yet the mean outstanding stock of the NFC EM Bond markets is still low at 5.3% of GDP in 2013 as against domestic and foreign loan amounting to 40.5% of GDP. However, the share of corporate debt in the total debt has substantially increased in the EM in recent years while Bank loans remained constant. The annual value of EM NFC Bond issuances increased more than threefold between 2009 and 2014 outpacing Equity and syndicated loans (IMF Working Paper, 2015).

In the above backdrop, the growth of Asian Bond markets was the silver lining of the Asian financial crisis. It is necessary to evolve whether the shift to Bond market is factored by strong Institutions and macro fundamentals in the EM of Asia or is impacted by the Global financial cycle. It is also pertinent to study why the Growth is not uniform in these emerging
market economies in Asia, where do they stand and what they are required to do to accelerate the pace of Growth. The paper makes an attempt to draw inferences from two of the fastest growing Bond Markets in the EM of Asia who could be the future Models for the development of the NFC Bond Markets to the rest of the EM Asia with due consideration of the country-wise market characteristics.

The largest Bond markets are identified by Market capitalization of US$ 100-200 bn which is required to achieve critical mass (McCauley and Remolona, 2004, and Eichengreen et.al. 2006). In the second quarter ending June’2016, the size of the Local currency (LCY) Bond market exceeded one Trillion marks in East Asia. Going by the Debt securities outstanding in Q116 in the NFC Bond markets, the largest markets in developing East Asia in order of outstanding size of Domestic securities are China (USD 2341 Billion), Korea (USD 504 Billion) and Malaysia (USD 109 Dollars). [BIS Data Q1 2016]. In East and South East Asia, these three developing nations have the largest amount of Non-Financial Corporate Bonds outstanding in Q116. Among these three nations China’s Non-Financial Bond Market is almost twenty-one times higher than that of Malaysia and five times bigger than that of Korea. Similarly, Korea’s Non-Financial Bond market is almost five times higher than that of Malaysia. In other developing nations of Asia, the non-financial corporate Bond market has not crossed the critical mass limit of USD 100 bn.

The acid tests for ranking the pace of Growth of the Bond market in relative terms are considered to be i) The Depth of the market represented by the Bonds outstanding as a percentage of GDP ii) The width of the Bond market activities reflected by the ratio of local currency Bond issuances relative to GDP and iii) The Liquidity reflected by the extent of trading volume and the Turnover ratio in the secondary market relative to the amounts of Bond outstanding (Chinn and Ito, 2006, and Eichengreen et. al., 2006).

As regards the size of the NFC Bonds outstanding as a percentage of GDP, the rankings are Korea (76.01%), Malaysia (43.8%) and China (20.67%). [Asia Bond Online, 2016] Going by the corporate Bond issuance activities of these three nations in relative terms, South Korea ranks first as a percentage of GDP (5.73%) followed by China (3.51%) and Malaysia (2.67%). [IOSCO Research, 2014].

Keeping in view the third and the last test parameter of Trading activities or Turnover ratio in the secondary market, the ratio exceeds 0.8 in China, 0.1 in South Korea and 0.09 in Malaysia. Notwithstanding the highest ratios in China and South Korea, the liquidity ratios have been declining since 2011. (IOSCO Research, 2014).

In the above backdrop it is evident that though Korea is the forerunner in terms of both depth and activities, the liquidity in the NFC Bond market is low. Though China is the forerunner in terms of liquidity, in terms of depth and issuance activities in terms of GDP, the NFC Bond
market of China needs to reform. The declining Bond Turnover ratio since 2011 in the secondary Bond market in China also attracts earliest reform measures.

In terms of degree of Financialisation (i.e. Financial Development) scores, both Korea and China score more than three times of their GDP. However, internationalization of domestic currencies and opening of capital accounts are not happening. This is why further studies are warranted for identification of the growth determinants that led to Corporate Bond Market Growth in the mature Bond Markets globally so that these factors receive due focus in the emerging Asian Bond Markets to unlock their fullest potentials.

2. Literature Review

Jae-Ha Park (2008) in his literature on “The Experience of The Republic of Korea” observes that in many Asian Countries there are not many corporate issuers with High credit ratings. He therefore postulates that it is important for each Asian country to promote the growth of the Government Bond Market for development of the domestic and regional Bond market. The paper has although focused on the development of the Korea’s domestic Bond Market but has underplayed the need for developing the international Bond Market to boost up the liquidity which still continues to be low compared to the developed Bond markets globally.

Satoshi Simizu (2008) in his paper on corporate Bond Market of Korea, Malaysia and Thailand, views that there is much room for expansion of the Korean Bond Market. He also finds that the dependence on Bank in Korea and Malaysia has not changed. He emphasized the need for each country’s initiatives by the Government and the Asian Bond Market need to continue for expanding both the issue size and issuers’ base. The paper does not touch upon the need for developing international Bond Market for NFCs that improves institutional quality, Governance and liquidity.

Kee-Hong Bae (2012) in his case study findings observes that in Corporate Bond Market, low interest rates, large Banking sector and a well-developed Government Bond Market are conducive to development. He also observes that there is more room for improvement in the Bond Market of the Peoples’ Republic of China (PRC) particularly in promoting the liquidity in the secondary Bond Market. The paper in its limitation of study has invited further studies to identify the determinants for growth in liquidity in the secondary Bond Market.

Martin Wehlen-Bode (2014) in his paper on corporate Bond liquidity defines liquidity as the ability to get a price (Bid or Offer) in any instrument, in reasonable size, at any time.

Rohini Tendulkar and Gigi Hancock (2014) in their working paper on “Corporate Bond Markets –A Global Perspective” states that the secondary market is going through a transformation with new entries of traders and calls for standardization as well as more usage of electronic trading platform. The authors emphasize on the need for further research studies...
to focus on the potentials of this transformation in absence of any past benchmark of fullest secondary market efficiency.

Hannah Levinger (2014) in his article on “What’s behind recent trends in Asian Corporate Bond Markets” comments that while the Bond Markets of Hongkong, Singapore and Korea are comparatively advanced and liquid, the markets of China, Indonesia, India and Thailand are still at an early stage of development. The author emphasizes the need for evolving a framework that is conducive to market innovation that enables the corporate to raise fund from broader number of sources without vulnerability to exchange rate risks and other shocks.

Seiwoon Hwang (2016) in his Discussion Paper observes that though the Korean corporate Bond Market has made a fast development yet it has still many weak points as compared to United States (US) and the European Corporate Bond Markets. The Paper has well summarized the measures taken by the Government for development of the Korean Bond Market but has not dealt with the weak points as compared to US and European Corporate Bond Markets.

Although considerable efforts have gone towards development of the Asian Bond markets since the Asian crisis for financing the infrastructure, yet the expansion of the markets have been limited. Even though the Korean model throws light to the other Asian nations on corporate Bond Market development, yet there remain a number of weak points in the Korean market as well. Even though China has the biggest Bond Market in the region yet the market is far from attaining maturity.

According to ADB projections Asia’s infrastructure investment requirement exceeds USD 8 trillion during 10 years to 2020. The NFC corporate Bond Market if advanced can contribute long term fund to a large extent for the region’s growth. To build a robust NFC Bond Market foreign investors’ participation is essential for a big ticket issue and to increase the trade volume and liquidity in the market.

There has been large number of literatures on development of NFC Corporate Bond Market in the EM Asian countries. In continuation of these studies, the present paper focuses on the growth determinants of NFC FCY International Bond Market in the EM Asian countries and Foreign Bond Markets. The paper also examines the role of developed International Market of US and Singapore in attaining maturity of both LCY and FX Bond Markets.

3. Methodology
3.1 Research Questions
a) What have been the common factors for Growth in the NFC Bond Market both in Korea and PRC during the last 10 years?
b) What are the weak points in Korea and PRC in the development of their NFC Bond Market that continue to persist despite Growth?

c) What are the Global lessons that are relevant for both Korea and China to accelerate the growth of the NFC Bond market?

d) To what extent the Macro-Economic fundamentals impact the Growth of US Corporate Bond Market being the largest in size?

e) To what extent the Bond Markets of Korea and China are sensitive to these Macro-economic fundamentals as compared to US?

3.2 Modeling Volatility

This being a qualitative research no quantitative models have been envisaged. However statistical tools of Trend Analysis and Correlation Analysis have been used in deriving the correlation between some of the macro-Economic parameters (Independent variables) and the Foreign Bond outstanding stock, Bond market activities and trade volumes (Dependent Variables) in the NFC Corporate International Bond Markets of US, Korea and China.

3.3 Data

Secondary Data have been collected from various published Reports, Working Papers, Consultation Papers, Discussion Papers, Literatures, Journals, Websites and other recognized sources.

3.4 Results and Discussion

3.4.1 Common Factors for Growth of the Corporate Bond Markets of Korea and China

1) In both Korea and China, the growth rates of International Debt Securities have outpaced the growth rates of Domestic securities. (BIS Data, Sept’16)

2) FCY Bonds, including those issued by the residents both in Domestic and Overseas Markets and outstanding in 1Q2016 in terms of USD was 77bn (4.9% of GDP) and 299bn (2.6% of GDP) in Korea and China respectively.

3) There is appreciation in the LCY, both KRW & RMB, against USD (1 July 2015 = 100)

4) Since Mid-2014 FCY Bond Market expansion has moderated in both the EM Asian countries due to anticipated hike in US Fed rate and associated US strength.

5) NFC players in both Korea and China have natural hedging (e.g. against oil and gas trading income) in FCY Bonds and therefore have small currency mismatch risks.

6) The Corporate sector Debt to GDP ratio exceeded 100% in both Korea (140% of GDP) and China (180% OF GDP).

7) Korea and China have low Issuer concentration during 2010-14 at 28% and 15% respectively.

8) Issuances have been mostly on the domestic side during the 5-year period 2010-2014 in both South Korea and China being 85% and 86% respectively
9) Top three Issuers’ concentration in the corporate Bond Markets constitutes 67% in South Korea and 45% in China, which reflect a moderate issuers’ diversity.

10) China and South Korea account for 89% of the refinancing issuances in the region. Between 2007 and 2014, Korea registered a CAGR of 50% ($29bn in 2014) and China registered a CAGR of 85% reaching $176bn in 2014.

11) Large Bond Markets of China and South Korea among others dominate the LCY Bond issuances in the region.

12) The Turnover ratios in the secondary markets (in US, Europe and Domestic combined) of South Korea and China are 17% and 22% respectively in 2014.

3.4.2 Weaknesses in the Corporate Bond Markets of Korea and China

South Korea

The Korean Government initiated drastic reform measures on the onslaught of the Economic crisis that erupted in November, 1997. There was virtually no Government Bond Market and Corporate Bonds were mostly available in the Bond Market. In absence of Benchmark yield of Government Bond, 3-year Corporate Bond was earmarked as the Benchmark. The Korean Government recognized that the Foreign Exchange reserves crisis was due to long standing structural weaknesses and initiated measures to reorganize the Financial Markets and all other sectors of the economy with sweeping reforms to upgrade it to Global standards. The regulations were relaxed and financial supervision was strengthened. Polarization of the Korean Economy towards Exports failed to activate the Domestic Financial Markets. With greater financial Liberalization and Globalization, the financial stability is even more exposed to internal and external shocks as compared to pre-crisis period. The financial system therefore needs to be continuously evolved with the continuous review of the Monetary, Fiscal and regulatory reforms. With the emergence of new risks, instruments and challenges, the financial intermediation process needs to be continuously evolved and no one set of measures is sufficient to protect the financial markets from internal and external shocks.

The following weaknesses persist in the Corporate Bond Market of Korea which need to be addressed for taking the Korean Corporate Bond Market to the next level at par with the most mature and developed Bond Markets globally:

1) Average issue size of Corporate Bonds in 2014 was low in the range of USD 0.05-0.09 bn.
2) There is a lack of diverse credit quality instruments.
3) Restrictions on Foreign Exchange Hedging instruments need to be relaxed
4) There is lack of Infrastructure Bonds, particularly Project-specific Bonds.
5) South Korea has a comparatively low institutionalization of Domestic savings
6) FCY Bonds as percentage of total Corporate Bonds represent 17.61% only.
7) Growth of Asset-Backed securities has made Banks the largest lenders as compared to their well Developed Domestic Corporate Bond Markets.

8) Growth rate of Corporate Bond Market is in a slow lane at y-o-y 1.7% in Q2 2016 as against 2.5% y-o-y growth in Government Bond Market which is comparatively low when compared to the other Asian nations like Vietnam, Indonesia, Japan, and Thailand.

9) The Top 30 Corporate LCY Bond issuers including two domestic Banks was 63.5% of the total LCY Corporate Bonds outstanding in Q2 2016 reflecting a moderate diversity.

10) The share of Household and Non Profit Organizations was only 6.2% of the total LCY Corporate Bonds in March’2016 reflecting low retail participation.

11) No new major Policy measures have been taken since 2013 for the development of the Corporate Bond Market Development.

12) IOSCO survey reveals only 2.31% share of retail investors’ investment in Corporate Bond Markets in 2014 with remaining 97.69% by the Institutional investors. The growth of the corporate Bond Market is therefore limited by the limitations of the Institutional investors.

Recently the Korean Government has initiated policy measures for issuance of Bonds by the low credit rating Companies to enable them to mobilize finance from the Market. In an effort to promote participation of the low rated Companies in the Corporate Bond Market, the Korean Government has introduced High-yield Bonds, launched Qualified Institutional Buyers’ Market and has given a boost to Collaterized Debt obligations (CDO) backed up by the low rated Bonds. This is a step in the right direction towards attainment of higher diversity of Issuers, Investors and Issuances.

PRC

In China, the retail interest rates still continue to be regulated to some extent. Correct reflection of market determined interest rates is not therefore possible. Liberalization of Banks is an essential step required in PRC’S Financial Market in absence of which the interest rates on loans will fail to reflect the risks. In such an event the Benchmark yield also cannot be discovered. Banks still remain dominant buyers of Corporate Debt. There is a dire need to diversify the investors’ base. Project Bonds are virtually unknown in China. Nine out of the thirty issuers of local currency Bonds are infrastructure related state owned entities that raise finance through Bonds for general corporate purposes only instead of Bonds structured specifically for Projects. Supervision effectiveness, innovation of Bond related Derivatives, expanding market makers’ platform and strengthening credit rating quality as well as transparency are the bare minimum needs for all round development of the PRC’S Bond Market.

PRC’S Financial Market is still shallow and underdeveloped and lacks in Breadth, Depth and Liquidity. The market is still greatly reliant on Banking and the Bond market continues to be a mere extension of the Bank lending. It is the state owned Banks and State owned
Enterprises who dominates the financial sector. Restrictions on the entry of private and foreign capital to the financial sector are largely responsible for lack of depth and liquidity in the market. Interest rate regulation, heavily managed exchange rates, access to capital and entry barriers. Government interventions with close supervision and regulation of the financial sector pose constraints to free play of market forces.

The following are the list of weaknesses in the Corporate Bond Markets of China:

1) The Financial Markets of PRC are relatively shallow and underdeveloped from the perspectives of Renminbi internationalization. (Prasad and Ye, 2012). The Bond Market was only $4 trillion in 2012 compared to $35.2 trillion in US and $14.6 trillion in Japan. In terms of % of GDP in 2012, PRC Bond Market was only 48% as against 245% in Japan, 233% in UK and 224% in US.


3) The income level of PRC in 2012 was lower than Japan’s in 1984 ($ 1200) and Korea’s in 2001 ($18000).

4) Government exercises substantial control on the Financial Markets, though in late 2013, the third Plenum of the Central Committee of the Communist Party of India decided to transform the Financial Markets and to let it make its decisive role in allocation of resources.

5) The Corporate financing is dominated by the Bank lending with 54% share of Bank loans which was more than Equity and Bond financing combined.

6) The Financial sector in PRC is not open and liberalized.

7) The state-owned Banks dominate the Bank lending. Foreign investors’ share in the commercial Banks is limited to not more than 25%, therefore with no voice in management of the banks.

8) The Bond Market in PRC is dominated by Government Bonds (73%) with Corporate Bonds being remaining 27% in 2012 Even Corporate Bonds are owned largely by the State-owned Enterprises (SOEs) and Commercial Banks with majority Government shareholdings and therefore are merely extensions of Bank Loans.

9) A very poor issuer diversity is reflected from the fact that the top 30 issuers amount to 60% of the Market. Again only seven of the top 30 issuers are not Government owned and they are Banks. Out of Top 30 issuers, 14 were in the Banking Industry.

10) It is the Government in PRC who is lending to itself and its Projects which reveal from the facts that in 2012, Commercial Banks hold 38.3%, Fund institutions 28.5%, Insurance Companies 18.4% and others 13.9%. A low investors’ diversity is thus reflected from these figures.

12) The domestic Bonds in PRC are mostly traded (90%) in the OTC or Inter-Bank Market and the Exchange Market. In the OTC Market the transactions are registered and settled quickly with full transparency. Whereas in the Exchange Market the trading is concentrated among few small and medium institutional investors through concentrated match-making method.

13) Though the Turnover Ratio of Corporate Bond in PRC is high in 2012 (3.68%), yet this does not establish reasonable liquidity as the corporate Bonds are mostly extension of Bank lending and therefore trading activities are also largely influenced by these state-owned Banks’ annual performance targets.

14) Foreign ownership of Corporate Bonds in the Domestic Market that boost Growth and Liquidity remain negligible and also remain strictly regulated. In 2013 the FCY Bonds as % of Total Corporate Bonds reflect 5.61% only.

15) Regulated Interest rates, particularly Deposit rates, is a major obstacle in the development of the Financial Market.

16) Approval based systems for Bond issuances instead of Registration based system is a major obstacle for further development of the Bond Market distorting the supply and Demand and valuations of new issues

17) As a strategic sector the Financial Market are subjected to Government control and are not subjected to market forces.

18) Corporate Bond including Financial Institutions constituted only 19% of GDP as against Government Bond constituting 34% of GDP in June, 2016.

19) Restrictions on Investment Limits in Debt Securities by Pension Funds and Insurance Funds act as a barrier to Growth.

20) The y-o-y Growth of the Corporate Bond Market is low at 6.5% as against 30.6% Growth in Government Market in the Q2 2016.

21) There have been 40 Defaults in Corporate Bonds since April’2016 with more demand for Government Bonds as safer assets with fall in yields.

3.4.3 Measures for Accelerating Growth- Global Lessons from Singapore in Asia and US in West

In terms of size of outstanding corporate Debts, the most significant development has taken place in US among the Developed countries in the West and in Singapore among the Asian countries in the east. US also ranks 3rd in terms of overall Development indicators after Denmark and Japan (Source: FDSI). We will therefore draw the lessons from Singapore and US for takeaways by Korea and PRC and also by the other Bond markets in Asia.

The effectiveness of the eco-system of a Bond Market depends on 5 'Ts i.e. a) Investors b) Issuers c) Issuances d) Intermediaries e) Infrastructure
A comparative Analysis of the eco-system in terms of these 5 ‘I’s of two of the most developed Corporate Bond Markets, one in Asia (Singapore) and the other in the west (US) reflect strong eco-system of their Corporate Bond Markets as presented in Table-A below:

**Table 1: Analysis of Developed Corporate Bond Markets in Singapore and US**

<table>
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<tr>
<th>Areas</th>
<th>Singapore</th>
<th>United States</th>
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<tbody>
<tr>
<td>1. Investors</td>
<td>All groups of investors including Private Banks, FIs, Fund Managers, Insurance companies, Retail investors, corporate and others have presence in the corporate Bond market. More fixed income managers are setting up in Singapore enabling diversification of funding sources and resultant decrease in cost of funding. Hedge Funds and Private Equity Funds are also showing up.</td>
<td>Corporate Bond is established as an important Asset class to a variety of investors with more than $8 trillion outstanding. In US (SEC), 54% are retail investors and rest 46% Institutional investors. Holdings of corporate Bonds in ETF have grown explosively since Financial crisis. Investors trade in small size, move towards index investing and willing to act as price maker in addition to price taker. Execution and Inventory risks are getting shifted to the investors as evidenced in the literatures reflecting that 40% of Investment Grade Bonds and 70% of High Yield Bonds are traded following receipt of order. Factor based investing framework is gaining momentum.</td>
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<td>2. Issuers</td>
<td>High Issuers’ diversity from Non-Property companies, Financial Institutions, Government Agencies and statutory Boards and Special Purpose vehicles to Property companies and Supranational.</td>
<td>There are diverse sectors of issuers including Financials (39%), Energy and Power (13%), Healthcare (11%), High Technology (8%), Industrials (7%), Media &amp; Entertainment (4%), Consumer Staples (4%) and others (14%). In 2015, $1.5 trillion were issued, up by 35% from $1 trillion in 2006. US Companies rely more on Debt capital Market for financing.</td>
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<tr>
<td>3. Issuances</td>
<td>Singapore is now the multi-currency Fixed income hub with 87% of total debt issuances in 2014 being non-SGD Debt. Top 20 issuers issued two-thirds share in USD. Regional as well as international issuers meet their local and foreign currency needs and thus foreign currency issuances dominate the Singapore's fixed income market. Many issuers also issued in multicurrency resulting in decline in market share of SGD and corresponding increase in GBP. 80% of the first time issues are from the Non Financial corporate and there is an increasing trend to tap the Singapore capital Market for their funding needs. Non Financial corporate issued 13% more Bonds in 2014 over 2013.</td>
<td>The Corporate Bond Market is highly diverse with tens of thousands of distinct securities. Businesses tap $1 trillion of Bonds each year for financing. Investment grade has set record highs for straight four years and first quarter of 2016 is similarly strong. High yield issuances remain within historical range. New issuance is strong. US corporate Bond ETFs are driving growth both in terms of flows as well as increasing trading volume. ETFs and Credit Default Swap indices are popular which enables investors to express their views in standardized and more liquid products.</td>
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4. Intermediaries

<table>
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<th>Through a shift from Principal pronounced to Agency Model, the Dealers act as Brokers to facilitate trade between two parties.</th>
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<tr>
<td>Since the Financial crisis, trading volume of both Investment Grade and High yield Corporate Bonds has trended upward and doubled. Due to shift from Principal to Agency based Intermediation, study reveals that the share of Agency intermediated sales has doubled from 7% to 14%. Dealers are interacting with larger number of counterparties having a larger network. Identification of counterparties is possible at a reduced cost through better technology. Secondary market trading volume continues to rise and Bid-Ask spreads continue to fall. US ranks top in terms of tight Bid-Ask spread as per FSDI survey. Diversity in Market participants balances the intermediation. Negative liquidity and higher cost due to less intermediation is counterbalanced by larger number of market participants.</td>
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5. Infrastructure

Centralized liquidity through Electronic Trading Platform reduces reliance on dealers’ inventory and increase turnover. Securities Repo Facility (SRF) established in May, 2015 by the Monitory Authority of Singapore (MAS) provide an avenue for borrowing SGD corporate Bonds by the eligible counterparties for Market making. Electronic Trading has increased significantly in the Corporate Bond Market and about 20% of Investment grade Bonds are traded through electronic interfaces instead of phones. Electronic Platform Trading is based on Request for Quote instead of Algorithmic electronic trading thus allowing quotes from multiple counterparties and thus facilitating price competition. All-to-All trading models are being developed which will allow any market actor, including customers, Dealers and Principal trading firms to participate. The new platform also allows buyers and sellers to transact directly without a broker acting as an intermediary. Multiple Trading Facilities (MTF) and Alternative Trading Systems (ATS) have been formed as venues for corporate Bond Trading. Other platforms are also being promoted with new methods of facilitating negotiation and protection of customers’ information. With establishment of Trade Reporting And Compliance Engine (TRACE) since 2002 in phases, the post-trade transparency was enhanced.

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<th>3.5 Impact of Macro-Economic Variables in US International Bond Market</th>
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<td>It may not be enough to have a strong interplay of 5 ‘I-s’ as presented in Table- 1 above for attaining growth and maturity in a Corporate Bond Market. Figure.(1) below reflects growth in Foreign Corporate Bond outstanding with decline in the 10 Year Treasury Bond Real interest rate over a period from 1980-99 to 2015-16 in the US International Bond Markets. This signifies that with lowering of long term Treasury Bond Rate, the foreign issuers tap the US International Bond markets for mobilization of long term funds. Table-2 (Sl.No.1b) also supports this observation with a negative correlation of -0.86 suggesting that the outstanding stock of foreign Corporate Bonds in US Dollars grow in an inverse proportion of -0.86 with corresponding reduction in the 10 Year US Treasury Bond Real interest Rate. The exception in the year 2015-16 may be a fall out of recessionary trend, strong anticipation of increase in US FED rate and change in US Economic Policies post Presidential election.</td>
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In Figure (2) a trend analysis has been made between the changes in 10-year Treasury Bond Real Interest Rate and Foreign Corporate Bond Issuances in the US International Bond Market over the same period as in Figure 1. This reveal that except the disturbing period of Financial crisis around the year 2008, the Foreign Bond issuances tend to grow with corresponding decline in the 10-year Treasury Bond Real interest Rates. Here again the negative correlation is authenticated from Table-1 (Sl. No. 1a) which reflects a negative coefficient of -0.44.

From Figure (3) below, it is interesting to note the slopes and directions of both the curves showing the changes in 10 year US Treasury Bond Real interest Rates and the Household investment in Corporate Bonds in US Bond Markets. The downward direction of the long term Treasury rate is reciprocated by an upward moving curve of the Household
investments in Corporate Bonds and they tend to coincide in the year 2014 approaching each other from opposite directions. Table-2 (Sl. No. 1c) supports this observation when the correlation of both the variables works out to -0.71.

**Figure 3**

![Graph showing Change in Household Investment in Corporate Bonds vis-à-vis 10 Yr US Treasury Bond Rate](source: SIFMA Fact Book 2016)

The positive correlation between GDP Growth and Average Trading volume in the US Corporate Bond Market is distinct in the graph in the Figure (4). And this is also supported by the positive correlation coefficient of 0.90. This is the highest correlation which is observed between GDP Growth and the trading volume. This suggests that GDP need to attain certain size and Growth pace for ensuring diversity of investors, issuers and issuances. Intermediaries and Infrastructure are only means to this end. In some of the emerging Bond Markets in Asia, notwithstanding their significant development of Intermediaries and Infrastructure the weak macro-economic fundamentals are limiting the Growth of the Corporate Bond Markets. This area solicits further studies in respect of each of the emerging Corporate Bond Markets in Asia taking into consideration their individual specialties.

**Figure 4**

![Graph showing Change in Trading Volume vis-a-vis GDP](source: SIFMA Fact Book 2016)
The impact of the movements of the major currencies Index of Foreign currency units per US Dollar on Foreign Corporate Bond issuances has been plotted in the graph placed in Fig.(5) below. The study of the relationship between the two variables reveals that a stronger US Dollar has some impact on foreign corporate Bond issuances in US International Markets. This may be due to the fact that when other currencies are weaker relative to US Dollar the foreign issuers in US International Bond Markets tend to issue more foreign Bonds in US Dollars. Table-2 validates the positive correlation of 0.13 between the two variables. The US Bond market registered a phenomenon growth in the year 2014. The abnormal decline in issuances in 2015 is a reflection of recessionary trend in US and uncertainties in US economy due to Presidential election.

![Figure 5](source:SIFMA Fact Book 2016)

### Table : 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 10-Yr. US Treasury Bond Real Interest Rate</td>
<td></td>
</tr>
<tr>
<td>a) US Corporate Bond Issuances in US International Market</td>
<td>-0.44</td>
</tr>
<tr>
<td>b) Corporate Bond Outstanding in US International Markets</td>
<td>-0.86</td>
</tr>
<tr>
<td>c) Corporate &amp; Foreign Bonds Held by Households/ NPOs</td>
<td>-0.71</td>
</tr>
<tr>
<td>2. Index of Foreign Currency units/ USD &amp; Foreign Corporate Bonds issued in US International Markets</td>
<td>+0.13</td>
</tr>
<tr>
<td>3. GDP &amp; Average Trading Volume in US Corporate Bond Market</td>
<td>+0.90</td>
</tr>
</tbody>
</table>

3.6 Impact of Macro-Economic Variables in NFC Foreign Currency Bond Markets of China and Korea:

The financing need for infrastructure development in the EM is estimated at $2trillion, which require international fund to complement the domestic finance gap. For this reason, although some recent studies have attributed the surge in the NFC EM Bond market to the
Global push and Domestic pull factors, some other studies on EM have concluded that global factors are more important than domestic factors.

**China**

Fig.(6) reflects a correlation between Non-Finance Corporation (NFC) foreign currency Bonds (FCY) issued in the international Bond market of China and the nominal Effective Exchange Rates Indices. The correlation coefficient works out to 0.45 as compared to 0.13 of US international market. The year 2015 is a reflection of recessionary trends in US which affected the economy of the PRC thereby adversely affecting the issuances. The correlation coefficient of 0.45 is a reflection of reform measures initiated by the Government to open up its financial markets and internationalization of CYN to a limited extent. In fact, in the Asean+3 regions, China has become the largest issuer of NFC FCY Corporate Bonds with its share increased to 56% of the outstanding FCY Bonds in the region as of March, 2016 from 14% six years back This is reported to be due to appreciation of Renminbi and higher borrowing costs in China prior to the year2014 (AMRO, 2016). The FCY Bonds have been largely invested in real estate and energy sector. Overseas Mergers and Acquisitions by Chinese Companies also resulted in more FCY Bond issuances for financing the activities.

**Figure 6**

![Change in NFC Corporate Bonds Issued in International Market (China)](source)

Fig.(7) reflects a lower correlation coefficient of -0.76 as compared to -0.86 of US (Fig. 1) between FCY Bonds outstanding in International Market in China and 10-year Government yield.
Fig.(viii) below shows a lack of stability in the secondary market with a correlation coefficient of 0.35 only as compared to that of 0.90 in US. Trading volume in China has an aberration to the extent that the trading is largely influenced by the Banks to meet their targets of Annual ranking. Liberalization of Banks, a measure already initiated by the Government of China is a step in the right direction to improve the Correlation between these two variables. Low trading volumes during 2013 and 2014 may be a reflection of fall in the share of issuances of Treasury Bonds and Policy Bank Bonds and consequent fall in trading volume in the inter-Bank Bond Market.

Korea

Fig.(9) below reflects market determined interest rates in Korea which has registered a downward trend. The correlation with the international Bond Market is negative at -0.72 as against -0.86 in US international market. This could be further improved by appreciation and stability of Korean Won and internationalization of the same.
Fig.(x) shows a positive correlation of 0.14 between Trading volume and GDP as compared to 0.35 of China and 0.90 of US. Liberalization of banking sector, Post-Trading transparency, broad basing the use of electronic trading platform with multi trading facilities as well as direct contact between buyer and seller without Broker could improve the liquidity of the secondary market relative to Growth in GDP.

Fig.(xi) indicates an upward trend in NFC FCY Bond issuances in the international market of South Korea till 2014 similar to China but the issuances sharply drop in 2015 due to recessionary effects globally and uncertainties of US economy. This has distorted the correlation coefficient to negative 0.29 when compared to positive coefficient of 0.45 of China and 0.13 of US. This means due to almost absence of internationalization of Korean Won, the impact of recession hit the Korean International Bond market more than China and US.
4. Conclusions and Recommendations

The paper reveals the following logical conclusions from the above study of the developed Bond Markets of Singapore in Asia and US in the west:

1) Diversity of Investors, Issuers and Issuances make strong foundation of a Developed corporate Bond Market,

2) There is a transformation from Principle based to Agency based Dealers/Brokers in both the markets,

3) Foreign currency issuances dominate both the markets. International Issuers find Singapore as the hub for mobilizing both domestic as well as foreign currency requirements. US International Markets are the nerve center for raising US Dollars.

4) Multiple Trading facilities and All to All Trading models have expanded the breadth as well as width of the Bond markets in US. Centralized liquidity through Electronic Trading platform in both the Bond Markets have reduced Dealers’ inventories and increased turnover.

5) Vibrant Corporate Bond Market with diversity has been possible both in Singapore and US due to internationalization of their currencies as well as Bond Markets.

6) Post-Trading Transparency through Trace in US and multiple Credit Rating Agencies bring confidence among the investors, particularly the Household investors. Transparency with multi-trading facilities through Electronic Trading Platform has minimized the Bid-Ask spread as well as Transaction costs.

As compared to the Singapore and US markets, the Asian countries including PRC and South Korea suffer from common constraints of lack of adequate diversity of Investors, Issuances and Issuers. The top three issuers comprise 45% in China and 67% in South Korea of the total issuances in the Corporate Bond Market where again the Financial sector has dominance. The trading volumes in the secondary market of PRC are believed to be inflated.
by the Banks to meet their annual rating targets and therefore not representing true and fair picture of liquidity.

Though in Korea and PRC the BIS indices of the Nominal Effective Exchange Rates (EER) have registered appreciation in terms of currencies of 61 economies to 111.6 and 114.7 respectively in 2014 (Base 100 in 2010), yet absence of internationalization of won and renminbi fail to reap the benefits of their stable currency. In both these countries the Financial Markets are not yet opened up and liberalized to the required extent. Bank credit continues to dominate in the Asian countries.

The GDP Per Capita of PRC at $9233 in 2012 was at par with US in 1977 and Republic of Korea in 1992. BIS data reveals that in 2014 in China and Korea the Bank credit (core debt) as a percentage of GDP to the private non-financial sector is 142.1% and 126.7% respectively as against 49.5% only in US. The depth of International Bond Market of China is poor being only 0.72% of GDP as compared to 16.65% in South Korea. The issuances in International Market in China and Korea are only 14% and 15% with exclusively domestic market issuances being 86% and 85% respectively during the period over 2010-14. As against this, in the large American Bond markets the majority of the issuances are in the international markets. In September, 2015 the National Development and Reform Commission in PRC has allowed the NFCs with sound financial conditions to issue FCY Bonds to take advantage of low cost funds for strengthening the domestic economy.

5. Recommendations

1. Domestic Banking sector needs to be liberalized
2. Domestic Currencies need to be internationalized
3. Financial Markets need to be opened up lifting the barriers to the entry of foreign investors in the Domestic and International Markets. Capital account need to be liberalized at least to some extent to attract foreign investors.
4. Ceilings of investments by Insurance Funds, Pension Funds, Provident Funds and Mutual Funds in Corporate Bonds need to be relaxed
5. Stability of Macro-Economic variables needs to be ensured.
6. Key interest rates need to be deregulated and to be market determined.
7. Trading through Electronic Trading Platforms with post trading Transparency need to be promoted.
8. Improvement in credit quality and broad basing number of credit rating Agencies are needed to promote investors’ confidence.
9. Channelization of Household savings to Corporate Bonds for infrastructural Investments through Mutual Funds and ETFs as well as directly by retail investors.
need to be incentivized with Tax reforms.


11. Similar to US, appropriate Banking regulations need to be framed to keep securities industries separate from commercial Banking. In such event, there will be compelling situation for the corporate to source finance from capital market as an alternative to depository institutions like Banks. US Banking Regulations restricted concentration of Banks and even in geographical expansions.

6. Executive Summary

In a nutshell, both Korea and China need to liberalize the Banking sector from Government intervention and let the Banks decide their own interest rates based on cost of fund. Transformation in the role of the Bankers from issuing Bonds as an extension of Bank lending to the role of underwriters and Market makers, will largely develop both breadth and width of the Corporate Bond Markets. Along with the efforts to increase the Export income in foreign currencies, these Asian countries should expand their international Bond Markets with natural hedge against foreign exchange fluctuation risks. However, development of Capital Markets is never possible unless they are supported by strong Macro-Economic fundamentals. Flexibility in Exchange Rates and Interest Rates as well as liberalization of Capital account act as stabilizers to the external shocks. It is apparent from the study that the “Triple Pulse” of an open economy is felt primarily in the trends of (i) 10 Year Treasury Bond interest rate, (ii) Effective Foreign Exchange rates in terms of major currencies and (iii) Gross Domestic Product (GDP). The “Triple Pulse” largely gauges the health of the Capital Markets and the Corporate Bond market, in particular. Once the “Triple Pulse” of an open economy signals sustainable improvements, the diversity of investors, issuers and issuances can be brought about by the intermediaries and the infrastructure together, which form the fulcrum of the NFC Corporate Bond Markets. While China and Korea are both going ahead with an integrated action plan for sustainable improvements in the Macro-economic variables with focused monetary policies and regulatory measures related to the critical five “T”s of the Bond Markets, the rest of the emerging Asian countries should draw lessons to implement similar integrated action plan for the transformation of the NFC Corporate Bond Markets of their respective nations for a sustainable Growth in future. By ensuring favorable Macro-economic environment, NFCs can mitigate risks of imprudent maturity and currency mismatch. While Long low interest rate will allow the NFCs to go for high leverage and stable, strong domestic currency exchange rates will enable the NFCs to go for higher FCY Bond issuances. This will transform the Asian Bond Market to attain maturity and become the nerve center of the Global Bond Market thus pulling the global savings for infrastructural development of the
Taking clues from the US Bond Market with respect to the impact of GDP, interest rates and exchange rate indices, the pattern holds true for Korea and China equally as revealed from this study. This brings to surface an undisputed fact that in a Globalised open economy, there is no way to adopt a protectionist approach in economic policies and Financial Markets by limiting the boundary of Financial Markets within the country’s domestic zone. This may shield the economy in the short run from the external shocks of Currency and maturity mismatch as well as risks of credit spreads and interest rates, but this will also act as a barrier to growth and maturity of the markets to the optimum level. This in turn will deprive the EM Asian nations from availability of the required fund for infrastructure investment for development of the region. Rather prudent policies are necessary for management of macro-Economic factors with liberalization of economy and capital account. Continuous monitoring and review of the both internal and external forces on the economy and capital market with continuously evolving monetary, fiscal and economic policies, will set the accelerated pace of Growth for taking the NFC Corporate Bond Market of Emerging Asia to the next level. Inclusion of FCY Bonds in the initiatives of ABF, ABMI and CGIF, therefore, is the need of the hour. Post- Presidential Election in America, some indications of De-globalization with protectionist approach to American economy is visible. This is the most opportune time for Emerging Market Economies of Asia to arise to the situation and consolidate the NFC FCY Bond Markets in the region with inter-Asian-ization of each other’s domestic currency with cross-Border liberalization of Trade and opening of Capital Accounts in the region.

7. Suggestions for Further Research

In a Global Economy no Emerging Asian country’s Bond Market can afford to keep away from issuance of Bonds in FCY to mobilize global savings as required to fill the finance gap for infrastructure investment. Further studies are required to evolve new types of Derivatives based debt instruments for hedging currency risks, interest rate risk, credit spread risk, maturity mismatch risk and credit rating risk.

References

Ayala, Diana (2016), what slice of the Pie? The Corporate Bond Market Boom in Emerging Economies, BOFIT Discussion Papers No. 8, PP. 5-39

Bae, Kee-Hong (2012), Determinants of Local Currency Bonds and Foreign Holdings: Implications for Bond Market Development in the People’s Republic of China, ADB Working Paper Series on Regional Economic Integration (No. 97), PP. viii &1-56


Hwang, Seiwoon (2016), Corporate Bond Market in Asia and Pacific and its role in financing for development, ESCAP (DP/06), PP 11-17

Hordahl Peter et.al. (2016), Low Long Term Interest Rates as a Global Phenomenon, BIS Working Papers No. 574, ISSN 1020-0959, PP. i and 1-19


Liebschutz, Jake and Smith Bryan (2016), Examining Corporate Bond Liquidity and Market Structure, US Treasury Notes, Department of the Treasury, PP. 1-7

Mizrach, Bruce (2016), Analysis of Corporate Bond Liquidity, FINRA Office of the Chief Economist, Research Note, PP. 1-20

Monetary Authority of Singapore (2015), Singapore Corporate Debt Market Development 2015, P.3

OISU-IOSCO (2016), Examination of Liquidity of the Secondary Corporate Bond Markets, Consultation Report, CR 01/2016, PP. 1 & 46

Park, Jae-Ha (2008), Bond Market Development: The Experience of The Republic of Korea, P-32


Wehlen-Bode, Martine (2014), Corporate Bond Market Liquidity, Investor View, UBS Global Asset Management, P.1