Emerging Markets (MSCI) – Threat of a Debt Crisis

Assessment of vulnerability of Emerging Markets

January 2016

Research Highlights:
Assessment of the vulnerability of emerging markets to an economic crisis.

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Table 1: Classification of the Emerging Markets

S NO	Countries	Final Score	Classification
1	Taiwan	2.6	Least Vulnerable
2	United Arab Emirates	4	Least Vulnerable
3	China	4.3	Vulnerable
4	Russia	4.6	Vulnerable
5	Korea	4.9	Vulnerable
6	Philippines	5.1	Vulnerable
7	Thailand	5.2	Vulnerable
8	Peru	5.8	Vulnerable
9	Czech Republic	6	Vulnerable
10	Mexico	6.3	Vulnerable
11	India	6.5	Vulnerable
12	Chile	6.6	Vulnerable
13	Qatar	6.7	Vulnerable
14	Columbia	6.9	Most Vulnerable
15	Indonesia	6.9	Most Vulnerable
16	Malaysia	6.9	Most Vulnerable
17	Poland	7.1	Most Vulnerable
18	Egypt	7.2	Most Vulnerable
19	Brazil	7.3	Most Vulnerable
20	Hungary	7.7	Most Vulnerable
21	Turkey	7.7	Most Vulnerable
22	South Africa	7.8	Most Vulnerable
23	Greece	8.9	Most Vulnerable

Source: Marmore Analysis

Emerging markets, which were much celebrated for its growth and resilience during the US and Eurozone crisis in 2008 and 2011, are facing the threat of a crisis that can have more impact than the previous economic downturns. Economists and international agencies have noted that the risk of a crisis has shifted from the advanced regions of the world to the emerging markets. Many analysts have predicted the onset of a crisis in the emerging markets after the decline in global commodity prices in 2015. The impact of the negative sentiments globally on investing in the emerging markets, slowdown in GDP growth rates, expected increase in interest rates by the US Federal Reserve (Fed) and the capital outflow thereafter may have varied impact on the countries. The volatile nature of capital markets, depreciating currencies in most of the countries adds to their vulnerability. With most of these countries having trade deficits and high levels of external debt, the chances of default, especially corporate default, has increased. This drives us to an interesting idea to analyse the MSCI emerging markets based on relevant economic indicators and classify them according to their vulnerability to a a crisis.

Crisis trilogy is the term given for the expected third wave of crisis.

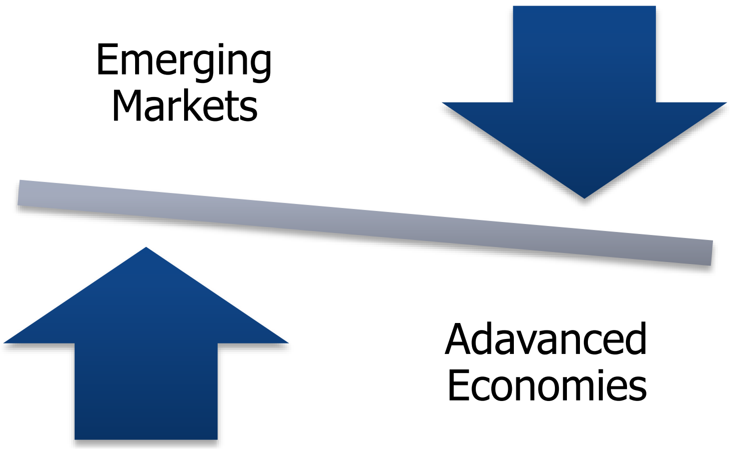
The most vulnerable countries like Greece, Hungary and Turkey are more likely to face a crisis as they have weak macroeconomic fundamentals. China, India, Russia, Qatar and other countries classified as vulnerable may not face a recession as they have sustained GDP growth rates and government initiatives that are supporting reforms to meet the challenges of economic downturn. These economies might have a period of slower growth in the coming years though a recessionary situation would be unlikely. The least vulnerable economies, UAE and Taiwan may remain unaffected compared to the other emerging economies as they have favourable trade balances, credit ratings and low external debt that will assist the economy to avert the crisis.

Crisis Trilogy

Federal Reserve has made clear cues about the low interest rate regime coming to an end.

Crisis Trilogy or the 'Third wave of crisis' as predicted by IMF and other international agencies is the threat of an upcoming economic crisis in the emerging markets[1]. The U.S.A witnessed a meltdown in 2008 after the asset bubble in 2005, which is considered as the first wave of economic crsis followed by the Euro zone crisis in 2010, considered the second. Low commodity prices, prevelance of higher debt levels, depreciating currencies and lower credit quality has been evident in 2015 across major emerging markets which is expected to result in a reversal of capital flows to these markets. International agencies, economists and corporates fear the onset of another wave of financial crisis to emerge from these countries as there is a clear indication of stabilization in the developed markets, including the U.S, and shifting of the risk from adavanced to emerging economies[2]. With lower interest rate prevailing in the U.S for the past 6 to 7 years, emerging markets enjoyed higher capital inflows on account of their resiliance to the 2008 crisis and higher returns generated thereafter, mainly in the equity markets. Federal Reserve has made clear cues about the low interest rate regime coming to an end which means the emerging markets are more succeptible to capital outflows back to the advanced markets and weaker currency making the problem double fold as most of these countries have high levels of debt.

Figure 1: Shifting Economic Risk



Source: IMF, Marmore

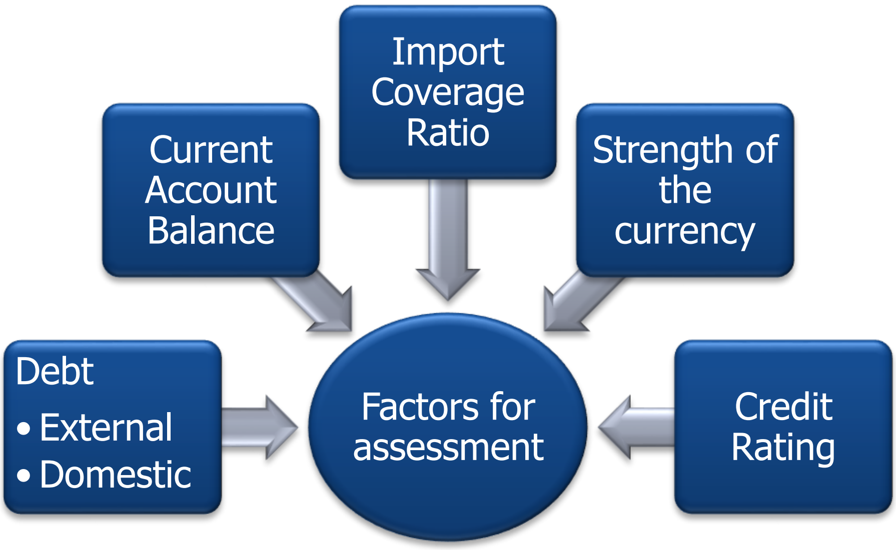
Although the emerging markets are considered more risky than the advanced economies currently, not all countries are prone to equal threat and impact. There are vast differences among emerging markets in their debt structures, currency

[1] As per MSCI Emerging Markets Classification
[2] IMF

China can sustain a slowdown with the huge reserves it has accumulated.

strength, trade balances and foreign exchange reserves which makes few markets vulnerable to the current situation than others. China can sustain a slowdown with the huge reserves it has accumulated and higher current account balance compared to other emerging markets. Similarly India, UAE and Peru can sustain shocks to some extent as their debt levels are comparitively lower to countries such as Turkey and Hungary which have higher levels of debt, high negative trade balances and lower credit ratings. This drives us to assess the vulnerability of the emerging markets based on the economic and financial indicators to understand the strength/vulnerability of these markets.

Figure 2: Assessment of the Emerging Economies



Source: Marmore Analysis

Most of the external debt in the emerging markets is denominated in US Dollar.

Debt to GDP Ratio:

Debt to GDP ratio is an indicator of the country's ability to repay its debt to international agencies such IMF and World Bank, other countries as well as the debt from domestic banks. Higher debt to GDP ratio indicates difficulty of the country to oblige its interest payments increasing the risk of default. The debt to GDP ratio can be better analysed by studying the proportion of external and domestic debt as higher levels of external debt increase the risk of default. Most of the external debt in the emerging markets is denominated in US Dollar, adding to the stress in circumstances of depreciating currency.

Higher levels of external debt create sense of insecurity among both domestic and foreign lenders.

External Debt to GDP

The metric includes debt obtained from international agencies, central banks of other countries, debt obtained from international banks and other international entities indicated as percentage of the GDP. Higher levels of external debt create sense of insecurity among both domestic and foreign lenders and at times lead to higher interest rates being charged for these countries and corporates from these countries. The risk of corporate defaults increases during years of sluggish earnings leading to corporate indebtedness and bankruptcy. Currency depreciation is also an important angle to be viewed along with this metric since when an emerging market currency depreciates, it makes it more expensive to service external debt. External debt to GDP ratio is an important indicator for analysing the strength of an economy as it has widespread impact on the interest rates charged, availability of loans from international agencies, investor confidence on the country and its credit rating.

Table 2: 5 Emerging Markets with High External Debt

S no	Countries	External Debt as % GDP (2014)
1	Greece	183.00
2	Hungary	104.50
3	Qatar	80.26
4	Poland	64.39
5	Malaysia	62.97

Table 3: 5 Emerging Markets with Low External Debt

S no	Countries	External Debt as % GDP (2014)
1	China	8.60
2	Egypt	17.27
3	India	22.89
4	Philippines	27.28
5	Columbia	29.11

Source: IIF, IMF, Mckinsey

China's total debt accounts for 217% of its GDP, 208.4% of it is domestic debt.

Greece and Hungary, the two European nations have very high levels of external debt to GDP as they have been under crisis after 2010. Greece had been understating its debt prior to 2009 and had accumulated higher levels of debt until then. Being the epicentre of the Eurozone crisis, the country could not honour its debt repayments and resorted to bail out thrice during 2010-2014. Qatar's external debt increased after 2009 most of which was directed towards the funding of gas projects undertaken. The debt levels further increased to 80% of the GDP after Qatar won the bid to host the FIFA World cup 2022.

Though China's total debt accounts for 217% of its GDP, 208.4% of it is domestic debt. Easy availability of credit, China's favorable policy to promote growth and industries have made China's private sector rely less on external debt. Few industries in China prohibited from obtaining domestic debt are the major international borrowers. Egypt has made concerted efforts to reduce its international debt over the years. Egypt's external borrowings reduced with the repaying facility offered by the Central bank which on the other hand led to the increase in domestic debt.

Analytics suggests that 10% increase in domestic debt can lead to 1% decline in GDP growth of the country.

Domestic Debt to GDP

Domestic debt comprises of debt obtained from domestic banks, household debt and debt obtained by corporates from both banking and non-banking entities. Rising domestic debt, though may not be as harmful as external debt, is found to impact the economic growth adversely. Empirical research done by Centre for Data Analytics suggests that 10% increase in domestic debt can lead to 1% decline in GDP growth of the country.

Table 4: 5 Emerging Markets with High Domestic Debt

S No	Countries	Domestic Debt as % GDP (2014)
1	China	208.40
2	South Korea	200.82
3	Malaysia	159.03
4	Thailand	152.24
5	Hungary	120.50

Table 5: 5 Emerging Markets with Low Domestic Debt

S No	Countries	Domestic Debt as % GDP (2014)
1	Taiwan	8.48
2	United Arab Emirates	10.36
3	Qatar	17.01
4	Greece	23.59
5	Peru	30.24

Source: IIF, IMF, Mckinsey

Taiwan and UAE have one of the lowest debt levels among the emerging markets.

China's large economy and banking system that spurs the economic activity in the country is one of the major reasons for its high domestic debt. South Korea's low interest rate and liberal mortgage laws encouraged its citizens to invest heavily in real estate causing the domestic debt to increase. Higher household debt in the country was the reason for domestic debt accounting to 200.8% of the GDP. A similar trend prevails in Malaysia whose domestic debt accounts for 159% of the GDP, mainly due to housing loans and car loans due to the country's low interest rate and misguided transport policy.

Taiwan and UAE have one of the lowest debt levels among the emerging markets due its comfortable import coverage, trade balance and surpluses available to the governments. Qatar's domestic debt is lower at 17.01% of the GDP compared to the high proportion of external debt (80.26%). Greece, the highly indebted emerging market has financed its needs from external sources leading to lower domestic debt.

Higher trade deficits for prolonged period were one of the major reasons for the Asian Crisis.

Current Account Balance as percentage of GDP

Current account balance as percentage of GDP indicates the trade deficit or surplus in the economy as a percentage of GDP. The metric assesses the strength of the economy as large deficits will hamper the economy and increase its susceptibility to an economic crisis. Countries with trade deficits will have to finance its payments through obtaining credits, which will also lead to higher levels of debt. Higher trade deficits for prolonged period were one of the major reasons for the Asian Crisis in 1997. Though a large current account deficit may indicate strong growth at times, currently deficits in the emerging markets increase their vulnerability as their GDP growth rates are declining.

Table 6: 5 Emerging Markets with Current Account Surplus

S no	Countries	Current A/c Balance (% of GDP) (2015)
1	Taiwan	11.81
2	South Korea	6.68
3	Thailand	5.44
4	Russia	5.42
5	Philippines	4.50

Table 7: 5 Emerging Markets with Current Account Deficits

S no	Countries	Current A/c Balance (% of GDP) (2015)
1	Columbia	-5.25
2	Turkey	-4.73
3	South Africa	-4.52
4	Qatar	-4.47
5	Egypt	-4.46

Source: IMF Report, October 2015

Emerging markets are involved in large scale trade, both imports and exports, among themselves and with the developed economies in the world. The average current account balance as percentage of GDP in emerging markets was 0.42%, with 12 countries running current account deficits which includes major economies like Columbia, Turkey and South Africa. Low oil prices from H2 2014 affected the export revenues of Colombia apart from the depreciating currency that increased the cost of imports. The double-sided effect led to the increase in trade deficit as percentage of GDP in Columbia[3]. With sustained low oil prices, IMF expects the trend to continue in 2016 as well. Turkey's exports slowed down due to the geopolitical tensions in Russia and Syria increasing its trade deficit. South African exports fell because of lower demand for coal, vehicles and machinery globally[4].

[3] Business Insider
[4] STANLIB Financial Services

Turkey's exports slowed down due to the geopolitical tensions in Russia and Syria increasing its trade deficit.

Taiwan, Korea and Thailand had current account surpluses mainly due to higher exports of electronics, handicrafts and gems & jewellery. Higher export value for Taiwan's electronic items and reduced imports owing to lower oil prices are the major reasons for its trade surplus. South Korea's energy imports have reduced by almost 50% in 2014-2015 resulting in the surplus in trade, though it enjoys lesser benefit compared to Taiwan mainly due to its weaker currency[5].

Import Coverage Ratio:

The ratio indicates the number of months the economy can sustain their current levels of import with the given reserves available.

Greece has been depleting its reserves in the past 5 years as it has been reeling under crisis.

The ratio indicates the adequacy of foreign reserves to cover the imports. Emerging markets need to maintain higher import coverage ratio in order to sustain their energy, machinery and automotive industries as they rely heavily on imports. IMF indicates that import coverage ratio is key to a country's defences against economic busts. Lower import coverage ratios can lead to increasing chances of an economic slowdown turning into a crisis due to the pressure on balance of payments.

Table 8: 5 Emerging Markets with High Import Coverage Ratio

S no	Countries	Import Coverage Ratio (no of months) (2014)
1	China	19.76
2	Taiwan	18.00
3	Peru	12.93
4	Brazil	11.37
5	Philippines	10.44

Table 9: 5 Emerging Markets with Low Import Coverage Ratio

S no	Countries	Import Coverage Ratio (no of months) (2014)
1	Greece	0.95
2	Egypt	2.22
3	UAE	3.00
4	Thailand	3.66
5	Czech Republic	3.69

Source: World Bank

China has foreign exchange reserves of USD 3.5 trillion, most of which is in USD. China's aggressive policy on its accumulation of foreign exchange reserves supported by its manufacturing exports helped it achieve the feat. Brazil's foreign exchange reserves increased largely in the commodities boom during 2011 to 2013 with its increasing value of exports. The central bank of Brazil has accumulated reserves, which can provide Brazil the comfort required during a slowdown similar to the one it is currently experiencing[6]. Philippines has better import coverage ratio compared to other emerging markets owing to its trade surplus in the recent past and income from its international investments[7].

Greece has been depleting its reserves in the past 5 years as it has been reeling under crisis with high levels of debt leading to an import coverage ratio of less than a month. Egypt's traders have been selling dollars and pounds in 2015 due to depreciating Egyptian pound in order to book their profits. Prolonged political tensions in Egypt led to decline in tourism and trade resulting in depletion of foreign exchange reserves to cover the imports. Greece and Egypt have an import coverage ratio less than 3 that

[5] Financial Times
[6] CNBC
[7] PhilStar

Egypt's traders have been selling dollars and pounds in 2015 due to depreciating Egyptian pound in order to book their profits.

is lower than the benchmark of 3 months as indicated by IMF[8]. UAE, the third largest exporter of oil has an import coverage ratio of 3 due to the lower reserves it maintains. UAE's reserves amount to approximately USD 33 bn all of which is in US Dollars. Its central bank has indicated that the pegging of the currency with USD is the major reason for the lower reserves it maintains. The impact of low import coverage on UAE would be minimal as the country enjoys trade surplus even in the low oil price environment[9].

Strength of the currency:

The vulnerability of the currencies increases the threat of corporate defaults.

Strength of the currency vis- a –vis US Dollar is an important factor that will affect the economy. Depreciating currency will make imports costlier adding to the existing pressure on an already neagtive current account balance in many emerging markets. The vulnerability of the currencies increases the threat of corporate defaults, thus leading to a weak investor sentiment and consequent outflow of capital. The foreign currency denominated debt in many of these economies aggravate the issue of credit worthiness in the weak currency, low economic growth scenario.

Table 10: Top 5 Emerging Markets in terms of Exchange Rate Appreciation

S no	Countries	Exchange Rate % change(YTD)
1	Greece	12.46%
2	UAE	0.01%
3	Qatar	-0.02%
4	China	-3.06%
5	Taiwan	-3.43%

Table 11: Bottom 5 Emerging Markets in terms of Exchange Rate Depreciation

S no	Countries	Exchange Rate % change(YTD)
1	Brazil	-44.71%
2	Columbia	-30.11%
3	Turkey	-25.26%
4	South Africa	-24.47%
5	Malaysia	-21.75%

Source: Reuters, As of 30th November 2015

Greece is a part of the Euro zone and hence it uses Euro as its currency. Growth prospects in the European economy, fall in oil prices and structural reforms across Europe were the fundamental factors apart from the market factors such as the huge amount of shorts on Euro that were sold in July 2015 that led to the strengthening of Euro compared to the US Dollar[10]. Both UAE Dirhams and Qatari Riyal did not see much change as they are pegged to the US Dollar.

Brazilian Real declined by 44.71% in 2015 on concerns of high budgetary deficit, Standard & Poor's degradation of Brazilian credit rating to junk and lack of policy measures to cope up with the situation. Columbian Peso's value mainly depends on oil exports and oil price. The decline in oil price by almost 70% after the H2 2014 was the main reason for the Peso's depreciation by 30.11%[11].

Credit Rating:

Credit ratings are important determinants of the market conditions and receive much attention from policy makers, institutional investors and international agencies[12]. The

[8] Economists
[9] Emirates24/7
[10] Bloomberg News
[11] Colombia Reports
[12] Economic Policy Review, FRBNY

ratings presented by agencies like Standard & Poor's, Moody's and Fitch for various countries are based on various macroeconomic factors and indicate the ability of a country to repay its debt, primarily denominated in foreign currency. Credit ratings are also considered as an indicative ability of the bonds to trade in the secondary markets. Credit ratings impact the market spreads, especially the yield on dollar denominated bonds. Emperical evidence suggest that lower credit rating results in lower yield and higher spreads on the dollar denominated bonds. For our analysis, we have considered the Standard & Poor's rating for the emerging markets as of October, 2015.

Table 12: Top 5 Emerging Markets in terms of Credit Rating

S no	Countries	Credit Rating
1	Qatar	AA
2	UAE	AA
3	Chile	AA-
4	China	AA-
5	Czech Republic	AA-

Table 13: Bottom 5 Emerging Markets in terms of Credit Rating

S no	Countries	Credit Rating
1	Indonesia	BB+
2	Russia	BB+
3	Turkey	BB+
4	Egypt	B-
5	Greece	CCC+

Source: Standard & Poor's

Standard & Poor's has retained the AA stable rating for Qatar and UAE based on the quality of its assets that help to reduce the impact of lower oil prices. Governments in Qatar and UAE have made initiatives to diversify its economy. Strong macro-economic fundamentals such as GDP growth rate, foreign exchange reserves, and high per capita income have helped UAE and Qatar retain their stable credit ratings[13]. Foreign exchange reserves, government's initiatives to tackle the slowdown in growth and lower external debt were the factors that helped China to gain stable AA- outlook[14].

S&P upgraded the rating for Greece from CCC- to CCC+ (junk) in the month of July owing to its association with Euro Zone.

S&P upgraded the rating for Greece from CCC- to CCC+ (junk) in the month of July owing to its association with Euro Zone though the credit worthiness of Greece is still unstable and depends on the successful implementation of the reforms. Political turmoil, prolonged low GDP growth rates, higher debt levels led to the B- rating indicating its inability to meet repayments in the event of an economic crisis. Weakened economic growth, inflexible monetary policy and weak currency led to the downgrade of Russia to BB+ (junk) for the first time in the last decade[15].

[13] TheNational
[14] StreetInsider
[15] Bloomberg News

3. Assesment of Vulnerability

UAE maintains a relatively lower level of debt at 48% of the GDP of which 37.7% is external debt.

Based on the indicators used for the assessment, the vulnerability of the emerging economies was determined. The emerging economies can be mainly classified into 3 categories, viz., Most Vulnerable, Vulnerable and Least Vulnerable to an economic crisis.

Least Vulnerable Economies

Table 14: List of Least Vulnerable Economies

Countries	Final Score
United Arab Emirates	4
Taiwan	2.6

Source: Marmore Analysis

As discussed in the above section, based on the various parameters, Taiwan and United Arab Emirates (UAE) are expected to be the least vulnerable emerging markets. UAE, one of the most diversified GCC economies has a credit rating of AA indicating sound financial strength of the economy. UAE maintains a relatively lower level of debt at 48% of the GDP of which 37.7% is external debt. It has a positive trade balance with current account surplus to GDP at 3.08% and its currency is pegged to USD which makes the UAE economy more resilient compared to the other major emerging markets.

Taiwan is least vulnerable economy among the emerging markets.

Taiwan is least vulnerable economy among the emerging markets with low levels of external debt as percentage of GDP (29.55%), current account surplus (11.81% of the GDP) and import coverage ratio of 18 months being the highest next to China. Low external debt and trade surplus offer cushion to the Taiwan economy despite its depreciating currency.

Vulnerable Economies

Table 15: List of Vulnerable Economies

Countries	Final Score
Qatar	6.7
Chile	6.6
India	6.5
Mexico	6.3
Czech Republic	6
Peru	5.8
Thailand	5.2
Philippines	5.1
Korea	4.9
Russia	4.6
China	4.3

Source: Marmore Analysis

Qatar's higher levels of external debt, negative trade balance makes the economy vulnerable despite its higher credit rating.

Among the vulnerable economies, Qatar, Chile, India, Mexico, and Czech Republic are more vulnerable compared to countries like China and Russia. India's weak rupee which has depreciated by 6.14% and its poor credit rating (BBB-) are the major reasons for its higher vulnerability. Increasing current account deficit, slowdown in economic growth, accumulation of dollars by RBI in anticipation of FED interest rate hike were the major reasons for the depreciating rupee. Slag in policy reforms, restrictions on capital flow and speculative trading added to the slide in the rupee. Low per capita income and weak public finances were the major reasons for BBB- rating given by S&P. This indicates India's inability to finance its debt obligation in case of a recession in the economy.

Czech Republic's currency depreciated by 11.6%, its external debt amounted to 60.95% of its GDP and the country maintains a low import coverage ratio of 3.69 making its economy weak. Qatar's higher levels of external debt, negative trade balance makes the economy vulnerable despite its higher credit rating and pegged currency. Prolonged low oil prices and higher capital expenditures incurred for FIFA World cup 2022 can affect the trade balance and increase the debt for Qatar.

Three factors that affected that Mexican economy were negative trade balance as percentage of GDP (-2.05%), low import coverage (4.92) and weak currency (-12.73%). Lower exports and declining GDP growth in Mexico have affected the economy after 2014.

China allowed its currency (Yuan) to fall in 2015 when Yuan touched its 4-year low during August 2015.

As discussed in the previous section, Thailand's depreciating currency, Philippines poor credit rating and weak currency were the reasons for their vulnerability. Russia and China, comparatively stronger economies, are now considered to be more vulnerable than before, due to the weak Russian currency (-14.31%) and very high debt in China (208.4%).

China allowed its currency (Yuan) to fall in 2015 when Yuan touched its 4-year low during August 2015. Volatility in the Chinese markets, policy challenges and higher debt levels in China's private sector along with uncertain growth prospects have lowered the investor confidence. Reversal of capital flows and increasing credit gaps with possible increase in interest rates by the Federal Reserve (FED) have made the largest emerging market vulnerable in the recent times[16]. The Chinese banks have only recently started to focus on improving the quality of the loans. The fall in the equity markets obligate the banks to absorb the losses from their wealth management products which are unable to liquidate. The threat of weaker banking system adds to the vulnerability of the Chinese economy. Positive trade balance and 19.68 months import coverage along with the huge foreign exchange reserves that China maintains are strong economic factors which can help the country meet its obligations on external debt.

[16] IMF

Greece, which is already undergoing an economic turmoil, is one of the most vulnerable economies.

Most Vulnerable Economies

Table 16: List of Most Vulnerable Economies

Countries	Final Score
Greece	8.9
South Africa	7.8
Hungary	7.7
Turkey	7.7
Brazil	7.3
Egypt	7.2
Poland	7.1
Columbia	6.9
Indonesia	6.9
Malaysia	6.9

Source: Marmore Analysis

Egypt's trade deficit and lower foreign exchange reserves are the major factors affecting the economy.

Greece, which is already undergoing an economic turmoil, is one of the most vulnerable economies among the emerging countries mainly due to very high external debt amounting to 183% of the country's GDP and lowest credit rating of CCC+ among the emerging economies. Following Greece are South Africa, Hungary and Turkey which are expected to be affected adversely due to currency depreciation and higher levels of external debt. South Africa's currency depreciated by 24.47% adding pressure to the imports and affecting the trade balance which was -4.4% of the country's GDP. Higher levels of external debt and plunging commodity prices are other problems hampering the economic growth. Political turmoil leading to lags and gaps in policy implementation has slowed down the pace of fiscal reforms and has sent a negative signal to the international investors.

Hungary has high levels of debt after the Euro Zone crisis and its impact on the economy. The country has high levels of both external and domestic debt accounting to 104.5% and 120.5% of its GDP. The lack of proper public policy in Turkey and Brazil is expected to result in a large credit-gap[17] making them vulnerable due to the reversal of capital flows[18]. Brazil's currency depreciated by 44.71% in 2015 in comparison to the USD which was the major reason for the BRIC member to be most vulnerable to a crisis.

High inflation and low growth in Poland led to the depreciation of the Polish zloty. Poland's debt accounts for 134% of GDP with approximately equal domestic and external borrowing. With the current account deficits, the current account to GDP ratio of Poland is estimated to be -0.98% by IMF. The trade balance is declining on account of lower revenues from travel and tourism.

Egypt's geopolitical problems and weak macro-economic indicators for a prolonged period has led to the poor credit rating (B-), which coupled with the depreciation of Egyptian pound by 9.41%, low import coverage ratio of 2.2 months and current account deficit of -4.6% of the GDP makes the nation most vulnerable despite lower

[17] Credit Gap: A measure of the credit cycle is the "credit gap," or deviation of current credit growth from the long-term trend
[18] IMF

levels of external debt. Egypt's trade deficit and lower foreign exchange reserves are the major factors affecting the economy.

Weakening currency in Malaysia, Colombia and Indonesia along with considerable external debt in these countries make them more prone to an economic crisis. Colombia, South Africa, Turkey and Brazil's current account deficits as a percentage of GDP is -5.25, -4.52, -4.73 and -3.78 respectively. Higher current account deficits with depreciating currencies increase the probability of defaults.

Conclusion

The most vulnerable markets such as Greece, Hungary and Turkey have already gone through economic crisis.

Risk of the crisis or an economic slowdown has shifted from the advanced economies to the emerging markets. Vulnerability of these markets vary and the impact of a crisis on each market and its implications on global markets lead to significant impact on the decisions made by governments, central banks and investors world over. The FED has probably delayed its interest rate hike mainly due to its concern of economic slowdown in China which would lead to spill over effect to all major economies in the world[19].

The most vulnerable markets such as Greece, Hungary and Turkey have already gone through economic crisis in the past during the Euro crisis and can be expected to be affected by the risks surrounding the emerging markets. Brazil, South Africa, Malaysia and Colombia may be majorly impacted by the high debt levels and lower corporate earnings apart from the policy paralysis in Brazil and South Africa. These markets suffer from the risk of an economic crisis mainly due to the fiscal inflexibility and higher external liability.

Emerging markets such as India, China, Thailand and Russia are vulnerable to an economic crisis.

Emerging markets such as Qatar, India, China, Thailand and Russia are vulnerable to an economic crisis. New higher interest rates and weaker currencies are challenges that the central banks and governments in the vulnerable markets will have to address by re-aligning its policies. Though the threat of a recession may be less likely in countries classified as vulnerable, they may possibly experience a phase of slower growth and lesser economic activity in the coming years[20]. Sufficient foreign exchange reserves, trade surpluses except in few markets and stable credit ratings are positive factors for these economies.

United Arab Emirates (UAE) and Taiwan with their strong macro-economic factors and trade surplus may have the least impact from the threat of an upcoming crisis. The lower levels of external debt in these markets reduce their exposure to the risk.

Emerging markets are facing the risk of an upcoming economic slowdown, which may lead to a recession in few markets. Countries such as Brazil, India, and China, Russia (BRIC), South Africa and UAE's economy will have a major impact on other economies, as they are the major trading economies among the emerging markets. China's slowdown would affect the US dollar and hence the US economy, due to which FED has probably delayed its increase in interest rate. However, the signs of ending low interest rate environment are almost clear and FED would possibly increase the interest rates in near future. The emerging markets especially China, India and Brazil must restructure their economic and fiscal policies to suit the lesser credit flow and the credit gap that might happen. Fiscal consolidation would help many emerging economies to reduce the impact of the ongoing global macro-economic changes. Though a recession in major emerging markets would be less likely event, a slowdown in growth would almost be inevitable. The rate of slowdown and the risk of an upcoming crisis can reduce if the respective governments address the bottlenecks in policy- making.

[19] IMF
[20] Economist

Appendix

The countries were analysed based on the following criteria:

1. External Debt as percentage of GDP
2. Domestic Debt as percentage of GDP
3. Current account balance as a percentage of GDP
4. Exchange Rate (YTD % change)
5. Credit Rating

Weightages were assigned to each parameter based on its possible impact on the vulnerability to the crisis. Based on our findings, external debt would have a major impact and hence assigned the highest priority.

Table 17: Parameters and Weightage

Parameter	Weightage
External Debt as percentage of GDP	25%
Domestic Debt as percentage of GDP	15%
Current A/c Balance as percentage of GDP- 2016	25%
Import Coverage Ratio - (no of months)	10%
Exchange Rate % change(YTD)	10%
Credit Rating	15%

Source: Marmore Analysis

The final score for each country was arrived based on the parameters and assigned weights. The countries with higher score are more vulnerable.

The following criterion was used to classify the countries into the respective categories: most vulnerable, vulnerable and least vulnerable.

Table 18: Criterion for classification

Categories	Final Score
Most Vulnerable	Greater than 6.5
Vulnerable	4.1 to 6.5
Least Vulnerable	Less than 4.1

Source: Marmore Analysis

Table 19: Emerging Markets and Parameters

S NO	Countries	External Debt as % GDP	Domestic Debt as % GDP	Total Debt as % of GDP - 2016	Current A/c Balance - 2015 (% of GDP)	Import Coverage Ratio - (no of months)	Exchange Rate % change(YTD)	Credit Rating
1	Brazil	30.06	97.94	128.00	-3.78	11.37	-44.71%	BB+
2	Chile	56.46	79.54	136.00	-1.64	4.85	-17.99%	AA-
3	China	8.60	208.40	217.00	2.81	19.76	-3.06%	AA-
4	Columbia	29.11	46.89	76.00	-5.25	6.10	-30.11%	BBB
5	Czech Republic	60.95	67.05	128.00	1.23	3.69	-11.69%	AA-
6	Egypt	17.27	88.73	106.00	-4.46	2.22	-9.51%	B-
7	Greece	183.00	23.59	206.59	1.55	0.95	12.46%	CCC+
8	Hungary	104.50	120.50	225.00	4.33	3.77	-12.59%	BB+
9	India	22.89	97.11	120.00	-1.56	6.56	-6.14%	BBB-
10	Indonesia	33.06	54.94	88.00	-2.15	5.80	-11.27%	BB+
11	Korea	30.18	200.82	231.00	6.68	6.51	-5.76%	AA-
12	Malaysia	62.97	159.03	222.00	2.10	6.28	-21.75%	A-
13	Mexico	33.95	39.05	73.00	-2.05	4.92	-12.73%	BBB+
14	Peru	31.76	30.24	62.00	-3.79	12.93	-12.74%	BBB+
15	Philippines	27.28	88.72	116.00	4.50	10.44	-5.41%	BBB
16	Poland	64.39	69.61	134.00	-0.98	4.82	-13.72%	A-
17	Qatar	80.26	17.01	97.27	-4.47	6.43	-0.02%	AA
18	Russia	32.10	32.90	65.00	5.42	8.53	-14.31%	BB+
19	South Africa	39.82	93.18	133.00	-4.52	4.44	-24.47%	BBB-
20	Taiwan	29.55	8.48	38.03	11.81	18.00	-3.43%	AA-
21	Thailand	34.76	152.24	187.00	5.44	3.66	-9.00%	A+
22	Turkey	53.69	50.31	104.00	-4.73	5.63	-25.26%	BB+
23	United Arab Emirates	37.72	10.36	48.08	3.08	3.00	0.01%	AA

Source: IMF, IIF, World Bank, McKinsey, Standard & Poor's, Reuters

Table 20: Emerging Markets and Parameters

S NO	Countries	External Debt as % GDP	Domestic Debt as % GDP	Current A/c Balance - 2015 (% of GDP)	Import Coverage Ratio - (no of months)	Exchange Rate % change(YTD)	Credit Rating	Final Score
1	Taiwan	5	2	1	1	5	1	2.6
2	UAE	6	3	3	6	4	2	4
3	China	1	15	4	1	5	1	4.3
4	Russia	5	5	1	4	6	9	4.6
5	Korea	5	15	1	5	5	1	4.9
6	Philippines	5	10	2	3	5	7	5.1
7	Thailand	5	13	1	6	5	4	5.2
8	Peru	5	5	8	3	6	6	5.8
9	Czech Republic	8	9	5	6	6	1	6
10	Qatar	10	4	9	5	5	2	6.2
11	Mexico	5	6	8	6	6	6	6.3
12	India	4	10	7	5	5	8	6.5
13	Chile	8	10	7	6	6	1	6.6
14	Columbia	5	7	9	5	8	7	6.9
15	Indonesia	5	7	8	6	6	9	6.9
16	Malaysia	8	13	4	5	7	5	6.9
17	Poland	8	9	7	6	6	5	7.1
18	Egypt	3	10	9	7	5	10	7.2
19	Brazil	5	10	8	3	9	9	7.3
20	Hungary	12	11	2	6	6	9	7.7
21	Turkey	7	7	9	6	7	9	7.7
22	South Africa	6	10	9	6	7	8	7.8
23	Greece	17	4	5	8	2	12	8.9

Source: Marmore Analysis

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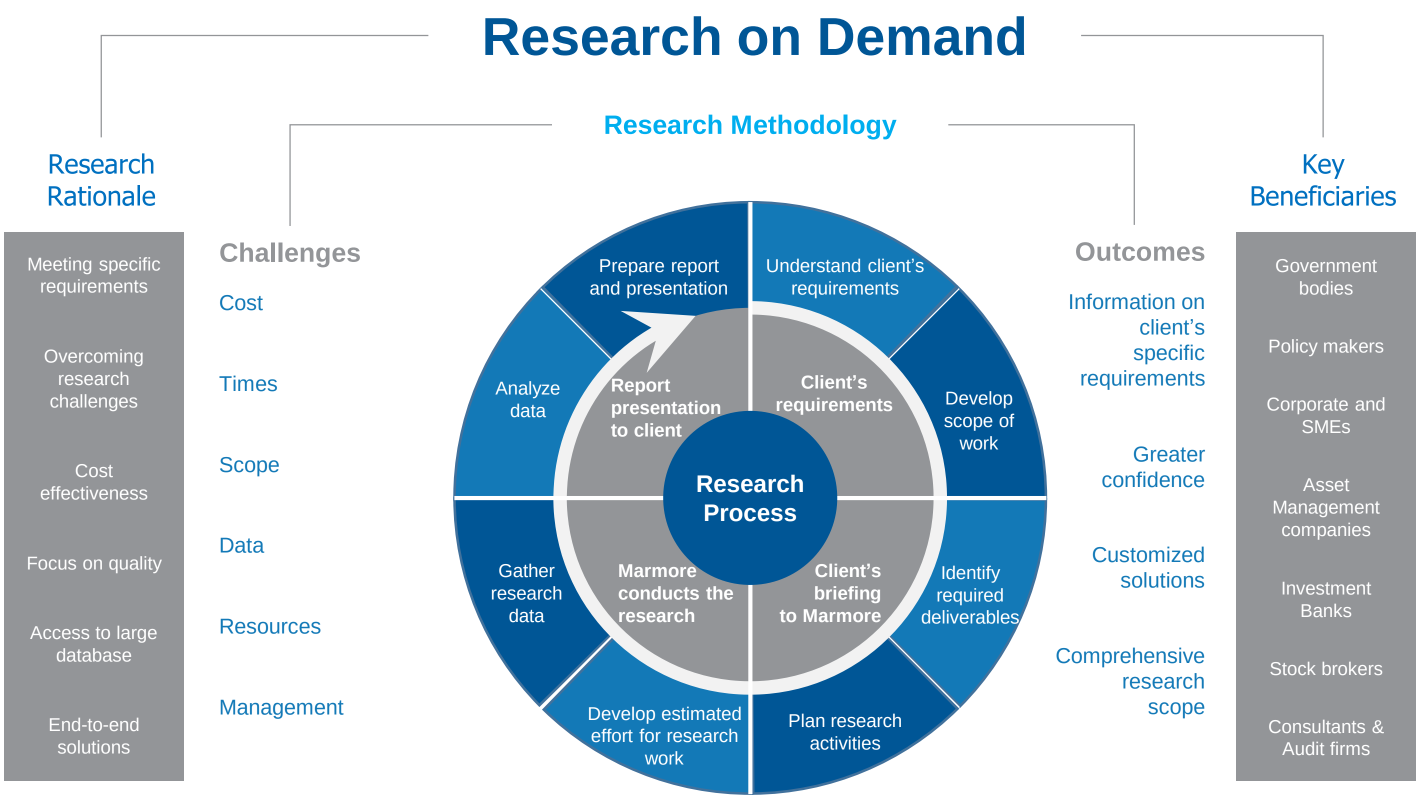

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