

**Research Paper      8**

## **Relative Country Risk premium**

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### **Introduction**

In this article, an attempt has been made to capture the degree of country specific risk perceived by foreign investors investing in a country's financial markets. Foreign investors are motivated by expected returns and perceived risks in the investment. Several Macroeconomic factors such as GDP growth (actual and expected), inflation, Government policy, monetary policy, corporate sector health, exchange rate fluctuations among others influence the decisions of international portfolio investors. In other words, the various fundamental factors are evaluated to assess the potential returns and the riskiness of the proposed investment apart from the individual security/company specific risks.

The overall risk perception about the economy would impact all the securities trading in the financial markets over and above the risk perception about individual securities. This country specific risk would vary across countries and hence a change in the country specific risk may trigger movement of capital flows from one part of the world to another. In other words, the perception of how safe a country is to invest into in comparison with others may be a significant factor affecting the investment decision. This perception, if captured numerically would be the country risk premium. This country risk premium has also been called as the endogenous risk premium in literature. The focus of the discussion that follows is the development of an index to capture the changes in the country risk premium and not so much on the factors that cause the movements in the risk premium.

### **Relative Risk Premium**

One approach to ascertain the underlying risk premium for a country is to analyze the financial market prices and decompose the element of risk. The financial market variables of interest are exchange rate, interest rates and inflation. The risk perceived by foreign investors would be reflected in movement in exchange rates and interest rates in relation to inflation.

To capture the risk premium, the following model is proposed:

R	=	SxI/P
R	=	Risk premium
S	=	Exchange rate
I	=	Interest rate
P	=	Inflation rate

The movement in R should track the movement in risk premium over a period of time. In other words, in a stable state of economy, R should be a stationary process. In times of crisis, there should be a jump in the value of R and in times of favorable and improving economic conditions/expectations, the value of R should decrease.

### **Assumptions underlying the model**

1. Floating exchange rate i.e. No central bank intervention
2. Relative purchasing Power parity hypothesis
3. No restrictions on capital mobility
4. No price controls
5. Real Interest rates
6. Positive correlation between exchange rate and interests

### **Explanation of The Model**

#### **Exchange rate and Inflation**

In the long run, the exchange rate of a currency depends upon the inflation differential between two countries. Higher inflation in a country leads to currency depreciation over a period of time. The relationship between inflation and currency depreciation is explained by the Purchasing Power Parity hypothesis.

Absolute Purchasing Power parity suggests that exchange rates would adjust in a manner that would equalize the prices of commodities across different countries. In other words, if 1\$ = Rs.60, and 1\$ can buy 1 kg of sugar in US, then the price of sugar in India would be Rs.60 per kg. The prices and exchange rates would so adjust that there is no arbitrage opportunity between the commodity markets in the individual countries and the foreign exchange market. However, there are various reasons due to which this does not occur in case of all commodities viz. transportation costs, trade restrictions, quality differentials, different consumption preferences among countries, differences in productivity, imperfection in the goods and currency markets, non-tradable goods etc. The relative Purchasing Power Parity asserts that the level of prices across countries may be different, but the exchange rate movement is equal to the inflation differential between the countries over a period of time. i.e. if the inflation rate in India is 10% p.a. and inflation rate in the US is 2% p.a., the Indian rupee would depreciate by 8% (10% - 2%) p.a., if the level of competitiveness between the countries is to be maintained at the same level. The literature on the relative PPP does not provide conclusive evidence.

However, it is generally observed that the countries facing higher inflation experience a fall in the value of their currency over a period of time. The proportion of movement in currency may not exactly equal to the inflation differential, but there may be a tendency of movement in the exchange rate in that direction over a period of time.

One of the reasons for the for departure from the PPP is that there are several other macroeconomic factors that affects the exchange rates in the short as well as the long term viz. interest rates, global capital flows, speculation, economic performance, country specific factors, global macro-economic events and so on. Thus, the short term movement in the exchange rate may be affected by various

factors apart from inflation and interest rates. All the country specific factors relative to the rest of the world can be considered to be contributing to the country risk premium.

### **Exchange rate and Interest rates**

One of the factors affecting the global capital movements is the change in domestic interest rates relative to foreign interest rates. Higher interest rates generally tend to increase the inflow of debt flows into the country and vice-versa. Eg. FCNR deposits and FII investment into debt markets. Higher interest cost may prompt domestic firms to tap international debt markets eg. External commercial borrowings. Due to the movement of capital, exchange rate is expected to appreciate with the increase in interest rates and vice versa, other things remaining the same. To deduce the amount of risk premium, interest rate (i.e. yield on Government yield) is multiplied by exchange rate. Inflation and exchange rate are assumed to be negatively correlated and hence exchange rate is divided by inflation. Similarly, interest rates are assumed to be positively correlated and hence multiplied with the exchange rate so as to ascertain the extent of change in the country risk premium.

### **Interest rate and Inflation**

In a risk neutral world, global debt investors would not expect to be compensated for the risk associated with a specific country. However, in a risk averse world, interest rates (i.e. yield on Government Securities), if sufficiently exposed to global investors would have a component of country risk premium i.e. debt investors may expect higher yields from a riskier country, after adjusting for inflation. eg. Yield on Greek bonds is higher than German bonds. In other words, with free capital mobility and a sufficiently large exposure to foreign investors would ensure that some element of country specific risk (sovereign credit risk) is priced into the yields on Government securities. Thus, two important factors affecting the bond yields are inflationary expectations and risk premium (which is a part of the overall country risk premium). This explains why interest rate appears in the numerator and inflation appears in the denominator in the model. Dividing the product of exchange rate and interest rate by inflation, helps in decomposing the changes in the country risk premium.

Thus, the model uses causal relationships between exchange rate, inflation and interest rates in attempt to isolate the changes in country risk premium.

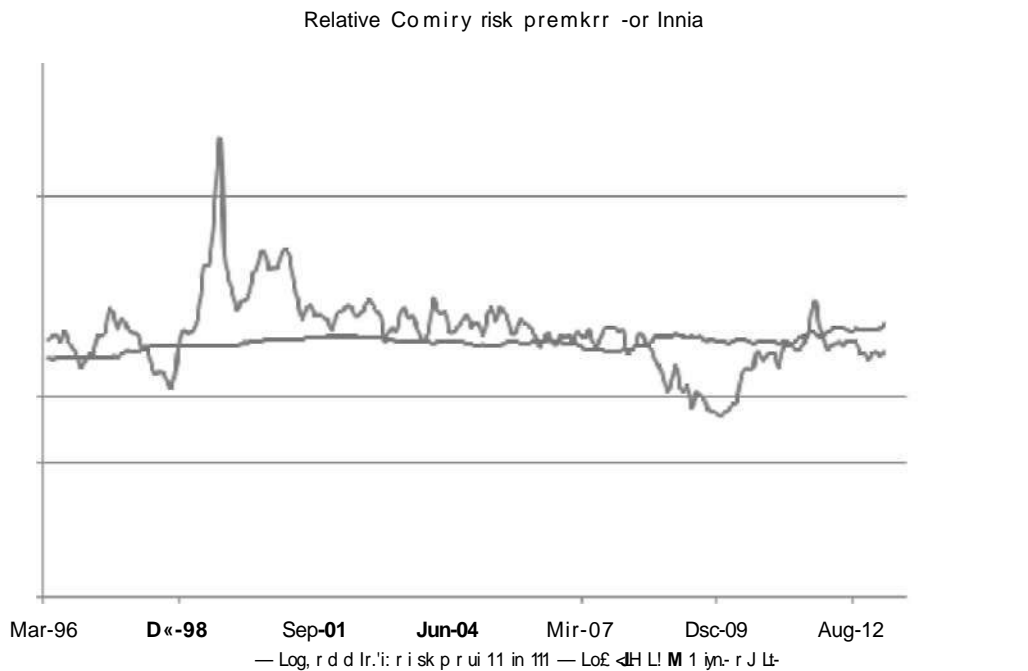
### **Determinants of Relative Risk Premium**

The possible determinants of the country risk premium are:

- Debt/GDP ratio of the domestic country
- Terms of Trade
- Faith in the Government/Monetary authorities
- Fiscal deficit
- Current account deficit
- Other factors affecting Geo-political stability

### **Example from India:**

Using the formula  $R = S \times I/P$ , the log of R (relative risk premium) for India has been plotted in the following graph.



**Figure 1: Movement of relative country risk premium for India over the years**

As can be seen the risk premium has been steadily declining from a peak in early 2000 upto late 2009. This is also the period, that the country attracted increasing amounts of Foreign Institutional and Direct investments. The decreasing risk premium implies that foreign investors find India more attractive as an investment destination. The decreasing risk premium can be associated with the phase where India experienced a high growth rate, capital account liberalization and capital inflows.

One interesting observation in is that the lowest points in the graph correspond to global financial crisis. The early fall starting from August 1997 coincides with the period of East Asian Crisis. The fall starting from April 2008 and continuing up to January 2010 coincides initially with the subprime crisis and then the Euro zone crisis. The impact of these crises on India was relatively less in comparison with the rest of the world.

The crisis has been followed by a phase marked by slowing growth and 'policy paralysis', which could explain the rise of the risk premium post crisis.

It would be interesting to explore further whether the fall in relative risk premium is actually due to India being relatively better positioned during the crisis. It is also possible that that global monetary and hence liquidity expansion due to Quantitative easing is responsible for sharp decline in the graph.

Another point to be noted in respect of the 2002-2008 phase is that the RBI intervened in the foreign exchange so as to stop the rupee from appreciating freely. This led to accumulation of large foreign exchange reserves with the RBI. This could subdue the impact on the relative risk premium in that the actual risk premium may have fallen even more than what the graph depicts. A higher appreciation of the rupee without a corresponding fall in the interest rate would have led to even lower amount of risk premium. The fact that RBI resorted to sterilization during this period would further subdue the impact

of declining risk premium as sterilization would not let the yield fall commensurate to increase in money supply due to buying of dollars.

Thus, the role of change in money supply, both foreign (in terms of Quantitative Easing) and domestic (due to RBI intervention and sterilization) needs to be examined in a greater detail to assess the movements in relative risk premium.