

Chapter 19

Modeling Sovereign Rating of India: Using Principal Component Analysis and Logistic Regression

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ABSTRACT

Against the background that India has been continuously receiving for over a decade till now the same investment grade of sovereign rating, the authors research what the important indicators of sovereign rating are and how to predict the probability that the ratio of foreign direct investment to gross domestic product of a country will be above average. They reviewed existing works and detected certain gaps. In the course of plugging those gaps, the authors collected cross section data available on economic, financial, and institutional variables of the emerging economies of ASEAN and SAARC members. They applied principal component analysis to distill relatively more effective variables determining sovereign rating, and then they applied logistic regression to these variables in order to compute the above probability. The methodology has proved successful in reproducing the past and useful as an internal model of assessing relative sovereign riskiness of an emerging economy among its peers. The work prescribed some policy to improve the aforesaid ratio of India.

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INTRODUCTION

Sovereign rating is an assessment of the creditworthiness of a sovereign entity in matter of honoring its financial obligations primarily toward foreign lenders and investigators while country risk covers the downside of a country's business environment including legal environment, levels of corruption, and socioeconomic variables such as income disparity. Country risk is the probability of particular future events within a state that could have an adverse effect on the functioning of a business organization. Hand et al. (1992) observed that the refinancing costs of government are affected by the changes in sovereign rating.

Before investing abroad, a rational entity makes a project report where it incorporates credit risk as well as sovereign risk. If credit risk measurement for the borrowing corporation is a necessary condition, sovereign risk measurement is the sufficient condition. In 1998 the Long Term Capital Management (LTCM) crisis happened because of some sovereign decision. Between 2000 and 2014 Ukraine, Peru, Argentina, Moldova, Uruguay, Nicaraguan, Dominion Public, Belize, Ecuador, Ivory Cost and twice Argentina defaulted sovereign bonds. If sovereign risk increases, foreign investments shrink and the country's growth slows down.

There is a tendency on part of observers, analysts and academia to confuse sovereign risk with country risk. For example, it is difficult to discern whether the sharp rise in sovereign risk in Greece has been accompanied by an equivalent rise in country risk or, conversely, or whether, today's robust sovereign debt ratings for China is accompanied by that nation's continuing desired levels of country risk. While the internal models of rating differ in methodology from the external models, the former however need to borrow the indicators from the latter.

Further, foreign capital enters a country through the routes of FDI (foreign direct investment) or portfolio investment. The credit rating agencies provide to the international investors readymade references of the destination countries through sovereign rating based on performance a number of macro-economic and financial indicators. An interesting case of Greece, where foreign capital entered from outside and home funds silently went outside to the Switzerland. By the middle of 2015 The Guardian reported that Greece owed a debt mountain of €323bn (£228bn) to a combination of official and private creditors, equivalent to more than 175% of its GDP, much of which was built up by Greece receiving bailout packages, funded in part by its eurozone neighbours to the tune of €52.9bn under the first bailout in 2010 and a further €141.8bn under a bailout in 2012, where Germany's exposure for the two bailouts was €57.23bn, with France-owed €42.98bn, Italy-owed €37.76bn and Spain-owed €25.1bn, in addition to those countries' contributions to International Monetary Fund (IMF) loans made to Greece leaving out the UK, which is not a member of the European single currency and so not exposed to Greece via any eurozone rescue loans. Other creditors include private investors in the Greek Government Bonds of outstanding face value about €15bn in Treasury bills, usually called T-bills for short, which are shorter-dated government bonds sold to domestic investors, such as Greek banks, and to a smaller extent to foreign investors (The Guardian, 2015). On the other hand the economist Gabriel Zucman found that, as reported by the Greek Reporter, the deposits of Greek citizens in Swiss banks amounted to 60 billion euros so much so that Zuchman suggests that Greece should collaborate with powerful European countries such as Germany and Italy, to force Switzerland to abandon the policy of banking secrecy in the context of the Greek deposits in Switzerland amounting to 60 billion euros to be compared to the German deposits figure of 200 billion. After Zucman's information became public, the Greek government reportedly got active to uncover the secret accounts and deposits in posit of an agreement between

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