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**THE EXTENT AND CAUSES OF
SOVEREIGN SPLIT RATINGS**

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The extent and causes of sovereign split ratings

Abstract

This unique study employs a rich dataset of ratings from six international agencies to investigate the causes of sovereign split ratings in emerging countries. Three reasons are identified in explaining the relatively high frequency of disagreement across agencies on emerging sovereign ratings. Firstly, rating agencies use different economic factors and different weights on these factors. Secondly, rating agencies disagree to a greater extent about more opaque issuers. Finally, for smaller agencies, issuers in their “home region” tend to be more favoured. The findings should be of interest to a wide range of participants in global credit markets.

The extent and causes of sovereign split ratings

1. Introduction

Credit ratings are heavily used in financial markets and regulation. With the expanding activities of rating agencies throughout the world, market participants are increasingly faced with “split ratings”. A split rating is defined as different ratings given to the same issuer/security by two or more major credit rating agencies (see Haggard et al., 2006; Livingston et al., 2007). Split ratings convey valuable information to the market and have an impact on future rating changes (Jewell and Livingston, 1998; Livingston et al. 2008). It is intuitively plausible that sovereigns and emerging markets will present greater challenges for rating agencies, yet no previous study of split ratings has focused on these market segments. This paper investigates the extent and the causes of split ratings for sovereigns in emerging countries.

Many aspects contribute to the increasing global importance and the rapidly growing demand for sovereign ratings in recent years. For example, the number of sovereign issuers rated by Standard and Poor’s increased from 7 in 1975 to 118 by April 2008 (Beers, 2008). Sovereign ratings represent a measure of the credit risk of a given country, whereby some of the largest issuers in the international capital markets are national governments. They additionally represent a ceiling for the ratings assigned to provincial governments, companies and financial institutions. Sovereign ratings also influence the cost of capital and improve the capability of countries to access international markets and to attract foreign investments, especially in emerging countries. Further, sovereign ratings affect the dynamics of

sovereign bond spreads (Cantor and Packer, 1996; Bissoondoyal-Bheenick, 2004; 2005; Bennell et al., 2006; Kim and Wu, 2008; Alsakka and ap Gwilym, 2009, 2010b). The main focus of related studies on sovereigns has been identification of the determinants of sovereign ratings. Many economic and financial fundamentals are found to play a key role in explaining sovereign ratings (See for examples, Cantor and Packer, 1996; Hu et al., 2002; Bissoondoyal-Bheenick, 2005; Bennell et al., 2006).

Prior studies on split ratings have been focused on corporate ratings and mainly investigate the causes of corporate split ratings.¹ Ederington (1986) argues that split ratings are triggered by random errors of the two rating agencies, but does not find any evidence for differences in rating standards between agencies as a reason for disagreements. In contrast to this, Moon and Stotsky (1993), Cantor and Packer (1994) and Pottier and Sommer (1999) point out that corporate split ratings can arise due to agencies using different rating methodologies, different models, and differing weighting factors in judging the creditworthiness of corporate borrowers. Dandapani and Lawrence (2007) attribute one-third of bond split ratings between Moody's and S&P to differences in their rating scales, while the remainder are the result of other causes including judgmental differences and asset opaqueness.

Morgan (2002) finds that differences in corporate ratings are a symptom of firm opaqueness. Morgan's results reveal that debt issues of banks have a higher frequency of split ratings than the debt issues of industrial firms since assets of industrial firms are less opaque than those of banks. Iannotta (2006) shows that the predicted probability of a split rating is higher for

¹ Other studies, such as Liu and Moore (1987), Cantor et al. (1997) and Jewell and Livingston (1998), examine the effect of split ratings on bond yields and/or spreads.

banks than non-banking issues. Also, bank opaqueness increases with bank size and capital ratio, and with financial assets and decreases with bank fixed assets. Livingston et al. (2007, 2008) provide evidence supporting the asset opaqueness hypothesis and consequently that split ratings appear not to reflect random errors (as supposed by Ederington (1986)). They show that firms with more opaque assets, which arise from poor information quality, have a higher frequency of split ratings. Livingston et al. (2007) also show that speculative-grade corporate bonds have higher percentages of split ratings than investment-grade bonds. Hyytinen and Pajarinen (2008) emphasise the asset opaqueness hypothesis since they find that split ratings are inversely related to the age of small and medium-sized firms, suggesting that younger firms are more opaque than established firms.

Split ratings may also be due to “home bias” (known also as “agency bias”). It is suggested that agencies are biased against specific types of issuers because of the varying level of understanding that rating agencies may have about different countries or regions. It is plausible that agencies have better knowledge about countries in their home region, and thus assign relatively higher ratings for issuers located there. Beattie and Searle (1992) and Shin and Moore (2003) find that agencies appear to judge issuers from their own home country more leniently. Trevino and Thomas (2000) also show that agencies assign lower sovereign ratings to issuers outside their home region, and higher ratings to sovereigns from their own region.

In the only prior study to address sovereign split ratings, Cantor and Packer (1995) show that speculative-grade sovereign bonds are more likely to receive different ratings from Moody’s and S&P than speculative-grade corporate bonds (71% versus 59%). They argue that the disagreements between Moody’s and S&P about sovereign ratings are due to the agencies’

lack of experience in rating sovereign credits.² They emphasise the difficulty that agencies may face in assessing both the economic and political conditions that influence a country's ability and willingness to pay its debts. Thus, opinions about the weighting of such sovereign risk indicators may vary across agencies. In fact, agencies may depend on different information sources, and some country characteristics may be considered by one agency but not by another (Hyytinen and Pajarinen, 2008). This may lead to differences in credit rating agencies' views on the creditworthiness of an emerging sovereign issuer. In addition, Alsakka and ap Gwilym (2009, 2010a) analyse the effects of rating momentum, rating duration, Watchlist status, existing rating and issuers' region domicile on the dynamics of emerging sovereign ratings. They provide evidence of different processes across rating agencies regarding the factors (and their weights) that enter upgrade/ downgrade decisions. Further, Alsakka and ap Gwilym (2010b) find that opaque sovereign issuers are more likely to receive split ratings, and thus they will have more rating migrations in the future. They reveal that split rated sovereign issuers are prone to be upgraded (downgraded) by the agency from whom a lower (higher) rating exists, within the subsequent year.

Emerging countries are featured by a significant lack of economic and political stability, lack of market regulation and transparency, and a high degree of volatility and uncertainty, which all make them vulnerable to external or internal shocks. Emerging markets also tend to have volatile business cycles and experience economic crises more frequently than developed economies. Consequently, the role of rating agencies is more

² Cantor and Packer (1995) only provide a descriptive analysis for split ratings between Moody's and S&P, which was conducted over 10 years ago. There has been a substantial growth in the number of sovereigns rated by Moody's and S&P since their study. For example, Moody's rated 107 sovereigns in 2007 (of which 71 were emerging countries), compared to 48 countries in 1995 (of which only 16 were emerging countries) (Cantor et al., 2008).

challenging, problematic and costly in emerging markets than in developed countries. Thus, disagreements across rating agencies about issuers in emerging countries will be more frequent than those in developed countries.

To the best of our knowledge, this is the first study to investigate the causes of disagreements across agencies on emerging sovereign ratings. Prior studies on the reasons for split ratings use corporate ratings and are mostly limited to data from only two rating agencies: Moody's and S&P. This study explores the reasons for split ratings across six international rating agencies. First, it examines the link between sovereign split ratings and the economic conditions in emerging countries. The study covers a larger number of emerging countries (49) and a wider range of economic and financial factors (17 variables) than any other study on sovereign ratings. The findings show that the emphasis of different macroeconomic factors and the varying weights attached to these factors, both contribute to split sovereign ratings. Second, this paper tests for both "home bias" and "opacity" as potential reasons for sovereign split ratings. The results add to previous studies evidence emphasising that agencies disagree more on issuers with lower credit quality (i.e., more opaque issuers). This is attributable to lack of information and higher degrees of instability and uncertainty in emerging countries. Also, for smaller agencies, the findings highlight that sovereigns from the home region of the agency are rated more favourably.

The remainder of the paper is organised as follows. The next section explains the sovereign ratings data. Section 3 presents the hypotheses and the ordered probit model, while the empirical results are discussed in section 4. Finally, section 5 concludes the paper.

2. Sovereign ratings data

The sample contains long-term (LT) foreign-currency (FC) sovereign ratings of 49 emerging countries which are rated by at least two of six international credit rating agencies as at 31st January over the period 2000 to 2008.³ The rating agencies are: Moody's Investors Service, Standard and Poor's (S&P), Fitch Ratings, Capital Intelligence (CI), Japan Rating and Investment Information (R&I) and Japan Credit Rating Agency (JCR).⁴ The sample includes only sovereign ratings of emerging countries since rating behaviour for developed countries is influenced by different factors than those affecting emerging countries (Monfort and Mulder, 2000; Mulder and Perrelli, 2001; Alsakka and ap Gwilym, 2010b). Also, it is well known that there is much less disagreement on developed countries' sovereign ratings. To identify "emerging" countries, the World Bank's country classification, according to countries' GNI per capita, is adopted. All low-income or middle income countries are defined as "emerging". The analysis is at annual frequency since data on macroeconomic factors for many countries in the sample are only available on an annual basis. The sample includes 1160 annual rating observations. Table 1 (Columns 1&2) documents the number of countries and rating observations jointly rated by each pair of agencies.

The credit ratings scale is transformed into a 20-point numerical scale (Aaa/AAA = 1, Aa1/AA+ = 2 ... Caa3/CCC- = 19). In the final numerical class (20), the lowest rating categories (Ca/CC, C/SD-D), where the sovereign is in default or default is likely/imminent, are grouped into one rating class. The merger of the lowest categories of each agency's rating scale is for three reasons. Firstly, different rating scales are used by the rating agencies.

³ Data is obtained from the Financial Times (FT) Credit Ratings International database.

⁴ Later in the paper, Moody's, S&P and Fitch are referred to as the "larger three agencies".

Secondly, the lowest categories, which are combined, contain either very few or no observations. Finally, this approach is common in the relevant literature, e.g. Kim and Wu (2008) and Alsakka and ap Gwilym (2010a) use a similar 20-point credit scale, Livingston et al. (2008) use 19-point rating scale and Bennell et al. (2006) utilize a 16-point credit rating scale.

Figure 1 presents the distribution of ratings for all agencies during the sample period. None of the sovereign issuers are rated between Aaa/AAA and Aa3/AA-. It is also clear that very few issuers are rated in the A1/A+ categories (3.28%). The small number of observations of high credit quality issuers obviously reflects the focus of the data sample on emerging markets. Further, only 5.86% of observations are at the Caa1/CCC+ category and below. This can be explained by the fact that the number of defaulted sovereigns is very low; since sovereign issuers are usually rated Caa1/CCC+ or below just before/after they defaulted or at default. With the exception of the small proportion of ratings in categories at the top and the bottom of the rating scale, there is a reasonable spread of annual sovereign rating observations across the other rating scores. Similar rating distributions exist across agencies with the exceptions that CI, R&I and JCR did not assign emerging sovereign ratings lower than 18 (C), 17 (CCC+) and 15 (B), respectively, during the sample period.

The majority of issuers were assigned speculative-grade ratings (Ba1/BB+ or below), representing 52.9%, 54.9% and 52.0% for Moody's, S&P and Fitch respectively. In contrast, 60.2%, 75.2% and 79.5% of ratings by CI, R&I and JCR are at investment grade. R&I and JCR tend to focus more on sovereigns in the region where they operate (Asia). Additionally, CI has a high proportion of rated countries in the Middle East, but none in Latin America. We hypothesise that these agencies assign relatively higher ratings for

issuers in their own home region (“home bias”), which is subject to further investigation later.

Split ratings across rating agencies are very common in this sample. The frequencies of agreement and disagreement across rating agencies are presented in Table 1, Columns 3 to 5. With the exception of the case of S&P and Fitch, the disagreements across agencies represent more than half of all observations (see Column 5). In line with Cantor and Packer (1995), it is found that the disagreement across rating agencies about emerging sovereign ratings is more frequent than for corporate ratings. Jewell and Livingston (1998), for example, show that 17% of US industrial firms obtained different ratings by Moody’s and S&P in the period from 1983 to 1993. Cantor et al. (1997) report that 54.7% of all U.S. corporate bonds rated jointly by Moody’s and S&P between 1983 and 1993 achieved different ratings. In comparison, 59.4% of emerging sovereigns rated jointly by Moody’s and S&P in this study have different ratings. Columns 6 and 7 show an equal (50:50) number of cases where S&P assigns the higher/lower rating versus Moody’s. S&P and Fitch have by far the lowest frequency of disagreement (34.6%) between agencies, where S&P tends to assign higher (lower) ratings in 35.3% (64.8%) of cases. Moody’s and Fitch have different sovereign ratings in 57.6% of cases. Moody’s assigns the higher ratings in 53.2% of the cases.

CI disagrees with the larger three agencies in more than half of cases (with Moody’s: 58.4%, S&P: 52.3%, Fitch: 54.3%), with mostly lower CI ratings (Moody’s: 75.2%, S&P: 78.6%, Fitch: 89.1%). This suggests that CI is the harshest agency in this sector. In contrast, JCR tends to be the most generous agency with mostly higher JCR ratings compared with Moody’s (73.4%), S&P (97.5%), Fitch (91.1%), CI (100%) and R&I (92.9%).

Disagreements between R&I and the larger three agencies are also very frequent (Moody's: 71.0%, S&P: 61.5%, Fitch: 64.8%), with mostly higher R&I ratings (Moody's: 72.5%, S&P: 91.2%, Fitch: 82.5%). The extent of split rating between JCR and CI is the greatest across agency pairs at 86.6%, with JCR assigning higher ratings each time. The disagreement level between R&I and CI is also high (79.7%), with R&I mostly assigning the higher rating (98.0%). The split level between R&I and JCR is 64.4%, with JCR mostly assigning higher ratings (92.9%). (See Table 1, Columns 5-7).

Table 1 (Columns 8 to 17) reports the split ratings across agencies by notches. Having identified that split ratings are predominant in this sample, most of the differences are concentrated at one or two notches. However, in a few cases the disagreement across agencies can reach up to six notches. Split ratings of emerging sovereigns are often greater in notch differential than reported for corporates. During the period 1983 to 1993, Cantor and Packer (1997) found that in 10% of cases Moody's and S&P disagreed about U.S. corporate ratings by two notches and in 2.5% of cases by three or four notches, but no cases existed where the ratings were more than four notches apart.

3. Hypotheses and the ordered probit model

In line with the previous literature on corporate split ratings discussed in Section 1, three hypotheses will be examined as causes of sovereign split ratings, as follows.

Hypothesis I: "Determinants"; sovereign split ratings arise due to agencies using different determinants and attaching different weights. It is expected that rating agencies incorporate different macroeconomic factors, which

reflect the economic conditions of these countries and thus their creditworthiness, in their rating process, and/or they attach varying weights to the same factors.

Hypothesis II: “Opacity”; limited information quality and high degree of instability and uncertainty about the credit quality of an issuer may lead agencies to disagree about its rating. It is hypothesised that agencies will disagree more frequently about the ratings of sovereigns at the speculative grade of the rating scale (opaque issuers) than for those with investment grades ratings.

Hypothesis III: “Home bias”; sovereigns in the same region as the rating agency attain more favourable ratings. It is expected that the Japanese agencies will have a tendency to assign higher ratings for issuers in East and South Asia, while CI will tend to assign higher ratings for issuers in the Middle East and Africa.⁵ It is plausible that agencies have less knowledge about countries which are more distant from their regions, and thus they assign relatively lower ratings for issuers in these regions than do other agencies with global reach. This is also related to the processing of soft information, (i.e., information that can only be directly verified by the analyst who produces it). If the information is soft, then analysts have a harder time convincing others of their ideas (e.g., see Chen et al., 2004). In the context of rating agencies, soft information most naturally corresponds to research or investment ideas related to more local issuers. Rating local issuers requires that the agencies’ analysts process soft information. This means for large and global agencies, analysts may spend too much research effort on quantitative measures (i.e., hard information) of the

⁵ Hypothesis III is restricted to the smaller agencies (CI, R&I and JCR) because the larger agencies operate globally and do not have an identifiable “home region” of emerging countries.

creditworthiness of countries away from their own region in order to convince others to support their assessments than they ideally would if they analysed countries in their own region. Therefore, the smaller rating agencies may assign higher ratings to sovereigns in their home region than the larger three agencies since this task involves processing of soft information.

The ordered probit estimation method will be used to investigate these hypotheses, since the dependent variable (split rating) is an ordinal variable. Split ratings across agencies will be identified by notches: one-notch and more-than-one-notch rating differential. Two sets of equations are estimated for each pair of agencies, the first with a dependent variable based on higher ratings by agency-A; and the second with a dependent variable based on higher rating by agency-B. The ordered probit specification is defined as follows:

$$Split_{it} = \sum_k \beta_k X_{k,i,t-1} + \gamma Spec_{it} + \zeta r_i + \varepsilon_{it}; \varepsilon_{it} \sim N(0, 1) \quad (1)$$

$i=1, \dots, C$ (number of countries), $t=1, \dots, 9$ years, $k=1, \dots, 17$ explanatory factors.

$Split_{it}$: an ordinal variable SS_{it} or SI_{it} . SS_{it} (SI_{it}) = 1 or 2 if issuer i rated by agency A and B has one-notch or more-than-one-notch superior (inferior) rating from agency A compared to its rating from agency B at year t , zero otherwise.

X : Set of 17 macroeconomic explanatory factors (see below). This set of variables is used to examine Hypothesis I.

$Spec_{it}$ is a dummy variable that takes the value of 1 if issuer i is rated as speculative-grade at time t by either agency A or B, and 0 otherwise. $Spec_{it}$ is included to examine Hypothesis II.

r_i is a 3×1 vector of dummy variables indicating the geographical region of the country. In line with our adoption of the World Bank definition of emerging countries, we also apply the World Bank regional classification whereby four regions are considered: East Asia & Pacific and South Asia (E S Asia), Europe and Central Asia (EU-CA), Latin America (LA) and Middle East, North Africa and Sub-Saharan Africa (ME & Af), where EU-CA is used as the reference region. The regional indicator is incorporated in order to test for “home bias” (Hypothesis III).

To identify which macroeconomic variables to include for testing Hypothesis I, we draw on past studies that have examined determinants of sovereign ratings levels (Cantor and Packer, 1996; Monfort and Mulder, 2000; Mulder and Perrelli, 2001; Hu et al., 2002; Bissoondoyal-Bheenick, 2005; Bennell et al., 2006). The selected variables also include those that rating agencies mention in assessing sovereign creditworthiness (Truglia and Cailleteau, 2006; FitchRatings, 2007; Beers, 2008). 17 economic indicators were selected as candidate explanatory variables, as follows.⁶

1. **GDP:** GDP per capita for the previous year (US Dollars);
2. **Exdebt:** total external debt relative to exports for the previous year (percent);
3. **Ggdp:** average annual real GDP growth on a year-over-year basis for the previous four years (percent);
4. **CPI:** average annual consumer price inflation growth on a year-over-year basis for the previous three years (percent);
5. **Exbal:** average annual current account balance relative to GDP for the previous three years (percent);

⁶ Data was obtained from DataStream; data sources: OECD and IMF.

6. **Fbal**: average annual central government deficit or surplus relative to GDP for the previous three years (percent);⁷
7. **DH**: a dummy variable for past default during the sample period (1 = default; 0 = no default);
8. **Exrate**: Nominal effective exchange rate for the previous year (index);
9. **Unemp**: unemployment rate for the previous year (percent);
10. **Res**: foreign exchange reserves for the previous year (millions of US Dollars);
11. **Exgdp**: ratio of exports to nominal GDP for the previous year (percent);
12. **Invgdp**: ratio of direct investment in the country to nominal GDP for the previous year (percent);
13. **Gexp**: growth rate of exports for the previous year (percent);
14. **Expimp**: ratio of exports to imports for the previous year (percent);
15. **Dsereexp**: ratio of debt service to exports for the previous year (percent);
16. **Resimp**: ratio of foreign exchange reserves to total imports for the previous year (percent);
17. **Resfd**: ratio of foreign exchange reserves to total foreign debt for the previous year (percent).

For variable selection in each specification, a “stepwise” methodology is adopted, with backward elimination.⁸ Speculative-grade dummy and region indicator dummy variables are kept in the stepwise ordered probit model even if they are insignificant, since they are control variables relating to our core hypotheses. This methodology is common in the relevant literature (e.g.

⁷ CPI, Exbal and Fbal (Ggdp) use the average values of previous three (four) years, consistent with Cantor and Packer (1996) and Bennell et al. (2006), to reflect the rating agencies’ approach of removing the business cycle effects when assigning sovereign ratings.

⁸ Backward elimination can reveal relationships missed by forward inclusion. Because all variables will already be in the model, there is less risk of failing to find relationships when they exist (Menard, 2002, Ch.3, pp. 63-64).

Monfort and Mulder (2000) and Mulder and Perrelli (2001)). The marginal effects are calculated to estimate the economic significance of the explanatory variables and this aspect is emphasised in the interpretation of results. For continuous variables, the marginal effect is the difference in the predicted value of the dependent variable (split rating) as one independent variable changes value by one standard deviation (1 s.d.) while all other variables are held constant at their mean. For dummy variables, the marginal effect is the partial derivative of the predicted probability of the dependent variable that results when the independent dummy variables take the value of 1 while the other variables are held at their mean.

4. Empirical results

4.1 Macroeconomic factors (Hypothesis I)

The results are provided in Tables 2 to 5. This section begins with an overall analysis of the findings relating to Hypothesis I, followed by discussion of the technical results for each pair of agencies. Many significant differences across agencies are found. Six variables are identified to be significant for explaining rating disagreement across the larger three agencies: GDP per capita, fiscal balance, exchange rate, reserves, exports-to-GDP and reserves-to-imports. Differences in ratings between Moody's and S&P are also affected by external debt, unemployment rate, investment-to-GDP, and exports-to-imports. Disagreement between Fitch and S&P is additionally influenced by the inflation rate, default history, unemployment rate, investment-to-GDP, export growth, exports-to-imports, debt service-to-exports, and reserves-to-foreign debt. Split ratings between Moody's and Fitch are also affected by external debt, external balance, and debt service-to-exports. There are significant differences in how these agencies consider

and weight these factors, as identified by the marginal effects analysis (see later).

Most of the macroeconomic factors are significant in explaining disagreements between CI and Moody's (with the exception of external balance, default history and export growth), and between CI and Fitch (with the exception of default history, exports-to-GDP and reserves-to-foreign debt). The Pseudo R^2 is relatively high, at 52.0% (51.5%) and 21.4% (21.2%) for models with superior and inferior CI ratings than Moody's (Fitch). The economic fundamentals shown to be important for split ratings between S&P and CI are GDP per capita, external debt, inflation rate, fiscal balance, exports-to-GDP, investment-to-GDP, debt service-to-exports and reserves-to-foreign debt. Most of the economic fundamentals also appear to be relevant in explaining the split ratings between R&I and Moody's, and between R&I and Fitch. The Pseudo R^2 values are again quite high at 20.4% (41.7%) and 51.7% (37.0%) for models with superior and inferior R&I ratings than Moody's (Fitch). GDP per capita, external balance, fiscal balance, exchange rate, exports-to-GDP, investment-to-GDP, exports-to-imports and reserves-to-imports play a key role in explaining the differences between S&P and R&I ratings.

GDP per capita, GDP growth, CPI, fiscal balance and exports-to-imports are the only significant variables to influence superior JCR ratings than S&P (the Pseudo R^2 is 38.1%). A wider range of economic fundamentals are important to explain higher JCR ratings than Moody's/Fitch. The Pseudo R^2 is 61.3% (58.1%) for models with superior JCR ratings than Moody's (Fitch).

It is clear that disagreements across agencies are partly attributable to agencies' considering different economic determinants in the process of

assigning sovereign ratings. Also, when the same economic factors are relevant for explaining rating determinants for each agency, there are substantial differences in the relative weights attached to these variables. Further, a wider range of economic fundamentals explains the rating split between the small agencies and the larger three agencies. This implies that small agencies depend on publicly available information (economic conditions) to a greater extent. The larger agencies may include more qualitative factors due to their stronger capacity to obtain such information (e.g. via interviews with finance ministry staff). This point is also supported by the higher Pseudo R^2 in models which regress the split ratings involving the smaller agencies.

Details of the technical results for each pair of agencies are as follows. Panel A of Table 2 documents the results for issuers jointly rated by *Moody's and S&P*. By increasing the external debt, fiscal balance, exchange rate and reserves by 1 s.d., the probabilities of one-notch/more-than-one-notch superior S&P ratings than Moody's are expected to fall by 3.67%/0.96%, 9.22%/2.46%, 5.76%/1.52% and 13.34%/3.64%. By increasing the fractions of investment-to-GDP and reserves-to-imports by 1 s.d., the probabilities of one-notch/more-than-one-notch superior S&P sovereign ratings than Moody's are likely to increase by 3.61%/0.95% and 3.56%/0.93%. On the other hand, by increasing GDP per capita, external debt, fiscal balance, reserves, and exports-to-imports by 1 s.d., the probabilities of one-notch/more-than-one-notch inferior S&P ratings are expected to increase by 3.35%/2.56%, 3.58%/2.73%, 7.39%/5.72%, 5.59%/4.29% and 2.98%/2.27%. Inferior S&P ratings to Moody's are less likely if unemployment rate, exports-to-GDP and reserves-to-imports increase by 1 s.d.

Panel B of Table 2 reports the results for issuers jointly rated by *S&P and Fitch*. By increasing the exchange rate and export growth (investment-to-GDP and reserves-to-foreign debt) by 1 s.d., the probabilities of one-notch/more-than-one-notch higher S&P ratings than Fitch are estimated to decrease (increase) by 2.84%/0.33% and 2.49%/0.29% (2.83%/0.33% and 5.10%/0.61%). In comparison, lower S&P ratings than Fitch are more likely if GDP per capita, inflation rate, fiscal balance, reserves, exports-to-imports and debt service-to-exports rise by 1 s.d., and having a default history. Besides, lower S&P ratings than Fitch are less likely if unemployment rate, exports-to-GDP and reserves-to-imports increase by 1 s.d.

Panel C of presents the results for issuers jointly rated by *Fitch and Moody's*. If external debt, external balance, fiscal balance, exchange rate and reserves increase by 1 s.d., the probabilities of one-notch/more-than-one-notch superior (inferior) Fitch ratings than Moody's are expected to fall (increase) by 7.19%/2.47% (8.35%/3.88%), 5.55%/1.85%, 3.11%/1.03% (7.23%/3.34%) 5.42%/1.80% and 11.96%/4.10% (3.44%/1.57%), respectively. Also, inferior Fitch ratings to Moody's are less likely if exports-to-GDP, debt service-to-exports and reserves-to-imports increase by 1 s.d. Further, changes in GDP per capita imply a higher likelihood of split ratings.

Table 3 documents the results for issuers jointly rated by *CI and the larger three agencies*. For CI and Moody's in Panel A, issuers are more (less) likely to receive an inferior CI rating than Moody's if GDP per capita, external debt, unemployment rate, reserves, exports-to-GDP and reserves-to-foreign debt (fiscal balance) increase by 1 s.d. For S&P and CI in Panel B, by increasing inflation rate, fiscal balance, investment-to-GDP and debt service-to-exports (external debt and exports-to-GDP) by 1 s.d., the probabilities of higher CI sovereign ratings than S&P are estimated to increase (decrease).

By increasing GDP per capita, external debt and reserve-to-foreign debt (debt service-to-exports) by 1 s.d. and having default history, the probabilities of lower CI ratings than S&P are expected to increase (decrease). Panel C shows that issuers are less (more) likely to receive an inferior CI rating than Fitch if external balance, fiscal balance, exchange rate, investment-to-GDP and debt service-to-exports (GDP per capita and external debt) increase by 1 s.d. Most of the macroeconomic variables are significant in the equations for higher CI ratings than Moody's/Fitch, but the marginal effects are weak (see Panel A and C).

Table 4 exhibits the results for issuers jointly rated by *R&I and the larger three agencies*. For Moody's and R&I in Panel A, the results reveal that issuers are more likely to obtain higher R&I ratings than Moody's if external debt, GDP growth, external balance, and investment-to-GDP increase by 1 s.d. On the other hand, an increase of 1 s.d. in exports-to-GDP, exports-to-imports and reserves-to-imports will decrease the probabilities of R&I assigning superior ratings than Moody's. Additionally, a one s.d. increase in GDP growth and investment-to-GDP (exchange rate, export growth and exports-to-imports) will decrease (increase) the probabilities of lower R&I ratings than Moody's. The results in Panel B identify that one s.d. higher external balance, fiscal balance, exchange rate and investment-to-GDP (GDP per capita, export-to-GDP, exports-to-imports and reserve-to-import) will be linked with increased (decreased) probabilities of superior R&I ratings than S&P. Also, increasing fiscal balance (exports-to-imports) by 1 s.d. will be associated with decreased (elevated) probabilities of lower R&I ratings than S&P. For Fitch and R&I in Panel C, the results show that the probabilities of having higher R&I than Fitch will decrease (rise) if GDP per capita, external debt, GDP growth, unemployment rate, exports-to-GDP, exports-to-imports and debt service-to-export (external balance, fiscal balance, exchange rate

and investment-to-GDP) improve by 1 s.d. On the other hand, increasing GDP per capita, exports-to-imports and reserves-to-imports (fiscal balance and reserves) by 1 s.d. will result in elevated (decreased) probabilities of lower R&I ratings than Fitch.

Table 5 reveals the results for issuers jointly rated by *JCR and the larger three agencies*. For Moody's and JCR in Panel A, issuers are more likely to receive a higher JCR rating than Moody's if inflation rate, fiscal balance and investment-to-GDP increase by 1 s.d. Issuers are less likely to receive a higher JCR rating than Moody's if exports-to-GDP, export growth, exports-to-imports and debt service-to-exports increase by 1 s.d. If GDP growth and inflation rate (GDP per capita) increase by 1 s.d., issuers are less (more) likely to obtain a lower JCR rating than Moody's. For S&P (Fitch) and JCR in Panel B, issuers are more likely to receive a higher JCR rating than S&P (Fitch) if GDP per capita, inflation rate and fiscal balance, (inflation rate, fiscal balance, exchange rate, exports-to-GDP and debt service-to-exports) increase by 1 s.d. Issuers are less likely to receive a higher JCR rating than S&P/Fitch if GDP growth, external balance and exports-to-imports increase by 1 s.d.

4.2 Speculative-grade issuers (Hypothesis II)

The results on the impact of speculative rating status on split rating across agencies are as follows. Compared with investment grade issuers, those with speculative-ratings are more likely to obtain one-notch/more-than-one-notch higher Fitch ratings than S&P by 12.04%/2.18%, while to obtain lower Moody's ratings than Fitch by 13.89%/4.74% (see Table 2). Issuers with speculative-grade ratings have decreased probabilities of receiving one-notch/more-than-one-notch inferior CI ratings than from Moody's by 10.07%/10.36%, than from S&P by 2.53%/0.81% and than from Fitch by

2.44%/1.26% (see Table 3). Also, issuers with speculative-grade ratings are less (more) likely to obtain one-notch/more-than-one-notch lower (higher) R&I ratings than Moody's (Fitch) by 7.15% (25.70%)/2.30% (18.42%) (see Table 4). Further, issuers with speculative-grade ratings have increased probabilities to receive one-notch/more-than-one-notch superior JCR ratings than Moody's by 0.45%/35.03%, than S&P by 13.45%/37.38%, and than Fitch by 15.06%/35.07% (see Table 5). It is also obvious that the split ratings between JCR and the larger three agencies for those issuers at non-investment grade are greater in notch differential.

In brief, issuers with speculative grade ratings are more likely to get higher Fitch ratings than both Moody's and S&P, to attain higher R&I ratings than Moody's and Fitch, and to achieve higher JCR ratings than the ratings of the larger three agencies. On the other hand, speculative-grade rated issuers are less likely to achieve lower CI ratings than from the larger three agencies. This suggests that CI, which was found to be the harshest agency (Table 1), tends to be harsher than other agencies only on investment-grade issuers. Disagreements across agencies are greater for issuers at the lower end of the rating scale (i.e., more opaque issuers) than those at investment grade. Therefore, Hypothesis II is supported by this evidence. Higher uncertainty is associated with the assessment of sovereign credit risk for issuers with low credit quality, and thus they are more suspect to split ratings. This is in line with Cantor and Packer (1996) and Livingston et al. (2007), whose evidence suggests that split corporate ratings are more common for speculative-grade bonds than for investment-grade bonds. The findings support "opacity" as a reason for sovereign split ratings.

4.3 Region indicators (Hypothesis III)

The results on the effect of the home region of emerging countries on disagreements across agencies are as follows. For *CI and the larger three*

agencies (Table 3), the results reveal that issuers in “ME&Af” have increased (decreased) probabilities of being assigned superior one/more-than-one-notch CI ratings by 29.87%/0.13% (25.66/20.80%) than Moody’s, (36.40%/9.23%) than S&P, and 0.0001% (42.00%/13.74%) than Fitch. For *R&I and the larger three agencies* (Table 4), sovereigns in “E S Asia” are more (less) likely to obtain higher (lower) one/more-than-one-notch R&I ratings by 17.21/55.77% (22.30/17.07%) than Moody’s, 20.26/61.24% (12.42%) than S&P, and 27.79%/49.60% (4.47%) than Fitch. For *JCR and the larger three agencies* (Table 5), sovereigns in “E S Asia” are more (less) likely to obtain higher (lower) one/more-than-one-notch JCR ratings by 2.50/93.42% (34.80%) than Moody’s, 9.85/84.18% than S&P, and 4.27%/90.69% than Fitch. The results also suggest that the probabilities of JCR giving more-than-one-notch higher ratings are much greater than for one-notch higher ratings. This confirms the earlier result that JCR is the most generous rating agency (Table 1).

In summary, the above evidence supports Hypothesis III. Although CI is earlier found to be the harshest agency (see Table 1, Columns 6&7 and Section 4.2), it assigns higher ratings in “ME & Af”, where it operates, than the larger three agencies. This implies that CI appears to assign lower ratings in “Europe and Central Asia” than the larger three agencies.

Compared with issuers in “Europe and Central Asia” region, those in the “E S Asia” region tend to get higher ratings from the Japanese agencies than from the larger three agencies, especially by more-than-one-notch from JCR. This is consistent with evidence that JCR is the most generous rating agency (see also Table 1, Columns 6&7). The results are consistent with the prior expectation that sovereigns in the same region as the rating agency are rated more favourably. It is plausible that the smaller agencies have better knowledge and experience about countries in their own region, and that they benefit from processing soft information as discussed in Section 3. However,

for sovereign issuers outside the home regions of the smaller rating agencies, these agencies will depend more on public information, as suggested in Section 4.1. The results support the “home bias” issue as a reason for split sovereign ratings.

5. Conclusion

The paper has explored the extent and causes of split sovereign ratings in emerging countries. Annual sovereign ratings of 49 emerging countries rated by at least two of six international credit rating agencies during the period from 2000 to 2008 are utilized. Split ratings are defined by one-notch and more-than-one-notch using a 20-point numerical rating scale. Ordered probit regressions of rating differences are conducted using 17 macroeconomic factors. Region indicator variables and a speculative-grade dummy variable are incorporated in the models in order to test whether “home bias” and “opacity” play a significant role in explaining the rating disagreements across agencies. The descriptive analysis of the data reveals a high frequency of disagreements across agencies on emerging sovereign ratings, reaching 86.6% between JCR and CI. S&P and Fitch tend to have the lowest frequency of disagreement (34.6%), while Moody’s and S&P have the highest level of disagreement across the larger agencies (59.4). CI tends to be the harshest agency in assigning sovereign ratings for emerging countries, while JCR is the most generous agency. Most of the rating differentials are fairly small, but in some cases the split across agencies reaches up to six rating notches.

The findings show that rating agencies consider different macroeconomic factors and/or they attach different weights for the same variables, leading to different rating opinions. Additionally, a wider range of macroeconomic

factors play a key role in explaining split ratings between the larger versus smaller rating agencies. The smaller rating agencies depend more heavily on public information (economic and financial conditions) in assigning sovereign ratings to countries outside their home regions.

The results also provide evidence supporting both “opacity” and “home bias” hypotheses in explaining emerging sovereign split ratings. Speculative grade rated issuers are more likely to receive superior Fitch ratings than both Moody’s and S&P, and to attain higher ratings by the Japanese agencies than from the larger three agencies. Those issuers are less likely to achieve inferior ratings from CI than from the larger three agencies, suggesting that CI is harsher when it rates issuers in the investment grade spectrum.

Hence, split ratings across agencies are more likely for sovereign issuers with speculative grade. Higher uncertainty is associated with assessing sovereign credit risk in countries with lower credit quality (i.e., more opaque issuers). Poor information quality and a high degree of instability and volatility in these countries can lead to this result. Furthermore, for smaller agencies, sovereigns in the same region as the rating agency are rated more favourably. CI assigns higher ratings for sovereigns in “Middle East & Africa” than do the larger three agencies. Sovereigns in the “East and South Asia” region tend to receive superior ratings from JCR and R&I agencies (especially by more-than-one-notch) than from the larger three agencies.

The paper contributes to the previous literature by being the first to empirically examine the reasons behind rating disagreements across six international agencies on their sovereign ratings. A larger number of emerging countries (49 countries) and a wider range of economic fundamentals (17 variables) than any other study on sovereign ratings are used. This study contributes to enhanced understanding of the causes of

split ratings. In addition to the contribution to the academic literature, the study offers insights of practical economic importance and the results will interest regulators, investors, financial institutions, credit rating agencies, issuers, credit risk managers and investment managers.

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Table 1- Agreement/disagreements across rating agencies on sovereign ratings in emerging countries, January 2000 to January 2008

Agencies	No. of Countries	Whole sample	Non-split	Split	Split % of whole sample	Higher rating from first agency % of split	Lower rating from first agency % of split	Higher from first agency					Lower from first agency				
								1 n	2 n	3 n	4 n	5(6) n	1 n	2 n	3 n	4 n	5(6) n
S&P and Moody's	46	401	163	238	59.4	50.0	50.0	99	19	1	0	0	77	35	4	2	1
S&P and Fitch	44	353	231	122	34.6	35.3	64.8	39	1	0	1	(2)	66	11	1	0	(1)
Fitch and Moody's	42	356	151	205	57.6	53.2	46.8	86	21	2	0	0	68	18	7	3	0
CI and Moody's	25	221	92	129	58.4	24.8	75.2	27	1	4	0	0	54	29	11	3	0
CI and S&P	26	214	102	112	52.3	21.4	78.6	24	0	0	0	0	67	20	1	0	0
CI and Fitch	22	186	85	101	54.3	10.9	89.1	11	0	0	0	0	64	23	3	0	0
R&I and Moody's	19	169	49	120	71.0	72.5	27.5	58	22	4	3	0	11	21	1	0	0
R&I and S&P	19	166	64	102	61.5	91.2	8.8	67	11	13	2	0	9	0	0	0	0
R&I and Fitch	18	159	56	103	64.8	82.5	17.5	58	24	3	0	0	18	0	0	0	0
JCR and Moody's	14	112	18	94	83.9	73.4	26.6	36	20	6	7	0	25	0	0	0	0
JCR and S&P	14	112	33	79	70.5	97.5	2.5	44	17	9	7	0	2	0	0	0	0
JCR and Fitch	14	112	33	79	70.5	91.1	8.9	42	20	8	2	0	7	0	0	0	0
JCR and CI	12	97	13	84	86.6	100	0.0	36	31	17	0	0	0	0	0	0	0
R&I and CI	14	123	25	98	79.7	98.0	2.0	50	41	5	0	0	2	0	0	0	0
JCR and R&I	11	87	31	56	64.4	92.9	7.1	52	0	0	0	0	4	0	0	0	0
Column Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

This Table presents summary statistics for the dataset, which comprises six international rating agencies. The sample consists of annual sovereign long-term foreign-currency ratings of emerging countries during the period January 2000 to January 2008. Rating split is observed by notch differential based on a 20-point rating scale.

Table 2- Annual ES split ratings across the larger agencies

Panel A- Annual ES split ratings between Moody's and S&P

	Superior S&P				Inferior S&P			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp					0.0001*	1.88	3.35	2.56
Exdebt	-0.0007*	-1.73	-3.67	-0.96	0.001***	2.42	3.58	2.73
Fbal	-0.104***	-4.94	-9.22	-2.46	0.117***	4.55	7.39	5.72
Exrate	-0.011***	-2.91	-5.76	-1.52				
Unemp					-0.032**	-1.97	-3.08	-2.34
Res	-0.0001***	-2.55	-13.34	-3.64	0.0001***	4.19	5.59	4.29
Exgdp					-0.012**	-2.00	-4.45	-3.40
Invgdp	0.035**	1.92	3.61	0.95				
Expimp					0.004*	1.66	2.98	2.27
Resimp	0.004*	1.67	3.56	0.93	-0.012***	-3.79	-6.85	-5.27
E S Asia	0.339	1.52	9.04	2.85	-0.726***	-3.07	-12.72	-7.65
LA	0.267	1.38	7.07	1.99	-0.682***	-3.52	-12.34	-8.65
ME & Af	-0.220	-0.94	-5.63	-1.31	-0.537**	-2.19	-9.63	-5.82
Spec	-0.160	-1.00	-4.22	-1.12	-0.010	-0.05	-0.19	-0.15
Pseudo R ²	9.4%	No of Obs.		401	Pseudo R ²	10.2%	No of Obs.	

Panel B- Annual ES split ratings between Fitch and S&P

	Superior S&P				Inferior S&P			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp					0.00005**	1.90	4.32	0.76
CPI					0.012*	1.65	2.99	0.52
Fbal					0.055**	1.98	4.32	0.76
Dh					0.832**	2.14	20.92	7.35
Exrate	-0.009*	-1.71	-2.84	-0.33				
Unemp					-0.526***	-2.77	-6.67	-1.18
Res					0.00001***	3.64	6.23	1.10
Exgdp					-0.28***	-3.50	-12.48	-2.29
Invgdp	0.479**	2.22	2.83	0.33				
Gexp	-0.012*	-1.69	-2.49	-0.29				
Expimp					0.007***	2.82	7.06	1.25
Dsereexp					0.005*	1.80	3.53	0.61
Resimp					-0.011***	-2.94	-7.71	-1.37
Resfd	0.0005*	1.66	5.10	0.61				
E S Asia	-0.637**	-2.03	-7.81	-0.77	0.335*	1.65	7.79	1.51
LA	-0.250	-0.94	-3.65	-0.40	-0.627***	-2.42	-12.81	-2.04
ME & Af	-0.618*	-1.76	-7.08	-0.65	Merged with E S Asia			
Spec	-0.285	-1.31	-4.41	-0.52	0.545**	2.25	12.04	2.18
Pseudo R ²	8.7%	No of Obs.		353	Pseudo R ²	15.6%	No of Obs.	

Table 2- Continued

Panel C- Annual ES split ratings between Fitch and Moody's

	Superior Fitch				Inferior Fitch				
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %		
			1n	>1n			1n	>1n	
Gdp	0.00004*	1.65	3.82	1.27	0.0007***	2.65	5.65	2.59	
Exdebt	-0.001***	-2.79	-7.19	-2.47	0.002***	2.74	8.35	3.88	
Exbal	-0.0367**	-2.18	-5.55	-1.85					
Fbal	-0.125***	-4.83	-3.11	-1.03	0.099***	3.87	7.23	3.34	
Exrate	-0.108***	-2.64	-5.42	-1.80					
Res	-0.00001*	-2.24	-11.96	-4.10	0.00001*	1.71	3.44	1.57	
Exgdp					-0.011*	-1.72	-4.54	-2.08	
Dserexp					-0.016***	-3.05	-11.34	-5.37	
Resimp	0.010***	3.42	7.94	2.67	-0.009***	-2.78	-5.69	-2.61	
E S Asia	0.644***	2.67	15.72	7.57	-1.036***	-3.73	-17.80	-6.25	
LA	0.0746	0.36	1.87	0.63	-0.422**	-2.11	-8.57	-3.60	
ME & Af	0.374	1.40	9.37	3.99	-1.312***	-4.16	-19.27	-5.94	
Spec	0.570***	2.93	13.89	4.74	-0.151	-0.73	-3.17	-1.45	
Pseudo R ²	11.6%	No of Obs.		365	Pseudo R ²	13.5%	No of Obs.		356

This Table reports the results of ordered probit estimation (Eq. (1)) using data from Moody's and S&P (Panel A), Fitch and S&P (Panel B), and Fitch and Moody's (Panel C). The dependent variable is $SS_{it} (SI_{it})$ (which equals 1 or 2 if an emerging sovereign issuer i rated by agency A and B has one-notch (1n) or more-than-one-notch (>1n) superior (inferior) A-rating compared to B-rating at year t , zero otherwise). $Spec$ is a dummy variable that takes the value of 1 if a sovereign i is rated as speculative-grade at year t , and 0 otherwise. The equation includes a set of dummy variables indicating the geographical region of the emerging country of interest being East Asia & Pacific and South Asia (E-S Asia), Latin America (LA), Middle East and North Africa and Sub-Saharan Africa (ME&Af). Europe and Central Asia (EU-CA) is used as the reference region. Other independent variables are macroeconomic factors (see Section 3 for definitions). We also estimate and report the impact of each variable on the probability of a rating change (marginal effect).

***Significant at 1% level; **significant at 5% level; *significant at 10% level. The estimates of the threshold parameters are significant at the 1% level in all estimations, and are not shown here.

Table 3- Annual ES split ratings between CI and larger agencies

Panel A- Moody's and CI

	Superior CI				Inferior CI			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp	-0.0002***	-2.62	-0.01	-0.0001	0.0001***	2.40	5.38	6.05
Exdebt	-0.008***	-3.22	-0.02	-0.0001	0.002***	3.17	6.87	7.77
Ggdp	0.254**	2.14	0.01	0.0001				
CPI	0.094***	3.70	0.01	0.0001				
Fbal	0.141***	2.57	0.01	0.0001	-0.074***	-2.57	-5.29	-5.95
Exrate	0.042***	2.44	0.01	0.0001				
Unemp	-0.148***	-2.67	-0.01	-0.0001	0.058***	2.72	6.64	6.35
Res	-0.0001***	-3.92	-0.02	-0.005	0.0001***	3.05	5.11	5.74
Exgdp	-0.043***	-3.69	-0.01	-0.0001	0.014**	1.89	3.32	3.71
Invgdp	-0.163**	-1.91	-0.06	-0.0001				
Expimp	0.012**	2.25	0.01	0.0001				
Dserexp	0.027*	1.75	0.01	0.0001				
Resimp	0.025**	2.19	0.01	0.0001				
Resfd					0.0002**	2.12	0.01	0.01
E S Asia	6.866	3.46	56.05	1.06	-1.922	-0.73	-3.67	-3.89
LA	NA	NA	NA	NA	NA	NA	NA	NA
ME & Af	5.100***	2.92	29.87	0.13	-1.354***	-5.41	-25.66	-20.80
Spec	-2.188***	-3.37	-0.05	-0.00	-0.527***	-2.41	-10.07	-10.36
Pseudo R ²	52.0%	No of Obs.		221	21.4%	No of Obs.		221

Panel B- S&P and CI

	Superior CI				Inferior CI			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp					0.0001***	3.18	9.42	3.11
Exdebt	-0.004***	-2.37	-5.57	NA	0.005***	4.95	25.16	9.14
CPI	0.053***	3.88	4.58	NA				
Fbal	0.163***	2.95	4.59	NA				
Dh					1.723***	2.70	9.54	45.34
Exgdp	-0.034***	-3.03	-5.74	NA				
Invgdp	0.104***	2.36	3.04	NA				
Dserexp	0.028***	2.59	5.41	NA	-0.039***	-5.15	-26.86	-1.15

Resfd					0.0003***	2.65	9.90	3.28
E S Asia	1.864***	3.13	23.35	NA	-0.624***	-2.68	-17.58	-5.29
LA	NA	NA	NA	NA	NA	NA	NA	NA
ME & Af	0.874	1.46	9.25	NA	-1.500***	-5.35	-36.40	-9.23
Spec	-1.098	-1.40	-7.22	NA	-0.088***	-2.72	-2.53	-0.81
Pseudo R ²	37.3%	No of Obs.		214	19.7%	No of Obs.		214

Table 3- Continued

Panel C- Fitch and CI

	Superior CI				Inferior CI			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp	0.0006***	2.67	0.0001	NA	0.0001***	4.08	14.09	7.87
Exdebt	-0.016**	-2.03	-0.0001	NA	0.003***	2.82	14.98	8.41
Ggdp	0.424*	1.65	0.0001	NA				
CPI	0.117***	2.62	0.0001	NA				
Exbal					-0.081***	-3.25	-13.36	-7.42
Fbal	0.616***	3.04	0.0001	NA	-0.084***	-2.62	-8.80	-4.79
Exrate					-0.022***	-3.50	-10.27	-5.62
Unemp	0.176*	1.80	0.0001	NA				
Res	-0.00007**	-1.91	-0.006	NA				
Invgdp					-0.055**	-1.97	-5.71	-3.08
Gexp	-0.129***	-2.58	-0.0001	NA				
Expimp	-0.051**	-1.89	-0.0001	NA				
Dsereexp	0.064**	1.79	0.0001	NA	-0.036***	-4.43	-9.34	-0.50
Resimp	0.044*	1.69	0.0001	NA	0.012***	3.13	9.85	5.38
E S Asia	5.072**	2.23	0.068	NA	-0.122	-0.37	-3.20	-1.66
LA	NA	NA	NA	NA	NA	NA	NA	NA
ME & Af	2.488**	2.07	0.0001	NA	-1.725***	-4.51	-42.00	-13.74
Spec	-2.618	-1.39	-0.0001	NA	-0.093*	-1.80	-2.44	-1.26
Pseudo R ²	51.5%	No of Obs.		186	21.2%	No of Obs.		186

This Table reports the results of ordered probit estimation (Eq. (1)) using data from CI and Moody's (Panel A), CI and S&P (Panel B) and CI and Fitch (Panel C). For variable definitions, see Table 2.

***Significant at 1% level; **significant at 5% level; *significant at 10% level. The estimates of the threshold parameters are significant at the 1% level in all estimations, and are not shown here.

Table 4- Annual ES split ratings between R&I and larger agencies

Panel A- Moody's and R&I

	Superior R&I				Inferior R&I			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Exdebt	0.005***	3.65	11.78	9.67				
Ggdp	0.085*	1.66	4.63	3.68	-0.205**	-2.22	-1.57	-0.35
Exbal	0.069**	1.92	7.19	5.76				
Dh	NA	NA	NA	NA	NA	NA	NA	NA
Exrate					0.032**	1.92	1.54	0.35
Exgdp	-0.022***	-2.70	-10.69	-8.71				
Invgdp	0.091***	2.38	7.10	5.69	-0.086**	-2.20	-0.93	-0.21
Gexp					0.032*	1.77	1.16	0.26
Expimp	-0.018***	-3.11	-9.15	-7.40	0.054***	3.93	4.41	1.20
Resimp	-0.017***	-3.23	-10.67	-8.68				
E S Asia	2.334***	5.93	17.21	55.77	-3.681***	-4.69	-22.30	-17.07
LA	0.308	0.82	5.93	6.18	-0.901	-1.39	-1.59	-0.31
ME & Af	0.562*	1.65	8.98	12.52	Merged with E S Asia			
Spec	0.163	0.67	3.52	2.98	-2.589***	-3.79	-7.15	-2.30
Pseudo R ²	20.4%	No of Obs.		169	51.7%	No of Obs.		169

Panel B- S&P and R&I

	Superior R&I				Inferior R&I			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp	-0.0001**	-2.05	-8.78	-2.91				
Exbal	0.102***	2.50	13.82	4.68				
Fbal	0.101*	1.65	7.22	2.38	-0.285***	-2.43	-2.10	NA
Dh	NA	NA	NA	NA	NA	NA	NA	NA
Exrate	0.032***	3.00	13.87	4.67				
Exgdp	-0.047***	-4.64	-27.82	-10.69				
Invgdp	0.140***	3.32	14.15	4.80				
Expimp	-0.013**	-2.04	-8.94	-2.96	0.029**	2.06	2.03	NA
Resimp	-0.019***	-3.18	-15.02	-5.12				
E S Asia	3.202***	6.79	20.26	61.24	-2.198***	-2.95	-12.42	NA
LA	1.003**	2.23	15.90	16.44	-0.824	-1.53	-1.32	NA
ME & Af	1.595***	4.00	9.51	34.00	Merged with E S Asia			

Spec	0.330	1.21	9.06	3.39	-0.510	-0.97	-1.24	NA
Pseudo R ²	36.5%	No of Obs.		166	23%	No of Obs.		166

Table 4- Continued

Panel C- Fitch and R&I

	Superior R&I				Inferior R&I			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp	-0.0001**	-2.21	-11.50	-3.85	0.0002***	2.72	1.13	NA
Exdebt	-0.004**	-1.92	-12.49	-4.20				
Ggdp	-0.172***	-2.64	-11.92	-4.00				
Exbal	0.067*	1.69	9.37	3.11				
Fbal	0.136*	1.84	9.91	3.30	-0.469***	-3.33	-2.23	NA
Dh	NA	NA	NA	NA	NA	NA	NA	NA
Exrate	0.050***	3.83	21.98	7.90				
Unemp	-0.053*	-1.73	-1.53	-0.50				
Res					-0.0001***	-3.09	-21.01	NA
Exgdp	-0.016*	-1.85	-10.15	-3.38				
Invgdp	0.151***	3.60	15.36	5.24				
Expimp	-0.038***	-4.57	-23.82	-8.72	0.032***	2.78	1.18	NA
Dsereexp	-0.031***	-2.92	-20.04	-7.08				
Resimp					0.022**	2.00	0.96	NA
E S Asia	2.805***	5.57	27.79	49.60	-1.750**	-2.23	-4.47	NA
LA	0.896*	1.66	15.89	13.79	-1.002**	-1.92	-0.75	NA
ME & Af	3.775***	6.09	7.34	93.38	Merged with E S Asia			
Spec	1.308***	3.75	25.70	18.42	-0.321	-0.48	-0.41	NA
Pseudo R ²	41.7%	No of Obs.		159	37.0%	No of Obs.		159

This Table reports the results of ordered probit estimation (Eq. (1)) using data from R&I and Moody's (Panel A), R&I and S&P (Panel B) and R&I and Fitch (Panel C). For variable definitions, see Table 2.

***Significant at 1% level; **significant at 5% level; *significant at 10% level. The estimates of the threshold parameters are significant at the 1% level in all estimations, and are not shown here.

**Table 5- Annual ES split ratings between JCR and larger Agencies
Panel A- Moody's and JCR**

	Superior JCR				Inferior JCR			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp					0.0002***	2.66	2.85	NA
Ggdp					-0.507***	-3.52	-4.58	NA
CPI	0.078***	3.74	12.04	17.32	-0.110***	-2.50	-9.33	NA
Fbal	0.177***	2.79	6.97	9.04				
Dh	NA	NA	NA	NA	NA	NA	NA	NA
Exgdp	-0.024***	-2.34	-6.10	-7.83				
Invgdp	0.183***	3.91	9.38	12.65				
Gexp	-0.059***	-3.02	-7.19	-9.35				
Expimp	-0.088***	-5.29	-15.64	-26.09				
Dserexp	-0.089***	-4.55	-13.20	-19.73				
E S Asia	5.274***	5.81	2.50	93.42	-3.396***	-4.95	-34.80	NA
LA	1.274*	1.84	15.15	32.78	Merged with E S Asia			
ME & Af	NA				NA			
Spec	1.768***	3.83	0.45	35.03	0.354	0.52	5.87	NA
Pseudo R ²	61.3%	No of Obs.		112	56.0%	No of Obs.		112

Panel B- S&P/Fitch and JCR^a

	Superior JCR than S&P				Superior JCR than Fitch			
	coeff	t-val	Marginal Effects %		coeff	t-val	Marginal Effects %	
			1n	> 1n			1n	> 1n
Gdp	0.0001**	2.32	2.80	12.26				
Ggdp	-0.163**	-1.93	-2.26	-9.87	-0.409***	-3.60	-3.04	-15.91
CPI	0.050***	2.84	5.09	23.01	0.041**	2.07	2.38	12.26
Exbal					-0.171***	-3.15	-3.37	-17.86
Fbal	0.307***	5.27	7.00	33.22	0.443***	4.84	5.38	32.32
Dh	NA	NA	NA	NA	NA	NA	NA	NA
Exrate					0.024**	2.19	1.71	8.62
Exgdp					0.041***	3.19	3.43	18.18
Expimp	-0.048***	-4.11	-5.98	-27.59	-0.109***	-4.79	-6.30	-43.11
Dserexp					0.027*	1.66	1.56	7.85
E S Asia	3.209***	5.90	9.85	84.18	7.000***	5.65	4.28	90.69
LA	1.892***	3.82	6.80	65.50	4.94***	5.68	8.10	94.47
ME & Af	NA	NA	NA	NA	NA	NA	NA	NA

Spec	1.162***	2.80	13.48	37.38	1.493***	2.96	15.06	35.07
Pseudo R ²	38.1%	No of Obs.		112	58.1%	No of Obs.		112

This Table reports the results of ordered probit estimation (Eq. (1)) using data from JCR and Moody's (Panel A) and JCR and S&P/Fitch (Panel B). For variable definitions, see Table 2. ^a There are 2 (7) observations with higher JCR ratings than S&P (Fitch) and therefore these equations are not estimated. ***Significant at 1% level; **significant at 5% level; *significant at 10% level. The estimates of the threshold parameters are significant at the 1% level in all estimations, and are not shown here.

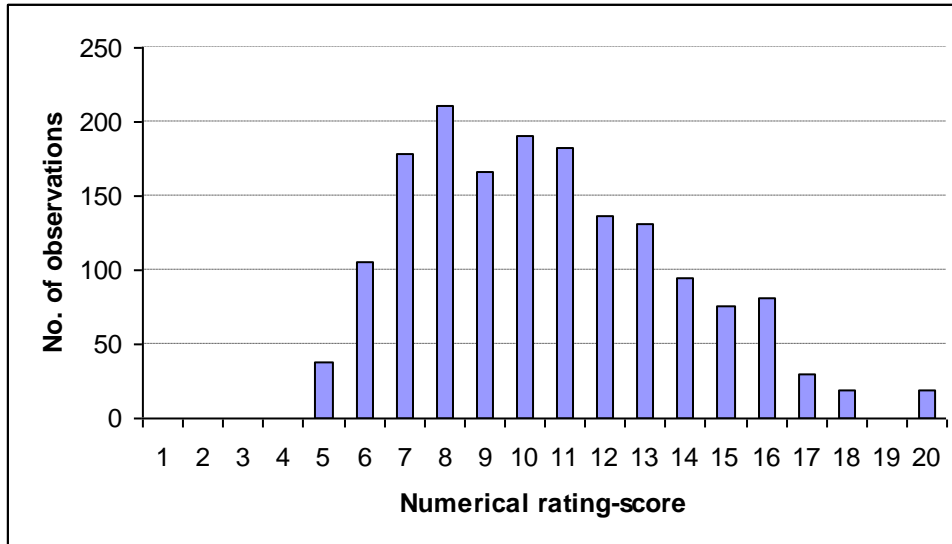


Figure 1. Distribution of emerging sovereign annual ratings by rating score, All agencies, January 2000 – January 2008. The credit ratings scale is transformed into a 20-point numerical scale (Aaa/AAA = 1, Aa1/AA+ = 2...Caa3/CCC- = 19, Ca/CC, C/SD-D = 20).