Courant Research Centre

'Poverty, Equity and Growth in Developing and Transition Countries: Statistical Methods and Empirical Analysis'

Georg-August-Universität Göttingen
(founded in 1737)

Discussion Papers

No. 179

The Home Bias in Sovereign Ratings

Andreas Fuchs, Kai Gehring

June 2015

Wilhelm-Weber-Str. 2 · 37073 Goettingen · Germany
Phone: +49-(0)551-3914066 · Fax: +49-(0)551-3914059

Email: crc-peg@uni-goettingen.de Web: http://www.uni-goettingen.de/crc-peg

The Home Bias in Sovereign Ratings

Andreas Fuchs [a,*], Kai Gehring [a,b]

This version: May 2015

Abstract: Credit rating agencies are frequently criticized for producing biased sovereign ratings. This article discusses how the home country of rating agencies could affect rating decisions as a result of political economy influences and cultural distance. Using data from nine agencies based in six countries, we test whether agencies assign better ratings to their home countries, as well as to countries economically, geopolitically and culturally aligned with them. Our results show biases in favor of the respective home country, culturally more similar countries, and countries in which home-country banks have a larger risk exposure. Linguistic similarity seems to be the main transmission channel that explains the advantage of the home country.

JEL classification: G24, F34, H63, F65, G15

Keywords: Sovereign debt ratings, credit rating agencies, home bias, international finance, cultural distance, bank exposure

[a] Heidelberg University, Alfred-Weber-Institute for Economics, Bergheimer Strasse 58, D-69115 Heidelberg, Germany

[b] University of Goettingen, Faculty of Economic Sciences, Platz der Goettinger Sieben 3, D-37073 Goettingen, Germany

[*] Supplementary information is provided in an online appendix available at http://www.andreas-fuchs.net/sovereign-ratings.html. Corresponding author at: Heidelberg University, Alfred-Weber-Institute for Economics, Bergheimer Strasse 58, D-69115 Heidelberg, Germany. Tel.: +49 6221 54 2943.
E-mail addresses: mail@andreas-fuchs.net (A. Fuchs), kai.gehring@awi.uni-heidelberg.de (K. Gehring).

"The assessments by Standard & Poor's appear dictated more by newspaper articles than reality and appear to be tainted by political considerations." (Italy's Prime Minister Silvio Berlusconi after his country was downgraded to "A" in September 2011)

"If I ever dictated anything, it must have been what S&P had to say about domestic Italian economic policy." (Italy's Prime Minister Mario Monti after his country was downgraded to "BBB" in January 2012)

1. INTRODUCTION

The accuracy of sovereign ratings is important as rating outcomes can affect the borrowing costs of states (e.g., Afonso et al. 2012), can set de-facto ceilings to corporate ratings (e.g., Durbin and Ng 2005; Borensztein et al. 2013) and – as argued by some – might even trigger or aggravate financial crises (e.g., Ferri et al. 1999; Kaminsky and Schmukler 2002; Gärtner et al. 2011). Ideally, competition and concerns over reputation should incentivize agencies to publish accurate and unbiased ratings. However, some scholars and policymakers around the world accuse credit rating agencies of having unreliable practices, intentionally publishing ratings at unfortunate times and making calculated misjudgments. Germany's finance minister Wolfgang Schäuble speaks of "abusive behavio[u]r," Turkey's president Recep Tayyip Erdoğan makes claims of "unfair" decisions, and José Manuel Barroso, then president of the European Commission, directly accuses the agencies of a "bias […] when it comes to the evaluation of specific issues of Europe."[2] A common argument behind these accusations of biased ratings is that rating outcomes are influenced by factors other than the economic and political fundamentals of rated countries. However, so far, these accusations and complaints have been largely based on individual perceptions or anecdotal evidence.

Our study provides the first systematic empirical assessment of such claims and focuses on the concerns that revolve around the role of the credit rating agency's "home country."[3] We define "home country" as the country where the agency's headquarters is located or, alternatively, as the country of origin of its

[2] See media reports by *The Express Tribune* (http://tribune.com.pk/story/211912/breaking-the-oligopoly-ratings-agencies-under-attack-amid-debt-crisis/; accessed 13 June 2013), *Today's Zaman* (http://www.todayszaman.com/news-280044-.html; accessed 13 June 2013), and *BBC News* (http://www.bbc.co.uk/news/business-14043293; accessed 12 September 2013).

[3] According to the EU Justice Commissioner Viviane Reding, for example, "whenever the budgetary situation in the US worsens, certain risk rating agencies turn their guns on Europe" (see http://en.mercopress.com/2012/07/26/ec-criticizes-us-risk-rating-agencies-handling-of-the-euro-zone-crisis; accessed 23 May 2014). Sean Egan, president of the small U.S.-based agency Egan-Jones, criticizes the "current system" as being "New York-centered" and wants to "bring the perspective of China and Russia to the table" with the foundation of the Universal Credit Rating Group (UCRG), a joint venture of agencies from China, Russia and the U.S. (see http://rt.com/business/chinese-ratings-agency-alternative-us-004/, accessed on June 13, 2013).

major shareholders. Accordingly, we refer to a "home bias" in sovereign ratings if a rating agency assigns a better rating to its home country or to countries with close economic, political and cultural ties to it. As such, a home bias is a deviation of the actual rating level from what would be predicted based on the sovereign's economic and political fundamentals.

Our line of reasoning builds on and adds to the literature on a home bias in investment decisions, bank lending behavior, and trade (e.g., French and Poterba 1991; McCallum 1995; Tesar and Werner 1995; Grinblatt and Keloharju 2001; Flandreau 2006; Presbitero et al. 2014). Several studies have directly or indirectly addressed the question of a home bias in corporate ratings – with mixed results (e.g., Ammer and Packer 2000; Nickell et al. 2000; Shin and Moore 2003; Güttler and Wahrenburg 2007). However, despite the important role they play in determining many countries' access to capital markets, to date there has been no systematic study of home biases in sovereign ratings.

A simple comparison of the sovereign ratings issued by the China-based and Chinese-owned agency Dagong and the big three U.S.-based agencies (Fitch, Moody's and Standard & Poor's) serves as an illustrative example of why one might perceive ratings as influenced by the agency's home country. Compared to the three big U.S-based agencies, Dagong consistently assigns better ratings to the Chinese territories Hong Kong and Macao as well as to the group of BRIC countries, including China itself, while assigning lower ratings to many Western economies.[4] Beyond the case of Dagong, Gaillard (2012: 89) similarly observes that Japanese agencies seem to be "more indulgent, particularly when rating Asian governments, in ways that do not reflect […] official methodologies." The existing literature does not explain these stark differences between agencies. Up until now, scholarship has largely explained sovereign ratings by the economic and political characteristics of rated countries (e.g., Cantor and Packer 1996; Afonso 2003; Archer et al. 2007; Hill et al. 2010). However, systematic research on the role of the home country of credit rating agencies in rating decisions is still lacking – despite the increased attention economists, policy makers and regulators have devoted to the topic since the Global Financial Crisis. Our article fills this gap in the literature.

Why would a rating agency's home country matter for sovereign ratings? We identify steps in the rating process where political economy influences and culture could theoretically affect rating decisions. Specifically, the rating process might be subject to political pressure, the "lobbying" activities of private actors and the self-interests of agency staff. Moreover, cultural distance between the home country of the

[4] Note that Dagong and S&P provide both an "AAA" rating to Hong Kong. Comparison as of June 28, 2013. Data from Bloomberg and Fitch.

agency and the rated country could affect ratings. The economic situation of a country that is culturally closer to the home country of the rating agency, for example, might appear more positive to its analysts than a culturally more distant but otherwise comparable country. Thus, our work also contributes to the literature on the effect of cultural biases (e.g., Grinblatt and Keloharju 2001; Guiso et al. 2006, 2009; Giannetti and Yafeh 2012).

This article tests whether, conditional on the economic and political fundamentals of rated countries, credit rating agencies assign better ratings to their home country as well as to countries that are geopolitically and economically aligned with, or culturally similar to it. For this purpose, we use monthly dyadic panel data on sovereign ratings issued by nine rating agencies based in six countries between January 1990 and June 2013. The data have been obtained directly from the rating agencies or accessed and gathered via Bloomberg and cover up to 143 sovereigns. Specifically,

We analyze nine agencies, rather than only the three large U.S.-based ones, for several reasons. First, since all of the agencies are registered in the European Union, Japan and/or the United States, companies and banks can use their ratings to fulfill regulatory requirements. Second, due to the assumed home bias of the US agencies, there is a heated and ongoing debate over the need to create new agencies or support existing alternatives, particularly in Europe and emerging countries.[5] A thorough examination of the behavior of agencies outside the U.S. sheds light on the meaningfulness and potential benefits of these endeavors. Third, the analysis shows whether potential biases occur only in US agencies, or if a home bias is a general phenomenon. This has policy implications for future regulation, in particular whether and how to curb market concentration and promote competition by supporting smaller agencies.

Our results show empirical evidence that home biases in sovereign ratings exist. First, we find that the average agency assigns a rating to its home country that is almost one point higher than justified by how it assesses other sovereigns. Second, while there is no robust empirical support that geopolitical ties between home and sovereign play a significant role in rating outcomes, agencies provide relatively better ratings to countries in which home-country banks have a larger risk exposure. Third, cultural proximity is related to

[5] The new rating agency *ARC Ratings*, an alliance of agencies from Brazil, India, Malaysia, Portugal, and South Africa, wants to challenge the established agencies, in particular by emphasizing their multinational background (see http://www.arcratings.com, accessed 12 May 2014). Similarly, UCRG, headquartered in Hong Kong, is a new joint venture of agencies based in China, Russia and the United States (http://en.dagongcredit.com/content/details20_7016.html; accessed 12 May 2014). Annette Heuser, executive director of the Germany-based Bertelsmann Foundation, speaks of "a boom in new rating agencies" and promotes the establishment of an international non-profit credit rating agency called Incra (see *Financial Times* article at http://www.ft.com/intl/cms/s/0/4140e388-cfc1-11e3-9b2b-00144feabdc0.html?siteedition=intl#axzz30r3qAT6O, accessed 30 April 2014).

better ratings: the larger the linguistic differences between home and sovereign, i.e., the more unfamiliar their respective languages are, the lower the assigned rating. The size of the biases increases in the period after the onset of the Global Financial Crisis and varies across agencies. These biases are economically significant and could thus affect borrowing costs and access to international financial markets. The main channel that drives the differential treatment of the home country itself seems to be cultural proximity.

While our analysis is limited to the existing nine global rating agencies that provide sovereign ratings, the results are remarkably robust to the choice of the time period under analysis, the selection of control variables and the estimation methods. We take several steps to come as close as possible to a causal interpretation of our results. First, instead of selecting control variables in an ad-hoc manner, we use a conservative specification that combines the sets of control variables from previous contributions to the literature. Second, our three main findings remain robust to augmenting the specification with additional fixed effects. This shows that these results are not driven by factors that are time-invariant in our sample such as the advantage that the United States enjoys with the US dollar being the world's reserve currency. Third, we run agency-specific regressions that allow for differential weights and assessments across agencies, the results of which confirm our main conclusions. Fourth, where applicable we separately assess the role that the nationality of an agency's main owner might play compared to headquarter location. Fifth, we show that our findings are not caused by selection into the sample of rated countries.

Finally, we explore in greater detail the channels through which cultural distance has an effect on rating outcomes. Employing data on the existence of foreign offices, it seems that the bias is not driven by superior information. Instead, we provide evidence for a limited sample of European countries, for which data on bilateral trust are available, that in the case of ratings cultural bias is associated with differences in relative risk perceptions related to trust. Using quantile regressions, we also demonstrate that the effect of cultural distance is significantly negative across all quantiles of the rating distribution and is more pronounced at lower quantiles.

The article proceeds as follows. In Section 2, we introduce the credit rating agencies and compare their key characteristics. Section 3 summarizes the existing literature on sovereign ratings and highlights the gaps in the literature that this article addresses. In Section 4, we discuss the mechanisms that could lead to a home bias in sovereign ratings and present our hypotheses. Section 5 introduces the data and econometric methods. In Section 6, we put our hypotheses to an empirical test and present our results. Finally, Section 7 summarizes, concludes, and outlines policy implications.

2. THE AGENCIES

Credit rating agencies are private companies that assess the default risk of all types of bonds. There are about 150 agencies operating in the rating business worldwide (White 2010; De Haan and Amtenbrink 2011). Of these, most agencies are active in a narrow national or regional market and focus solely on corporate ratings. Only a small number of agencies issue sovereign ratings, eight of which provide sovereign ratings on Bloomberg: *Capital Intelligence* (CI), *Dagong Global*, *Dominion Bond Rating Services* (DBRS), *Fitch Ratings*, *Japan Credit Rating Agency* (JCR), *Moody's Investors Service*, *Rating and Investment Information* (R&I), and *Standard & Poor's* (S&P). *Feri EuroRating Services* assigns ratings to 56 countries (and kindly provided us their data). Our study covers these nine agencies based in six countries.[6]

Sovereign ratings, often used synonymously with the terms "sovereign credit ratings," "sovereign debt ratings," or "sovereign risk ratings," are assessments of a country's creditworthiness. CI, for example, defines sovereign credit ratings as an indicator of "the ability and willingness of sovereign governments to repay existing and future commercial debt obligations on time and in full."[7] The rating scales follow letter designations and differ only marginally in terms of notation across agencies (see Online Appendix A0 for details). The best rating issued by most agencies is the grade "AAA," which is assigned to sovereigns with the lowest probability of default. As of June 2013, Switzerland, Finland, Liechtenstein, Luxembourg and Norway are the only sovereigns that receive the top rating from all of the agencies that assign a rating to them. Ratings of "BB" or lower are usually considered to be of "junk status," i.e., to have a high expectation of default.

Table 1 provides an overview of the nine agencies covered in our study. While the corporate history of S&P dates back to the 19th century, the smaller agencies are relatively new actors in the rating business. DBRS is the oldest of the small agencies, having been active since 1976. Most of the smaller agencies started to rate sovereigns in the late 1990s when the demand for these ratings increased strongly as a larger number of countries started to issue sovereign bonds. The nine agencies under analysis vary greatly in size. The three large U.S.-based agencies, Moody's, S&P and – to a lesser extent – Fitch, are the dominant players in the

[6] We thus do not cover very small agencies. The U.S.-based agency *Egan-Jones Ratings Company*, for example, provides ratings for 19 sovereigns only (see http://www.egan-jones.com/; accessed 24 September 2013). Another example is the Ukrainian rating agency *Credit-Rating* that only issues sovereign ratings for member countries of the Commonwealth of Independent States (see http://www.credit-rating.ua; accessed 17 September 2013).

[7] See CI's company website available at http://www.ciratings.com/page/rating-methodologies/sovereign-ratings (accessed 18 October 2013). Sovereign ratings are not to be confounded with "country risk ratings," which take a broader stance. Euromoney Country Risk, for example, evaluates the general risk of an investment in a country (details available at http://www.euromoneycountryrisk.com/; accessed 12 May 2014).

global rating market. They have several thousand employees each, of which more than a thousand are involved with ratings (White 2010). All three are not only physically present in their home country, but possess between 24 and 34 offices in other countries. The other six agencies employ a much smaller number of people, and only possess between one (JCR) and five (Feri) foreign offices. Nevertheless, the interest in these smaller agencies is increasing – not only in the financial sector. Downgrades by Dagong in particular receive significant media attention.[8] Moreover, all of the agencies are officially recognized in the European Union, Japan and/or the United States.

The agencies also differ considerably with regard to their ownership structure. Banks and financial institutions are among the most important shareholders of most credit rating agencies. Feri, Moody's, S&P's mother company McGraw Hill, JCR and R&I all have one or more financial institutions among their major shareholders. For example, the Vanguard Group, the Bank of New York Mellon Corp. and BlackRock Inc. are shareholders of both Moody's and S&P. The vertical and horizontal cross holdings have led to concerns about the influence of banks as shareholders if they are also invested in rated securities.[9] Dagong and DBRS, in turn, are owned by private individuals, the former Chinese government official Guan Jianzhong and Canadian businessman Walter Schroeder, respectively.

In two cases, the home country as determined by the agency's headquarters is not identical to the home country as defined by the citizenship of the agency's major shareholders. While the U.S.-based agency Fitch belonged to 100 percent to the French holding company Fimalac until 2006 (which still holds 50 percent of the shares), Cyprus-based CI is owned by a privately-owned Kuwait-based company and three private individuals.

Finally, there are huge discrepancies with respect to the country coverage of the rating agencies. While S&P has the widest coverage with 125 countries (and territories), DBRS covers the least (25). There are not only substantial differences with respect to the set of countries covered, but also striking differences with respect to the ratings assigned. Figure 1 shows world maps graphically representing the sovereign ratings assigned by Moody's and Dagong. They show, for example, that Moody's rates the United States with the

[8] See, for example, articles on the websites of *The Economist* (http://www.economist.com/blogs/buttonwood/2011/08/debt-ceiling-crisis-1; accessed 13 November 2013), the *Wall Street Journal* (http://blogs.wsj.com/moneybeat/2013/10/17/chinas-dagong-takes-aim-at-u-s/?KEYWORDS=dagong; accessed 13 November 2013) and *CNN* (http://edition.cnn.com/2011/BUSINESS/08/02/china.us.rating/; accessed 13 November 2013)

[9] The European Commission speaks of "shareholders that sometimes overlap" and "risk of conflicts of interest that could affect the quality of rating." Its new rules specifically "require CRAs to disclose publicly if a shareholder with 5% or more of the capital or voting rights holds 5% or more of a rated entity" and "prohibit ownership of 5% or more of the capital or the voting rights in more than one CRA" (see European Commission MEMO/13/13 available at http://europa.eu/rapid/press-release_MEMO-13-13_en.htm, accessed 11 December 2013).

top-notch "AAA," while Chinese Dagong assigns an "A" only, i.e., five points lower (see Online Appendix A1 for maps for the remaining agencies). Table 2 compares the (average) rating assigned to each home country by its respective home agencies to the average rating received from all other agencies. As of June 2013, six out of eight home countries receive a better rating from their home agencies. Does the literature provide an explanation as to why these differences in rating assignments exist across rating agencies? This is what we turn to next.

3. WHAT THE PREVIOUS LITERATURE EXAMINES

In their seminal paper, Cantor and Packer (1996) investigate the determinants of rating assignments by the US agencies Moody's and S&P. They identify a set of key variables, confirmed by Afonso (2003), which contains GDP per capita, GDP growth, past default experience, the inflation rate, external debt and an industrialized country dummy. However, the two agencies are found to put different weights on the individual factors. Similarly, Hill et al. (2010) find significant differences in the weights that Fitch, Moody's and S&P each assign to the various factors that determine sovereign ratings. By comparing the relevant factors, they identify a similar set of variables that are used as common determinants of sovereign ratings: GDP per capita, GDP growth and its square, past default experience, country risk rating, and risk premiums.

Other recent studies have focused on political factors as determinants of sovereign ratings. Starting with Archer et al. (2007), one strand of the literature examines a potential "democratic advantage" in sovereign ratings. While Archer et al. (2007) do not find empirical support for the suggested positive link between ratings and democratic institutions, Beaulieu et al. (2012) find evidence for such a relationship when they account for the fact that democratic countries are more likely to have access to the international capital markets. Disentangling electoral democracy and political constraints, Cordes (2012) shows that the existence of contested elections does not matter for rating outcomes, but countries that impose more political constraints on the executive do receive better ratings. Along similar lines, Biglaiser and Staats (2012) find that countries' rule of law, judicial independence and protection of property rights all improve a country's rating outcome. Overall, political factors have been shown to play an important, though smaller, role compared to economic fundamentals (Haque et al. 1998; Archer et al. 2007). Among the political factors that seem to be considered in agencies' rating decisions are political business cycles (Block and Vaaler 2004; Vaaler et al. 2006; Biglaiser and Staats 2012) and executive party tenure (Archer et al. 2007).

The findings of the previous literature have two important caveats. First, most of the literature analyzes only sovereign ratings made by the big three U.S.-based agencies. Among the few exceptions, Alsakka and ap Gwilym (2010) compare rating decisions by Japanese agencies to those of the US agencies and Zheng (2012) analyzes differences between China's Dagong and S&P. Bartels and Weder di Mauro (2013) come to

the surprising conclusion that the ratings assigned by Germany-based Feri to European countries are "tougher" than those issued by its US competitors. To the best of our knowledge, no empirical study so far has looked at a broad set of rating agencies to analyze the determinants of sovereign ratings. Second, although some studies find differences in rating assignments between agencies, the previous literature does not offer an explanation for these marked differences. The literature so far explained sovereign ratings r issued by a rating agency a based in home country j only with characteristics of the rated country i at time t:

$$r_{a,j,i,t} = f(e_{i,t}, p_{i,t}) \qquad (1)$$

where e stands for the economic fundamentals and p for the political fundamentals of the rated country. This approach ignores the potential role played by the location of the agency's headquarters and the nationality of its main shareholders. We aim to fill this gap.

4. WHY THE HOME COUNTRY COULD MATTER

We argue that there are two potential sources of a home bias. First, political economy influences on the rating process could bias rating decisions in a way that favors the home country's economic and geopolitical interests. Governments and lobby groups might put pressure on rating agencies in order to advance the economic and geopolitical interests of the home country, leading to relatively better ratings for certain countries. Second, rated countries that are culturally more similar to the home country could obtain a higher rating. Extending equation (1) from above, we hypothesize that home-sovereign pair-specific variables $x_{j,i,t}$ explain sovereign ratings in addition to the economic and political fundamentals specific to country i:

$$r_{a,j,i,t} = f(x_{j,i,t}, e_{i,t}, p_{i,t}) \qquad (2)$$

A thorough understanding of the rating process is crucial to identify potential sources of home biases. For the most part, all agencies follow similar procedures to determine their ratings. The usual process that leads to a rating assignment can be grouped into four phases (see also figure in Online Appendix A2). In the first phase, *Rating Initiation*, the agency enters into an official agreement with the sovereign (in case of a solicited rating), assigns analysts to that particular sovereign and collects data. In the second phase, which we refer to as *Due Diligence*, the agency gathers further information by collaborating with the sovereign, which are subsequently analyzed. In the third phase, *Rating Assignment*, the analysts draft a preliminary report for the rating committee, which has the final say on the decision. The committee consists of several analysts, augmented with at least one senior director with managerial authority, who serves as

chairperson. After the committee's decision, the sovereign gets notified and has the opportunity to appeal. Most agencies approve such a request if the sovereign provides new or additional information that the agencies consider relevant. In the final phase, *Rating Publication*, the agency publishes the final report and the corresponding rating and continuously monitors the sovereign's economic and political situation.[10] The knowledge about the rating process allows us to derive how economic interests, geopolitical alignment and cultural proximity could influence rating decisions.

4.1 Economic and Geopolitical Interests of the Home Country

Political economy influences to advance the home country's economic and geopolitical interests are more likely to occur during the later stages of the rating process. While analysts use (more or less) clearly defined quantitative and qualitative indicators for the initial rating proposal ("sovereign indicative rating level"), the composition of the rating committee leaves room for the members of the rating committee to deviate from an "objective" rating proposal. S&P, for example, speaks of "exceptional adjustment factors" (S&P 2012). The possibility of sovereigns to appeal after the initial rating decision provides further potential for interested parties to influence rating outcomes.

Governments have incentives to sway rating decisions. First, sovereign ratings determine the extent to which countries can access international capital markets, particularly in the case of emerging and developing economies (e.g., Cantor and Packer 1996, Reinhart 2002). Second, even for industrialized economies with well-established market access, rating downgrades can influence a sovereign's borrowing costs (Afonso et al. 2012). In particular, certain institutional investors are bound by their own charter or law to choose only assets above a certain critical rating threshold ("hardwiring of ratings").[11] For a sovereign, falling below this threshold would lead to a sudden drop in bond demand and consequently an increase in bond yields. Third, rating decisions can also be interpreted as a signal of leader performance. Despite the

[10] Still, there are several important differences in the rating process between the nine agencies under analysis as we summarize in Online Appendix A3. For example, while most agencies (e.g., Fitch, S&P) conduct several interviews with representatives of the sovereign, which usually involve personal meetings at relevant ministries and central banks, others do not (CI, Dagong, and Feri). Also, R&I is the only agency that does not provide the sovereign with the opportunity to pursue a rating appeal after being notified about the final rating decision. Concerning the surveillance of the credit rating, some agencies follow a fixed update interval, while others provide ongoing surveillance (e.g., S&P). See also Gaillard (2012: ch. 4) for a detailed description of the rating process of the three U.S.-based agencies.

[11] The US Securities and Exchange Commission (SEC), for example, restricts money market funds to purchase only securities rated by any two Nationally Recognized Statistical Rating Organizations (NRSRO) in one of the two highest rating categories. The US Department of Labor restricts pension fund investments to securities rated "A" or higher (Rule 2a-7 [10] of the Investment Company Act). The Dodd-Frank Act (S. 939A) requires federal agencies to review such problematic regulations.

widespread public skepticism towards the agencies, downgrades can severely damage the reputation of a government. For example, the downgrades of France in 2012 and 2013 cast doubts over the optimistic predictions of President François Hollande's government concerning the future development of the French economy. According to the media, the downgrade by S&P constitutes "politically a heavy blow for the head of state."[12] Fourth, governments might also be interested in ratings of countries to which they have strong economic ties. Downgrades and potentially resulting instabilities may harm the home country's export interests and endanger the investments of domestic agents. Home-country governments may also have an interest in avoiding a destabilizing downgrade of geopolitically aligned countries, i.e., countries with which they collaborate in international fora or that are of military importance.[13]

Although governments have these motives to influence rating decisions, it is less obvious that they also have the political power to influence assessments provided by privately-owned credit rating agencies. With respect to international financial organizations, it is much more straightforward that political economy factors can affect economic assessments since governments are direct shareholders of these institutions (e.g., Dreher et al. 2008; Fratzscher and Reynaud 2011). However, there is a questionable dependence of agencies on governments, in particular their home government. In the European Union and the United States, only the ratings of officially recognized agencies can be used by companies to determine their capital requirements (White 2010; De Haan and Amtenbrink 2011). Dagong, for example, was denied recognition as a Nationally Recognized Statistical Rating Organization (NRSRO) in the United States in September 2010. The prospect of losing their recognition is an imminent threat to agencies. This is particularly the case for home-country agencies since corporate ratings in their respective home countries are usually a major source of their respective income.

There is anecdotal evidence that governments try to use their influence to impact rating decisions. Two weeks after the U.S.-based rating agency Egan-Jones downgraded the United States to "AA" in 2012, the US Securities and Exchange Commission (SEC) brought administrative action against the firm for alleged "material misstatements" during its application for regulatory approval in 2008. In this context, the owner of Egan-Jones, Sean Egan, stated that "[w]e are not going to be intimidated by anybody from issuing timely, accurate ratings."[14] In a similar case, S&P called a $5 billion lawsuit against itself "a retaliation for its 2011

[12] See an article by France's leading financial newspaper, *Les Échos*, available at http://www.lesechos.fr/economie-politique/politique/actu/0203115388893-degradation-de-la-note-de-la-france-un-nouveau-coup-dur-pour-l-executif-627380.php (accessed 30 November 2011, own translation of the quote).

[13] In this regard, DiGiuseppe et al. (2012) show that countries with affordable credit access have a lower probability to experience civil conflict.

[14] See, for example, an article on the website of *The Wall Street Journal* available at

decision to strip the country of its AAA credit rating."[15] Government ties are more directly visible for Chinese Dagong, which entertains strong relations with several Chinese government institutions (see Ling 2012 for a discussion). With regard to corporate ratings, Ferri et al. (2013: 774) note that, in comparison to the large US agencies, the smaller Asia-based agencies are "perceived to be generally less independent because they are often subject to a possible conflict of interest stemming from the ownership structure, and are prone to a home-country bias."

Beyond direct pressure from governments, other interested parties within an agency's home country could potentially influence rating outcomes. First, since many banks and financial institutions are among the major shareholders of rating agencies, they could have the leverage to directly or indirectly exert an influence on the agencies' decision-making to protect the value of their bond holdings. According to Shin and Moore (2003), there are indications that the Japanese rating agencies are more vulnerable to influence from their shareholders than their US counterparts. They cite a report by the Japan Center for International Finance, according to which "[t]he composition of the shareholders of rating agencies may impair the impartiality of ratings" (Shin and Moore 2003: 331). Shareholders might try to obtain a preferential treatment of countries where they are exposed to large risks, e.g., where they have a large amount of outstanding loans. Second, agency staff or persons close to them could potentially have personal monetary investments in the respective country under assessment. A home bias might arise because these actors, like other investors, are more likely to hold larger stakes in the domestic economy or economies with close ties than somewhere else (e.g., French and Poterba 1991; Tesar and Werner 1995). However, corporate governance rules forbid analysts themselves to hold stakes in investments in an asset class under evaluation. Third, analysts at rating agencies might be influenced by future career concerns; the prospect of a new job in the banking sector, easily possible because of similar job requirements, might seem attractive. In this context, Bar-Isaac and Shapiro (2011: 120) speak of a "revolving door" that connects rating agencies and investment banks. One might argue that analysts could intendedly or unintendedly take the concerns of their potential future employers into account and rate countries higher in which home-country banks are strongly invested.

Finally, beyond political economy influences, national sentiments of agency staff could potentially cause home biases. Morse and Shive (2011) provide evidence that patriotism explains (parts of) the home bias in equity. Similar to "patriotic investors," employees of rating agencies might be reluctant to downgrade the

---

http://online.wsj.com/news/articles/SB10001424052702303513404577354023825841812 (accessed 18 November 2013).

[15] See, for example, an article by *Reuters* available at http://www.reuters.com/article/2013/09/03/us-mcgrawhill-sandp-lawsuit-idUSBRE98210L20130903 (accessed 15 December 2013).

home country or another sovereign either because they believe that this decision could have a detrimental impact on their home country or if they are – in the words of Morse and Shive (2011: 411) – "blinded by patriotic loyalty." If such an effect exists, it should be more pronounced in agencies where national sentiments are anchored in the corporate culture. Ling (2012), for example, describes the Chinese agency Dagong as a "patriotic rating agency." Ling refers to the company's website which states that the agency aims to promote the patriotism of its employees. Taken together, there are theoretical arguments that economic ties and geopolitical interests of the agency's home country could be related to rating outcomes.

4.2 The Role of Cultural Distance

Various studies discuss the role of cultural distance in financial decision-making. Guiso et al. (2009: 1095) identify "perceptions rooted in culture" as important determinants of bilateral investments. Grinblatt and Keloharju (2001: 1072) hypothesize that "familiarity-related effects could be the major contributor to home bias." Indeed, their empirical analysis shows that culture influences stockholdings of both private and corporate investors. Empirical evidence also suggests that firms favor culturally closer overseas listing venues (Sarkissian and Schill 2004). With respect to syndicated bank loans, Giannetti and Yafeh (2012) show that lenders treat borrowers from countries that are culturally more distant as less reliable. They receive smaller loans, pay higher interest rates and are more often required to provide a third-party guarantee. Given this evidence, it would not be surprising if cultural distance also affects decision-making at rating agencies.

Why would agencies assign better ratings to culturally closer and thus more familiar countries? To answer this question, it is important to remember that rating agencies have to base their assessments on limited and incomplete information. They acquire this information either from publicly available sources or through communications with the sovereign directly ("Due Diligence"), for example, at meetings with officials of the country's ministries or the central bank. The agencies have to cope with concerns regarding the reliability and accuracy of the acquired information. We discuss three lines of reasoning why cultural proximity (familiarity) might affect rating decisions. These are based on information, differences in risk perceptions, and taste-based discrimination.

First, an information-based theory of cultural distance would assume that a home bias can be the result of completely rational behavior.[16] Giannetti and Yafeh (2012) argue that banks collect less information about

[16] See Grinblatt and Keloharju (2001) for a similar argument.

culturally more distant borrowers due to higher costs of information gathering and thus consider them as riskier. Similarly, rating agencies face a trade-off between the benefit of acquiring additional information and the transaction costs this would incur. Linguistic differences raise transaction costs by increasing the difficulties of direct communication and the ease of translation (see also Melitz 2008). This can cause agencies to collect less information overall. Less information can then translate into lower ratings since predictions of the sovereign's liquidity to serve its debts are less precise and thus imply a higher probability of defaulting.[17] Due to this information-cost trade-off, it can be rational for agencies to assign lower ratings to less familiar countries (for a similar argument see Chan et al. 2005). Van Nieuwerburgh and Veldkamp (2009) demonstrate in a more general setting that a tiny information advantage is enough to generate a significant home bias.

The second explanation for the role of cultural distance focuses on differences in risk perceptions, in particular with regard to relative optimism and trust. Following the literature on an "optimism bias," a home bias does not require that the actors actually possess more information; it suffices that the actors *perceive* the information differently. Kilka and Weber (2000) find that that people hold more "optimistic" expectations of domestic investments as they feel more "competent" about investment possibilities at home.[18] Similarly, French and Poterba (1991) explain the home bias in portfolio holdings with domestic investors' more optimistic expectations about domestic stock returns compared to foreign stocks. The existing literature suggests that trust rooted in culture is a potential cause of these differences in perceptions. Guiso et al. (2009) find that cultural distance translates into lower levels of bilateral trust, which then translates into less economic exchange between countries. Their analysis of bilateral investments concludes that "cultural effects are not limited to unsophisticated consumers, but are also present among sophisticated professionals" (p. 1098).

---

[17] Assume that a rating agency estimates the liquidity L of two sovereigns i, with $E[L_i] \sim N(\mu, \sigma_i^2)$. A sovereign enters a state of default if $L_i < z$. Thus, the probability of default is $P(L_i < z) = F\left(\frac{|z-\mu|}{\sigma_i}\right)$. Assume that two sovereigns A and B have the same expected value μ, but sovereign B is culturally more distant to the home country of the rating agency. As a result of higher transaction costs, the agency collects less information about sovereign B, which implies that its prediction of L_B is less precise compared to that of L_A, i.e., $\sigma_B^2 > \sigma_A^2$. Thus, $F_B\left(\frac{|z-\mu|}{\sigma_B}\right) > F_A\left(\frac{|z-\mu|}{\sigma_A}\right)$ for all $z < \mu$, i.e., the predicted default probability is higher for the culturally more distant sovereign. A similar argument is made by Gehrig (1993) and Brennan and Cao (1997), whose noisy rational expectations model shows that a home bias in international equity investments exists under the assumption that domestic investors have more precise information than foreign investors.

[18] For related empirical evidence of an "optimism bias," see Shiller et al. (1996) for a comparison between the stock market expectations of Japanese and American investors, and Strong and Xu (2003) for fund managers' views on the prospects of international equity markets.

In the rating process, trust between the agency's home country and the rated country could influence risk perceptions of the agency staff and thus lead to an "optimism bias." For example, analysts could perceive the same economic information from a more familiar source as more reliable and its bonds as less risky. Beyond that, bilateral trust might not only matter for how analysts perceive the available information about the sovereign's *ability* to pay, it could also affect beliefs about a sovereign's *willingness* to pay its debt. This is important since countries commonly default on their debt for reasons other than insufficient liquidity (see historic evidence in Tomz and Wright 2007; Reinhart and Rogoff 2009). A government may decide to default for opportunistic reasons if the domestic political costs to the government of raising funds weigh higher than those caused by a default. With this in mind, it seems possible that rating analysts evaluate a government's willingness to pay more optimistically if the level of bilateral trust is higher.[19] Taken together, as cultural proximity relates to relative optimism and trust, it could also lead to better ratings of culturally closer countries.

A third potential reason for the role of cultural distance is direct discrimination of certain ethnicities or races. Building on Becker (1961) and Stiglitz (1973), we define discrimination in our context as behavior that treats two sovereigns with the same economic characteristics differently based on ethnic or racial differences. Taste-based discrimination may negatively influence how creditworthy borrowers are perceived to be (Giannetti and Yafeh 2012). Ravina (2008) provides empirical evidence that race affects credit conditions. Rating agency staff may exhibit similar behavior.

4.3 Hypotheses

Ideally, competition and concerns over reputation should incentivize agencies to publish accurate and unbiased ratings. The detailed arguments above, however, provide theoretical explanations why the home country of rating agencies might lead to biases. The extensive discussion enables us to formulate the following testable hypotheses about potential political economy influences and the role of culture in rating decisions:

Hypotheses: *Controlling for economic and political fundamentals of rated countries, a rating agency assigns a better rating to*

(1) its home country.

[19] See also Bergh and Bjørnskov (2014) for a similar argument based on country-level rather than bilateral trust.

(2) countries in which the home country has larger economic interests.

(3) countries geopolitically aligned with the home country.

(4) countries that are culturally closer to the home country.

Each hypothesis is tested against the null hypothesis that ratings are not affected by these home-country specific factors.

5. DATA

5.1 Dependent Variable: Sovereign Ratings

Our dependent variable is a country's sovereign rating provided by one of nine rating agencies: CI, Dagong, DBRS, Feri, Fitch, JCR, Moody's, R&I, and S&P (see again Table 1 for an overview). We follow the literature and examine the determinants of a sovereign's long-term foreign-currency rating, i.e., ratings for government bonds that are issued in a foreign currency and have a maturity of more than one year. We retrieve daily information on sovereign ratings by most agencies via Bloomberg (see Online Appendix A4 for details). The information on ratings published by Feri and Fitch is obtained directly from the agencies. We take the monthly average of the assigned ratings since our background research reveals that some agencies only review their ratings on a monthly basis (see again Online Appendix A3). Moreover, the highest frequency for which the explanatory variables are available is also monthly.[20] We obtain an unbalanced panel as each agency assigns ratings to different sets of countries over varying periods of time (see Online Appendix A5 for details).

For our empirical analysis, all ratings have been translated to a 21-point scale in accordance with the literature (see Hill et al. 2010 for a similar approach). This means that we assign the highest value of 21 for an "AAA" rating. "C" and "D" in turn are translated into a value of one.[21] The pair-wise correlation between

[20] Most of the literature uses yearly averages or year-end ratings. However, this results in a loss of information, most importantly since rating changes within a year are ignored. Moreover, sovereigns often receive their first rating in the course of a year and ratings can be withdrawn within a year. The usage of monthly data mitigates these problems compared to yearly averages or a simple extrapolation to the end of the year. See also footnote 33.

[21] As there are slight differences in the rating scale across rating agencies, please refer to Online Appendix A0 for a full translation table.

sovereign ratings from the nine credit rating agencies under analysis ranges between 0.784 (CI-Feri) and 0.987 (Fitch-S&P).[22]

5.2 Control Variables

We build on and combine the sets of variables employed in Archer et al. (2007) and Hill et al. (2010) to control for those country-specific economic and political factors that should "objectively" determine the ability of a country to repay its debt.[23] Comparing the factors that the nine agencies communicate in official documents (see Online Appendix A7) with those employed in the literature, there is a large overlap but also an apparent lack of control for conflict risks in the previous literature, which is why we add further variables in this category (see also Gaillard 2012, who refers to "event risk" as one factor applied by Moody's).

To capture the sovereign's **domestic economic performance**, we employ the country's logged *GDP per capita* (in constant 2000 US dollars), *GDP growth* rate (including a squared term) and *inflation* rate (based on consumer prices). Following Archer et al. (2007), we also control for the sovereign's *natural resources* measured as total natural resource rents as a percentage of GDP. Logged *population* size is added as a control variable since larger countries possess on average a more diversified economy and are thus less affected by external shocks. All data are obtained from the World Bank's World Development Indicators (WDI).[24] To account for a sovereign's **financial stability and fiscal performance**, we control for a country's gross government debt-to-GDP ratio (*government debt*) and its change over time (*change in government debt*). Two dummy variables account for past experiences with defaults (*default*). The first variable takes a value of one if the sovereign has experienced a sovereign debt crisis or restructuring since 1970. The second variable takes a value of one if the sovereign has defaulted or restructured its debt in the last five years. Data come from the IMF (Abbas et al. 2010; Laeven and Valencia 2012). We add three variables to account for a sovereign's **external performance**. *Trade openness*, i.e., the sum of the rated country's

[22] See Online Appendix A6 for details. Gaillard (2012: ch. 6.3) provides a detailed discussion of the cases where even the ratings of the U.S.-based agencies show considerable differences.

[23] In contrast to Archer et al. (2007), we do not include variables that measure executive party tenure and undivided government since these variables contain too many missing values and would thus substantially reduce our sample size (data from Beck et al. 2001). We explicitly acknowledge that the agencies do in practice augment these third-party variables with their own forward-looking forecasts, which cannot be controlled for. However, we argue that these constitute outcome variables rather than controls and should thus be considered as "bad controls" in the terminology of Angrist and Pischke (2008). In fact, the forward-looking assessments should mostly be affected by potential cognitive biases, as they require and leave more room for subjectivity.

[24] Data are available at http://data.worldbank.org/ (accessed 29 April 2014).

exports and imports, *current account balance*, and debt owed to nonresidents (*external debt*), where all three variables enter as a share of GDP (data from WDI).

We control for eight measures of a sovereign's **political and institutional performance**. First, a sovereign's regime type is captured using the *polity* 2 variable from the Polity IV dataset (Marshall et al. 2013). Second, we include an *election* dummy that is coded as one if elections were held during the last 12 months. Third, *years in office* captures the number of years the chief executive has been in office as of January 1st. Fourth, a dummy for executive ideology (*left government*) is coded as one if the leader's party is considered as communist, socialist, social democratic or other left-wing (all). Fifth to eighth, we control for a country's *rule of law, absence of internal conflict*, *absence of external conflict* and *absence of military in politics*. These variables are drawn from the Database of Political Institutions (Beck et al. 2001) and the International Country Risk Guide (ICRG).[25] Finally, we also include a dummy variable whether a country is a member of the Eurozone.

We lag all time-varying variables for two reasons. First, the process of incorporating new data and political developments takes some time. Second, agencies have an incentive not to change their ratings too often, as very frequent changes would cast a bad picture on their long-term analytical skills. On average, agencies would rather wait for bad (or good) news to be confirmed by other sources than to react immediately to changes in their indicators. In most cases, we compute the moving average of each variable over the previous 12 months. In other cases, in particular for more volatile variables capturing the current economic situation, we calculate the average over the last 36 months to cancel out pure business-cycle effects and random short-term fluctuations that should not influence long-term debt repayment abilities (see Block and Vaaler 2004 for a similar approach). Online Appendix A8 provides precise definitions of all variables employed, their sources and details on the computation of moving averages. Online Appendix A9 shows the corresponding descriptive statistics.

5.3 Variables of Interest

We use eight variables to test for the presence of a home bias. As we will argue below, none of these variables should influence sovereign ratings, controlled for the variables introduced in the last subsection. Starting with the most obvious test for a home bias, the *same country* dummy takes a value of one if the rated country is the home country of the rating agency. The home country is defined as the country in

[25] Data are available at http://www.prsgroup.com/icrg.aspx (last accessed 14 August 2013).

which the headquarters of the agency is physically located.[26] We also refer to home bias if rating agencies assign relatively better ratings to countries with close economic ties, geopolitically-aligned countries and countries that are culturally closer. In the following, we introduce the variables employed in these three categories.

Economic interests. We account for two variables that capture economic links between the rated countries and the home country of the rating agency. First, *export interests* are measured by the rated country's share of the home country's total exports. Export data are obtained from UN Comtrade and have been accessed via the World Bank's World Integrated Trade Solution (WITS) software.[27] While a sovereign's access to foreign currency should matter for its ability to pay back its debt and is covered by our control variable *current account balance*, the sovereign's relative importance as an export market for the home country of the rating agency should, all else being equal, be unrelated to rating outcomes.

Second, we test for the role of *bank exposure*. The Bank for International Settlements provides data on bank exposure of all banks headquartered in most of our home countries.[28] It contains detailed information on all foreign claims to the public sector, banks, the non-bank private sector, and miscellaneous other claims. In addition, it covers potential exposures from derivatives contracts, guarantees and credit commitments. As our measure of *bank exposure*, we compute the rated country's share of the total risk exposure of all home-country banks.

Geopolitical alignment. We use two measures to test whether countries that are geopolitically aligned with the home country of the rating agency receive relatively better ratings. First, we use bilateral voting alignment in the UN General Assembly as a proxy for *geopolitical alignment* between the rated country and the home country of the rating agency. This is defined as the share of votes in which the rated country and the home country exhibit the same voting behavior, i.e., both voting yes, both voting no, or both abstaining (data from Strezhnev and Voeten 2012). Two voting blocs can be identified in the post-Cold War period: a Western bloc around the United States on the one hand and an "counterhegemonic bloc," which includes China, on the other (Voeten 2000). As an illustrative example, consider the case of Malaysia, which is strongly aligned with China and receives on average a two-point better rating from Dagong compared to

[26] Using an ownership-based definition, we will also present results where we code home countries according to the nationality of the major shareholder(s). Both definitions coincide in most cases; CI and Fitch are the only exceptions (see again Table 1 for details).

[27] The online tool is available at http://wits.worldbank.org (accessed 2 May 2014).

[28] Unfortunately, no data are reported from Cyprus (CI) and China (Dagong). Data are available at http://www.bis.org/statistics/consstats.htm (accessed 2 May 2014).

the three big US agencies. Measures of UN voting alignment are widely used in the literature to measure bilateral affinity (e.g., Barro and Lee 2005; Dreher and Gassebner 2008; Qian and Yanagizawa 2009). For the US agencies in our sample, we employ a country's share of total US military aid as a second measure of geopolitical alignment. This variable serves as a proxy for the strategic importance that the United States assigns to these countries.[29]

Cultural distance. We use three measures of cultural distance. The first variable is a simple dummy that takes a value of one if home and sovereign share the same official language (see also Guiso et al. 2009; data from Mayer and Zignago 2011). Moreover, we follow several studies that use more comprehensive measures of cultural distance (e.g., Guiso et al. 2009; Giannetti and Yafeh 2012). Specifically, we use two dimensions from Kolo's (2012) distance-adjusted ethno-linguistic fractionalization index (DELF).[30] The second variable *Cultural distance (language)* measures linguistic differences based on language trees from the Ethnologue project, which classifies 6,656 distinct languages into families and branches due to their linguistic origin (Lewis 2009). As outlined before, larger cultural distance could be related to reduced information gathering and less optimistic risk perceptions.

The third measure, *cultural distance (ethno-racial)* is derived from a biological taxonomy of species, based on genealogical relatedness. Kolo (2012) assigns six-letter codes, which are based on race, skin pigmentation and ethnic origin and allow more differentiation between genetic groups than mere genetic distance (as in Spolaore and Wacziarg 2009, for example). Ethno-racial distance can be seen as a proxy for economic discrimination based on race or ethnicity; however, it might also be related to trust towards the rated country.

Online Appendices A8 and A9 provide detailed definitions, sources and descriptive statistics for all variables of interest. Online Appendix A10 shows simple correlations with the average sovereign rating, and partial correlations holding GDP or the debt ratio constant. We now turn to our econometric estimations.

[29] Data are available at the USAID website at http://gbk.eads.usaidallnet.gov/data/detailed.html (accessed 2 May 2014).

[30] The approach in Kolo (2012) builds on the ethno-linguistic fractionalization index (ELF, Alesina et al. 2003). The cultural distance between two countries A and B is calculated as $DELF = \left(1 - \sum_{k_A=1}^{K} \sum_{k_B=1}^{K} p_{k_A} p_{k_B} \hat{s}_{k_A,k_B}\right) \cdot 100$. The calculation weighs each distinct group k within countries A and B by their relative group size p_k. The product of the weights is multiplied with a similarity parameter $\hat{s}_{k_A,k_B}$, which varies between zero and one and takes the value of one if individuals belong to the same cultural group. The resulting $DELF$ value gives the expected similarity between two randomly drawn individuals.

6. ECONOMETRIC ANALYSIS

To test for the existence of a home bias in sovereign ratings, we estimate the determinants of sovereign ratings $r_{a,j,i,t}$. Specifically, we estimate the following regression equation using ordinary least squares (OLS):

$$r_{a,j,i,t} = \beta x_{j,i,t} + e'_{i,t}\gamma + p'_{i,t}\delta + \alpha_{a,j} + \tau_t + \varepsilon_{a,j,i,t} \qquad (3)$$

where $x_{j,i,t}$ is a country-pair-specific variable of interest, $e_{i,t}$ and $p_{i,t}$ are vectors that contain sovereign-specific economic and political control variables, $\alpha_{a,j}$ and τ_t are agency- and period-fixed effects, respectively, and $\varepsilon_{a,j,i,t}$ is the error term.[31] Error terms may be correlated at both the agency-time and sovereign level. Thus, it is advisable to use two-way clustering on both dimensions.[32] The time period we analyze runs from January 1990 to June 2013.[33]

Our identification strategy exploits three sources of variation in the dependent variable: (i) differences in the rating levels between rated countries, (ii) changes in ratings within rated countries, and (iii) differences in ratings between agencies for the same rated country at a specific point in time. Since ratings are rather sticky and exhibit little variation for some countries, we choose equation (3) as our baseline to be able to identify our coefficients based on all three sources of variation. To alleviate concerns about unobserved (time-invariant) characteristics of rated countries, we also show results for a specification that adds sovereign-fixed effects to equation (3):

$$r_{a,j,i,t} = \beta x_{j,i} + e'_{i,t}\gamma + p'_{i,t}\delta + \alpha_{a,j} + \eta_i + \tau_t + \varepsilon_{a,j,i,t} \qquad (4)$$

For the time-varying variables of interest $x_{j,i,t}$, we replace η_i with stricter agency-sovereign-pair-fixed effects $\eta_{a,j,i}$. Identification of β in equation (4) rests on the variation caused by (ii) and (iii). The most restrictive specification is to use agency- and sovereign-time-fixed effects, which leads to identification of β being based solely on variation caused by (iii). Using the previous notation, we obtain

---

[31] We use agency-fixed effects rather than home-country-fixed effects to account for differences in the average rating level that can exist between the agencies from one country. For example, in the United States, Moody's could be systematically more pessimistic than S&P (or vice versa).

[32] We thank an anonymous referee for this suggestion. When we clustered at the most aggregate level of clustering in earlier versions of this paper, i.e., at the sovereign level, our results were very similar (see Cameron et al. 2011 on both approaches).

[33] Using monthly ratings is more efficient as it makes use of all available variation in the data. This does not deflate panel-robust standard errors compared to yearly data since they depend on the number of clusters $C \to \infty$ rather than the number of observations $N \to \infty$ (compare Cameron et al. 2011). All the same, our results are virtually unchanged when using yearly averages as can be seen in Online Appendix A11.

$$r_{a,j,i,t} = \beta x_{j,i} + e'_{i,t}\gamma + p'_{i,t}\delta + \alpha_{a,j} + \omega_{i,t} + \varepsilon_{a,j,i,t} \qquad (5)$$

For the time-varying variables of interest $x_{j,i,t}$, we replace $\alpha_{a,j}$ and $\omega_{i,t}$ by stricter agency-sovereign-pair-fixed effects $\omega_{a,j,i,t}$. Equation (5) minimizes the potential omitted variable bias, but identification is based only on variation across nine agencies. Thus, for any $x_{j,i}$, β is identified only by observations of countries rated by more than one agency at the same point in time where we observe a difference in ratings between these agencies. If our variables of interest pass this test, this provides strong evidence in favor of the respective hypothesis. The coefficients and standard errors from equation (5) should be interpreted with caution, however, as this is can be an overly restrictive test. If equation (5) leads to insignificant results, this can be due to a lack of variation as outlined above. Also, the estimated β might not be representative for the entire sample in case of heterogeneous effects. For these reasons, we take equation (3) as a baseline specification and show the results based on equations (4) and (5) for comparison.

In addition to our regression results for the full sample, we also show results for a sample restricted to the time after the onset of the Global Financial Crisis (GFC). We take September 2008 as the starting point for this period of increased uncertainty. In this month the bankruptcy of Lehmann Brothers and American International Group (AIG) took place (for a detailed discussion of these events, see Mishkin 2011). Home-country influences on sovereign ratings could have become more pronounced following the onset of the crisis. Investors became more risk-averse during the crisis; specifically, doubts about the use of sovereign bonds as quasi risk-free assets in financial models have risen. Additionally, politicians, journalists and economists intensified their critique of the agencies' decision-making and increased the public pressure not to downgrade their countries.

Ordinary least squares treat the dependent variable as cardinal. This implies that the difference between an "AA" and an "AA+" rating, for example, is the same as between "BB" and "BB+." In most settings, this choice has little effect on the direction and significance of variables if the number of response categories is sufficiently large (see Ferrer-i-Carbonell and Frijters 2004, for example). Nonetheless, we will also show the results of an ordered probit model for the discrete 21-step rating at the end of a month. To keep the discussion concise for the reader, we focus on the direction of the effect and the significance levels as marginal effects are conditional on each respective rating level.

6.1 Main Results

To reduce clutter, we do not display the results of a baseline specification that excludes our variables of interest $x_{j,i,t}$. The interested reader can find them in Online Appendix A12. Its results are in line with former studies focusing on fewer agencies and shorter time periods. The objective country-specific controls alone

explain 86 percent of the variation in sovereign ratings, as indicated by the adjusted R-squared value. It is reassuring that our baseline model thus explains a large share of the variation in sovereign ratings from this broad set of agencies.

To test whether sovereign ratings show evidence for home biases, we add one variable of interest at a time to the baseline specification introduced in the previous subsection. Each cell in Table 3 refers to one independent regression and shows the coefficient of the respective variable of interest. We show results for the full sample (columns 1 and 3) and the GFC sample (columns 2 and 4) for both least squares and ordered probit.[34] As can be seen from the positive coefficient on *same country* in column 1, which is significant at the five-percent level, agencies assign a rating that is 0.95 points higher to their home country than to other countries with the same characteristics. In other words, the rating of the home country is on average almost one point higher than what would be justified by how the agencies assess and weigh the economic and political fundamentals of other rated countries. The favorable treatment of the home country becomes more pronounced during the GFC period; the coefficient rises to 1.7 and becomes significant at the one-percent level (column 2). The ordered probit regression results in columns 3 and 4 confirm the significant effect of *same country*, at the one-percent level. Taken together, this is strong evidence in favor of the first home-bias hypothesis.

Do rating agencies also exhibit a home bias by favoring countries that are economically, geopolitically or culturally aligned with their home country? Starting with the measures of economic ties, our results partly support the notion that rating agencies favor countries economically aligned with their home country. While *export interests* does not gain significance in any of the specifications in Table 3, the second variable that proxies for economic ties, home-country *bank exposure*, is positive as expected and significant at conventional levels in all estimations. The size of the effect is again larger after the onset of the GFC. According to column 2, an increase of the sovereign's share in the home country's bank exposure by 22 percentage points is related to a rating improvement of one point on the rating scale.

While the coefficient on *geopolitical alignment (UN)* does not reach statistical significance at conventional levels in columns 1-3, the positive coefficient turns significant at the one-percent level in the GFC sample when using ordered probit (column 4). The effect of *US military interests (aid)* on the rating behavior of the

[34] For the interested reader, Online Appendix A13 shows the results for the control variables for each regression in column 1, Online Appendix A14 displays the corresponding adjusted R-squared values and number of observations, and Online Appendix A15 shows separate results for the pre- and post-GFC sample. Online Appendix A15 also tests whether the results are affected when we add the *same country* dummy in order to test whether the results for the remaining variables of interests are not just capturing the same-country effect. As can be seen, this is not the case.

US agencies is positive and statistically significant in all specifications. We refrain from overinterpreting this latter finding here as it is not supported in the agency-specific regressions below (see Section 6.2). Taken together, there is only weak evidence that geopolitical ties between home and sovereign decisively influence rating outcomes.

We now turn to the role of cultural ties between the sovereign and the home country of the rating agency. The coefficient on *common language* is positive as expected and statistically significant at least at the five-percent level in all specifications. Countries that share a common language with the home country on average receive a rating that is 0.8 points higher (column 2). The role played by *common language* is confirmed when we control for the *same country* dummy (Online Appendix A15). Language could affect all home-sovereign relations, not only those in which both countries share a common language. Kolo's (2012) *cultural distance (language)* variable provides a more nuanced measure of linguistic differences. The literature on cultural distance suggests that language dissimilarities reduce the amount of collected information and could thus lead to a higher predicted likelihood of default. Moreover, the less familiar a language, the less trust might be put into the message it delivers. The results in Table 3 support these ideas: the coefficient on *cultural distance (language)* is negative and significant at the one-percent level in all specifications. The size of the effect is not negligible. Consider, for example, the linguistic difference between the United States and China (99), which is 20 percentage points higher than the difference between the United States and the Netherlands (79). A 20-point cultural distance in terms of language relates to a rating that is 0.54 points lower on average in the GFC period (column 2). This result is in line with findings of a cultural home bias for bank lending, investment decisions and trade patterns (Grinblatt and Keloharju 2001; Guiso et al. 2009; Giannetti and Yafeh 2012).

C*ultural distance (ethno-racial)* between home and sovereign, however, is not related to lower ratings. The respective coefficient is insignificant in all specifications. As there is no empirical evidence of discriminatory behavior of rating agencies based on race or ethnicity, the cultural home bias instead appears to be a function of the availability of information and risk perceptions. Familiarity in terms of language also goes along with a general cultural familiarity, which can be conducive to bilateral trust and better cooperation in the rating process. In Section 6.3, we will further explore the transmission channel behind the "cultural home bias."

Next, we include the statistically significant proxies of economic and cultural ties from our main specification (Table 3, column 1) in a single equation to test whether the individual effects still remain significant if jointly included in one regression. Economic and cultural ties are intertwined: countries that are culturally close to the home country are on average those with which the home country entertains close economic relations (Guiso et al. 2009). However, even after adding the two language variables in columns 1 and 2 of Table 4, respectively, the coefficients on *bank exposure* remain stable and statistically

significant at conventional levels. Also, both *common language* and *cultural distance (language)* keep their signs and remain statistically significant. We conclude that the effect of economic ties is not (entirely) driven by cultural distance between the home country and the sovereign as the effect of the former remains significant when we control for the latter. Next, we explore if both language variables are substitutes for each other. As *bank exposure* is not available for China, Cyprus, the home country itself and years prior to 2005, column 3 excludes this measure and focuses on the two language variables. Conditioning on each other lowers the coefficients in absolute terms, but both language variables stay significant at conventional levels. Column 4 explores the channels that could explain the positive *same country* relationship. Conditioning on cultural distance, the coefficient on *same country* decreases in size and becomes insignificant, while both language variables remain statistically significant. This suggests that cultural proximity is the main transmission channel that leads to the differential treatment of the home country.[35]

Our regressions so far include time- and agency-fixed effects to exploit cross-country variation since ratings are rather sticky and they show little variation for some countries. For those countries, a potential home bias could be reflected mostly in their initial rating level; and not be fully captured in an empirical setting where identification comes only from variation over time. Still, our results are robust when we run regressions according to Equations (4) and (5), respectively. While column 1 of Table 5 displays the main results from Table 3 for the reader's convenience, columns 2 and 3 show the results with the additional controls. As can be seen, the findings for *same country*, *bank exposure* and *cultural distance (language)* are largely robust to the inclusion of additional fixed effects. *Same country* becomes significant at the one-percent level when estimating the models in Equation (4) and remains so even in equation (5) where we control for all country-specific time-invariant and time-variant unobserved factors. *Bank exposure* reaches statistical significance at the five-percent level when introducing agency-sovereign-pair-fixed effects and is only marginally insignificant with agency-sovereign-pair-year-fixed effects (p-value: 0.105). While *common language* loses its statistical significance, *export interests*, *geopolitical alignment (UN)*, *US military interests (aid)*, and *cultural distance (ethno-racial)* remain insignificant.[36] This shows that our results are not driven

[35] As one seminar participant suggested, cultural proximity and common language could be closely related to a sovereign's legal origin. For example, French-speaking countries are more likely to share their legal origin with France. Online Appendix A16 replicates columns 1 and 2 of Table 4 including a dummy variable that takes a value of one if the home country and rated country share the same legal origin (data from Treisman 2007). Our results are largely unaffected. The coefficients on same legal origin do not reach statistical significance with the exception of the regression with *US military interests (aid)*, which covers US agencies only.

[36] The only exception is *export interests* when using agency-sovereign-pair-year-fixed effects. The corresponding coefficient is negative and statistically significant at the ten-percent level.

by factors that are time-invariant in our sample such as the advantage that the United States enjoys with the US dollar being the world's reserve currency.

Taken together, we can reject the null hypothesis of unbiased sovereign ratings. Agencies seem to assign relatively better ratings to their home country and to countries that are economically aligned with it in terms of bank exposure. There is strong support for a role of cultural distance in terms of common or similar language, but not of ethno-racial differences. There is no robust evidence for a role of geopolitical ties.

6.2 Agency-specific Regressions

By pooling all agencies in one regression, we have implicitly assumed that each agency weighs all sovereign-specific factors in the same way as we were estimating a single coefficient per explanatory variable. We now relax this assumption and run individual regressions for each of the nine rating agencies under analysis. This allows us to investigate differences between the nine agencies under study.

For each agency's home country, Figure 2 contrasts the actual rating and the predicted rating for the home country based on how each agency weighs the economic and political fundamentals of sovereigns based on the least squares estimations. In other words, we compare the actual ratings (solid line) with the ratings that should be assigned to the home country if it were not the home country (dotted line). The figure highlights several interesting results. First, with respect to all US agencies since the early 2000s recession, the predicted values for the United States are lower than the actual rating. While Fitch and Moody's still deviate from their lower predicted value for the U.S. by more than one point (as of June 2013), S&P came closer to its predicted value after the agency downgraded its home country in August 2011. Second, while both JCR and R&I assign a high rating to their home country Japan, the dotted line indicates that only R&I seems to apply different criteria to Japan compared to other countries. Third, Dagong's predicted rating for China is increasingly deviating from the assigned "AAA" rating as China's fundamentals have deteriorated since 2011.

Table 6 shows the coefficients of our variables of interest for each agency individually.[37] It is reassuring that the coefficients on *same country* are within a reasonable range between 0.252 (Moody's) and 2.483

[37] The interested reader will find the results of agency-specific regressions excluding the variables of interest in Online Appendix A17. The R-squared values and number of observations corresponding to the regressions of Tables 6 and 7 are displayed in Online Appendix A18.

(Dagong). However, the only exception, Feri, highlights one potential problem of OLS. Feri assigns the highest possible "AAA" (21) rating to Germany throughout the sample period. However, the negative *same country* coefficient suggests that the predicted rating based on the treatment of the sovereign-specific factors of other sovereigns is above 21. As can be seen in Figure 2, this also occurs for Fitch, Moody's, S&P and, to a lesser degree, for JCR. This implies that the coefficient on *same country* will be biased downwards in these cases. Being aware of this caveat, we find that only CI, Dagong, Fitch and R&I provide a significantly higher rating to the country where their headquarters is based, while the coefficient for S&P is marginally significant (p-value: 0.100). By re-running the agency-specific regressions using ordered probit, we account for the bounded nature of the dependent variable. Table 7 shows that *same country* also becomes statistically significant at the one-percent level for Feri, Fitch, JCR, Moody's, and S&P, i.e., those agencies for which we argued above that the OLS coefficient could be negatively biased. This suggests that this significant positive relationship is a broad phenomenon and not restricted to single agencies.[38]

We now turn to our measures of economic interests between home and sovereign (see again Tables 6 and 7). While *export interests* did not gain significance in the pooled regressions of Table 3, the agency-specific regressions reveal a more nuanced picture. The respective coefficient becomes significantly positive at conventional levels for Moody's and S&P according to both tables, for JCR according to Table 6 (OLS) and for Feri according to Table 7 (ordered probit). The unexpected statistically significant negative coefficient for CI disappears when we omit Greece, which is by far Cyprus' largest export market and could be regarded as an outlier given Greece's economic turmoil during the sample period. The evidence on *bank exposure* is much more conclusive and supports the results from the pooled regressions. For four (OLS) and six (ordered probit) agencies, the corresponding coefficient is found to be positive and statistically significant at conventional levels. The largest effect exists for Feri, where a ten-percent increase in the share of overall exposure to the rated country leads to a 1.5-point increase in its rating (column 4).

Geopolitical ties seem to be largely irrelevant for the rating decisions of most agencies. With regard to *geopolitical alignment (UN)*, the coefficient is insignificant in most specifications and even significantly negative for Feri and JCR (and R&I with ordered probit). The one notable exception is Dagong where the coefficient is positive and statistically significant at the one-percent level with both OLS and ordered probit. It seems that Dagong assigns higher ratings to those countries that are politically more aligned with the Chinese government. This effect is sizable and robust in terms of size and significance to the inclusion of the *same country* dummy (not displayed). A country receives a rating that is one full point higher if its political

[38] Note that the maximum likelihood procedure did not converge for DBRS, the smallest agency in our sample in terms of number of rated countries (25).

alignment with China increases by 17 percentage points. This is approximately the difference between Brazil's (89 percent) and Turkey's (72 percent) voting alignment with China in the UN General Assembly in 2012. While the coefficient on *military interests (aid)* does not reach statistical significance at conventional levels in the OLS specifications, it becomes statistically significantly positive for Fitch and Moody's when using ordered probit. Thus there is no robust evidence that US agencies assign higher ratings to countries that are of military interest to the US government. Overall, there is no robust evidence that geopolitical ties between home and sovereign have an impact on rating decisions for all agencies except Dagong.

Again, the results in Tables 6 and 7 highlight the importance of cultural relatedness. The coefficients on *common language* are positive in all cases but one (CI), and the effect of *cultural distance (language)* is negative in all cases. For eight out of nine agencies at least one of the two variables is statistically significant at conventional levels in Tables 6 and 7. CI and Dagong are the only agencies for which we find no evidence that they assign higher ratings to countries that share a *common language* with their home country. The more nuanced *cultural distance (language)* reaches statistical significance at conventional levels for all agencies except CI according to the results in at least one of the two tables. These findings suggest that the cultural home bias is a general phenomenon and not restricted to individual rating agencies.

Finally, we consider an alternative definition of home country. Rather than defining the home country based on the location of the agency's headquarters, we apply the ownership definition. Thus, CI is coded as "Kuwait" and Fitch is coded as "France." As can be seen from column 10 in Tables 6 and 7, Kuwait does not receive a relatively better rating from CI as in the case of Cyprus, the location of CI's headquarters. However, CI assigns significantly higher ratings to Arab-speaking countries and countries that are linguistically or ethno-racially closer to Kuwait. This might be related to the large share of employees of Arabic origin. For Fitch, we find a positive coefficient on *same country* when we apply the ownership definition instead of the location definition (column 11). According to the OLS results, Fitch's rating of France is one point better than what would be expected by the agency's treatment of other countries. The variables for cultural distance are all insignificant in contrast to the results with the U.S. as the home country in column 5. As it does not seem that Fimalac's majority shareholdings are reflected in a particularly high number of French staff, this is not surprising. In summary, these results can be taken as evidence that it is not only the location of an agency that matters for rating outcomes but also the ownership structure.

6.3 Exploration of Transmission Channels

In this subsection, we examine the transmission channels of cultural distance in more detail. The insignificant coefficients for *cultural distance (ethno-racial)* suggest that discrimination based on race and ethnicity is unrelated to rating outcomes. The two remaining theoretical explanations for the role of culture, namely superior information and differences in risk perception, are both consistent with the negative effect of *cultural distance (language)* on sovereign ratings. If information were the main transmission channel, we would expect that the bias would be alleviated by the existence of a foreign office in the rated country. Giannetti and Yafeh (2012), for example, find that the cultural bias in bank lending is mitigated when banks have a subsidiary in the foreign country. To test for this transmission channel, we code a dummy variable *office* that takes a value of one if an agency has an office in the rated country. Only the big U.S.-based agencies have foreign offices on a global scale (Fitch: 34, Moody's: 24, S&P: 24), with Feri having a total of 6 five agencies. We thus restrict our analysis to these four agencies. Table 8 shows that both *office* as well as the interaction between the dummy variable and *cultural distance (language)* are not statistically significant at conventional levels for any of the agencies. The coefficient on *cultural distance (language)* remains negative and statistically significant at conventional levels in all specifications. The finding that the local presence of agency staff does not mitigate the cultural home bias suggests that the availability of information is not the main driver behind cultural distance's effect.

The other explanation for the cultural bias is a more pessimistic perception of risks in culturally less similar countries. To test explicitly for the existence of such a link, we analyze whether bilateral trust mitigates the effect of cultural distance. Data on bilateral trust are only available for a limited set of European countries (see, for example, Guiso et al. 2009).[39] Hence, we are only able to test this channel for the German agency Feri. As expected, the results in Table 9 show a highly significant positive effect of bilateral trust on rating levels. Moreover, as expected there is a significant positive interaction effect between *cultural distance (language)* and *bilateral trust* of Germans in the rated country. The marginal effects graphically displayed in Online Appendix A19 show that cultural distance matters more when trust in individuals from the rated country is low. This is preliminary evidence that the effect of cultural distance on sovereign ratings is (partly) caused by a more pessimistic perception of risks when bilateral trust is low.

[39] In analogy to Guiso et al. (2009), we use the trust level of a representative German citizen towards a randomly selected individual of the rated country. This time-invariant trust level is constructed by coding the answers to the following Eurobarometer question on a 4-point scale: "I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust, or no trust at all." We are grateful to Shu Yu for sharing the data with us. See Yu et al. (2015) for details.

Finally, we run quantile regressions to learn more about the mechanisms behind the effect of cultural distance. Quantile regressions serve both as a test for outliers by showing the size and direction of the effect of culture at different quantiles of the rating distribution as well as allowing us to test whether the effect of cultural distance on ratings is larger for countries at the lower end of the distribution. In the literature that explains home bias with information asymmetry, agents receive public and private information signals, but the private signal is less precise for foreign agents (see, for example, Gehrig 1983; Brennan and Cao 1997). Financial information for less developed countries (lower ratings, hence at lower quantiles), is often of poor quality and low credibility (Ahearne et al. 2004), thus the relative importance of private information is higher. In these cases, differences in risk perceptions should become more important. As expected, the negative effect of *cultural distance (language)* on rating outcomes is larger for countries at the lower end of the rating distribution (see Table 10). It increases in absolute terms from -0.011 at the .8 quantile to -0.024 at the .2 quantile. The effect of *cultural distance (language)* is consistently negative and significant at the one-percent level across the rating distribution. Comparing these findings with results for the GFC sample, we find the largest difference in the size of the effect at the lower end of the rating distribution. At the .2 and .4 quantile, the negative coefficient nearly doubles in the GFC period, while at the upper end the differences are much smaller compared to the full sample. These results suggest that the differences in risk perceptions rooted in culture matter more when information is sparse and uncertainty is higher.

6.4 Further Robustness Checks

In this subsection, we test the robustness of our results with respect to further alterations in the empirical strategy. First, we control for selection of countries into the sample of rated countries. For example, a sovereign could be more likely to request a rating from an agency from which it expects a more favorable rating. To control for a possible selection bias, we rerun our model from Table 3 (column 1) as a Heckman selection model. However, it is difficult to find a suitable exclusion variable. When they predict the probability that Moody's and S&P assign a rating to a particular sovereign, Beaulieu et al. (2012) use decade-fixed effects and a rated country's exports to the United States as exclusion variables. While the former is meant to capture a positive trend in the total number of rated countries, the latter is intended as a proxy for "a country's friendliness with major western powers" (Beaulieu et al. 2012: 721). However, there are reasons to doubt that either of these two variables satisfies the exclusion restriction. While decade-fixed effects could reflect the global economic situation and thus directly impact rating levels, home-country export patterns might be related to rating outcomes, as our paper argues. Note also that we find *export interests* to exhibit a significant positive relationship with rating outcomes in our regressions for JCR, Moody's and S&P (Table 6, columns 6, 7 and 9). Instead, we choose to start by estimating a Heckman

model without exclusion variables. We then use the number of sovereigns that are rated by the respective agency in the previous period, the number of the big three agencies that rate a sovereign in the previous period, or both as exclusion variables. Arguably, a sovereign is more likely to be rated by an agency if that agency covers a larger set of countries and if the market-dominating agencies rate a particular country. At the same time, it is difficult to come up with an explanation as to why these two measures of country coverage should directly affect rating levels. The results support our earlier conclusions when we do not account for selection, the main differences being that *bank exposure* now reaches the one-percent level of significance across all specifications and that *US military interests (aid)* becomes statistically significant at the five-percent level (see Online Appendix A20 for full regression results).

Second, we address the potential role of the business model of rating agencies, specifically conflicts of interest that could arise from an "issuer-pays" model. Afonso (2003: 60) mentions the possibility that agencies attempt "to gain market share by giving some countries a notch more than the competitors." Similarly, White (2010: 215) suggests that a "rating agency might shade its rating upward so as to keep the issuer happy and forestall the issuer's taking its rating business to a different rating agency." One might thus suspect that countries that pay for their ratings would be treated more favorably. To our knowledge, S&P is the only agency that publishes information on which countries receive unsolicited ratings. These countries are Argentina, Australia, Belgium, Cambodia, France, India, Italy, Japan, the Netherlands, Singapore, Switzerland, Taiwan, Turkey, the United Kingdom and the United States (as of June 2013).[40] As can be seen from Online Appendix A21, accounting for a dummy that indicates an unsolicited rating and its interaction with our variables of interest does not qualitatively alter our results for S&P with regard to *common language* and *cultural distance* (compare Table 6 column 9). Interestingly, *bank exposure* only becomes statistically significant for countries with unsolicited ratings (p-value: 0.001).

Finally, we discuss whether our results could be affected by endogeneity. Among the three variables of interest that robustly indicate a home bias in sovereign ratings (*same country*, *bank exposure*, *cultural distance (language)*), the most obvious candidate is *bank exposure*. Banks might respond to rating changes and lend more to countries with improved ratings, reversing the causal direction. However, this concern is mitigated by the use of lagged values of bank exposure in our estimations and by the fact that the results hold in the country-pair-fixed effects specification, which relies only on variation over time to identify the parameters (see again Table 5). *Bank exposure* might also exhibit a spurious positive correlation with rating levels if bank analysts are prone to a similar home bias as rating analysts. This could be the case as the

[40] See S&P website available at http://www.standardandpoors.com/ratings/sovereigns/ratings-list/en/us?sectorName=null&subSectorCode= (accessed June 2013).

previous literature shows that professional investors are also more likely to invest in companies that are culturally closer (e.g., Grinblatt and Keloharju 2001). However, our findings do not seem to be caused by such a spurious correlation: the results for bank exposure hold when controlling for *common language* and *cultural distance (language)* (Table 4) and they are also confirmed when applying country-pair-fixed effects (Table 5). With respect to *same country* and *cultural distance*, it is difficult to raise similar concerns. The causal direction is clear for cultural distance as culture is a deeply rooted phenomenon and should not respond to short-term rating changes.

7. CONCLUSIONS

Observers frequently perceive sovereign ratings as being biased and doubt that they accurately reflect the economic and political fundamentals of the rated countries. Many of these concerns reflect the idea that the home country of credit rating agencies has a systematic influence on rating outcomes. The aim of this study is to provide an objective and systematic empirical assessment to test these claims. For this matter, we refer to a home bias in sovereign ratings if a rating agency assigns relatively better ratings to its home country and to countries with close economic, political and cultural ties to its home. Building on the respective literature on political economy influences in economic assessments and on cultural biases in financial decision-making, we discuss potential reasons why such a bias could exist.

To test whether there is empirical support for different kinds of home biases, we collect rating data from nine agencies based in six countries. While most of the variation in ratings is explained by the economic and political fundamentals of rated countries, our results also suggest that sovereign ratings in fact exhibit biases. We find that the average agency assigns a rating to its home country that is almost one point higher than what seems justified by how it assesses other sovereigns. While there is no robust empirical support that geopolitical ties between home and sovereign play a significant role in rating outcomes, there is evidence that agencies on average assign relatively higher ratings to countries to which their home-country's banks have a larger risk exposure. Moreover, we find that countries that are culturally closer receive a better treatment: the larger the linguistic differences between home and sovereign, i.e., the more unfamiliar a language, the lower the assigned rating on average. The effects of bank exposure and cultural distance appear to be largely independent of one another. Taken together, it appears that the home bias is mainly the result of economic interests and cultural proximity, rather than being geopolitically motivated. Moreover, cultural proximity seems to be the main transmission channel that causes the differential treatment of the home country itself. These results are robust to the choice of estimation methods, the inclusion of country-pair- or rated-country-fixed effects, and selection into the sample of rated countries.

The individual analysis of the nine agencies suggests that the home bias is neither only restricted to US agencies nor to the smaller agencies, but rather appears to be a generalizable phenomenon.

We hypothesize that a cultural bias could arise from a lack of information, differences in risk perceptions or simply from discrimination. We find no support for discrimination based on ethno-racial differences between home and sovereign. If the differences were solely due to a lack of information, the existence of an office in a rated country should alleviate the bias. However, when we interact the existence of an office with cultural distance, the bias is not mitigated. Thus, the most plausible explanation appears to be that cultural distance is related to less trust and more pessimistic risk perceptions and, thereby, lower ratings. We present preliminary evidence that supports this explanation.

These results should not be taken as evidence that rating agencies do not fulfil an economically relevant and potentially efficiency-enhancing role. Supposedly objective sovereign-specific economic and political fundamentals explain most of the variation in sovereign ratings. Still, the economic significance of the home bias is not negligible. Biases of one rating point can make a big difference for the degree to which a country has access to international capital markets. This holds at least as long as many large investors are forced by regulations to depend on credit ratings for their portfolio choices. That said, our finding of a cultural home bias does not necessarily reflect irrational behavior on behalf of the agencies. Their judgments are based on imperfect information provided by the rated countries as well as third parties. It can be rational to rely on heuristics such as bilateral trust to evaluate this information, which can lead to a lower perceived likelihood that a more familiar state defaults on its debt.

There are important policy implications from our results. Regulation should aim at fostering competition and decrease the reliance on a few big agencies. While transparency can be beneficial, overly rigid regulatory frameworks could prevent rating agencies from adequately and quickly adjusting their methodologies and models to new circumstances and thus lower market efficiency. Attempts to limit the maximum number of rating updates to three times a year for unsolicited ratings (as proposed by the European Commission) would particularly affect smaller agencies who issue fewer solicited ratings. Hence this regulatory measure could stifle competition. A more promising approach that is in line with our results would be to explicitly embrace the plurality of methods and opinions. In cases where economic arguments support the use of external ratings, regulation should require ratings by several agencies, ideally from different countries and cultural backgrounds. This would provide a more comprehensive risk assessment and automatically lead to a more diverse and competitive rating agency landscape.

ACKNOWLEDGEMENTS

We thank Christian Bjørnskov, Franscesco Caselli, Christian Conrad, Till Cordes, Jonas Dovern, Axel Dreher, Peter Egger, Stephan Klasen, Lukas Menkhoff, Pablo Pinto, Constantin Schön, Rachel Wellhausen, Kevin L. Young, Pedro Forquesato, seminar participants at Heidelberg University (December 2012, May 2013, November 2013), ETH Zurich (September 2013), University of Hannover (December 2013), the Helmut Schmidt University Hamburg (March 2014) and Harvard University (October 2014), as well as conference participants at the Annual Conference of the Canadian Economics Association in Montreal (June 2013), the Annual Meeting of the American Political Science Association in Chicago (August 2013), the European Public Choice Society in Cambridge (April 2014), the Spring Meeting of Young Economists in Vienna (April 2014), the World Congress of the International Economic Association in Jordan (June 2014), the Beyond Basic Questions Workshop in Heidelberg (June 2014), the China Meeting of the Econometric Society in Xiamen (June 2014), and the Annual Conference of the German Economic Association in Hamburg (September 2014) for helpful comments on earlier versions of this paper. Andreas is grateful for support from the Niehaus Center of Globalization and Governance at Princeton University, where part of this research was carried out. Excellent research assistance was provided by Lutz Brückner, Elisabeth Dorfmeister, Sven Kunze and Helge Zille. We further thank Jamie Parsons for proof-reading of earlier versions of this article.

REFERENCES

Abbas, S. M. Ali, Nazim Belhocine, Asmaa A. ElGanainy and Mark A. Horton (2010). A Historical Public Debt Database. IMF Working Paper No. 10/245. Washington, DC: International Monetary Fund. Available at http://www.imf.org/external/pubs/cat/longres.cfm?sk=24332.0 (accessed 29 April 2013).

Afonso, António (2003). Understanding the Determinants of Sovereign Debt Ratings: Evidence for the Two Leading Agencies. *Journal of Economics and Finance* 27(1): 56-74.

Afonso, António, Davide Furceri and Pedro Gomes (2012). Sovereign Credit Ratings and Financial Markets Linkages: Application to European Data. *Journal of International Money and Finance* 31(3): 606-638.

Ahearne, Alan G., William L. Griever and Francis E. Warnock (2004). Information Costs and Home Bias: an Analysis of US Holdings of Foreign Equities. *Journal of International Economics* 62(2): 313-336.

Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat and Romain Wacziarg (2003). Fractionalization. *Journal of Economic Growth* 8(2): 155-194.

Alsakkaa, Rasha and Owain ap Gwilym (2010). Leads and Lags in Sovereign Credit Ratings. *Journal of Banking & Finance* 34(11): 2614-2626.

Ammer, John and Frank Packer (2000). How Consistent Are Credit Ratings? A Geographic and Sectoral Analysis of Default Risk. International Finance Discussion Papers Number 668. Washington, DC: Board of Governors of the Federal Reserve System.

Angrist, Joshua D. and Jörn-Steffen Pischke (2008). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Archer, Candace C., Glen Biglaiser and Karl DeRouen Jr. (2007). Sovereign Bonds and the "Democratic Advantage": Does Regime Type Affect Credit Ratings in the Developing World? *International Organization* 61(2): 341-365.

Barro, Robert J. and Jong-Wha Lee (2005). IMF Programs: Who Is Chosen and What Are the Effects? *Journal of Monetary Economics* 52(7): 1245-1269.

Bartels, Bernhard and Beatrice Weder di Mauro (2013). A Rating Agency for Europe – A Good Idea? CEPR Discussion Paper No. 9512. London, UK: Centre for Economic Policy Research.

Bar-Isaac, Heski and Joel Shapiro (2011). Credit Ratings Accuracy and Analyst Incentives. *American Economic Review: Papers & Proceedings* 101(3): 120-130.

Beaulieu, Emily, Gary W. Cox and Sebastian Saiegh (2012). Sovereign Debt and Regime Type: Reconsidering the Democratic Advantage. *International Organization* 66(4): 709-738.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh (2001). New Tools in Comparative Political Economy: The Database of Political Institutions. *World Bank Economic Review* 15(1): 165-176.

Becker, Gary S. (1961). *The Economics of Discrimination* (2nd Edition). Chicago, IL: University of Chicago Press.

Bergh, Andreas and Christian Bjørnskov (2014). Trust Us to Repay: Social Trust, Long-Term Interest Rates and Sovereign Credit Rating. IFN Working Paper No. 1039. Stockholm, Sweden: Research Institute of Industrial Economics.

Biglaiser, Glen and Joseph L. Staats (2012). Finding the "Democratic Advantage" in Sovereign Bond Ratings: The Importance of Strong Courts, Property Rights Protection, and the Rule of Law. *International Organization* 66(3): 515-535.

Block, Steven A. and Paul M. Vaaler (2004). The Price of Democracy: Sovereign Risk Ratings, Bond Spreads and Political Business Cycles in Developing Countries. *Journal of International Money and Finance* 23(6): 917-946.

Borensztein, Eduardo, Kevin Cowan and Patricio Valenzuela (2013). Sovereign Ceilings "Lite"? The Impact of Sovereign Ratings on Corporate Ratings. *Journal of Banking & Finance* 37(11): 4014-4024.

Brennan, Michael J. and H. Henry Cao (1997). International Portfolio Investment Flows. *Journal of Finance* 52(5): 1851-1880.

Cameron, Colin A., Jonah Gelbach and Douglas L. Miller (2011). Robust Inference With Multiway Clustering. *Journal of Business & Economic Statistics* 29(2): 238-249.

Canay, Ivan A. (2011). A Simple Approach to Quantile Regression for Panel Data. *Econometrics Journal* 14(3): 368-386.

Cantor, Richard Martin and Frank Packer (1996). Determinants and Impact of Sovereign Credit Ratings. *Economic Policy Review* 2(2): 37-53.

Chan, Kalok, Vicentiu Covrig and Lilian Ng (2005). What Determines the Domestic Bias and Foreign Bias? Evidence from Mutual Fund Equity Allocations Worldwide. *Journal of Finance* 60(3): 1495-1534.

Cordes, Till (2012). Where is the Democratic Advantage in the Sovereign Debt Market? It is Veto Players, Not Contested Elections. Working paper. Berlin, Germany: Hertie School of Governance.

De Haan, Jakob and Fabian Amtenbrink (2011). Credit Rating Agencies. DNB Working Paper No. 278. Amsterdam, Netherlands: De Nederlandsche Bank.

DiGiuseppe, Matthew R., Colin M. Barry and Richard W. Frank (2012). Good for the Money: International Finance, State Capacity, and Internal Armed Conflict. *Journal of Peace Research* 49(3): 391-405.

Dreher, Axel and Martin Gassebner (2008). Does Political Proximity to the U.S. Cause Terror? *Economics Letters* 99(1): 27-29.

Dreher, Axel, Silvia Marchesi and James Vreeland (2008). The Political Economy of IMF Forecasts. *Public Choice* 137(1-2): 145-171.

Durbin, Erik and David Ng (2005). The Sovereign Ceiling and Emerging Market Corporate Bond Spreads. *Journal of International Money and Finance* 24(4): 631-649.

Ferrer-i-Carbonell, Ada and Paul Frijters (2004). How Important is Methodology for the Estimates of the Determinants of Happiness? *Economic Journal* 114(497): 641-659.

Ferri, Giovanni, Li-gang Liu and Joseph E. Stiglitz (1999). The Procyclical Role of Rating Agencies: Evidence from the East Asian Crisis. *Economic Notes* 28(3): 335-355.

Ferri, Giovanni, Punziana Lacitignola and Jeong Yeon Lee (2013). Foreign Ownership and the Credibility of National Rating Agencies: Evidence from Korea. *Journal of Comparative Economics* 41(3): 762-776.

Flandreau, Marc (2006). Home Biases, Nineteenth Century Style. *Journal of the European Economic Association* 4: 634-643.

Fratzscher, Marcel and Julien Reynaud (2011). IMF Surveillance and Financial Markets—A Political Economy Analysis. *European Journal of Political Economy* 27(3): 405-422.

French, Kenneth R. and James M. Poterba (1991). Investor Diversification and International Equity Markets. *American Economic Review* 81(2): 222-226.

Gaillard, Norbert (2012). *A Century of Sovereign Ratings*. New York, NY: Springer.

Gärtner, Manfred, Björn Griesbach and Florian Jung (2011). PIGS or Lambs? The European Sovereign Debt Crisis and the Role of Rating Agencies. *International Advances in Economic Research* 17(3): 288-299.

Gehrig, Thomas (1993). An Information Based Explanation of the Domestic Bias in International Equity Investment. *Scandinavian Journal of Economics* 95(1): 97-109.

Giannetti, Mariassunta and Yishay Yafeh (2012). Do Cultural Differences Between Contracting Parties Matter? Evidence from Syndicated Bank Loans. *Management Science* 58(2): 365-383.

Grinblatt, Mark and Matti Keloharju (2001). How Distance, Language, and Culture Influence Stockholdings and Trades. *Journal of Finance* 56(3): 1053-1073.

Guiso, Luigi, Paola Sapienza and Luigi Zingales (2006). Does Culture Affect Economic Outcomes? *Journal of Economic Perspectives* 20(2): 23-48.

Guiso, Luigi, Paola Sapienza and Luigi Zingales (2009). Cultural Biases in Economic Exchange? *Quarterly Journal of Economics* 124(3): 1095-1131.

Güttler, André and Mark Wahrenburg (2007). The Adjustment of Credit Ratings in Advance of Defaults. *Journal of Banking & Finance* 31(3): 751-767.

Haque, Nadeem U., Nelson Mark and Donald J. Mathieson (1998). The Relative Importance of Political and Economic Variables in Creditworthiness Ratings. IMF Working Paper WP/98/46. Washington, DC: International Monetary Fund.

Hill, Paula, Robert Brooks and Robert Faff (2010). Variations in Sovereign Credit Quality Assessments Across Rating Agencies. *Journal of Banking & Finance* 34(6): 1327-1343.

Kaminsky, Graciela and Sergio L. Schmukler (2002). Emerging Market Instability: Do Sovereign Ratings Affect Country Risk and Stock Returns? *World Bank Economic Review* 16(2): 171-195.

Kilka, Michael and Martin Weber (2000). Home Bias in International Stock Return Expectations. *Journal of Psychology and Financial Markets* 1(3-4): 176-192.

Kolo, Philipp (2012). Measuring a New Aspect of Ethnicity - The Appropriate Diversity Index. Ibero America Institute for Economic Research (IAI) Discussion Papers 221. Goettingen, Germany: Ibero-America Institute for Economic Research.

Laeven, Luc and Fabián Valencia (2012). Systemic Banking Crises Database: An Update. IMF Working Paper No. 12/163. Washington, DC: International Monetary Fund.

Lewis, M. Paul (2009). *Ethnologue: Languages of the World*. Dallas, TX: Summer Institute of Linguistics (SIL), 16th ed.

Ling, Ding (2012). Dagong ou les contradictions d'une agence de notation à la fois internationale et patriotique. *Outre-terre* 32(2): 67-72.

Marshall, Monty G., Ted Robert Gurr and Keith Jaggers (2013). *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2012*. Vienna, VA: Center for Systemic Peace.

Mayer, Thierry and Soledad Zignago (2011). Notes on CEPII's Distances Measures (GeoDist). CEPII Working Paper 2011-25. Paris, France: Centre d'Etudes Prospectives et d'Informations Internationales.

McCallum, John T. (1995). National Borders Matter: Canada-U.S. Regional Trade Patterns. *American Economic Review* 85(3): 615-623.

Melitz, Jacques (2008). Language and Foreign Trade. *European Economic Review* 52(4): 667-699.

Mishkin, Frederic S. (2011). Over the Cliff: From the Subprime to the Global Financial Crisis. *Journal of Economic Perspectives* 25(1): 49-70.

Morse, Adair and Sophie Shive (2011). Patriotism in Your Portfolio. *Journal of Financial Markets* 14(2): 411-440.

Nickell, Pamela, William Perraudin and Simone Varotto (2000). Stability of Rating Transitions. *Journal of Banking & Finance* 24(1-2): 203-227.

Parente, Paulo M.D.C. and João M.C. Santos Silva (2016). Quantile Regression with Clustered Data. *Journal of Econometric Methods*, forthcoming.

Presbitero, Andrea F., Gregory F. Udell and Alberto Zazzaro (2014). The Home Bias and the Credit Crunch: A Regional Perspective. *Journal of Money, Credit and Banking* 46(s1): 53-85.

Qian, Nancy and David Yanagizawa (2009). The Strategic Determinants of US Human Rights Reporting: Evidence from the Cold War. *Journal of the European Economic Association* 7(2-3): 446-457.

Ravina, Enrichetta (2008). Love & Loans: The Effect of Beauty and Personal Characteristics in Credit Markets. American Law & Economics Association Annual Meetings Paper 67. Berkeley, CA: The Berkeley Electronic Press.

Reinhart, Carmen M. (2002). Default, Currency Crises, and Sovereign Credit Ratings. *World Bank Economic Review* 16(2): 151-170.

Reinhart, Carmen M. and Kenneth Rogoff (2009). *This Time is Different: Eight Centuries of Financial Folly*. Princeton, NJ: Princeton University Press.

Sarkissian, Sergei and Michael J. Schill (2004). The Overseas Listing Decision: New Evidence of Proximity Preference. *Review of Financial Studies* 17(3): 769-809.

Shiller, Robert J., Fumiko Kon-Ya and Yoshiro Tsutsui (1996). Why Did the Nikkei Crash? Expanding the Scope of Expectations Data Collection. *Review of Economics and Statistics* 78(1): 156-164.

Shin, Yoon S. and William T. Moore (2003). Explaining Credit Rating Differences between Japanese and U.S. Agencies. *Review of Financial Economics* 12(4): 327-344.

Spolaore, Enrico and Romain Wacziarg (2009). The Diffusion of Development. *Quarterly Journal of Economics* 124(2): 469-529.

Stiglitz, Joseph E. (1973). Approaches to the Economics of Discrimination. *American Economic Review* 63(2): 287-295.

Strezhnev, Anton and Erik Voeten (2012). *United Nations General Assembly Voting Data*. Available at http://hdl.handle.net/1902.1/12379 (accessed 25 October 2012).

Strong, Norman and Xinzhong Xu (2003). Understanding the Equity Home Bias: Evidence from Survey Data. *Review of Economics and Statistics* 85(2): 307-312.

S&P (2012). *How We Rate Sovereigns*. Standard & Poor's Global Credit Portal: Ratings Direct. New York, NY: Standard & Poor's. Available at http://www.standardandpoors.com/spf/ratings/How_We_Rate_Sovereigns_3_13_12.pdf (accessed 21 March 2013).

Tesar, Linda L. and Ingrid M. Werner (1995). Home Bias and High Turnover. *Journal of International Money and Finance* 14(4): 467-492.

Tomz, Michael, and Mark L.J. Wright (2007). Do Countries Default in "Bad Times"? *Journal of the European Economic Association* 5(2-3): 352-360.

Treisman, Daniel (2007). What Have We Learned About the Causes of Corruption From Ten Years of Cross-National Empirical Research? *Annual Review of Political Science* 10: 211-44.

Vaaler, Paul M., Burkhard N. Schrage and Steven A. Block (2006). Elections, Opportunism, Partisanship and Sovereign Ratings in Developing Countries. *Review of Development Economics* 10(1): 154-170.

Van Nieuwerburgh, Stijn and Laura Veldkamp (2009). Information Immobility and the Home Bias Puzzle. *Journal of Finance* 64(3): 1187-1215.

Voeten, Eric (2000). Clashes in the Assembly. *International Organization* 54(2): 185–215.

White, Lawrence J. (2010). Markets: The Credit Rating Agencies. *Journal of Economic Perspectives* 24(2): 211-226.

Yu, Shu, Jakob de Haan and Sjoerd Beugelsdijk (2015). Trade, Trust and the Rule of Law. *European Journal of Political Economy* 37: 102-115.

Zheng, Liping (2012). Are Sovereign Credit Ratings Objective? A Tale of Two Agencies. *Journal of Applied Finance & Banking* 2(5): 43-61.

Table 1: Overview on major credit rating agencies

Agency	Headquarters	Founded	Sov. rating since	Country offices	Staff	Ownership as of December 2012	Ownership history	Number of rated sovereigns by the end of	
								2000	2012
CI	Limassol, Cyprus	1982	2002	3	~20	100% privately owned by Afaf Adham, Amin Diab, Zafer Diab and the Gulf Master International Co. (privately-owned Kuwaiti Company); none of the shareholders has majority or voting control	No publicly known changes	-	37
Dagong	Beijing, China	1994	2010	3	~600	100% privately owned; major shareholder Guan Jianzhong (former Chinese government official)	Privately owned since foundation; Guan Jianzhong became major shareholder and president in 1998	-	72
DBRS	Toronto, Canada	1976	1998	3	~200	100% privately owned by Walter Schroeder since 1976	No publicly known changes	1	25
Feri	Bad Homburg, Germany	1987	1999	5	~50	100% owned by MLP AG (publicly-traded German company) since 2011; major shareholders of MLP are Manfred Lautenschläger (23.38%), Harris Associates (9.82%), Swiss Life (9.9%), HDI Talanx AG (9.89%), Allianz SE (6.27%)	30% owned by Harald Quandt Holding GmbH and 70% owned by Feri partners until 2006; MLP AG acquired 56,6% including the 30% stake of the Quandt Holding GmbH in 2006	55	56
Fitch	New York, USA; London, UK	1913	1994	34	~2,000	50% Hearst Corporation (family-owned US-based multinational mass media group) and 50% Fimalac (French holding company, major owner Marc Ladreit de Lacharrière)	Part of Fitch Group (100% owned by Fimalac) until 2006; 20% were sold to the Hearst Corporation in 2006, additional 20% in 2009 and another 10% in 2012	69	101
JCR	Tokyo, Japan	1985	1998	1	~90	Stock company, largest shareholders: Jiji Press, Ltd. (19.71%), JCR employees' stock ownership associations (6.51%), K.K. Kyodo News (5.93%), Sumitomo Life Insurance Company (2.68%), Meiji Yasuda Life Insurance Company (2.68%)	No publicly known changes	21	33
Moody's	New York, USA	1909	1918	24	~6,800	Publicly traded since 2000; institutional ownership: 95.34%; top 5 institutional shareholders: Berkshire Hathaway Inc. (13.4%), Capital World Investors (8.1%), Vanguard Group Inc. (6.2%), Bank of New York Mellon Corp (4%), Massachusetts Financial Services Co. (3.8%); further shareholders: BlackRock, Morgan Stanley, State Street, Northern Trust Corp., T. Rowe Price Associates	Owned by US company Dun & Bradstreet from 1961-2000	82	113
R&I	Tokyo, Japan	1998	1998	2	~250	Stock company and part of Nikkei Group; largest shareholders: Nikkei, Inc. (42.72%), Nikkei Business Publications, Inc. (13.41%), Quick Corp. (8.24%), The Bank of Tokyo-Mitsubishi UFJ, Ltd. (4.91%), Sumitomo Mitsui Banking Corp. (4.60%)	Established through the merger between Japan Bond Research Institute and Nippon Investors Service, Inc.	42	44
S&P	New York, USA	1860	1922	24	~5,000	100% owned by McGraw Hill Companies, Inc., since 1966; major shareholders of the publicly-traded McGraw Hill Companies: Capital World Investors, Vanguard Group, State Street Corp., Oppenheimer Funds Inc., Morgan Stanley, Inc.; further shareholders: BlackRock, Bank of New York Mellon Corp., Northern Trust Corp., T. Rowe Price Associates	In 1941, merger of Poor's Publishing (founded 1860) and Standard Statistics (founded in 1906)	87	125

Sources: Personal communication with Moody's Client Services (28 February 2013, 4 March 2013, 22 March 2013, 25 March 2013), Feri EuroRating Services AG (14 March 2013, 21 March 2013), Dagong Global Credit Rating (5 April 2013, 3 June 2013), internet research (see Online Appendix A22 for a detailed list of sources), and Gaillard (2012).

Table 2: Sovereign ratings of home countries (as of June 2013)

	Canada	**China**	**Cyprus**	**Germany**	**France**	**Japan**	**Kuwait**	**United States**
Home agencies	AAA (21)	AAA (21)	B (7)	AAA (21)	AAA (21)	AAA (20.5)	AA- (18)	AAA (20.7)
Other agencies	AAA (20.7)	AA- (18)	CCC (4.4)	AAA (20.9)	AA+ (19.9)	A+ (17.4)	AA (19)	AA+ (19.8)

Note: Each cell displays the three-letter rating. In cases where more than one (home or other) agency assigns a rating to a particular country, the table displays the average rating from either all home agencies or all other agencies.

Table 3: Home biases in sovereign ratings (all agencies pooled)

	(1)	(2)	(3)	(4)
	Least squares		Ordered probit	
	Full sample	GFC sample	Full sample	GFC sample
(a) Same country	0.950**	1.704***	1.591***	1.545***
	[0.018]	[0.001]	[0.000]	[0.000]
(b) Export interests	0.017	0.030	0.017	0.027
	[0.345]	[0.142]	[0.144]	[0.142]
(c) Bank exposure	0.038*	0.045*	0.076***	0.086***
	[0.054]	[0.070]	[0.005]	[0.000]
(d) Geopolitical alignment (UN)	0.005	0.013	0.004	0.009***
	[0.518]	[0.183]	[0.183]	[0.002]
(e) US military interests (aid)	0.034*	0.116***	0.026*	0.085***
	[0.082]	[0.001]	[0.076]	[0.005]
(f) Common language	0.742***	0.810***	0.452***	0.444**
	[0.000]	[0.001]	[0.001]	[0.022]
(g) Cultural distance (language)	-0.021***	-0.027***	-0.017***	-0.018***
	[0.000]	[0.000]	[0.000]	[0.000]
(h) Cultural distance (ethno-racial)	0.001	0.003	0.001	0.002
	[0.718]	[0.472]	[0.443]	[0.141]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, time- and agency-fixed effects. The full sample contains data from January 1990 to June 2013 (columns 1 and 3). The GFC sample runs from September 2008 to June 2013 (columns 2 and 4). Online Appendix A13 shows the results of the control variables for the models in column 1. Online Appendix A14 displays the adjusted R-squared values and the number of observation of each regression. Standard errors are clustered at both the agency-time and the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 4: Home biases in sovereign ratings (OLS, all agencies pooled, robustness checks)

	(1)	(2)	(3)	(4)
Bank exposure	0.029*	0.030*		
	[0.075]	[0.094]		
Common language	0.753**		0.473*	0.476*
	[0.012]		[0.069]	[0.068]
Cultural distance (language)		-0.022**	-0.014**	-0.015**
		[0.012]	[0.018]	[0.021]
Same country				-0.086
				[0.817]
Agency-fixed effects	Yes	Yes	Yes	Yes
Time-fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.87	0.87	0.87	0.87
Observations	37743	37743	74701	74701

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. The table displays only the coefficients on the respective variables of interest of each regression. All regressions contain the control variables as specified in Table 3, agency and time-fixed effects. Data range from January 1990 to June 2013. Standard errors are clustered at both the agency-time and the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 5: Home biases in sovereign ratings (OLS, all agencies pooled, additional fixed effects)

	(1) Equation 3		(2) Equation 4		(3) Equation 5	
(a) Same country	0.950**	Agency FE	0.681***	Agency FE and sovereign FE	0.699***	Agency FE and Sovereign-year FE
	[0.022]		[0.004]		[0.001]	
(b) Export interests	0.017	Agency FE	-0.095	Agency-sovereign pair FE	-0.216*	Agency-sovereign pair-year FE
	[0.363]		[0.269]		[0.071]	
(c) Bank exposure	0.038*	Agency FE	0.112**	Agency-sovereign pair FE	0.023	Agency-sovereign pair-year FE
	[0.077]		[0.024]		[0.105]	
(d) Political alignment (UN)	0.005	Agency FE	-0.003	Agency-sovereign pair FE	0.006	Agency-sovereign pair-year FE
	[0.358]		[0.849]		[0.621]	
(e) US military interests (aid)	0.034	Agency FE	0.03	Agency-sovereign pair FE	0.006	Agency-sovereign pair-year FE
	[0.192]		[0.325]		[0.621]	
(f) Common language	0.742***	Agency FE	0.101	Agency FE and sovereign FE	0.150	Agency FE and Sovereign-year FE
	[0.001]		[0.689]		[0.569]	
(g) Cultural distance (language)	-0.021***	Agency FE	-0.008**	Agency FE and sovereign FE	-0.011***	Agency FE and Sovereign-year FE
	[0.000]		[0.011]		[0.001]	
(h) Cultural distance (ethno-racial)	0.001	Agency FE	0.003	Agency FE and sovereign FE	0.002	Agency FE and Sovereign-year FE
	[0.589]		[0.192]		[0.257]	

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, time-fixed effects as well as the fixed effects specified in the table. Column 1 is identical with column 1 of Table 3 to facilitate reading. Data range from January 1990 to June 2013. Standard errors are clustered at both the agency-time and the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 6: Home biases in sovereign ratings (OLS, by agency)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	CI	Dagong	DBRS	Feri	Fitch	JCR	Moody's	R&I	S&P	CI	Fitch
	CYP	CHN	CAN	DEU	USA	JPN	USA	JPN	USA	KWT	FRA
(a) Same country	1.950*	2.483*	0.969	-0.223	0.876*	0.590	0.252	1.985**	0.759'	0.561	1.063***
	[0.053]	[0.095]	[0.178]	[0.576]	[0.058]	[0.574]	[0.620]	[0.014]	[0.100]	[0.520]	[0.000]
(b) Export interests	-0.387***	-0.113	0.014	0.098	0.03	0.081*	0.041*	-0.001	0.047*	0.61	0.076
	[0.000]	[0.200]	[0.366]	[0.189]	[0.272]	[0.071]	[0.051]	[0.982]	[0.057]	[0.344]	[0.122]
(c) Bank exposure			-0.021	0.150***	0.107**	0.060***	0.062	0.039	0.135***		0.052
			[0.358]	[0.000]	[0.013]	[0.009]	[0.129]	[0.184]	[0.001]		[0.222]
(d) Geopolitical alignment (UN)	-0.016	0.058***	0.024	-0.070***	0.017	-0.069***	0.004	-0.038	-0.001	-0.001	-0.017
	[0.786]	[0.007]	[0.535]	[0.000]	[0.145]	[0.001]	[0.762]	[0.154]	[0.946]	[0.972]	[0.345]
(e) US military interests (aid)					0.036		0.034		0.033		
					[0.141]		[0.122]		[0.271]		
(f) Common language	-1.494	1.039	0.737*	0.752	0.880***		0.869***		0.810***	2.611**	0.028
	[0.152]	[0.334]	[0.081]	[0.109]	[0.001]		[0.005]		[0.002]	[0.015]	[0.934]
(g) Cultural distance (language)	-0.002	-0.035*	-0.072***	-0.020**	-0.033***	-0.002	-0.024**	-0.015	-0.028***	-0.033**	0.003
	[0.931]	[0.050]	[0.001]	[0.025]	[0.004]	[0.857]	[0.023]	[0.118]	[0.003]	[0.016]	[0.631]
(h) Cultural distance (ethno-racial)	-0.008	0.006	0.001	-0.004	-0.008	0.003	0.004	-0.007	0.003	-0.034**	0.002
	[0.335]	[0.521]	[0.952]	[0.525]	[0.430]	[0.670]	[0.711]	[0.489]	[0.797]	[0.015]	[0.699]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, time- and agency-fixed effects. Data range from January 1990 to June 2013. Columns (1) to (9) define the home country based on the agency's headquarters; columns (10) and (11) based on the ownership definition. Online Appendix A18 displays the adjusted R-squared values and the number of observation of each regression. Standard errors are clustered at both the sovereign and the time level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 7: Home biases in sovereign ratings (ordered probit, by agency)

	(1) CI CYP	(2) Dagong CHN	(3) DBRS CAN	(4) Feri DEU	(5) Fitch USA	(6) JCR JPN	(7) Moody's USA	(8) R&I JPN	(9) S&P USA	(10) CI KWT	(11) Fitch FRA
(a) Same country	2.444***	6.949***	N/A	5.310***	5.493***	6.244***	5.375***	2.601***	1.46***	0.933	5.314***
	[0.008]	[0.000]		[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0000]	[0.190]	[0.000]
(b) Export interests	-0.711***	-0.082**	N/A	0.150**	0.015	0.177	0.032***	0.036	0.036**	0.853	0.071
	[0.000]	[0.046]		[0.015]	[0.252]	[0.136]	[0.006]	[0.425]	[0.022]	[0.133]	[0.142]
(c) Bank exposure			N/A	0.134***	0.117**	1.873***	0.089*	0.568***	0.164**		0.043
				[0.000]	[0.014]	[0.000]	[0.075]	[0.000]	[0.025]		[0.301]
(d) Geopolitical alignment (UN)	0.005	0.046***	N/A	-0.041***	0.015*	-0.153***	0.006	-0.121***	0.002	-0.002	-0.016
	[0.914]	[0.000]		[0.002]	[0.076]	[0.008]	[0.451]	[0.001]	[0.784]	[0.948]	[0.197]
(e) US military interests (aid)			N/A		0.034**		0.019*		0.028		
					[0.013]		[0.092]		[0.115]		
(f) Common language	-1.404	1.003	N/A	1.480***	0.507***		0.594***		0.466***	2.040*	0.041
	[0.233]	[0.164]		[0.000]	[0.003]		[0.002]		[0.009]	[0.075]	[0.882]
(g) Cultural distance (language)	-0.007	-0.049***	N/A	-0.035***	-0.021**	-0.023*	-0.021***	-0.019*	-0.020***	-0.029**	0.004
	[0.641]	[0.001]		[0.000]	[0.022]	[0.052]	[0.002]	[0.051]	[0.006]	[0.025]	[0.359]
(h) Cultural distance (ethno-racial)	-0.009	0.001	N/A	-0.007*	-0.004	-0.002	0.002	-0.004	0.002	-0.028*	0.002
	[0.119]	[0.754]		[0.091]	[0.477]	[0.746]	[0.737]	[0.600]	[0.735]	[0.050]	[0.632]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, time- and agency-fixed effects. Data range from January 1990 to June 2013. Columns (1) to (9) define the home country based on the agency's headquarters; columns (10) and (11) define it based on the ownership definition. For DBRS (column 3) the maximum likelihood procedure did not converge, most likely due to insufficient variation in the independent variables for each rating step. Standard errors are clustered at both the sovereign and the time level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 8: Do foreign offices decrease the effect of linguistic differences? (OLS)

	(1) Feri	(2) Fitch	(3) Moody's	(4) S&P
Cultural distance (language)	-0.026*	-0.036**	-0.027**	-0.024*
	[0.061]	[0.045]	[0.029]	[0.068]
Office in rated country	-0.643	-0.500	-0.593	0.695
	[0.670]	[0.748]	[0.668]	[0.574]
Cultural distance (language) * Office in rated country	-0.008	0.004	0.009	-0.008
	[0.638]	[0.823]	[0.588]	[0.568]
Adjusted R-squared	0.80	0.90	0.89	0.90
Observations	8730	14814	16374	18230

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each column refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, and time-fixed effects. Data range from January 1990 to June 2013. Standard errors are clustered at both the sovereign and the time level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 9: Interaction of cultural distance with bilateral trust (OLS, Feri only)

	(1)	(2)	(3)	(4)
Cultural distance (language)	-0.020**		-0.015	-0.456**
	[0.025]		[0.384]	[0.014]
Bilateral trust		5.320***	3.741*	-10.367
		[0.000]	[0.099]	[0.103]
Cultural distance (language) * Bilateral trust				0.148**
				[0.015]
Adjusted R-squared	0.81	0.84	0.85	0.85
Observations	5203	2334	2334	2334

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. The regression contains the control variables as specified in Online Appendix A12 and time-fixed effects. The full sample contains data from June 1999 to June 2013. Standard errors are clustered at both the sovereign and the time level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

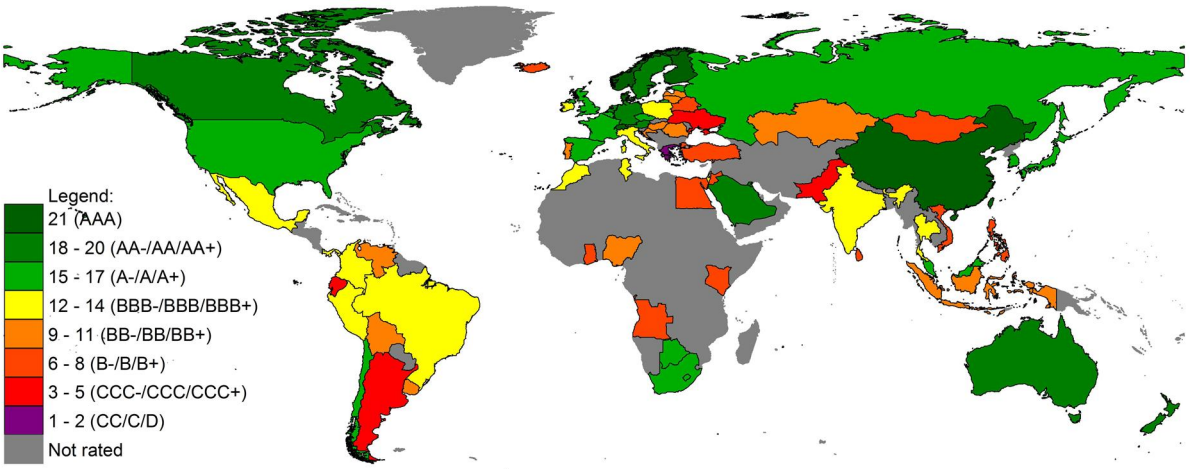
Table 10: The effect of cultural distance on ratings at different quantiles (all agencies pooled)

		20%	40%	60%	80%
Cultural distance (language)	Full sample	-0.024***	-0.015***	-0.011***	-0.011**
		[0.002]	[0.001]	[0.002]	[0.014]
Cultural distance (language)	GFC sample	-0.044***	-0.028***	-0.019***	-0.016***
		[0.000]	[0.000]	[0.000]	[0.002]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each row refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Online Appendix A12, time- and agency-fixed effects. The full sample contains data from January 1990 to June 2013. The GFC sample runs from September 2008 to June 2013. Standard errors are clustered at the sovereign level based on Parente and Santos Silva (2016). We use the demeaning procedure outlined in Canay (2011) to implement the fixed effects. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Figure 1: Sovereign ratings by agency and country (as of 28 June 2013)

(a) Dagong (China)



(b) Moody's (USA)

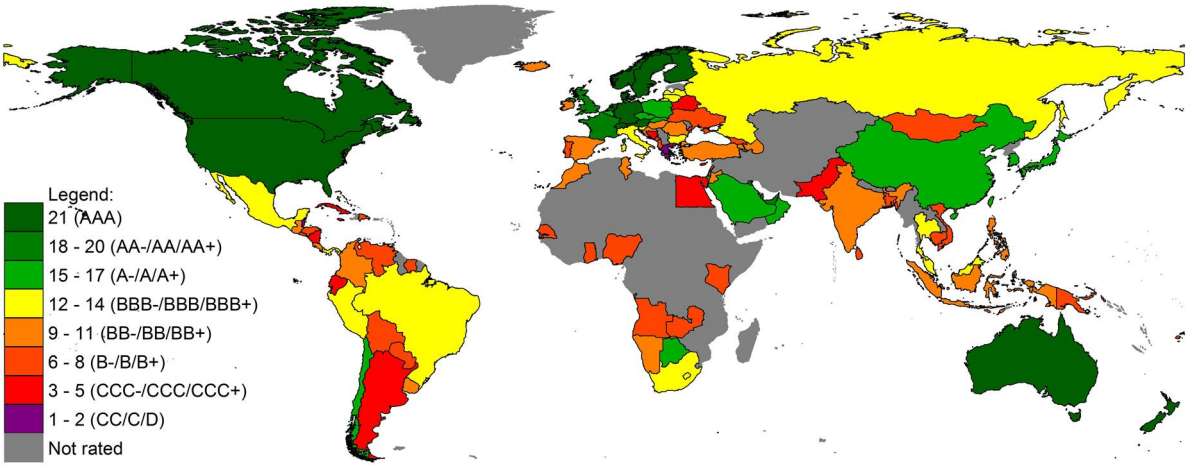
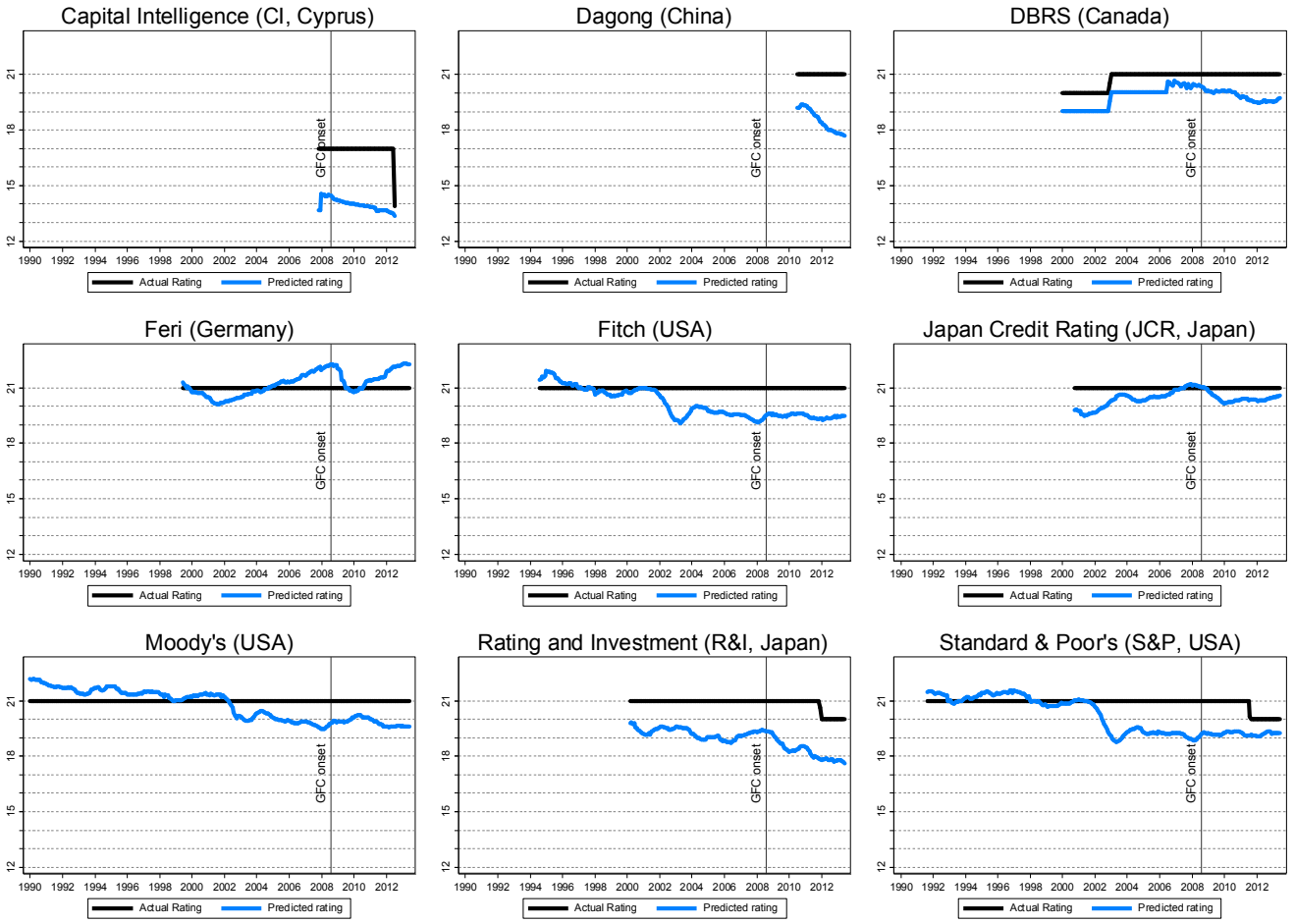


Figure 2: Actual rating levels versus predicted values



Notes: Based on the specifications in Table 6, this figure contrasts the actual rating and the predicted rating based on how each agency weighs the economic and political fundamentals of sovereigns. The solid lines depict the actual ratings, the dotted lines the ratings that would be assigned to the home country based only on the economic and political fundamentals.