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Bias or ignorance? The politics and economics behind sovereign credit ratings*

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Abstract

Given that sovereign bond markets may be vulnerable to multiple equilibria and self-fulfilling prophecies, a debate exists over whether and in what way credit rating agencies (CRAs) are politically biased and may weaponize sovereign credit ratings. Recent research by [Fuchs and Gehring \(2017\)](#) suggests that CRAs are not biased in favor of countries which are geo-politically aligned with their home country. In this paper, I argue that such a bias exists and that it should manifest empirically once two features of the global economy are controlled for: hidden debt owed to China and the global network of central bank swap line arrangements. To provide support for my argument, I first replicate the results reported by Fuchs and Gehring and then extend the analysis in several ways to account for these two features that have recently emerged in global finance to show that an in-group bias is present across major CRAs.

NOTE: Due to COVID-19 library closures, access to rating data is severely restricted and the paper is to be considered work in progress. The author will complete the analysis and update the paper as soon as the empirical analysis is possible.

*This draft was prepared for the CIS WP series at USC on 9/28/2020. Comments are welcome and should be sent to daehler@usc.edu. The author gratefully acknowledges the financial support by CIS.

1 Introduction

1.1 Biases in sovereign ratings

Sovereign ratings (SRs), often used synonymously with the terms “sovereign credit ratings” or “sovereign debt ratings,” are assessments of a country’s creditworthiness. The precision and impartiality of such ratings is crucial as low ratings can have several adverse effects: Firstly, they can affect the credit costs of states (Afonso et al., 2012). Secondly, they can set de-facto ceilings for corporate ratings (Durbin and Ng (2005); Borensztein et al. (2013)), thereby affecting the broad economy of a state. Lastly, they can amplify economic and fiscal crisis in a pro-cyclical way and set in motion self-fulfilling prophecies (Ferri et al. (1999); Gärtner et al. (2011)).

Most sovereign ratings are unsolicited. That is, most sovereigns do not pay for the service of a rating agency to issue a rating. This means that the principal-agent problem inherent in paid-for corporate ratings is mostly absent in sovereign ratings. Hence, in a perfect world, competition and reputation concerns should lead CRAs to publish accurate ratings. However, politicians and scholars alike have criticized CRAs time and time again for biased opinions, opaque rating methodologies, and poor business integrity. For example, when Standard & Poor’s downgraded the US in 2011, the Obama administration challenged the credibility of the decision, stating that the rating firm relied on faulty math and acted in haste. On the other side of the Atlantic we observe a similar picture: When Moody’s downgraded its assessment on Portugal’s debt payment capacity, then president of the European Commission, José Manuel Barroso, criticized the firm for being “speculative” and “biased.” Additionally, speaking to reporters, Barroso said the EU planned to strengthen regulations overseeing CRAs and that European legislators would also look into issues of “civil liability” for incorrect judgments by agencies on the credit-worthiness of sovereign European nations. Moreover, Barroso indicated that there would be some developments regarding the possibility of CRAs originating in Europe which would reduce Europe’s reliance on the North

America-based CRAs.¹

In summary, scholars’ and politicians’ criticism of CRAs are grounded in the notion that there are other factors at play behind sovereign ratings than mere cold, objective facts. My paper takes up this notion and argues for a “political bias” in SRs where the “political bias” may be made up of two constituent elements: The first element is the “home bias,” which I define as the inclination of CRAs to assign favorable ratings to their respective home countries, where the home country is defined as the country in which the headquarters of the agency is located. The second element is the “in-group bias,” which I define as the inclination of CRAs to assign favorable ratings to countries with close political ties and vice versa for inimical countries.

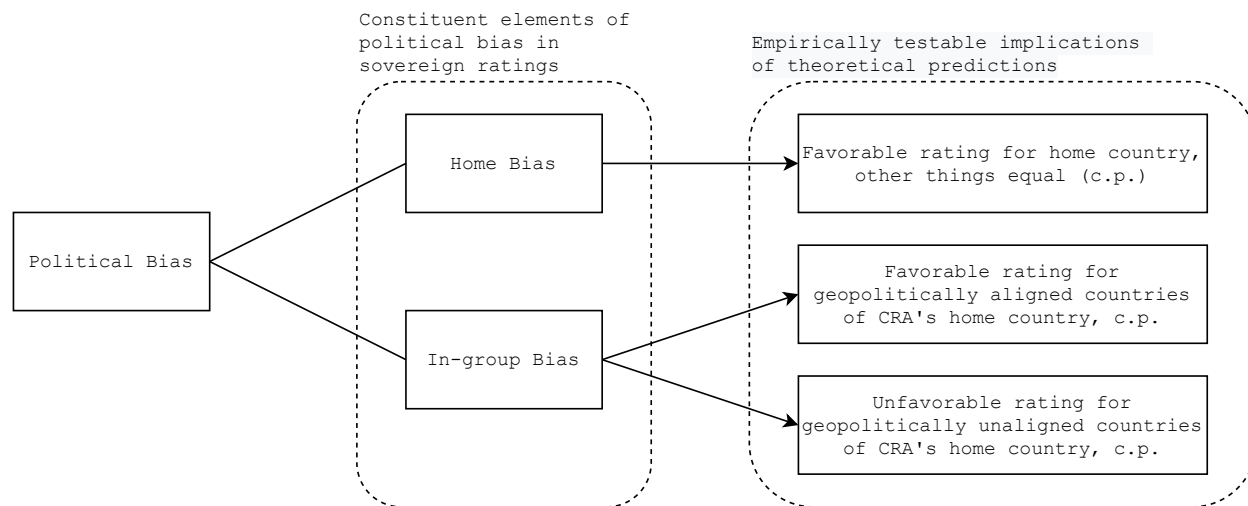


Figure 1: Types of political biases and their empirical manifestations

As an example of the argued home bias, let’s examine the US-China dyad. In Table 1 we see that Chinese and American CRAs give each other’s sovereign vastly different ratings. While the Chinese agency Dagong gives its home country the highest possible rating (AAA), American agencies give China ratings that are on average 4 notches lower than Dagong’s (A+, A+, A1). Similarly, Dagong assigns the US a rating that is just two notches above junk status (BBB+), whereas American agencies assign top marks (AA+, AAA, Aaa)

¹See report by *Reuters* , <https://www.reuters.com/article/eurozone-ratings-barroso-idUSB5E7HL07O20110706>; accessed 12 October 2020.

and on average exceed Dagong’s rating by 6.67 notches. Note the consistency of ratings across American agencies, which may indicate that ratings are dominated by a systematic component rather than randomness, i.e. a bias.

Table 1: Ratings by Chinese and American CRAs for China and the US.

Long-term foreign currency ratings for China, by agency			
Dagong (CN)	S&P (US)	Fitch (US, UK)	Moody’s (US)
AAA (Stable)	A+ (Stable)	A+	A1 (Stable)
5/26/2017	9/21/2017	11/19/2019	7/4/2019
highest possible rating	Dagong - 4 notches	Dagong - 4 notches	Dagong - 4 notches
Long-term foreign currency ratings for the US, by agency			
Dagong (CN)	S&P (US)	Fitch (US, UK)	Moody’s (US)
BBB+ (Negative)	AA+ (Stable)	AAA	Aaa (Stable)
1/16/2018	6/10/2013	4/2/2019	4/25/2018
Just 2 notches above junk status	Dagong +6 notches	Dagong + 7 notches	Dagong + 7 notches

As an example of the in-group bias in SRs, let’s look at Table 2. We observe that American agencies across the board have a more optimistic view on Israel than Dagong (average rating difference of 2.33 notches). Again, note the consistency of ratings for Israel across US agencies which may indicate that the different assessments between the US and Chinese agencies may have systematic explanations. We also observe a similar picture when we look at ratings for Japan: Dagong assigns a negative outlook and a lower rating whereas American agencies are slightly more optimistic, which is in line with the geopolitical orientation toward Japan of the US and China. Lastly, we observe that JCR gives its home sovereign the best possible rating (AAA, 4.67 notches higher than the average of S&P, Fitch, and Dagong). To sum up, the examples serve as a first cut at showing political biases in sovereign ratings: CRAs appear particularly gentle when rating their home country. They also appear to favor strategic and geo-politically aligned sovereigns and portrait geo-political adversaries of their home country as less credit-worthy.

Table 2: Third-party rating examples

Long-term foreign currency ratings for Israel, by agency			
Dagong (CN)	S&P (US)	Fitch (US, UK)	Moody's (US)
A-/Stable	AA-/Stable	A+	A1/Positive
6/22/2018	8/3/2018	8/29/2019	7/20/2018
	Dagong + 3	Dagong + 2	Dagong +2/ superior outlook
Long-term foreign currency ratings for Japan, by agency			
JCR (JP)	S&P (US)	Fitch (US, UK)	Dagong (CN)
AAA/Stable	A+/positive	A	A/negative
8/9/2018	4/13/2018	2/2/2020	2/11/2018
	JCR -4 notches	JCR -5 notches	JCR -5 notches / worse outlook

1.2 Previous literature

Scholarship on home biases has a long history in the economics and finance literature. Indeed, there are several papers that argue for the home bias as a perennial feature of international transactions: [McCallum \(1995\)](#) argues for a *home bias in international trade* and shows that for the United States and Canada, inter-province trade is 20 times larger than international trade, holding other determinants of trade fixed. [Wolf \(2000\)](#) documents the same phenomenon for OECD countries. [French and Poterba \(1991\)](#) argue for a *home bias in international finance* and show that individuals and institutions in most countries hold only modest amounts of foreign equity despite the empirical observation that returns on national equity portfolios suggest substantial benefits from international diversification.² [Tesar and Werner \(1995\)](#) corroborate these findings, adding that the high volume of cross-border capital flows and the high turnover rate on foreign equity investments relative to turnover on domestic equity markets suggests that variable transactions costs are an unlikely explanation for this home bias.

Similar to the vast scholarship on home biases in international economics and finance, the literature on the determinants of corporate, municipal, and sovereign credit ratings is comprehensive and a detailed discussion of it goes beyond the scope of this paper. Instead,

²Cf. [Feldstein and Horioka \(1979\)](#) for the origin of this idea.

I focus on previous studies dealing with the determinants of sovereign ratings in particular, as well as studies dealing with home biases in ratings more generally.

The idea of using a structural model to establish if predicted and actual ratings converge is first developed in [Cantor et al. \(1994\)](#). Based on statements of major CRAs, they identify eight quantitative criteria as the determinants of sovereign ratings: per capita income, GDP growth, inflation, fiscal balance, external balance, external debt, economic development, and default history. In their econometric analysis, most of these variables are closely related to the actual ratings assigned and the predictive ability of the variables combined reached more than 90% with a residual standard error of about 1.2 rating notches.

[Ferri et al. \(1999\)](#) use this method in a dynamic context to show that SRs can be procyclical. That is, there are periods during which CRAs are less systematic in their assessments and weigh discretionary data more heavily, thereby having the potential to amplify economic fluctuations. [Afonso \(2003\)](#) extends the method of [Cantor et al. \(1994\)](#) and uses linear, logistic, and exponential transformations of the rating scales and other robustness checks. Of the large number of variables that agencies claim to look at, they find that six variables appear to be the most relevant to determining a country's rating: income per capita, external debt, level of economic development, default history, real growth rate, and inflation rate. Interestingly, while the incentives for a sovereign to default may differ from those of other obligors and may be affected by domestic political factors ([Tomz and Wright \(2007\)](#); [Panizza et al. \(2009\)](#)), [Archer et al. \(2007\)](#) find that regime type and most other political factors have little effect on ratings. Instead, they confirm that trade, inflation, growth, and default history strongly affect ratings. However, while their results show that most political factors are not significant determinants for ratings, their interviews with CRAs would suggest that political factors are considered when assessing sovereigns. Importantly, scholarship in this fashion does not look at differences in ratings across agencies. Instead, it explains ratings only based on characteristics of the "rated" but not of the "rater."

The first to break with this tradition and to include characteristics of the rater in the

analysis of rating determinants are [Ammer and Packer \(2000\)](#). They examine differences in default rates by sector and obligor domicile and provide evidence that CRAs are imperfectly calibrated across issuer sectors. They do not find significant differences in default rates between US and foreign firms even though foreign firms are rated significantly lower. Similarly, [Shin and Moore \(2003\)](#) compare ratings assigned to Japanese corporates by two US CRAs and two Japanese CRAs and find that US agencies assign systematically lower ratings than the Japanese agencies.

Transferring the idea of [Shin and Moore \(2003\)](#) over to sovereign ratings, [Fuchs and Gehring \(2017\)](#) are the first to systematically examine the role of rating agencies' home country on rating outcomes. They do so by first discussing what they call the “demand” and “supply” channels that could influence ratings. Then they empirically examine ratings and find that CRAs assign relatively higher ratings to 1) their home country, 2) culturally more similar countries, and 3) countries to which home-country banks have larger risk exposure but not to countries to which the home country has geopolitical ties. To ascertain why culture matters, they explore in greater detail whether information asymmetries or differences in risk perception contribute to cultural proximity's effect and find that cultural proximity is associated with a more optimistic perception of risk rather than information asymmetries. To assess whether geopolitical ties influence ratings, they use two measures. First, they use bilateral voting alignment in the United Nations General Assembly as a proxy for geopolitical alignment between the home country of the rating agency and the rated country. Second, they employ a country's share of total US military aid and take it as a proxy for the strategic importance that the United States assigns to these countries.

Given that even small biases can have major implications for financing costs of sovereigns ([Rigobon \(2002\)](#); [Jaramillo and Tejada \(2011\)](#)), verifying the robustness of the missing geopolitical effects on ratings reported by [Fuchs and Gehring \(2017\)](#) is crucial to gain a more comprehensive view of the international political economy of credit ratings and government capacity. Indeed, from the examples in [Tables 1 & 2](#) it appears that conclusions that disagree

with [Fuchs and Gehring](#) may be drawn if the analytical lens is widened. Specifically, I hypothesize that there are two features of the global economy that have recently emerged and that are crucial to include in the analysis of sovereign ratings, but that previous scholarship has not addressed. One feature is the “hidden debt” to China and the other is central bank (CB) swap lines (SLs). Let’s discuss each in turn.

In a recent paper on the long coincident behavior of international capital flows, commodity prices, and interest rates in global financial centers, [Reinhart \(2019\)](#) discovers the curious case of the missing defaults. That is, in spite of the drying up of global capital flows and a sharp fall in commodity prices from 2012 to 2016, sovereign defaults particularly in emerging market (EM) economies in this period did not spike higher as the record of the prior two hundred years would predict. [Reinhart](#) argues that China may be responsible for these missing defaults in two important respects. For one, the larger global footprint of the Chinese economy, which is growing steadily at a rapid rate, stabilized global trade and hence the revenue streams of many sovereigns. For another, Chinese ambition to become a global power led to large official flows to a variety of countries.³ In fact, recent work by [Horn et al. \(2019\)](#) provides a comprehensive new data set that shows that China has extended many more official loans mostly to developing countries than previously known. This systematic under-reporting of Chinese loans has created a “hidden debt” situation, meaning that international institutions such as the IMF and World Bank, and scholars alike have until recently had an incomplete picture of how much countries around the world owe to China and under which terms and conditions. However, now that this data are available, controlling for hidden debt as part of the debt/GDP ratio is important if we want to establish potential biases of sovereign ratings: If developing countries under-report the Chinese loans they receive, these debts remain hidden and thus private information. As such, CRAs may not be aware of these debts. If so, CRAs themselves have an inaccurate picture of the level of debt of states.

³Over the past two decades, China has become a major global lender, with outstanding claims now exceeding more than 5% of global GDP. Almost all of this lending is official. That is, it is coming from the government and state-controlled entities. See report by *Harvard Business Review*, <https://hbr.org/2020/02/how-much-money-does-the-world-owe-china>; accessed 10 October 2020.

However, since CRAs can talk to governments when forming their ratings and especially developing countries have an incentive to disclose higher debt ratios as a signal of credibility to be able to attract funds, I surmise that CRAs were aware of this debt and I hypothesize that CRAs still rate their in-group and home country higher than out-group sovereigns even if both in-group and out-group sovereigns have similar levels of hidden debt. In other words, the emergence of China as a lender may fundamentally have changed government's access to credit that is not reflected in the credit-worthiness indicated by ratings.

Similar to the emergence of China as a global lender, swap lines have gained momentum in recent years.⁴ This is mainly due to the turbulence's emanating from the 2007/2008 Great Financial Crisis (GFC) and the Euro Crisis (EC), which lead the US Federal Reserve (FED) to offer SLs in order to keep global financial markets working smoothly (cf. [Obstfeld et al. \(2009\)](#); [Aizenman and Pasricha \(2010\)](#); [Chey \(2013\)](#); [Baker \(2013\)](#)). Recently, however, China has also begun to offer swap arrangements to a relatively large number of countries.⁵ As swap lines allow governments to obtain foreign currency liquidity which they can use to honor debts, controlling for them when analyzing the determinants of sovereign ratings is crucial. Presumably, swap lines given out by a country (for example China) have a much more pronounced effect on the credit rating of a recipient country by the home agency when compared to a foreign agency as it is an indicator of trust of the home country in a foreign borrower. I expect this to be the case as I hypothesize that a swap lines leads to increased bilateral trust independent of any other underlying geo-political ties.

For all the increased attention scholars and policy makers have paid to CRAs since the GFC and in particular to political biases, systematic research on the role of hidden debt

⁴A central bank swap line is an arrangement or facility that allows central banks to activate a central bank liquidity swap. A central bank liquidity swap is a type of currency swap used by a country's central bank to provide liquidity of its currency to another country's central bank. In a liquidity swap, the lending central bank uses its currency to buy the currency of another borrowing central bank at the market exchange rate, and agrees to sell the borrower's currency back at a rate that reflects the interest accrued on the loan. The borrower's currency serves as collateral. In summary, having a swap line facility is for the recipient bank like having a credit card whereas activating the facility is like actually using the credit card.

⁵According to [McDowell \(2019\)](#), the People's Bank of China has signed bilateral swap agreements (BSAs) with 35 foreign central banks since 2008. Collectively, these deals amount to nearly US\$ 500 billion in Chinese renminbi (RMB) available to Beijing's foreign partners.

and swap lines on sovereign ratings is still lacking, as is the verification of the results by [Fuchs and Gehring \(2017\)](#). My research fills this gap in the literature. By controlling for hidden debt and swap lines, I may also uncover geo-political connections that are not visible in commonly used data on alliances. This in turn may render geo-political effects exogenous and traceable through regression analysis. In doing so, my work contributes to three areas in the literature. Primarily, I add to the knowledge of sovereign rating determinants and political biases in sovereign ratings. Additionally, I add to the young and quickly growing literature on China's role in international finance (cf. [Reinhart \(2019\)](#)) as well as to the literature on familiarity and cultural biases in economic decision-making (cf. [Huberman \(2001\)](#); [Guiso et al. \(2006\)](#)).

1.3 Outlook

The rest of the paper is structured as follows: Section [2](#) provides an overview of CRAs and discusses how they operate, who stands behind them, and what their claimed rating methodology is. Section [3](#) discusses why the home country could matter and lead to political biases in sovereign ratings. It also looks at alternative/complementary explanations for political biases to mitigate endogeneity issues. Section [4](#) shows how the theoretical arguments are operationalized and discusses the data. Section [5](#) presents the planned econometric specifications and robustness checks.

2 The actors: global credit rating agencies

Before arguing for and testing a political bias of CRAs, we need to know what CRAs are, who stands behind or owns them, and how they claim to form their ratings. I address these points in turn.

CRAs can operate in three areas of business by assessing 1) the creditworthiness of businesses/corporations, 2) the riskiness of financial products, and 3) the creditworthiness of

sovereigns. While the first business area has a century-old tradition, the other two activities are relatively new for CRAs. However, the end result is the same in each of these areas; a rating picked from an alphanumeric or alphabetic scale, which are similar across agencies.⁶ The ratings are supposed to give private and institutional investors an idea of the default probability of a certain issuer relative to others. Crucially, "[c]redit ratings express risk in relative rank order, which is to say they are ordinal measures of credit risk and are not predictive of a specific frequency of default or loss."⁷ Naturally, each of these areas need their own kind of expertise and rating methodology. This is because judging the business prospects of commercial companies or the solvency of sovereign nations is different from assessing the riskiness of highly complex contingent financial derivatives.

Of the 150+ CRAs worldwide, the vast majority are relatively small players and only fill a market niche by specializing on rating local businesses which bigger players don't cover (cf. [White \(2010\)](#)). Some of the bigger players go beyond corporate issuers and cover a limited number of sovereigns, but many of these agencies are not well-known. Only the nine biggest players are global both in terms of coverage and in terms of prominence. They are Capital Intelligence, Dagong Global, Dominion Bond Rating Services, Scope Ratings, Fitch Ratings, Japan Credit Rating Agency, Moody's Investors Service, Rating and Investment Information, Inc., and Standard & Poor's. Importantly, the ratings of these agencies are available through the Bloomberg and Eikon Refinitiv data portals and feed the analysis tools of almost all major banks, mutual funds, wealth managers, and investment professionals.⁸ Therefore, one can expect these ratings to affect investors' views and global financial flows. As [Table 3](#) summarizes, the oldest agency is S&P, which dates back to 1860 and has been issuing SRs since 1922. Fitch and Moody's are a little younger, but they have been issuing SRs since around the time of World War I. These three American companies represent the

⁶See [Table 5](#) in the appendix for a comparison of rating scales.

⁷I used this definition from [Fitch Ratings \(2018, p. 3\)](#). However, the definition of a sovereign credit rating of Fitch is congruent with the definitions of other CRAs, including the ones of Standard & Poor's and Moody's Investor Service.

⁸The rating data of all agencies for my analysis is from Eikon Refinitiv except for CI and Scope ratings, which are received from the agencies directly.

so-called “big three” as each of them has several thousand employees and offices in more than 20 countries around the world. Together they possess a dominating position in the market for ratings. In fact, the European Securities and Markets Authority (ESMA) calculates the combined EU rating market share of S&P, Moody’s and Fitch as 92.1%. The remaining 7.9% of the EU market goes to the other 23 CRAs that are registered in the EU.⁹ Similar shares are reported for the US and indeed the global rating market, making these markets oligopolies. Though the other six agencies covered in this paper are considerably younger and smaller, interest in these companies is rising, not least because of the growing footprint of EM investors in global finance.

Table 3: Overview of covered CRAs

Agency	Short name	HQ location	Founded	SRs since	Registered in	Country offices	Staff size
Capital Intelligence	CI	Limassol, Cyprus	1982	2002	EU	3	<20
Dagong Global Credit Rating Co.	Dagong	Beijing, China	1994	2010	EU, China	3	400
Dominion Bond Rating Services	DBRS	Toronto, Canada	1976	1998	EU, USA	5	700
Scope Ratings	Scope	Berlin, Germany	1987	1999	EU	5	200
Fitch Ratings	Fitch	New York City, USA; London, UK	1913	1994	EU, Japan, USA	31	2000
Japan Credit Rating Agency	JCR	Tokyo, Japan	1985	1998	EU, Japan, USA	1	90
Moody’s Investors Service	Moody’s	New York City, USA	1909	1918	EU, Japan, USA	25	12000
Rating and Investment Information, Inc.	R&I	Tokyo, Japan	1998	1998	Japan	2	169
Standard & Poor’s	S&P	New York City, USA	1860	1922	EU, Japan, USA	35	22500

Note: All data is the latest available and it is taken from internet research, the companies’ websites, or annual reports.

CRAs are private companies. This may lead to concerns about the independence of ratings from interests of owners. As I define “home” as the location of an agency’s headquarters, it is therefore crucial to identify if the owners are located in the same country as the headquarters of the agencies. For the most part, this is the case as Table 4 summarizes. For the analysis in this paper, I use the location of headquarters as the home country.

The rating procedure across agencies appears very similar and generally consists of four steps; see Figure 2 for a schematic overview.¹⁰ The first step of the rating procedure is the rating initiation in which a sovereign solicits a rating or the agency decides to rate a sovereign on its own because it sees a need for it. A team of analysts is assigned and data is collected. The second step consists of due diligence checks: questions are sent to the sovereign and/or

⁹See report by *ESMA*, <https://www.esma.europa.eu/press-news/esma-news/esma-publishes-2019-cra-market-share-calculation-in-eu>; accessed 12 October 2020.

¹⁰I compare the documents on the sovereign rating methodology across the nine agencies and they are largely overlapping both in terms of style and substance. For this paper, I specifically refer to the well-documented rating procedure of the largest agency, *S&P*, accessed 12 October 2020.

Table 4: Home countries of CRAs

Agency	Home country (Location of headquarters)	Home country (Majority ownership)
CI	Cyprus	Kuwait
Dagong	China	China
DBRS	Canada	Canada
Scope	Germany	Germany
Fitch	USA	USA
JCR	Japan	Japan
Moody's	USA	USA
R&I	Japan	Japan
S&P	USA	USA

Note: All information is from the companies' websites, annual reports, or documents for shareholder communication. For a detailed overview of the ownership structure and ownership history of the agencies, see Table 6.

meetings with the sovereign are held, additional data is obtained, and all information is analyzed. In the third step, a rating proposal and report is drafted. The rating committee first discusses this proposal internally and then notifies the issuer on the rating decision. In the fourth step, the report is finalized and the rating is published. After publication, there is ongoing surveillance of the sovereign to assure that ratings are current. Hence, the four steps are less of a clearly defined sequence of events in time and more of a representation of the parts of an ongoing and recurring cycle. As we see by their prominence in the the first and second step of the rating process, the qualitative and quantitative factors CRAs use in their analysis is crucial. The good news is that they are no mystery: We can look directly at what CRAs claim to be their rating methodology and then employ established methods from empirical economic research to retrace what appear to drive actual ratings and to see if the argued biases exist. The key credit factors that they examine can broadly be categorized into economic factors and political factors. The economic factors have four dimensions; there's 1) an assessment of income levels, growth prospects, and other economic variables, 2) an assessment of external factors such as the status of the currency, external liquidity and the capacity to generate foreign exchange necessary to meet external obligations, 3) an assessment of fiscal space and 4) a monetary assessment looking at the exchange rate regime and the credibility of monetary policy as measured by inflation trends etc. The political factors that CRAs claim to be using cover the effectiveness, stability, and predictability of a sovereign's policy-making and political institutions as well as the sovereign's debt payment

culture. To sum up, agencies claim to base their rating of a country at a given point in time only on the economic and political characteristics of the country. This explains why most of previous scholarship discussed in Section 1 model the rating r of a country i by agency a at time t as

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

where e stands for economic factors and p for political factors.¹¹ Note that none of the regressors are agency-specific, leaving no room for divergent views among agencies such as those shown in Tables 1 & 2. While all agencies follow similar rating procedures, the comparison of their size, age, and origin given above suggests a modelling approach such as the one taken by Fuchs and Gehring (2017): rating r for country i of agency a at time t is

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

where $x_{j,i,t}$ are country-dyad-specific variables of the home country j and rated sovereign i at time t . In the next section, I explain the theoretical reasoning behind this modelling approach.

3 The political biases in sovereign ratings: theory

Why would the home country matter for sovereign ratings? In short, the rating process may be subject to political influence, private lobbying activities, and CRA employees' private interests. These features may cause two types of political biases: the home bias and the in-group bias. I derive each of these biases in detail, showing how both government-induced incentives on the hand and market forces on the other hand play a role and how not controlling for hidden debt and swap lines could create endogeneity issues that hide the argued in-group bias.

¹¹Studies in this spirit are Cantor et al. (1994), Ferri et al. (1999), and Archer et al. (2007). See Table 7 for an overview of the variables used in their econometric work.

3.1 The home bias

Government-induced incentives

All CRAs derive a large share of their revenues from their home market and are therefore closely intertwined with their domestic economies. This opens up several reasons and channels to lobby for favorable ratings of the home country.

First of all, governments directly have incentives to lobby for higher ratings as low ratings reduce access to international capital markets. This argument is backed by plenty of evidence: On the regulatory side, financial market agreements such as the Basel II&III accords force financial institutions such as banks, which typically are major investors in sovereign bonds, to respond to the downgrading of a country by adjusting the composition of their portfolio. Likewise, fund-internal regulations influence how many potential investors there are for a given country. Specifically, statutes of pension funds, which manage savings on behalf of private individuals, often forbid investing in assets carrying ratings below a certain level or they require costly extra capital to be posted ([Dale and Thomas, 1991](#)).

Second, since sovereign ratings can set de-facto ceilings for corporate ratings (cf. [Durbin and Ng \(2005\)](#); [Borensztein et al. \(2013\)](#)), private actors also have incentives to lobby for a favorable treatment of their home country. In fact, this mechanism has an additional iteration: low sovereign ratings may cap corporate ratings, which can lead private actors to put political pressures on the government. The government, in turn, will put pressure on the CRA over which it has the most leverage, which is the domestic agency because of its dependence on revenues in the home market.

Additionally, good ratings add to the status of political leadership, which may cause a cherry-picking effect: In many jurisdictions only the ratings of officially recognized agencies can be used by banks etc. to determine their capital requirements ([White \(2010\)](#)). Hence, governments have some leverage or veto power over agencies' assessments by not recognizing agencies with unfavorable assessments, thereby denying them market access. Intuitively,

this leverage is stronger vis-à-vis the home agency compared to other agencies, because the home agency has a higher exposure to the home market and losing the license there could potentially be catastrophic.¹²

The most logical and direct channel of influence for governments would be through ownership. In fact, [Shin and Moore \(2003\)](#) cite a report according to which the composition of the shareholders of rating agencies may impair the impartiality of ratings. While [Table 6](#) shows that governments aren't direct shareholders of CRAs, it can easily be imagined that governments can indirectly exercise voting rights to put pressure on home agencies. This is because banks and other financial institutions are among the major shareholders of most rating agencies and particularly the GFC caused governments to become majority owners of a number of financial institutions.

Private incentives and market forces

Naturally, there are also reasons for a home bias to manifest which are not related to the government. Not accounting for these reasons could render the results endogenous, which is why I discuss them here and later control for them in the econometric analysis.

Since higher ratings imply lower refinancing costs for governments, which otherwise would have to be compensated by higher tax revenues, market forces may contribute to the home bias in sovereign ratings. Specifically, domestic buyers of corporate ratings, i.e. domestic companies looking to issue bonds to raise capital, are aware of the connection between lower ratings and higher taxes and have therefore an incentive to lobby for a favorable rating of the home country. Again, while they have this incentive vis-à-vis all rating agencies, they have the most leverage to reach their goal when lobbying at the home agency.

¹²Anecdotal evidence suggests that governments indeed try to use their influence to impact rating decisions. Some examples: 1) Barroso threatened that the EU would plan to strengthen regulations overseeing CRAs and that European legislators would also look into issues of “civil liability” for incorrect judgments when Moody's downgraded Portugal. 2) Two weeks after Egan-Jones downgraded its home country in 2012, the US Securities and Exchange Commission brought administrative action against the firm for alleged “material misstatements.” 3) S&P claimed that a US\$ 5 billion lawsuit brought against it by the US government was a “retaliation” for removing the US AAA rating in 2011.

Additionally, [Bar-Isaac and Shapiro \(2011\)](#) hypothesize that employees of rating agencies may have incentives to treat their home sovereign gently because low ratings affect the banking sector in a negative way. Specifically, they model a “revolving door” that connects home rating agencies and banks. In their view, analysts can easily transition from rating agency jobs to banking jobs due to similar professional requirements so that safeguarding the interests of future employers may enter an analyst’s calculations.

Lastly, shareholders could try to obtain favorable treatment of countries where they are exposed to large risks, which is typically their home country, cf. [French and Poterba \(1991\)](#). That is, the home bias inherent in investors’ allocation decisions may in fact induce them to lobby for a better treatment of their home sovereign as a kind of hedging strategy.

3.2 The in-group bias

Government-induced incentives

Governments do not only have incentives to influence their own ratings but also those of countries to which they have geo-political ties, leading to an in-group bias in ratings. This has several reasons.

For example, a better rating of allies with which the home country collaborates in international fora facilitates burden sharing, such as the financial commitments made through NATO or similar institutions. Conversely, lower ratings for “enemies” puts an additional financial burden on them and weakens their capabilities. This is particularly true for countries which depend on arms imports: their need for a good foreign-currency rating is particularly dire as this strengthens their ability to obtain hard currency need for arms imports.

Additionally, home governments have an interest in avoiding a potentially destabilizing downgrade of aligned countries that are of strategic importance or whose location is of significance. This mechanism is corroborated by findings of [DiGiuseppe et al. \(2012\)](#); countries with ample access to credit have a lower probability of civil conflict and are more stable.

Private incentives and market forces

Similar to the home bias, there are also reasons for the in-group bias which are not government-induced and which should be controlled for.

Firstly, private investors of the home agency do not only have incentives to influence the ratings of the home sovereign but also those of other countries. This is because of spill-over effects: low ratings for countries to which the home investors have strong ties can have larger financial outfalls on the domestic economy and debt market.

More importantly still, shareholders of the home agency also have incentives to lobby for inflated ratings of geo-politically aligned countries. This is because shareholders of the home agency, particularly banks, do not only have leverage over the rating decisions through voting rights in the corporation but they also have the incentive to use such voting rights to make sure that countries in which they have overweight positions be stable and prosperous.

Similar to the “revolving door” notion of the bank-agency relationship, it is plausible that sovereign rating analysts act favorable toward countries to which home banks have strong exposures and are vulnerable to risk.

3.3 Confounding factor: culture

The explicit and implicit incentives for governments and private actors outlined above explain why agencies would assign inflated ratings to their home country and to geo-politically aligned nations, and the channels (ownership power, lobbying activity, market forces) examine how such incentives could be harnessed to influence ratings. However, there may be other reasons for political biases to emerge and accounting for them is crucial if I want to credibly argue for causality. Therefore, I need to discuss potentially confounding factors and additional explanations to mitigate endogeneity issues. Note that I am not saying that the additional explanations are a substitute to the explanations discussed above. Rather, the politics and economics behind ratings are complex and several variables may account for and contribute to political biases in sovereign ratings simultaneously.

Most clearly, the factor that could lead to political biases in sovereign ratings are rooted in familiarity-related effects. [Grinblatt and Keloharju \(2001\)](#) argue that such familiarity-related effects are the norm among humans. They document for Finland that investors are more likely to hold, buy, and sell the stocks of Finnish firms that are located close to the investor, that communicate in the investor’s native tongue, and that have chief executives of the same cultural background. Hence, their empirical analysis shows that cultural proximity influences the investment analysis and decisions of both private and professional investors. Furthermore, [Giannetti and Yafeh \(2012\)](#) argue that similar effects exist when it comes to lending decisions of banks. They show that lenders treat borrowers from culturally more distant countries as less reliable: culturally more distant borrowers are more likely to be required to provide a third-party guarantor, face higher interest rates, and receive smaller loans. In light of this evidence, it would not surprise if culture has effects on sovereign ratings. In fact, looking at [Figure 2](#), it appears that culture could affect the amount of collected information in steps 1 and 2. Additionally, it appears that culture could also affect the interpretation of the collected information in the later steps of the rating process. This opens up three lines of reasoning how cultural proximity could contribute to political biases: (maintained) differences in risk perception, preferences and taste-based discrimination in the spirit of [Becker \(2010\)](#), and actual information asymmetries.

First, in terms of differences in risk perception, [Cole and Kehoe \(1998\)](#) examine why governments would ever have access to foreign capital, given the difficulty for investors to enforce claims against a sovereign. They argue that if a country appears trustworthy in one arena, the country is perceived as trustworthy in others, too. That is, sovereigns benefit from higher levels of bilateral trust. Since cultural proximity and trust correlate, it appears plausible that culturally closer countries obtain relatively higher ratings from analysts. Additionally, there may be a similar explanation that does not necessarily rely on differences in risk perception that are based on current assessments but on historical differences in risk perception that were maintained across time. ([Samuelson and Zeckhauser,](#)

1988) argue that most real decisions, for example the assignment of a rating, have a status quo alternative—that is, doing nothing or maintaining one’s current or previous decision. They show that series of decision-making experiments confirm that individuals disproportionately stick with the status quo. There is little reason to expect that the rating process is not affected by this status quo bias.

Second, culture could play a role in discrimination of races or ethnicities. An example of this line of reasoning in the market of personal loans is provided in [Ravina et al. \(2008\)](#). The study examines whether easily observable variables such as the personal characteristics of a loan applicant and the way he/she presents himself/herself affect lenders’ decisions, once hard financial information about credit scores, employment history, home-ownership, and other financial indicators are taken into account. Using data from Prosper.com, an online lending market in which borrowers post loan requests that include verifiable financial information, photos, an offered interest rate, and related context, the study finds that borrowers whose appearance is rated above average are 1.41 percentage points more likely to get a loan and, given a loan, pay 81 basis points less than an average-looking borrowers with the same credentials. Similarity between borrowers and lenders has also a powerful impact on lenders’ decisions. The findings suggest that the mechanism through which personal characteristics affect loan supply is lenders’ preferences, i.e. taste-based discrimination, rather than statistical discrimination based on inferences from previous experience. Hence, it appears possible that culturally closer countries could obtain favorable ratings through taste-based discrimination among analysts.

Third, it could be that political biases don’t emerge because cultural differences induce discriminatory practices or different perceptions of risk, but rather because there are information asymmetries. Indeed, the findings by [Melitz \(2008\)](#) suggest that linguistic differences make communication across borders more costly and hinder information transmission, leading to information asymmetries. Applying this logic to rating decisions, it appears that agencies from culturally more distant countries possess inferior information about a sovereign

compared to the home agency. Obviously, this information asymmetry could merely render ratings less precise, which would only result in bigger error terms when modelling ratings, but not in the manifestation of political biases. However, inferior information on a sovereign could not just increase the imprecision of ratings but in fact induce a bias with clear direction. A theoretical explanation for this can be gained by adopting a similar argument given by Gehrig (1993): Assume that a rating agency estimates the liquidity L of two sovereigns i with $E[L_i] \sim N(\mu, \sigma_i^2)$. Further, assume that a sovereign enters a stage of default if $L_i < z$. Thus, the probability of default is $P(L_i < z) = F\left(\frac{|z-\mu|}{\sigma_i}\right)$. Now, assume that two sovereigns A and B possess identical economic and political country fundamentals. That is, they have the same μ , but sovereign B is culturally more distant to the rating agency's home country. As a result of higher information transmission costs, the agency collects less information about the characteristics of distant sovereign B . This has the implication that the prediction of L_B , i.e. the liquidity of the sovereign, is less precisely known compared to that of country A . Mathematically, this translates into $\sigma_A^2 < \sigma_B^2$, which implies that $F_A\left(\frac{|z-\mu|}{\sigma_A}\right) < F_B\left(\frac{|z-\mu|}{\sigma_B}\right)$ for all $z < \mu$. All this says is that the predicted default probability is seen as higher for the culturally more distant sovereign which could translate into a lower rating than would be justified in reality. That is, the home and in-group bias could both result from insufficient information transmission between countries of dissimilar cultures and/or languages.

4 Data

In this section, I operationalize the variables discussed in Section 3 and list all controls from the economic and political spectrum.

Dependent variable

My dependent variable is a country's long-term foreign-currency rating provided by one of the nine rating agencies under examination.¹³ I use the monthly average of the assigned ratings since the highest frequency for which the explanatory variables are available is monthly. Importantly, since the rating agencies report their ratings on alphabetical or alphanumerical scales, I translate them to a numerical scale with 21 notches where a AAA corresponds to 21, AA+ is 20, AA is 19, and so on and so forth; see Table 5.

Regressors

Country-dyad-specific controls

Based on my theoretical discussion in Section 3, I use six variables to test for the existence of and channels behind political biases in sovereign ratings even though none of these variables should have explanatory power according to the rating methodology brochures of all nine CRAs. Specifically, to test for the hypothesized home bias, I use the following variable:

- *Home country dummy*. The data is hand-coded; the variable takes on the value 1 for if the home-agency/sovereign pairs and 0 otherwise.¹⁴

To test for the hypothesized in-group bias, I use the following variable.

¹³The nine agencies are CI, Dagong, DBRS, Scope, Fitch, JCR, Moody's, R&I, and S&P. The data is from Eikon Refinitiv for all agencies except for Scope and CI whose data I hope to get upon request from the agencies.

¹⁴As stated previously, the home country is defined as the country in which the agency has its headquarters. As a robustness check, I plan to define the home country to be the country where an agency's majority of shareholders are located.

- *Bilateral voting alignment in the United Nations General Assembly.* The data is from [Voeten \(2019\)](#). It is a measure for political alignment based on the voting behavior in the United Nations General Assembly, where countries are politically aligned through common voting patterns on resolutions. ¹⁵
- *Swap line dummy.* The data is collected directly from central banks. The data is equal to 1 if the home country offers the rated country a swap line and zero otherwise. I also plan to interact the dummy with the bilateral voting alignment data to show that more salient geo-political friendships and rivalries influence ratings.

To account for the alternative mechanisms that could otherwise be mistaken for political biases as discussed in Section 3, I use the following variables:

- *Share of exports of home country to other countries.* The data is from UN Comtrade. While a sovereign’s access to foreign currency should matter for its ability to pay back debt (which is controlled for by the *current account balance*), a sovereign’s relative trade intensity with another government should not matter for ratings.
- *Bank exposure to other countries.* The data is from the Bank for International Settlements (BIS). The variable ranges between 0 and 100 (%) and captures the share of home country bank lending to a given foreign country as a share of the total lending of home country banks.
- *Cultural similarity (language).* The data is from [Kolo \(2012\)](#). It measures linguistic differences between the agency’s home country and the rated sovereign based on language trees from the Ethnologue project, which classifies 6000+ distinct languages into families and branches due to their linguistic origin. As such, this variable proxies for the effect that cultural distance could have on reduced information transmission.

¹⁵Measures of UN voting alignment are widely used in the literature to measure bilateral affinity (see for example [Mosler and Potrafke \(2020\)](#), [Dreher and Gassebner \(2008\)](#), and [Barro and Lee \(2005\)](#)). However, I am not sure if it is the best measure as it is sensitive to the agenda of resolution topics and may pick up the “noise of the zeitgeist” rather than actual shifts in foreign policy preferences.

Country-specific controls

Lastly, I control for those variables that CRAs claim to be using in their assessments. In doing so, I build on and combine the sets of explanatory variables used in [Cantor et al. \(1994\)](#), [Ferri et al. \(1999\)](#) and [Archer et al. \(2007\)](#). However, I extend these sets with swap lines and the hidden debt that countries owe to China.¹⁶ Specifically, I use the following variables to capture a sovereign's income level and growth prospect:

- *GDP growth*. Annual percentage growth rate of GDP at market prices based on constant local currency. The data is from the IMF World Economic Outlook database.
- *GDP per capita*. GDP per capita based on purchasing power parity (PPP) in 2019 international \$. The data is from the IMF World Economic Outlook database.

To account for the capacity to generate foreign exchange I use the following variables:

- *External balance*. Current account balance as a percentage of GDP. The data is from the IMF World Economic Outlook database.

To account for fiscal space and debt sustainability, I use the following variables:

- *Government debt*. Total central government debt as a percentage of GDP. The data is from the IMF World Economic Outlook database.
- *Hidden debt to China*. Hidden central government debt owed to China as a percentage of GDP. The data is from [Horn et al. \(2019\)](#).
- *Government surplus*. The structural budget balance refers to the general government cyclically adjusted balance adjusted for nonstructural elements beyond the economic cycle. These include temporary financial sector and asset price movements as well as one-off, or temporary, revenue or expenditure items such as the sales of mobile phone licenses. The variable is measured as a percentage of potential GDP. The data is from the IMF World Economic Outlook database.

¹⁶Whenever the data is not monthly, I use end of year values and convert them to monthly series by taking averages of the two closest values.

To control for the credibility of monetary policy, I use the following variable:

- *Inflation*. Annual inflation in percentage as measured by the consumer price index. The data is from the IMF World Economic Outlook database.
- *Currency union dummy*. A binary variable equal to 1 if the country is in a currency union (e.g. Eurozone) and does not have direct control over monetary policy.

In terms of political factors, CRAs claim to be assessing the effectiveness, stability, and predictability of a sovereign's policy-making and political institutions as well as the sovereign's debt payment culture. I use the following variables to control for such factors:

- *Default history*. This is a binary indicator variable that notes whether, for a given country and year, that country has defaulted on its debt in the last five years.¹⁷
- *Level of democracy (polity 5)*. The data is from the Center for Systemic Peace and captures regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy).
- *Election recency dummy*. To control for recent changes in a countries leadership, I create a binary indicator of elections held during the last 12 months.
- *Executive ideology*. The data is from the World Bank. It is a binary variable for executive ideology (left or right).
- *Rule of law*. The data is from the World Justice Project Rule of Law Index.

Data frequency, lagging, and time frame of analysis

For the dependent variable, I use the monthly average of the assigned ratings. All time-varying controls are lagged monthly averages across the closest two data points. Compared to yearly data, the usage of monthly data seems preferable as it is more efficient in that it makes use of all available variation in the data. In terms of the time frame of the analysis, I use data covering the period between 1990 and 2019.

¹⁷Example: If a country defaults in 2008 and never after, the dummy is active for that country in the years 2008, 2009, 2010, 2011, and 2012. Thus, for that country in 2012, there was a default in the last five years but from the perspective of 2013, there was not.

Due to COVID-19 library closures, obtaining rating data was not possible so far. As such, I cannot perform the empirical analysis yet and I have to leave it at stating the identification strategy and econometric considerations in the next section. As soon as I have the data available, I will update this paper and show the empirical results.

5 Empirical analysis

It is clear from the exposition of the data in Section 4 that the present paper does not enjoy the luxury of an experimental setting and it is hard to imagine how experimental data could even be generated for it is not possible to “randomly assign” CRAs to countries. As such, the issue of causality between a CRA’s home country and the argued political biases in sovereign ratings is a tricky matter indeed, as is the issue of causality in the social sciences in general. However, I take several steps to come as close as possible to a causal interpretation of the econometric results. First of all, I control for a large number of conceivable confounding factors. Not doing so could render political biases as mere artifacts of the data even if they did not exist in reality. Second, I use all statistical methods and tests at my disposal to generate robust findings. Of course, statistical methods and tests have well-known limitations. They never give final proof, one way or another, but only serve as pieces of evidence. Nevertheless, there is a crucial difference between abstract statistical reasoning and econometrics. Using the latter, I combine information which I would not use when only crunching numbers with information about the institutions within which the data were generated (e.g. information about ownership, the rating process, and potential conflicts of interest), as well as with an understanding of the incentive structures underlying the decisions of key actors. Third, my identification strategy exploits a variety of sources of variation in the dependent variable. Fourth, I try several specifications and include sovereign-fixed effects in my models. Including sovereign-fixed effects would catch any factors potentially driving the political biases that are not already driven by factors that are time-invariant in my sample. The prime example of such factors in the context of this paper are the benefit that the US enjoys by having the world’s reserve currency, and the possible monetary and fiscal restrictions that some countries face by participating in monetary arrangements such as for example the European currency snake/EMS (note that I already control for participation in an actual currency union directly through a dummy variable, see Section 4).

Main specification

To test for the existence of and mechanisms behind the argued political biases (home bias and in-group bias), I estimate several models using OLS. My identification strategy exploits three sources of variation in the dependent variable: 1) rating variation across sovereigns at a given point in time, 2) rating variation across time for a given sovereign, 3) rating variation across agencies for a given sovereign at a given point in time. Since ratings for most countries are relatively stable across time, using only type 3) variation would not be efficient for estimation purposes. Hence, in my main specification (3) I use all three types of variation. Since both the US (Fitch, Moody's, S&P) and Japan (JCR, R&I) host multiple CRAs and I want to account for differences in the average rating level that exist between agencies from one country, I use agency-fixed effects instead of broader home-country fixed effects.¹⁸ Specifically, I model the rating r assigned to country i by agency a based in country j at time t as

$$r_{a,j,i,t} = \beta \cdot x_{j,i,t} + \gamma \cdot e_{i,t} + \delta \cdot p_{i,t} + \alpha_{a,j} + \tau_t + \epsilon_{a,j,i,t} \quad (3)$$

where $x_{j,i,t}$ represent the six country-dyad-specific controls, $e_{i,t}$ and $p_{i,t}$ represent the fourteen country-specific economic and political factors, respectively; $\alpha_{a,j}$ and τ_t are agency- and period-fixed effects, respectively; and $\epsilon_{a,j,i,t}$ is the error term.

Alternative specifications

To reduce concerns about unobserved and time-invariant characteristics of rated sovereigns as well as of agencies, I plan to run two augmented versions of my main specification (3). First, I include sovereign-fixed effects ρ_i . Therefore, this specification no longer uses variation of type 1) to identify the existence and mechanisms behind political biases but only variation

¹⁸Ratings are ordinal measures of the risk of default. Hence, an AA by one agency does not necessarily correspond to an AA by another agency, justifying agency-fixed effects

of type 2) and 3)

$$r_{a,j,i,t} = \beta \cdot x_{j,i} + \gamma \cdot e_{i,t} + \delta \cdot p_{i,t} + \alpha_{a,j} + \tau_t + \rho_i + \epsilon_{a,j,i,t} \quad (4)$$

Second, I include sovereign-time-fixed effects $\theta_{i,t}$, which implies identification of the political biases based solely on variation in ratings across agencies for a given country-time-observations, i.e. type 3) variation

$$r_{a,j,i,t} = \beta \cdot x_{j,i} + \gamma \cdot e_{i,t} + \delta \cdot p_{i,t} + \alpha_{a,j} + \theta_{i,t} + \epsilon_{a,j,i,t} \quad (5)$$

Planned robustness checks

To corroborate my findings, I plan to perform a number of robustness checks once I have all data available for evaluation. For example:

- *Running regressions with different choices for the time period;* Pre-GFC and post-GFC samples. If my theory is right, we should see more pronounced political biases after governments took over major financial institutions in the wake of the GFC.
- *Running the main regressions with an ordered-probit model;* Note that the dependent variable used in the OLS regressions is treated as cardinal. That is, the difference between a “AAA” and the subjacent “AA+” (a one-notch drop from the highest grade) is the same as between a “BBB-” and the subjacent “BB+” (a one-notch drop below the threshold to speculative grade). In settings with more than 7 values of the dependent variable, the choice between OLS and probit should have little effect on the significance and sign of the coefficients. Nevertheless, I will also run the main specification using an ordered-probit model.
- *Running agency-specific regressions;* By pooling all agencies in one regression, I make the assumption that each agency weighs all sovereign-specific factors the same way. Since this may not necessarily be the case, running agency-specific regressions allows

for differential weights and assessments across agencies.

6 Conclusion

The present paper addresses a debate in the literature on credit rating agencies and specifically sovereign credit ratings. The paper argues that there are two types of political biases in sovereign ratings: a home bias and an in-group bias. The home bias leads rating agencies to assign favorable ratings to their home country which are not justified based on economic and political factors of the home country. The in-group bias leads rating agencies to assign favorable ratings to geo-political partners, holding all else constant. The paper first discusses why previous scholarship may not have found evidence of the in-group bias and hypothesizes why such effects should become visible in the data when controlling for hidden debt owed to China and when controlling for the global network of central bank swap lines. Next, the paper discusses all potentially confounding variables and channels that could render the hypothesized biases endogenous. Lastly, the paper suggests an identification strategy and econometric specifications which take potential endogeneity issues into account. Due to COVID-19 library closures, data access is severely limited and the empirical analysis is pending. As soon as the data is available, the author will complete the empirical part and update the paper.

Table 6: Detailed ownership structure of CRAs

Agency	HQ	Ownership (as of December 2019)	Ownership history
CI	Limassol, Cyprus	The shares of CI are held by three individuals: Afaf Adham, Amin Diab, Zafer Diab and by one Kuwait company: Gulf Injifa Company for General Trading and Contracting. There are no entities rated by CI with an ownership interest in the Company and no rated entity is represented on the administrative board of Gulf Injifa.	No publicly known changes
Dagong	Beijing, China	As of April 18 2019, Dagong Global Credit Rating Co., Ltd has been strategically restructured by China Reform Holdings Co.,Ltd (CRHC), a State-Owned -Enterprises approved by Chinese State Council.	Privately owned since its founding; Guan Jianzhong became major shareholder and president in 1998
DBRS	Toronto, Canada	As of 2019 100% privately owned by the American company Morningstar purchased DBRS	100% privately owned by Walter Schroeder since 1976
Scope	Berlin, Germany	100% privately owed by Scope ratings. The previous agency was called FERI EuroRating Services AG. It was bought by Scope ratings 1. August 2016 for an undisclosed amount.	100% owned by MLP AG (publicly-traded German company) since 2011; major shareholders of MLP are Manfred Lautenschlaeger (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 Before that B56.6% including the 30% stake of the Quandt Holding GmbH in 2006
Fitch	New York City, USA; London, UK	100% owned by Hearst group.	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, and the rest in 2018
JCR	Tokyo, Japan	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 known changes
Moody's	New York City, USA	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
R&I	Tokyo, Japan	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.
S&P	New York City, USA	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)

Note: All information is from the companies' websites, annual reports, or documents for shareholder communication.

Table 7: Comparison of control variables used in major studies on credit ratings.

Authors	Variables used
Cantor et al.	per capita income, GDP growth, inflation, fiscal balance, external balance, external debt, industrialization-dummy, past-default-dummy
Ferri et al.	per capita income, real GDP growth, inflation, fiscal balance, external balance, external debt, industrialization-dummy, (CAB+short-term debt)/foreign exchange reserves
Archer et al.	various democracy variables, trade, inflation, CAB, past-default-dummy, external debt, GDP per capita, GDP growth, natural resources

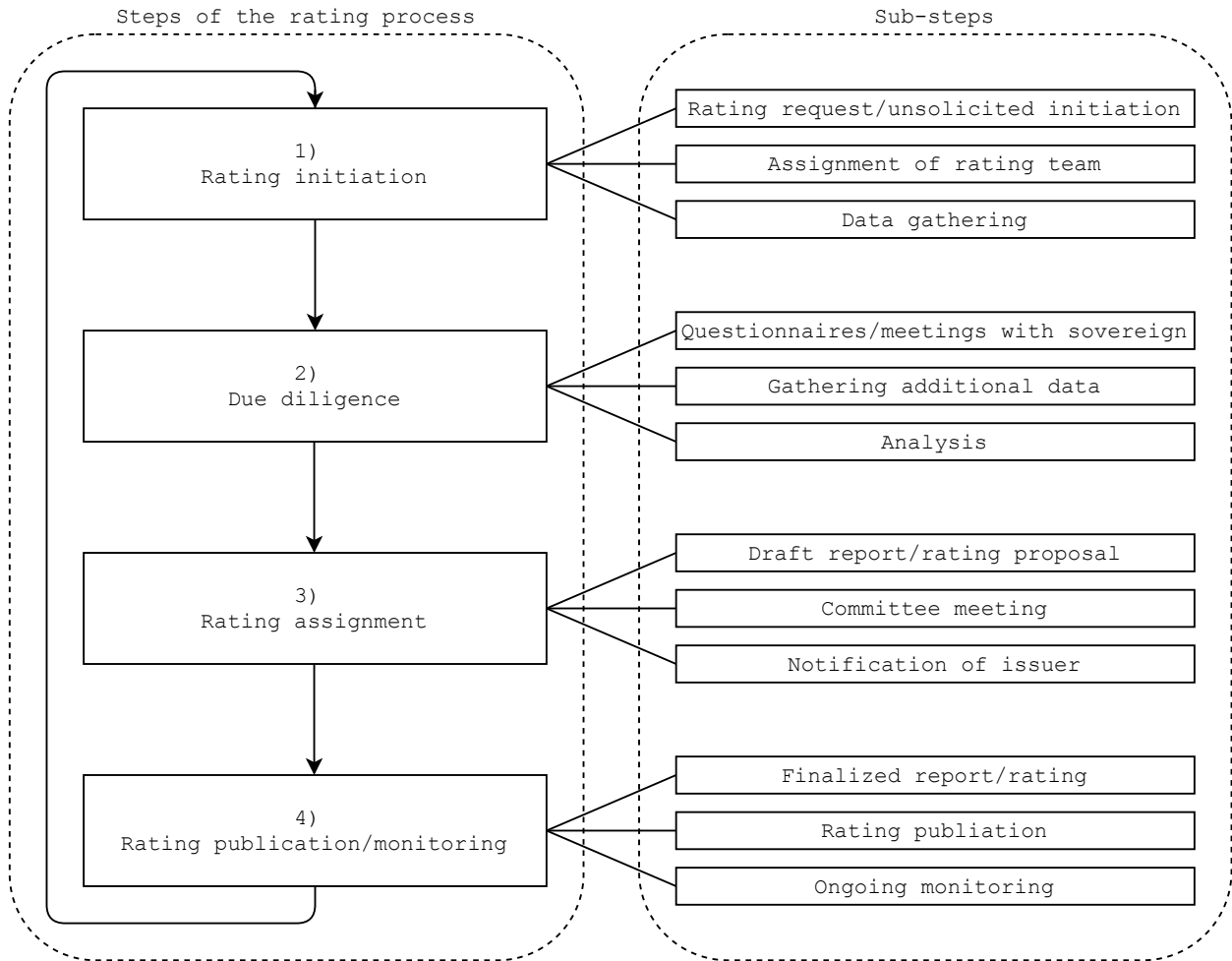


Figure 2: Schematic illustration of the rating process

References

- Afonso, A. (2003). Understanding the determinants of sovereign debt ratings: Evidence for the two leading agencies. *Journal of Economics and Finance*, 27(1):56–74.
- Afonso, A., Furceri, D., and Gomes, P. (2012). Sovereign credit ratings and financial markets linkages: application to european data. *Journal of International Money and Finance*, 31(3):606–638.
- Aizenman, J. and Pasricha, G. K. (2010). Selective swap arrangements and the global financial crisis: Analysis and interpretation. *International Review of Economics & Finance*, 19(3):353–365.
- Ammer, J. and Packer, F. (2000). How consistent are credit ratings? a geographic and sectoral analysis of default risk. *The Journal of Fixed Income*, 10(3):24–30.
- Archer, C. C., Biglaiser, G., and DeRouen, K. (2007). Sovereign bonds and the “democratic advantage”: Does regime type affect credit rating agency ratings in the developing world? *International organization*, 61(2):341–365.
- Baker, C. (2013). The federal reserve’s use of international swap lines. *Ariz. L. rev.*, 55:603.
- Bar-Isaac, H. and Shapiro, J. (2011). Credit ratings accuracy and analyst incentives. *American Economic Review*, 101(3):120–24.
- Barro, R. J. and Lee, J.-W. (2005). Imf programs: Who is chosen and what are the effects? *Journal of monetary Economics*, 52(7):1245–1269.
- Becker, G. S. (2010). *The economics of discrimination*. University of Chicago press.
- Borensztein, E., Cowan, K., and Valenzuela, P. (2013). Sovereign ceilings “lite”? the impact of sovereign ratings on corporate ratings. *Journal of Banking & Finance*, 37(11):4014–4024.
- Cantor, R., Packer, F., et al. (1994). The credit rating industry. *Quarterly Review*, pages 1–26.
- Chey, H.-k. (2013). The fed swap lines and the global lender of last resort: The politics of international monetary relations. In *APSA 2013 Annual Meeting Paper*.
- Cole, H. L. and Kehoe, P. J. (1998). Models of sovereign debt: Partial versus general reputations. *International Economic Review*, pages 55–70.
- Dale, R. S. and Thomas, S. H. (1991). The regulatory use of credit ratings in international financial markets. *Journal of International Securities Markets*, 5(3):9–18.
- DiGiuseppe, M. R., Barry, C. M., and Frank, R. W. (2012). Good for the money: International finance, state capacity, and internal armed conflict. *Journal of Peace Research*, 49(3):391–405.
- Dreher, A. and Gassebner, M. (2008). Does political proximity to the us cause terror?

- Economics Letters*, 99(1):27–29.
- Durbin, E. and Ng, D. (2005). The sovereign ceiling and emerging market corporate bond spreads. *Journal of international Money and Finance*, 24(4):631–649.
- Feldstein, M. and Horioka, C. (1979). Domestic savings and international capital flows. Technical report, National Bureau of Economic Research.
- Ferri, G., Liu, L.-G., and Stiglitz, J. E. (1999). The procyclical role of rating agencies: Evidence from the east asian crisis. *Economic Notes*, 28(3):335–355.
- Fitch Ratings, F. (2018). *Fitch Ratings–Rating Definitions*. Retrieved from <https://www.fitchratings.com/site/dam/jcr:6b03c4cd-611d-47ec-b8f1-183c01b51b08/Rating>
- French, K. R. and Poterba, J. M. (1991). Investor diversification and international equity markets. Technical report, National Bureau of Economic Research.
- Fuchs, A. and Gehring, K. (2017). The home bias in sovereign ratings. *Journal of the European Economic Association*, 15(6):1386–1423.
- Gärtner, M., Griesbach, B., and Jung, F. (2011). Pigs or lambs? the european sovereign debt crisis and the role of rating agencies. *International advances in economic research*, 17(3):288.
- Gehrig, T. (1993). An information based explanation of the domestic bias in international equity investment. *The Scandinavian Journal of Economics*, pages 97–109.
- Giannetti, M. and Yafeh, Y. (2012). Do cultural differences between contracting parties matter? evidence from syndicated bank loans. *Management Science*, 58(2):365–383.
- Grinblatt, M. and Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades. *The Journal of Finance*, 56(3):1053–1073.
- Guiso, L., Sapienza, P., and Zingales, L. (2006). Does culture affect economic outcomes? *Journal of Economic perspectives*, 20(2):23–48.
- Horn, S., Reinhart, C. M., and Trebesch, C. (2019). China’s overseas lending. Technical report, National Bureau of Economic Research.
- Huberman, G. (2001). Familiarity breeds investment. *The Review of Financial Studies*, 14(3):659–680.
- Jaramillo, L. and Tejada, M. (2011). Sovereign credit ratings and spreads in emerging markets: does investment grade matter? *IMF Working Papers*, pages 1–17.
- Kolo, P. (2012). Measuring a new aspect of ethnicity: The appropriate diversity index. Technical report, Discussion Papers, Ibero America Institute for Economic Research.
- McCallum, J. (1995). National borders matter: Canada-us regional trade patterns. *The American Economic Review*, 85(3):615–623.
- McDowell, D. (2019). The (ineffective) financial statecraft of china’s bilateral swap agree-

- ments. *Development and Change*, 50(1):122–143.
- Melitz, J. (2008). Language and foreign trade. *European Economic Review*, 52(4):667–699.
- Mosler, M. and Potrafke, N. (2020). International political alignment during the trump presidency: voting at the un general assembly. *International Interactions*, pages 1–17.
- Obstfeld, M., Shambaugh, J. C., and Taylor, A. M. (2009). Financial instability, reserves, and central bank swap lines in the panic of 2008. *American Economic Review*, 99(2):480–86.
- Panizza, U., Sturzenegger, F., and Zettelmeyer, J. (2009). The economics and law of sovereign debt and default. *Journal of Economic Literature*, 47(3):651–98.
- Ravina, E. et al. (2008). Love & loans: The effect of beauty and personal characteristics in credit markets. *Journal of Finance*.
- Reinhart, C. (2019). The curious case of the missing defaults. *HKS Working Paper No. RWP19-004*.
- Rigobon, R. (2002). The curse of non-investment grade countries. *Journal of Development Economics*, 69(2):423–449.
- Samuelson, W. and Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1(1):7–59.
- Shin, Y. S. and Moore, W. T. (2003). Explaining credit rating differences between Japanese and US agencies. *Review of Financial Economics*, 12(4):327–344.
- Tesar, L. L. and Werner, I. M. (1995). Home bias and high turnover. *Journal of International Money and Finance*, 14(4):467–492.
- Tomz, M. and Wright, M. L. (2007). Do countries default in “bad times”? *Journal of the European Economic Association*, 5(2-3):352–360.
- Voeten, E. (2019). Data and analyses of voting in the United Nations General Assembly. In *Routledge Handbook of International Organization*, pages 80–92. Routledge.
- White, L. J. (2010). Markets: The credit rating agencies. *Journal of Economic Perspectives*, 24(2):211–26.
- Wolf, H. C. (2000). Intranational home bias in trade. *Review of Economics and Statistics*, 82(4):555–563.