READING BETWEEN THE LINES: A TEXT-MINING APPROACH TO NAVIGATE THE EFFECTS OF ARAB REVOLUTIONS ON MOODY'S RATING SCRUTINY PATTERNS IN THE MENA REGION

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Abstract

Credit rating agencies play a decisive role in determining the borrowing costs in global financial markets through the standardized ratings they produce. These agencies, despite their announced methodologies, prefer to keep their empirical evaluation receipt stealthy so that they are not obliged to justify their discretionary conduct of sovereign ratings. Using a novel text-mining approach, this paper evaluates the empirical scrutiny policy of Moody's in the MENA region, by investigating the information content of 648 rating reports between 1999 and 2021. Our empirical findings reveal that fiscal scrutiny has always been a standard component of Moody's rating strategy in the MENA region across all country groups and time periods, including distressed lower middle-income countries in the aftermath of the Arab upheavals. In contrast, high-income countries were less scrutinized in terms of economic and social developments relative to lower middle-income ones before the revolutions. With the onset of the revolutions, not only did cross-country scrutiny differences vanish, but also commentary patterns dramatically shifted, with political commentary reviving at the expense of economic and social themes. A decade after the upheavals, Moody's still has a strong appetite for political scrutiny, but this time for all country groups in the MENA region. These findings offer insights on how rating agencies reward or penalize countries for their policy decisions, which shall help governments in enumerating the effects of their rating-related measures and, as a result, better formulating their future policy actions.

Keywords: Ratings and Ratings Agencies, Sovereign Ratings Scrutiny, Content Analysis of Ratings, Mixed-Effects Models, Middle East and North Africa.

JEL Classification: G24, G14, C82, C23, N25.

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ملخص

تلعب وكالات التصنيف الائتماني دورًا حاسمًا في تحديد تكاليف الاقتراض بالأسواق المالية العالمية من خلال التصنيفات الائتمانية القياسية التي تُصدرها. تُفضل هذه الوكالات، رغم إعلان منهجيات حساب تقييماتها الائتمانية، إبقاء الوصفة العملية لهذه التقييمات مبهمة حتى لا تكون ملزمة بتبرير سلوكها التقديري للتصنيفات السيادية. باستخدام نهج جديد للتنقيب في النصوص، تقوم هذه الورقة بتقييم سياسة وكالة Moody's لفحص المستجدات الائتمانية بمنطقة الشرق الأوسط وشمال إفريقيا، من خلال التحقيق في المحتوى المعلوماتي لعدد ٦٤٨ تقرير تصنيف ائتماني سيادي بين عامي ١٩٩٩ـ ٢٠٢١. تكشف نتائجنا التجريبية عن أن التدقيق المالي كان دائمًا مكونًا ثابتًا في استراتيجية الفحص الائتماني التي تتبعها وكالة موديز بمنطقة الشرق الأوسط وشمال إفريقيا عبر مجموعات البلدان المختلفة وخلال جميع الفترات الزمنية، بما في ذلك البلدان ذات الدخل المتوسط المنخفض والتي شهدت ضغوطًا مالية في أعقاب الثورات العربية. في المقابل، حظيت البلدان ذات الدخل المرتفع بتدقيق ائتماني أقل فيما يتعلق بالتطورات الاقتصادية والاجتماعية مقارنة بالبلدان ذات الدخل المتوسط وذلك خلال الفترة السابقة على الثورات. مع اندلاع الثورات العربية، لم تختف الفروق النسبية في التدقيق الائتماني الخاص بالمستجدات الاقتصادية والاجتماعية عبر مجموعات البلدان المنطقة فحسب، بل تغيرت أيضًا أنماط التدقيق الائتماني بشكل كبير، ليحدث تركيز أكبر على فحص المستجدات السياسية على حساب الموضوعات الاقتصادية والاجتماعية. بعد مرور عقد كامل على قيام الثورات العربية، لا تزال وكالة موديز تتمتع بشهية مفتوحة للتدقيق في التطورات السياسية بالمنطقة، ولكن هذه المرة عبر جميع مجموعات البلدان بالمنطقة. تلقي هذه النتائج الضوء على كيفية قيام وكالات التصنيف الائتماني بمكافأة أو بمعاقبة البلدان على قراراتها المتعلقة بالسياسات، الأمر الذي من شأنه أن يساعد الحكومات على تقدير آثار قراراتها المختلفة على تصنيفاتها السيادية، وبما يمكنها في النهاية من صياغة سياساتها المستقبلية بشكل أفضل.

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EXECUTIVE SUMMARY

Credit rating agencies (CRAs) are widely perceived as guardians of international financial markets given their non-negligible power to influence borrowing costs through the standardized ratings they publish, (see for example, (Easterly & Rebelo, 1993; Sinclair, 2005; Beers, 2006; Bannier & Hirsch, 2010; Kiff, et al., 2010; Afonso, et al., 2015; Chen, et al., 2016; Barta & Johnston, 2018; Barta & Johnston, 2020; Montes & Costa, 2020)). These agencies, despite disclosure of their methodologies, prefer to keep their empirical evaluation receipt stealthy so that they are not obliged to justify their discretionary conduct of sovereign ratings (Paudyn, 2013; Abdelal, et al., 2015).

Empirical investigations, however, reveal that rating agencies employ a variety of factors, ranging from economic and fiscal outcomes to political and social decisions, to determine sovereign creditworthiness of a certain country. Historically, CRAs have long based their evaluation criteria on economic and fiscal indicators because they are simple to measure, evaluate and communicate with markets (see for instance (Haque, et al., 1998; Afonso, 2003; Afonso, et al., 2010; Hilscher & Nosbusch, 2010; Chee, et al., 2015; Aras & Öztürk, 2018)). Conversely, assessing the consequences of political and social decisions on rating outcomes is not that straightforward since these impacts are mostly indirect, uncertain and long-term in nature, (see for example (Bruner & Abdelal, 2005; Cuadra & Sapriza, 2008; Baldacci, et al., 2011; Eichler, 2014; Abdelal, et al., 2015)).

Despite previous limitations, the global financial crisis and the European sovereign debt crisis have confirmed the relevance of political and social decisions, as unveiled by supply-side policies, for evaluating credit ratings. As a result, an emerging strand of literature has underlined fundamental changes in CRAs rating policies, emphasizing the important role of socio-political qualitative judgments on top of typical quantitative measures, (see for instance (Carruthers, 2013; Paudyn, 2013; Uslu, 2017; Vu, et al., 2017; Teixeira, et al., 2018; Cuadros-Solas & Muñoz, 2022)). As per the findings of this strand of literature, analyzing economic and fiscal outcomes alone is not adequate anymore to provide reliable assessments; they must be combined with competent political and social investigations, since the latter are the key drivers of long-term rating quality.

Using a bag-of-words approach, Barta & Makszin (2021) proposed a novel technique to agnostically evaluate empirical scrutiny policy of CRAs, emphasizing the difficulties of gauging qualitative issues, by exploring the information content of credit rating reports. The authors

measured rating scrutiny by counting the term frequency related to various topics within Standard and Poor's (S&P) reports for a sample of 40 European countries between 1999 and 2012. They show that S&P scrutinizes politics with different intensity across developed, transitioning and emerging country groups in Europe until the global financial crisis diminished the differential treatment of the developed group by increasing the average weight of political scrutiny for all the countries.

This paper employs the text-mining approach developed by Barta & Makszin (2021) to explore the usefulness of Moody's sovereign reports for understanding the rating scrutiny patterns of the Middle East and North Africa (MENA) countries between 1999 and 2021. The objective is to extract the term frequencies related to various commentary areas, i.e., economic, fiscal, social, political and sectoral, within reports to investigate the empirical strategy by which Moody's assigns benefits and costs to various developments related to rating while assessing sovereign creditworthiness of the MENA countries. The variations in commentary patterns of different issue areas across country groups and time periods are then analyzed using robust linear mixed-effects models, contrasting countries with high-, upper middle- and lower middle-income levels in time periods before, during and after the outbreak of the Arab revolutions between 2011 and 2013.

Our empirical strategy taps on valuable yet unexploited rating reports, in which Moody's explicitly explains the reasons behind its current assessments and the potential drivers of its future revisions, establishing an obvious empirical nexus between different policy decisions and credit rating changes; an investigation that would help policymakers to better enumerate the credit rating consequences of their policy actions. More specifically, this paper explores the information content of Moody's rating reports to disentangle the important elements of MENA region scrutiny policy, through answering the following questions: i) Does Moody's apply the same level of attention to diverse rating developments across all commentary areas? For example, how important are political events such as legislative elections as compared to economic outcomes such as growth numbers, for Moody's assessments of sovereign creditworthiness in the MENA countries? ii) Upon examining credit rating updates, does Moody's use the same scrutiny lens across all country groups in the MENA region? What impact may socio-economic factors of the MENA countries, such as income level, have on their sovereign credit ratings? (iii) How the Arab revolutions might have changed the scrutiny patterns of Moody's commen-

tary in different country groups of the initially turbulent MENA region? Is this potential scrutiny policy shift transitory or permanent, symmetric across all countries or confined to a certain group and what is the situation today, a decade after the onset of the Arab revolutions in 2011?

Out of the "big three" CRAs, our empirical exercise rests on rating reports from Moody's, since it has the largest coverage of the MENA region; with 13 out of the 19 countries analyzed. Despite this, existing evidence confirms that the information set employed and the rating results produced by the "big three" rating agencies (S&P, Moody's and Fitch) are fairly comparable, (see for instance (Afonso, 2003; Vu, et al., 2017)). Our chosen set of countries is thus far diversified to reflect differences in Moody's scrutiny attitudes towards various country groupings, such as income level, as MENA region has a diverse blend of high-, lower and upper middle-income countries. The time breadth of our sample, 1999-2021, is also long enough to capture Moody's willingness to incorporate subsequent changes in rating scrutiny after the Arab upheavals into its rating assessments.

Our results show that Moody's scrutinizes rating developments related to various issues differently across countries and over time. By scrutiny area, Moody's has consistently examined fiscal and sectoral issues across all country groups and over time. Conversely, economic, social and political scrutiny shows significant variations across country groups depending on income levels and relative to the Arab revolutions between 2011 and 2013. Prior to the revolutions, the weight of political scrutiny in Moody's reports was lighter in lower middle-income countries than in upper middle- or high-income groups. With the revolutions outbreak, not only the weight of political scrutiny has increased across all country groups but cross-country disparities have also disappeared. In contrast, the revolutions have lowered the degree of economic and social scrutiny in middle-income countries to that of high-income countries before 2011. These unprecedented paradigm shifts in Moody's scrutiny policy, with political commentary revived at the cost of social and economic themes, have even continued a decade after the upheavals. These findings shed light on Moody's rationale for rewarding or penalizing MENA countries for their rating-related actions, which should ultimately determine the empirical conditions under which these countries can gain access to global financial markets.

The paper is organized in five sections. Section (2) motivates the importance of exploring the information content of credit rating reports to better understand the scrutiny policy of rating agencies. Section (3) dissects the design of our modelling strategy for examining the informa-

tion content of Moody's rating reports on the MENA countries. Section (4) discusses the esti-
mation results of our robust linear mixed-effects models. The last section offers concluding
remarks and policy implications.

ملخص تنفيذي

يُنظر إلى وكالات التصنيف الائتماني على نطاق واسع باعتبارها حراسًا لأسواق المال الدولية نظرًا لقوة تأثير التقييمات
الائتمانية القياسية التي تصدرها على تكاليف الاقتراض بهذه الأسواق، انظر على سبيل المثال ,Easterly & Rebelo)
1993; Sinclair, 2005; Beers, 2006; Bannier & Hirsch, 2010; Kiff, et al., 2010; Afonso, et al.,
2015; Chen, et al., 2016; Barta & Johnston, 2018; Barta & Johnston, 2020; Montes & Costa,
2020). هذه الوكالات، رغم نشرها للمنهجيات التفصيلية لتقييماتها الائتمانية، تُفضل الاحتفاظ بالوصفة العملية لتقييماتها
الائتمانية مبهمة حتى لا تكون ملزمة بتبرير سلوكها التقديري للتقييمات الائتمانية السيادية، (انظر على سبيل المثال
(Paudyn, 2013; Abdelal, et al., 2015).

ومع كل هذا التكتم، كشفت الدراسات التجريبية عن استخدام وكالات التصنيف الائتماني لمجموعة مختلفة من العوامل، تتنوع
بين المؤشرات الاقتصادية والمالية والقرارات السياسية والاجتماعية، عند تحديدها للجدارة الائتمانية السيادية لبلد معين.
تاريخيًا، استندت وكالات التصنيف الائتماني في بناء معايير التقييم الائتماني الخاصة بها إلى المؤشرات الاقتصادية والمالية
كونها سهلة القياس والتقييم والتداول مع الأسواق المالية، (انظر على سبيل التأكيد Haque, et al., 1998; Afonso,)
2003; Afonso, et al., 2010; Hilscher & Nosbusch, 2010; Chee, et al., 2015; Aras & Öztürk,
2018). على العكس من ذلك، فإن الربط المباشر بين القرارات السياسية والاجتماعية ونتائج التقييمات الائتمانية السيادية
ليس بهذه البساطة لأن تأثير هذه المتغيرات الوصفية على مخرجات التقييمات الائتمانية غالبًا ما يكون غير مباشر وغير مؤكد
وطويل الأجل بطبيعته، (انظر على سبيل المثال Bruner & Abdelal, 2005; Cuadra & Sapriza, 2008;)
(Baldacci, et al., 2011; Eichler, 2014; Abdelal, et al., 2015).

رغم التحديات السابقة، جددت الأزمة المالية العالمية وأزمة الديون السيادية الأوروبية التأكيد على أهمية الأبعاد السياسية
والاجتماعية، كما تجسدها سياسات جانب العرض، بالنسبة لتقديرات التقييمات الائتمانية السيادية. نتيجة لذلك، ركزت العديد
من الدراسات التجريبية الحديثة على إبراز التغيرات البنيوية في سياسات وكالات التصنيف الائتماني، والتي تؤكد على تنامي
أهمية المتغيرات الوصفية مثل التقييمات السياسية والاجتماعية إلى جانب المتغيرات الكمية التقليدية مثل المؤشرات الاقتصادية
والمالية، (انظر على سبيل التأكيد Carruthers, 2013; Paudyn, 2013; Uslu, 2017; Vu, et al., 2017;)
Teixeira, et al., 2018; Cuadros-Solas & Muñoz, 2022). وفقًا لنتائج هذا الفرع الناشئ من الأدبيات، فإن
تحليل النتائج الاقتصادية والمالية للاقتصادات لم يعد وحده كافيًا للوصول إلى تقييمات ائتمانية سيادية موثوقة؛ إذ يجب دمج
هذه التحليلات الكمية مع التحقيقات السياسية والاجتماعية المناسبة، حيث تمثل الأخيرة المحرك الرئيسي لجودة التقييمات
الائتمانية السيادية على المدى الطويل.

باستخدام الأساليب الكمية للتنقيب في النصوص، اقترح (2021) Barta & Makszin نهجًا جديدًا لتقييم سياسات وكالات
التصنيف الائتماني في فحص مستجدات التقييمات الائتمانية من منظور تطبيقي، بالتركيز على صعوبات قياس تأثير
المتغيرات الوصفية على نتائج التقييمات الائتمانية، وذلك عن طريق استكشاف الفوائد المحتملة للمحتوى المعلوماتي لتقارير

التقييمات الائتمانية السيادية. قام الباحثان بقياس طريقة فحص وكالة ستاندرد أند بورز Standard and Poor's للمستجدات الائتمانية السيادية عن طريق حساب تكرار المصطلحات المختلفة بحسب ارتباطها بموضوعات التقييم الائتماني المتضمنة في التقارير الائتمانية للوكالة، وذلك في عينة ضمت ٤٠ دولة أوروبية خلال الفترة ما بين عامي ١٩٩٩- ٢٠١٢. هذا وقد أثبتت النتائج التطبيقية للدراسة قيام وكالة ستاندرد أند بورز بالتمييز في درجة تدقيقها للأحداث السياسية المؤثرة على التقييم الائتماني بحسب درجة تقدم الدول المختلفة بأوروبا، من حيث كونها متقدمة أو ناشئة أو نامية، وذلك خلال الفترة السابقة على الأزمة المالية العالمية، والتي بمجرد اندلاعها أفقدت الدول المتقدمة داخل أوروبا لميزتها الحصرية في التعرض بشكل أقل للتدقيق في الأحداث السياسية المتعلقة بالتقييم الائتماني، بعدما دفعت الأزمة بمتوسطات التدقيق السياسي في جميع مجموعات البلدان الأوربية المختلفة إلى الارتفاع.

تأسيسًا على هذا، تستخدم هذه الورقة نهج التنقيب في النصوص المطور من قبل Barta & Makszin (2021) لاستكشاف المحتوى المعلوماتي الخاص بالتقارير الائتمانية السيادية لوكالة موديز بهدف فهم أنماط تدقيق الوكالة في مستجدات التقييم الائتماني الخاصة بدول الشرق الأوسط وشمال إفريقيا خلال فترة ١٩٩٩-٢٠٢١. الهدف من هذا التمرين هو استخراج تكرارات المصطلحات المتعلقة بمجالات التدقيق المختلفة، ما بين اقتصادية ومالية واجتماعية وسياسية وقطاعية، ضمن التقارير الائتمانية لاستقصاء الاستراتيجية التجريبية التي تقوم من خلالها الوكالة بموازنة الفوائد والتكاليف المرتبطة بمختلف تطورات التصنيف الائتماني أثناء تقييم الجدارة السيادية لبلدان الشرق الأوسط وشمال إفريقيا. بناءً على نتائج هذا التصنيف، تقوم الورقة بتحليل الاختلافات في أنماط التعليق على القضايا المختلفة محل اهتمام وكالة موديز عبر مجموعات البلدان بالمنطقة بحسب مستوى الدخل وخلال الزمن مقارنة بتوقيت اندلاع الثورات العربية، وذلك باستخدام النماذج الخطية ذات التأثيرات المختلطة، وبما قد يظهر الاختلافات بين مجموعات البلدان ذات الدخل المتوسط المرتفع والعالي والمتوسط المنخفض في الفترات الزمنية قبل وأثناء وبعد اندلاع الثورات العربية بين عامي ٢٠١١ و٢٠١٣.

خلال هذا التمرين التطبيقي، تستند استراتيجيتنا للنمذجة على تقارير التصنيف الائتماني السيادي القيّمة لكن غير المستغلة، والتي تشرح فيها وكالة موديز بشكل صريح الأسباب الكامنة وراء تقييماتها الحالية والدوافع المحتملة لمراجعاتها المستقبلية، وبما يبرز العلاقة التجريبية بين اختيارات السياسات التي تقوم بها الدول من ناحية والتغييرات في التقييمات الائتمانية التي تقوم بها موديز من ناحية ثانية؛ التمرين التطبيقي الذي من شأنه أن يساعد صانعي السياسات على تقدير نتائج سياساتهم المتبعة على تصنيفات اقتصاداتهم الائتمانية. بشكل أكثر تحديدًا، تستكشف هذه الورقة المحتوى المعلوماتي لتقارير التصنيف الائتماني الخاصة بوكالة موديز بهدف فهم العناصر الائتمانية المؤثرة على سياسة التدقيق الائتماني بمنطقة الشرق الأوسط وشمال إفريقيا، من خلال الإجابة على الأسئلة التالية: i) هل تطبق وكالة موديز نفس مستوى التدقيق عند فحصها لتطورات الأحداث المختلفة المتعلقة بالتقييمات الائتمانية؟ على سبيل المثال، ما مدى أهمية الأحداث السياسية مثل الانتخابات التشريعية مقارنة بالنتائج الاقتصادية مثل أرقام النمو، بالنسبة إلى تقييمات وكالة موديز للجدارة الائتمانية لدول الشرق الأوسط وشمال إفريقيا؟ ii) عند فحص مستجدات التقييمات الائتمانية، هل تستخدم موديز نفس العدسة لفحص المستجدات الائتمانية عبر مجموعات البلدان المختلفة بمنطقة الشرق الأوسط وشمال إفريقيا؟ ما هو التأثير المحتمل للخصائص الاجتماعية والاقتصادية لبلدان الشرق الأوسط وشمال إفريقيا، مثل مستوى الدخل، على تصنيفاتها الائتمانية السيادية؟ (iii) كيف غيرت الثورات العربية من أنماط تدقيق موديز في المستجدات الائتمانية في المنطقة والتي تعج بالاضطرابات بالفعل؟ هل تمثل هذه التغيرات المحتملة في أنماط التدقيق الائتماني تحولًا انتقاليًا أو سياسة دائمة، هل هي كذلك متماثلة جميع البلدان أو يقتصر تأثيرها على مجموعة معينة وما هو الوضع اليوم، بعد مرور عقد كامل على اندلاع الثورات العربية في عام ٢٠١١؟

من بين الوكالات الثلاث الكبار، نعتمد في هذا التمرين التطبيقي على تقارير التصنيف الائتماني السيادي الصادرة عن موديز، نظرًا لتمتعها بأكبر تغطية ائتمانية لبلدان منطقة الشرق الأوسط وشمال إفريقيا؛ وذلك بتحليل الملف الائتماني لعدد ١٣ دولة من أصل ١٩ دولة بالمنطقة. على الرغم من ذلك، تؤكد الأدلة التجريبية على عدم وجود اختلافات جوهرية بين الوكالات الثلاث الكبار فيما يتعلق بحزم المعلومات التي يعتمدوا عليها عند إعداد تقييماتهم الائتمانية وكذا مخرجات هذه التقييمات، (انظر على سبيل المثال (Afonso, 2003; Vu, et al., 2017)). اتصالاً بهذا، تتسم مجموعة البلدان التي تغطيها موديز بالمنطقة بالتنوع وبما قد يعكس اية اختلافات محتملة في طرق تدقيق الوكالة بالمستجدات الائتمانية في مجموعات البلدان المختلفة، بحسب مستوى الدخل على سبيل المثال، حيث تضم منطقة الشرق الأوسط وشمال إفريقيا مزيجًا متنوعًا من البلدان ذات الدخل المرتفع والمتوسط بطيفيه الأعلى والأدنى. فيما ينطبق نفس الوضع على النطاق الزمني للتقارير الائتمانية المختارة، والذي يغطي الفترة ١٩٩٩-٢٠٢١، وبما يكفي لالتقاط أية أثار ممتدة للثورات العربية على أنماط تدقيق وكالة موديز بمستجدات التقييمات الائتمانية بمنطقة الشرق الأوسط وشمال أفريقيا.

تظهر نتائجنا التجريبية قيام وكالة موديز بتغيير طريقة فحصها لمستجدات التصنيف الائتماني المتعلقة بالقضايا المختلفة بحسب تصنيف البلدان وفقًا لمستوى الدخل وكذلك عبر الفترات الزمنية المختلفة مقارنة بتوقيت اندلاع الثورات العربية. بحسب موضوع التدقيق الائتماني، أظهرت النتائج أن فحص المستجدات الائتمانية الخاصة بالقضايا المالية والقطاعية احتل نفس المكانة في كافة التقارير الائتمانية لوكالة موديز وذلك عبر جميع البلدان وخلال كل الفترات الزمنية. وعلى العكس من ذلك، يُظهر تدقيق موديز في القضايا الاقتصادية والاجتماعية والسياسية تباينات واضحة بين مجموعات البلدان المختلفة بالمنطقة اعتمادًا على مستويات الدخل وكذا خلال الفترات السابقة واللاحقة لاندلاع الثورات العربية بين عامي ٢٠١١ و٢٠١٣. قبل الثورات العربية، كان وزن التدقيق السياسي في التقارير الائتمانية لوكالة موديز أخف في البلدان ذات الدخل المتوسط الأدنى من البلدان ذات الدخل المتوسط الأعلى أو حتى الدخل المرتفع. مع اندلاع الثورات العربية، لم يزداد وزن التدقيق السياسي في المستجدات الائتمانية ذات الصلة عبر جميع مجموعات البلدان بالمنطقة فحسب، بل اختفت أيضًا التباينات القُطرية عبر مجموعات البلدان المختلفة بالمنطقة. في المقابل، خفضت الثورات العربية درجة التدقيق في المستجدات الائتمانية ذات الصلة بالأبعاد الاقتصادية والاجتماعية في البلدان ذات الدخل المتوسط إلى ذلك المستوى الذي كان سائدًا في البلدان ذات الدخل المرتفع قبل عام ٢٠١١. هذه التحولات الهيكلية غير المسبوقة في بنية سياسة التدقيق الائتماني التي تتبعها وكالة موديز بالمنطقة، أدت في المجمل إلى اعادة إحياء التدقيق في الموضوعات السياسية على حساب الموضوعات الاجتماعية والاقتصادي، التحولات التي لا تزال مستمرة حتى بعد عقد من الاضطرابات. تسلط هذه النتائج الضوء على الأساس المنطقي التي تقوم وكالة موديز بناءً عليه بمكافأة أو معاقبة بلدان الشرق الأوسط وشمال إفريقيا على إجراءاتها المتعلقة بالتصنيف، الأساس الذي يحدد في النهاية الشروط الفعلية التي بموجبها يمكن لهذه البلدان الوصول إلى التمويل في الأسواق المالية العالمية.

تتألف هذه الورقة من خمسة أقسام رئيسية. يقوم القسم الثاني ببيان أهمية استكشاف المحتوى المعلوماتي لتقارير التقييم الائتماني السيادي عند محاولة فهم سياسة التدقيق الائتماني الخاصة بوكالات التصنيف الائتماني بشكل أفضل. يوضح القسم الثالث تصميم إستراتيجية النمذجة الخاصة باستكشاف المحتوى المعلوماتي لتقارير تصنيف موديز في بلدان الشرق الأوسط وشمال إفريقيا. فيما يناقش القسم الرابع نتائج التقدير لنماذج التأثيرات المختلطة الخطية. أما القسم الأخير فيتضمن ملاحظات ختامية وتوصيات السياسات.

1. INTRODUCTION

Credit rating agencies (CRAs) are widely perceived as guardians to international financial markets given their non-negligible power to influence borrowing costs through the standardized ratings they publish ((see for example (Easterly & Rebelo, 1993; Sinclair, 2005; Beers, 2006; Bannier & Hirsch, 2010; Kiff, et al., 2010; Afonso, et al., 2015; Chen, et al., 2016; Barta & Johnston, 2018; Barta & Johnston, 2020; Montes & Costa, 2020)). These agencies, despite disclosure of their methodologies, prefer to keep their empirical evaluation receipt stealthy so that they are not obliged to justify their discretionary conduct of sovereign ratings (Paudyn, 2013; Abdelal, et al., 2015).

Empirical investigations, however, reveal that rating agencies employ a variety of factors, ranging from economic and fiscal outcomes to political and social decisions, to determine sovereign creditworthiness of a certain country. Historically, CRAs have long based their evaluation criteria on economic and fiscal indicators because they are simple to measure, evaluate and communicate with markets (see for instance (Haque, et al., 1998; Afonso, 2003; Afonso, et al., 2010; Hilscher & Nosbusch, 2010; Chee, et al., 2015; Aras & Öztürk, 2018)). Conversely, assessing the consequences of political and social decisions on rating decisions is not that straightforward since these impacts are mostly indirect, uncertain and long-term in nature (see for example (Bruner & Abdelal, 2005; Cuadra & Sapriza, 2008; Baldacci, et al., 2011; Eichler, 2014; Abdelal, et al., 2015)).

Despite previous limitations, the global financial crisis and the European sovereign debt crisis have confirmed the relevance of political and social decisions, as exposed by supply-side policies, for evaluating credit ratings. As a result, an emerging strand of literature has underlined fundamental changes in CRAs rating policies, emphasizing the important role of socio-political qualitative judgments on top of typical quantitative measures (see for instance (Carruthers, 2013; Paudyn, 2013; Uslu, 2017; Vu, et al., 2017; Teixeira, et al., 2018; Cuadros-Solas & Muñoz, 2022)). As per the findings of this strand of literature, analyzing economic and fiscal outcomes alone is not adequate anymore to provide reliable assessments; they must be combined with competent political and social investigations, since the latter are the key drivers of long-term rating quality.

Using a bag-of-words approach, Barta & Makszin (2021) proposed a novel technique to agnostically evaluate empirical scrutiny policy of CRAs, emphasizing the difficulties of gauging qualitative issues, by exploring the information content of credit rating reports. The authors

measured rating scrutiny by counting the term frequency related to various topics within Standard and Poor's (S&P) reports for a sample of 40 European countries between 1999 and 2012. They show that S&P scrutinizes politics with different intensity across developed, transitioning and emerging country groups in Europe until the global financial crisis diminished the differential treatment of the developed group by increasing the average weight of political scrutiny for all the countries.

This paper employs the text-mining approach developed by Barta & Makszin (2021) to explore the usefulness of Moody's sovereign reports for understanding the rating scrutiny patterns of the Middle East and North Africa (MENA) countries between 1999 and 2021. The objective is to extract the term frequencies related to various commentary areas, i.e. economic, fiscal, social, political and sectoral, within reports to investigate the empirical strategy by which Moody's assigns benefits and costs to various developments related to rating while assessing sovereign creditworthiness of the MENA countries. The variations in commentary patterns of different issue areas across country groups and time periods are then analyzed using robust linear mixed-effects models, contrasting countries with high-, upper middle- and lower middle-income levels in time periods before, during and after the outbreak of the Arab revolutions between 2011 and 2013.

Our empirical strategy taps on valuable yet unexploited rating reports, in which Moody's explicitly explains the reasons behind its current assessments and the potential drivers of its future revisions, establishing an obvious empirical nexus between different policy decisions and credit rating changes; an investigation that would help policymakers to better enumerate the credit rating consequences of their policy actions. More specifically, this paper explores the information content of Moody's rating reports to disentangle the important elements of MENA region scrutiny policy, through answering the following questions: i) Does Moody's apply the same level of attention to diverse rating developments across all commentary areas? For example, how important are political events such as legislative elections as compared to economic outcomes such as growth numbers, for Moody's assessments of sovereign creditworthiness in the MENA countries? ii) Upon examining credit rating updates, does Moody's use the same scrutiny lens across all country groups in the MENA region? What impact may socio-economic factors of the MENA countries, such as income level, have on their sovereign credit ratings? (iii) How the Arab revolutions might have changed the scrutiny patterns of Moody's commen-

tary in different country groups of the initially turbulent MENA region? Is this potential scrutiny policy shift transitory or permanent, symmetric across all countries or confined to a certain group and what is the situation today, a decade after the onset of the Arab revolutions in 2011?

Out of the "big three" CRAs, our empirical exercise rests on rating reports from Moody's, since it has the largest coverage of the MENA region; with 13 out of 19 countries analyzed. Despite this, existing evidence confirms that the information set employed and the rating results produced by the "big three" rating agencies (S&P, Moody's and Fitch) are fairly comparable (see for instance (Afonso, 2003; Vu, et al., 2017)). Our chosen set of countries is thus far diversified to reflect differences in Moody's scrutiny attitudes towards various country groupings, such as income level, as MENA region has a diverse blend of high-, lower and upper middle-income countries. The time breadth of our sample, 1999-2021, is also long enough to capture Moody's willingness to incorporate subsequent changes in its rating scrutiny after the Arab upheavals into its rating assessments.

The paper is organized in five sections. Section (2) motivates the importance of exploring the information content of credit rating reports to better understand the scrutiny policy of rating agencies. Section (3) dissects the design of our modelling strategy for examining the information content of Moody's rating reports on the MENA countries. Section (4) discusses the estimation results of our robust linear mixed-effects models. The last section offers concluding remarks and policy implications.

2. INVESTIGATING RATING SCRUTINY FROM EMPIRICAL PERSPECTIVE

Despite substantial empirical evidence on the key determinants of sovereign credit ratings in the MENA region, the question of how rating agencies scrutinize various rating developments remains without answers. The existing literature on the MENA region has rarely extended beyond studying the impacts of economic and fiscal metrics on sovereign credit risk or ratings. The following examples provide a taste of what that research has thus far offered. On the nexus between rating determinants and sovereign risk, (Haddad & Hakim, 2007) attributed variations in credit risk in the MENA to changes in current account position and income per capita before they further stress the empirical relevance of public debt service, income level and stock market performance in 2008. Regarding ratings, Aloquili (2014) has comparably shown that economic variables such as the size and dynamism of the economy, along with the corruption control, are the major drivers of sovereign ratings in the MENA countries. For the Gulf Cooperation Council (GCC), Naifar (2020) has further added GDP per capita and public debt to GDP to the list

of significant economic determinants of ratings. The takeawy, policymakers must pay close attention to economic drivers of ratings above all else, loud and clear!

Following the financial crisis, CRAs began supplementing their analysis of economic and fiscal results with sociopolitical assessments to improve the quality of their ratings. Yet, the associated literature has mainly focused on estimating the broad impacts of political institutions, regime type or major political upheavals on ratings with no attention to the potential opportunities rating reports provide on the impacts of day-to-day political and social decisions on rating policy. To elucidate, Moser (2007) quantified the influence of government reshuffles on sovereign bond spreads. Archer, et al., (2007); Beaulieu, et al., (2012) assessed the effects of political regime type on the developing nations ratings, while Barta & Johnston (2018) discussed the impacts of partisan discrimination on developed countries ratings. Within political systems, Cuadra & Sapriza (2008) confirmed positive association between political polarization and default risks in emerging markets, whereas Biglaiser & Staats (2012) stressed the relevance of strong courts, protection of property rights and the rule of law for ratings. On the social front, Barta & Johnston (2020) showed that ratings react negatively to generous entitlement systems.

Despite their growing empirical importance, CRAs continued to underrate political and social components of ratings in their scrutiny analysis. On the one hand, it is still difficult to get evident answers from sovereign rating manuals, despite several revisions after the financial crisis, on the likely impacts of social and political choices, such as tax structure or partisan regime, on rating decisions (see for instance (Bruner & Abdelal, 2005; Archer, et al., 2007; Paudyn, 2013; Uslu, 2017; Teixeira, et al., 2018; Cuadros-Solas & Muñoz, 2022)). On the other hand, the attitude of CRAs toward scrutinizing political and social issues into their ratings is still empirically debatable; CRAs may want to avoid discussing sociopolitical aspects deeply in their ratings so as not to compromise the quality of their risk assessments and thus lose the epistemic authority of conducting discretionary rating (see for example (Sinclair, 2005; Paudyn, 2013; Abdelal, et al., 2015)). Consequently, credit rating methodologies are highly loose when it comes to scrutinising and evaluating the impact of social and political developments on rating outcomes.

In contrast to the circuitous position of political and social variables in CRAs sovereign rating manuals, these agencies are extremely open about the rating developments that derive their specific rating decisions, together with political and social factors. Upon each announcement to increase, decrease or confirm the existing rating of a certain country, CRAs use their

rating reports to communicate the reasons behind their current decision and the potential motives of future revisions. In the case of Moody's, the agency produces three rating reports: credit opinion to communicate rating decisions, issuer comment for examining the likely impacts of recent events on future rating paths and issuer in-depth to elucidate critical sovereign rating concerns. These reports range in length from a few hundred to thousands of words, with an average of 2250 words per report. The frequency of issuing reports is determined by how often Moody's believes a country's rating needs to be reviewed, with an average of 2.5 reports per year for each country.

This paper, therefore, draws on untapped yet highly-informative sovereign rating reports to explore the empirical scrutiny strategy adopted by Moody's to rate creditworthiness of the MENA region. Our choice to investigate the information content of rating reports rather than using primary data is based on three advantages. First, credit rating reports, by providing a plethora of information on how CRAs make, justify and disseminate their rating decisions, offer a valuable resource for examining the entirety of observed scrutiny policy, instead of focusing on a certain aspect such as fiscal and economic determinants emphasized by early literature. Second, this straightforward scrutiny approach delivers a clean solution for disentangling the empirical weight of qualitative rating factors, like political and social issues, from the original rating reports, a task that would have been extremely meticulous if accomplished with the help of standard primary resources alone. Third, the information contained in these rating reports is widely observed and quoted by policymakers and financial market participants, making them reliable and influential. In our example, Moody's has a large clientele base that tracks sovereign debt portfolios of over 120 countries around the world, including 13 countries in the MENA region alone, with its rating announcements receiving extensive coverage in local media platforms and global financial press such as Thomson Reuters, Bloomberg, and the Wall Street Journal. Investigating the information content of these reports is thus important in and of itself since it has a direct influence on investor and policymaker sentiment of sovereign credit assessments of individual MENA countries, which shall ultimately determine the actual borrowing terms these countries face in global debt markets.

Table (1) depicts a basic working example that explains the rationale behind using rating reports to investigate sovereign scrutiny patterns in Tunisia, where the relative shares of term frequencies associated with each commentary area are shown in columns 3-7 and column 8 labels changes in scrutiny distribution as measured by the weighted average of absolute growth rates in all issue areas. The following observations can be drawn from the table's results. First,

the revolution has significantly expanded Moody's coverage of developments related to rating in Tunisia by increasing the coverage frequency from one report annually before 2011 to five reports per year on average in the subsequent years. Second, the revolution has also brought unprecedented paradigm shifts to the scrutiny patterns of sovereign ratings in Tunisia, with commentary on political incidents revived at the expense of economic issues; this scrutiny shift has, however, began to reverse since 2016. Third, analysing changes in scrutiny patterns appears to provide forward-looking assessments of sovereign credit risk by laying out prospective rating scenarios that alert investors and policymakers to potential rating revisions. In Tunisia, the significant shift in scrutiny patterns after the revolution, with a +10% change in scrutiny distribution, offered an early warning of a potential revision in rating score, which was downgraded two years later. Similarly, rating scores remained unchanged between 2014 and 2016, as well as, between 2018 and 2020, when scrutiny distribution shifted by +5%, sending a clear signal of a predicted revision one year ahead in both cases.

To sum up, credit rating reports provide a venue for rating agencies to directly interact with their audience while also offering policymakers and investors an opportunity to gain deep understanding of how these agencies genuinely examine distinct rating constituents. First, CRAs use rating reports to clarify and specify the principles of their rating policy, which are generally outlined in their methodological manuals. Commenting on a specific rating situation in a given country is less likely to spark an issue comapred to generalizing such views as rating guidelines. Second, investigating the information content of rating reports shall provide policymakers and investors with accurate estimates of the empirical weight CRAs assign to political and social components of their rating policy, which was largely dominated by quantitative economic and fiscal measures in the past decades; an exercise that will be evidently useful for the MENA region following the Arab upheavals. Third, rating reports serve as a dual communication channel by which CRAs can bolster their credibility by sending forward-looking messages to their audience about the factors that may impact their future ratings, and investors and policymakers can provide market feedback on what is truly feasible and worthy and what is not.

Table 1. Summary statistics of relative term frequencies (Tunisia, 2000–2021)

Year	No. of Reports	Economic	Fiscal	Politics	Social	Sectoral	Change in Distribution	Score
2000	1	0.54	0.21	0.14	0.07	0.04	--	Baa2
2002	1	0.55	0.25	0.05	0.07	0.08	--	Baa3
2004	1	0.49	0.21	0.11	0.06	0.13	--	Baa3
2005	1	0.48	0.21	0.13	0.06	0.12	--	Baa2
2011	2	0.38	0.14	0.38	0.06	0.05	(++)	Baa3

2012	3	0.32	0.17	0.38	0.04	0.09	--	Baa3
2013	4	0.27	0.18	0.48	0.03	0.04	--	Baa3 - Ba2
2014	3	0.23	0.16	0.52	0.03	0.06	--	Ba3
2015	4	0.32	0.17	0.39	0.03	0.08	(+)	Ba3
2016	7	0.36	0.20	0.32	0.05	0.06	--	Ba3
2017	6	0.40	0.22	0.25	0.06	0.06	--	B1
2018	6	0.44	0.24	0.21	0.05	0.05	--	B2
2019	5	0.36	0.18	0.34	0.08	0.05	(+)	B2
2020	6	0.41	0.23	0.25	0.07	0.04	--	B2
2021	7	0.41	0.20	0.27	0.08	0.04	--	Caa1

Notes: The analysis includes 57 credit rating reports issued by Moody's on Tunisia between 2000 and 2021. Columns 3-7 show the relative shares of term frequencies associated with economic, fiscal, political, social and sectoral issue areas, while column 8 labels changes in the distribution of scrutiny patterns across different issue areas as measured by the weighted average of absolute growth rates in all issue areas, where (+) denotes a +5% change and (++) marks a +10% change. Column 9 is dedicated for the accompanying rating score range.

3. MODELLING THE INFORMATION CONTENT OF MOODY'S REPORTS

Our empirical strategy employs text mining techniques to explore the information content of 648 sovereign rating reports published by Moody's Investors Service□ for 13 economies in the MENA region between December 2, 1999 and December 9, 2021. This huge collection of documents comprises 218 credit opinion, 195 issuer comment and 235 issuer in-depth reports. The objective is to assess the relative weight Moody's assigns to each commentary area by counting the term frequency related to economic, fiscal, social, sectoral and political topics in its rating reports. The patterns of topic variations across country groups depending on income and time periods relative to the Arab revolutions are then investigated by using robust linear mixed-effects models based on the random effects contamination models developed by Koller (2013; 2016).

3.1. Country and Time Dimensions of Moody's Sampling Reports

By country, we examine every rating report released by Moody's for any MENA country. This yields a balanced sample of 13 countries, allowing us to model distinct features of Moody's commentary on different rating subjects.[1] To uncover potential heterogeneities among countries in our sample, the standard income classification of the World Bank is adopted, which divides our sample into three country groups. The group of High-Income Countries (HICs) comprising United Arab Emirates (AE), Bahrain (BH), Israel (IL), Kuwait (KW), Oman (OM), Qatar (QA) and Kingdom of Saudi Arabia (SA) with a total of 337 report. The remaining six countries are

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[1] Note that the countries of Algeria, Iran, Libya, Syria and Yemen are not covered by Moody's agency and therefore are not part of our data sample on the MENA region.

split over Upper Middle-Income Countries (UMICs) with 130 reports on Lebanon (LB), Jordan (JO) and Iraq (IQ) and Lower Middle-Income Countries (LMICs) with 181 reports on Egypt (EG), Morocco (MA) and Tunisia (TN). Making this distinction helps us to investigate how Moody's has scrutinized various rating developments, e.g., economic vs. political, across different country groups based on income level in its rating commentary.

Across time, our sample starts in 1999 as many countries in the region were not rated by Moody's before that date. The analysis still extends to late 2021, which gives us an adequate window to compare Moody's commentary on various topics in periods before, during and after the onset of the Arab revolutions between 2011 and 2013. This would allow us to explore potential breaks in the pattern and intensity of Moody's commentary on different themes after the turbulence of the Arab revolutions had fully subsided. In other words, we investigate how these revolutions might have left permanent effects on the relative weights the agency dedicates to the barely-noticed political and social events as compared to the closely-monitored economic and fiscal progresses.

3.2. Quantitative Text Analysis of Moody's Rating Reports

Following Barta & Makszin (2021), who investigated the rating scrutiny policy of S&P in a sample of 40 European countries from 1999 to 2012, we compute the term frequencies related to each commentary area in Moody's rating reports as follows:

First, a concrete list of terms is derived from Moody's rating reports using packages "tm: Text Mining" and "quanteda: Quantitative Analysis of Text Data" within R program (Feinerer & Hornik, 2020; Benoit, et al., 2018). In this list, terms are not stemmed to origin while stop words and least frequent terms are removed, to guarantee appropriate interpretation and so accurate coding of the terms. This standard text-mining procedure ensures that both outlier words and country-specific terms such as the names of national leaders and/or local organizations are eliminated (Benoit & Herzog, 2017).

Second, the qualitative coding routine proposed by Barta & Makszin (2021) is used to categorize the resulting list of terms into one of the commentary areas. We conduct two independent qualitative codings of the resulting list of terms to determine whether they relate to economic, political, fiscal, social or sectoral subjects, or they are just neutral. Prior to coding, each reader reviewed at least 100 random reports to become familiar with the terminology Moody's employ in their rating reports.

Based on that, terms are labelled "economics" if they can be directly linked to short- or long-term economic outcomes on which we know that Moody's places strong emphasis. This area follows developments related to short-term performance of the economy such as output growth, external balance, inflation or the exchange rate while still observing long-term attributes of the economy like diversification, industrial deepening or export-promotion plans. Terms that often show around economic expressions such as "resilient", "inefficient" or "recovery" are relatedly coded under this category.

From Moody's methodology and sampling reports, terms are coded as "fiscal" when they refer to debt burden or affordability (e.g., debt to GDP, interest payments to revenues, etc.) or to the management of debt profile (e.g., maturity, amortizations, etc.). Again, our knowledge of Moody's terminology is used when coding recurring expressions related to fiscal outcomes such as "sustainable trajectory", "tightening", etc.

As motivated in the previous section, Moody's methodology provides little help when it comes to identifying the politics-related catalogue of its sovereign rating assessments. In the absence of clear clues, the "politics" subject includes terms that narrate with one of the three authorities (such as government, parliament, judiciary etc.), interest groups or (non)-partisan organizations (such as parties, unions, NGOs, etc.), electoral cycle (such as elections, referendum, voter, etc.), conflict and resolution (such as tensions, consensus, agreement, etc.) or any recurring political or ethnical events.

All terms describing sector-specific developments such as energy, tourism, banking and so on are grouped under "sectoral". By the same token, "social" category is meant to collect all the terms that can be directly related to a specific social policy such as health, pensions, poverty, gender, employment and so on. Lastly, terms that clearly do not fit in any of these five commentary areas are labelled as "Neutral".

Table (A1) in the Appendix displays the complete list of terms in each of our five coding categories. In total, we extracted 5,470 distinct terms that were repeated 1,454,481 times. The non-neutral terms add up to 1,302 unique terms that were repeated 503,986 times. The frequency distribution (term frequency) of these non-neutral expressions takes the following order: economics (362; 214,400), fiscal (182; 110,761), sectoral (134; 40,403), social (126; 24,122) and political (498; 114,300). Despite the fact that political terms outnumber economic terms, the average term frequency (term frequency/term count) of the economic label is substantially greater than that of the political label (592 versus 229 terms). The same pattern can be observed

by exploring the average term frequency per report (terms frequency/report count) since the average number of distinct economic terms is almost double that of the political terms (331 versus 176 terms).

Interesting enough, our generated list of terms from Moody's reports is very similar to that derived by Barta & Makszin (2021) using S&P reports. Case in point: the estimated inter-coder reliability score (Cohen's kappa) between our list of terms and theirs is 87%, 89% and 91% for economics, fiscal and political labels, respectively.[2]These figures clearly show the close proximity between our independent codings and theirs upon classifying terms belonging to different scrutiny areas within the two agencies rating reports. This, however, is not completely surprising since it has been early established in the literature that the differences in rating information and scores across the three rating agencies are minor (see for instance (Kish, et al., 1999; Afonso, 2003; Vu, et al., 2017)).

Figure (1) displays word clouds related to economic and political labels. Each word cloud visualizes words in such a way that terms that appear more frequently are given more emphasis. Under economic label, short-term indicators of economic performance such as output growth, external balance or inflation rate are heavily highlighted. Topics tackling long-term attributes of the economy, such as investment profile, exports diversification or structural reforms are also repeatedly deliberated. Unlike economics, topics discussed under the political label are largely disintegrated. Put differently, Moody's confront more topics but each with a lesser scrutiny. Among others, institutions and governance, rule of law, elections and conflict resolution were highly reported. For brevity, the remaining clouds of fiscal, social and sectoral terms are reported in Figure (A1).

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[2] Note that direct comparisons of our "social" and "sectoral" lists with those of (Barta & Makszin, 2021) are not feasible because the later authors merged both labels under one broad "policy" category.

Figure 1. Extracted word clouds of economics and political labels

(a) Word cloud of economic terms

(b) Word cloud of political terms

Notes: In the word clouds, the terms that appear more frequently in Moody's rating reports are given more importance, as indicated by larger font size. To keep the plots readable, only words with a frequency greater than 150 times are included in the reported word clouds.

Figure (A2) shows two examples of correlation plots of two terms that Moody's heavily employs in its reports to indicate the context in which our coded terms are used. The left panel of Figure (A2) clarifies that the term "debt" is highly correlated with terms related to type (domestic versus external), burden (interest and payment), management (vulnerability and risk) and policy (GDP and inflation). Comparably, "institutions" is correlated with governance, rule of law, civil society and judiciary system, among others. These examples verify the validity of our terms as acceptable proxies for the issue areas scrutinised by Moody's in its rating assessments of the MENA region.

Having counted the frequency of coded terms and recorded the total word count in each report, the focus is now on analysing the absolute count of non-neutral terms, as a proxy for report length, over time and by country group. Figure (2) highlights two remarkable observations. First, after the Arab revolutions began in 2011, Moody's has significantly expanded its rating scrutiny analysis of MENA countries, as indicated by the growing rating report length. This notable upward trend in rating scrutiny extended not just to lower middle-income countries, where the revolutions originate, but also to upper middle- and high-income countries. To capture this upward trend in rating scrutiny analysis, it is therefore sensible to control for report length as a fixed effect variable when estimating our mixed-effects regression models. Second, the Arab upheavals have yet preserved the relative differences between the distincit country groupings of the MENA region, with the high-income group receiving the most rating scrutiny and the lower middle-income group getting the least. What is also worthy of note is the similarities in scrutiny patterns observed for high- and upper middle-income country groups after the reflection point around 2006, with lower middle-income countries following their own route.

Figure 2. Average term count per report, over time and by country group

Table (2) examines the distribution of terms across distinct commentary categories after analyzing the aggregate trends of rating scrutiny patterns in the MENA region across countries

and over time.[3] [Table (2)](#) underlines three important remarks. First, serving as the agency's main rating dish, economic and fiscal results dominate Moody's analysis of MENA sovereign creditworthiness, accounting for more than two-thirds of its overall rating scrutiny commentary. Second, terms associated with political, social or sectoral developments are not only marginally scrutinized by Moody's (as the share of these three categories combined is decisively less than that of the economics label alone), but also exhibit more scrutiny variability as indicated by larger than average standard deviations. Third, the wide range (maximum - minimum) of political scrutiny relative to its average may indicate that Moody's expands and contracts the weight it assigns to this category in favor of studying other categories, such as economics or fiscal issues.

Table 2. Summary statistics of relative term frequencies on economics, fiscal, political, social and sectoral issue areas (all countries, 1999–2021)

Issue Area	Mean	Std. Deviation	Minimum	Maximum
Economics	39	09	08	66
Fiscal	24	07	01	58
Political	25	11	05	79
Social	04	03	00	49
Sectoral	08	05	00	43

Notes: The analysis includes 648 credit rating reports issued by Moody's agency on 13 countries in the MENA region between 1999 and 2021. The unique terms used to calculate the relative frequency distribution of different issue areas have at least appeared 10 times across all our 648 rating reports. The qualitative coding routine proposed by Barta & Makszin (2021) is used to categorize the resulting list of terms into one of the scrutiny issue areas. In all cases, at least two independent qualitative coding of the resulting list of terms are conducted to determine whether they relate to economic, fiscal, political, social or sectoral subjects, or they are simply neutral. Prior to coding, each reader reviewed at least 100 random reports to become familiar with the terminology Moody's employs in its credit rating reports of the MENA region. Following Barta & Makszin (2021), neutral terms are excluded from our analysis of scrutiny patterns to avoid impenetrable impacts of possible variations in this commentary area.

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[3] Following (Barta & Makszin, 2021), neutral terms are excluded from our regression analysis of rating scrutiny patterns in the MENA region to avoid impenetrable impacts of possible variations in this commentary area. Modelling the relative share of neutral terms would not yield interpretable results in any case as they could not be ascribed to any relevant contextual meaning in the first place. Nevertheless, as a robustness check, we have replicated our baseline regression models after including neutral terms in the total word count of reports and found out that our fundamental results are highly robust, both qualitatively and quantitatively.

3.3. Regression Analysis of Moody's Rating Scrutiny Patterns

This subsection models the variations in absolute term frequencies associated with our five <u>issue</u> areas across "HICs", "UMICs" and "LMICs" groups in time periods before (1999-2010), during (2011-2013) and after (2014-2021) the outbreak of the revolutions. To do so, we keep track of the country and year connected with each credit rating report, which serves as our unit of analysis. Our dependent variables are the absolute counts of terms related to each topic area in our rating reports, whereas our independent variables are country groups, time period relative to revolutions, and their interaction terms, along with the rating outlook and report type. Our model additionally controls for total term and sentence counts. The gross total term count is introduced to account for the varying report length which has expanded after the revolutions, while the total sentence count is employed to neutralize disparities in analysts' writing styles, which could lead to the use of less or more terms and/or shorter or longer sentences.

The objective of this empirical rating scrutiny exercise is to test if there are significant differences in the extent to which various issue areas are examined across country groups and relative to the revolutions period from 2011 to 2013. Because our sample of reports is unbalanced across countries and years, robust linear mixed-effects models are used to analyze the impacts of country groups and time periods on our commentary data, instead of using mixed-model or factorial ANOVA that would yield unreliable results. In addition to accommodating unbalanced samples, mixed-effects models have shown flexibility with regard to the empirical specification of fixed and random effects while establishing the direction and magnitude of the differences across categories (see for example (Antoniadis & Sapatinas, 2007; Peng & Lu, 2012; Pinheiro, 2014)). Equation (1) outlines the structure of our estimated robust linear mixed-effects regression models:

$$y_{ij} = \beta_0 + \beta_1*(country\text{-}group)_{ij} + \beta_2*(time\text{-}period)_{ij} + \beta_3*(country\text{-}group*time\text{-}period)_{ij} + \beta_4*(rating\text{-}outlook)_{ij} + \beta_5*(report\text{-}type)_{ij} + \beta_6*(word\text{-}count)_{ij} + \beta_7*(sentence\text{-}count)_{ij} + v_{i1} + v_{i2} + \varepsilon_{ij}$$ ……………………………………………………………………..………………………………… ………………………. (1)

where y is the absolute count of terms related to a specific commentary area in country (i $\in$ {1,…,13}) and report (j $\in$ {1,…,648}). $\beta_1 - \beta_7$ represent the fixed effects coefficients for the country groups, time period relative to revolutions, their interaction terms, rating outlook, credit report type and the gross counts of non-neutral terms and sentences. By specifying a variable as a fixed effect, we assume that its estimated impact does not vary across different countries.

Moreover, our mixed-effects models incorporate two random effects; one for individual countries (v_{i1}) and the other for rating scores (v_{i2}). Because of these two random intercepts, the potential impact of fixed effects parameters on term counts related to various issue areas will be allowed to differ by country and by score. Our robust linear mixed-effects models are then estimated using packages "lme4" and "robustlmm" within R enviroment (Bates, et al., 2015; Koller, 2016).

4. NAVIGATING PATTERNS OF MOODY'S RATING SCRUTINY

This section explores the key results of our robust linear mixed-effects models on the variability of different issue areas across country groups (LMICs, UMICs, and HICs) and time periods (before, during and after the outbreak of the revolution).

4.1. Moody's Scrutiny, Commentary Areas and Country Categories

Our findings suggest that Moody's scrutinizes distinct rating developments relating to different issue areas differently. By scrutiny area, Moody's has dedicated a stable weight to fiscal and sectoral factors in its credit rating reports; however, its assigned weights to economic, political and social issues have varied significantly across country groups based on income level and relative to the Arab revolutions period.

The results of Table (A2) show that the word counts underlying fiscal and sectoral issues in Moody's rating reports did not exhibit any statistically significant differences in terms of country groups, timing relative to revolutions, and their interaction terms. This means that, regardless of country group or time period, Moody's considers fiscal scrutiny to be a standard component of its sovereign ratings. Before, during and after the revolutions in HICs, UMICs and LMICs, the estimated mean of fiscal terms count has consistently evolved around 160 terms per report. Remarkably, Moody's has never adjusted its rating scrutiny of fiscal conditions in low-income countries after revolutions.

Unlike fiscal outcomes, Moody's scrutinized economic, political and social developments differently in different country groups before revolutions. While political decisions were indifferently approached by Moody's across different country groups before revolutions, economic and social developments were least scrutinized by the agency in high-income group as compared to upper and lower middle-income groups. The estimated coefficients on the country groups dummy, in Table (3), establish that HICs, relative to UMICs and LMICs, were subject to less economic and social rating scrutiny before the revolutions, with (β_{HIC}^{ECN} = -33; p < 0.01 and β_{HIC}^{SOC} = -20; p < 0.001). On average, HICs have 33 and 20 less terms related economics and

social issues in their rating reports as compared to LMICs before revolutions. Even the UMICs group enjoyed less social scrutiny of 19 terms relative to the base LMICs group before the revolutions outbreak.

Interestingly, the economic and social scrutiny advantage enjoyed by the MENA region's high-income group prior to revolutions may lend support to the theoretical argument advanced by (Mosley 2000; 2005) that CRAs use simplifying categorizations as information shortcuts to replace in-depth analysis of a country's credit risk. Using S&P rating reports, Barta & Makszin (2021) demonstrate that the agency scrutinized politics more intensively in the emerging countries group before the global financial crisis than in the developed countries group of the European Union.

4.2. Revolutions as a Game Changer of Moody's Scrutiny Policy

It was evident that the Arab upheavals of 2011 would sturdily disrupt the rating scrutiny approach Moody's had adopted for years for covering various developments related to its assessment of the MENA countries' sovereign creditworthiness. Less obvious was the speed, severity, and continuity of this scrutiny policy transformation until it matured. Our estimates of the uprisings impact on Moody's rating scrutiny suggest an exceptional re-arrangement in the aftermath of the Arab revolutions, with a resurgence of political scrutiny at the expense of economic and social commentary areas.

By numbers, the results in Table (3) confirm that the average scrutiny of political events reached an all-time high between 2011 and 2013, with an average scrutiny boost of 63 political terms per rating report, compared to any period before 2011. The intensity of political scrutiny boost was, however, disproportional across different country groups of the MENA region, with the HICs group exhibiting the least increase, followed by the UMICs group, as compared to the base group of the LMICs (compare the values of the interaction dummies of HICs and UMICs during the revolutions period).

Yet, the surge in political scrutiny was relatively compensated by declines in economic and social scrutiny. Notice that the joint drop in economic and social scrutiny did not fully match the surge in politics coverage. This rebalancing was again asymmetric across different country groups. In contrast to economic scrutiny, which witnessed a decline across all country groups, the coverage of social trends in the higher income groups (UMICs and HICs) increased with the onset of the revolutions as opposed to the huge decline of social commentary in the lower income group (LMICs).

This surge in Moody's political scrutiny across all country groups in the MENA region after the revolutions is strikingly similar to the jump in the average weight S&P used to dedicate for scrutinizing politics among transitioning, emerging and developing countries in the European Union after the financial crisis (Barta & Makszin, 2021).

4.3. The Paradigm Shifts in Moody's Scrutiny after the Revolutions

Today, a decade after the outbreak of the Arab revolutions, the region is still dealing with its long-term consequences on the rating scrutiny. The first enduring effect of the Arab upheavals on Moody's scrutiny patterns relates to the drop in economics coverage, which turned out to be permanent after the complications of revolutions have entirely subsided. This long-lasting level shift in economic scrutiny implies that the revolutions diminished the differential treatment of country groups that was prevailing before the revolutions. More specifically, the HICs in the MENA no longer enjoy their exclusive group benefits of relaxed economic scrutiny, since no significant differences in the weight of economic terms across country groups could be verified after the revolutions.

Regarding politics, the revolutions have permanently increased Moody's commentary on the political evolutions yet with a modest rebound in high-income countries after 2013. That is, the "crowding-out" effect of political scrutiny on economic scrutiny has broadly persisted in the period following the revolutions. On the social front, the relative weight Moody's assigns to social scrutiny have never increased again after the revolutions, yet HICs kept their small relative scrutiny merit over UMICs and LMICs.

To summarize our results on the impacts of revolutions on Moody's scrutiny patterns of different issue areas, we follow (Brambor, et al., 2006) and visualize the marginal mean values for each country group and time period along with their 95% confidence bands in `Figure (3)`. The political scrutiny graph depicts that in the pre-revolution years (1999-2010), the weight of political scrutiny was the lowest in the LMICs. With the outbreak of the revolutions between 2011 and 2013, the distinction between country groups almost vanished, as politics gained importance with the turmoil, especially in the LMICs group. After the revolutions, and up to the present day, attention to politics has remained high, this time among all country groups with no further distinction.

In contrast to politics, the group of HICs used to enjoy less economic and social scrutiny in the years before the revolutions. The latter have even helped to maintain this position by shifting the attention of CRAs away from economic and social analysis and toward political

scrutiny. After the revolutions, there was no comeback to the levels of economic and social scrutiny that prevailed before 2011. As a result, the revolutions have dispelled the illusions that HICs have more predictable economic and fiscal trajectories than UMICs or LMICs since the country differences have lastly disappeared.

The term counts of different issue areas also show some variations across rating outlooks. When the outlook is under revision, Moody's tends to reduce its political scrutiny in this report compared to reports with stable outlooks. Relative to stable outlooks, Moody's tends to increase its coverage of economic outcomes while rationalizes its scrutiny related to social topics. Un-expectedly, negative outlooks do not cause any deviations in Moody's scrutiny. By rating report type, results illustrate that Moody's dedicates issuer comments to highlight political manifestations while reserves issuer in-depth to investigate social and economic developments, all bench-marked to credit opinion.

Figure (4) displays our estimated random effects for the country and score levels of the economic, political and social labels. The inclusion of these random intercepts allows us to integrate country-to-country and score-to-score variability in Moody's rating scrutiny.

Our estimated coefficients clearly establish that while score variability is most important for economic scrutiny, country variability is valid across all scrutiny areas. This empirical finding validates the previously discussed problem of the difficulty to link socio-political aspects of sovereign valuations to rating outcomes. Conversely, the nexus between score variability and economic scrutiny is empirically established as per Figure (4).

Table 3. Results of the robust linear mixed-effects models on the impacts of country groups and timing relative to the revolutions on the term frequency related to economics, political and social issue areas in Moody's rating reports of the MENA region

	Dependent Variable		
	Economics	**Political**	**Social**
Fixed Effects			
Intercept	25.28* (10.74)	-41.60** (14.94)	29.35*** (5.45)
Country Group[†] (Base: LMIC)			
UMIC	-13.12 (13.51)	32.81 (20.45)	-19.01** (7.20)
HIC	-32.88** (11.38)	28.47 (17.18)	-20.04*** (5.98)
Time Period[‡] (Base: Before Revolutions)			
Onset of Revolutions	-30.00** (9.86)	62.69*** (8.62)	-27.20*** (4.68)
After Revolutions	-21.77* (8.87)	31.79*** (7.71)	-27.41*** (4.17)
Interaction: Group*Period (Base: LMIC*Before Revolution)			
UMIC * Onset of Revolutions	-4.15 (14.07)	-34.28** (12.31)	16.77* (6.72)

|			
UMIC * After Revolutions	4.70 (11.42)	-16.07 (9.95)	17.39** (5.39)
HIC * Onset of Revolutions	20.85 (11.56)	-49.38*** (10.09)	14.09* (5.47)
HIC * After Revolutions	14.58 (9.45)	-18.15* (8.17)	9.47* (4.42)
Rating Outlook (Base: Stable)			
Positive	10.03* (4.72)	-5.42 (4.18)	-5.07* (2.29)
Negative	-0.36 (2.86)	-1.72 (2.52)	-0.78 (1.38)
RUR	16.72 (8.81)	-16.63* (7.70)	-7.40 (4.46)
Report Type (Base: Credit Opinion)			
Issuer Comment	-13.28*** (3.11)	10.04*** (2.73)	2.20 (1.51)
Issuer In-Depth	4.18 (4.36)	-15.87*** (3.83)	-9.27*** (2.12)
Word Count	0.48*** (0.01)	0.20*** (0.01)	0.09*** (0.00)
Sentence Count	-0.22*** (0.05)	0.20*** (0.05)	-0.23*** (0.03)
Random Effects (Variance)			
Country	74.72	455.47	33.97
Score	137.93	44.41	8.21
Residuals	661.97	509.51	155.28
Pseudo R-Squared			
Marginal (FE)	0.98	0.95	0.85
Conditional (FE+RE)	0.99	0.98	0.88

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

† Country groups of LMICs, UMICs and HICs. ‡ Periods are before, during and after the Arab revolutions (2011-2013). Standard errors are in parentheses. Pseudo R-squared coefficients are calculated using sjstats package (Lüdecke, 2021). The analysis includes 648 reports on 13 countries of the MENA region. Model diagnostics confirm that residuals are normally distributed and there are no significant observations of high leverage as per Figure (A3).

Figure 3. Estimated marginal means and their 95% confidence bands of politics, social and economic terms by time period and country group based on the results of Table (3).
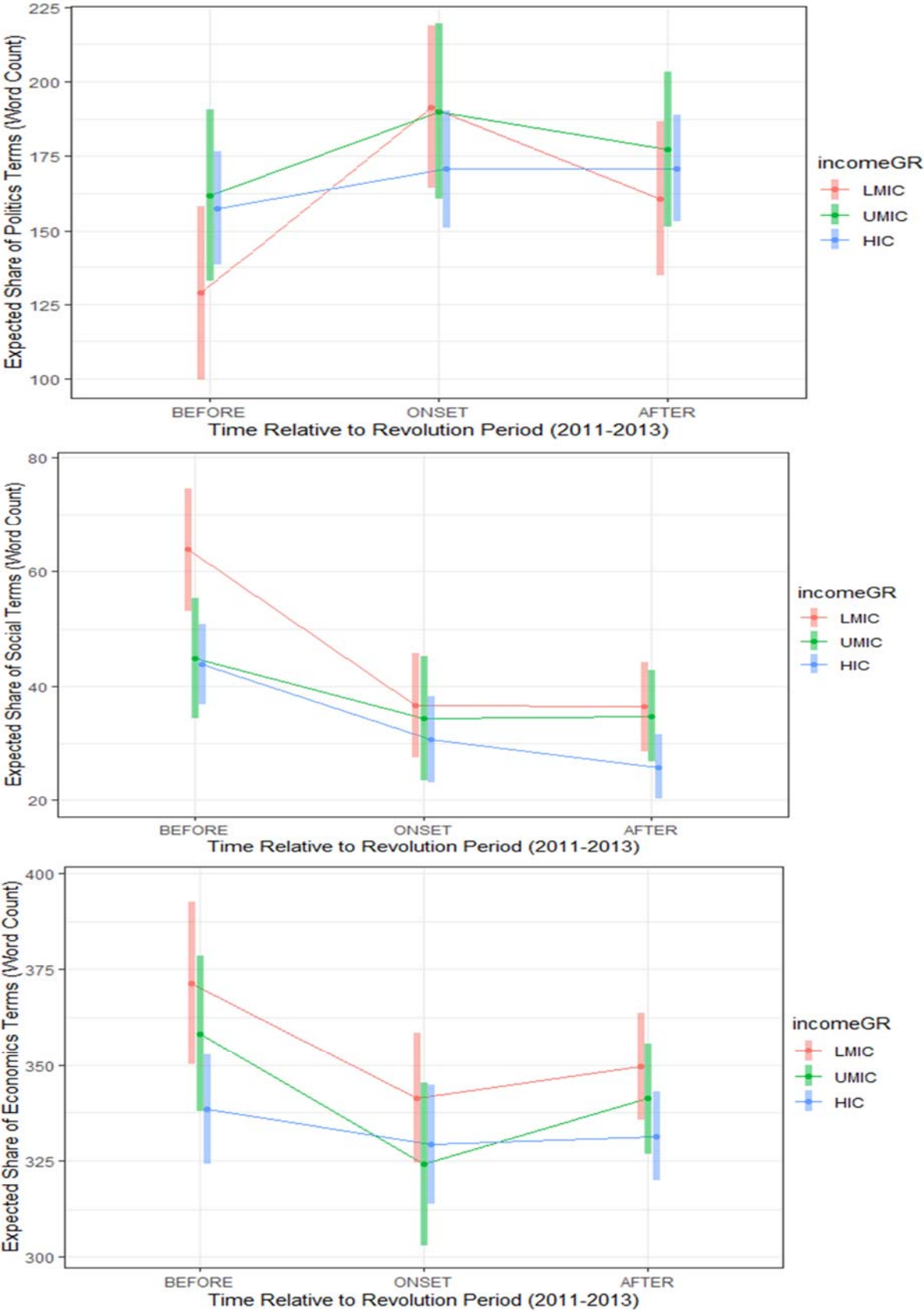
Notes: Please note the detailed results and the associated comments under Table (3).

Figure 4. Estimated random effects of country and score levels for political, social and economic terms based on the results of Table (3).
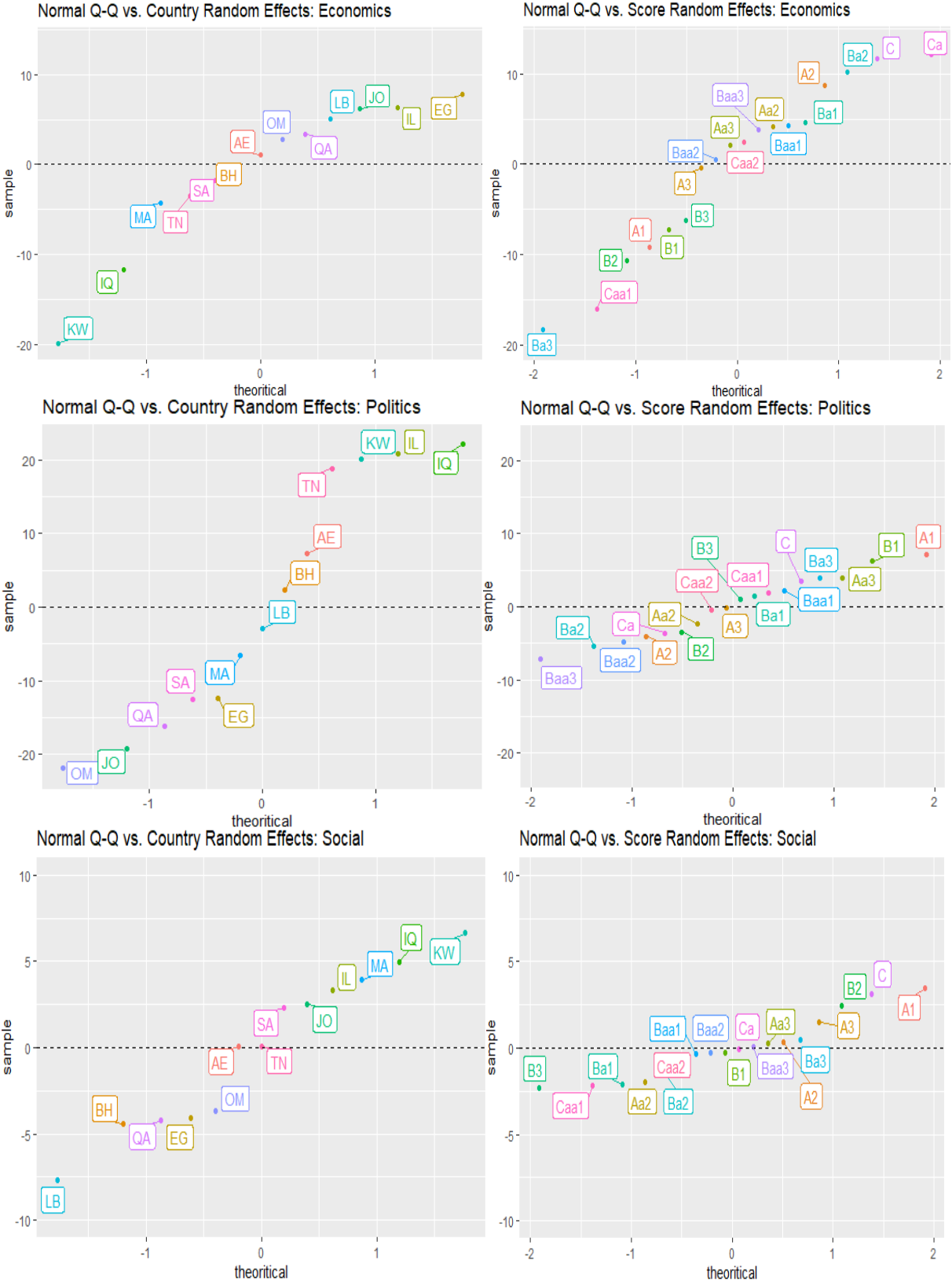
Notes: Please note the detailed results and the associated comments under Table (3).

5. CONCLUDING REMARKS

Using a bag-of-words, this paper provided an attempt to explore the possibilities offered by the wealth of information contained in unexploited sovereign rating reports to disentangle the hidden aspects of CRAs' rating scrutiny policy. This approach, despite being simple, allowed us to investigate the various scrutiny patterns of Moody's ratings across different country groups based on income and over time relative to the revolutions period in the MENA region, an analysis that would not be feasible using primary data sources alone. Nonetheless, further research is needed to uncover the massive information content of CRAs' publications, the rating views they support and the translation of all this into solid ratings and, eventually, international capital flows.

Our empirical findings demonstrate that the assessment of political and social concerns is a fundamental component of Moody's rating scrutiny strategy for the MENA region, which is strongly connected to its rating outcomes, a previously thought to be ambiguous or at most indirect. We also establish that Moody's attention to economic progressions differs across country groups and over time, with the agency selectively applying deeper economic scrutiny to LMICs before the revolution, albeit this relative immunity to the higher income group vanished after the Arab upheavals. This misalignment gives insight on how Moody's used economic scrutiny to assess the uncertainty of sovereign credit risk in various country income groups before the revolutions. In contrast, Moody's has always applied the same strict fiscal rules across all country groups, including lower middle-income countries hit by revolutions. This piece of evidence proves that Moody's applies the same fiscal shortcuts to all country groups, regardless of their income level, as a proxy for perceived uncertainty, or category membership.

The Arab revolutions have also brought unprecedented paradigm shifts to the scrutiny of sovereign ratings, with politics revived at the expense of economic and social themes. With the onset of the revolutions between 2011 and 2013, the average scrutiny of political confrontations reached its all-time high compared to any period before 2011. Today, a decade after the uprisings, Moody's still preserves its appetite for political scrutiny. The closer intensity of politics scrutiny is yet disproportional across different country groups in the MENA region, with HICs group showing the least premium after the revolutions. Again, this supports the theoretical hypothesis that rating agencies use political scrutiny disproportionately to accommodate varying levels of risk associated with various country groups, which may give high-income countries, perceived as low-risk, an exclusive group advantage of less scrutiny to their political decisions and realizations.

These results shed light on three policy-related considerations. First, individual countries in the MENA region need to understand the exact individual rating scrutiny process of their sovereign ratings in order to supplement what is lacking and improve their future ratings. Second, given that these rating scrutiny patterns are always changing, as was the case in the MENA region following the Arab revolutions, policymakers ought to vigilantly and regularly monitor such scrutiny trends to stay up with any potential shifts in rating scrutiny patterns. Third, policymakers need also to adapt with the reality that rating agencies are currently scrutinizing rating-related developments as a one-stop shop, by paying more attention not only to fiscal and economic dimensions but also to non-destructive politics and social choices; after all, this scrutiny policy showed resilience.

Table A1. Exclusive lists of commentary terms used by Moody's in credit rating reports of the MENA region in the period from 1999 to 2021

Economic Terms

"abatement", "abundant", "account", "accounts", "acquisition", "activity", "affordable", "aftermath", "agents", "aggregate", "allocation", "allocations", "anchored", "anchoring", "appreciation", "balance", "balanced", "balanceofpayments", "balances", "bankruptcy", "basket", "beneficiaries", "boom", "booming", "boosted", "boosting", "bop", "bottlenecks", "breakdown", "breakeven", "brunt", "bubble", "buoyant", "business", "capita", "capital", "captured", "card", "chamber", "chronic", "collapse", "commercial", "commodities", "commodity", "companies", "company", "competition", "competitive", "competitiveness", "conditional", "conditionality", "confidence", "consumer", "consumers", "consumes", "consumption", "contagion", "contract", "contraction", "contractors", "convergence", "copyright", "corporate", "corporates", "corporations", "cost", "costs", "counterbalanced", "countercyclical", "cpi", "crisis", "currency", "customer", "customers", "cycle", "cycles", "cyclical", "dampening", "decelerate", "decelerated", "deceleration", "deflation", "deflationary", "demand", "demands", "depreciated", "depreciation", "depressed", "dirham", "disinflation", "disparities", "disposable", "dissatisfaction", "diverging", "diverse", "diversification", "diversified", "diversify", "diversifying", "diversity", "dividend", "dividends", "dollarisation", "dollarization", "domestic", "downturn", "durable", "durably", "dynamic", "dynamics", "eased", "easing", "economic", "economically", "economies", "economy", "economys", "efficiency", "emerge", "emerging", "endowed", "endowment", "enterprise", "enterprises", "entrants", "equities", "estate", "exacerbating", "exchange", "exhausted", "export", "exporter", "exporters", "exporting", "exportoriented", "exports", "exposure", "external", "faded", "favourable", "fdi", "fed", "finance", "financed", "finances", "financial", "financing", "firm", "firms", "flexibility", "flexible", "floatation", "floating", "flotation", "fluctuate", "fluctuation", "fluctuations", "foreigncurrency", "foreignexchange", "forex", "forum", "forums", "fragmentation", "fragmented", "gain", "gains", "gdp", "goods", "gross", "grow", "growing", "growth", "headwinds", "hgrowth", "household", "households", "imbalance", "imbalances", "import", "imported", "importer", "importers", "importing", "imports", "income", "incomes", "inefficiencies", "inefficient", "inflated", "inflation", "inflationary", "inflow", "inflows", "infrastructure", "input", "inputs", "integrated", "integration", "interbank", "interest", "interests", "invest", "invested", "investment", "investments", "investor", "investors", "invests", "leverage", "libor", "liquid", "liquidity", "loss", "losses", "lossmaking", "macroeconomic", "macroprudential", "market", "marketbased", "markets", "merchandise", "mergers", "mitigates", "modern", "modernization", "monetary", "monetize", "nominal", "nonresident", "nonresidents", "offshore", "onshore", "opec", "opecs", "outbreak", "outflow", "outflows", "outlooks", "output", "overheating", "oversupply", "parity", "peaked", "peaking", "peg", "pegged", "performance", "plants", "pmi", "polarization", "portfolio", "portfolios", "ppp", "price", "prices", "pricing", "private", "produce", "producer", "producers", "produces", "producing", "product", "production", "productive", "productivity", "products", "profile", "profit", "profitability", "profitable", "property", "prosperity", "prosperous", "prudential", "purchase", "purchases", "purchasing", "rates", "recapitalization", "recapitalize", "recession", "recover", "recovered", "recovering", "recovers", "recovery", "reer", "remittance", "remittances", "renders", "rent", "rental", "rents", "repercussions", "repo", "residential", "residents", "resilience", "resiliency", "resilient", "resources", "restored", "restructure", "restructured", "restructuring", "retail", "retailers", "risk", "risks", "rivalry", "robust", "salaries", "salary", "savings", "scarcity", "segments", "service", "services", "severe", "severely", "shareholder", "shareholders", "shares", "shocks", "shortage", "shortages", "slowdown", "slump", "spike", "spillover", "spillovers", "spills", "stabilization", "stagnant", "stagnated", "stagnating", "sticky", "stock", "stocks", "structural", "subsidiaries", "supplier", "suppliers", "supplies", "supply", "surge", "susceptibility", "susceptible", "tender", "trade", "trading", "transaction", "transmission", "trough", "undercapitalized", "underinvestment", "upheaval", "utilities", "utility", "valuation", "value", "valueadded", "venture", "vhgrowth", "volatile", "volatility", "vulnerabilities", "vulnerability", "vulnerable", "wealth", "wealthy", "wef", "weighed", "weighing", "wholesale".

Fiscal Terms

"accrued", "accruing", "accumulate", "accumulated", "accumulating", "accumulation", "affordability", "amortization", "amortizations", "arrears", "asset", "assets", "auctions", "austerity", "bill", "bills", "bond", "bondholders", "bonds", "borrowers", "borrowing", "borrowings", "break", "budget", "budgetary", "budgeted", "budgeting", "budgets", "cash", "ceiling", "ceilings", "charges", "consolidate", "consolidation", "contracted", "correction", "coupon", "credit", "creditor", "creditors", "credits", "crystallization", "crystallizing", "curb", "customs", "cut", "cuts", "debt", "debtburden", "debtor", "debts", "debttogdp", "default", "defaults", "deferred", "deferrals", "deficit", "deficits", "deleveraging", "deposit", "deposited", "depositor", "depositors", "deposits", "derivatives", "disbursed", "disbursement", "disbursements", "discipline", "distress", "distressed", "downgraded", "downgrades", "downgrading", "duties", "earnings", "elevated", "eurobond", "eurobonds", "evasion", "excise", "exemptions", "expansionary", "expenditure", "expenditures", "expenses", "facilities", "facility", "fee", "fees", "financially", "fines", "fiscal", "fiscally", "fund", "funded", "funding", "funds", "grant", "grants", "hedge", "holiday", "illiquid", "imposition", "indebted", "indebtedness", "insolvency", "installment",

"issuers", "issuing", "lend", "lenders", "lending", "liabilities", "liability", "liquidation", "loan", "loans", "loosening", "mature", "maturing", "maturities", "maturity", "nonperforming", "nontax", "oneoff", "overdue", "payroll", "pledged", "premia", "procurement", "profits", "projection", "prudence", "prudent", "quotas", "rebalancing", "receipts", "refinance", "refinanced", "refinancing", "repaid", "repay", "repayment", "repayments", "rescheduled", "rescheduling", "reserve", "reserves", "revenue", "revenues", "rollover", "securities", "security", "servicing", "slippage", "slippages", "spending", "spread", "spreads", "stabilize", "standby", "subsidies", "subsidized", "subsidy", "sukok", "sukuk", "surplus", "surpluses", "tariff", "tariffs", "tax", "taxation", "taxes", "tight", "tighten", "tightening", "trajectory", "transactions", "treasury", "unrated", "upgrade", "upgraded", "upgrades", "vat", "vlvl", "vlvldebt", "waivers", "yield", "yielded", "yields".

Political Terms

"accession", "activists", "administration", "administrations", "administrative", "affairs", "agenda", "aggravated", "aggressive", "agreement", "agreements", "aid", "allayed", "allegations", "alliance", "alliances", "allies", "ambitious", "amendment", "amendments", "appeasement", "appoint", "appointed", "approval", "arising", "armed", "army", "arrangement", "arrest", "arrested", "article", "aspirations", "assassination", "assassinations", "assembly", "attack", "attacks", "auspices", "authorities", "authority", "authoritys", "authorized", "autonomous", "autonomy", "backing", "banned", "bilateral", "block", "blockade", "blocks", "bomb", "border", "borders", "boycott", "boycotted", "bribery", "bribes", "brotherhood", "bureaucracy", "bureaucratic", "capitalization", "centralized", "centrist", "challenge", "challenges", "challenging", "channels", "civil", "civilian", "clashes", "coalition", "coalitions", "commander", "commitment", "committed", "communication", "communications", "compromise", "compromises", "conflict", "conflicts", "confrontation", "confrontations", "congress", "consensus", "consensusbased", "constituent", "constitution", "constitutional", "contacts", "contested", "contracting", "cooperation", "coordination", "cornerst", "corrupt", "court", "courts", "credibility", "credible", "crown", "culture", "deadlock", "deal", "death", "deaths", "debate", "decentralization", "decree", "decrees", "defence", "defend", "defense", "deliberative", "democracy", "democratic", "demonstrations", "dependency", "depress", "deregulation", "designate", "designating", "destabilizing", "deterring", "devastating", "dialogue", "diplomatic", "disagreement", "disagreements", "dispute", "disputed", "disputes", "disrupt", "disrupted", "disrupting", "disruption", "disruptions", "disruptive", "disseminated", "dissemination", "dissent", "dissolution", "dissolve", "dissolved", "divisive", "dominance", "dominant", "dominate", "dominated", "donor", "donors", "draft", "drone", "ecb", "effort", "efforts", "elect", "elected", "election", "elections", "electoral", "electorate", "elimination", "elusive", "emergency", "emu", "enacted", "enactment", "enforcement", "entity", "envisage", "envisages", "escalate", "escalated", "escalating", "escalation", "ethnic", "ethnically", "exert", "exploitation", "exposes", "extremism", "factions", "factious", "fail", "fails", "failure", "federal", "federation", "fight", "fighters", "fleet", "forbearance", "forces", "forcing", "formation", "formulation", "fractious", "fraud", "freedom", "freeze", "frictions", "frustration", "fueled", "gcc", "geopolitical", "geopolitically", "geopolitics", "governance", "governing", "government", "governments", "governor", "gridlock", "grievances", "guarantee", "guarantees", "guatemala", "heir", "hezbollah", "hostile", "hostilities", "humanitarian", "ideological", "imf", "impediments", "inaugural", "independence", "independent", "infighting", "instability", "institutional", "institutions", "integrity", "intelligence", "intention", "intentionally", "interference", "intermediation", "internal", "interventions", "invasion", "investigation", "isis", "islamist", "islamists", "judaism", "judge", "judgement", "judicial", "judiciary", "justice", "killing", "king", "kingdoms", "lackluster", "laundering", "law", "lawmakers", "laws", "leader", "leaders", "leadership", "left", "legal", "legally", "legislate", "legislation", "legislative", "legislature", "legitimacy", "liberal", "liberalization", "majority", "mandate", "manifest", "mediating", "mediator", "mediterranean", "member", "members", "membership", "memorandum", "militancy", "militant", "militants", "military", "monarchy", "multilateral", "municipality", "named", "nato", "navy", "negotiate", "negotiating", "negotiation", "negotiations", "neighboring", "neighbors", "neighbouring", "neighbours", "normalization", "nuclear", "observers", "occupation", "occupied", "officers", "onset", "opacity", "openness", "opposition", "orthodox", "overruns", "parliament", "parliamentary", "parliaments", "participation", "parties", "party", "patronage", "peace", "peaceful", "petition", "polarized", "police", "political", "politically", "politicians", "politics", "popularity", "power", "powers", "precarious", "predictability", "predominantly", "presidency", "president", "presidential", "pressure", "pressured", "pressures", "prised", "prising", "prison", "promise", "proposal", "protest", "protesters", "protestors", "protests", "quota", "radical", "ramped", "ratification", "ratified", "reappointed", "rebels", "reconciliation", "recourse", "redemption", "referendum", "regime", "regimes", "regions", "regulated", "regulation", "regulations", "regulator", "regulators", "regulatory", "relations", "reliable", "reliance", "reliant", "relied", "relies", "religious", "religiously", "rely", "representation", "representative", "representatives", "reputation", "resignation", "resigned", "resistance", "resolute", "resolution", "resolve", "resolved", "resolving", "resort", "resorted", "rest", "restoration", "restraint", "resumption", "revolution", "revolutions", "rift", "right", "rights", "rigidities", "roadmap", "rounds", "royal", "royalties", "ruled", "ruler", "rulers", "ruling", "safe", "safety", "sanctions", "scandals", "scrutiny", "seated", "seats", "secretary", "sectarian", "secular", "secured", "securing", "sensitivity", "separation", "settlement", "settlements", "shia", "shura", "signed", "signing", "solidarity", "solution", "sovereignty", "stalemate", "state", "stepped", "stipulated", "strategic", "strategically", "strikes", "struggle", "succession", "successive", "successor", "suffrage", "summit", "supervision", "supporters", "supranational", "supreme", "suspended", "suspension", "sworn", "talks", "technocratic", "tense", "tension", "tensions", "territorial", "territories", "territory", "terror", "terrorism", "terrorist", "threat", "threaten", "threatened", "threatening", "threatens", "threats", "torah", "traction", "transparency", "treaty", "tribal", "troops", "turbulence", "turbulent", "turmoil", "turnaround", "unilaterally",

"uninterrupted", "union", "unity", "unresolved", "unrest", "unsettled", "unstable", "upheavals", "uprisings", "veto", "violence", "violent", "virtuous", "visibility", "voice", "vote", "voted", "votes", "voter", "voters", "war", "warned", "wars", "weapons", "wgi", "white", "willingness", "wing".

Social Terms

"aging", "citizens", "communities", "community", "cooperative", "coronavirus", "corruption", "council", "curfew", "demographic", "demographics", "desalination", "distribute", "distribution", "drought", "droughts", "educated", "education", "educational", "employed", "employee", "employees", "employer", "employers", "employment", "entrepreneurship", "equity", "esg", "expat", "expatriate", "expatriates", "female", "food", "gender", "generations", "geographic", "geographical", "geographically", "girl", "girls", "health", "healthcare", "healthy", "housing", "inclusion", "inclusive", "inequalities", "inequality", "informal", "insurance", "labor", "labour", "liberalisation", "liberalization", "lockdown", "lockdowns", "medical", "migration", "minority", "mortgage", "mortgages", "mother", "municipal", "nationalisation", "nationalization", "pandemic", "parent", "pension", "pensions", "phased", "phasing", "phasingout", "poor", "poverty", "privatesector", "privatisation", "privatisations", "privatization", "privatizations", "privatized", "privatizing", "protect", "protected", "protecting", "protection", "public", "publicsector", "rainfall", "rationalization", "rationalize", "recruiting", "refugee", "refugees", "regionalization", "repatriation", "retirement", "rice", "rural", "skill", "skilled", "skills", "social", "societal", "society", "socio", "socioeconomic", "soe", "startup", "stateowned", "strike", "targeting", "tobacco", "transfer", "transfers", "unemployed", "unemployment", "unions", "unskilled", "urban", "virus", "vocational", "wage", "wages", "waste", "wastewater", "water", "welfare", "wheat", "woman", "women", "worker", "workers", "workforce", "zone", "zones".

Sectoral Terms

"aeronautics", "aerospace", "agricultural", "agriculture", "airline", "airport", "airports", "airways", "alcohol", "aluminium", "aluminum", "automobile", "automotive", "aviation", "bank", "banking", "banks", "banque", "barrel", "barrels", "beverages", "brent", "carbon", "cement", "clean", "climate", "coal", "concessions", "construction", "crude", "cultivation", "depleted", "depletion", "diesel", "downstream", "electric", "electricite", "electricity", "electricité", "electronic", "electronics", "energy", "environment", "environmental", "equipment", "factory", "feedstock", "fertility", "fertilizers", "fisheries", "fishing", "flight", "flights", "freight", "fuel", "fuels", "gas", "gasoline", "gold", "hightech", "hospitals", "hotel", "hotels", "house", "hydrocarbon", "hydrocarbons", "industrial", "industrialized", "industries", "industry", "irrigation", "liquefied", "liquids", "logistics", "machinery", "manufacture", "manufactured", "manufacturing", "mega", "megaprojects", "metro", "mineral", "mines", "mining", "nonhydrocarbon", "nonoil", "nonrenewable", "nonrenewables", "octane", "oil", "oilfield", "omissions", "organic", "petrochemical", "petrochemicals", "petrol", "petroleum", "pharmaceuticals", "phosphate", "phosphates", "port", "ports", "quarrying", "railway", "reconstruction", "refineries", "refinery", "renewable", "renewables", "residency", "restaurants", "roads", "sea", "shipments", "shipping", "solar", "tech", "technological", "technologies", "technology", "telecom", "telecommunications", "telecoms", "textile", "textiles", "tourism", "tourist", "tourists", "trains", "transport", "transportation", "upstream", "vehicle", "vehicles", "visa", "wind", "windfall", "windfalls".

Notes: The unique terms reported in our commentary lists have at least appeared 10 times across all our 648 Moody's sovereign credit rating reports of the MENA region between 1999 and 2021. The qualitative coding routine proposed by Barta & Makszin (2021) is used to categorize the resulting list of terms into one of the commentary areas; economic, fiscal, political, social and sectoral. We conduct two independent qualitative coding of the resulting list of terms to determine whether they relate to economic, political, fiscal, social or sectoral subjects, or they are just neutral. Prior to coding, each reader reviewed at least 100 random reports to become familiar with the terminology Moody's employs in their rating reports.

Table A2. Results of the robust linear mixed-effects models on the impact of country groups and timing relative to the revolutions on the frequency of terms related to fiscal and sectoral areas in Moody's rating reports of the MENA region.

	Dependent Variable	
	Fiscal	**Sectoral**
Fixed Effects		
Intercept	1.78 (11.03)	-9.73 (9.64)
Country Group[†] (Base: LMIC)		
UMIC	-1.83 (14.63)	6.91 (13.17)
HIC	6.10 (12.26)	21.40 (11.06)
Time Period[‡] (Base: Before Revolution)		
Onset of Revolution	-9.16 (8.44)	2.57 (5.68)
After Revolution	6.14 (7.60)	4.07 (5.12)
Interaction: Group*Period (Base: LMIC*Before)		
UMIC*Onset	21.21 (12.07)	2.23 (8.13)
UMIC*After	4.79 (9.80	-4.11 (6.59)
HIC*Onset	9.26 (9.90)	4.81 (6.66)
HIC*After	9.19 (8.07)	-9.45 (5.42)
Rating Outlook (Base: Stable)		
Positive	2.75 (4.09)	3.35 (2.76)
Negative	2.13 (2.47)	-0.77 (1.67)
RUR	13.87 (7.57)	-9.58 (5.10)
Report Type (Base: Credit Opinion)		
Issuer Comment	-6.94** (2.67)	4.64** (1.80)
Issuer In-Depth	14.88*** (3.75)	1.09 (2.55)
Word Count	0.17*** (0.01)	0.06*** (0.00)
Sentence Count	0.16*** (0.04)	0.12*** (0.03)
Random Effects (Variance)		
Country	167.92	185.67
Score	55.89	19.48
Residuals	490.61	223.61
Pseudo R-squared		
Marginal (FE)	0.96	0.86
Conditional (FE+RE)	0.97	0.93

*** p <0.001, ** p <0.01, * p <0.05

† Country groups of LMICs, UMICs and HICs. ‡ Periods are before, during and after the Arab revolutions (2011-2013). Standard errors are in parentheses. Pseudo R-squared coefficients are calculated using sjstats package (Lüdecke, 2021). The analysis includes 648 reports on 13 countries of the MENA region. Model diagnostics confirm that residuals are normally distributed and there are no significant observations of high leverage as per Figure (A3).

Figure A1. Extracted word clouds of fiscal, sectoral and social labels

(a) Word cloud of fiscal terms

**(b) Word cloud of sectoral terms**


(c) Word cloud of social terms

Notes: In the word clouds, the terms that appear more frequently in Moody's rating reports are given more importance, as indicated by larger font size. To keep the plots readable, only words with a frequency greater than 150 times are included in the reported word clouds.

Figure A2. Examples of term correlations of Moody's frequently used terms

(a) Correlations with "debt"	(b) Correlations with "institutions"
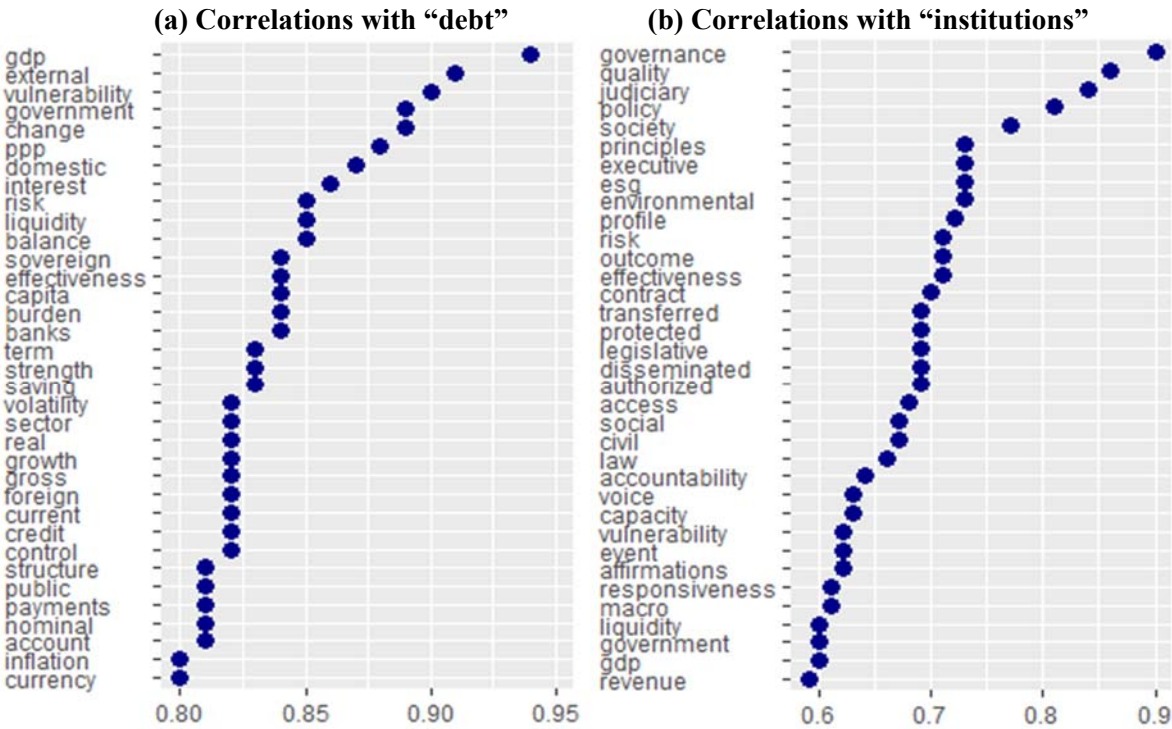
Notes: Correlated terms are represented in the vertical axis of the correlation plots, while the degree of correlation is plotted in the horizontal axis, with values ranging from 0 to 1.

Figure A3. Diagnostic plots of robust linear mixed-effects models of economic, political and social labels reported in Table (3)
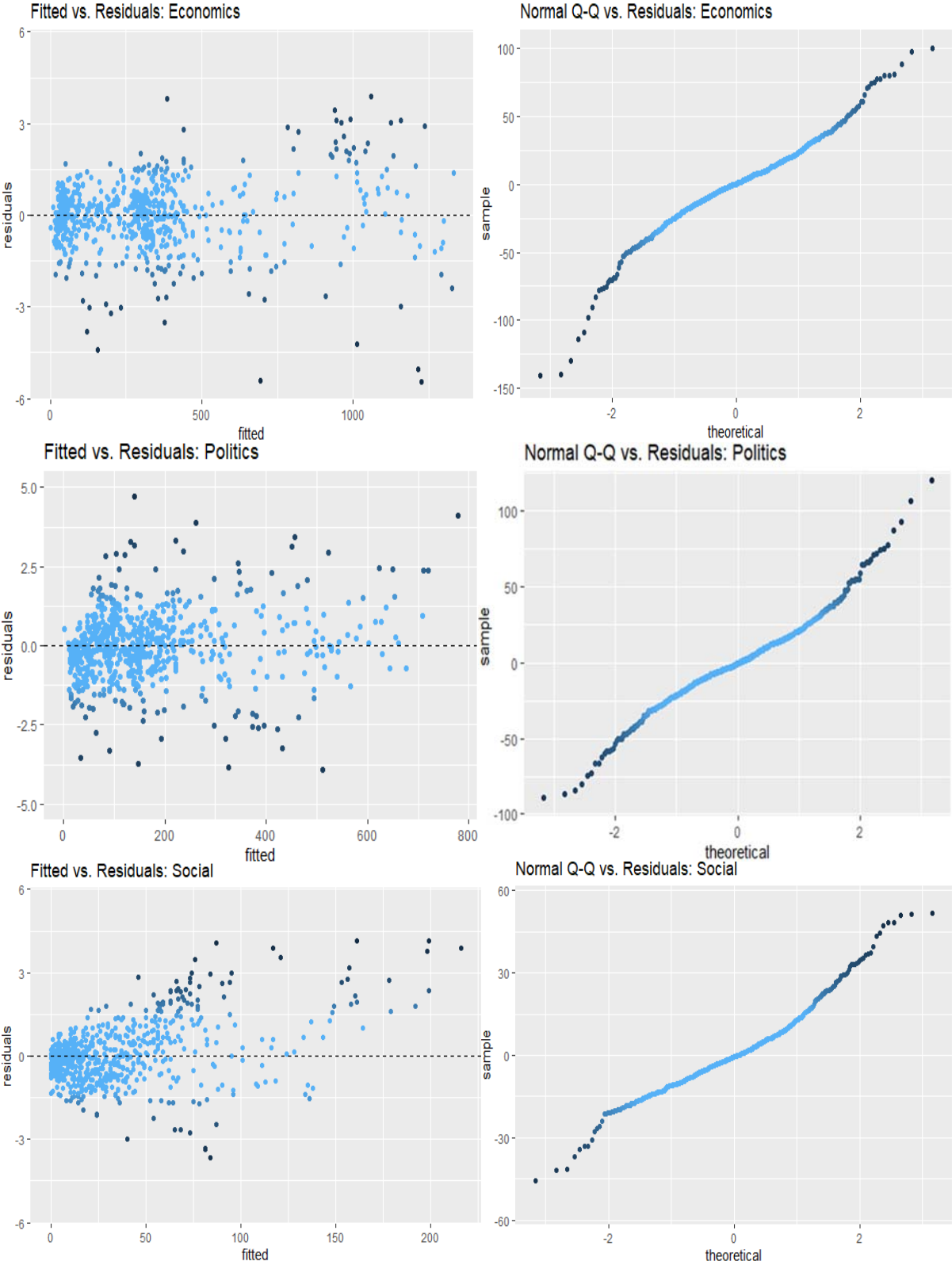
Notes: Residuals vs. fitted values plot and normal Q-Q plot of residuals for the robust linear mixed-effects models of economic, political and social labels reported in Table (3).

References

Abdelal, Rawi, Mark Blyth, Alexander Cooley, and Jack Snyder. 2015. «Just Who Put You in Charge? We Did: CRAs and the Politics of Ratings.» *Ranking the World: Grading States as a Tool of Global Governance* 39-59.

Afonso, Antonio. 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, Michael Arghyrou, George Bagdatoglou, and Alexandros Kontonikas. 2015. «On the Time-Varying Relationship Between EMU Sovereign Spreads and their Determinants.» *Economic Modelling* 44: 363-371.

Afonso, António, Pedro Gomes, and Philipp Rother. 2010. «Short-and Long-Run Determinants of Sovereign Debt Credit Ratings.» *International Journal of Finance and Economics* 16 (1): 1-15.

Aloquili, A. 2014. *Estimation of Credit Rating Models: Case Study for MENA Countries and their Commercial Banks.* Coventry University.

Alp, Aysun. 2013. «Structural Shifts in Credit Rating Standards.» *The Journal of Finance* 68 (6): 2435-2470.

Antoniadis, Anestis, and Theofanis Sapatinas. 2007. «Estimation and Inference in Functional Mixed-Effects Models.» *Computational Statistics & Data Analysis* 51 (10): 4793-4813.

Aras, Osman Nuri, and Mustafa Öztürk. 2018. «The Effect of the Macroeconomic Determinants on Sovereign Credit Rating of Turkey.» *Journal of Management, Economics, and Industrial Organization* 2 (2): 62-75.

Archer, Candace C., Glen Biglaiser, and Karl DeRouen Jr. 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.

Baldacci, Emanuele, Sanjeev Gupta, and Amine Mati. 2011. «Political and Fiscal Risk Determinants of Sovereign Spreads in Emerging Markets.» *Review of Development Economics* 15 (2): 251-263.

Bannier, Christina E., and Christian W. Hirsch. 2010. «The Economic Function of Credit Rating Agencies – What Does the Watchlist Tell Us?» *Journal of Banking and Finance* 34 (12): 3037-3049.

Barr, Dale, Roger Levy, Christoph Scheepers, and Harry Tily. 2013. «Random Effects Structure for Confirmatory Hypothesis Testing: Keep It Maximal.» *Journal of Memory and Language* 68 (3): 255-278.

Barta, Zsófia, and Alison Johnston. 2018. «Rating Politics? Partisan Discrimination in Credit Ratings in Developed Economies.» *Comparative Political Studies* 51 (5): 587-620.

Barta, Zsófia, and Alison Johnston. 2020. «Entitlements in the Crosshairs? How Sovereign Credit Ratings Shape Market Reactions to Policy Choice in Advanced Industrial Countries.» *Review of International Political Economy* 1-27.

Barta, Zsófia, and Kristin Makszin. 2021. «The Politics of Creditworthiness: Political and Policy Commentary in Sovereign Credit Rating Reports.» *Journal of Public Policy* 41 (2): 307-330.

Barton, Kamil. 2019. «MuMIn: Multi-Model Inference.» *MuMIn: Multi-Model Inference* 1.

Bates, Douglas, Martin Mächler, Ben Bolker, and Steve Walker. 2015. «Fitting Linear Mixed-Effects Models Using lme4.» *Journal of Statistical Software* 67 (1): 1-48.

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

Beers, David. 2006. *Sovereign Credit Ratings: A Primer.* New York : Standard and Poor'.

Benoit, Kenneth, Kohei Watanabe, Haiyan Wang, Paul Nulty, Adam Obeng, Stefan Müller, and Akitaka Matsuo. 2018. «quanteda: An R Package for the Quantitative Analysis of Textual Data.» *Journal of Open Source Software* 3 (30): 774.

Benoit, Kenneth, and Alexander Herzog. 2017. «Text Analysis: Estimating Policy Preferences from Written and Spoken Words.» *Analytics, Policy and Governance* 137--159.

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.

Botha, Ilse, and Marinda Pretorius. 2020. «The Geographical and Income Differences in the Determinants of African Sovereign Credit Ratings.» *African Journal of Economic and Management Studies* 11 (4): 609-624.

Brambor, Thomas, William Clark, and Matt Golder. 2006. «Understanding Interaction Models: Improving Empirical Analyses.» *Political Analysis* 14 (1): 63-82.

Brooks, Sarah, Raphael Cunha, and Layna Mosley. 2015. «Categories, Creditworthiness, and Contagion: How Investors' Shortcuts Affect Sovereign Debt Markets.» *International Studies Quarterly* 59 (3): 587-601.

Bruner, Christopher, and Rawi Abdelal. 2005. «To Judge Leviathan: Sovereign Credit Ratings, National Law, and the World Economy.» *Journal of Public Policy* 25 (2): 191-217.

Carlin, Wendy, and David Soskice. 2009. «German Economic Performance: Disentangling the Role of Supply-Side Reforms, Macroeconomic Policy and Coordinated Economy Institutions.» *Socio-Economic Review* 7 (1): 67-99.

Carruthers, Bruce. 2013. «From Uncertainty Toward Risk: The Case of Credit Ratings. » *Socio-Economic Review* 11 (3): 525-551.

Chee, Soh Wei, Cheng Fan Fah, and Annuar Md. Nassir. 2015. «Macroeconomics Determinants of Sovereign Credit Ratings.» *International Business Research* 8 (2): 42-50.

Chen, Sheng-Syan, Hsien-Yi Chen, Chong-Chuo Chang, and Shu-Ling Yang. 2016. «The Relation Between Sovereign Credit Rating Revisions and Economic Growth.» *Journal of Banking and Finance* 64: 90-100.

Cuadra, Gabriel, and Horacio Sapriza. 2008. «Sovereign Default, Interest Rates and Political Uncertainty in Emerging Markets.» *Journal of International Economics* 76 (1): 78-88.

Cuadros-Solas, Pedro Jesús, and Carlos Salvador Muñoz. 2022. «Disentangling the Sources of Sovereign Rating Adjustments: An Examination of Changes in Rating Policies following the GFC.» *Research in International Business and Finance* 59: 101535.

Dimitrijevic, Alexandra. 2013. *Sovereign Government Rating Methodology And Assumptions.* Paris: Standard and Poor's.

Easterly, William, and Sergio Rebelo. 1993. «Fiscal Policy and Economic Growth: An Empirical Investigation.» *NBER.*

Eichler, Stefan. 2014. «The Political Determinants of Sovereign Bond Yield Spreads.» *Journal of International Money and Finance* 46: 82-103.

Engen, Eric, and Jonathan Skinner. 1996. «Taxation and Economic Growth.» *NBER.*

Feinerer, Ingo and Hornik, Kurt and Meyer, David. 2008. «Text Mining Infrastructure in R.» *Journal of Statistical Software* 1--54.

Feinerer, Ingo, and Kurt Hornik. 2020. »tm: Text Mining Package.« *Journal of Statistical Software* .

Feldstein, Martin. 1986. «Supply-Side Economics Old Truths and New Claims.» *NBER.*

Garrett, Geoffrey, and Peter Lange. 1991. «Political Responses to Interdependence: What's Left For the Left?» *International organization* 45 (4): 539 - 564.

Haddad, Mahmoud, and Sam Hakim. 2007. «The Cost of Sovereign Lending in the Middle East after September 11.» *Journal for Global Business Advancement* 1 (1): 127-139.

Haddad, Mahmoud, and Sam Hakim. 2008. «The Impact of War and Terrorism on Sovereign Risk in the Middle East.» *Journal of Derivatives and &Hedge Funds* 14 (3): 237-250.

Haque, Nadeem U., Nelson Mark, and Donald J. Mathieson. 1998. *The Relative Importance of Political and Economic Variables in Creditworthiness Ratings.* IMF.

Hilscher, Jens, and Yves Nosbusch. 2010. «Determinants of Sovereign Risk: Macroeconomic Fundamentals and the Pricing of Sovereign Debt.» *Review of Finance* 14 (2): 235-262.

Hwang, Daniel, and Yongjun Kim. 2020. «Revisiting the Time-Varying Credit Rating Policy: A New Test of Procyclicality.» *Applied Economics Letters* 27 (10): 810-815.

Kenourgios, Dimitrios, Zaghum Umar, and Paraskevi Lemonidi. 2020. «On the Effect of Credit Rating Announcements on Sovereign Bonds: International Evidence.» *International Economics* 163: 58-71.

Kiff, John, A Holland, M Kisser, S Nowak, S Saab, L Schumacher, H van der Hoorn, and AM Westin. 2010. «The Uses and Abuses of Sovereign Credit Ratings.» *In Global Financial Stability Report* (International Monetary Fund) 85–123.

Koller, Manuel. 2013. «Robust Estimation of Linear Mixed Models.» *Diss., ETH Zürich, Nr. 20997.*

Koller, Manuel. 2016. «robustlmm: An R Package for Robust Estimation of Linear Mixed-Effects Models.» *Journal of Statistical Software* 75 (1): 1-24.

Kuznetsova, Alexandra, Per B. Brockhoff, and Rune H. B. Christensen. 2017. «lmerTest Package: Tests in Linear Mixed Effects Models.» *Journal of Statistical Software* 82 (13): 1–26.

Lenth, Russell V., Paul Buerkner, Maxime Herve, Jonathon Love, Hannes Riebl, and Henrik Singmann. 2021. «emmeans: Estimated Marginal Means, aka Least-Squares Means.» *The American Statistician.*

Lüdecke, Daniel. 2021. «sjstats: Statistical Functions for Regression Models (Version 0.18.1).» doi:10.5281/zenodo.1284472.

Luke, Steven G. 2017. «Evaluating Significance in Linear Mixed-effects Models in R. Behavior Research Methods.» *Behavior research methods* 49 (4): 1494-1502.

Montes, Gabriel Caldas, and Julyara Costa. 2020. «Effects of Fiscal Credibility on Sovereign Risk: Evidence Using Comprehensive Credit Rating Measures.» *International Journal of Emerging Markets.*

Moser, Christoph. 2007. «The impact of political risk on sovereign bond spreads-evidence from Latin America.»

Mosley, Layna. 2005. «Globalisation and the State: Still Room to Move?» *New Political Economy* 10 (3): 355-362.

Mosley, Layna. 2000. «Room to Move: International Financial Markets and National Welfare States.» *International Organization* 54 (4): 737-773.

Mutize, Misheck, and Sean J. Gossel. 2019. «Sovereign Credit Rating Announcement Effects on Foreign Currency Denominated Bond and Equity Markets in Africa.» *Journal of African Business* 20 (1): 135-152.

Naifar, Nader. 2020. «What Explains the Sovereign Credit Default Swap Spreads Changes in the GCC Region?» *Journal of Risk and Financial Management* (Journal of Risk and Financial Management) 13 (10).

Paudyn, Bartholomew. 2013. «Credit Rating Agencies and the Sovereign Debt Crisis: Performing the Politics of Creditworthiness through Risk and Uncertainty.» *Review of International Political Economy* 20 (4): 788-818.

Peng, Heng, and Ying Lu. 2012. «Model Selection in Linear Mixed Effect Models.» *Journal of Multivariate Analysis* 109: 109-129.

Pretorius, Marinda, and Ilsé Botha. 2017. «The Determinants of Sovereign Credit Ratings in Africa: A Regional Perspective.» *Advances in Applied Economic Research* 549-563.

Rawi, Abdelal, and Mark Blyth. 2015. «Just Who Put You in Charge? We Did: Credit Rating Agencies and the Politics of Ratings.» *Ranking the World: Grading States as a Tool of Global Governance* 39-59.

Reusens, Peter, and Christophe Croux. 2017. «Sovereign Credit Rating Determinants: A Comparison Before and After the European Debt Crisis.» *Journal of Banking and Finance* 77: 108-121.

Robert E. Lucas, Jr., Robert E Lucas, and Max Gillman. 2012. «Supply-Side Economics: An Analytical Review.» I *Collected Papers on Monetary Theory*, af Jr Robert E. Lucas, 331-360. Harvard University Press.

Rodrik, Dani. 2000. «How Far Will International Economic Integration Go?» *Journal of Economic Perspectives* 14 (1): 177-186.

—. 2011. *The Globalization Paradox: Why Global Markets, States, and Democracy Can't Coexist.* Oxford: Oxford university Press.

Ross, Fiona. 2000. «'Beyond Left and Right': The New Partisan Politics of Welfare.» *Governance World Politics* 13: 155-183.

Sinclair, Timothy. 2005. *The New Masters of Capital.* Ithaca: Cornell University Press.

Strange, Susan. 1996. *The Retreat of the State: The Diffusion of Power in the World Economy.* Cambridge: Cambridge University Press.

Teixeira, João C.A., Francisco J.F. Silva, Manuel B.S. Ferreira, and José A.C. Vieira. 2018. «Sovereign Credit Rating Determinants Under Financial Crises.» *Global Finance Journal* 36: 1-13.

Tennant, David F., Marlon R. Tracey, and Damien W. King. 2020. «Sovereign Credit Rating: Evidence of Bias Against Poor Countries.» *The North American Journal of Economics and Finance* 51.

Uslu, Çağrı L. 2017. «Examining the Behavior of Credit Rating Agencies Post 2008 Economic Turmoil.» *International Journal of Management and Economics* 53 (4): 61-76.

Vu, Huong, Rasha Alsakka, and Owain ap Gwilym. 2017. «What Drives Differences of Opinion in Sovereign Ratings? The Roles of Information Disclosure and Political Risk.» *International Journal of Finance & Economics* 22 (3): 216-233.

Wiemken, James. 2009. *Understanding Standard & Poor's Rating Definitions.* New York: Standard and Poor's.