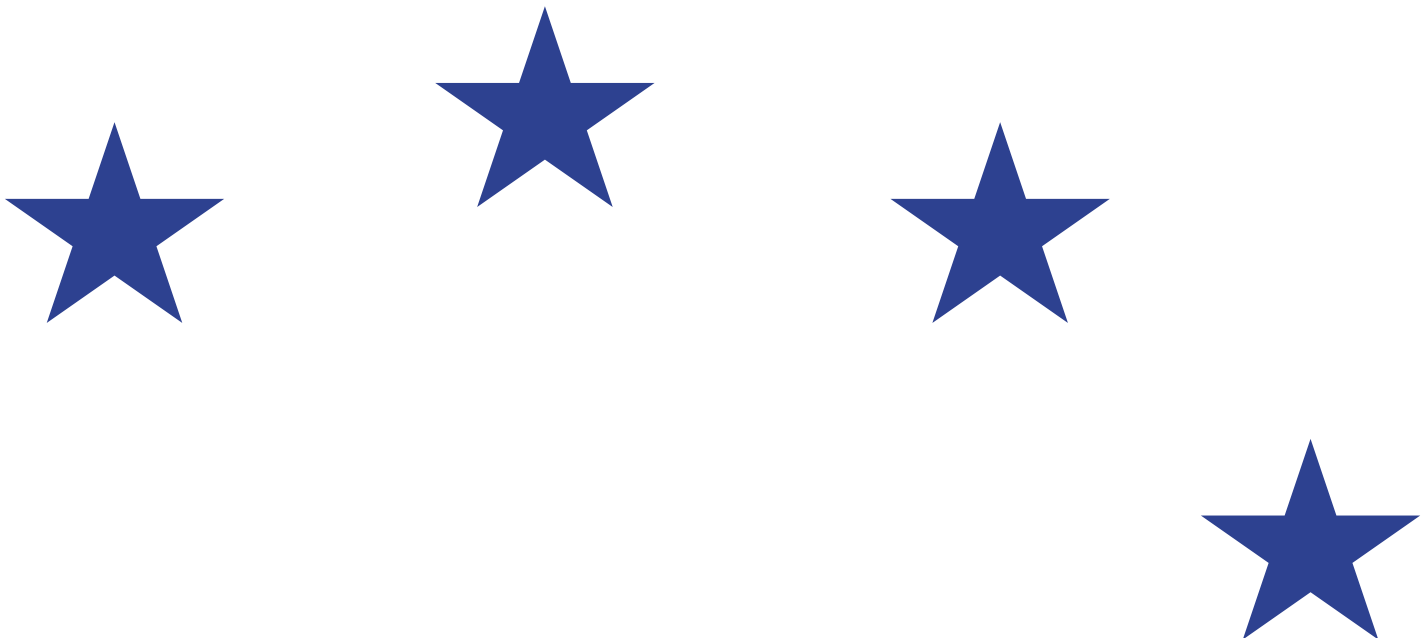




TRV Risk
Analysis

Text mining ESG disclosures in rating agency press releases



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Investor Protection

Text mining ESG disclosures in rating agency press releases

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Summary

Investor interest in sustainable finance has grown exponentially in recent years. With this in mind, some credit rating agencies (CRAs) have sought to become more transparent as to how environmental, social, and governance (ESG) factors are integrated into their credit ratings. To ensure a consistent level of transparency for investors on ESG issues, on 30 March 2020 ESMA began to apply Guidelines for how and when CRAs' considerations of ESG factors are disclosed in credit rating press releases. This article assesses the implementation of these Guidelines, as also envisaged in the European Commission's Renewed Sustainable Finance Strategy. We apply natural language processing techniques to a unique dataset of over 64,000 CRA press releases published between 1 January 2019 and 30 December 2020. We find that the overall level of ESG disclosures in CRAs' press releases has increased since the introduction of the Guidelines. However, there is clearly room for further improvement: the level of ESG disclosures differs significantly across both CRAs and ESG factors (especially environmental topics). Moreover, we observe divergences in CRAs' disclosures even for rated entities that are highly exposed to ESG factors, relative to their sector peers.

Introduction²

Growing investor interest in ESG factors

The growth of sustainable investing has been one of the major trends in financial markets in recent years. In just the first half of 2021, EU sustainable fund assets increased by 20%, to EUR 1.5 tn, marking the 39th consecutive month of net inflows for these funds.³ This trend reflects the increasing appetite of investors and professional market participants to incorporate environmental, social and governance (ESG) factors into their decision making.

Investors such as portfolio managers utilise a wide range of data sources and tools to support their decision-making. These include credit

ratings, which provide an assessment of the credit risk of financial and non-financial issuers and their instruments. With this in mind, credit rating agencies (CRAs) have sought to meet the soaring investor interest in ESG factors by becoming more transparent as to how these factors are integrated into their credit ratings (ESMA, 2018).

CRA disclosure inconsistencies and ESMA's CRA ESG Guidelines

Credit ratings, and the agencies that issue those ratings, are subject to the Credit Rating Agencies Regulation (CRAR).⁴ The CRAR includes a number of requirements relating to the disclosure and presentation of credit ratings. Their purpose is to enable investors to understand the key drivers and assumptions for the credit rating, any limitations underpinning the credit rating and

¹ This article was written by Adrien Amzallag, Marco Levi, and Michalis Vasios. The authors thank Claudia Guagliano, Steffen Kern, Elisabeth van Laere and Julien Mazzacurati for helpful comments and suggestions. All remaining errors are our own.

² A near-final draft of this article was shared with all ESMA-supervised CRAs included in the data sample for a check of any factual errors or inconsistencies.

³ This estimation concerns funds identified using Morningstar's definition of "Sustainable Investment". See ESMA (2021), [Report on Trends, Risks and Vulnerabilities, No. 2](#).

⁴ [Regulation \(EC\) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies](#).

references to where other relevant information can be found. However, in 2018 ESMA noted that there are inconsistencies in how CRAs comply with these disclosure requirements (ESMA, 2018). These inconsistencies lead to problems of transparency and reduce the value of the (publicly disclosed) press release, which accompanies the issuance of a credit rating.

With these inconsistencies in mind, in July 2019 ESMA issued Guidelines that seek to improve the quality and consistency of the information disclosed in credit rating press releases (ESMA 2019). Given the increased focus on ESG factors within investment decisions, an additional goal of these guidelines is to ensure greater transparency around the consideration of ESG factors, where they are material to a credit rating action.

In particular, the Guidelines indicate that, where ESG factors have been key drivers behind a change to the credit rating or rating outlook, CRAs are expected to:

- identify the relevant factors;
- elaborate on their materiality; and
- include a reference to where an explanation of how ESG factors are considered as part of the credit rating process can be found (e.g. a reference to their credit rating methodologies).

The Guidelines began to apply on 30 March 2020.

Wider context and the EU's Strategy for a Sustainable Economy

The Guidelines on ESG disclosures help support ESMA's investor protection mandate. The Guidelines seek to balance, on one hand, the scope and legal basis of the CRAR⁵ and, on the other hand, the heightened interest among EU policymakers and the investment community in greater visibility and transparency on ESG considerations in credit ratings.⁶ As such, the ESMA Guidelines focused on improving how CRAs' considerations relating to ESG factors are disclosed when such factors are a key underlying element of a credit rating action. However, the Guidelines neither mandate nor recommend that

ESG factors be considered by CRAs in their creditworthiness assessments.

Elsewhere, in its July 2021 Strategy for Financing the Transition to a Sustainable Economy⁷, the European Commission, noted that "*stakeholders continue to express concerns around the lack of transparency on how credit rating agencies incorporate sustainability factors in their methodologies ...*" Moreover, the Commission noted that ESMA would further assess the implementation of the Guidelines. The Commission also indicated that, subject to ESMA's assessment, it would take action to improve transparency and ensure the inclusion of relevant ESG factors in credit ratings and credit outlooks, while ensuring methodological transparency.

Assessing the Guidelines' effectiveness

This article presents evidence gathered by ESMA as part of its assessment of the implementation of the Guidelines. Its objectives are threefold. First, to evaluate the extent of ESG disclosures in credit rating press releases in the period immediately preceding and following the introduction of the Guidelines. Second, to compare the ESG disclosures of different CRAs. Third, to assess the Guidelines' effectiveness in improving overall transparency for investors and the wider public.

The article applies natural language processing (NLP) techniques to a large set of credit rating press releases and reports provided to ESMA by CRAs, as required under the CRAR.⁸ We examine 64 254 unique press releases and reports published by a representative sample of EU CRAs from 1 January 2019 to 31 December 2020. The sample of CRAs includes the three largest and three small and medium-sized CRAs, whose combined rating activity accounts for over 90% of the total rating activity of EU-registered CRAs in this period.

This article aims to contribute to the field of natural language processing that is applied to financial document analysis. For example, Loughran and McDonald (2011), Bodnaruk, Loughran and McDonald (2015), and Hoberg and Maksimovic (2015) develop automated text-

⁵ As an illustration of the legal basis that ESMA must respect, Article 23 of the CRAR prevents ESMA, the European Commission or any public EU or Member State authority from interfering with the content of credit ratings or methodologies.

⁶ [COM\(2018\) 97 final](#). See Section 3.1 in particular.

⁷ [COM\(2021\) 390 final](#). See Section III in particular.

⁸ Press releases or reports are the main documents published by the CRAs when announcing a credit rating. These documents should contain, among other elements, the key elements underlying the credit rating action, the principal methodology used in determining the rating, a sensitivity analysis and the date of the first release of the rating.

mining algorithms to measure the tone in annual company financial disclosures. Bodnaruk et al. (2015) show that the tone of financial text captures subtle signs that the company will face greater future financial constraints. In terms of ESG considerations, Loughran, McDonald and Yun (2009), Verbeeten, Gamerschlag and Möller (2016), and Baier, Berninger and Kiesel (2020) all use natural language processing to identify ESG-related terms in financial documents, such as annual reports and corporate social responsibility disclosures.

These papers demonstrate that the choice of words in financial documents can convey important information to investors, including ESG-related investment considerations. These findings also help motivate the specific impact assessment framework presented in this article.

The main contributions of our article to the existing literature are twofold. First, we create a text-mining ESG algorithm tailored to credit ratings disclosures. Second, we apply this algorithm toward assessing the implementation of EU regulation in the area of CRAs. In this way, our analysis seeks to contribute to ESMA's work to promote investor protection and in this instance its supervisory activities.

The next section introduces the dataset and methodology used for conducting this assessment. Subsequent sections present noteworthy results on the Guidelines' implementation, including benchmarking CRAs' relative intensity of ESG disclosures against other ESG metrics. The final section discusses lessons learned from this type of analysis, policy implications, and research extensions.

Dataset and methodology

Assembling over 64,000 press releases

The analysis in this article relies primarily on information contained in the European Rating Platform (ERP), which by law has been collecting information on credit ratings on all outstanding instruments and issuers since 1 July 2015.⁹ The ERP dataset includes information on every rating action taken by EU-registered and certified CRAs¹⁰ on each instrument and issuer rating. The ERP contains information on the rating action, including the type of action (e.g. downgrade, upgrade), the rating issuance date and the rating notch value (e.g. AAA, BB+). The ERP also includes information on the rated instrument (e.g. the ISIN code, the issuance date, and the maturity date), and the rated issuer (e.g. the industry and Legal Entity Identifier). Crucially, the ERP includes the press releases and reports (thereafter "press releases") associated with each rating action.¹¹

In order to examine the impact of the ESMA Guidelines on CRAs' ESG disclosure practices, we focus on the period around the Guidelines' date of entry into force on 30 March 2020. Therefore, we consider CRA press releases published from 1 January 2019 up to 31 December 2020.¹² This results in a rich dataset to support our analysis.

Table 1 below provides an overview of the size of our final dataset, broken down by asset category, and issuance date (i.e. before or after the Guidelines' implementation). We focus on press releases relating to any type of credit rating action (i.e. upgrades, downgrades, new ratings and outlooks, among others), and any location of issuance (i.e. both EU-issued and endorsed¹³ ratings).

⁹ [Commission Delegated Regulation \(EU\) 2015/2 of 30 September 2014 supplementing Regulation \(EC\) No 1060/2009 of the European Parliament and of the Council with regard to regulatory technical standards for the presentation of the information that credit rating agencies make available to the European Securities and Markets Authority.](#)

¹⁰ EU-registered CRAs are those that have been registered with ESMA and meet the registration requirements set out in the CRAR and subsequent delegated regulations and Guidelines. EU-registered CRAs are different from certified CRAs—these CRAs are from non-EU countries and have no presence or affiliation in the EU, and no systemic importance for EU financial stability. For such CRAs, certification via the equivalence regime is available. For further details consult the ESMA website (see <https://www.esma.europa.eu/supervision/non-eu-credit-rating-agencies>).

¹¹ We note that our sample consists mainly of press releases (about 90% of the documents submitted by the CRAs in our sample), while reports when available are primarily for sovereign and sub-sovereign ratings.

¹² CRAs may report to the ERP the same press release multiple times for different credit ratings actions or entities and instruments. For example, this could be the case when a single press release discusses several bonds of the same issuer. To control for this practice, our sample includes only unique press releases (i.e., after removing any duplicates). In addition, CRAs may report the same press release in multiple languages. In this case, only the English version is included in our sample.

¹³ Endorsement is one of two regimes provided for in the CRA Regulation — this regime allows credit ratings issued in a non-EU country to be used for regulatory purposes in the EU (such as for satisfying minimum rating requirements in a particular legislative text).

Between 1 January 2019 and 31 December 2020, 64 254 unique press releases were reported to the ERP. Table 1 shows that the largest number of press releases were for corporate financial ratings (26 848), followed by ratings for structured finance instruments (16 194), sovereign issuances (10 533), corporate non-financial instruments (10 658) and other financial instruments (21).

Table 1

CRA press release dataset by asset category
64 000 rated instruments

Category	Before Guidelines Number	After Guidelines Number
Corporate financials	15 409	11 439
Corporate non-financials	6 334	4 324
Structured finance	9 989	6 205
Sovereign	6 340	4 193
Other financial instruments	9	12
Total	38 081	26 173

Note: Number of unique press releases and reports available in the ERP dataset, covering both instrument and issuer credit rating actions, between 1 January 2019 and 31 December 2020. The ESMA Guidelines began to apply on 30 March 2020.

Sources: ERP, ESMA.

Looking for ESG terms in press releases

Once the press releases have been assembled, we can search each press release for ESG terms. To do this, we initially leverage the ESG word list created and made available by Baier et al. (2020).¹⁴ The authors construct their list of ESG terms using a sample of 100 10-K reports and proxy statements from the 25 largest companies (by market capitalisation) in the S&P 100 index. Their final word list contains 482 words, broken down into 40 subcategories within the overall E, S and G headings.

Table 2 below illustrates the initial number of ESG words per E, S and G category along with high-level subcategories and some examples of the words included in each. The largest category of words by far relates to Governance, followed by Social and, further behind, Environmental.

Table 2

ESG word list used for searching press releases
Wide variety of ESG terms

Category	Num. of words	Examples
Environmental	55	
Climate change	16	biofuels, greenhouse
Ecosystem svc.	13	biodiversity, freshwater
Env. mgmt.	22	carbon, recycle
Other	4	environmental
Social	148	
Human rights	16	dignity, privacy
Labour standards	48	bargaining, minorities
Public health	22	alcohol, HIV
Society	49	philanthropy, poverty
Other	13	citizens, CSR, social
Governance	276	
Business ethics	22	bribery, lobbying
Corporate gov.	194	compensation, compliance
Sustainability mgmt.	46	disclosure, stakeholder
Other	14	by-law, charter
Total	487	

Sources: Baier et al. (2020), ESMA.

However, this word list cannot be used directly. Although Baier et al. (2020) provide a useful starting point, we reviewed the ESG word list and removed a number of words that are less relevant in the context of CRA press releases. This fine-tuning takes advantage of ESMA's expertise in understanding CRAs and their disclosures, in line with ESMA's role as the single direct supervisor of CRAs within the EU.¹⁵ This reduces our word list by c.30%, to 346 unique ESG words.

In addition, from examining CRA press releases, we found that a number of remaining ESG words require further precision. For example, the word 'integrity', when used in a phrase such as "the integrity of the judiciary", signals some form of Governance-related intent. However, in the phrase "data integrity platforms" the word 'integrity' appears related to information technology topics rather than ESG matters.¹⁶

¹⁴ An electronic version of the ESG word list is available online (<https://sites.google.com/site/fkieselde/research>)

¹⁵ For example, we remove words such as "rotation", "parents" and "independent". These words seem to have been deemed to appear "in an ESG context" by Baier et al. (2020). The authors' sample is drawn from annual financial reports filed by US-based firms to the US Securities and Exchange Commission. In contrast, our focus is on EU language used by CRA press releases. It is thus not surprising that the authors' exact word list needs to be adapted to a different — but still financial — context.

¹⁶ Other examples include the word "human" (classified as Social by Baier et al. 2020): "Human capital is also a social consideration..." refers to ESG matters, while "solid demand and lower risks compared with the human pharmaceutical industry" would not. The word "alignment" (classified as Governance by Baier et al. (2020)) also relates to ESG considerations in the phrase "profitability should be supported by ... better alignment of staff compensation with productivity" but not in the phrase "the better alignment of the price of raw milk with selling prices". All phrases used here and in the main text have

To remedy this situation, we first searched for the individual ESG words across all the CRA press releases and extracted all unique triples (i.e. combinations of three words) where an ESG word was found — the ESG word itself, along with the word just before and the word just after (excluding articles like “a” and “the”). Based on this list, we identify cases where an ESG word preceded or followed by a specific word will unambiguously have an ESG connotation.¹⁷

These subsequent adjustments — refining the 346 ESG words to only include certain pairs of words — extends our full ESG word list to 3 005 combinations to search for. There may, of course, be additional categorisations and phrases that CRAs use to discuss ESG matters. Nevertheless, to our knowledge this is the most extensive list of ESG search terms applicable to credit ratings that has been developed.

Additional natural language processing

After creating our dataset of press releases and the full set of ESG word combinations to search for, we subsequently convert each press release from PDF to text format and conduct a number of pre-processing steps. These include the following:

- Removing all corporate information, regulatory disclosures, and any other disclaimers from the end of the press releases. This reduces the risk of mistakenly considering some words in the disclaimer as pertaining to ESG topics (particularly words related to Governance).
- Removing all connector words, such as “and”, “but”, and “however”, along with stop words, punctuation, numbers, and symbols.
- Removing words relating to ratings and the structure of the press release, such as “AAA”, “rating”, and “appendix”. These are not words that truly belong to a discussion of ESG. Instead, they either represent technical terms used by the CRA to signal parts of the document or have been invented by CRAs (e.g.

“AAA”) but do not exist in English. This implies that the remaining words in the press release relate, as much as possible, to the analytical content of the press release.

- Finally, converting all words in the press release to lower case.¹⁸ This ensures that words at the beginning of a sentence are treated the same as words in the middle or at the end of a sentence.

Results

Evolution of ESG disclosures over time

Following the steps described in the previous section, we calculate an “ESG score”, defined as the percentage of ESG words in the press release, relative to all words remaining after the cleaning described above. Intuitively, the ESG score is a proxy of the level of ESG disclosures per press release: a high ESG score would denote high ESG disclosures, and vice versa. The granularity of the ESG word list allows us to construct scores by E, S or G category or even subcategories.

Chart 1 below presents the evolution of the ESG score across CRAs over the sample period, taking the average score across all press releases published within each month. It shows that there has been a notable (c.60%) increase in the reporting of ESG factors since the introduction of the Guidelines on 30 March 2020 (when comparing the average ESG score in the period before and after 30 March 2020). This increase in the proportion of ESG words being used is found especially in environmental and social words, relative to governance words (which also increased). The upward trend in the ESG score in the 9-month period before April 2020 is most likely due to the fact that the Guidelines were announced on 19 July 2019, which gave CRAs sufficient time to adapt their processes before the Guidelines came into force.

It is worth noting that our post-Guidelines sample period overlaps to some extent with the rapid spread of the COVID-19 virus in early 2020. In addition, some CRAs reported the economic and

been extracted from actual CRA press releases in our dataset.

¹⁷ Using the word “background”, as an example, (classified as Governance by Baier et al. 2020), we only consider this word in CRA press releases as relating to Governance when it is preceded by the words “diverse”, “extensive”, or “members”. All other instances of the word

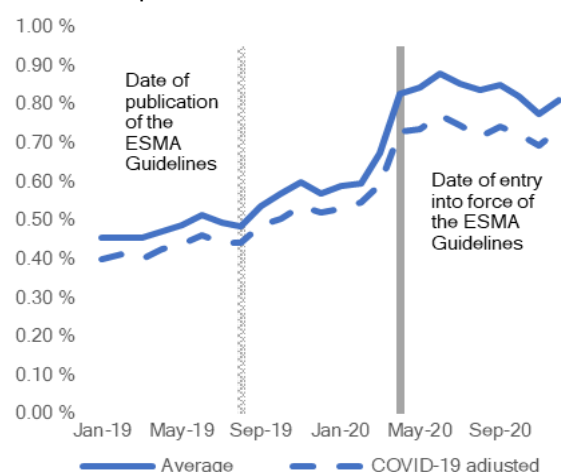
“background” across our sample of press releases appeared to be unrelated to ESG considerations.

¹⁸ Where an ESG word in our list is included in a company name (e.g. a firm whose name includes the word ‘Renewable’), we exclude that word from our total ESG word count.

social effect of the pandemic as a “Health and safety” or “Public health” social factor in their press releases. Therefore, any attempt to investigate the impact of the ESMA Guidelines should control for the confounding effect of the pandemic in the sample period. We do this in two ways. First, we remove any COVID-19-related words from our ESG word list, for example “pandemic”. Second, as a robustness check, we re-calculate the ESG score after removing any word classified in the “Health and safety” and “Public health” sub-categories.

Consequently, the dashed line in Chart 1 below shows the corresponding line abstracting from COVID-19 considerations: even after controlling for health and safety considerations, the Guidelines appear to have had a large (c.50%) positive effect on the ESG disclosures by the CRAs in our sample.

Chart 1
Average ESG score across CRAs
Positive impact of the ESMA Guidelines



Note: Average ESG score per press release across CRAs between January 2019 and December 2020. Average within each month (using the press release issuance date) is displayed. The left (right) vertical bar denotes the date of publication (entry into force) of the Guidelines, i.e. 19 July 2019 (30 March 2020). The ESG score is defined as the percentage of ESG words in press releases. The dashed line reports the ESG score after removing any “health and safety” and “public health” words, to account for the possible impact of the COVID-19 pandemic on ESG-related discussions in CRA press release.

Source: ESMA.

However, despite the observed improvement in relative terms, ESG reporting remains limited from an absolute perspective (i.e. on average less than 1% of words used in the press release). In other words, although the relative amount of ESG discussion has increased, it is also worth considering the actual number of ESG words that enter into CRA press releases. In particular, we are interested in observing the extent to which CRA press releases contain “meaningful” ESG considerations, which are likely to be particularly informative for a reader. We observe that, in our sample of press releases since January 2019, 25% of press releases have six or more ESG words — a cut-off point that seems appropriate to be considered as “meaningful”.¹⁹

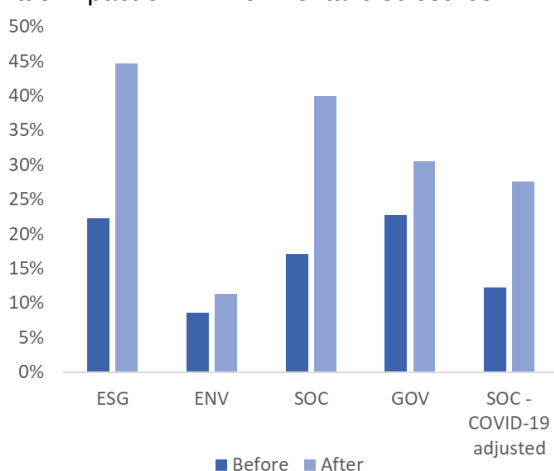
Chart 2 below examines a 9-month window (before/after) around the introduction of the ESG Guidelines on 30 March 2020. The chart shows that, even after March 2020, fewer than half of the press releases in the sample contained meaningful ESG considerations. This is especially the case for environmental factors, as only a small number of press releases (11%) contained a meaningful discussion on environmental topics.²⁰ Chart 2 also shows that the large share of rating actions with meaningful social considerations after March 2020 was driven to some extent by the COVID-19 pandemic. This is reflected on the difference between the “SOC” and “SOC-COVID-19 adjusted” results. However, in relative terms we observe some increase in meaningful ESG considerations across all ESG disclosure categories, including the COVID-19 adjusted social factor.

¹⁹ Other, less statistical, approaches could be considered to define what is “meaningful”, for example the location of ESG words in dedicated sections within the press release or alternatively the presence of specific non-ESG key words (e.g., “crucial” and “major”) in the same sentence as some ESG key words. Another option could be the use of sentiment analysis. These are extensions that we leave open for future research.

²⁰ Three words has been chosen as a cut-off for each individual factor (i.e., E, S or G), as press releases tend

to contain fewer words related to individual factors than to factors overall. For example, a press release may include six words relating to ESG, of which three are Environmental, two are Social and one is related to Governance. In this situation, we would consider that the press release does contain a meaningful discussion of ESG matters overall, but that it is only the Environmental factor that has a “meaningful” discussion.

Chart 2
Press releases with meaningful ESG considerations
Little impact on Environmental disclosures



Note: Percentage of CRA press releases with meaningful ESG considerations in the 9 months before and after 30 March 2020 (i.e. when the ESMA Guidelines came into force), split between overall ESG and E S or G-specific factors (with the S factor also shown excluding words relating to Health and safety and Public health, to account for the presence of COVID-19 developments during the sample time period). ESG considerations (“ESG” bars in the chart) are considered meaningful when a press release contains at least six ESG words, as it represents the 75th percentile of the distribution of the number of ESG words per press release during the sample period. Three words has been chosen as a cut-off for each individual factor (i.e. ENV, SOC or GOV), as press releases tend to contain fewer words related to individual factors than to factors overall.

Source: ESMA.

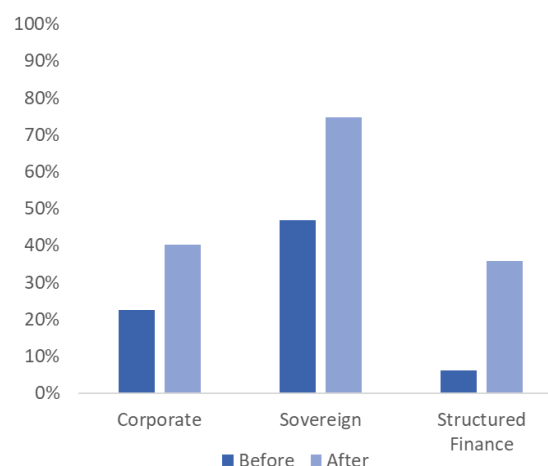
Still, there are a number of ESG words and phrases whose use in CRA press releases rose substantially in the period following the application of the ESMA Guidelines. For example, words and phrases that appear much more frequently include “diversity”, “dignity”, “clean energy”, “solar”, “leadership”, “independent institutions”, “clean transportation” and “welfare”.

We note that the concept of “meaningful considerations” of ESG topics goes beyond simply identifying ratings actions where ESG factors were material. “Meaningful considerations” involves not only mentioning an ESG factor, but also “elaborating” (i.e. discussing) that factor. The “meaningful considerations” metric is therefore distinct from and richer than metrics that simply cite the extent of press releases that mention ESG topics as “material” factors driving any rating action.

Chart 3 below presents the evolution of ESG disclosures by asset class. It shows that,

although there has been an improvement in ESG disclosures across asset classes, there were in general considerably more meaningful ESG discussions in press releases of sovereign ratings compared to those of other asset classes.

Chart 3
Press releases with meaningful ESG considerations
Greater ESG discussions across asset classes



Note: The chart shows the percentage of CRA press releases with meaningful ESG considerations in the 9 months before and after 30 March 2020 (i.e. when the ESMA Guidelines came into force). ESG considerations are considered meaningful when a press release contains at least six ESG words, as it represents the 75th percentile of the distribution of the number of ESG words per press release during the sample period.

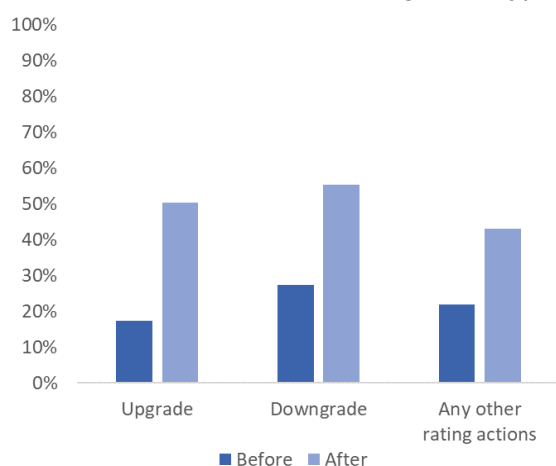
Source: ESMA.

We also examine possible changes in ESG disclosures by rating action. Indeed, the focus of the Guidelines is on the changes of credit ratings, such as upgrades or downgrades. We therefore examine whether the discussion of ESG factors in press releases is linked with a specific rating action. Chart 4 on page 10 demonstrates that the level of ESG disclosures after the implementation of the ESMA Guidelines is consistent across all types of rating actions. Not surprisingly, after March 2020, there were more meaningful discussions of ESG topics for press releases on both rating upgrades and rating downgrades. However, after March 2020, meaningful ESG discussions also took place in the context of other ratings actions (such as new ratings and watch reviews). Thus, the Guidelines have led to a positive spillover on the level of ESG disclosures across more rating actions than just upgrades or downgrades.²¹

²¹ In passing, we note that there were much fewer upgrades than downgrades (hence also much fewer rating upgrades with meaningful ESG discussions relative to

rating downgrades with meaningful ESG discussions) throughout the sample period.

Chart 4
Press releases with meaningful ESG considerations
More ESG discussion across rating action types



Note: Percentage of CRA press releases with meaningful ESG considerations in the 9 months before and after 30 March 2020 (i.e. when the ESMA Guidelines came into force), segmented by type of rating action. Other actions include new ratings and watch reviews. ESG considerations are considered meaningful when a press release contains at least six ESG words, as it represents the 75th percentile of the distribution of the number of ESG words per press release during the sample period.

Source: ESMA.

To recall, the charts in this section present aggregate figures for our overall sample (i.e. market-wide statistics)—we explore CRA-specific differences in the next section.

Heterogeneity in ESG disclosures across CRAs

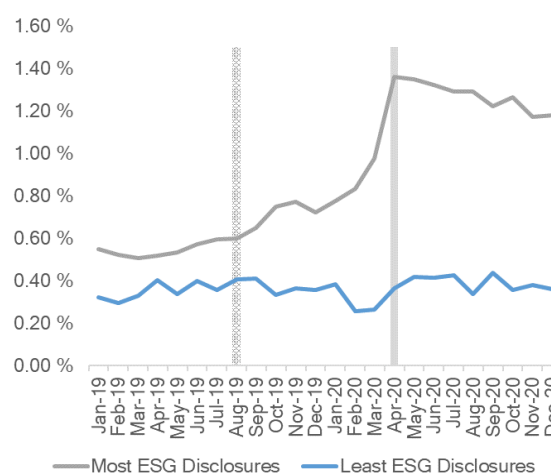
Next, we focus on the ESG disclosure practices of individual CRAs. A finding that requires further analysis is that the improvement in ESG disclosures is not uniform across all the CRAs in our sample. In fact, the overall improvement is mainly driven by one large CRA that significantly increased the reporting of ESG factors in its press releases after 30 March 2020.

This can be seen in Chart 5 below, which compares the average ESG score per press release of the CRA with the most and least ESG disclosures throughout our sample period. Chart 5 below shows that the gap in the ESG disclosures between these two CRAs increased after the introduction of the Guidelines: the CRA with the most ESG disclosures included on average three times more ESG related words relative to the CRA with the least ESG

disclosures.²² We obtain qualitatively similar results if we restrict our sample to only changes in ratings (i.e. upgrade and downgrades). In addition, the divergence presented in Chart 5 below exists in all three ESG factors (E, S and G), which also indicates that it is not driven by COVID-19 developments.

Some heterogeneity in results across CRAs can be expected given the differences in the respective CRA methodologies. For example, there might be differences in the ESG factors that CRA methodologies deem to be material to creditworthiness. A CRA methodology that only rarely considers ESG factors to be key to a credit rating could lead to a low ESG score. Such a low score would be the result of the application of the methodology rather than disclosures practices or the adherence to the Guidelines. However, the observed gap in the level of ESG disclosures across CRAs is significant and would seem to require further analysis into the underlying drivers.

Chart 5
CRAs with the most and least ESG disclosures
Significant divergences across CRAs



Note: The chart shows the average ESG score of the CRAs with the most and least ESG disclosures in terms of the number of ESG words in their press releases between January 2019 and December 2020. The ESG score is defined as the percentage of ESG words contained in the press release, and the average across these percentages within each month (using the press release issuance date) is displayed. The left (right) vertical bar denotes the date of publication (entry into force) of the Guidelines, i.e. 19 July 2019 (30 March 2020).

Source: ESMA.

²² When calculating Chart 5, we only consider CRAs that issue an average of at least 100 press releases per month in our sample period. This is to ensure that the number of press releases is sufficiently large to remove any idiosyncratic noise, thus allowing for a meaningful

comparison of the average level of ESG disclosures across CRAs. Two smaller CRAs failed to satisfy the above criterion.

Benchmarking CRA performance

We also conduct a benchmarking exercise, to compare changes in ESG disclosures from CRA press releases relative to other ESG metrics, which aggregates public ESG information on issuers from public documents, such as annual reports and reports in the press. These scores are provided by Refinitiv and rank a company's performance on hundreds of ESG-related metrics relative to its sector peers—i.e. the scores are sector-specific (Refinitiv, 2021). The scores are available on a yearly basis for approximately 9 000 companies across the EU, US and other markets.

The ERP dataset contains information on the issuer associated with each CRA press release. For each issuer we retrieve the corresponding ESG score (both the issuer's overall ESG score and its specific Environmental, Social and Governance-pillar scores) at the time when the press release was published.²³ We then identify issuers that have very low or very high Refinitiv ESG scores (defined as a score of 25 or lower or 75 or higher²⁴) and deem these to be "ESG-extreme" issuers.²⁵

Having categorised the issuers in this manner, we then count the number of occasions where CRA press releases did not mention a factor for an "ESG-extreme" issuer. We loosely deem such an omission to be a case of "possible under-reporting": a press release contains no ESG discussion despite an issuer being classified as highly ESG-exposed.

It is acknowledged that the use of an ESG rating provider as a source of benchmarking is not without methodological issues. To begin with, there can be a lack of agreement among ESG rating providers (Berg, Koelbel and Rigobon 2020; Mazzacurati 2021).²⁶ This implies that ESG scores are not necessarily reliable indicators of "the truth". In addition, ESG scores can be sector specific, and sectors are more or less exposed to ESG factors. Therefore, some degree of heterogeneity can also be expected when comparing firms against each other. Finally, ESG scores are not necessarily expected

to always correlate with financial or credit materiality.

However, we are interested in the variation in the reporting of ESG topics across CRAs and across time, while holding the source of benchmark information constant. Hence, the benchmarking exercise should provide interesting insights into CRAs' disclosure practices. In other words, any potential methodological issues in the Refinitiv (or any other ESG scoring) methodology with respect to capturing the "true" ESG situation of an issuer, is less of a concern for our analysis, since it is the relative divergences across CRAs in relation to this same (even if imperfect) point of comparison that we are interested in assessing.

We thus examine the change in how much CRAs possibly under-report ESG topics for issuers that appear to be highly exposed to ESG issues, relative to their industry peers. As shown in Chart 1 above, there has been a substantial increase in the percentage of ESG words being used in CRA press releases around the entry-into-application date of the Guidelines. This confirms that this date is an appropriate cut-off on which to conduct a "before vs after" analysis.

Intuitively, there should be more press releases discussing ESG topics after the ESMA Guidelines began to apply, relative to the period before. At the same time, especially after the Guidelines, it is expected that CRA press releases covering issuers who are more exposed to ESG factors (compared to their sector peers) are likely to include greater ESG discussion.

Chart 6 below shows that there is strong heterogeneity across CRAs in the disclosure of ESG factors for "ESG-extreme" issuers. For example, one large CRA has clearly increased its discussion of ESG topics for issuers particularly exposed to ESG factors (whereas before the Guidelines it did not include much discussion). In contrast, another CRA rarely mentioned ESG factors for highly ESG-exposed issuers in its press releases, especially for environmental factors (77% missed discussions, even after the ESMA Guidelines). Our results are also consistent if we examine the possible under-reporting of ESG factors only for issuers that have very low ESG scores and only for issuers that

²³ We use the mid-year point for reference: any press release that is within the first half of the year is associated with the ESG score for the previous year, otherwise on the current year. For example, a CRA press release issued during November 2019 is compared with the Refinitiv issuer ESG score from 2019, and a press release issued during March 2020 is also compared with the Refinitiv issuer ESG score for 2019.

²⁴ The Refinitiv scores range from 0 to 100 and are sector-specific (see Refinitiv (2021) for further details).

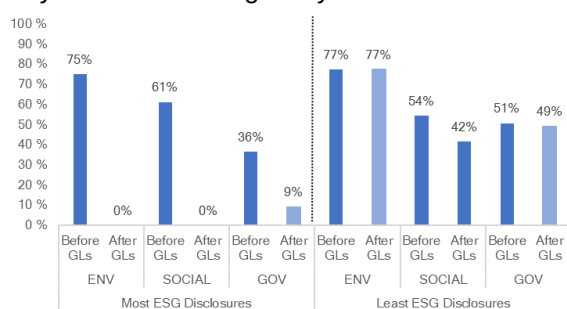
²⁵ This section does not include sovereign issuers.

²⁶ See also the discussion in ESMA's "[Letter to the European Commission on ESG ratings](#)", 28 January 2021.

have very high ESG scores (i.e. there is no asymmetry in our results).

As discussed earlier, the low level of reporting of ESG factors might be justified if CRAs consider that these factors are not a key consideration in their creditworthiness assessments. And, indeed, it is creditworthiness that a credit rating measures according to the CRA Regulation. However, Chart 6 shows that CRAs approaches can diverge considerably. In the interest of transparency and to allow investors to make informed decisions, a good industry practice could have been for press releases to provide some explanation as to why such factors were considered to be immaterial, especially for “ESG-extreme” issuers. This does not appear to have taken place in many instances.

Chart 6
Press releases possibly under-reporting ESG factors
Why so much heterogeneity across CRAs?



Note: The chart shows the possible under-reporting of ESG factors for highly ESG-exposed issuers (“ESG-extreme issuers”) in the press releases of the large CRAs with the most and least ESG disclosures in our sample. Possible under-reporting is measured against public ESG data (ESG scores) provided by Refinitiv. Refinitiv data rank issuers’ ESG relevance using publicly available information, such as annual reports, company websites and stock exchange filings. “ESG-extreme” issuers are those with extremely low or extremely high Refinitiv ESG scores. A situation where a press release contains no ESG discussion despite an issuer being classified as highly ESG-exposed is loosely deemed to be a possible under-reporting situation.

Sources: Refinitiv, ESMA

Policy implications and next steps

This article has presented an initial assessment, using natural language processing techniques, of the 2019 ESMA Guidelines aimed at providing additional transparency on ESG factors in credit rating press releases. Our results inform ESMA’s work in the areas of supervision and risk analysis by indicating that there has been an increase in the overall level of ESG disclosures in CRAs’ press releases since the introduction of the Guidelines. However, we also find that there is clear room for further improvement, as the level

of ESG disclosures across CRAs differs significantly.

CRAs can have different methodological approaches, which could explain the observed heterogeneity to some extent. In addition, not all ESG factors are relevant in terms of the creditworthiness of an issuer or instrument, which is what a credit rating measures. However, since all CRAs have creditworthiness at the core of their approach, it is unclear why some CRAs deem ESG factors to be relevant and report them in their press releases, while others do not yet do so — especially in the case of credit ratings for issuers who are classified as highly ESG-exposed according to public data or according to other CRAs rating those same issuers or their instruments. The divergences that we find across CRAs in this respect are, therefore, quite striking.

Based on this assessment, investors could benefit from further transparency in this area. ESMA will consider the appropriate supervision and policy tools for achieving this outcome.

At the same time, additional transparency will not necessarily change how ESG factors are being incorporated in credit ratings per se. As set out above, ESG factors are not always relevant in terms of the determination of the creditworthiness of an issuer or instrument, which is what a credit rating measures and how a credit rating is defined in the CRA Regulation. In addition, CRAs cannot be mandated to consider ESG factors in their methodologies due to the non-interference principle included in the CRA Regulation.

In line with the European Commission’s Strategy for Financing the Transition to a Sustainable Economy, ESMA is planning further work in 2022 on how ESG factors are incorporated by CRAs into their methodologies and will share its findings with the Commission. Furthermore, ESMA will continue to engage with CRAs in order to understand the underlying drivers of the observed heterogeneity, and to ensure that the Guidelines are implemented in a consistent manner.

This article has also demonstrated that natural language processing techniques can facilitate supervisory work. Indeed, similar to other studies by Bholat, Hansen, Santos and Schonhardt-Bailey (2015) and Amzallag (2021), we show that text mining can extract useful information for regulators from a collection of documents that would otherwise have been intractable. At the same time, this exercise has also highlighted the challenges with machine-readable information. As previously discussed, (Amzallag 2021),

converting .PDF documents to text raises the risk of information being lost during the conversion process. Any additional requirements to produce — alongside existing .PDF documents — versions of documents in text formats (such as the open-source Open Document format) would dramatically improve supervisory efforts, at little additional cost to reporting entities (since, before being saved to .PDFs, documents are already written in more flexible formats). In this respect, the recently published legislative proposals on the European Single Access Portal are of particular interest (European Commission, 2021).

Finally, the use of natural language processing and other technical techniques appears to be of clear additional value for risk-based supervision, although they are most effective when supplemented with expert judgement and assessment.

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