Capital Markets Law Journal, 2025, **20(1)**, kmaf002
https://doi.org/10.1093/cmlj/kmaf002
Article

OXFORD

Decoding the complexity: How financial reports have grown less readable, why it matters, and what we can do about it

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Key points

- Financial reports have become more complex and less readable over time
- Worsening financial report readability can have negative consequences, including in relation to financial analysts, investors, and lenders
- Regulation has had a mixed impact on readability, sometimes increasing disclosure volume and complexity despite attempts to simplify language
- Future regulation can look towards drafting practices and properly calibrated standardization

1. Introduction

There are frequent debates about what firms must disclose and how they must disclose it. Disclosure requirements have increased over time. However, this has led to concerns that disclosure readability might consequently decrease as disclosures become longer and more complex. This is not a new phenomenon. HSBC's 2007 annual report was so large and heavy that it became an injury risk for postal workers, and the Royal Mail restricted how many workers could carry.[1] This report contained 133 pages of notes. It also include the EU-mandated 'business review', which has been criticized for its vagueness and tendency towards complex language.[2] This begs the questions of whether and how much readability has worsened over time, whether firms should care, and how regulators should approach it.

Reports have become more complex, according to commonly used measures of document readability. This has worsened over time according to the data obtained for US-listed firms. It has also spiked at specific flashpoints, such as financial downturns, or around major regulatory changes. This trend is consistent across several key—and commonly used—measures, such as financial report file size, the 'Fog' index and the 'Bog' index. While each readability measure has caveats, together they create a mosaic of worsening financial report readability.

[1] G Robinson, 'HSBC Report Proves (very) Heavy Going' (*Financial Times*, 2007), https://www.ft.com/content/bf74f098-9f7d-3f46-9422-35883ae3db9f [Accessed 19 July 2024]. I acknowledge Alex Edmans's pointing me towards this anecdote.

[2] B Jopson, 'HSBC Report Proves Heavy Going' (*Financial Times*, 9 April 2007), https://www.ft.com/content/06a63490-e6c5-11db-9034-000b5df10621.

Accepted: 20 January 2025
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Financial report readability is influenced by what firms believe they must disclose and how they must disclose it. First, the amount of material that firms must disclose is important. This is both because investors must parse increasing amount of material, but also because they must be on the look out for salient information being buried in dense disclosures. Second, the form of disclosure matters. This includes the language used and the format employed. Simpler language can make long disclosures easier to read. Formatting long disclosures in a standard manner can increase investor familiarity and point investors to where they must look for specific information.

This long-standing concern gave rise to the SEC Plain English Rule of 1998. The policy purpose was to prevent firms obscuring vital information from investors and to ensure that retail investors especially had fair access to information. However, despite the push for clarity in financial disclosures, regulators have pushed for more information to be disclosed.[3] And, firms' concerns about being accused of failing to disclose information appropriately have led firms to increase disclosure quantity and depth.[4] Thus, concerns about disclosure readability have persisted.

Firms should have a financial incentive to improve financial report readability. But, due to agency conflicts, these do not always flow into manager or employee behavior. Better readability is associated with increased analyst following and accuracy, better access to debt, a lower cost of equity, and a more favourable reaction from investors to news announcements. By contrast, worsened readability tends to deter lenders and investors, often resulting in a worse reaction to those firms' announcements. However, managers might not realize the impact of poor readability, or they might not act on it. Furthermore, managers can only disclose the way in which information is presented, not what they must present. Thus, if regulators demand more disclosures, or firms feel obliged to give them, reports would still become longer and less readable.

One core explanation for worsening readability is that it is associated with increasing disclosure obligations and the potential penalties for being accused of violating them. For example, the EU-mandated 'business review' of the firm's operations has been criticized for being lengthy, uninformative, and legalistic.[5] But, investors must nevertheless read and understand it *in case* there is price-sensitive information in it. Litigation risk has also increased over time. These litigations often arise when firms make inaccurate disclosures. Frivolous and vexatious litigations are also a concern, in which litigants allege inaccurate disclosures whenever share prices decline. This increased litigation risk forces firms to disclose more information so as to make reports more accurate. This comes at the cost of making reports more complex and thus less readable.[6] Similarly, increased regulation has forced firms to disclose more information, making reports longer and more complex. Thus, worsening readability can be associated with improved accuracy as firms seek to add nuance and detail to their disclosures.

Regulators and stock exchanges must therefore balance competing factors when setting rules. On the one hand, increased disclosure, and increased disclosure expectations, can increase accuracy. But, on the other hand, they can reduce readability by encouraging firms to disclose more information, caveat existing statements, and use more conditional language. For example, mandatory climate disclosures tautologically increase disclosure length and introduce additional scientific concepts. Regulators must also consider how firms, and managers, react to the risk of securities class actions and enforcement actions. This often involves using more cautious language, and disclosing more material in a more complicated manner so as to reduce the risk of such litigation.

Regulators must therefore consider what disclosures are genuinely market-sensitive and must evaluate how to improve the manner and form of those disclosures. This includes focusing on Plain Language requirements. These appear to have had an impact in the USA. However, reports have nevertheless become less readable over time, likely reflecting additional disclosure requirements. Regulators could also consider standardizing report formats and jargon—where

[3] See, eg, the SEC mandating climate disclosures Securities and Exchange Commission, 'SEC Adopts Rules to Enhance and Standardize Climate-Related Disclosures for Investors' (March 2024); Securities and Exchange Commission, *The Enhancement and Standardization of Climate-Related Disclosures for Investors* (6 March 2024), https://www.sec.gov/newsroom/press-releases/2024-31.

[4] M Humphery-Jenner and others, 'Of Fogs and Bogs: Does Litigation Risk Make Financial Reports Less Readable?' (2024) 163 Journal of Banking and Finance 107180.

[5] Jopson (n 2).

[6] Humphery-Jenner and others (n 4).

possible—thereby reducing the amount of skill and time necessary to evaluate reports by enabling investors to know where to look for information and what terminology firms will use.

Managers would also gain from education about the benefits of improved financial report readability. Firms have financial incentives to improve readability as much as possible subject to the constraint of maintaining accurate disclosures: worsening readability tends to worsen the firm's access to debt, reduce analyst coverage, and deter equity investors. Since managers often gain from improving firms' share prices, they have an indirect incentive to improve readability to the extent possible. Additional education for managers, investors, and lenders could help managers to realize that it is in their firms' best interests to have disclosures that are both accurate and readable.

The remainder of this article proceeds as follows. The article first highlights that accepted measures of report readability have worsened over time. The article then discusses why reports might have become less readable despite firms having an incentive to improve readability. Finally, the article analyses why increased regulation might be an ineffective, and unnecessary, way to deal with financial report readability.

2. Have financial reports become less readable

Financial reports have become less readable along several quantifiable dimensions. There are several ways to measure financial report readability. Each measure has flaws. However, when analysed as a whole, they create a mosaic that suggests a trend in financial readability. This is especially identifiable in the USA, where standardized report formats make it possible to quantify filings' readability.

File size

Financial reports—especially in the USA—come in quasi-standardized HTML format from the SEC Edgar database. One oft-used measure of financial report readability is HTML file size. The assertion is that if the file is larger, then it contains more information and this is inherently more difficult to digest and analyse than a report with less information. This has some support in the literature.[7] The argument for looking at file size is that measures that rely on linguistic complexity might be inaccurate due to the number of complex—but commonplace—financial terms. By contrast, file size does not make any assumptions about which words the firm uses. File size has some disadvantages. For example, HTML files increase in size due to formatting issues, which might not affect the reports readability but could increase file size. This can create noise in the measure. Further, if firms use more pictures, tables, and other complex formatting, to make reports easier to follow, file size will penalize firms inaccurately.

There are some caveats when analysing time-trends in financial report readability. For example, an increase in average file size might reflect an alleged worsening in readability. However, trends could also reflect trends in required disclosures. For example, if regulators require additional disclosures, file size will tautologically increase. This could tautologically 'worsen' readability by increasing the amount of information that readers must digest. However, file size alone glosses over how readable that additional information is or why readability is worsening.

The data indicate that average file size has increased over time. The WRDS SEC Analytics database reports the file size for firms 10-K annual reports. Figure 1 contains the average 10-K filing size by year for firms listed in the USA. The graph shows a strong upwards trend in file size. The graph is qualitatively the same if medians are plotted rather than means, suggesting that outliers do not drive that figure. Nevertheless, it is important to bear in mind that increased formatting complexity could account for part of this upwards trend, and it is necessary to look at other measures to cross-validate this result.

[7] T Loughran and B McDonald, 'Measuring Readability in Financial Disclosures' (2014) 69 Journal of Finance 1643.

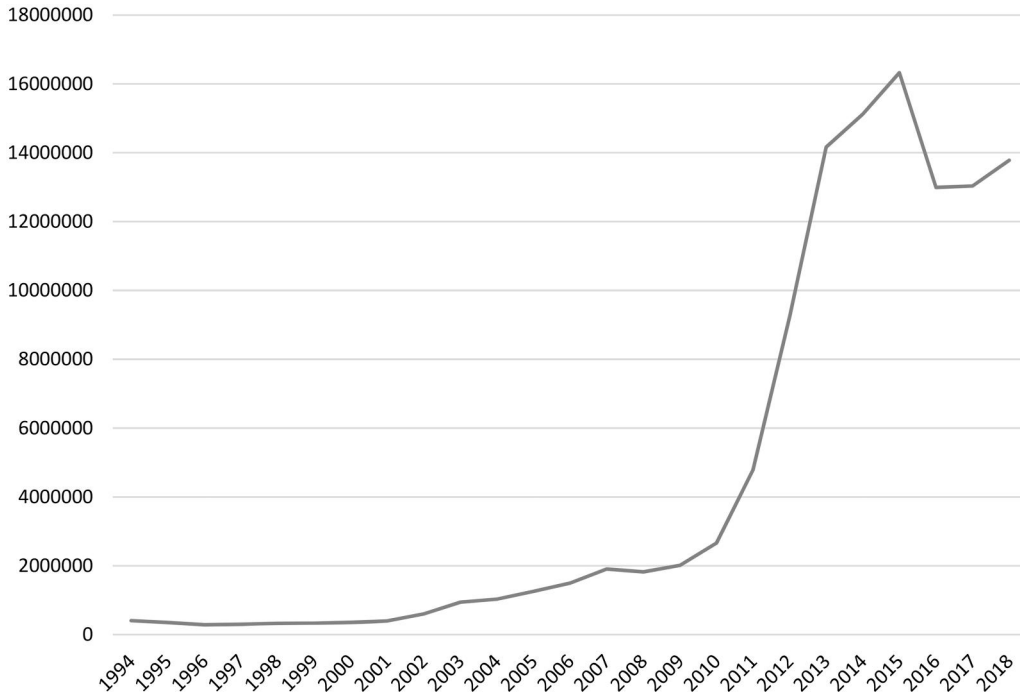


Figure 1. Average file size by year

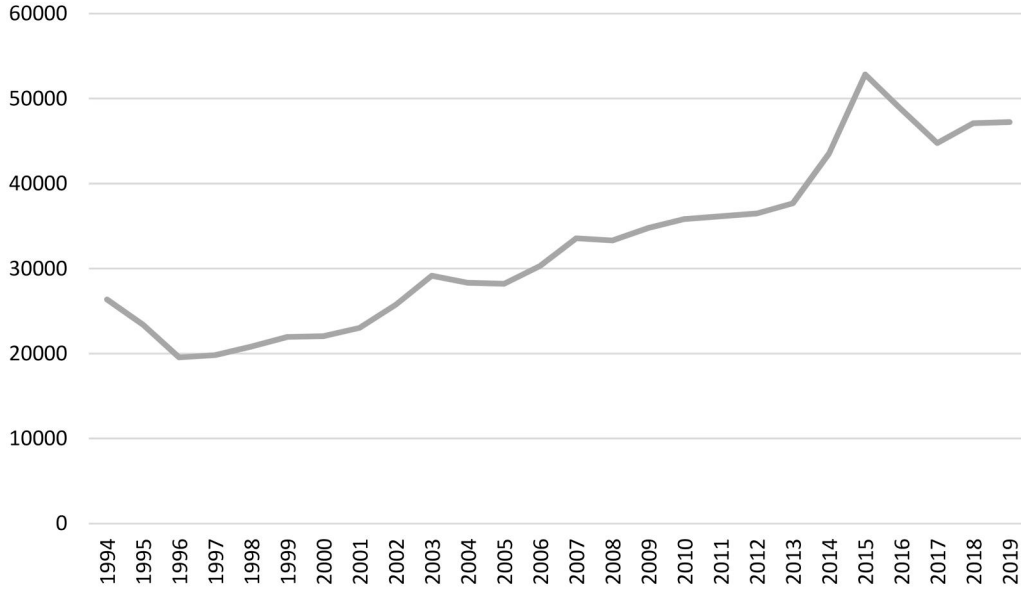


Figure 2. Word count by year

The trend is similar when looking at word counts and paragraph counts. Whereas formatting complexity can drive file size, that is less of a concern when looking at the number of words or the number of paragraphs. Figure 2 contains the average 10-k filing word count by year. It indicates a strong upwards trend since 1994. This has been relatively consistent each year. This trend also appears in the number of paragraphs per year (Figure 3). This suggests that firms' filings

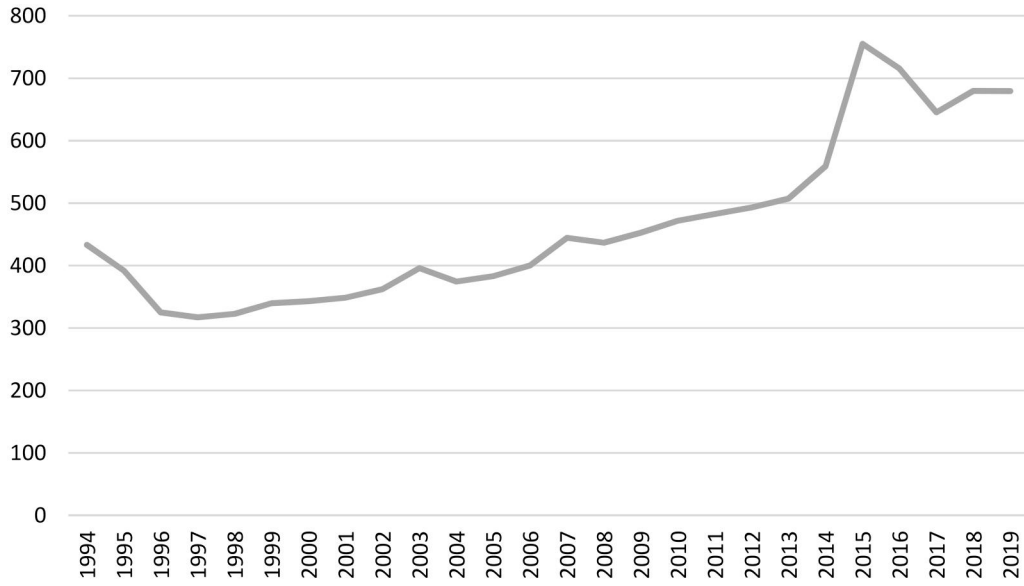


Figure 3. Paragraph count by year

contain more content. As will be discussed below, this could reflect increased reporting complexity and increased concern over litigation risk and the need to produce accurate financial reports.

Fog index

The Gunning[8] Fog Index aims to capture linguistic complexity. The index aims to capture how many years of education a reader requires to understand the document. The basic formula is:

$$Fog = 0.4\left[\left(\frac{\text{Words}}{\text{Sentenses}}\right) + 100 \times \left(\frac{\text{Complex words}}{\text{Words}}\right)\right]$$

The first portion of the equation aims to capture the average number of words per sentence: a higher number indicates greater complexity or opacity. The second portion aims to capture the linguistic register. The definition of 'complex' words varies between papers. It requires researchers to create a dictionary of complex words. The commonly used financial database—WRDS—with its pre-packaged SEC Analytics database has a proprietary dictionary that this article relies upon in order to allow comparison between this article and others.

The data indicate that the Fog index has largely increased over time. Figure 4 contains the average Fog index by year for firms listed in the USA, as indicated in the WRDS SEC Analytics database. There is an upwards trend. However, the trend is not monotonic. Some years feature spikes or troughs, potentially reflecting market conditions. For example, financial report readability for the 2007 financial year appears to worsen, potentially reflecting the impact of the Great Recession, which would have been in progress at the time firms were preparing their annual reports and which would have inspired firms to address financial conditions. However, fluctuations can also reflect noise, which self-reverses in subsequent years.

Bog index

The Bog[9] index has a similar goal to the Fog index. It aims to penalize documents for excess complexity. It is defined as:

[8] R Gunning, *The Technique of Clear Writing* (McGraw Hill, 1952) 36.
[9] SB Bonsall and others, 'A Plain English Measure of Financial Reporting Readability' (2017) 63 Journal of Accounting and Economics 329.

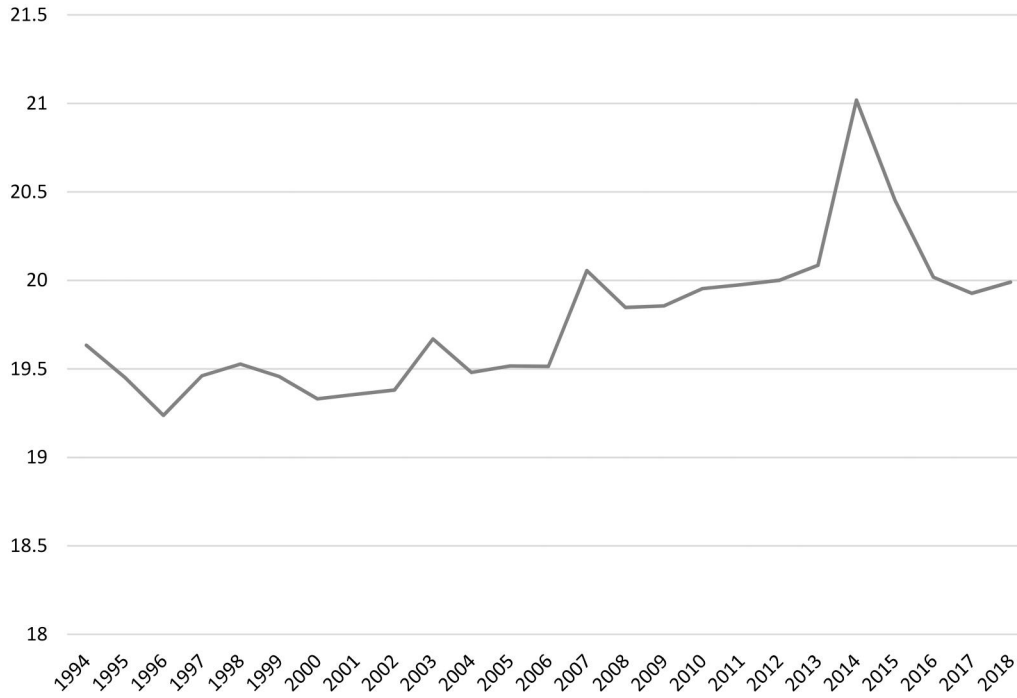


Figure 4. Average Fog index by year

$$\text{Bog} = \text{Sentence Bog} + \text{Word Bog} - \text{Pep}$$

where Sentence Bog = (Average sentence length)^2/Long sentence limit. The long sentence limit is defined as 35 words, by default. Word Bog = ((Style problems + heavy words + abbreviations + specialist) *250)/Number of words. Style problems include matters such as the passive voice. Pep effectively reduce the penalty. It is defined as ((Names + interest words + conversational) x 25)/number of words + sentence variety. This aims to ensure that firms—or documents—are not penalized simply because they refer to 'complex' seeming place names or other such terms. A higher Bog index indicates lower readability. Data on the Bog index for firms listed in the USA are available from Brian Miller's website.[10]

The data indicate that firms' Bog indexes have increased over time on average. The average Bog index for US-listed firms' 10-K filings by year is in Figure 5. There is a monotonic increasing trend in the Bog index. This suggests that financial report readability has generally worsened over time. This is consistent with other measures, including the Fog Index and measures of Financial disclosure length and size.

The SEC Plain English Rule likely had a limited effect on readability, but any such improvements were short-lived. This is a relatively smooth upwards trend in the Bog Index. However, there was a small decline around 1998 when the SEC Plain English Rule emerged. The decline in 1998 was more pronounced than with the Fog index. However, in both cases, the readability improvements were short-lived. The pronounced reduction in the Bog index likely reflects the fact that the Bog Index specifically penalizes linguistic issues, such as long words and sentences. Thus, while if firms reduce the complexity of their disclosures, they might see an improved Bog Index even if the disclosures increase in length.

The figures do not per se show that the Plain English rule was ineffective. The fall in the Fog and Bog indexes in 1998 was short-lived. On the one hand, this might suggest that firms initially

[10] https://kelley.iu.edu/bpm/activities/bogindex.html [Accessed 12 August 2019]

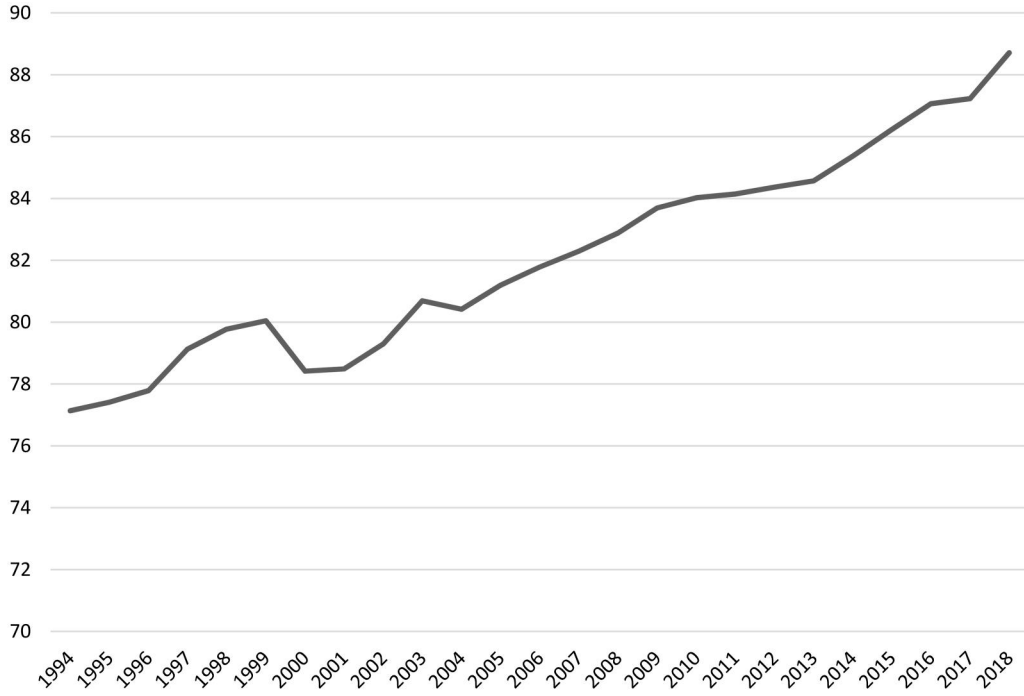


Figure 5. Average Bog index by year

improved readability but then became less attentive when they believed there would be few penalties for having unreadable financial reports. That is, relative lack of penalties reduced the rules efficacy. This follows from similar results in the context of continuous disclosure requirements: when the requirements are not enforced, it obviates the potential benefits from having those disclosure requirements.[11] On the other hand, disclosure requirements have become more voluminous and lengthy, meaning that firms have needed to increase their disclosures. Potentially, absent the Plain English rule, readability would have been even worse. That is, readability might have worsened over time after 1998, but this could have been even more significant without the Plain English rule.

Complex words

The foregoing results are also reflected in simpler readability metrics. One concern with readability calculations is that they can depend on assumptions about how to weight linguistic issues.[12] However, a simpler measure, defined as the proportion of words that are 'complex', demonstrates a similar trend.[13]

Figure 6 plots the proportion of words per year that are 'complex' and is consistent with the foregoing data. It indicates an upwards trend in the proportion of complex words. This spikes in particular years, for example, around financial reports released around downturns. This reinforces the notion that readability has declined over time.

[11] See, eg, evidence from China: M Humphery-Jenner, 'Strong Financial Laws Without Strong Enforcement: Is Good Law Always Better than No Law?' (2013) 10 Journal of Empirical Legal Studies 288.

[12] Loughran and McDonald (n 7).

[13] Complex words refer to words of three or more syllables in sentences of five or more words per P Maa and R Moussawi, *WRDS SEC Analytics Suite: SEC Readability and Sentiment Data* (2023). Syllable-based complexity measures are a relatively standard approach and have featured in prior literature: Humphery-Jenner and others (n 4); Loughran and McDonald (n 7); T Loughran and B McDonald, 'Textual Analysis in Finance' (2020) 12 Annual Review of Financial Economics 357; Q Gao, M Lin, and R Sias, 'Words Matter: The Role of Readability, Tone, and Deception Cues in Online Credit Market' (2023) 58 Journal of Financial and Quantitative Analysis 1.



Figure 6. Proportion of words that are 'complex'

3. Why readability is important and why it has worsened

Readability is important to investors who wish to understand financial reports. Therefore, it is important to regulators and exchanges that wish to support investors. However, readability should also be important to corporations as it can have a significant impact on their access to, and cost of, capital.

The mixed impact of regulation

Regulation has had a mixed impact on readability. Regulations differ across country. However, there are broadly several categories of presently relevant disclosure regulation. These include requirements for increased disclosure, disclosure standardization, and linguistic simplification.

Increased disclosure

Some regulations increase disclosure requirements. These regulations require firms to disclose more information or provide additional context. Some examples include the requirements to include a 'business review' in reports in the EU[14] and Hong Kong.[15] It can also include myriad ESG related disclosures.[16] The additional disclosures can have some benefits, such as improving the amount of information available about the firm, which can improve its liquidity. However, the impact of the reporting requirements depends on how they are operationalized. Further, evidence from EU sustainability-reporting mandates suggests that increased reporting is not necessarily associated with improved firm value.[17]

Increasing disclosure requirements would ordinarily worsen disclosure readability. It tautologically increases disclosure length and disclosure size. Increasing disclosures requirements in nascent or complex areas will also increase the amount of complex and technical words. Further, investors must parse this additional information in case it contains value-relevant disclosures,

[14] See Jopson (n 2); Robinson (n 1).
[15] See KPMG, *A Practical Guide to the Business Review* (2015).
[16] AGF Hoepner and others, 'ESG Shareholder Engagement and Downside Risk' (2024) 28 Review of Finance 483.
[17] MV Nampoothiri, O Entrop, and TR Annamalai, 'Effect of Mandatory Sustainability Performance Disclosures on Firm Value: Evidence from Listed European Firms' (2024) 31 Corporate Social Responsibility and Environmental Management 5220–5235.

thereby adding to the time and expertise that investors must devote to the disclosures. Regulators must therefore carefully evaluate which additional disclosures add value. Regulators can also consider coupling additional disclosure requirements with a degree of disclosure standardization and/or linguistic simplification.

Standardization

A further strand of regulation involves standardization. This can involve standardizing standards across country. A key example is the EU adopting the International Financial Reporting Standards (IFRS) rather than local accounting standards.[18] A further initiative was to attempt to converge IFRS accounting standards with Generally Accepted Accounting Principles.[19] This would have both standardized accounting reports and made reports incrementally more readable by only requiring investors to know one set of regulations. Ironically, given that such a convergence might require firms to engage in more accounting notes to translate between standards, it could increase financial report length and make reports appear more complicated, even if the underlying goal was to make them more readable to more investors.

Regulators can also seek to standardize formats and language. One key example is the SEC's adoption of extensible business reporting language (XBRL).[20] This forced firms to standardize much of their reporting formatting, thereby making reports clearer and easier for investors to digest. It also enabled quicker analysis by making it easier for investors to interrogate reports with other software, such as excel. Regulators could also seek to standardize some jargon or technical terms, reducing the use of synonyms for otherwise unfamiliar terminology. This reduces the vocabulary demands on investors to understand reports, thereby making them implicitly more readable.

Standardization can have some downsides. Standardization could be insufficiently flexible for corporations to disclose full information and/or might force firms to disclose important information in notes. Because such notes tautologically require investors to navigate throughout the report, they increase the time and effort required to digest reports. They also increase the risk that investors might miss important information that the notes contain but that otherwise was inapt for standardized reports.

Standardization also runs the risk of selectively prioritizing information and relies on regulators knowing which information to prioritize. For example, the SEC has moved to standardize climate reporting.[21] The policy purpose is to provide investors with climate-related information in case they value that in their investment decisions, or in case it could influence the firm's risk profile.[22] However, if standardization deprioritizes otherwise relevant information, or prioritizes irrelevant information, it can be misleading.

Simplification

Some regulation aims to simplify disclosures. This includes the SEC Plain English Rule of 1998. The goal is to reduce linguistic complexity, thereby reducing the time, effort, and skill required to evaluate financial reports. It also includes the SEC's Extensible Business Reporting Language initiative, which standardized reporting formats so as to enable investors to easily and, consistently, analyse financial reports.

These reporting rules can help to improve *some* aspects of financial report readability. The Plain English Rule of 1998 appears to have been associated with improvements in firms' Fog and Bog indexes, and a reduction in complex words (see Figure 4, Figure 5, Figure 6). However, it was not clearly associated with improvements in report length. Further, the improvements in readability fell over time, likely reflecting additional disclosure requirements under subsequent regulations, such as the Sarbanes-Oxley Act of 2002.

[18] See the EU Regulation No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards.

[19] D Sherman and SD Young, 'Where Financial Reporting Still Falls Short' (2016) Harvard Business Review 76. https://hbr.org/2016/07/where-financial-reporting-still-falls-short.

[20] Securities and Exchange Commission, *Interactive Data to Improve Financial Reporting* (2009).

[21] Securities and Exchange Commission, 'SEC Adopts Rules to Enhance and Standardize Climate-Related Disclosures for Investors'.

[22] Hoepner and others (n 16).

Standardizing formatting can help some aspects of report readability. Similarly, adopting XBRL would logically improve analytical ease. However, it need not improve either linguistic complexity nor report length. For example, such measures would change the formatting and location of the reports' words and contents. However, it need not change the words and contents per se. Standardizing formats would instead allow investors to quickly and easily locate, then analyse, material. In so doing, it improves readability by improving analytical ease. This would not necessarily manifest in shorter, or linguistically simpler, reports, however.

Together these factors suggest that regulation can influence, and improve, financial report readability. However, the precise impact depends on the nature of the regulation.

Why firms should care about readability

Financial report readability is important for firms despite the clear need for increasingly detailed disclosures. Firms must convey information in order to convince prospective investors to invest. Worsening readability has negative ramifications for firms. Firms with worse readability tend to exhibit less efficient investment practices.[23] This is likely because better reporting quality provides better access to capital, thereby reducing financial market frictions. This is at least in part because investors are less willing to pay high prices for assets with uncertain or unclear payoffs.[24] This enables them to pursue more efficient capital investment policies and results in less over-investment, presumably because firms need not over-invest when they have capital for fear they might not be able to finance it in the future.

Financial report readability also helps to facilitate information production by outside analysts, suggesting a cascade type effect. Analysts are important sources of information for investors and for firms. They help to digest firms' information and convey it to investors. Analyst recommendations have a significant impact on whether investors select a firm. This can have flow-on effects for firms' access to capital. The evidence[25] suggests that less readable financial filings impose more work on analysts. This causes lower analyst accuracy, greater forecast dispersion, and greater analyst forecast uncertainty. This harms firms' access to capital and their information environment.

Readability therefore influences firms' cost of equity. Worse readability leads to a worse cost of equity.[26] This seems to be because the risks of investing are higher when investors have difficulty understanding the firms' disclosures.

Poor readability further impacts firms' access to debt. Lenders—and credit rating agencies—rely at least in part on firms' financial filings when evaluating whether to lend and on what conditions to lend. Opacity creates risk for lenders and causes higher interest rates and/or more covenants. The literature[27] indicates that worse readability worsens access to debt, causing a higher cost of debt and worse credit ratings. However, legal requirements to improve disclosure readability can offset this effect by increasing financial report readability.

Better readability also appears to improve corporate valuations. Some evidence suggests that firms with more readable filings trade at higher valuations after controlling for other factors.[28] This is especially important for firms with many smaller retail investors; better readability significantly reduces valuation disagreements between small investors, and this is associated with greater trading, which implies better liquidity.[29] Further, related evidence suggests that improving readability can help to reduce the risk of investors under-reacting to good news[30] and could

[23] GC Biddle, G Hilary, and RS Verdi, 'How does financial reporting quality relate to investment efficiency?' (2009) 48 Journal of Accounting and Economics 112.

[24] I Martin, 'On the Valuation of Long-Dated Assets' (2012) 120 Journal of Political Economy 346.

[25] R Lehavy, F Li, and K Merkley, 'The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts' (2011) 86 The Accounting Review 1087; Loughran and McDonald (n 7).

[26] H Rjiba and others, 'Annual Report Readability and the Cost of Equity Capital' (2021) 67 Journal of Corporate Finance 101902.

[27] SB Bonsall and BP Miller, 'The Impact of Narrative Disclosure Readabilityon Bond Ratings and the Cost of Debt' (2017) 22 Review of Accounting Studies 608.

[28] B-H Hwang and H Kim, 'It pays to write well' (2017) 124 Journal of Financial Economics 373.

[29] BP Miller, 'The Effects of Reporting Complexity on Small and Large Investor Trading' (2010) 85 The Accounting Review 2107.

[30] H You and X-J Kang, 'Financial Reporting Complexity and Investor Underreaction to 10-K Information.' (2009) 14 Review of Accounting Studies 559.

create more favourable reactions in general.[31] Thus, investors are more likely to invest in firms that produce more readable reports and these firms are often associated with better returns.[32]

How litigation risk inadvertently encourages worse readability

Financial reports must be accurate, and firms might comply with continuous disclosure obligations. Investors can sue firms for loss or damage suffered if the firm fails to disclose information that it should have, or if those disclosures are inaccurate or incomplete. Thus, firms bear costs from making reports less readable, but firms bear costs from risking litigation. This tension can ultimately encourage firms to increase disclosure length, complexity, and thoroughness, which can increase disclosure accuracy but decrease disclosure readability.

Continuous disclosure obligations implicitly encourage firms to convey information. The need for disclosure can come into conflict with the need for readability. These obligations vary between jurisdictions. In general terms, they require firms to disclose material information as and when they become aware of it, subject to specific exceptions. Several regulations guide firms' continuous disclosure obligations. This includes listing rules, such as NASDAQ's, which require firms to disclose 'any material information that would reasonably be expected to affect the value of its securities or influence investors' decisions'.[33] In the USA, it also includes SEC Rule 10b-5, which implicitly enables shareholders to sue for loss or damage incurred as a result of firms failing to disclose information when they should have. Regulators also enforce such legislation, fining firms for violations. Litigations and regulatory action often have negative ramifications for managers' careers[34] and for firms' relationships[35] with customers/suppliers and with lenders. Myriad countries have similar continuous disclosure regimes to those in the USA. [36]

Litigation risk can motivate firms to disclose more, increase disclosure complexity and nuance, but inadvertently reduce readability. There is a strong disclosure imperative for firms to disclosure accurate information. This need for accuracy could force firms to disclose more information, add more nuance to disclosures, and use increasingly sophisticated jargon and legal terms-of-art to address specific causes of action. In turn, concern over disclosure accuracy could cause firms to make reports that are less readable, according to established metrics (i.e. measures relying on word count, file size, and linguistic complexity).[37] However, this complexity can create barriers to retail investors[38] in interpreting financial reports owing to their relatively lack of knowledge about complex financial and legal matters.

4. How to improve readability

The issue is then how to encourage firms to produce financial reports that are more readable. This can involve more regulation and/or recognizing the role of market mechanisms. However, in all cases we must distinguish between the causes of poor readability.

The solution to poor readability—if there is a solution—depends on the cause. Here are several key issues. First, firms might use excessively complex words due to poor drafting practices. Second, firms might feel the need to address complex topics. This can include providing additional climate-related disclosure. These areas are often complex, involve complex terminology, and require more detail for a non-scientific audience. Third, firms might feel the need to add more nuance and conditionality to their statements, thereby making their syntax more complex or their text more verbose. When imposing regulation, regulators must balance the need to

[31] K Rennekamp, 'Processing Fluency and Investors' Reactions to Disclosure Readability' (2012) 50 Journal of Accounting Research 1319.
[32] A Lawrence, 'Individual Investors and Financial Disclosure' (2013) 56 Journal of Accounting and Economics 130.
[33] NASDAQ rule 5250(b)(1).
[34] M Humphery-Jenner, 'Internal and External Discipline Following Securities Class Actions' (2012) 21 Journal of Financial Intermediation 151; JM Karpoff, DS Lee, and GS Martin, 'The Consequences to Managers for Financial Misrepresentation' (2008) 88 Journal of Financial Economics 193.
[35] JM Karpoff, DS Lee, and GS Martin, 'The Cost to Firms of Cooking the Books' (2008) 43 Journal of Financial and Quantitative Analysis 581.
[36] In Australia, these come within several statutory provisions, including Corporations Act 2001 (Cth) Section 1041E, and the Australian Stock Exchange (ASX) Listing Rules (https://www.asx.com.au/documents/about/abridged-continuous-disclosure-guide-clean-copy.pdf). These listing rules are given level force indirectly through Section 1041E and directly through Section 674.
[37] Humphery-Jenner and others (n 4).
[38] Miller (n 29).

improve disclosure depth with the goal of improving disclosure clarity. They must also consider the impact of such regulation on smaller firms.

Drafting practices, plain langue rules, and market mechanisms

Plain language rules can help to improve readability. The Plain English Rule of 1998 sought to do so. If we look at the Fog Index (Figure 4), Bog Index (Figure 5), and the use of complex words (Figure 6), we can see that these measures reduced slightly around 1998. However, they subsequently increased. For example, they rose significantly around 2002, which was coincident with the Sarbanes-Oxley Act of 2002 and changes to NYSE and NASDAQ listing rules. Similarly, increased securities litigation has forced firms to disclose more detail in order to ensure that their reports are more accurate. Thus, plain language regulations appear to have had an effect. However, subsequent regulations and disclosure requirements appear to have offset this.

The market might already encourage firms to produce reports that are clearer. Firms must balance the need to disclose increasingly thorough and complex information with the need to make that information accessible. Firms have a clear incentive to make reports digestible. As indicated, reports that are more readable ensure better access to debt, improved analyst coverage, and a better reception from equity investors. Thus, firms would rationally reduce drafting mistakes and improve their drafting practices as this would improve disclosure readability even if regulators demand more material to be disclosed, that material is more complex, or investors increasingly sue for failing to disclose sufficient information.

Market mechanisms can also reduce some measures of readability. For example, market mechanisms can encourage firms to disclose more information in order to reduce the risk of a securities class action. Here, firms must balance the need to disclose *more* information and to do so more *carefully*, with the need to make those disclosures readable. But, improved readability also improves access to capital. Therefore, when firms make these additional disclosures, they are incentivized to make those disclosures more readable than they would otherwise have been.

Market mechanisms are not perfect nor are they are complete solution to poor readability. Market mechanisms do not mitigate the need to disclose *more* information due to regulation or due to litigation risk. Thus, the market can demand more disclosure if it makes the disclosure more accurate. Market mechanisms would only address the need for improved drafting and clarity when making those lengthier, nuanced, or complex disclosures. Further, the notion that market mechanisms improve readability via improved drafting relies on managers both (a) realizing that better readability improves access to capital, and (b) acting on that realization, including by conveying this to professional third parties. Managers might not effectively do so. While managers' compensation is often linked to share prices,[39] agency conflicts are well documented. This can involve managers exerting inadequate effort[40] either when evaluating the financial reports or when evaluating the evidence in relation to the market impact of readability. This risk magnifies the more firms rely on poorly incentivized contractors who themselves might ultimately be overseen by a CEO with limited direct incentive to improve readability.

Professional consulting firms, external counsel, and in-house counsel can only partly mitigate readability issues. Disclosure and reporting specialists enable firms to satisfy their disclosure requirements. This includes disclosing all information that firms are legally required to disclose. It can also include complying with plain language provisions. However, such specialists cannot reduce the amount of material that firms must disclose. They cannot reduce the number of detail required or whether the firm believes it must include nuance or conditional statements. Such specialists cannot fix a lack of standardization or the perceived need to cover complex, legalistic, or jargon-heavy topics. For example, if firms must disclose information in order to reduce their litigation risk, compliance specialists cannot obviate that requirement.

Disclosure and reporting specialists also lack clear incentives to improve disclosure readability. Disclosure specialists are compensated for completing the disclosure task rather than based on making that disclosure more readable. Thus, whereas CEOs might benefit from reducing the firm's cost of capital, the disclosure specialists do not. Further, the relationship between the

[39] See, eg, M Humphery-Jenner and others, 'Executive Overconfidence and Compensation Structure' (2016) 119 Journal of Financial Economics 533.

[40] See, eg, M Bertrand and S Mullainathan, 'Enjoying the Quiet Life? Corporate Governance and Managerial Preferences' (2003) 111 Journal of Political Economy 1043.

firm's cost of capital and its disclosure is too distant to effectively connect the specialists' compensation to readability. Therefore, disclosure specialists have limited upside form making reports readable. But, if the firm is penalized for failing to disclose all relevant information, disclosure specialists can be directly blamed. Therefore, reporting specialists are incentivized to err towards disclosing more information, potentially in an increasingly complex, lengthy, and conditional manner. And, such reporting specialists cannot obviate regulatory demands for more disclosure. That is, third party reporting specialists are not a complete solution to readability concerns.

Reconciling disclosure volume, accuracy, and readability

Disclosure demands have increased over time. This includes demands in relation to disclosure volume and accuracy. However, this raises the question of how to balance such demands with the risk that greater disclosure volume and detail worsens readability and the compliance costs associated with such rules.

Regulators and firms must reconcile the need for *more* disclosure with the desire to improve disclosure readability. This can improve judgments about how much information investors need to make a fully informed investment decision. Regulators can also mitigate this effect by using standardized terminology and formats. For example, regulators could standardize jargon so as to avoid potentially confusing synonyms. This would also help to make those words more salient and familiar, thereby improving readability by making the jargon less opaque. Regulators could also standardize the location and positioning of key disclosures. For example, regulators could standardize the form and order of tables for climate disclosures. In so doing, it would enable investors to quickly parse disclosures as the formatting would be familiar. This is a natural extension of the SEC's move towards its extensible business reporting business language, which required firms to use a standardized reporting framework and enabled investors to download information directly into spreadsheets.[41] In so doing, regulators would improve readability by improving analytical ease.

Standardized reporting has some drawbacks. If the standardized reporting only relates to additional material the firms must disclose, then reports will still be longer due to that additional material. The standardization only improves readability relative to merely increasing reporting requirements without additional standardization. Regulators must also avoid increasing disclosure of otherwise unnecessary material. For example, if regulators demand disclosure of material that investors view as irrelevant to stock prices, then it reduces readability as investors must still parse that information to know that the irrelevant material does not have relevant information within it. Further, regulators must avoid being too prescriptive in terminology or form. For example, if regulators require firms to report specific climate initiatives, then the reports risk overlooking, or deprioritizing, other initiative. Thus, while standardization can yield benefits, it should be balanced to allow sufficient flexibility.

Compliance costs are a concern. Regulations in relation to disclosure volume, or form, require firms to spend more money to comply with those regulations. This is clear in some areas, such as climate disclosures: firms must now collect and report such data. They risk penalties for failing to do so, or failing to do so accurately. This imposes costs. Similarly, regulations in relation to disclosure firm or manner can entail costs. For example, what constitutes a readable report is difficult to determine. There is no bright line test to determine whether a document is readable. Established metrics—such as the Fog or Bog indexes—make assumptions about how to measure readability and what weight to give to different perceived errors. Thus, any additional rules relating to readability will unclear. This would create compliance uncertainty, which can impose costs, including in the form of legal fees to address potential legal issues.

These costs will be especially burdensome for small firms. Small firms typical have limited budgets for additional compliance costs. The already high costs of listing are arguably one reason why some firms have avoided listing on the market.[42] These firms are precisely the type of

[41] See, eg, Securities and Exchange Commission (n 20).

[42] J Duarte and others, 'The Impact of the Sarbanes-Oxley Act on Shareholders and Managers of Foreign Firms' (2014) 18 Review of Finance 417.

firms that existing legal—such as the JOBS Act[43]—have tried to help, even if the efficacy of such measures is debatable.[44] Rather, as long as the firms' disclosures are accurate, firms can efficiently determine how many resources they wish to devote to making them easy to digest, with market forces imposing costs on firms with impenetrable documents.

5. Conclusion

Financial reports have become less readable. Key metrics indicate a steady worsening in readability, across multiple readability measures. Further, firms' filings have become longer, increasing in file size and word count. Regulators have lamented the worsening in readability since at least the 1998 SEC Plain English Rule. Investors and analysts have also confronted the increased difficulty in analysing and interpreting firms' financial releases.

Readable financial reports should be a priority for firms, to the extent that they are possible. Increased readability enhances firms' access to debt, improves firms' analyst coverage, and makes investors more willing to commit capital, manifesting in a more positive reaction to firms' corporate announcements. These factors arise because improving readability helps to reduce uncertainty about the firms' financial statements, which can make investors more willing to invest. This makes the steady worsening of readability curious.

Regulatory complexity is one reason for worsening financial report readability. Firms face increasingly complex regulations, and must grapple with constantly changing accounting rules. This forces firms to describe those often complex changes, using often complex terminology. It also forces firms to highlight the impact of those changes on their accounting statements so that investors can compare information between years even as regulations change. This tautologically worsens readability. However, it is an unavoidable consequence of regulatory change.

Reports might also be less readable as an inadvertent consequence of firms trying to avoid securities litigation. Securities litigation often arises when firms are alleged to have made false disclosures. Litigations are often damaging to firms and to managers, potentially worsening the firms' relationship with lenders, customers, and suppliers. Managers also risk pay cuts and dismissal. Thus, firms might attempt to avoid litigation by disclosing more information and doing so with greater complexity. This helps to improve report accuracy, thereby reducing litigation risk. However, this increased complexity makes the reports less readable.

Regulation has a nuanced impact on readability. In a tautological sense, regulatory stability can improve readability by relieving firms of the need to describe regulatory changes. Further, the need for *more* disclosures tautologically increases disclosure length, size, and depth. Therefore, some readability measures will mechanically worsen as regulators demand additional climate-related disclosures. The SEC appears to be aware of this. The SEC has sought to standardize climate disclosures.[45] However, in so doing, the SEC must balance disclosure complexity and depth against disclosure standardization.

The key issue is then that disclosures have become less readable in part because we expect more of those disclosures. Investors and regulators have become less tolerant of misleading disclosures, including disclosures that omit key nuance. Investors and regulators have demanded more disclosures in more complex areas, such as in relation to climate disclosures. However, increased demands for detail, nuance, and depth come at a cost: reduced readability and increased complexity. Market mechanisms help to mitigate this. If firms are aware that worse readability worsens their access to capital, they *may* attempt to improve readability. However, there are limits owing to agency conflicts which weaken the relationship between corporate performance and capital cost with managerial compensation.

[43] ME Barth, WR landsman, and DJ Taylor, 'The JOBS Act and Information Uncertainty in IPO Firms' (2017) 92 The Accounting Review 25.

[44] S Chaplinsky, KW Hanley, and SK Moon, 'The JOBS Act and the Costs of Going Public' (2017) 55 Journal of Accounting Research 795.

[45] See Securities and Exchange Commission (n 21).

Regulation must therefore be framed in a considered manner: plain language and standardized terminology can help. If regulators increase the amount of information that firms must disclose, they must could encourage firms to adopt standardized language. The Plain English Rule of 1998 helped to improve readability. However, other factors, such as increased disclosure requirements in the Sarbanes-Oxley Act of 2002, partly offset this. Similarly, in complex areas, such as climate disclosure, a move towards common words and common formats can help to mitigate perceived complexity.

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Capital Markets Law Journal, 2025, 20, 1–15
https://doi.org/10.1093/cmlj/kmaf002
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