IF FINANCE IS EVERYWHERE, IS IT ALSO FOR EVERYONE?

HOW HARD IS IT TO MAKE SENSE IN FINANCIAL ACADEMIC LITERATURE?

Luca Piras

University of Cagliari

Oumaima Lahmar

University of Cagliari

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Abstract

Science literature is commonly meant to make research results available to the scientific community, but also, eventually, to the general public and Finance makes no exception. However scientific papers tend to be written in formal and technical languages that makes them less intelligible than they should, complicating the possibility to make sense out of them and drive action in the financial environment for the great majority of individuals.

This has, for a long time, been a silently accepted limit, though more recently it brought to attention the need for a wider spread financial education aimed at reducing financial exclusion as a first goal and addressing broader macro-economic issues such as pension systems sustainability, to name just two.

In this paper we tackle the problem by defining and studying readability in financial academic papers, by the means of the three most widely accepted indexes.

Introduction

Some scholars in finance have recently started arguing the need for using textual data available in the financial environment, which requires the use of both qualitative and quantitative research methods. Despite the increasing interest in textual data and textual analysis, a reluctance in the use and the study of the latter can be easily noticed scanning the top journals in the field, that continue to publish mainly researches applying almost exclusively quantitative models.

This hesitation in adopting textual analysis may be interpreted as a sign of unfamiliarity researchers have with this approach. In fact, scholars proficient in statistical tools analyzing numerical data may be less familiar with textual analysis methodologies and might manifest some nuisance in welcoming and adopting them.

The study of textual data goes back to decades ago, but it has been a matter of interest mainly for disciplines like Anthropology; Linguistics; Medicine related topics; Engineering and so forth, but little or no interest has been detectable in Economics and Financial literature. There are substantially three approaches to textual data that basically diverge in their assumptions about the nature of a text. That is, the relationship between text and reality.

The first - Positivist's approach - assumes that language conform to an objective reality. The sense and the meaning extracted from the text is assumed to be objective. Such an approach combines the search for logic in the forms of a text with the idea that words have meaning and potentially enhance actions only to the extent to which they allow some satisfactory connection to experience, implying that a meaningful sentence can be empirically verified and, therefore, the semantic content of sentences is defined by the logical connections to patterns of experience.

As for the linguistic approach, it assumes that reality is embedded in the text, which implies that it emerges through language (Lacity and Janson

1994). In this context it is assumed that language shapes reality, which means that language cannot be a neutral description of reality, implying that there is an interdependency between language and reality.

Finally, the interpretivist approach assumes that the sense making of language is subjective and each side of the communication phenomenon could assign meaning and make sense differently.

In this paper, we are assuming that the nature of the scientific text implies the extent to which it reflects reality. For example, a political narrative could be perceived and interpreted in different ways, which implies the need to use the interpretivists approach. Whereas a religious narrative (i.e., the Quran) given the complexity of its linguistic characteristics, can be examined through the lens of a linguistic approach.

On the other hand, a scientific narrative, given the "supposed objectivity" characterizing its authors' intentions, might be considered using a positivist approach.

The debate at this point shifts from the degree of objectivity of scientists to the language they use to transmit and eventually to "spread" knowledge through their narratives.

Generally, academia in different fields is a step ahead with respect to the industry. Research and development departments, with the help of scholars, for example in the medical field, are responsible for developing new medicine, formulas, molecules, COVID-19 vaccine, and the industry follows by producing. Analogically in engineering, academia tends to contribute massively to the new technologies that the market produces, which puts it ahead from the industry.

Surprisingly this chronological order is not evident in the financial field. The interaction between "the field" and academic narrative in finance could be metaphorically seen as a sphere, where positions are in a continuous change up, down, back and front. In some periods in the academia's history, scholars took the lead with theories, models and ratios that were "guiding"

the market participants. In other periods academia can be seen as following the market, where its role was limited to observing and attempting to describe and understand the reality. The continuous change in the impact academia has on the financial markets may rise the debate not only on the quality of the research conducted, but also on the way it is communicated to the market.

We consider academic articles published in finance journals for a closer look on the nature of text written by academia in order to understand the extent to which the textual data they "produce" is potentially understandable by market participants and eventually by the general public, having therefore an impact on market participants behavior.

Following the positivists approach in analyzing textual data, a readability analysis has been conducted on academic articles selected from flag journals in finance. The readability analysis, as it will be further explained in the following sections, is a quantitative methodology – consistent with the positivism approach - based on textual analysis, that makes possible to estimate the degree of ease or difficulty a reader might face when reading a text. The readability indexes are used for this analysis to have an approximation of the grade level, the number of years of formal education, required to understand a text.

There are two widely spread prejudice about the language of science. The first notion is that the vocabulary used by scientists is complex, hard to spell and pronounce. It extensively includes difficult words that it may, and normally it does, intimidate the general public. The second notion is that science has a heavily prosaic language. "Objective" sentences that report facts, excluding both sentiments and personal beliefs.

Questioning this prejudice about language in finance academic narrative implies, in fact, the need for a readability analysis to investigate to which extent these claims are true, or false.

Scientific Narrative in Finance (Lit Review)

Communication is argued to be about "*establishing understanding between perspectives*". However, any complex idea may be difficult to share and explain. Some communications include a set of scientific prose that may be written in a technical language, showing objectivity, that is indifferent to the audience, posing an additional challenge to them Sharp and Baron, "Review of Escape from the Ivory Tower"; Green, Grorud-Colvert, and Mannix, "Uniting Science and Stories"; Padian, "Narrative and 'Anti-Narrative' in Science: How Scientists Tell Stories, and Don't.".

Objective information cannot be assumed to be intrinsically appealing during the communication process as evidence, in fact, does not always speak for itself Sharp and Baron, "Review of Escape from the Ivory Tower"; Schimel, *Writing Science*; Fischhoff and Scheufele, "The Science of Science Communication II"; Green, Grorud-Colvert, and Mannix, "Uniting Science and Stories.". That's why, one of the most effective ways to make an information or an idea meaningful, is through the use of narratives and storytelling Norris et al., "A Theoretical Framework for Narrative Explanation in Science"; Avraamidou and Osborne, "The Role of Narrative in Communicating Science.".

Individuals, particularly those unfamiliar with technical terms and mathematical formalizations, find easier to understand information wrapped into narratives because stories are deeply rooted in our cognition as it has been considered as a primary cognitive instrument Herman, "Storytelling and the Sciences of Mind"; Joubert, Davis, and Metcalfe, "Storytelling.".

Narratives can substantially encompass new, complex, technical information into a familiar context which enhances the involvement and the attention of the receiver on one side and stimulates her/his emotions on the other

side O'keefe, *Message Properties, Mediating States, and Manipulation Checks*; Sanford and Emmott, *Mind, Brain and Narrative*; Zak, *"Why Inspiring Stories Make Us React: The Neuroscience of Narrative."*. In other terms humans seem to be prone to interpret and process information more efficiently when it is communicated in a narrative context. As a matter of fact, compared to other forms of communications like the descriptive or procedural explanation techniques, stories provoke our narrative appetite, increasing our interest in continuing the story until the resolution is reached Downs, *"Prescriptive Scientific Narratives for Communicating Usable Science."*.

That's why the use of narratives can help surmount the challenges communicators and receivers may face by addressing the barriers both parties may have.

Through finance research narratives, academia tries to build new lines of inquiry by making hypothesis, building explanatory and/or descriptive models and testing them Parwada, *"The Scientific Value of Finance after the Crisis: Evidence from Research Usage and Financial Innovation."*. High quality academic research are conducted to deepen the understanding of how financial markets work: capital structure decisions, capital markets efficiency and investors' behaviors dynamism Broby, *"The Impact of Academic Research in Finance (Impact Ratio)."*.

The doubt in finance research efficacy rises further challenges, and the question over the extent to which it is impactful on market participants beyond its academic contributions remains largely unanswered. This seems to be particularly crucial for the field, in which scholars are committed to underpin financial markets that witness rare, though increasingly frequent, intense and profound crisis Shiller, *"Narrative Economics."*.

Making sense in the financial discourse, requires a more extensive review about the nature of this discourse and its qualifying characteristics. It seems to be crucial to understand the anatomy of academic narratives in terms of

understandability, readability and its speed of spread among market practitioners. The complexity of the topics debated, and the complicated aspects of some concepts may entail the use of complex writing structure to transmit information accordingly. It may also imply the constant use of specific phrase structures, data analysis, quantitative models and references.

Furthermore, one of the main characteristics of science narrative is the use of what we call Jargon Sawyer, Laran, and Xu, *"The Readability of Marketing Journals."*, defined by the Cambridge dictionary as "the set of words or phrases used by a particular group of people especially in their work [⋯] and which most of other people are intimidated with their sense". The quality of a scientific narrative generally is reflected by the correct use of grammatical tools and the appropriate sentence length, while avoiding the unnecessary use of technical words, all this in the frame of the technical language shared and accepted within the comunity. Not surprisingly, finance makes no exception.

Finance researchers strive to publish their writings in leading journals possessing a far-reaching readership and high influence through the impact they make in the discipline. Beyond the importance of publishing as a personal accomplishment, there is a widespread principle in academia Known as "publish or perish" that increases competitivity between researchers and incentivizes them to publish a higher number of articles. The main reason lying behind this principle is that some researchers consider that the degree of success and "fame" is reflected by two dimensions.

The first is purely quantitative, calculated based on the number of publications in top journals in the discipline that a researcher succeeded to make. Before publishing, researchers must go through a long process of evaluation, starting by submitting manuscripts and having the referees' feedback. An audience of experts typically build their judgement about scientific articles based on different criteria among which we find the originality of the topic, the clarity of the content and the relevance or impact of the findings, that is

the contribution of the research to the discipline. The number of articles published by a researcher may be used as an indicator of the accuracy of the research on one side and the expertise of the researcher on the other side.

Assuming the process of publication as being relatively unbiased, and the selection and publication process rigorous, the number of articles published seems to be an acceptable indicator for an individual's scientific output.

The existing literature about the individual output in finance research examines the topic from various perspectives. Based on the model built by Cox and Chung, "Patterns of Research Output and Author Concentration in the Economics Literature." individual productivity in economic research is found to be following an empirical regularity. In addition to this finding, the research highlights a high concentration among contributors to finance journals.

Zivney and Bertin, "Publish or Perish." claim that with the noticeable increase in the quantity and quality of publications in finance journals and the high competition among scholars, the rate of publication acceptance has dramatically declined and so did the number of research output published by doctoral graduates, contrary to the conventional wisdom. Other authors investigated the influence of various factors on the scientific productivity such as the institutional affiliation of the researcher Schweser, "The Doctoral Origins of Contributors to the Journal of Finance from 1964 Through 1975.", the geographic distribution of researchers Petry and Fuller, "The Geographic Distribution of Papers at the Seven Academic Finance Associations in the United States.", the institutional source and concentration Klemkosky and Tuttle, "The Institutional Source and Concentration of Financial Research." etc.. While the first dimension measuring the number of articles published by a researcher reflects the scientific productivity, the second dimension of our evaluation (quality) is related, to a certain extent, to the impact the research's contributions may have to the discipline.

The second dimension is a more complex one as the debate is still on to judge its efficacy in demonstrating the quality and/or the impact of a research paper. Crane, ″Review of Social Stratification in Science.″ in his review of the volume "Social Stratification of Science" by Cole and Cole (cite), explains that straight citation indicators are correlated with relatively all refined measurement of research quality which makes citation count be an indicator of the paper quality. Whereas Martin and Irvine, ″1-S2.0-0048733383900057-Main.Pdf.″ claim that citations demonstrate only partially the quality of the paper when joined with other indicators that converge to the same judgment. They suggest that judging the papers' quality, importance or even impact is impossible by direct measurements of citations as the latter, are linked to the perception scientific community have of the paper and their judgement on its worthiness.

However, the importance and the impact of the research in the discipline can partially be reflected by citation indicators. Given the fact that publication criteria and citation behavior vary across research fields and even subfields, scientometricians developed a code of best practice, through which citation counts are normalized based on the field of research, where the degree of attractiveness of research papers is calculated for papers of the same nature, published in the same year, and belonging to the same field of research Aksnes, Langfeldt, and Wouters, ″Citations, Citation Indicators, and Research Quality.″.

The normalized citation indicator used in finance, mainly measures the degree of attention and the attractiveness of the publication given by the normalized number of citations it received. Furthermore, normalized citation counts demonstrate that the contribution proves to be insightful, reliable and accurate for other researchers to the extent that they are building their own papers based on these findings, specifically when the research is cited in one

of the top journals in finance Chung, Cox, and Mitchell, *"Citation Patterns in the Finance Literature."*.

Citation indexing provides researchers, as well as market participants, with useful insights in determining the course of thought and detect the state of the art in finance within a "storm" of academic papers Chung, Cox, and Mitchell.. By using citations, researchers acknowledge the link between their research and the past findings that engaged their attention Hamelman and Mazze, *"Citation Patterns in Finance Journals."*.

The literature about citations in finance journals investigated the citation patterns arguing that citations in top finance journals account only for about 10% of finance researchers Chung, Cox, and Mitchell, *"Citation Patterns in the Finance Literature."*.

In the context of citations and research impact and quality assessment, the literature reveals a new tendency to integrate different proxies: the readability index of the research, the journal's impact factor where the research has been published and the number of citations.

In their attempt to evaluate the research quality, Kerl, Miersch, and Walter, *"Evaluation of Academic Finance Conferences."* developed an evaluation framework for finance academic conferences to help researchers choose the highest rated conferences to participate to. The evaluation approach was based on three different criteria: 1) the raking of the journal where the discussed article is published; 2) the citation count indicator and 3) the participants' judgement about the quality of finance conferences.

Parallelly, Hamermesh, *"Citations In Economics."* suggests that citations might be a better indicator of the quality of the research compared to the ranking of the journal where it has been published. He argues that there is a tremendous heterogeneity in the quality of articles published in the same outlet. Thus, judging an individual research based on the average quality of the journal seems "noisy" and error prone.

Some researchers from different fields took a step forward in using citations counts as a quality and/or impact indicator. Leydesdorff et al., "Citations." argue that the number of citations is a compounded indicator composed of short-term and long-term citations. They identify the different impacts both types of citations have. The short-term citations may be considered as a research front citation that transmit a "transitory" knowledge whereby the researchers make small steps progress in the debate. Whereas, the long-term citations transmit a "sticky" knowledge, that is: a codified citation can play the role as a concept symbol (Anchoring).

To understand the citation pattern in finance journals and the factors shaping it, Berninger et al., "The Readability of Finance Articles and the Number of Citations: Can Articles Be Too Straightforward to Be Cited?" investigated the link between the citation in top leading finance journals and the readability of the research papers cited. The first insightful, yet surprising, finding is the positive correlation between the poor readability of the academic articles and the number of citations. In other terms, they found a link between high complexity of research texts and high number of citations these papers receive, while complex abstracts result in a lower number of citations. The debate may be consequently risen about the readability of the academic "narratives" and the extent to which academic papers are accessible by non-academic readers like market participants.

Readability level is crucial for a good textual communication which, as a notion, has a complex definition. It can be used to describe three different features of a written text. (Klare 1974, 2000) suggests that it can describe a written text in terms of its legibility or its desirability and importance for the reader's sake or its understandability. Readability is also defined as the ease readers have with the textual cognitive processing, and the extent to which a textual communication provides a good opportunity for readers to understand and extract a meaning out of it Sattari, Luleå tekniska universitet, and

Institutionen för ekonomi, *Essays on the Issues of Readability in Business Disciplines.*.

With the growing number of textual communications in the financial world (academic articles, annual reports, IPOs and earning announcements, financial analysts' reports, newspaper articles…), the transmission of a certain message or meaning through texts and their impact on the academic community, as well as market practitioners, may be highly dependent on its accessibility in terms of linguistic characteristics and understandability.

In fact, in the sense-making process, individuals need to collect and select readable and clear information to build up their current narrative and act upon it. Thus, readability is particularly crucial both to sense and decision making. It is intuitively assumed that a text is said to be readable when it is composed of simple familiar words and short sentences Danielson, *"Readability Formulas: A Necessary Evil?"*.

Researchers, studying readability of scientific journals and articles in different research fields, pointed out that writings are becoming more and more complex, and the readability level is steadily decreasing which has lessen the accessibility to the scientific knowledge Bauerly, Johnson, and Singh, *"Readability and Writing Well."*.

The evolution of readability level of scientific papers has been investigated by the means of two types of measurement tools: readability index that witnessed a decrease over time and the word count which highlighted the increase of the use of scientific and field-specific words at the expense of the commonly used words Plavén-Sigray et al., *"The Readability of Scientific Texts Is Decreasing over Time."*.

In economics, studies on readability were conducted on a wide range of texts and communications, such as marketing academic articles and journals Sawyer, Laran, and Xu, *"The Readability of Marketing Journals"*; Bauerly, Johnson, and Singh, *"Readability and Writing Well."*, economic review

McCannon, *"Readability and Research Impact."*, tourism journals Dolnicar and Chapple, *"The Readability of Articles in Tourism Journals."*. In finance, the study of readability is still a nascent research topic. Studies currently have been testing the readability level in finance textbooks Plucinski and Seyedian, *"Readability of Introductory Finance Textbooks"*; Willey, Willey, and Mendez, *"The Readability of Undergraduate Corporate Finance Texts."*, annual reports and financial disclosures Aymen, Sourour, and Badreddine, *"THE EFFECT OF ANNUAL REPORT READABILITY ON FINANCIAL ANALYSTS'BEHAVIOR"*; Bonsall and Miller, *"The Impact of Narrative Disclosure Readability on Bond Ratings and the Cost of Debt"*; Loughran and Mcdonald, *"Textual Analysis in Accounting and Finance"*; Riley and Luippold, *"Managing Investors' Perception Through Strategic Word Choices in Financial Narratives"*; Loughan and McDonald, *"Measuring Readability in Financial Disclosures"*; Tan, Wang, and Zhou, *"When the Use of Positive Language Backfires"*; Tan, Wang, and Zhou, *"How Does Readability Influence Investors' Judgments?"*; Dempsey et al., *"Financial Opacity and Firm Performance."*.

There are two approaches measuring the difficulty or the readability of a text. Readability formulas are mainly mathematical equations that attempt to estimate the degree of difficulty of a written text based on its linguistic, semantic and grammatical characteristics. Using readability formulas provides a predictive value of how challenging or sophisticated the text might be without involving the reader.

The second approach relies mainly on the readers' judgement. It measures the degree of readability based on testing the readers' comprehension. The major critic about the reliability and the validity of second approach emerges when the judgement task becomes more complex with long texts requiring more time and effort Klare, *"Assessing Readability."*. Meanwhile, readability formulas address specifically this aspect of text communications by

measuring the degree of comprehensibility based on the complexity of words in terms of number of characters, syllable composition and number, the frequency of the use of uncommon words (technical, scientific, field-specific), the length and the structure of the sentences.

In economics, studies on readability were conducted on a wide range of texts and communications, such as marketing academic articles and journals Sawyer, Laran, and Xu, "The Readability of Marketing Journals"; Bauerly, Johnson, and Singh, "Readability and Writing Well.", economic review McCannon, "Readability and Research Impact.", tourism journals Dolnicar and Chapple, "The Readability of Articles in Tourism Journals.". In finance, the study of readability is still a nascent research topic. Studies currently have been testing the readability level in finance textbooks Plucinski and Seyedian, "Readability of Introductory Finance Textbooks"; Willey, Willey, and Mendez, "The Readability of Undergraduate Corporate Finance Texts.", annual reports and financial disclosures Aymen, Sourour, and Badreddine, "THE EFFECT OF ANNUAL REPORT READABILITY ON FINANCIAL ANALYSTS'BEHAVIOR"; Bonsall and Miller, "The Impact of Narrative Disclosure Readability on Bond Ratings and the Cost of Debt"; Loughran and Mcdonald, "Textual Analysis in Accounting and Finance"; Riley and Luippold, "Managing Investors' Perception Through Strategic Word Choices in Financial Narratives"; Loughan and McDonald, "Measuring Readability in Financial Disclosures"; Tan, Wang, and Zhou, "When the Use of Positive Language Backfires"; Tan, Wang, and Zhou, "How Does Readability Influence Investors' Judgments?"; Dempsey et al., "Financial Opacity and Firm Performance.".

Readability analysis in finance can be substantially categorized based on the type of text on which the analysis has been performed. From the literature, four types of textual data have been identified. The most extensively analyzed finance related text is the corporate disclosure (financial annual reports).

Financial disclosure is considered to be with extreme importance given the fact that it fosters a healthy relationship between the management, investors, analysists, and the financial market. In fact, stock price fluctuations are a manifestation of the level of ignorance in the market. For this reason, financial disclosure is crucial for both corporations and investors, which might explain the focus of the literature on the textual analysis conducted on this type documents.

In their attempt to evaluate the impact of information (text) complexity on the investors' perception and behavior Tan, Wang, and Zhou, "How Does Readability Influence Investors' Judgments?" conducted an experiment including paragraphs from 10-k fillings with different readability levels, where participants had to read the case material and judge the performance of the company. The experiment results unsurprisingly, highlighted the great influence of the readability on investor judgement. In the same context, the readability level has been found to have a great influence on individual investors' trade volume. In fact, an association between complex 10-k fillings and abnormal lower trading volume seems to be driven by both reporting complexity and deviation of reporting complexity over time Miller, "The Effects of Reporting Complexity on Small and Large Investor Trading," 2010..

Another investigation has been conducted on the impact of information complexity (readability) in 10-k fillings and several measures of analysts' behavior including forecast revision time, information content of the analysts' reports and the properties of the earnings forecasts Lehavy, Li, and Merkley, "The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts.". The finding of this study highlighted an association between low readability level and greater effort, coverage and information in analysts' reports. However, the lower accuracy, higher dispersion and higher uncertainty about the earnings forecasts have as well been associated with less readable 10-K fillings.

There is quite an extended literature on the association between readability of annual reports and the firm's performance Li, "Annual Report Readability, Current Earnings, and Earnings Persistence"; Loughran and Mcdonald, "When Is a Liability Not a Liability?"; Dempsey et al., "Financial Opacity and Firm Performance"; Hasan and Habib, "Readability of Narrative Disclosures, and Corporate Liquidity and Payout Policies"; Rjiba et al., "Annual Report Readability and the Cost of Equity Capital.", potential fraud, investor's feelings, judgment and trading behaviorMiller, "The Effects of Reporting Complexity on Small and Large Investor Trading," 2010; Tan, Wang, and Zhou, "When the Use of Positive Language Backfires"; Tan, Wang, and Zhou, "How Does Readability Influence Investors' Judgments?", financial analysts perception (Lehavy et al. 2011; Rennekamp 2012; Bonsall and Miller 2017; Aymen et al. 2018).

The second type of text on which readability analysis has been performed is analysts' reports. Surprisingly, the literature is relatively scarce which might be explained by the difficulty researchers might find to access such documents. A study has been conducted on the market reaction to the analysts' report readability by measuring the firm's value at the time the analyst report is issued. The findings of this investigation highlighted the positive association between more readable analyst reports and the firm's stock returns. In other terms, markets react positively to more readable reports Hsieh, Hui, and Zhang, "Analyst Report Readability and Stock Returns.". These results have been confirmed by another study, showing that more readable, precise and informative reports incentivize investors to initiate trading De Franco et al., "Analyst Report Readability.".

The third type of finance related text on which readability analysis has been done is finance textbooks. After careful research of the literature, only two studies have attempted to estimate the readability level of finance and corporate finance textbooks so far Willey, Willey, and Mendez, "The

Readability of Undergraduate Corporate Finance Texts"; Plucinski and Seyedian, "Readability of Introductory Finance Textbooks.". The purpose of these works was to identify the more readable textbooks for finance students.

Finally, the fourth type of documents on which readability analysis has been conducted is academic papers published in finance. Extensive research has been done and only two papers have been found to have treated this type of documents in finance……..

Researchers, studying readability of scientific journals and articles in different research fields, pointed out that writings are becoming more and more complex, and the readability level is steadily decreasing which has lessen the accessibility to the scientific knowledge (Plucinski and Seyedian 2013; Willey et al. 1998). The evolution of readability level of scientific papers has been investigated by the means of two types of measurement tools: readability index that witnessed a decrease over time and the word count which highlighted an increase of the use of scientific and field-specific words at the expense of the commonly used words Plavén-Sigray et al., "The Readability of Scientific Texts Is Decreasing over Time.".

McCannon, "Readability and Research Impact." used the Linsear Write metric on economic scientific research's introductory sections to measure the readability and the citation count to measure the impact of the sample papers from the American Economic Review. The main finding of the study is that the most unreadable papers (on the right tail of the distribution) are less cited, and the empirical evidence suggests a negative correlation between the readability level of the first section of an article and the citations count.

Dowling, Hammami, and Zreik, "Easy to Read, Easy to Cite?" investigated the relation between readability and future citations articles in the Economics Letters review might receive. They built a Probit model with a binomial outcome (cite vs no cite) to estimate the impact of scientific articles readability

on the future citations. Based on the abstracts' readability, the study finds a positive relationship between the ease to read and the ease to get cited in the future.

Surprisingly, investigating the literature on the difficulty of academic narratives in finance, it seems to be missing as far as this paper was written. The first is a small investigation on the readability level of academic articles published in the journal of property investment and finance. Lee and French, "The Readability of Academic Papers in the *Journal of Property Investment & Finance."* applied five readability measurements on articles from the Journal of Property Investments and Finance to measure the readability by estimating the educational level required to read and understand the sample articles. The resulting estimate is that the scientific articles published can be read by college students which ranks them in the range of difficult texts.

Although the results suggest a high difficulty level, the authors argue the reason laying behind this level is that the articles are oriented to high qualified audience. This raises a serious question about the accessibility of the general audience to scientific knowledge in finance. While high qualified investors may understand the findings of such articles and may make use of them, less sophisticated investors would struggle to access to a "useful" information for their decision-making.

The second and most recent paper studied the influence of readability of finance academic papers on the citations they may receive Berninger et al., "The Readability of Finance Articles and the Number of Citations: Can Articles Be Too Straightforward to Be Cited?". In fact, the study is concerning the impact of the complexity of abstracts (as a part of the first section in academic articles) and the decrease in the number of citations. Limiting the readability measurement to the first section of an article may be explained by the argument that the latter are the most read by readers. This assumption seems to be based on the claim of Pitkin, Branagan, and Burmeister, "Accuracy of

Data in Abstracts of Published Research Articles." suggesting that often the only part read in scientific articles is the abstract. However, this study has been conducted on papers from the medical field. Thus, the generalization of these findings on articles in the economic field, may be error prone or, at least, extremely noisy. Furthermore, the generalization of the readability of the first section on the full text of the paper seems a rather strong assumption, potentially leading to biased results.

Through the course of the scientific history, researchers intentionally or unintentionally implemented a narrative thought to make sense of the reality, create rational explanations, descriptions and interpretations of their own experiences with the external world. Narrative thought in fact, related human experiences to scientific explanations leading eventually to better assimilation of both. By shedding the light on the academic discourse, we will try to evaluate how accessible and understandable are academic articles compared to other scientific narratives such as annual reports, financial analysists reports and newspapers. This paper will try to fill the gap concerning the readability of the academic financial narrative and its implications on the academic community on one side and on the market practitioners on the other side (adaptation of market behavior of investors).

A summary of the literature review of finance related texts' readability is attached in table. In table 1 we summarized the papers examined and tried to extract the readability indexes used for each research and the resulting estimations. In table 2 we summarized the works that attempted to estimate the readability of academic papers in different fields of research.

Both tables will be used in a further section to compare the readability level of academic papers in finance first with other finance related texts (annual reports, textbooks, analysts' reports) and second with academic papers in other fields.

Title	Year	Author	Index	Sample	Result
Readability: A Measure of the Performance of the Communication Function of Financial Reporting	1971	James E. Smith and Nora P. Smith	Dale-chall and Flesch Reading Ease	randomly sampled Financial statements of 50 corporations listed in NYSE	28.6% college graduate; 57.1% college; 14.3% high school
The Readability of Undergraduate Corporate Finance Texts	1998	Thomas Willey, Liane Holliday Willey and Jose Mercado Mendez	Flesch Kincaid grade	9 undergraduate corporate finance textbooks	Contemporary Financial management 12.64; Essentials of Managerial Finance 12.18; Basic Financial Management 11.24; Foundations of Financial Management11.12 Foundation of Managerial Finance 11.04 Fundamentals of Financial Management10.76 Fundamentals of corporate finance 10.26 Introduction to Financial management 9.88 Fundamentals of corporate finance 8.83
Annual report readability, current earnings, and earnings persistence	2008	Feng Li	Gunning Fog	55,719 10-k filling from EDGAR	Fog= 19.39
Financial Opacity and Firm Performance: The Readability of REIT Annual Reports	2010	Stephen J. Dempsey & David M. Harrison & Kimberly F. Luchtenberg & Michael J. Seiler	Flesch Kincaid Grade	183 of REIT's: 1573 firm-year observation	average FLKG= 12.89
The Effects of Reporting Complexity on Small and Large Investor Trading	2010	Brian P. Miller	Gunning Fog and Plein English	12771 10-K fillings of 3809 firms from EDGAR	Fog= 19.943; PE= 21.157
The readability of academic papers in the Journal of Property Investment & Finance	2011	Stephen Lee, Nick French	Flesch reading Ease	297 Academic paper introduction from the journal of Investment and Property Management	Average FRE score: 30.4 and FKG: 15.5

Title	Year	Authors	Measure	Data	Results
The Effect of Annual Report Readability on Analyst Following and the Properties of Their Earnings Forecasts	2011	Reuven Lehavy Feng Li Kenneth Merkley	Gunning Fog	33704 10-k fillings from EDGAR and Compustat	Fog=19.53
Processing Fluency and Investors' Reactions to Disclosure Readability	2012				experiment
Readability of Introductory Finance Textbooks	2013	Kenneth J. Plucinski and Mojtaba Seyedian	Flesch Kincaid Grade	6 chapters from 5 introductory finance books	block: 12.7; Brignam: 11.0; Gitman:12.8; Keown:12.1; Ross:10.1
Analyst report readability	2013	Gus De Franco, Ole-Kristian Hope, Dushyantku-mar Vyas, Yibin Zhou	Gunning Fog and Flesch Kincaid and Flesch Reading Ease	356463 Equity Analysts reports from textsat	Fog=18.71; Flesch Kincaid=51.85 Flesch Reading Ease=8.48
Individual investors and financial disclosure	2013	Alastair Lawrence	Gunning Fog	91228 10-k filling of 1555 firms from compustat	Fog=19.02
Measuring Readability in Financial Disclosures	2014	TIM LOUGHRAN and BILL MCDON-ALD	Gunning Fog	66707 of SEC10-k filling from EDGAR	1994 to 2002: 18.44; 2003 to 2011: 18.94; 1994 to 2011: 19.68
When the Use of Positive Language Backfires: The Joint Effect of Tone, Readability, and Investor Sophistication on Earnings Judgments	2014	HUN-TONG TAN, ELAINE YING WANG and BO ZHOU			experiment
How Does Readability Influence Investors' Judgments? Consistency of Benchmark Performance Matters	2015	Hun-Tong Tan, Elaine Ying Wang and Bo Zhou	Gunning Fog	earnings press release of MD&A and Littlefuse	MD&A: 25.71; Littlefuse.Inc:15.18 / experiment

Analyst Report Readability and Stock Returns	2015	Chia-Chun Hsieh, Kai Wai Hui, Yao Zhang	Gunning Fog	2164 Analyst report from investext	Fog=14.008
The impact of narrative disclosure readability on bond ratings and the cost of debt	2017	Samuel B. Bonsa & Brian P. Miller	Gunning Fog	3659 10-K fillingS from FISD	Fog=19.397
Earnings management and annual report readability	2017	Kin Lo Felipe Ramos Rafael Rogo	Gunning Fog	26967 10-k filling from EDGAR AND COMPUSTAT of 4855 firms	FOG=18.020
THE EFFECT OF ANNUAL REPORT READABILITY ON FINANCIAL ANALYSTS'BEHAVIOR	2018	Ajina Aymen, Ben Saad Sourour, Msolli Badreddine	Flesch reading Ease and Gunning fog	528 10-K fillings of 88i listed French companies CAC	Fog=16.82; FRE= 38.2
Readability of Narrative Disclosures in 10-K Reports: Does Managerial Ability Matter?	2018	Mostafa Monzur Hasan	BOG index	56568 10-k filling of 8133 firms from EDGAR	Bog= 82.847
Readability of narrative disclosures, and corporate liquidity and payout policies	2020	Mostafa Monzur Hasan, Ahsan Habib	Gunning Fog	10-k filling from EDGAR AND COMPUSTAT	FOG=19.76

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Title	Field	Year	Author	Index	Sample	Period	Result
An analysis of the readability of selected management journals.	management	1973	Loveland, J., Whatley, A., Ray, B., & Reidy, R.	Flesch Reading Ease	400 articles from 10 journals	1967-1971	min: 18 max: 55

Title	Field	Year	Author	Measure	Sample	Period	Results
Abstract Readability as a factor in information systems	Education	1975	G.B. Dronberger and T. Kowitz	Flesch kincaid	70000 documents published in Research in education	1967-1970	Adult education 11.76 educational management 12.78 education media 12.19 rural education 12.19
Unintelligible Management Research and Academic Prestige	management	1980	Armstrong, J. S.	Gunning Fog	10 management journals		min: 20.2 max 54.3
How effectively do marketing journals transfer useful learning from scholars to practitioners?	Marketing	2004	Crosier.K	Flesch Reading Ease	475 articles from 14 journals	2003	Min: 0 max:71
Readability and writing well	Marketing	2006	Bauerly, Johnson and Singh	Flesch Reading Ease	5 introductory sections of 5 articles each 5 years Journal of Marketing total 70 articles from 1 journal	1936-2001	the samples' scores ranged from 41.2 to 12.6 with an overall mean of 27.1 "very difficult.
The Readability of Marketing Journals: Are Award-Winning Articles Better Written?	Marketing	2008	Alan G. Sawyer, Juliano Laran and Jun Xu	Flesch Reading Ease and Flesch Kincaid grade	81 Award winning vs 81 non winning articles in Journal of marketing, Journal of marketing research and journal of international marketing and journal of public policy and marketing: 162 articles	1991-2004	winning articles: Flesch: range from 24.0 to 50.7 non winning articles: Flesch: range from 20.8 to 44
Are the abstracts of high impact articles more readable? Investigating the evidence from top research institutions in the world	Multiple fields	2011	Ali Gazni	Flesch Reading Ease	260000 articles	2000-2009	No changes in the readability over time. Always hard to read. The average abstracts' scores from Harvard, Johns Hopkins, Stanford, Washington University and the Max Planck Institution were 15, 16, 16, 16 and 19, respectively. These abstracts were 'very difficult' to read.

| The readability of finance articles and the number of citations: Can articles be too straightforward to be cited? | Finance | 2020 | Marc Berninger-Flesch Kincai, Florian Kiesel, Dirk Schiereck, and Eduard Gaar | Flesch kincaid | 4160 articles from JF, JFE, RFS
8236 articles from 11 other finance oriented journals | 2000-2016 | The readability of finance articles has worsened over time. The average Flesch-Kincaid index increased from 16 (yr 2000 to 2004 period), to 18 (yr 2011 to 2015). Thus, within the past 15 years, the average reader needs two more years of formal education to understand the paper. |

Methodology

Indexes

More than 200 indexes have been developed to determine the readability of a text. Most of them have been developed to fulfill special purposes and, in fact, display different grades of efficacy when applied to different corpora. This is the reason why a very severe selection of the possible methods has been performed, leading to the choice of the three indexes that appear to be the most widely accepted and used in analyzing social sciences, economics, and business-related corpora:

1. Flesch Reading Ease;
2. Flesch-Kinkaid Reading Grade Level;
3. Gunning Fog Index.

Finance research articles are formal writings, often rich with technical financial terms and scientific jargon. Average words length is relatively higher than a traditional novel or newspaper article, and sentences tend to be more complex. Further fostering financial knowledge about how the market works and the way in which market participants are "supposed" to actively engage, seems to be crucial for market properly functioning.

Consequently, market regulators are incentivizing greater transparency from the corporations' side, by imposing rules and standards on the way financial information is presented to market participants to make sure it is transparent, understandable, and accurate. Hence, readability metrics have gained further importance and traction.

Analogously, academia has been interested in the understandability of finance related texts and the focus based on the literature (Excel file) was on financial disclosure. This is why we are interested in the scientific narrative

in finance by measuring its understandability using various readability metrics, since it has never been appropriately analyzed until now, as far as we know.

Readability, as defined previously, is a metric that describes the ease/difficulty to understand a textual communication. Readability formulas rely on counts of language variables to provide an estimation of the level of ease/difficulty of making sense of a given text. Readability metrics could be seen as a prediction, in the sense that there is no actual feedback from the readers themselves to judge the extent to which the text is understandable.

Flesch (1949) developed his readability formula to measure the reading comprehension of the United States Navy personnel and evaluate the understandability of the supplied technical manuals, where the reading ease is computed based on the following variables:

1. average number of words per sentence (sentence length);
2. average number of syllables per word (word length).

The resulting reading ease score is between 0-unreadable and 100- easy for literate person.

$$RE = 206.835 - 1.015 \left(\frac{number\ of\ words}{number\ of\ sentences} \right)$$
$$- 84.6((number\ of\ syllabes)/(number\ of\ words))$$

The table below, gives guidance to interpret the index's magnitude, by linking the value of it to the parameters it uses for the calculation.

Flesch Reading Ease					
Score	Level	Words/ sentence	Syllables/ word	Estimated school grade completed	% of adults able to read at this level
90-100	Very easy	8 or fewer	1.23 or fewer	4th	93
80-90	Easy	11	1.31	5th	91
70-80	Fairly easy	14	1.39	6th	88

60-70	Standard	17	1.47	7th or 8th	83
50-60	Fairly hard	21	1.55	Some high school	54
30-50	Hard	25	1.67	High school or some college	33
0-30	Very hard	29 or more	1.92 or more	College	4.5

Higher scores are linked to very easy text, readable by virtually everyone with a very low level of school attendance, while a "standard" text is estimated to be readable by individuals who attended seven or eight years of school. That is, also, the level of difficulty a common newspaper article should present. Texts composed by very long and articulated sentences, in which words are, on average, multi-syllabic ones (more than 2), tend to require a higher education level – typically college degree or higher – reducing the percentage of individuals able to grasp the sense of it at first reading, to less than 5% of the population.

Flesch Kincaid Grade (1975) is instead a readability score that estimates the US school grade level required to understand a given text. FKG is one of the most used readability indexes and although it is based on the same variables, it is negatively correlated with the Flesch reading ease.

$$FKG = 0.39 \left(\frac{number\ of\ words}{number\ of\ sentences} \right) + 11.8 \left(\frac{number\ of\ syllabes}{number\ of\ words} \right) - 15.59$$

Flesch-Kinkaid Reading Grade Level					
Estimated school grade completed	Level	Words/ sentence	Syllables/ word	Score	% of adults able to read at this level
4th	Very easy	8 or fewer	1.23 or fewer	90-100	93
5th	Easy	11	1.31	80-90	91
6th	Fairly easy	14	1.39	70-80	88
7th or 8th	Standard	17	1.47	60-70	83
Some high school	Fairly hard	21	1.55	50-60	55

High school or some college	Hard	25	1.67	30-50	33
College	Very hard	29 or more	1.92 or more	0-30	4.5

Gunning (1952) proposed Fog index to compute the readability of a text. Some papers went as far as to consider Fog index as a measure of financial statement readability (Biddle and Hilary 2009). It is a common measure across virtually all fields, and it shows to be the chosen measure in financial research despite the debate around its reliability in indicating the readability of finance related narratives.

The formula used is straightforward as it is a linear combination of 1) the average number of words per sentence, 2) the proportion of complex words (composed of more than 2 syllables). The resulting score provides an estimation of the years of education required to comprehend the text on a first reading. The score ranges between 6 (sixth grade) and 17 (college graduate). Texts for the general audience need a fog index below 12 and below 8 for a universal understanding.

$$GFI = 0.4 \left(\frac{number\ of\ words}{number\ of\ sentences} + 100 \frac{number\ of\ complex\ words}{number\ of\ words} \right)$$

The Fog Index		
How do popular consumer publications stack up?		
Fog Index	Reading level by grade	Reading level by publication
20+	Post-graduate plus	U.S. government information
17-20	Post-graduate	Academic journal papers
16	College senior	Standard medical consent forms are written at the 16th-grade level. (You shouldn't need a medical degree to decipher these!)
15, 14, 13	College junior, sophomore, freshman	No popular consumer publication is this difficult.

Danger line		
12-11	High school senior, junior	Harper's, Time, Atlantic Monthly, Newsweek, The Wall Street Journal
10	High school sopho-more	National Geographic
9	High school freshman	Reader's Digest
8	8th grade	Ladies' Home Journal
7	7th grade	TV Guide, The Bible, Mark Twain
6	6th grade	People, Parade
Source: Gunning-Mueller Clear Writing Institute Inc.		

As mentioned above, all indexes, with no exclusions, proved to be far from perfection. Either they apply better to certain fields then other, or they are affected by intrinsic limits and biases that reduce, sometimes significantly, their efficacy. As much as readability indexes are being used to measure the understandability of business communications and finance texts, just to mention an example, they have been as well heavily criticized. (Loughan and McDonald 201) claim for instance that fog index does not really reflect the ease or the difficulty of written text in the business field, given the fact that is significantly dependent on the number of complex words that are defined as words composed of 2 or more syllables. This claim is supported by the idea that words used in such documents are generally polysyllabic words (corpo-ration, telecommunication, marketing) that do not usually require readers to have advanced knowledge or to consult dictionaries to understand their mean-ing.

However, being aware of such limits, doesn't prevent us from considering this type of analysis insightful and highly descriptive of the potential finance scientific literature capacity to address knowledge among practitioners and enhance financial literacy among investors.

Sample selection

Evaluating the understandability of the scientific narrative and eventually, estimating the level of comprehension of the audience requires a textual sample of scientific research in finance. For this purpose, our sample includes academic articles published in 10 leading journals in finance:

1) Journal of Accounting and Economics, 2) Journal of Banking and Finance, 3) Journal of Corporate Finance, 4) Journal of Finance, 5) Journal of Finance and Quantitative Studies, 6) Journal of Financial Economics, 7) Journal of Financial Intermediation, 8) Journal of Financial Stability, 9) Journal of Money and Finance and 10) Review of Financial studies.

These journals are flagship journals in the field, in the sense that they publish research articles covering relatively the full spectrum of research in finance. Among the articles published in each journal, exclusively, most cited articles were retrieved based on a preset threshold of minimum 20 cites per year.

One could claim that citation indicators are not enough to judge whether an article has an impact or not, which is quite common in many papers. However, one fact should be emphasized is that impact in finance is different from other sciences. In other words, relevant articles, even if not "impactful" when published, are relevant to develop impactful papers later.

The examples are quite numerous, particularly, in finance, one of the most cited articles in all history of finance is Portfolio Selection by Harry Markowitz (1952), based on which Sharpe built his Capital Asset Pricing Model twelve years later, that is one of the most impactful/cited paper in finance as well, hence, it is argued that citations represent the relative scientific significance and quality of a paper Crane, "Review of Social Stratification in Science.".

Roles of citations seem to justify this claim as well as the use of citation count as a selection criterion of the sample. As a matter of fact, citing may be

for the purpose of presenting a background research, using a methodology, acknowledging pioneering insights, identifying unique publications and breakthroughs, criticizing, correcting, disclaiming and so on Aksnes, Langfeldt, and Wouters, "Citations, Citation Indicators, and Research Quality.".

The purpose of this research is to understand and make sense in the financial discourse. That is, to investigate the anatomy and the impact of the academic research in finance, which entails the selection of the papers that form the backbone of research in finance and cover the whole spectrum of topics that have been discussed overtime. The research sample has been collected based significance of the papers, technically, the most cited ones.

To build the sample, three sources were considered: Google Scholars, Scopus and Web of science. Google scholars was not user friendly to refine the research for academic articles in finance and there was no possibility to limit the result of the research to the chosen list of journals which was not practically suitable for our purpose. In spite of being the oldest among the three platforms, Web of science covers less journal titles than Scopus.

We started by a data source including 26332 published articles. The citation-based screening of the sample was conducted considering the citation count available on Scopus based on the predefined threshold of 20 cites/year. Then, we downloaded the portable document format (PDF) of the articles selected and the resulting sample was composed of 1280 articles. We eliminated the articles that are not machine readable (scanned PDFs) and we ended up with 1258 published articles between 1952 to 2019.

Measurements, results and discussion

The core instrument to perform semantic-oriented analysis of academic papers is to apply Natural Language Processing (NLP), which is a study that encompasses three major fields: linguistics, data science and artificial

intelligence. It is the application of computational and modelling approaches on written texts to analyze various features of the language.

NLP is a discipline that allows computers through specific algorithms to perform massive analysis of an infinite number of texts and provide insights about the content and the features of the data. Given that the study will be performed on academic articles that are initially available in PDF form, it was necessary to prepare the dataset by extracting the textual content of these PDFs to be able to execute the readability measurement.

Instead of converting the articles' PDFs into text files, python provides libraries (frameworks), which consist of a collection of modules (files) containing predefined functions that permit to run analysis on text-based data. PyPDF2 was the library used to extract the text from the PDFs.

Before stepping into the readability measurements, it was necessary to parse the extracted texts. The challenge at this stage was to scan the files and separate the textual from the non-textual data. The key library used for the data preparation was SciPDF which is dedicated to parsing scientific articles.

The parsing process permits to scan and pull up the different features of articles: title; year; DOI; abstract; figures; tables; references and divide the text into sections. The features parsed on which the readability analysis was conducted were the abstract and the textual sections of each article without (tables; figues; citations…). To have a complete text we concatenated the abstract to the different parsed sections and then we run the readability measurements.

Textstat library was used in order to apply computational predefined functions such as the word count, word frequency, readability metrics etc, on our text sample.
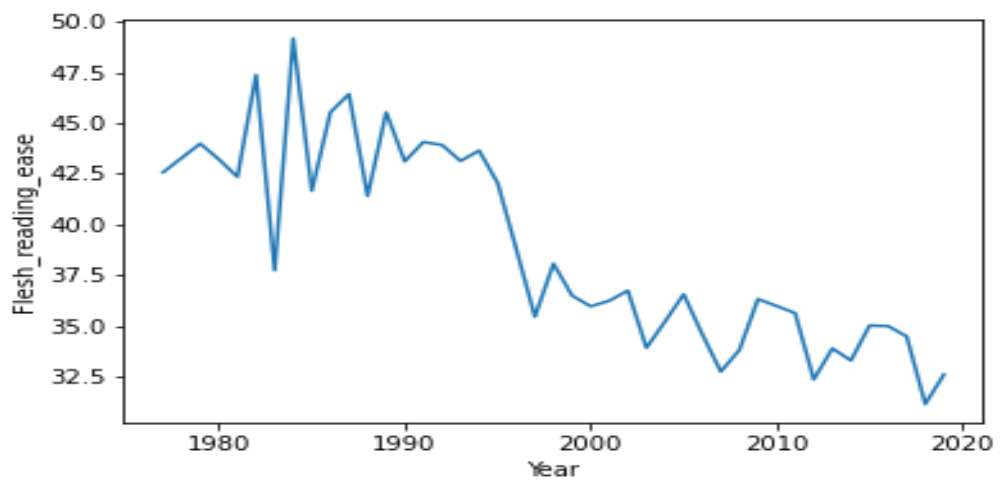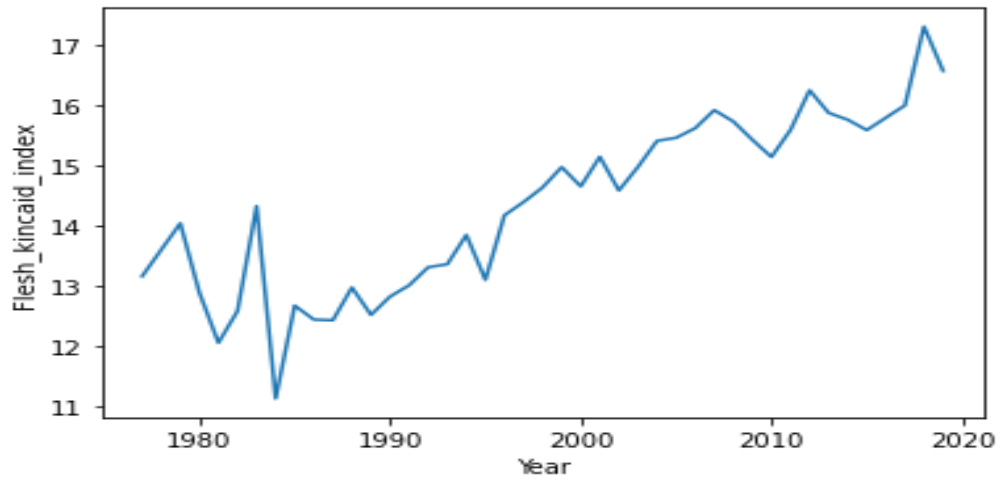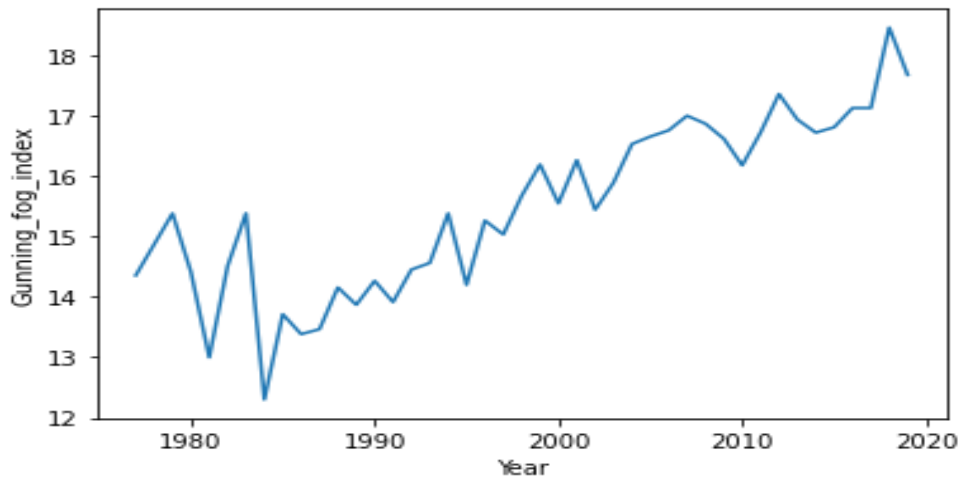
	Gunning_fog	Flesh_kincaid	Flesh_reading_ease
Mean	16,32497982	15,218636	35,88408394
Standard Error	0,067370134	0,065349088	0,27175826
Median	16,25	15,15	35,34
Mode	15,31	14,87	39,18
Standard Deviation	2,371390425	2,300250776	9,565736358
Sample Variance	5,623492548	5,291153631	91,50331206
Kurtosis	1,830207652	1,845318538	1,174098761
Skewness	0,568089316	0,435860223	0,365242788
Range	22,12	21,3	77,36
Minimum	9,56	8,04	1,08
Maximum	31,68	29,34	78,44
Sum	20226,65	18855,89	44460,38
Count	1239	1239	1239

	Gunning_fog	Flesh_reading_ease	Flesh_kincaid
Gunning_fog_index	1		
Flesh_reading_ease	-0,68907826	1	
Flesh_kincaid_index	0,963241437	-0,815730043	1

- Academic articles are very difficult to read.
- Most of the studies on research articles readability reported a less readable content
- Readability of research articles is decreasing over time for the majority of the disciplines.
- The curse of Knowledge
- Dr fox effect: if you can't convince them confuse them

- Academic articles are significantly less readable in the examined decades compared with other finance related texts. That is, the full texts may consist of more polysyllabic words, longer words, and longer sentences.
- Better written documents produce less ambiguity: the role of scientific research is to lessen the ambiguity about financial phenomena which requires the use of accessible language (not the case for companies and financial analysts)

Readability of scientific papers - difficulty of narratives - need to adapt the orthodoxy of academic narratives to partitioners.

Conclusion

Social actors tell stories of and for themselves in order 'to make things rationally accountable to themselves' (Weick, 1993: 635).

Individuals are narrator animals. The ultimate lack of sense is when you cannot produce a narrative to go with the situation. Narrative can be viewed under several profiles—as a cognitive structure or way of making sense of experience, as a type of text, and as a resource for communicative interaction:

- Individuals represent the world through narrative
- Narrative cannot have sense unless it fits in the sensemaking process
- Individuals cannot give meaning unless we have an understandable narrative
- Individuals cannot have narrative unless it makes sense

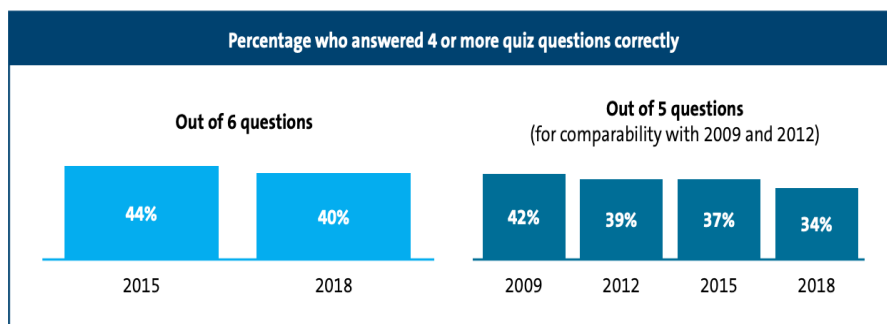Understandability of the scientific narrative depends on the readability level of the text

Readability indexes should be adapted financial texts

More readable academic articles, leave no need to adapt it to practitioners, less distorted narratives about the financial markets

In fact, the SEC launched the Plain writing initiative in 1998 providing A Plain English Handbook as a policy to reduce to legalese in financial disclosures. In 2010, a Plain Writing Act was established to ensure the accessibility and the clarity of the documents issued by companies. The SEC considered "knowing the audience" to be most important step while writing financial disclosures, which is basically essential to make sure the audience is able to read and elaborate the information presented in these documents.

The Investor Education Foundation has conducted a survey about the demographic characteristics and financial literacy of investor households in the US. The questionnaire was composed of 6 questions about basic concepts of economics and personal financial management that do not require complex calculations.

The focus of the questionnaire was to assess investors' knowledge about interest rates, inflation, risk, and diversification. Surprisingly, only 7% out of the 27,091 participants responded correctly to all questions and only 40% were able to correctly answer to 4 or more questions witnessing a decrease of 4 percentage points between 2015 and 2018 which indicates, according to the report, a decline in the financial literacy.

Percentage who answered 4 or more quiz questions correctly

Out of 6 questions		Out of 5 questions (for comparability with 2009 and 2012)			
44%	40%	42%	39%	37%	34%
2015	2018	2009	2012	2015	2018

(Source : https://www.usfinancialcapability.org/downloads/NFCS_2018_Report_Natl_Findings.pdf)

The findings of the survey have put the spotlight on a major problem facing investors in financial markets: knowledge. One may ask, how can an

individual with modest and sometimes low financial knowledge take the "right" investment decision if she/he doesn't know basic concepts in finance.

Multiple reasons may explain this phenomenon which might be subjective reasons or objective reasons. Reluctance, unfamiliarity, hesitation, lack of interest could be subjective reasons related to the willingness of investors to learn, improve their knowledge, and develop their analyzing skills. Objective reasons might be related to the complexity of finance concepts or even the complexity of the language used to express it.

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