1. The evolution of Financial Narratives;
2. Different sources of Financial Narratives;
3. Communication strategies: Impression management;
4. Factors that influence financial narratives;
5. Research in financial narratives and opportunities for interdisciplinary CL & Accounting research.
**NARRATIVES: THE BUSINESS LANGUAGE**

- Language plays a major role in understanding how people perceive their world “language mirrors the mental processes” (Chomsky, 1972). If we can analyze language, we can gain significant insights into how the people perceive and understand their world (Kabanoff, 1996).

- Accounting language and more specifically all the financial narratives that support the accounting numbers, is the language of the organizations and more specifically the way in which managers communicate with users about current and future performance.

- Gaining insights on this language will help us to understand how business are performing, their future perspectives of the firm or how managers perceive the performance of the business.

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**Narratives: The Business Language**

- Narratives are documents prepared for users, not for researchers, and therefore, they are representative of the business reality in which companies are located.
NARRATIVES: USERS & INFORMATION NEEDS

Companies need to inform not only investors about their financial performance, but also a wider amount of users – the financial reporting environment is highly complex

- Investors/Shareholders
- Customers
- Industry Competitors
- Suppliers
- Creditors
- Financial Analysts (Buy & Sell –Side)
- Governments & Regulatory Bodies
- Society, Media, Labour Unions

- Multinational companies have satisfied users’ needs of additional and more detailed not only of quantitative but also qualitative data, known nowadays as Financial Narratives.
- Wide diversification in Financial Reporting

NARRATIVES: USERS & INFORMATION NEEDS

- NFR is the disclosure provided to outsiders of the organization on dimensions of performance other than the traditional assessment of financial performance from shareholders and debt-holders’ viewpoing. This definition includes, but it is not limited to, items related to social and environmental accounting CSR and intelectual capital disclosed outside the financial statements”, (Erkens et al. 2015 and Stolowy and Paugam, 2018):

- Narrative reporting increased in a voluntarily basis but has been also recently regulated.

- Directive 2014/95/EU – also called the non-financial reporting directive (NFRD), requires disclosure of non-financial information for understanding of the company’s development, performance, position and impact of its activity, relating to, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters (Art 1). This requirement applies for companies with more than 500 employees.
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- CSR & Sustainability
- Innovation
- Impact on society
- Performance & expectations
- Human rights
- Business model and added value
- Anti-corruption and internal controls
- Strategy
- Governance

Financial Narratives have BOOSTED along the last decade.

No matter in which country the company is listed, the increase in qualitative data to support and explain the “numbers”, is a widespread phenomenon across multinationals (preparing the info is costly).

Beyond traditional financial reporting fillings required by the securities regulators we find alternative sources of financial narratives:
- Letter to shareholders or the Management Discussion and Analysis Section in the 10-K
- Press-releases
- Conferences calls
- Earnings announcements
- Proxy Statements
- Annual Reports & 10K (US) / Integrated Reports (IR Guidelines)
- Interim Financial Reports (Quarterly, Half-Year)
- CSR Reports (GRI guidelines)
- Others: Audit Report, Analysts Reports, IPO prospectus

In addition, on top of these “formal” and more traditional ways to communicate with investors, we need to consider the new ways of communications as the social media Less costly and it permits reach a wide number of stakeholders.

Information overload (Stolowy and Paugam, 2018)
In the US, the information is reasonably easy to retrieve through the EDGAR system: Electronic Data Gathering, Analysis, and Retrieval System—https://www.sec.gov/edgar/aboutedgar.htm.

Annual Reports presents a standardize and comparable format.

The information is easier to retrieve in TXT and easier to compare across companies (Management Discussion & Analysis Section).
**SOURCES OF FINANCIAL NARRATIVES**

In Europe, Annual Report documents have a free structure, extension & are uploaded in PDF. Additionally, the text is accompanied with graphs and pictures.

Each company decides the structure of the annual report. This makes very difficult to create a corpus of comparable sub-sections, except for the Letter to Shareholders that is easy to identify. Other sections are difficult to extract: i.e. Corporate Governance, Corporate Social Responsibility.

Of course the variability and therefore comparability is going to differ across countries (i.e. Spain vs. UK)

They are even becoming online & interactive!

Company websites is the key source of information to retrieve all documents for US & non-US companies.
MULTIPLE MOTIVATIONS CO-EXIST FOR NARRATIVE FINANCIAL REPORTING

Disclosure is a trade-off between benefits and costs (Beattie, 2014)

**Benefits:** disclosure provides managers with the opportunity to increase transparency, reduce the information asymmetry between managers and shareholders, lower cost of capital, increase liquidity and share prices, facilitating monitoring by shareholders and improve communication (Agency Theory & Signalling Theory Framework).

**Costs:** loss of competitive advantage (proprietary costs), litigation exposure, costs of collecting, processing and disseminating the information.

TENDENCY FOR DISCLOSURE – NARRATIVES HAVE A COMMUNICATION ROLE

Alternatively, managers have incentives to bias the information they provide to influence investors perceptions (Davis and Tama-Sweet, 2012) → OBfuscation ROLE

At this point, we need to consider the theories on cognitive perception:

**Prospect Theory (Kahneman & Tversky, 1979)**
Investors take decisions based on reference points and they react much more aggressively to bad news compared to good news.

**Legitimacy Theory**, that considers narratives as a mechanism to legitimise their actions (CSR narratives)
DISCLOSURE THEORIES

- Investors are easily biased & influenced by narratives ➔ Poor performance firms tend to obfuscate and hide adverse information to avoid a negative investors reaction (Li, 2010)

- One of these key performance reference points are REPORTED EARNINGS
  - Profits vs Loss firms
  - Increase vs Decrease in earnings with respect to the previous year

Other key PERFORMANCE measure are ANALYSTS EXPECTATIONS

The narrative of the texts of benchmark-beating vs non-benchmarking beating companies will differ. For instance: companies without profits will try to hide their losses and focus on the positive aspects of the performance of the company.

OBJETIVES OF FINANCIAL NARRATIVES

Merkel-Davis and Brennan (2007)
Journal of Accounting Literature

Are narratives used truthfully or deceptively?

WHY? - INCENTIVES

HOW? - TECHNIQUES

If managers bias the information and users are not concern about it ➔ Financial Reporting is undermined and adverse capital allocations may results

Computational Linguistics
MANAGERS ARE EXPECTED TO ENGAGE IN TWO TYPES OF BEHAVIOUR WHEN PREPARING THE INFORMATION

**Attribution**
Self-serving bias to attribute positive organization outcomes to internal factors and negative outcomes to external factors – “Entitlements vs. Excuses”

**Concealment**
Emphasize good news  Avoid bad news

To obfuscate Bad news:
Reading ease manipulation → Making the text more difficult to read
Rhetorical manipulation (i.e. using persuasive language)


To emphasize Good news

**Thematic manipulation**: Emphasizing positive words and themes (i.e. positive financial performance). Use of positive and (avoid) negative keywords.

**Visual and structural manipulation**: ordering the way in which numerical, visual and narrative information is presented.

**Performance comparison**: Choosing benchmarks that offer a good picture of the performance (i.e. non-gaap earnings as EBITDA)
Choice of earnings number to offer a favorable picture of the current financial performance (i.e. sales instead of earnings).

Rепсол 2015 годовой отчет. После налогооблагаемой убытки: -1.227 миллион Европейских единиц.

The CEO states the following in the letter to shareholders:

Репсол пуск в ход обширная программа действий, направленная на достижение более высоких уровней прибыльности и эффективности во всех своих операциях, de manera que el resultado neto ajustado, que refleja estrictamente la marcha de los negocios, alcanzó los 1.860 millones de euros, un 9% más que en 2014.

Rепсол запустил масштабную программу действий, направленную на достижение более высокого уровня прибыльности и эффективности во всех своих операциях, so that the adjusted net result, which strictly reflects the operating activities, reached 1,860 million euros, 9% more than in 2014.

Rепсол 2016 годовой отчет - прибыль: 1.736 миллион Европейских единиц.

The CEO states the following in the letter to shareholders:

Hoy podemos afirmar que hemos sido capaces de superar con éxito la dificultad de este escenario, [...] y alcanzando un beneficio neto récord en los últimos cuatro años. En 2016, [...] el beneficio neto del ejercicio ascendió a 1.736 millones de euros, superior en más de 3.100 millones al de 2015.

We have been able to successfully overcome the difficulty of this scenario, [...] And reach a record in net profit for the last four years. In 2016, [...] net profit for the year amounted 1,736 million euros, 3,100 million euros higher than in 2015.

FNP-FNS 2020 – Financial Narratives – Ana Gisbert
WHAT INFLUENCES THE STYLE OF NARRATIVES?

- The style & use of narratives may differ not only across companies, but also across countries, industries, cultures, languages. It is also affected by the ownership structure, the Board of Directors or even by the tenure/experience/reputation of the CEO (Abrahamson and Park, 1994).

- i.e. Hooghiemstra (2016) identify differences between US and Japanese Letters to shareholders. They observe that US letters have a higher tendency to stress good news.

- The communication style, tone & readability of the narratives is going to differ across sections (El-Haj, et al. 2019) & formats (News vs. Reports).

NARRATIVES OFFER A WIDE VARIETY OF OPPORTUNITIES RESEARCH

NLP & FINANCIAL NARRATIVES

NLP research and applications have considerable potential to enhance communication in the areas of accounting, auditing and finance (Fisher, Garnsey and Hughes, 2016)

Development of new TOOLS to easily retrieve the content of the different NARRATIVE SOURCES

CREATE NEW FINANCIAL NARRATIVE CORPUSSES

- CSR
- Conference Calls
- Press Releases
- Analysts Reports
- Audit Reports
- Gender Issues
- Corporate Governance
- Contracts
- Risk, fraud controls etc…
NLP & FINANCIAL NARRATIVES

In Europe, Annual Report documents have a free structure, extension & are uploaded in pdf. Additionally, the text is accompanied with graphs and pictures.

Each company decides the structure of the annual report. This makes very difficult to create a corpus of comparable sub-sections, except to for the Letter to Shareholders that is easy to identify.

Other sections are difficult to extract: i.e. Corporate Governance, Corporate Social Responsibility, Strategy, Risk, Gender issues.

UK – El-Haj, Alves, Rayson, Walker and Young (2019), describe the PROCEDURE they developed to create a structured & section –based CORPUS for a total of 26,000 Annual Reports (UK listed companies) for the period 2002-2016 [UCREL – LANCASTER UNIVERSITY] – Extend the analysis to 606 PDF Annual Reports for 77 Portuguese Listed Companies.

Based on the experience of the UCREL team:

SPAIN – Moreno, A. Gisbert, A. and Montoro (2020) describe the PROCEDURE to create a CORPUS for a total of 500 Annual Reports (Spanish listed companies) for the period 2014-2017 [LLI-UAM]
NLP & FINANCIAL NARRATIVES

- Research is very much limited by the difficulty to retrieve the information and create clean and clear corpores of financial narratives. US is the exception.
- The literature has been mainly focused on a set of attributes such as: length, readability & tone.
- The impression management literature identifies the strategies manually. However, the volume of qualitative data exceed to capacity to process this information manually (El-Haj, et al. 2019)

READIBILITY

- FOG INDEX (Gunning, 1952) or FLESCH INDEX
  - 0.4* (average number of words per sentence + percent of complex words). Complex words are those with more than 2 syllables.
  - FOG > 18 → the text is highly complex and therefore unreadable
  - Li (2010) report an average FOG index for 10-K filings of 19.4 → Unreadable

- Overall, the evidence suggests that companies underperforming will provide less readable reports.

TONE

- TONE (positive vs negative). There is a wide number of articles looking at the determinantes of the tone of financial disclosures (Luo and Zhou, 2020)
- TONE in financial disclosures affects short-term stock returns
- TONE is influenced by:
  - Size, complexity of the firm, growth potential, governance and analysts following, benchmark beating behaviour.
  - Management stock-based compensation, or other corporate events (i.e Public Offering).
  - Managerial characteristics (narcissism, tenure of the CEO).

Given the market reaction to the tone of the disclosures, we need to understand how managerial opportunism affects the tone of the disclosure to understand tone inflation (Luo and Zhou, 2020)
NLP & FINANCIAL NARRATIVES

- Arslan-Ayayding (2016) show that managers with equity-based compensation use more optimistic tone in earnings press releases.
- DeBoskey (2019) finds that the tone of earnings announcements is associated to CEO power (tenure or CEO-Chairman duality).
- Huang et al. (2014) show that there is an abnormal optimistic tone in earnings press releases across companies with new equity issuance or undertaking merger or acquisition transactions.
- These authors also reveal that Tone inflation has a detrimental effect on shareholders’ wealth in the long-run (Huang et al. 2014).
- Luo and Zhou (2019) reveal less optimistic tones in certain industries such as oil & gas, tabacco, alcohol or fire arms, to avoid regulatory and public scrutiny.
- How does the literature measure TONE in a large sample of financial texts?

How does the literature measure TONE in a large sample of financial texts?

- General Inquirer Software (GI) [Stone et al. 1966] – uses Harvard IV-4 Psychosocial Dictionary and Lasswell Dictionary to classify words into positive, negative, neutral, strong, weak, active categories
- DICTION software has their own list to analyze texts (Hart, 2000). Henry (2008) used DICTION to compile a financial domain list of words. This list has been extensively used to identify the tone of financial narratives.
  - Yekini et al., 2016 or latridis, 2016 for UK annual Reports; Davis, Piger and Segor (2012) for US Earnings Press Releases
- Naïve Bayesian machine learning algorithm (Li, 2010)
- Loughran and McDonald (2011) Word list with a weightening scheme based on the frequency of the word. (used in WRDS SEC Analytics)
All these mechanisms have been used for the English language narratives (mainly US narratives).

Narratives in order languages are scarce.

In addition, the existing methodology does not consider the impact of words combinations.

We need domain-specific terminology and more “fine-grained” opinion mining in financial texts (Wang & Pan, 2020).

Linguistic analysis must go beyond, with machine learning techniques that involves learning the sentiment & orientation (polarity & strength) of the texts (Boylan et al, 2020; Taboada et al, 2010).

For both lexicon or semantic approaches, we need to develop domain-specific terminologies to train Machine Learning Algorithms and address the problem of the ambiguity that is sometimes present in the terminology.

A typical example addressed in Moreno-Ortiz and Fernández-Cruz (2015) is the word “growth” or “expansion”. Within the financial domain, both words are positive whereas in the general language their polarity is going to depend on the context and in other domain-specific areas such as “medicine”, “expansion” has a negative connotation.
NLP & FINANCIAL NARRATIVES (5)

- Yekini et al. (2016) - Another example is the Word “BEAT”. In everyday language this word has a negative connotation associated to violence. However, in the financial domain the Word BEAT means “beating the expectations” and therefore, it has a positive connotation.

- Other domain specific words associated to the finance literature are: bailout, boost, carryover or sentiment modifiers as “rise”, “fall” or “drop” (Moreno-Ortiz and Fernández-Cruz, 2015)

- In addition, as there is a growing volume of corporate disclosure, new computer-aided methodologies are required to understand the content of narratives and more specifically the rhetorical communication style (Aerts and Yan, 2017).

- We also need to understand the communication style across industries, countries, companies, in order to understand how the institutional setting in which they operate may affect the communication strategies.

  - Automatic vs fine-grained qualitative discourse analysis

NLP & FINANCIAL NARRATIVES (6)

- Dyer et al (2017) – JAE - use Latent Dirichlet Allocation (LDA) to understand the changing content (topics) of 10-Ks, identify the location and measure additional attributes. This methodology has been used by other authors such as (Hoberg and Lewis, 2017 or Huang et al., 2016).

- The literature has been mainly focused on a set of attributes such as: length, readability & tone. However, we can identify others: redundancy, boilerplate, hardness (quantitative density), stickiness (Dyer et al., 2017).
  - Boilerplate: The % of boilerplate words – the number of words in sentences that include at least one 4 –Word phrase that is shared by at least 75% of firms in a year.
  - Redundancy: The % of redundant words - the number of words that are repeated verbatim in other portions of the 10-K
  - Stickyness: The % of sticky words – the number of words in sentences that include at least one 8-word phrase that is identical to a phrase used in the previous year 10-K.

- The authors observe that there has been an increase in these characteristics due to the new regulatory requirements.
NLP & FINANCIAL NARRATIVES (6)

Other methodological approaches used to understand financial narratives:

- **LIWC – Linguistic Inquiry and Word Count** – 93 linguistic dimensions.
  - Used in Aerts and Yan (2017) to compare rhetorical style patterns across UK and US shareholders letters. They find three linguistic patterns: assertive, defensive and logic-based cognitive.

- **ANTCONC – Concordance software** to identify hedging communication strategies in CSR Reports (Li and Haque, 2019) – Hedging means using language resources to qualify the lack of commitment, (i.e. mitigation, avoidance of absolute statements, scepticisms, different degrees of probability)

- Using the **SAS Text Miner Platform using LSA algorithm for topic extraction** in their analysis, Yang, Dolar and Mo, (2018) look at the differences between bankrupt and non-bankrupt firms topics in the MD&A section of US companies.

- Using an **LPS algorithm** to detect the semantic orientation of phrases used across Finnish listed companies (written in english) (Malo, Sinha, Korkonen and Wallenius, 2014)

CONCLUSIONS

- **FINANCIAL NARRATIVES PROVIDE MULTIPLE OPPORTUNITIES** for new research in NLP and CL

- The increase in Financial Narratives creates the perfect scenario to study how managers make use of the language when communicating with stakeholders and presents a unique opportunity to extend new NLP & CL techniques.

- Whereas quantitative disclosures (i.e. Financial Statements) are mostly regulated and subject to periodic controls by auditors and enforcement institutions, other financial and non-financial narratives (i.e. earnings press releases, conference calls, letter to shareholders or environmental reports) are unregulated and therefore, offer a wide range of discretion to managers- “words are more elastic than numbers” (Luo and Zhou, 2020)

- In fact, narratives are considered to be less readable and more boilerplate over time (Dyer et al, 2017).
CONCLUSIONS

- Computational linguistics can play a crucial role in supporting the accounting and finance field to discern about the use and orientation of financial narratives. How are managers communicating with users?
- Accountants do not have the technical knowledge to develop new algorithms and proceed with a proper automatic analysis of financial texts. Therefore, financial narratives is a research area where interdisciplinarity is a MUST to move on.
- Computational linguistics are essential not only for the academic field, but also for the auditing and accounting profession that is willing to expand the new AI & big data techniques to deliver higher quality auditing and consulting services and transform financial reporting.

KEY REFERENCES

REFERENCES


