NARRATIVE REPORTING

Ana Gisbert (ana.gisbert@uam.es)
Universidad Autónoma de Madrid
12th December 2020

Workshop on Financial Narrative Processing and
MultiLing Financial Summarisation (FNP-FNS 2020)

1

AGENDA

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.

2

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 user 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.**

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

3

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**.

Stakeholders

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

4

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**

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

5

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 shaholders and debt-holders' viewpoing. This definition **includes**, but it is not limited to, items related to **social and evironmental 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.

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

6

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

➡

- **CSR & Sustainability**
- **Innovation**
- **Impact on society**
- **Performance & expectations**
- **Human rights**
- **Business model and added value**
- **Anti-corruption and internal controls**
- **Strategy**
- **Governance**

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

7

SOURCES OF FINANCIAL NARRATIVES

- 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

    Information overload
    (Stolowy and Paugam, 2018)

- 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.**

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

8

4

SOURCES OF FINANCIAL NARRATIVES

PUBLICLY AVAILABLE INFORMATION

However……

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 strandardize and comparable format.

The information is easier to retrieve in TXT and easier to compare across companies (Management Discussion & Analysis Section)

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

9

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended September 26, 2020
or
☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____.
Commission File Number: 001-36743

Apple Inc.
(Exact name of Registrant as specified in its charter)

Apple Inc.

Form 10-K

For the Fiscal Year Ended September 26, 2020

TABLE OF CONTENTS

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

10

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 Responsability.

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

They are even becoming online & interactive!
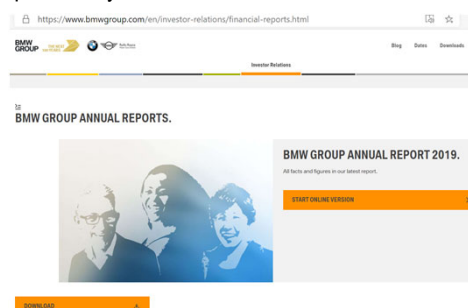
FNP-FNS 2020 – Financial Narratives – Ana Gisbert

11

11

SOURCES OF FINANCIAL NARRATIVES

Company websites is the key source of information to retrieve all documents for US & non-US companies.
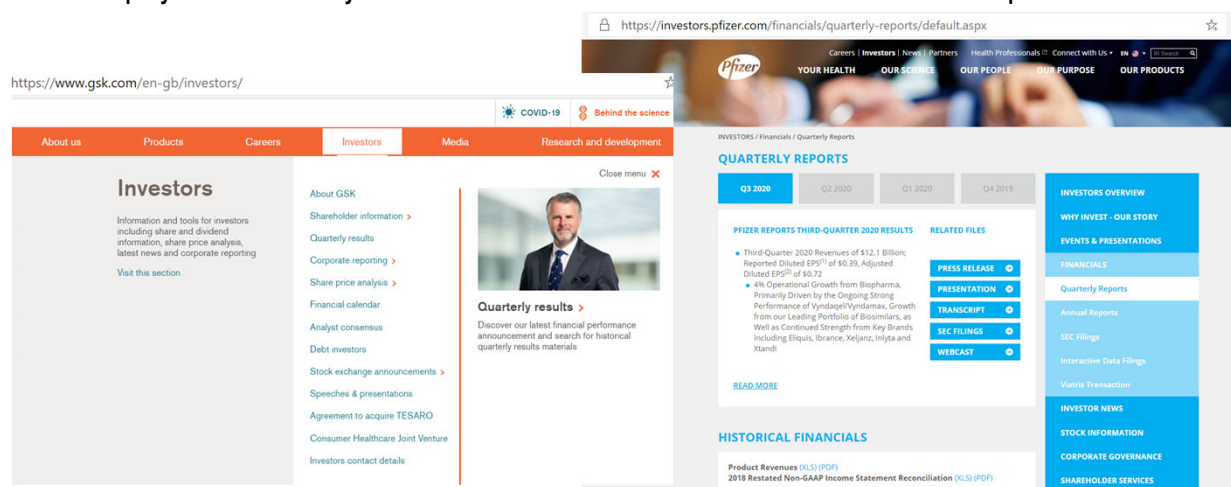
FNP-FNS 2020 – Financial Narratives – Ana Gisbert

12

DISCLOSURE THEORIES

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 assymetry 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

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

13

DISCLOSURE THEORIES

Alternatively, managers **have incentives to bias the information the 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 agreesively to bad news compare to good news.

Legitimacy Theory, that considers narratives as a mechanism to legitimase their actions (CSR narratives)
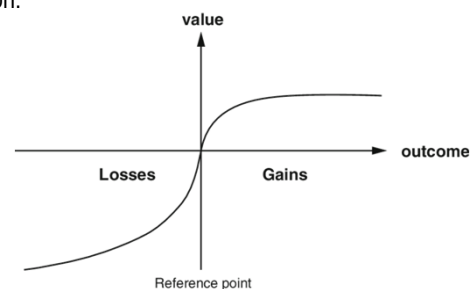
FNP-FNS 2020 – Financial Narratives – Ana Gisbert

14

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 <u>EARNINGS</u>**
  - **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.

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

15

OBJETIVES OF FINANCIAL NARRATIVES

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

INFORMATIVE

Providing incremental value relevant information

Are narratives used truthfully or deceptively?

WHY? - INCENTIVES

HOW? - TECHNIQUES

OBFUSCATION

Opportunistic behaviour ➔ impression management

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

Computational Linguistics

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

16

8

DISCRETIONARY DISCLOSURES STRATEGIES

UAM

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	
Emphazise 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)

Merkl-Davis and Brennan (2007): Discretionary disclosure strategies in Corporate Narratives: Incremental Information or Impression Management. Journal of Accounting Literature 26: 116

17

DISCRETIONARY DISCLOSURES STRATEGIES

UAM

Concealment	
Emphazise good news	Avoid bad news

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).

Merkl-Davis and Brennan (2007): Discretionary disclosure strategies in Corporate Narratives: Incremental Information or Impression Management. Journal of Accounting Literature 26: 116

18

Repsol 2015 Annual Report. After tax losses amounted: -1.227 million Euros.

The CEO states the following in the letter to shareholders:

Repsol puso en marcha un amplio programa de actuación destinado a lograr mayores niveles de rentabilidad y eficiencia en todas sus operaciones, **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.

> Repsol launched an extensive action program aimed at achieving higher levels of profitability and efficiency in all its operations, **so that the adjusted net result**, which strictly reflects the operating activities, reached 1,860 million euros, 9% more than in 2014.

Repsol 2016 Annual Report - Net Income amounted: 1.736 million Euros.

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

(19)

19

Dear Shareholders,
Dear Ladies and Gentlemen,

We can look back on an extremely successful 2018 fiscal year both from a technological and fundamental perspective.

As a result, we were able to acquire around 52,000 new customers during the reporting period and now support 279,000 customers from a diverse range of sectors around the world.

The transaction volume processed in the reporting period increased by 37.3 per cent in comparison to the previous year to EUR 124.9 billion. The transaction volume in Europe increased by around 21 per cent in comparison to the previous year to EUR 62.5 billion, while a further EUR 62.4 billion was processed outside of Europe, representing growth of around 59 per cent.

Consolidated revenues increased by 35.4 per cent to EUR 2.0 billion. Consolidated operating earnings before interest, tax, depreciation and amortisation (EBITDA) increased by 36.6 per cent to EUR 560.5 million. We will propose to this year's Annual General Meeting that a dividend of EUR 0.20 per share is paid to shareholders.

One main focus of the product development activities in the reporting period was the development of innovative value-added services in the area of data analytics. By allowing retailers to analyse consumer and purchasing behaviour in real time, we help them to, amongst other things, generate additional revenue and avoid customer migration using targeted and customer-specific offers.

In addition, other innovative value-added services, such as issuing digital loans, are integrated into our global platform solution. We are convinced that the act of making payment will fade into the background in future and will become a fully digital process. By creating a convenient,

secure and individual purchasing experience for consumers across all sales channels, retailers can benefit from the disruptive force of digitalisation and not only offer numerous innovative payment methods but also accompanying value-added services such as digital financial services.

Another focus of the research and development activities was the further roll out of our innovative mobile payment solution boon. in more countries, as well as boon. payments via Google Pay, Apple Pay and the three largest wearables platforms Fitbit, Garmin and Swatch were enabled.

Other important technological activities were the preparation of the migration of the acquired customer portfolios in the USA and the Asia-Pacific region into the Wirecard platform and the development and implementation of a global computer centre strategy.

With regards to the accusations made by a whistleblower at the site in Singapore, I would like to point out that both our internal investigations and also the independent external audit into the incidents commissioned by us did not uncover any indication of so-called "round-tripping" or corruption within the conducted audit activities. There were also no material impacts on the net assets, financial position and results of operations. As well as ensuring transparent external reporting, the Management Board is committed to making ongoing investment in the continuous improvement of global internal compliance, auditing and control processes and to providing the necessary resources.

I am optimistic that Wirecard has a fantastic future ahead of it. We confirm our forecast for operating earnings before interest, tax, depreciation and amortisation (EBITDA) of between EUR 740 million and EUR 800 million for the 2019 fiscal year.

Wirecard, Inc.
2018 Annual Report – Letter to shareholders

"I am optimistic that Wirecard has a fantastic future ahaed"

In **October 2018**, A whistle-blower contacts the Financial Times (FT), leaking documents, emails, and excel spreadsheets and accusing Wirecard of financial fraud (€1.9bn in cash are missing)

In **October 2019**, the Supervisory Board of Wirecard appoints KPMG to conduct an independent special investigation about these accusations against Wirecard AG

EY does not sign the 2019 Wirecard AG Financial Statements

Since **August 2020 Wirecard** is managed by an Insolvency Administrator.

What are the wider supervisory implications of the Wirecard case? - Think Tank (europa.eu)

20

10

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).

    - Ii.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 communcation style, tone & readibility 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

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

21

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 CORPUSES

CSR
Conference Calls
Press Releases
Analysts Reports
Audit Reports
Gender Issues
Corporate Governance
Contracts
Risk, fraud controls etc…

OBJECTIVES

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

22

22

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.

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

23

23

NLP & FINANCIAL NARRATIVES

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]

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

24

24

NLP & FINANCIAL NARRATIVES

- Research is very much limited by the difficulty to retrieve the information and create clear and clean corporpuses of financial narratives. US is the exception.

- The literature has been mainly focused on a set of attributes such as: **length, readibility & tone.**

- The impression management literature identifies the strategies manually. **However, the volumen 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 hightly complex and therefore unreadable**
  - Li (2010) report an average FOG index for 10-K fillins of 19.4 ➔ Unreadable

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

25

NLP & FINANCIAL NARRATIVES

- **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:

  - Current and future **<u>financial performance</u>**. Overall, optimistic language is associated to firms' future performance.
  - 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 (narcissimsm, tenure of the CEO).

Given the market reaction to the tone of the disclosures, **<u>we need to understand how managerial opportunism affects the tone of the disclosure to understand tone inflation</u>** (Luo and Zhou, 2020)

26

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?**

27

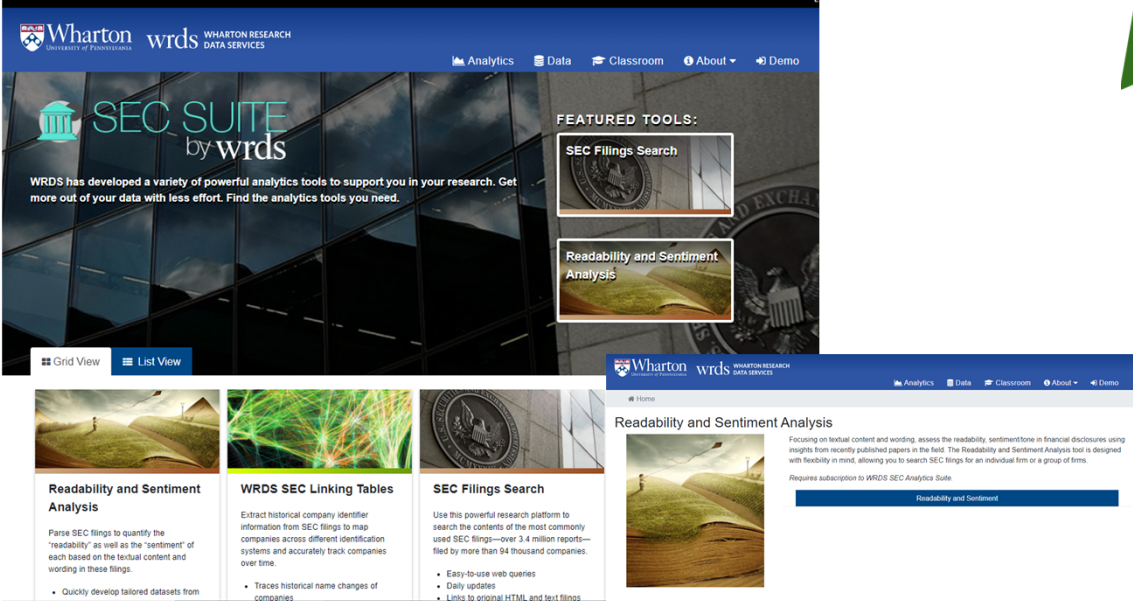# NLP & FINANCIAL NARRATIVES

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 Iatridis, 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**)

28

NLP & FINANCIAL NARRATIVES (4)

- All these mechamisms 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 & strenght) 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 langue this word has a negative connotation associated to violence. However, in the financial domain the Word BEAT mens "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

31

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, readibility & 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.

32

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 <u>rhetorical style patterns</u> 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 Rerports (Li and Haque, 2019) – Heding 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 algorith 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)

33

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 shaholders 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).

34

CONCLUSIONS

UAM

- 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 mangers 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.
  - 30 January 2019 ACCA-EY event REPORT FINAL.pdf
  - Confidence in the future - Reporting reboot - PwC UK

FNP-FNS 2020 – Financial Narratives – Ana Gisbert

35

KEY REFERENCES

UAM

- Beattie, V. (2014): "Accounting narratives and the narrative turn in accounting resarch: Issues, theory, methdology, methods and research framework". The British Accounting Review, 46: 111-134.

- El-Haj, M., Alves, P., Rayson. P., Walker, M. and Young, S. (2019): "Retrieving, classifying and analysing narrative commentary in unstructured (glossy) annual reports published as PDF files". *Accounting and Business Research*, https://doi.org/10.1080/00014788.2019.1609346

- El-Haj, M., Rayson. P., Walker, M., Young, S. and Simaki, V. (2019):"In search of meaning: lessons, resouces and next steps for computational análisis of financial discourse", *Journal of Business, Finance and Accounting*, 46:265-306.

- Fisher, I., Garnsey, M., Hughes, M. (2016): "Natural Language Processing in Accounting, auditing and finance: a synthesis of the literature with a roadmap for future research". Intelligent systems in Accounting, Finance and Management, 23: 157-214.

- Merkl-Davies, D. and Brennan, N. (2007) "Discretionary disclosure strategies in corporate narratives: incremental information or impression management", Journal of Accounting Literature, 26: 116-194

- Li, F. (2010): "Annual Report readability, current earnings, and earnings persistence", Journal of Accounting and Economics, 45: 221-247.

- Li, F. (2010): "Textual Analysis of Corporate Disclosures: A survey of the Literature", Journal of Accounting Literature, 29:143-165.

- Loughran, T. and McDonald, B. (2016): "Textual Analysis in Accounting and Finance: A survey", Journal of Accounting Research, 54 (4): 1187-1230.

- Stolowy, H. and Paugam, L. (2018): "The expansion of non-financial reporting: an exploratory study", Accounting and Business Research, 48 (5): 525-548.

36

REFERENCES

- Abrahamson, E. and Park, C. (1994): "Concealment of negative organizational outcomes: an agency theory perspective". Academy of Management Journal, 37 (5): 1302-1344.

- Aerts, W. and Yan, B. (2017): Rhetorical impression management in the letter to shareholders and institutional setting. Accounting, Auditing and Accountability Journal, 30 (2): 404-432.

- Arslan-Ayaydin, Ö, Boudt, K. and Thewissen, J. (2016): "Managers set the tone: Equity incentives and the tone of earnings press releases". Journal of Banking and Finance, 72: 132-147.

- Davis, A. Piger, J. and Sedor, L. (2012): "Beyond the numbers: measuring the information content of earnings press release language" Contemporary Accounting Research, 29 (3): 845-868.

- Dyer, T., Lang, M., Stice-Lawrence, L. (2017): "The evolution of 10-K textual disclosure: evidence from Latent Dirichlet Allocation". Journal of Accounting and Economics, 64: 221-245.

- Erkens, M. Paugam, L. and Stolowy, H. (2015): "Non-financial information: state of the art and research perspectives based on a bibliometric study", Comptabilité - Controle – Audit 21(3): 15-92.

- Henry, E. (2008): "Are investors influenced by how earnings press releases are written?, The Journal of Business Communication 45 (4): 363-407.

- Hoomghiemstra, R. (2010): "Letter to the shareholders: a content análisis comparison of letters written by CEOs in the United States and Japan". The International Journal of Accounting, 45: 275-300.

- Iatridis, G. (2016): "Financial reporting language in financial statements: does pessimism restrict the potential for managerial opportunism? International Review of Financial Analysis. 45: 1-17..

37

REFERENCES

- Malo, P., Sinha, A., Korhonen, P. and Wallenius, J. (2014): "Godd Debt or Bad Debt: Detecting semantic orientations in Economic Texts". Journal of the Association for Information Science and Technology, 65 (4): 782-796.

- Li, F. (2010): "The information content of forward-looking statements in corporate filings – A nave Bayesian machine learning approach. Journal of Accounting Research 48 (5): 1049-1102.

- Li, Z. and Haque, S. (2019): "Corporate social responsibiilty employment narratives: a linguistic analysis", Accounting, Auditing and Acconuntability Journal, 32 (6): 1690-1713.

- Loughran, T. and McDonald, B. 2011. When a liability is not a liability? Textual analysis,dictionaries and 10-Ks. The Journal of Finance, 66 (1): 35-65.

- Luo, Y. and Zhou, L. (2020): "Textual tone in corporate financial disclosures: a survey of the literature". *International Journal of Disclosure and Governance*, DOI: 10.1057/s41310-020-00077-y

- Stone, P.J., Dunphy, D.C. and Smith, M.S. (1966) "The general inquirer: A computer approach to content analysis". Cambridge, M.A: MIT Press. .

- Yan, F., Dolar, B. and Mo, L. (2018): Textual análisis of corporate anual disclosures: a comparison between bankrupt and non-bankrupt companies.

- Yekini, L.S., Wisniewski, T.P. and Millo, Y. (2016): Market reaction to the positiveness of anual report narratives, The British Accounting Review, 48: 415:430.

38