“MEDIA AND COMMUNICATION IN THE FINANCIAL SECTOR”

Rome, January 16th, 2015
Don't let media define the way you see things.
Introduction

- The analysis of media content has been central in social sciences, due to the key role that media plays in shaping public opinion.
- This kind of analysis typically relies on the preliminary coding of the text being examined, a step that involves reading and annotating it, and that limits the sizes of the corpora that can be analysed.
- The use of modern technologies allows researchers to automate the process of applying different codes in the same text.
- Computational technologies also enable the automation of data collection, preparation, management and visualisation.
- This provides opportunities for performing massive scale investigations, real time monitoring, and system-level modelling of the media system.
What catches our attention?

Source: Hensinger et al. 2012
Aims

- Analysis of behaviour of actors operating in the financial system based on
  - Language used;
  - Information spread by mass media.

- Sharing research perspectives and tools of analysis among interested researchers.
Structure

– The Lab is part of the Ph.D. in Management, track Banking and Finance.

– Scientific committee
  Alessandro Carretta – Università di Roma Tor Vergata
  Franco Fiordelisi - Università di Roma Tre
  Loris Nadotti - Università di Perugia
  Antonio Parisi - Università di Roma Tor Vergata
  Daniele Previati - Università di Roma Tre
  Gianmario Raggetti – Università Politecnica delle Marche
  Gaia Soana – Università di Parma

– Director
  Vincenzo Farina – Università di Roma Tor Vergata
Research areas

- Behaviour of Financial Intermediaries and Supervisory Authorities
- Market efficiency and behaviour of investors
- ...
Behaviour of Financial Intermediaries and Supervisory Authorities

"Just because I've sold my stock and given myself a huge bonus doesn't mean we're going out of business."
– Some topics:

• Corporate culture of financial intermediaries and its relationships with performance, value creation and compliance.

• Analysis of supervisory styles

• Analysis of reputation (industry and/or firm-specific)

• Analysis of information transparency and its relationships with the content of the information disclosed.

• Analysis of the readability of documents produced for financial intermediaries’ retail customers
Market efficiency and behaviour of investors
High frequency trading
... High frequency trading
... High frequency trading

Minute-by-minute trading in the S&P 500 after a false tweet on explosions at the White House.
Market efficiency and behaviour of investors

- Some topics
  - Dynamic of speculative bubbles (and of the behaviour of “noise traders”)
  - Investor sentiment (general and/or firm-specific) and financial markets
  - Investor attention (general and/or firm-specific) and financial markets
  - Nature and degree of influence of information sources
  - Ways of communication and degree of influence of information
  - ...
Some biases… (1)

- **Salience and availability effects**: heavy focus on information that stands out or is often mentioned, at the expense of information that blends in with the background.

- **Self perception theory**: individuals come to know their own attitudes, emotions and internal states by inferring them from observations of their own behaviour and circumstances in which they occur -> **self reinforcing of habits**

- **Mere exposure effect**: familiar signal combinations are easy to perceive than unfamiliar ones

- **Cue competition**: limited attention to multiple signals affects misvaluation

- **Anchoring**: people tend to be induly influenced in their assessment of some quantity by arbitrary quantities mentioned in the statement of the problem.
Some biases… (2)

- **Conservatism:** slow in updating beliefs in response to new information
  
  Griffin and Tversky (1992) suggest that base rate underweighting and conservatism, interpreted as under- versus over- reaction to signals, can be understood as results of excessive reliance on the strength of information and underreliance on the weight of information signals.
Over-reaction and Under-reaction: information analysis

![Diagram showing the relationship between strength and weight with categories of low and high leading to over-reaction and under-reaction.]

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Over-reaction and Under-reaction: information analysis

Under-reaction
- Dividend omissions, initiations
- Earnings surprises
- Analyst recommendations
- Z-scores
- Buybacks on value stocks
- Goodwill write-offs
- Valuations

Over-reaction
- IPOs, SEOs
- High earnings growth
- Cap ex.
- Buybacks on growth stocks
- Quarterly earnings announcements
Some biases (3)

Herding behaviours

– Conversation is critical in the contagion of popular ideas about financial markets (Shiller, 2000)

– Fondamental attribution error: the tendency for individuals to underestimate the importance of external circumstances in explaining the behaviour of others

– False consensus effect: people believe that others share their beliefs more than they really do.
Conforming with the crowd: the Asch experiment

- http://www.youtube.com/watch?v=qA-gbpt7Ts8 Time: 2m
- 35% of the subjects conformed to the group’s judgment, even though they knew it was wrong, because they were uncomfortable being a minority facing an overwhelming majority
- The size of the group didn’t matter

Expected outputs

– Two main objectives:
  • Deliver high quality research
  • Deliver useful research
2014 Outputs

Teaching

– LECTURES ON BEHAVIOURAL FINANCE

Publications


– Vincenzo Farina, Giampaolo Gabbi, Daniele Previati (2014) “Good news, bad news: a proposal to measure banks’ reputation using Twitter”. Bancaria

2014 Outputs

ECONOMIC SENTIMENT INDICATOR

http://vinfar.pythonanywhere.com
Econolog Db

- What:
  - More than 500 international economic blogs
  - More than 900,000 blog posts collected
  - 5 year period (from 01/03/2008 to 31/09/2013)

- Structure of the DB:

  - `field("id", Auto-incremental id).
  - `field("BlogName", STRING(255)),
  - `field("BlogUrl", STRING(255)),
  - `field("PostTitle", STRING(255)),
  - `field("PostText", STRING(255)),
  - `field("PostDate", DATE, default=None),
  - `field("Timestamp", INTEGER),
  - `field("SentimentT_liwc", FLOAT),
  - `field("SentimentTP_liwc", FLOAT),
  - `field("SentimentT_lm", FLOAT),
  - `field("SentimentTP_lm", FLOAT)
APR: A-nnual P-ercentage R-ate or A-wkward P-aradoxical R-iddle? The limits of rational rules.

Massimo Caratelli, Vincenzo Farina, Umberto Filotto

–Concentrating all the relevant information into a very simple piece of information, APR is very efficient and potentially could give consumers a very powerful decision tool.

–This is certainly true if, when making their choices, consumers put the APR in the set of information they elaborate; because of this in this study we will collect evidence of the information set which is used by real borrowers when they are taking their borrowing decisions.

–To do this we will analyze a representative sample of Italian borrowers with appropriate investigation techniques such as questionnaires and simulations.
Future Research (2)

Risk culture: a growing interest

(Source: Google)
Future Research (2)

'Risk culture' 2000-2011

Source: Simon Ashby, Tommaso Palermo and Michael Power
Risk Culture and Banking Supervision (Alessandro Carretta, Vincenzo Farina, Paola Schwizer)

– This work is aimed to assess the culture of risks of a sample of Central Banks and Supervisory Authorities in Europe as well as of the ECB.

– The main assumptions are:
  
  • the existence of a significant degree of differentiation of the risk cultures among supervisors, which also reflects the country specific factors (IMF, 2012)
  
  • the presence of a “distance” between these cultures and the risk culture of the ECB.

– In this perspective, we point out that these diversities, especially in presence of credit markets still characterized by poor integration, could create unwanted distortion effects during the initial stages of the Union Banking.
Workshop

– “Risk culture and mass media” - May 20th, 2015
Proprietary tools
A.M.I.C.A.
(Automatic Monitoring of Internet & Content Analysis)

- Functions:
  - Web mining (RSS feed, Twitter, Facebook, …)
  - Content analysis (What?, How?):
    - Word frequency
    - Category frequency analysis (es. sentiment analysis)
    - Concordance analysis
    - Text readability
  - Social network analysis (Who?)
Web Mining

Rss feeds
(newspapers, blogs, ecc...)

Twitter

Facebook

Documents

Supervisory authorities’ documents
DICTIONARY-BASED CONTENT ANALYSIS

http://vinfar.pythonanywhere.com/dbca
**DICTIONARY-BASED CONTENT ANALYSIS**

Select your dictionary* (.txt):  
Select your text (.doc or .txt or .csv):  

*IN THE DICTIONARY FILE EACH LINE STARTING WITH >> SIGNS INDICATES THE NAME OF A CATEGORY AND EVERY WORD BENEATH THE CATEGORY NAME IS A CATEGORY MEMBER.
neg: 10

pos: 3
Concordance Analysis

http://vinfar.pythonanywhere.com/concordance
CONCORDANCE ANALYSIS

Select your text (.doc or .txt or .csv):  

Go!
the concept of identity seems to be all the rage now in the social sciences

in addition, it appears that scholars have come to recognize that much discourse by actors is, broadly speaking, identity discourse; that is, actors use particular adjectives that describe the self and others in order to achieve goals, and these articulated self descriptions also serve as motivations for behavior

it is accurate to say, however, that there is not much consensus on how to define identity; nor is there consistency in the procedures used for determining the content and scope of identity; nor is there agreement on where to look for evidence that identity indeed affects knowledge, interpretations, beliefs, preferences, and strategies; nor is there agreement on how identity affects these components of action

at its simplest, the problem is that in social science there is no consensus on how to treat identity as a variable

not that we should fetishize consensus but its absence reflects the dearth of work on some basic questions about how to conceptualize and study identity

we prefer to put the problem this way: if identity is a key independent variable explaining political, economic, and social behavior, how does it vary, why does it vary, and how would one know variation if one saw it? the aim of this project is to develop conceptualizations of identity and, more importantly, to develop technologies for observing identity and identity change that will have application in the social sciences

heretofore the usual techniques for analyzing identity have consisted of hard-to-replicate discourse analysis or lengthy individual interviews, at one extreme, or the use of large-n surveys at the other

it will allow researchers to approach identity research with a wider range of tools, including more rigorous and replicable methods of analyzing identity as an independent (and dependent) variable
EASYNETVIZ

http://vinfar.pythonanywhere.com/easynetviz
E.g., social network analysis

- Structure of search engines’ results (Google, Yahoo, Bing)
E.g., social network analysis

- Structure of relationships of actors discussing a certain topic
AUTOMATED READABILITY INDEX

http://vinfar.pythonanywhere.com/ari
The ARI index

- The Automated Readability Index (ARI) is a readability test designed to gauge the understandability of a text.

- The formula for calculating the Automated Readability Index is:

\[
4.71 \left( \frac{\text{characters}}{\text{words}} \right) + 0.5 \left( \frac{\text{words}}{\text{sentences}} \right) - 21.43
\]
An example: the text

The concept of identity seems to be all the rage now in the social sciences. A critical focus of process oriented scholarship concerns why and how the social groups to which we belong—whether ethnic, national, or transnational—influence the knowledge, interpretations, beliefs, preferences, and strategies, that underlie both our individual and collective behavior. In addition, it appears that scholars have come to recognize that much discourse by actors is, broadly speaking, identity discourse; that is, actors use particular adjectives that describe the self and others in order to achieve goals, and these articulated self descriptions also serve as motivations for behavior.

It is accurate to say, however, that there is not much consensus on how to define identity; nor is there consistency in the procedures used for determining the content and scope of identity; nor is there agreement on where to look for evidence that identity indeed affects knowledge, interpretations, beliefs, preferences, and strategies; nor is there agreement on how identity affects these components of action. At its simplest, the problem is that in social science there is no consensus on how to treat identity as a variable. Not that we should fetishize consensus but its absence reflects the dearth of work on some basic questions about how to conceptualize and study identity. We prefer to put the problem this way: If identity is a key independent variable explaining political, economic, and social behavior, how does it vary, why does it vary, and how would one know variation if one saw it?

The aim of this project is to develop conceptualizations of identity and, more importantly, to develop technologies for observing identity and identity change that will have application in the social sciences. Heretofore the usual techniques for analyzing identity have consisted of hard-to-replicate discourse analysis or lengthy individual interviews, at one extreme, or the use of large-N surveys at the other. Yet, much social science research relies on historical and contemporaneous texts. We hope to develop computer-aided quantitative and qualitative methods for analyzing a large number of textual sources in order to determine the content, intensity, and contestation of individual and collective identities at any particular point in time and space. These methods will add to the portfolio of existing methods. It will allow researchers to approach identity research with a wider range of tools, including more rigorous and replicable methods of analyzing identity as an independent (and dependent) variable.
An example: the analysis

"Index": 19.09269988632058,
"Words": 406,
"Filename": "dbca_text",
"Characters": 2147,
"Sentences": 13,
"Description": "As a rough guide, US grade level 1 corresponds to ages 6 to 8. Reading level grade 8 corresponds to the typical reading level of a 14 year-old US child. Grade 12, the highest US secondary school grade before college, corresponds to the reading level of a 17 year-old."}