Webstreams processing and other semantic technologies for Reputational Risk Measurement and Management in Banks

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Gruppo Montepaschi

Milan, March 29th 2012
The Montepaschi Banking Group

- Italy’s third largest Banking Group, with about 30,000 employees and 3,000 branches in Italy.
- Serving over 6 million customers.
- 3 brands operating in Italy:
  - Banca Monte dei Paschi di Siena;
  - Banca Antonveneta;
  - Biverbanca.
- In business since 1472 with no interruptions, we pride ourselves in being the oldest bank in the world, yet maintaining strong inclination for product and service innovation…

The ‘Rocca Salimbeni’ building in Siena, Italy, headquarters of Banca Monte dei Paschi di Siena S.p.A.
The reputation ecosystem

- Traditional Media
- Social Networks
- Regulatory System
- Customer Associations
- Business Partners
- Investors
- Employees
- Customers
- New Media
- Blogs
- Rating Agencies
- Opinion Leaders

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The reputation ecosystem

Customers
Employees
Investors
Business Partners

Traditional Media
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Rating Agencies
Opinion Leaders
New Media
Blogs

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The reputation ecosystem and the internet advent

- Reputation is a fundamental asset based on a wide network of relations.
- This network represents a delicate ecosystem in which non material concepts like “trust”, “reliability”, “ethic” are exchanged daily between partners.
- The advent of user-generated content & social media didn’t change the essence of the relationship but accelerated in a dramatic way the speed of exchanges in the ecosystem network.
The effect of internet, blogs and social media on reputation disruption

“It takes twenty years to build a reputation and five minutes to destroy it” (Warren Buffet)
The big change introduced by the Web for reputation management

- Timing
- Globalization
- Influence
- Reduced info costs
- Information quality (?)

✓ The reputation network faces a new challenge: “Information overflow”
Webstreams processing and other semantic technologies for information extraction

✓ Real time control of the reputation ecosystem requires new tools
✓ Analysis of electronic unstructured information by webstreams processing and semantic technologies could provide a powerful weapon for reputation monitoring and mitigation actions
A specific focus on Business Partners

- Reputation of a business partner could have a strong influence on the firm’s reputation.
  - The Foxconn–Apple relationship and the news regarding bad working conditions in the Chinese factory are a typical example of how the internet has a role in people perception.
Management, brokerage and advisory services are an important fee and commission income for the financial industry in times of minimum interest rate;

The current crisis has dramatically changed the risk profile associated to the distribution of third-party services;

- Triple A rating;
- More than 100,000 Italian customers involved;
- More than 3 bln bond and index linked insurance contract sold by Italian banks;
- All the major Italian banks adopted protection schemes to refund their customers, paying high prices to avoid a potential reputation and operational risk.
The Aegean Contagion …

✓ Concern about rising government deficits and debt levels across the globe together with a wave of downgrading of European government debt has created alarm in financial markets.

✓ Fears of a sovereign debt crisis developed concerning some European nations, including European Union members Portugal, Ireland, Italy, Greece, Spain. This led to a crisis of confidence as well as the widening of bond yield spreads and risk insurance on credit default swaps.
Use Case 2: Sentiment extraction and decision support system

Montepaschi joined the project proposing the application of FIRST techniques to the monitoring of third parties sentiment on the web, social networks and blog.

The project goal is to develop decision support systems for reputational risk measurement and management, with a specific focus on the reputational risk associated with investment service.

- Information extraction and sentiment analysis
  - 30 business partners monitored
  - 100 different info sources monitored real time
  - Extensive ontology developed for reputational risk

Decision support system for reputational risk management
Use Case 2: Reputation Index and financial investments

 ✓ How can the sale of a financial instrument trigger the bank’s reputational risk?

Mismatching
Customer portfolio is not anymore in line with his/her risk investment profile!

Performance
The performance is not in line with customer expectations (absolute, benchmark..)

Counterpart Sentiment
News, social networks and media could effect the customer sentiment on a specific counterpart (and related investments)

Volumes
Are asset volumes sold to customers a big part of total assets?

Number of customers
Do a large number of customers hold the product?

Customer perception
Bank exposure
Use Case 2: The decision support system

\[ \Delta M < 0.5 \quad \text{In line} \]
\[ \Delta M > 0.5 \quad \text{Low} \]
\[ \Delta M > 1.5 \quad \text{Medium} \]
\[ \Delta M > 2.5 \quad \text{High} \]
\[ \Delta M > 3.5 \quad \text{Very High} \]

\[ S < +100 \quad \text{Neutral} \]
\[ S < -10 \quad \text{Low Neg.} \]
\[ S < -30 \quad \text{Med Neg.} \]
\[ S < -50 \quad \text{High Neg.} \]
\[ S < -70 \quad \text{Very High Neg.} \]

\[ P = -2\% \quad \text{In line} \]
\[ P = -10\% \quad \text{Low} \]
\[ P = -25\% \quad \text{Medium} \]
\[ P = -50\% \quad \text{High} \]
\[ P = -100\% \quad \text{Very High} \]

\[ \Delta M < 0.5 \quad \text{In line} \]
\[ \Delta M > 0.5 \quad \text{Low} \]
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\[ \Delta M > 3.5 \quad \text{Very High} \]

Reputational Index (RI)

SRI1 - Low
SRI2 - Medium -low
SRI3 - Medium
SRI4 - High
SRI5 - Very High

How can the bank be affected?

Although concentration of volumes is medium, high diversification of customers together with other indicators lead to an increase of RI

Medium concentration of volumes
High diversification of customers

RV_p = 0.30
RN_p = 0.60

Market changes make customer risk profile mismatch the risk of the product

Despite concentration of volumes is medium, high diversification of customers together with other indicators lead to an increase of RI

As SRI is increased, SRI&R_p are not consistent anymore

Performance Indicator
market changes make P decrease

Counterpart Sentiment
market rumours make counterpart sentiment decrease

How can the bank be affected?

market changes make customer risk profile mismatch the risk of the product

Although concentration of volumes is medium, high diversification of customers together with other indicators lead to an increase of RI
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