Spotting the early warning signs of a company’s impending financial collapse

An investigation into how the systematic monitoring of a company’s news coverage can enhance more traditional financial monitoring techniques.

Released August 2012
LexisNexis has a world-class reputation for providing critical business tools. For over 30 years we have been pioneers in intelligence and risk management. As a digital pioneer, the company was the first to bring legal and business information online with its Lexis® and Nexis® services. Today, LexisNexis harnesses leading-edge technology and world-class content to help professionals work in faster, easier and more effective ways.

Our solutions are used internationally by financial services, legal and accountancy firms and blue chip multinational companies to enhance business decision making, fulfil regulatory requirements and for premium information research.

LexisNexis serves customers in more than 100 countries with 10,000 employees worldwide.
Applying Insight To Supply Chain Risk

LexisNexis and State of Flux have conducted a case study-based research project looking at 23 failed companies since 2008. The research analyses more than 90,000 news articles written about the companies in the run up to bankruptcy and uses specific Smartindexing terms to identify trends in companies that are at risk of failure.

Using this methodology, LexisNexis and State of Flux were able to identify early warning signs of risk in more than 80% of the sample companies researched. In more than half of the companies researched, the early warning signs were either 'strong' or 'very strong'. Warning signs could be clearly seen six months before companies reached bankruptcy and these signs became more pronounced the closer the companies got to failure. Critically, the pattern of early warning signs was unique to failing companies and not seen in a sample of healthy companies, providing confidence that the methodology would not generate significant issues around false alerts.

What This Means For Mitigating Risk

When applied to the management of future risk, the LexisNexis/State of Flux methodology provides insight for companies on the financial state of their suppliers and customers by the ongoing monitoring of highly relevant and focussed news and content, against relevant terms. This enables supply chain managers and account managers to identify, in advance of a business failing, key indicators that suggest suppliers and customers are at risk.

New companies can be added to the content monitoring platform as they emerge, either as a new customer or supplier or as their importance to the business increases.

LexisNexis and State of Flux have jointly prepared a White Paper, outlining the methodology behind this research and its implications for identifying business risk in a timely manner. It is available to download from:

http://www.nexis.co.uk/early-warning-signs.php

Who Should Read The White Paper?

Specifically it is relevant to:

• CFOs and Finance Directors
• Supply Chain Directors, Procurement Directors and others involved in relationships with suppliers
• Directors of Sales and Business Development and others managing relationships with customers
• Risk Managers

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A Challenging Environment for Business

The last four years have been a time of great risk for businesses. The squeeze on credit following the banking crisis has meant that traditional means of funding have fundamentally changed. There have been high profile casualties including long standing brands such as Woolworths and Kodak.

In the first quarter of 2012, the UK economy returned to recession, suggesting that the uncertainty will continue for some time. More than one third of businesses reported falling revenues and profits in Q1 2012 according to the trade body for insolvency professionals, and the demise of high street retailer Clinton’s Cards in late April 2012 was only the latest in a line of UK high street failures in 2012 that have included Game, Hawkins Bazaar, Peacocks, Past Times and Aquascutum.

Financial well-being in the supply chain is critically important to business success. Every business failure brings consequences to companies within that business’ supply chain. Companies depend on their customers for payment. Supply chains are complex in modern business meaning a failure can easily impact a business that is not directly trading with the failed company. Often a business several steps removed can feel the effects of another business’ failure.

Given the risk that this poses for business, organisations are striving to more effectively monitor signs of financial risk in their supply chain. Traditional methods, such as the monitoring of annual reports or ad hoc internet searches: whilst these methods have value, they can fail if overly reliant upon historic data or if the critical insight is missed because it was buried within a larger volume of noise.

Monitoring news for indications of risk:
LexisNexis and State of Flux set out to test whether it was possible to effectively monitor news sources to deliver better insight into business risk in the supply chain. The objective was to determine whether a company monitoring news about a supplier could receive early warning signals that this supplier was at financial risk.

The research sought to determine the following:
• Can monitoring news about a customer or supplier provide early warning of pending financial issues?
• What kind of monitoring can deliver effective insight?
• How long in advance will warning of risk manifest?
• How can this insight be used by companies to better manage risk in a supply chain?

In the run up to business failure, companies are likely to be on the receiving end of specific types of negative news. Whether this is reporting of poor financial results, impending administration, factory closures or redundancies, early warning signals should be identifiable in advance.
The archive dates back 35 years, with millions of new and updated documents loaded every day directly from publishers.

By focusing on authoritative sources of news and business information, Nexis users are able to avoid the ‘noise’ and content credibility gap that can be associated with some free web content and instantly access relevant business information.

LexisNexis apply a proprietary, rule-based, classification system known as SmartIndexing to identify themes or subjects in each document. Using SmartIndexing, each news article in the Nexis database is categorised against one or more of the 4000+ Subject Terms. SmartIndexing is more effective than simply looking for a keyword as it applies a sophisticated weighting mechanism based on the frequency of a unique collection of words and phrases that would be relevant to a particular subject.

For example, the INSOLVENCY & BANKRUPTCY Subject term monitors news articles referring to the legal process in which debtors are declared unable to meet financial obligations.

The scoring looks in each news article for the frequency of occurrences of hundreds of terms and phrases including:

- bankruptcy court
- bankruptcy filing(s)
- insolvency cases
- real estate insolvency

It also includes misspellings or more obscure phrases that a user may not be aware of, such as “bankruptcies” or “sequestration of assets”. SmartIndexing also omits terms such as morally bankrupt or geologic sequestration which would generate false matches using a simple keyword matching approach.

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About the Nexis database

The Nexis database is a global collection of premium-licensed content. LexisNexis works with more than 35,000 sources to license and aggregate various types of business information (Fig.1).

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Fig.1: LexisNexis database sources
LexisNexis and State of Flux sought to determine whether, by monitoring the incidence of certain SmartIndexing Subject terms within news articles about a specific company, it was possible to generate early warning signs that a particular company was likely to suffer financial distress.

By focusing on authoritative sources of news and business information, Nexis users are able to avoid the ‘noise’ and content credibility gap that can be associated with some free web content and instantly access relevant business information.

The process to achieve this was as follows:

• Identify Subject terms that were associated more with failing companies than with healthy companies. Add to these any other relevant Subject terms to create a group of Subject terms that may collectively provide early warning signs that a company was at risk of financial collapse.

• Measure the incidence of these Subject terms against historical news content from a relevant sample of companies that have suffered financial failure. Identify trends within the group of Subject terms. Determine whether historical news content measured against these Subject terms increased in the run up to a company’s demise.

• Determine which of the Subject terms would have provided early warning signs of financial collapse and over what time period.

• Assess against a control sample of healthy companies to ensure the Subject terms didn’t generate false indications of financial distress in companies that were not in real danger of failure.

• Conclude on the viability and validity of the research.

• Provide recommendations where relevant

This White Paper outlines each of these stages.

**Compare the top 20 Subject terms**

Initially, LexisNexis and State of Flux wanted to see whether specific Subject terms systematically appeared for companies that had failed. Using the Nexis database it was possible to compare the most common 20 Subject terms in news about healthy companies to the most common Subject terms in news about 27 companies during the week before these companies failed.

The above word cloud (Fig 2) shows the most common Subject terms for healthy companies, whereas the word cloud below this (Fig 2.1) shows the most frequently occurring Subject terms for companies one week before failure.

Whilst some of the Subject terms are the same for both samples, there are several that only appear for the failing companies. Whilst some are obvious, others, such as “divestitures” and “petitions” are less so.

Based on this comparison of healthy and failed companies 20 Subject terms were identified as having potential value as an early warning indicator of financial distress.
The companies selected were geographically diverse, ranged in size from million to billion dollar companies and operated in a variety of industry verticals. The Nexis database contained more than 90,000 news articles about these 23 companies in the two years leading to each company’s failure.

The research identified two categories of Subject terms that served as credible warnings of financial collapse: Trend Indicators & Episodic Indicators. These are each discussed in turn.

Sample Companies

To test which of these 20 candidate Subject terms would provide effective early warning, each Subject term was checked against 23 case study failed companies.

With Trend indicators, the volume of articles that included these Subject terms increased gradually up to the day of the company failure with a sustained rise in the ‘average’ incidents of articles including these Subject terms as the date of failure gets closer.
Trend Indicators

Key Trend Indicators included:

Insolvency and Bankruptcy Subject term

This Subject term appeared in the news coverage of nearly all the companies reviewed. The proportion of articles tagged with this Subject term increased as most companies approached their failure date (F-day). The average proportion of articles associated with the Subject term increases continually from a baseline of 0% during the ‘previous 18 months’ period, to 9% during the month preceding bankruptcy. Monitoring the ‘Insolvency and Bankruptcy’ Subject term alone would provide an early warning for most of the case study companies.

Company Liquidations and Dissolutions Subject term

In the 18 month period prior to the final 6 months, the average occurrence of this Subject term was 0%, and the volume does not rise above 1% in this period for any of the 23 case study companies. In the final 6 months before bankruptcy the proportion of news articles containing this Subject term rose above the baseline (at least 2%) for seven of the companies, and this Subject term could have provided early warning of the approaching bankruptcy of one third of the companies monitored.

Other trend indicators, such as the ‘US Chapter 11 Bankruptcy’ Subject term, provided an early warning for all of the US companies researched and the “going into administration” Subject term provided an early warning for 40% of the failed companies headquartered in the UK.
Episodic Indicators

With Episodic Indicators, the growth in the volume of articles associated with these Subject terms was not sustained throughout the period of analysis in the way seen with Trend Indicators: instead we observed spikes in incidence as short events related to the Subject occurred in the final 6 months leading to company failure. Key Episodic indicators included:

- **Redundancies and Dismissals**

  The Redundancies & Dismissals Subject term targets news articles containing references to involuntary loss of employment.

  The analysis of the ‘Redundancies and Dismissals’ Subject term, revealed various spikes in the proportion of matching articles for certain companies as the date of failure approached. For example 1% of articles about the supplier, Elcoteq matched the Subject term in the initial 18 months’ period measured. This rose to 52% of articles two months before failure.

  ![Graph showing percentage of articles matching the Redundancies and Dismissals Subject term over time](image)

- **Profit Warnings**

  For six of the 22 companies, this Subject term provided a useful indicator of company failure. For example Connaught matched 0% of articles in the initial 18 month period measured, but this increased to 18% two months before the company failed.

  ![Graph showing percentage of articles matching the Profit Warnings Subject term over time](image)
Effective Early Warning Indicators

The research found that 12 of the original 20 Subject terms that were measured against company news had value in providing early warning signs prior to the financial collapse of the companies sampled.

<table>
<thead>
<tr>
<th>Description</th>
<th>Subject terms</th>
</tr>
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| **Trend Indicators**                                                        | • Insolvency & Bankruptcy  
• US Chapter 11 Bankruptcy  
• Company Liquidations & Dissolutions  
• Going into Administration |
| • These are Subject terms that rarely appear in news articles until the final six months of a company’s existence.  
• These Subject terms appear with increasing frequency as a company accelerates to collapse |
| **Episodic Indicators**                                                      | • Law & Legal Systems  
• Financial Performance & Reports  
• Law Courts & Tribunals  
• Company Strategy  
• Redundancies & Dismissals  
• Corporate Restructuring  
• Divestitures  
• Profit Warnings |
| • These are Subject terms that appear in a minority of news articles but increase as a company accelerates towards collapse.  
• These Subject terms often appear as short spikes reflecting discrete episodes in the final six months before company failure |

**Evaluate the extent to which each Subject term or group of Subject terms would have provided forewarning**

It was important to review how effective an alert system based on the 12 Trend and Episodic indicators above would actually have been. Reviewing the research results for each company enables the extent to which news monitoring through SmartIndexing would have provided early warning signs of impending financial collapse.

- More than half the companies in the sample had multiple indicators
- Less than 20% of companies had no indicators

| Very Strong | At least four of the indicators predicted the bankruptcy showing a sustained rise from the ‘baseline period’ in the final six months | 23% | Kodak, Lear Corp, Charter Communications, Woolworths, La Senza |
| Strong      | At least one of the trend indicators predicted the bankruptcy showing a sustained rise from the ‘baseline period’ in the final six months. At least one of the Episodic indicators also showed rises above the baseline during the final six months. | 32% | MF Global, Saab, Blacks Leisure, SeaFrance, NewPage Corp, Connaught, Elcoteq |
| Moderate    | At least one of the indicators showed a rise above the baseline that was not sustained. | 27% | Dairy Farmers of Britain, SaarGummi, American Airlines, ROK, Nortel General Maritime Corp |
| None        | None of the indicators predicted the failure. | 18% | Pontins, Skyton, Cumbrian Seafoods, Barratt Shoes |
Examples of companies with strong indicators:

**Kodak**

Inventors of the hand-held camera Kodak struggled to adapt to the digital era and counter the rapid pace of collapsing sales. They filed for bankruptcy in January 2012. The Nexis database contains more than 15000 news articles written about Kodak in the 2 years leading up to their failure: the incidence of each of our 12 Trend and Episodic Indicators is shown in the following graph.

**Woolworths**

Was a long standing high-street retailer with 30,000 employees. They collapsed in November 2008, as a result of retail competition, a sluggish economy and the impact of credit insurers withdrawing cover to Woolworth’s suppliers. The Nexis database contains more than 4400 news articles written about Woolworths in the 2 years leading up to their failure: the incidence of each of our 12 Trend and Episodic Indicators is shown in the following graph.
LexisNexis and State of Flux measured the news coverage of five healthy companies against the same Subject terms that were applied to the failing companies. This helped to ensure that the rise in Trend and Episodic Indicators was only present in companies that were about to fail and not in healthy companies.

Assess against a control sample of healthy companies

The research conducted determined that 12 of the original 20 Subject terms that were measured against company news had value in providing early warning signs prior to the financial collapse of the companies sampled.

The percentage of articles containing the 12 Subject terms associated with failing companies stays between 1% and 21% for the whole 24 month monitoring period. The mean average across the control companies shows very little variance (the mean average ranges between 6% and 11%). This provides a baseline level for negative news reports about financially healthy companies.

When this baseline level is compared to the failing companies over time, it is possible to see if the volume of news that is categorised in the 12 key Subject terms digresses from the baseline, to what extent and over what time period.

Comparing the mean average across healthy companies to the mean average across the unhealthy companies shows a significant digression in the 'final 6 months' time period.

At four months before bankruptcy, the incidence of the 12 key Subject terms in news about failing companies is 1.4 times higher than the highest point in the range for the control ‘healthy’ companies. This continues to rise to the date of company failure: two months before bankruptcy it is almost double the highest control group value; in the final month before failure it stands at 31% - almost three times higher than the control sample.
Conclusion

Measuring news content via SmartIndexing can be an extremely effective means by which to identify companies that are at risk of financial failure. More than 80% of the companies sampled in this research demonstrated signs of being at risk of financial failure up to six months before collapse.

Clearly, news monitoring would be most effective where companies are generating a high volume of news stories (such as publicly listed companies or large brands). The effectiveness may be more limited with private or smaller companies.

While monitoring news via SmartIndexing is not foolproof for every single supplier or customer company, it is an effective tool to add to the other methods by which risk is monitored within corporations.

Recommendations

Implementing a strategy for monitoring news to provide early warning signs of companies in financial distress can be achieved through a four stage process.

First, determine which companies require ongoing news monitoring. A company may choose to monitor news coverage of the top 100 suppliers/customers or a much broader set.

Secondly, implement an effective news-monitoring platform. Whilst wide ranges of solutions are available for ongoing news monitoring, some of the key factors procurement teams should consider are:

- **Content**: How broad and current is the news content provided? Does the solution incorporate licensed content, or is there a potential to manage copyright/licensing issues in each of the countries the solution will cover?
- **Noise to Insight Ratio**: by what criteria is a news item selected for display to the user? Is it easy to filter articles based on concepts such as financial risk, and can those filters be modified over time?
- **Workflow**: Is it possible to track and report when alerts are generated, reviewed and processed by the correct individual or team.

Thirdly, it is critical to have a proactive process for adding new suppliers into the news-monitoring platform: either when taking on a new supplier/customer or to enhance monitoring on current suppliers/customers.

Finally, companies should take proactive action if news monitoring identifies a potential risk. A customer or supplier’s wellbeing can be raised in regular supplier meetings to ensure that a genuine picture of risk is determined. If necessary, organisations can amend trading terms, consider additional credit insurance or choose to reduce the volume of business undertaken to minimise risk.

Existing Nexis Clients

If your organization already has access to services from LexisNexis and you would like to discuss how to leverage the techniques described in this paper, please contact your account manager directly or email us via risk@lexisnexis.co.uk.
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About the Companies

LexisNexis

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LexisNexis serves customers in more than 100 countries and develops strategic alliances with innovative 3rd parties like State of Flux.

State of Flux

State of Flux is one of the UK’s most innovative and customer-focused procurement and supply chain consultancies. We work with multinational companies and major public-sector organisations to help upgrade their capabilities, drive best practice and deliver superior bottom-line results. Our consulting services cover three major areas – strategic sourcing, contract management and supplier relationship management – supported by comprehensive market intelligence and learning & development capabilities.

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