Assessing Public Company Financial Risk by Crowdsourcing the Research of Credit Professionals

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Abstract

This article will discuss how crowdsourcing the research activity of corporate credit professionals provides an early warning of business counterparty financial risk. It demonstrates how crowdsourcing makes it possible to leverage trade creditors, a vital group of risk managers who control access to a major source of a corporation's working capital, and highlights the factors which allow for crowdsourcing to provide actionable guidance.

Working Capital & Trade Credit

Public companies have always been funded through a mix of debt and equity. Over the last decade, however, U.S. corporate liabilities have soared to unprecedented levels. According to the Federal Reserve, aggregate corporate bonds accounted for $5.2 trillion, bank loans $2.7 trillion, and trade payables $2.2 trillion.

Trade credit – accounts payable – rarely gets the attention it deserves. Trade credit represents the most fluid and widespread form of external financing. It can also be among the cheapest forms, assuming prompt or early payment and advantageous terms. That said, trade credit is easily adjusted as terms can be reset on a shipment and an order-by-order basis. Unlike bonds and bank loans, trade credit is at the junction of operational working capital flexibility and financial carry costs. Therefore, credit managers collectively control a sizable portion of their customers' financial flexibility. Most critically, they control this working capital financing when it matters most: when a customer is in financial distress.

It is well known that if a supplier believes that a customer is at risk of near-term distress or bankruptcy, action will be taken to protect dollar exposure. These actions might include: imposing tighter than normal payment terms, "holding" orders until payments are made, or even requiring cash in advance.

Given the distinctive position of trade credit, a company's operational flexibility is directly impacted by its financial risk. Credit managers have the ability to react the fastest across a corporation's liability structure. For instance, the selling company's next shipment terms might change from 2/10 Net 30 to Net 15. This change represents one of the multiple options that, if replicated by other credit managers across a company's supply chain, can immediately increase a buying company's need for alternative sources of working capital.

If enough credit managers begin to restrict trade credit, the customer may be forced to depend on other forms of financing, which may result in a higher cost of capital and/or a liquidity crunch.

SEC Fair Disclosure (FD) Ruling Limits Information Access

For *public* companies, the Security and Exchange Commission prevents most financial investment analysts from gaining access to information that is not publicly available under the doctrine of Fair Disclosure (FD). An investment analyst mostly uses only publicly available information, such as is revealed in corporate filings, typically including financial statements and associated notes. Compared to the days before FD regulation, access to management is now severely limited. Conversely, business stakeholders, such as credit managers, banks and credit rating agencies, are excluded from the scope of FD regulation.

Credit managers are therefore unfettered by FD rules. They use a variety of non-public information sources, such as their own company management and sales representatives. It is well known among credit managers (but underappreciated by investors) that credit managers frequently share information with credit managers at other companies, including (under

conditions managed to avoid anti-trust and other concerns) their competitors. They regularly speak confidentially with financial and operating executives at customer companies when concerns arise. The availability and quality of this information can provide a timely and unique view of how their customers are performing.

Credit managers and their contacts can obtain material financial information between the quarterly reporting periods for public companies. This information may include, but certainly is not limited to, items such as: a slowing in sales growth, an increase in product returns, asset sales or additional financing, etc. This type of information is extremely useful when a company is sitting on the cliff of financial distress or approaching bankruptcy. Exclusion from FD rules is necessary to allow credit managers to make more precise risk management decisions, whether it concerns adjusting terms or the last resort of cutting trade credit altogether.

Trajectory of Data Analysis

Today, there are countless proprietary models that collect data and use select variables to produce insightful outputs which are often applied within business and financial markets. Most industries are specifically integrating technology, such as data analytics, as companies aggressively attempt to stay ahead of competition -- whether it's through corporate strategy, supply chain or credit management.

The goal of these models is to provide actionable guidance. Standard requirements of the data used by a model should include: (1) data is significant to the purpose of the model, (2) it covers an extensive time period, (3) it is timely, and (4) it is reasonably consistent.

“Crowdsourcing” refers to the use of contributions from a large number of people or events to get impactful ideas, accomplish work or identify trends. When used to discover information or trends, crowdsourcing data sets are usually fashioned into coinciding indicators, typically measuring things such as business sentiment, consumer spending or company payment histories.

Sometimes the data can also be analyzed in order to predict future events or outcomes. Our recent research has demonstrated that the aggregated sequence and specific patterns of the research activity of credit managers on leading credit information websites helps predict financial risk of a company.

Crowdsourcing and Credit Managers

Credit managers are incentivized to maintain a healthy relationship with customers, enabling sales, yet they must simultaneously preserve their own company’s long-term financial health – often a delicate balancing act requiring skill and experience. Managing these competing demands successfully requires a blend of objective information, subjective evaluation and judgment. These needs are intensified when a customer is in financial stress.

When a credit manager is intensively researching a company, this intensity can have a few different meanings. It could be an analysis of a new customer, a routine annual review of an existing customer, or something more serious: a customer in financial distress. Since each process looks a little different, it is the **pattern of research** that is the primary signal that a credit manager is grappling with elevated risk (i.e. Crowdsourcing).

For example, a pattern of research which involves a cursory review of summary information about a business would not signal risk. Conversely, a pattern of research involving a review of detailed liquidity and cash flow ratio spreads might, together with other actions, signal elevated risk concerns. The patterns with which credit managers research companies is statistically predictive of financial risk and can be integrated into credit models, enhancing their accuracy.

To capture that level of granularity, however, requires a highly structured website so it can clearly discern the difference between the two types of research activity. It also requires a long enough time series to see such trends develop, and repeat reliably, over time.

Given what is known about credit managers, it should not be a surprise that they can add useful information content to credit models. In other words, when this crowdsourcing is part of a credit model, credit professionals are anonymously communicating their "concern" about a business to each other.

It is worth noting that this method crowdsources the actual research actions of credit managers and is not based on an opinion or attitude surveys. So, while it is believed this method signals the concerns demonstrated by credit managers, it uses objective data as input.

As is typically the case with crowdsourcing, the usefulness of the signal from research activity depends on aggregating the actions of many diverse credit professionals. One or two analysts researching a company would not raise a red flag in terms of financial risk. Alternatively, it is meaningful if many credit professionals are exhibiting research patterns indicative of concern.

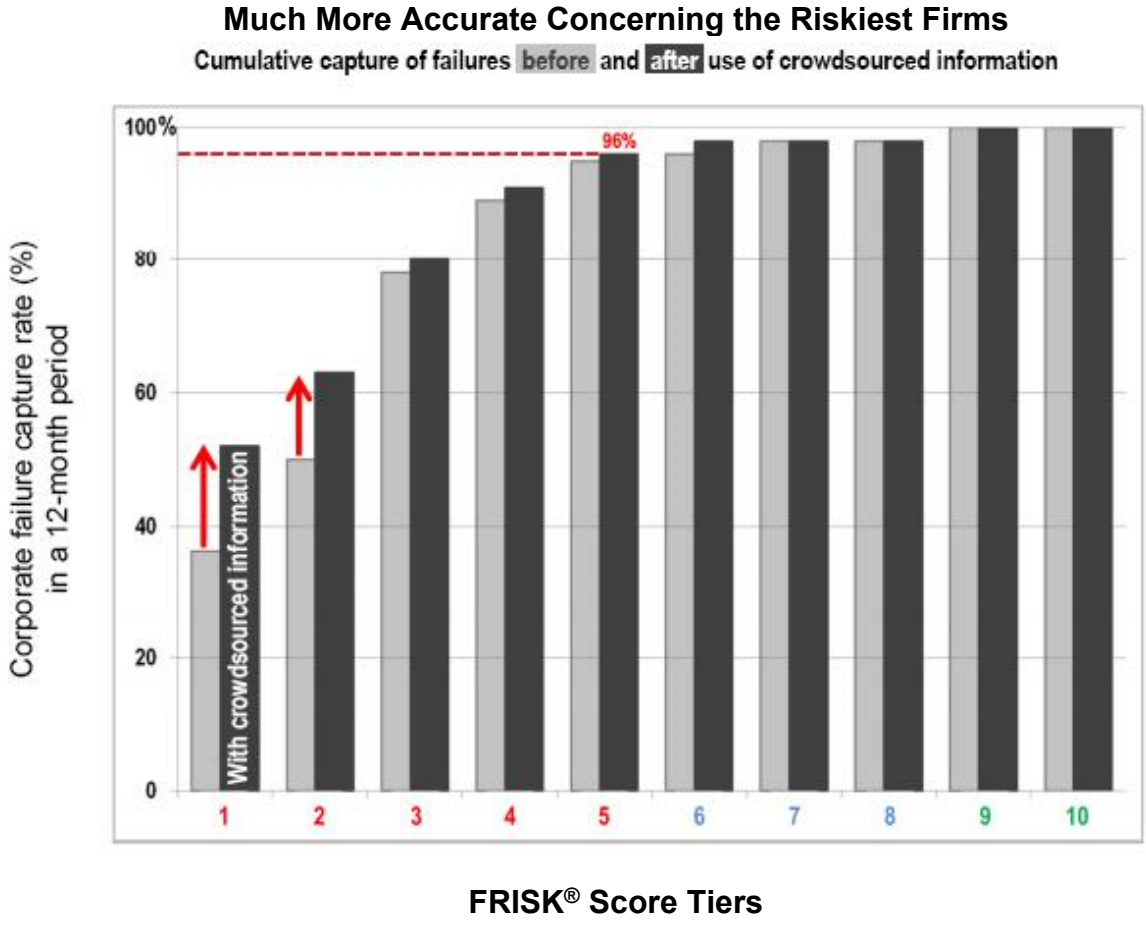
CreditRiskMonitor: A Crowdsourcing Example

CreditRiskMonitor clients are able to access a large amount of information on public companies. When a user begins examining a company, they usually begin their search in the "snapshot" page which contains high-level information, such as: contact information for the company, its line of business and, if enough information is available, a FRISK® score on the company, a Z-score and agency ratings. From this location, the user can move to other pages which provide much more detailed information – pages on quarterly financials, annual financials, performance metrics, news, stock market performance, etc.

The hierarchical structure of our website allows vendors to keep track of the pages visited by users on companies as a function of time. Websites have been structured in this way for many years, giving a long history of click patterns for low- and high-risk businesses. That cumulative analysis illustrates that there are clear differences in the aggregated research patterns and bankruptcy risk.

We found that crowdsourcing credit managers improved the accuracy of our risk score. This is especially notable because our risk score was already quite accurate before the introduction of the new crowdsourcing component.

The highest risk category, labeled as "1" on the horizontal axis, previously identified 35 out of 100 companies that would file for bankruptcy within the next 12 months. This "bankruptcy capture ratio" was quite high, compared with other credit scores. Incorporating crowdsourced research activity of credit professionals increased the capture ratio to 50 out of 100 companies, while the category remained quite small, just two percent of all U.S. public companies. This is a dramatic improvement in the usefulness of the score. A similar but less meaningful change appeared in the second riskiest category labeled as "2." There was improvement seen in each of the first six categories on the "1" (worst) to "10" (best) scale after the inclusion of crowdsourced research activity, diminishing as the level of risk diminished.



Cumulatively, the score's error rate in terms of "failure to signal risk" in the first five categories diminished from 5-per-100 to 4-per-100, which is a 20-percent reduction in this type of error. This is a very significant improvement. However, it is the crowdsourcing component's ability to concentrate the riskiest firms into a small number of the lowest categories that will prove most useful to credit professionals.

Executive Summary

Credit managers have access to diverse, high-quality information, including non-public information, which is necessary for making important business decisions, including the management of business accounts receivable credit terms. Credit professionals look to understand their customers and sustain healthy business relationships, facilitating sales while protecting their firms from slow payment and losses. We have found that when credit managers are worried about a customer company, their patterns of research and analysis are distinct from their normal research patterns. This research behavior can translate into action and create momentum in the dollar flow of trade credit.

When the research activities of credit managers are crowdsourced in aggregate, the result is a predictive signal of business financial risk.

The crowdsourcing credit managers' research is an especially effective method for predicting higher levels of financial distress, and bankruptcy risk, with more precision.

Dr. Camilo Gomez, joined CreditRiskMonitor as Senior Vice President, Quantitative Research in 2009. He brings over two decades of experience in applying advanced analytics to business problems, and the skill to enhance and expand CreditRiskMonitor's services in the areas of credit modeling and scoring. Dr. Gomez was most recently a principal at his firm, Lone Pine Mesa LLC, where he consulted with companies in the area of specialty finance since 2005. Previously he was a Managing Director at Standard & Poor's Risk Solutions group since 2001.

Before S&P, he was co-founder and Group Head for Financial Analytics for the Center for Adaptive Systems & Applications (CASA), a company spun out from the Los Alamos National Laboratory where he had been a researcher. Formed in collaboration with Citibank, CASA provided quantitative analytical consulting services to Fortune 500 companies. A major focus at CASA was to develop scoring and economic response models covering different regions of the globe. Dr. Gomez earned a BS in 1980 and a PhD in 1985 from the Massachusetts Institute of Technology.

CreditRiskMonitor (www.creditriskmonitor.com) is a financial risk analysis and news service for credit, supply chain and financial professionals focused on public companies. The CreditRiskMonitor service provides comprehensive commercial credit reports, financial risk analysis, news and predictive analytics, covering more than 57,000 public companies globally.