How to be less surprised by a large customer's bankruptcy

(or, Demystifying the "cloaking effect")

By Camilo Gomez, PhD

The "cloaking effect"

Payment information has historically been a cornerstone of our methods for monitoring and evaluating the financial health of corporate customers. Historically, it has proven useful to review how we have been paid by a customer, and to review and compare how that customer has paid its bills to its other creditors. We know from experience that this basic credit analysis technique, used in combination with auxiliary information (such as a review of Suits, Tax Liens and other public records) provides an effective basis for making credit determinations. However, cases frequently emerge of companies that pay their bills on time… right up until the day they file for bankruptcy protection. Recently, some in the credit-information industry have called this the "cloaking effect," because these companies' payment profiles do not reflect their poor financial condition... their financial stress is somehow "cloaked."

The implication is that this "cloaking effect" is a great mystery, but is it really? Who are these companies that are able to "cloak" their financial distress so that it does not show in their payment profile? How do they do it? How can Credit Professionals identify these companies and take appropriate steps to address the risks that they present? Can Credit Professionals find the right information and procedures to avoid bankruptcy surprises?

Proposition: "Normal" payment behavior depends on a firm's available financing options

We propose that the so-called "cloaking effect" is largely descriptive of the normal payment behavior of public companies and other larger enterprises – those firms with ready access to the capital markets and banking services – when they are in severe financial stress.

We all know that larger Public companies have better access to external cash via the capital markets and bank financing. Smaller private companies are more dependent on trade credit to finance their operations, because they have no access to the capital markets and much more limited access to bank financing. As a large public company gets into financial difficulties, its access to capital markets and bank financing usually remains available, although the price of that capital will probably rise to reflect the increased risk. A large public company will likely have the cash to pay its suppliers long after financial stress begins to become apparent. However, small private firms lack these options and will tend to pay trade creditors in a more delinquent fashion because they have few other choices.

Exploring the question: Is payment behavior really different?

To explore this question we used the CreditRiskMonitor database and segmented the companies into two groups, public and private companies, the latter being dominated by small/medium size enterprises. By comparing the payment behavior of public and private companies we can test the proposition that public companies (with greater access to financing) can shield their increasing financial distress from their suppliers, by paying bills on time. We think that testing this "Public/Private" dichotomy is a useful proxy[1] for the underlying question of "the availability of financing," and may also prove to be a useful rule for Credit Professionals in setting their credit policies and procedures.

Our analysis used two scores developed at CreditRiskMonitor: the first is the CreditRiskMonitor Payment Score which is assigned based on the likelihood of future severe payment delinquency. It uses only payment data in its calculation. The second score, the CreditRiskMonitor FRISK® score, uses the wealth of financial information available on Public companies, providing a metric of financial distress for this group. It does not use payment data in the calculation.

The CreditRiskMonitor Payment Score[2] was not developed to predict bankruptcy; its purpose is to predict severely delinquent payment behavior. But as the aim of this study is to evaluate

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[1] Author's note: Perhaps in the future we will find a more direct measure of "availability of financing" to use in similar analysis; besides the Public/Private dichotomy, we might find that some industries, geographic regions, and/or metrics of company size are also correlated with "availability of financing."

[2] The CreditRiskMonitor Payment Score was developed for use by subscribers contributing Trade A/R files, to predict severe payment delinquency during the next 12 months, using a large sample of a $50B+/month file of historical aged-trial-balance data. It is significantly more predictive of severe delinquency than a simple Days-Beyond-Terms index.

payment behavior as reflective of financial distress, the Payment Score makes an excellent proxy. It varies from 1 – 10 with a value of "1" representing the worst risk of severe delinquency and "10" the best credits.

Using the rich information available for Public companies, the CreditRiskMonitor FRISK® score[3] combines financial statement data, stock market pricing data, and bond-rating agency ratings to arrive at an evaluation of the risk of the company filing for bankruptcy during the next 12 months. The FRISK® score is also a 1 – 10 scale with a score of "1" having the worst risk of bankruptcy and "10" indicating companies with the most financial strength.

Eastman Kodak offers an example of a company whose payment behavior to suppliers did not reflect its financial condition. Kodak filed for bankruptcy on January 19, 2012. The graph below shows the behavior of its Payment Score and FRISK® score prior to bankruptcy. The company was able to maintain a Payment Score around 8, which indicates no evidence of severely delinquent payment behavior. In contrast the FRISK® score dropped significantly early in 2011, an indication of the company's degraded financial position.
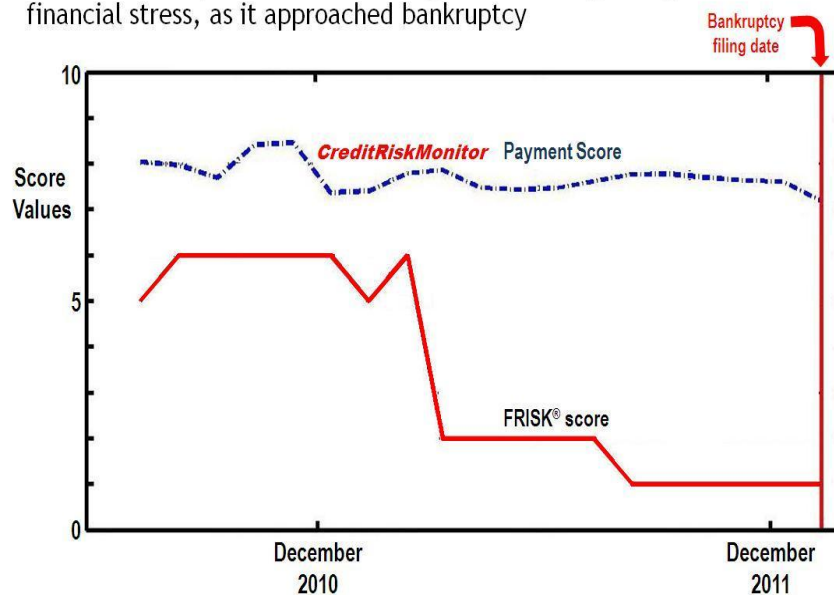
Figure 1 – Kodak's score behavior prior to bankruptcy

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[3] For a definition of the FRISK® score see http://www.crmz.com/Help/Glossary.asp#FRISKScore

An example of a smaller Private company which filed for bankruptcy is DynaPump Inc. which filed on November 28, 2011. Because this is a Private company the FRISK® score could not be used, but the Payment Score showed a clear degradation several months prior to bankruptcy.
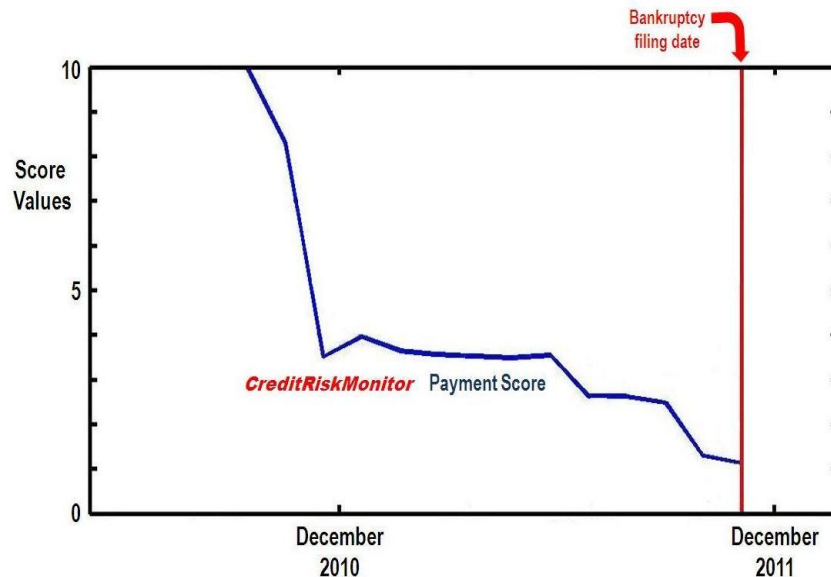

Figure 2 - DynaPump's payment behavior prior to filing for bankruptcy

In this case, the payment behavior of the company was a good indicator of its increased financial stress. We can see that the score fell as the filing date approached.

The two examples discussed above are consistent with the rule that Public and Private companies show very different payment behavior when in financial stress, but two examples do not prove the rule. Proving the rule requires us to examine a large number of Public and Private companies, and to statistically compare the scores for companies which filed for bankruptcy and those that did not file. So, we did this analysis using data from the four years from 2008 to 2011.

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Analytical techniques

The effectiveness of payment behavior in identifying financial distress was examined using a Cumulative Accuracy Profile ("CAP") technique[4]. A CAP graph is built for a group of companies and a particular model (e.g.: Private companies using the Payment Score). The group of companies is scored at a specific, but arbitrary, point in time and each company is tagged if it filed for bankruptcy within the subsequent 12 months after being scored. This is done for each year in the sample data. The companies in the group are then sorted sequentially according to their score, with highest-risk scores graphed on the left and lowest risk on the right. The cumulative bankruptcies are calculated as a function of the population fraction going from left to right.
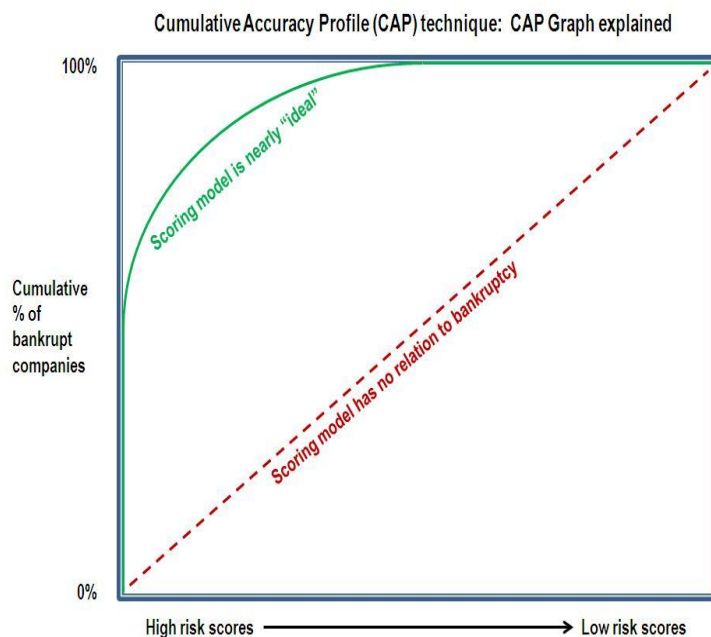

Figure 3 – Idealized CAP curve showing a nearly ideal model vs. one with no predictive power

An effective model would capture most of the bankruptcies in the sample towards the left hand side of this ordered set, as these companies are associated with high risk scores. The more bankruptcies that are captured towards the left hand side of the graph, the better the performance of the model. A model with little predictive ability will have a CAP curve that is close to the diagonal. This happens if there is no relation between the score of a company

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[4] J. Sobehart, S. Keenan and R. Stein – "Benchmarking Quantitative Default Risk Models: A Validation Methodology" ALGO Research Quarterly v.4, # 1 / 2 , March/June 2001

and bankruptcy. One of the great values of the CAP approach is that different models for particular populations can be compared together.

What the analysis shows: Yes, payment behavior is very different

The graph below shows the effectiveness of the Payment Score. For high risk Public companies (the dotted blue line), the curve is just slightly above the diagonal, indicating that the Payment Score is not an effective predictor of bankruptcy risk for Public companies.   In contrast, the Payment Score curve for Private companies (the solid blue line) does show good predictive power, with more than 50% of all bankruptcies falling well within the worst 20% of the sorted population. This is consistent with our experience that payment behavior is an indicator of financial distress for Private companies.
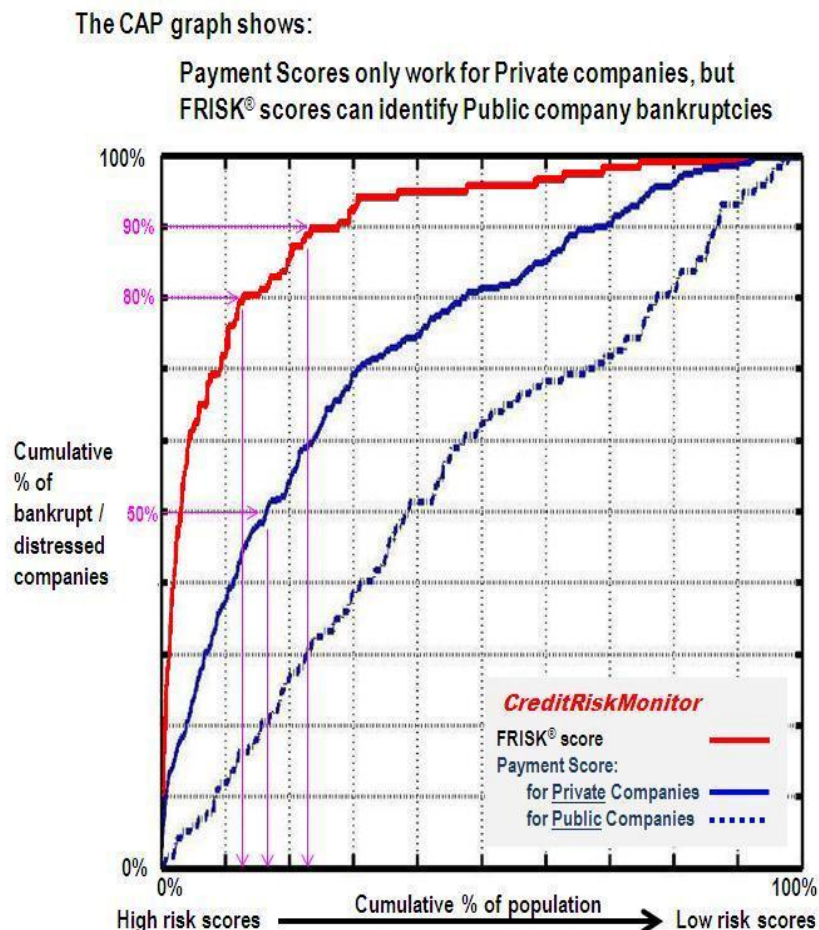

Figure 4 – CAP curve comparison for Public and Private companies using the CreditRiskMonitor Payment Score and FRISK® score

For comparison, the red curve shows the FRISK® score CAP for the same group of Public companies. The Payment Score was not predictive for this group, but the FRISK® score is highly predictive, because it shows that 80% of the same bankruptcies are captured in the worst 15% of the population and 90% of bankruptcies are captured in the worst 25%. We note that this result is significantly better than the Payment Score's success in finding severely stressed Private companies. Given the rich data available on Public companies, and the fact that the FRISK® was designed for the purpose, this result is not a surprise. As a practical matter, it means that by choosing a scoring model designed for Public companies like the FRISK® score, it is quite possible to identify these high risk Public firms. They can be "un-cloaked."

Conclusion: To avoid bankruptcy surprises, use the appropriate data and scores

The Public/Private dichotomy has been used to explore the differences in payment behavior as companies approach bankruptcy. This analysis shows that payment data and scores based on payment data will be a poor indicator of the financial stress of Public companies. Of course, payment data is still useful in identifying which Public companies may tend to pay late, but the statistics show that payment delinquency is not a truly effective early warning indicator of Public-company[5] financial stress. Using a score designed specifically for Public companies offers an effective alternative for evaluating and monitoring their financial condition and avoiding losses in the large bankruptcies typical of this group.

Such an approach won't guarantee "zero surprises," but these companies really aren't "cloaked." They are just Public companies, paying their bills as Public companies normally do. They are only a "cloaked" mystery when we choose to rely mainly on payment data for our analysis of all companies, regardless of whether they are Public or Private. We should use different kinds of credit risk analysis for different kinds of companies, instead. Mystery solved: that's how to be surprised less often by our largest customers.

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[5] It is reasonable to speculate that as they approach bankruptcy, those Private companies who also have excellent access to capital markets and/or bank financing (probably just the largest of the Private companies) also demonstrate a normal payment pattern similar to the Public companies' behavior shown here, but we lack sufficient data to investigate this question at this time.