A Brief Introduction to Insurance Underwriting and Information Advantage
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PwC research has found that insurers that are able to consistently leverage a broad range of underwriting information will have an "information advantage" over their competitors, and thus should be at the forefront of the industry when the underwriting cycle changes. Accordingly, the question for insurers to consider is whether their underwriting function will compete at an information advantage or disadvantage when that happens.

Many insurers have undertaken efficiency initiatives for various company functions over the years, including rules-based claims systems to control "claims leakage," finance transformation, IT and business process outsourcing, and others. Given the current challenging insurance market (e.g., soft rates, flat-to-declining exposure bases, low interest rates/investment income, etc.) insurers are now starting to examine the underwriting function for opportunities to enhance underwriting decisions and gain efficiencies. The most notable potential benefits of doing this include:

- In the short-term, closing potential sources of "underwriting leakage," or erosion of income due to sub-optimal underwriting strategies, processes, pricing, standard and non-standard terms and conditions, and supporting technologies; and
- Over the longer term, establishing a robust underwriting platform that: (1) delivers material efficiency gains and enables underwriters to focus on risk selection, loss control and pricing, and (2) helps the company react to market conditions when the underwriting cycle changes.

To explain, consider predictive modeling. Many insurers have deployed, or are considering deploying, predictive models to select lines of business. A more efficient underwriting function can optimize the use of such models not only by informing the pricing of risk, but also by supplementing modeled output with pertinent, readily-accessed qualitative and behavioral information at the underwriter’s workstation to better inform decision-making in relation to risk selection and loss control actions (e.g., mid-term cancellation, non-renew, etc.). For example, predictive models can be used in certain forms of Directors and Officers (D&O) underwriting. D&O losses often are claimed when a publicly held firm’s stock price suffers a decline or when a firm fails; therefore, D&O predictive models often include stock market variables and therefore can appear similar to many investment models. This is significant because investment models are known to under-estimate the frequency and severity of extreme events, which regularly strike the insurance industry. Consider the case of Enron: in 2000, it was the seventh largest firm in the world with a soaring stock price. Therefore, it was likely quoted very reasonable D&O premiums, especially when those premiums are compared to the D&O losses Enron subsequently generated. As we describe below, underwriters could have used alternative forms of information could have been used to challenge this assessment.

Consider unexceptional qualitative information

Many quantitatively-focused investors and predictive model-oriented underwriters assume a failure like Enron’s is not foreseeable ex ante or before an extreme event occurs. Quantitatively they are correct. However, there were credible, qualitative predictions of a significant decline in Enron’s stock price. Notably, on May 6, 2001, a well-regarded investment advisory firm, Off Wall Street (OWS), published research advocating a short-sale-based investment in Enron, which at the time was selling for $59.48/share. The short-selling profit target was listed at $30/share, which equated to an approximate 50 percent price decline that, if realized, could have generated D&O claims. Therefore, information such as this could have provided Enron’s D&O underwriters with a valuable alternative perspective, even though the underwriting window was brief (i.e., OWS issued its report on May 6, 2001 and Enron filed for bankruptcy on December 2, 2001). Illustrative examples of how this information could have informed D&O underwriting include:

- Many firms secure insurance coverage on a July 1 cycle; if Enron’s D&O coverage was on this cycle, then OWS’s analysis could have been directly considered in the underwriting process.
- Even if Enron’s insurance procurement fell outside of this time window the information still could have been used in an underwriting context. For example, an insurer with a significant net (or after reinsurance) D&O
exposure to Enron could have considered hedging it with stock options, or otherwise could have tried to mitigate its risk by, for instance, reviewing the coverage application and its supporting documentation for possible misrepresentations that could be acted on.

As this example shows, underwriting information that is currently considered unconventional can practically be used with more traditional forms of pricing, reinsurance and hedging information. However, prior to making an underwriting decision influenced by unconventional information such as short-selling-based research, most insurance underwriters would likely want to validate it, possibly by questioning their client. In the case of Enron, its executives had the reputation of brusquely dealing with penetrating questions; for example, according to *The Economist*, Enron president Jeff Skilling was known to shout obscenities at investors who "challenged his rosy account of his firm’s financial health." In cases such as this, it may appear that an underwriter has only two options: consider the unconventional information an anomaly and accept the risk, or believe it and reject the risk. There are other options, though.

**Gaining insight from behavioral economics**

Behavioral economics is a field of study that is becoming more popular and influential. For example, behavioral economists have examined thousands of equity analyst conference calls and identified linguistic traits of executives consistent with lying. While such information has merit, it should not be considered in isolation; after all, it is frequently based on statistical inference and thus is subject to error. However, when behavioral information is considered in context or in conjunction with other forms of quantitative and qualitative information it could help to clarify a risk. In the case of Enron, the OWS report coupled with the behavioral characteristics of Enron’s executives presented a telling “red flag” that could have enlightened any underwriting analysis. To visualize why, consider Figure 1.

*Figure 1 - An information profile of Enron’s D&O risk*
An underwriter focusing on predictive model output, as well as other forms of quantitative information, likely would have assessed a relatively lower level of risk for Enron before its failure (the oval denoted "A"), but qualitative information such as the OWS report suggested higher levels of risk (the oval denoted "B"). Similarly, the behavior of Enron executives also suggested elevated levels of risk, although perhaps not to the extent of the qualitative information (the oval denoted "C"). The area of the triangle (formed by connecting the three ovals) presents a more realistic profile of Enron’s D&O risk than just the dark-quantitative oval does, especially considering the triangle is a three-dimensional structure (in other words, *behavior adds depth to qualitative and quantitative information*).\textsuperscript{10}

**Going beyond just avoiding losses**

Thus far we have focused on using both conventional and unconventional underwriting information to mitigate exposure to future D&O claims. However, underwriters also could use such information following significant losses. Consider the case of Tyco. In January of 2001, Tyco stock was selling at slightly more than $60/share but it subsequently declined to approximately $10/share in 2002. This generated significant D&O claims. However, unlike Enron, Tyco did not fail; instead, it undertook a massive turnaround effort. Obtaining D&O insurance during that time probably was quite difficult because the firm’s claims and questionable operating future placed it outside many underwriters’ risk appetite.

As is well known, insurance companies typically invest in fixed income securities, but many also have an equity exposure. Many turnaround-oriented equity investors evaluated Tyco very carefully and the ones who decided to invest in it were handsomely rewarded. In 2004, two years after the stock’s low, Tyco’s stock appreciated above $30/share as the company successfully implemented its turnaround plan. If an insurance company investment manager was confident in that plan and invested in the stock, then that information likely would have been of interest to the company’s D&O underwriters, especially if they were inclined to pass on the account given its then recent claims activity. For information like this to flow freely across insurance companies’ different functional areas, which typically operate as silos, an effective, overarching information and knowledge management strategy and delivery framework is necessary.

**Conclusion: Using information as a competitive advantage**

In this paper, we focus broadly on the underwriting uses of information from both pre- and post-loss perspectives. Our case examples are financial and as such provide a clear analogy for D&O underwriting, but that is not the only use of such information. For example, firms experiencing performance issues to an extent that attracts short-sellers could be taking shortcuts on quality control, maintenance and/or safety processes, which could result in Liability or Workers Compensation claims. Similarly, some Liability and Workers Compensation policies have substantial retentions or deductibles that could generate a credit risk, which alternative forms of information could be used to help assess. Therefore, insurers can insightfully use quantitative, qualitative and behavioral underwriting information in many ways, bounded only by their underwriting strategy and operating model.

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Endnotes

1 This is consistent with the economics of information as propounded, for example, by F.A. Hayek, "The Use of Knowledge in Society," Individualism and Economic Order (Chicago, IL, Chicago, 1980 [1948]), pp. 80-81. Professor Hayek was awarded the Nobel Prize in Economics in 1974 in part for his seminal work in this field. For a more current practitioner-oriented citation see Howard Marks, The Most Important Thing (NY: Columbia, 2011), pp. 116-117.


3 A short-sale is the sale of a borrowed security that will bought-back at a later date, at a hopefully lower price.

4 Off Wall Street's report can be read here: http://www.offwallstreet.com/reports/NEW_ENE_5.6.01.pdf


7 For an example see Daniel Kahneman, Thinking Fast and Slow (NY: Farrar, Straus and Giroux, 2011). Professor Kahneman was awarded the Nobel Prize in Economics in 2002 for his pioneering work in what has become known as behavioral economics.


9 Successful investors have long considered behavioral characteristics in their valuations. For example, in his short sale-based analysis of Lehman Brothers prior to its collapse, investor David Einhorn observed in a conference call that Lehman's then CFO "used the word great fourteen times, challenging six times, strong twenty-four times, tough once, and incredibly eight times.” Source: Lawrence McDonald and Patrick Robinson, A Colossal Failure of Common Sense (NY: Random House, 2009), p. 305.

10 Scholars have referred to the overemphasis on quantitative information as "one-dimensional blindness." See, for example, Michael Roberto, Know What You Don't Know (Upper Saddle River, NJ: Prentice Hall, 2009), p. 174.