Sudden crash or long torture: The timing of market reactions to operational loss events

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A B S T R A C T

An emerging literature investigating market responses to operational loss announcements concludes that financial markets tend usually to overreact to loss events. This overreaction is commonly interpreted as reputational damage. We revisit this issue by focusing on the timing of markets' reactions and highlight two variables: the start and the speed of stock markets' responses. It appears that when operational losses are caused by internal fraud the negative market reaction materializes earlier and faster. Industry sectors and prevailing market conditions influence the timing of market reactions as well. Our empirical findings reveal moreover that a higher initial grading of the company is associated with a later stock market reaction to the announcement. While the relative magnitude and the length of markets' overreactions is positively correlated to the concomitant downgrading our study shows that overreaction magnitudes are also strongly correlated to our estimate of the total duration of the reaction.

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1. Introduction

While risk management has been paying attention to operational risk for decades, the experience gained from the financial crisis emphasizes that reputation is today one of the most important criteria determining stock markets' responses to operational loss events. In the financial services industry, more specifically, a number of highly mediated events have shown how the reputation of financial institutions – that took years to establish – could be destroyed within a few days. (Cruz, 2002) There is no doubt that, on the one hand, the enhanced emphasis on firm transparency and, on the other, the sophistication of information markets have played a key role in increasing the degree of severity of the impact of loss events on firm value. Investors and regulators pay more attention to financial reporting since the collapse of Enron and WorldCom. Through the increasing variety of communication techniques, information is passed on and rumors spread more rapidly than ever. It is hence crucial for regulators, managers, shareholders and stakeholders in general that events having the potential to damage the reputation of a financial institution are handled by proper reputational risk management policies.

The Committee of European Banking Supervisors describes reputational risk as "*the current or prospective risk to earnings and capital arising from adverse perception of the image of the financial institution on the part of customers, counterparties, shareholders, investors or regulators*". (Committee of European Banking Supervisors, 2006, p. 40). According to a survey of the Committee of European Banking Supervisors, more than 80% of executives claim that in the last 3 years, their company is increasingly paying attention to the management of reputational risk. (The Economist Intelligence Unit, 2005 confirms similar results). Reputation in this particular context is regarded as an intangible asset whose value is related and influenced by the firm's past performance, by its strategy as well as by its culture and future prospects. The quantification of this intangible asset constitutes a way for firms' risk management departments to assess the exposure of their firm value to different types of reputational risks.[1] The problem, however,

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[1] It should be stressed that regulators request nowadays all-embracing risk measures, even for risks – like reputational risks – that scarcely lend themselves to quantitative approaches. The "Internal Capital Adequacy Assessment Process" (ICAAP), for instance, considers reputational risk as part of business risk and expects institutions to take charge of it.

lies in the fact that, in most cases, financial institutions recognize the value of their reputation when costly and publicly disclosed loss events harm or destroy this reputation.

Over the last decade, a growing literature has attempted to measure reputational risk by analyzing stock market reactions to operational loss events. Focusing either exclusively on the US market (Cummins et al., 2006) or on a wider range of countries (Perry and de Fontnouvelle, 2005; Gillet et al., 2010), the literature observes that the market value impact of operational loss events is significantly negative. The measurement of cumulative abnormal returns for each operational loss event over a fixed time window that starts several days before the loss announcement and ends several days after suggests that stock values decrease at the announcement of loss events.[2] Concentrating on the extent to which market values are affected, it is interesting to observe that existing studies unanimously reach the conclusion that when it comes to events involving fraud, stock values fall by more than one-for-one with the announced loss percentage. This overreaction is commonly interpreted as reputational loss (Perry and de Fontnouvelle, 2005).

While the literature has paid a lot of attention to the extent to which investors are able to recognize the price implications of operational loss announcements as well as to the extent to which they tend to overreact to these announced loss events, surprisingly, no study has yet been devoted to the analysis of the timing of investors' responses to these operational loss announcements. If markets were perfectly efficient, then affected institutions' stock prices should adjust instantaneously after the loss announcement. In other words the stock price should drop on the announcement day by the amount of the announced operational loss – or by more than the announced loss if the latter conveys information about adverse implications for future cash flows, generating so-called reputational losses.

In this paper we analyze the timing of stock markets' reactions following operational loss events from January 1972 to July 2009. Our approach differs from previous literature in that we are not focusing on the *magnitude* of cumulative abnormal returns, but we extend the existing methodology to investigate *when* most of the market response takes place. Instead of looking at fixed event windows around the event, our methodology considers a large initial window surrounding the event in order to detect and extract the shorter event window that best characterizes each individual event. Next we investigate the timing of market reactions across events and/or subsectors. Using several factors whose potential impact on the magnitude of the cumulative abnormal return has been highlighted by previous research, we find that investors react faster to operational loss events announced in the (pure) banking industry than to losses involving investment banks or other industry sectors. Comparing investors' typical response timing across different event types we observe moreover that firm value reactions to events involving internal fraud take place earlier and are far more rapid than reactions to other events. The analysis of investors' responses across different markets and market conditions reveals that valuation impacts tend to be early and slow in bull markets while they are late and fast in bear markets. While the extent of the concomitant downgrading is, as expected, linked to the severity of markets' overreactions, we observe that it is associated with a longer market reaction period as well. Moreover, strikingly, the higher the initial grading of the firm the later investors tend to respond to the loss event. Finally, we notify, very interestingly, a strong positive correlation between our estimates of the length

of the stock market response and the relative magnitude of the overreaction.

Our study makes an interesting contribution to the literature by investigating stock markets' reactions to operational loss events from a new and challenging perspective. Existing event-studies have mostly focused on the degree to which investors incorporate the loss in affected institutions' stock prices. In contrast to these studies we develop a new event-study based technique whose aim is to determine when stock markets start to react to operational losses and to assess the length of the response. This new methodology allows us to shed new light on the way markets react differentially to different event types, across different markets and industries. Most interestingly, it provides highly valuable information for investors, managers and regulators on the timing of the reaction as well as on the relationship between the timing of the reaction and its magnitude.

The remainder of this article is organized as follows. Section 2 briefly reviews the literature and motivates our approach to revisit existing methodologies – focusing on the timing of market reactions to operational loss events. Section 3 discusses the sample and describes the methodology. We present our empirical findings in Section 4 and provide concluding remarks in Section 5.

2. Literature review

Relatively few papers to date have attempted to provide details about reputational risk. Generally speaking, the empirical literature can be divided into two classes. The first class consists of articles highlighting the stronger market reaction when an event, not necessarily linked to operational loss, is cited in combination with fraud. We assume that fraud calls into question management competences and integrity and that market value loss conveys adverse implications about future cash flows. This makes the link to reputational loss; in the case of fraud, the extra market reaction can be associated to reputational damage. The second class of articles considers operational loss events and interprets the resulting abnormal returns as reputational loss. This class of papers is relevant for our work, since we rely on the same methodology but extend it by focusing on the timing of the market reaction.

Among the first class of articles, various methods and databases are used to measure the market reaction to events involving fraud. Murphy et al. (2004) analyze announced allegations of corporate crime, such as antitrust violations, bribery and kickbacks, fraud and copyright and infringement. Based on reported annual earnings as well as analysts' consensus forecasts of annual earnings, the authors find that the losses associated with allegations of fraud are substantially larger than for the other categories. A firm with high growth opportunities is more susceptible to suffer from significant wealth losses. With respect to firm size, the wealth loss appears to be smaller for larger firms. Palmrose et al. (2004) examine the market reaction to restatement announcements, where companies correct inaccurate, incomplete or misleading disclosures. They find more negative returns for restatements associated with fraud as well as for announcements that fail to quantify the restatement's impact. Chernobai and Yildirim (2008) present a different methodology resulting in a timing pattern of market reactions. They propose a shot-noise process (SNP) for modeling loss severity and frequency of operational loss events. This model is commonly used for earthquakes, where the aftershocks depend on the magnitude of the initial shocks. Their research discusses the pattern of loss formation; they find that internal fraud materializes faster if the initial impact is higher.

The second series of articles by Cummins et al. (2006), Perry and de Fontnouvelle (2005) and Gillet et al. (2010) form the backbone of our research. Three common points are the investigation of the

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[2] The article by Gillet et al. (2010) looks at three different moments in the time of an operational loss event.