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Investment busts, reputation, and the temptation to blend in with the crowd ☆

Steven R. Grenadier [a], Andrey Malenko [b], Ilya A. Strebulaev [a,c,*]

[a] Stanford University, Graduate School of Business, United States
[b] MIT Sloan School of Management, United States
[c] NBER, United States

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ABSTRACT

We provide a real-options model of an industry in which agents time abandonment of their projects in an effort to protect their reputations. Agents delay abandonment attempting to signal quality. When a public common shock forces abandonment of a small fraction of projects irrespective of agents' quality, many agents abandon their projects strategically even if they are unaffected by the shock. Such "blending in with the crowd" effect creates an additional incentive to delay abandonment ahead of the shock, leading to accumulation of "living dead" projects, which further amplifies the shock. The potential for moderate public common shocks often improves agents' values.

1. Introduction

None love the messenger who brings bad news. Love can be even harder to find if the bad news speaks ill of the messenger's abilities. When decision makers face the unappealing task of revealing unsuccessful outcomes that impact their reputations, delay may be their first instinct.[1] Delay becomes even more enticing if they can wait for an industry-wide common shock to hide individual failings and instead "blend in with the crowd" by abandoning their projects strategically when some high-quality projects have to be terminated. In this paper, we argue that real investment decisions can be substantially affected by such a blend-in-with-the-crowd mechanism. More importantly, this may have far-reaching repercussions

[1] See, e.g., Miller (2002) and Kothari, Shu, and Wysocki (2009).

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* Corresponding author at: Stanford University, Graduate School of Business, 655 Knight Way, Stanford, CA 94305, United States.
Tel.: +1 650 725 8239; fax: +1 650 725 7979.
E-mail address: istrebulaev@stanford.edu (I.A. Strebulaev).

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for the dynamics of whole industries and provide an explanation for industry-wide investment busts following small and not necessarily negative common shocks.

The economic mechanism works as follows. When an agent operates a risky activity, such as a research and development (R&D) project or a start-up investment, a key decision is when to abandon it if it has not yet paid off. If higher-ability agents run better projects, abandonment is perceived as a negative signal about ability. As a consequence, the agent has incentives to delay abandonment. If, in addition, informativeness of abandonment varies over time, the agent has incentives to time abandonment when its informativeness is the lowest. This is the case when the industry is hit by a common shock so that at least some high-ability agents are forced to abandon their projects. In an attempt to fool outsiders into believing that their projects also got hit by the shock, agents managing bad enough projects "blend in with the crowd" and abandon their projects even if they are unaffected by the shock. In a dynamic environment, expectations of a common shock in the future create incentives for agents of lower quality to further delay abandonment in hope of blending in with forced abandonments at the time of the shock. This also leads higher-quality agents to delay their abandonment to separate themselves from lower types. This delay creates "living dead" projects outstanding when the common shock arrives, thereby amplifying its effect even more. As a result, even small common shocks can lead to massive abandonments. These shocks need not be negative on aggregate: the key requirement is that they have a negative effect on a fraction of projects run by high-ability agents, forcing their termination.

To aid in the intuition in the model, consider the following three examples off abandonment options in the context of the temptation to blend in with the crowd.

Example 1. Strategic home mortgage defaults in the presence of systematic shocks to incomes and home prices.

Consider a homeowner contemplating a "strategic default" on a mortgage, which is the decision to walk away from a negative-equity mortgage even when one can afford to pay it. As discussed in Guiso, Sapienza, and Zingales (2013), whether or not a homeowner strategically defaults in the face of significant negative equity shocks depends on personal factors such as moral and social considerations, which are likely difficult to accurately discern by outsiders. Due to the social stigma attached to strategic defaults, reputation is harmed by early exercise of the default option. Thus, strategic default may be postponed in hope of blending in with the crowd at times of market-wide home price or income shocks. As stated in Guiso, Sapienza, and Zingales (2013), "While we do observe defaults, we cannot observe whether a default is strategic. Strategic defaulters have all the incentives to disguise themselves as people who cannot afford to pay…"

Example 2. Business closures in the presence of raw material price shocks.

The option to shut down a business represents a classic real option to abandon. If managerial ability is correlated with business success and is not perfectly observable, managers will delay shutting down businesses. However, this delay is magnified if common shocks provide an opportunity to pool with higher-ability managers. An example of such a shock can be drawn from the US solar energy industry. In 2011, the price of polysilicon, the primary raw material in many solar panels, dropped to less than $40 a kilogram from an all-time high of $475 in 2008, following a large expansion of polysilicon production in China. This shock drove out of business many producers (both high-quality and low-quality) that pursued production technologies that depended on non-polysilicon raw materials.[2] However, whether or not a firm's demise was due to the raw material price shock was not perfectly observable. For many projects, especially early-stage, the propensity to fail following such as a shock depends on subtle variation in technology that is difficult for outsiders to decipher, such as the extent to which the technology can be adjusted.

Example 3. Timing of liquidation of toxic assets.

In a spirit similar to Rajan (1994), consider the timing of financial institutions' liquidations of toxic financial assets. Since reputations matter a great deal, there is an incentive to delay recognition of large declines in asset values. While individual institutions can and do liquidate deteriorated assets at various points in time, there is a strong incentive to cluster such actions at moments in which it is difficult for the market to distinguish between individual characteristics and common shocks. For example, a negative shock to an asset class as a whole (such as the bursting of a bubble or a shock to market sentiment) can provide a protective cover to institutions whose assets were problematic long before the shock. Rajan (1994) discusses how New England banks seemingly underreported loan loss/earnings announcements during much of 1988 and 1989, while clustering their charge-offs at times of negative exogenous shocks. By liquidating toxic assets at the same moment that high-quality firms are forced to do the same, seemingly small systematic shocks can lead to disproportionately large market outcomes.

To explore this mechanism in more detail, we build a dynamic signaling model in the real-options framework. The starting point is a cross-section of projects that are up and running. Each project is either successful (with a random arrival of payoff) or unsuccessful (payoff never arrives). Neither the agent nor outsiders initially know whether the project can succeed. As they observe whether the project pays off or not, they update their beliefs about the success of the project in a Bayesian manner. However, each agent has private information about the potential payoff from her project, which is correlated with her intrinsic ability. Outsiders are initially aware only about the distribution of ability in the total pool of projects and subsequently either observe ability at the time of the project's successful payoff or learn about it by observing

[2] Two famous examples are Solyndra and Evergreen Solar. Solyndra manufactured panels based on copper indium gallium selenide (CIGS) cells. Evergreen Solar's technology was based on polysilicon, but it used considerably less polysilicon in its manufacturing process than competitors.