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### Investor sentiment and bidder announcement abnormal returns



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#### ABSTRACT

We introduce the significance of a direct sentiment proxy as an explanatory variable of bidder announcement returns. We argue that sentiment subconsciously influences investor perception of potential merger synergies and risks, and therefore relates to bidder abnormal returns. We proxy daily sentiment based on Facebook status updates across seventeen international markets and show that there is a positive relation between sentiment and bidder announcement returns. In line with behavioral literature stating that sentiment more heavily influences uninformed traders, this relation is more pronounced in acquisitions with a low percentage of blockholder ownership, acquisitions of US public targets, and acquisitions of large targets relative to the size of the bidders. Our study goes beyond the conventional sentiment and stock market returns literature, uncovering a significant relation between sentiment and firm-specific abnormal returns to acquiring companies.

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#### 1. Introduction

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There is extensive literature (e.g., Eckbo, 2009) discussing the relation of acquirer- and deal-specific characteristics with acquirers' announcement returns. If investors are rational, in line with the expectations of the efficient markets hypothesis (Fama, 1970), the share price reaction of the acquiring firm on the announcement date of an acquisition should reflect the expected net present value of the acquisition (i.e., the discounted target firm value plus the value of potential synergies minus the amount paid to the target company's shareholders). This paper relaxes the assumption of strict investor rationality and argues that a behavioral aspect is related with bidders' short-term wealth effects. Investor sentiment is expected to influence investor perception of potential synergies and risks involved in the acquisition, leading to an irrational component of the share price reaction. Such misvaluations are expected to be of a short-term nature and to be arbitraged away over the days following the bid announcement (Officer, 2007).

A number of psychological studies have shown that sentiment has an impact on judgment. Mitchell and Phillips (2007) report that even small changes in sentiment may have an impact on neural activation and cognition, such as on participants' ability to plan, memorize, and think creatively. Investors who are in a good mood tend to make more optimistic decisions (Bless et al., 1996; Wright and Bower, 1992). A number of studies in the field of finance have indeed empirically validated the positive relation of sentiment with stock market returns. For example, Edmans et al. (2007) find that sports results are related with contemporaneous stock market indexes, in that a country's win/loss in sports is related with a positive/negative corresponding stock market reaction. Palomino et al. (2009) report that share prices of winning British soccer clubs overreact to information. Hirshleifer and Shumway (2003) show that abnormal weather conditions are positively related with contemporaneous stock market returns. Kaplanski and Levy (2010)

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report that aviation disasters negatively influence people's sentiment, and negative stock market returns are experienced shortly after, even for companies not affected by the event. The positive relation between sentiment and stock returns has also been supported by a number of studies (e.g., Lemmon and Portniaguina, 2006) that use direct monthly sentiment proxies through surveys, such as the University of Michigan Consumer Sentiment Index. According to Johnson and Tversky (1983) and Loewenstein et al. (2001), sentiment influences not only the judgment of favorable future prospects, but also the assessment of risk. Kaplanski et al. (forthcoming) survey investors and find that happy investors not only are positive on expected stock returns, but also believe that the risks involved are relatively low.

We hypothesize that for mergers announced on days with optimistic market sentiment, investors are subconsciously more likely to overestimate potential synergies and underestimate the risks associated with the merger. On counterpart merger announcement days with low investor sentiment, investors would subconsciously be pessimistic regarding expected synergy benefits and perceive the potential risks of the acquisition to be high. We therefore hypothesize that sentiment is positively related to bidder announcement returns. We believe this study is the first to explore the relation of a direct sentiment proxy with bidder announcement abnormal returns. Note that while prior studies find the overall stock market index to be positively correlated with market sentiment, we explore the relation between market sentiment and the market's reaction to firm-specific bid announcements. This study thus goes beyond the conventional relation between sentiment and stock returns, and we explore bidder abnormal stock returns, in excess of the corresponding stock market returns. Uncovering a significant relation between sentiment and the stock market reaction to acquisition announcements, this study provides new insights into the relation between sentiment and share returns. Our findings suggest behavioral aspects are related to investors' perceptions of risk and synergies of mergers and acquisitions.

It may be argued that the shares of merging firms are heavily traded by professional investors, and therefore that any irrational component to the share price reaction upon bid announcement is unlikely. However, there is evidence to suggest professional investors may also be liable to be influenced by sentiment, with e.g., Kaplanski and Levy (2013) reporting that US analyst recommendations are influenced by sentiment, and Kling and Gao (2008) showing that stock returns and contemporaneous Chinese institutional investor sentiment are positively related. Professional investors are, though, influenced by sentiment to a lesser extent than uninformed traders (e.g., Lemmon and Portniaguina, 2006). We therefore expect any relation between sentiment and bidder abnormal returns to be short-lived, and for there to be signs of a reversal of any effect of sentiment on share returns over the days following the bid announcement, as any pricing anomaly is exploited by merger arbitrageurs.

In the main analysis, we use the Gross National Happiness Index (GNH) from Facebook to capture sentiment on the days around merger announcements. The GNH index offers significant advantages over conventional sentiment indexes.<sup>2 3</sup> First, Facebook data is available with a daily frequency, which enables us to explore sentiment during merger announcements, while conventional sentiment indexes are available on a monthly basis.<sup>4</sup> Second, the GNH index is available for seventeen international markets, including the US market, giving an international dimension to the validity of our results. Third, while traditional sentiment surveys tend to be based on relatively small samples of hundreds or, at most, a few thousand respondents, the Facebook GNH index is based on several million daily status updates. By 2014, there were almost 1.3 billion active Facebook users worldwide (Kuchler, 2014). The index can thus be argued to capture the overall sentiment of a large proportion of a country's population.

We acknowledge that there may be certain limitations of the Facebook GNH index for our research purposes. Facebook users may have been young when Facebook was first introduced in 2004, and few are likely to have been investors. However, in later years there has been a significant increase in the age profile of users. Kramer and Chung (2011) use a sample period between September 2007 and February 2010 and find that over a quarter of Facebook users are older than 45, and less than ten percent are teenagers. Recent research (Kramer et al., 2014, p. 8788), also using Facebook data, finds "... emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness". Thus, even if a relatively small proportion of Facebook users are investors, it is possible that investors' sentiment is influenced by that of people around them, which arguably may be captured by Facebook, given its very widespread use. Indeed, Karabulut (2013) and Siganos et al. (2014) validate the relevance of the Facebook sentiment index to capital markets by showing that it is positively related with contemporaneous stock market returns. Their findings are consistent with evidence from conventional monthly sentiment proxies. There is, thus, prior evidence of sentiment, as proxied by Facebook's GNH index, influencing share prices.

Our study is the first to use Facebook's sentiment data within the mergers and acquisitions field, looking at the relation between sentiment and bidder abnormal returns. However, as a robustness test, we also use the Gallup Economic Confidence Index as a proxy of market sentiment. While also available on a daily basis, the Gallup Index is, however, only available for the US and for a slightly shorter time period than the GNH Index. Analysis of the US sub-sample using the Gallup Index produces similar results to those obtained using Facebook's GNH, suggesting our results are not driven by the choice of sentiment proxy. However, given the larger sample of countries and the longer period of data availability, we base our main analysis on the Facebook GNH index data.

<sup>&</sup>lt;sup>1</sup> There is evidence even beyond the finance field that professionals are influenced by non-rational factors. For example, Glejser and Heyndels (2001) report that expert judges in the Queen Elisabeth International Music Competition tend to award higher marks to musicians that perform later in the competition.

<sup>&</sup>lt;sup>2</sup> See Siganos et al. (2014) for further details on the merit of GNH as a market sentiment index.

<sup>&</sup>lt;sup>3</sup> Other commonly used sentiment indexes include the University of Michigan Consumer Sentiment Index and the Consumer Confidence Index.

<sup>&</sup>lt;sup>4</sup> Note that the Gallup Economic Confidence Index offers daily US sentiment data. However, Gallup's coverage is shorter in length than that of the GNH, and its coverage is limited to the US market. For robustness, we explore US results with Gallup later in the study.

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