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Wealth of Merger and Acquisition on Acquiring Firms in Brazil

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ABSTRACT

In this article, the authors examine the distribution of the stock returns for the acquiring firm and the corresponding market index. They find that significant non-normal distributions exist in a large number of acquiring firms. The authors use two robust regressions to examine the reliability of the standard OLS market models and find that no significant abnormal gain or loss in the selected windows, when all sample deals are included for analysis. However, positive abnormal returns appear in almost all selected windows when analysing deals in financial service industry, and negative abnormal returns appear in almost all selected windows when analysing deals in non-financial industries. Selection of the model and formation of the sample affect the results.

KEYWORDS

Acquisitions, Brazil, Event Study, Mergers, Robust Regression

INTRODUCTION

The goal of mergers and acquisitions is to add value to firms and to increase wealth of shareholders. One way to assess if the mergers and acquisitions (M&A) can create value is to examine abnormal returns around the announcement day of the M&A deal. Event study methodology is commonly used to estimate the abnormal returns which measure the gain or loss of related firms involved in the M&A deals. Prior studies for developed markets report that target firms gain significantly (e.g., Dos Santos, Errunza, & Darius, 2003; Jarrell & Poulsen, 1989; Jensen & Ruback, 1983) and acquiring firms remain unclear in terms of wealth effects (e.g., Bradley, Desai, & Kim, 1988; Jarrel, Brickley, & Netter, 1988; Morck, Shleifer, & Vishny, 1990). Among emerging markets, the BRIC nations of Brazil, Russia, India, and China are hotspots for M&A activity. Those four nations account for 60% of all emerging market deal activities. In Asian emerging markets, Chinese and Indian acquiring firms on average gain significantly (e.g., Ma, Pagán, & Chu, 2009, 2010). However, studies on wealth effects of Brazilian acquiring firms are relatively few comparing with the extensive array of M&A studies in major emerging markets such as China and India.

In this paper we analyze a sample of mergers and acquisitions announced and completed during the January 1, 2010 to December 31, 2014 period. We aim to investigate how the Brazil stock market reacts to the announcement of M&A deals by examining abnormal returns of the acquiring firms on days within event window. Existing studies use standard ordinary least square (OLS) market model to estimate expected normal returns, but rarely check for normality of observations (stock returns) in

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estimation window. This paper applies a different approach to examine wealth effects of M&A on the acquiring firms. To examine if the key assumption of using standard OLS model is met, we conduct a normality test for the daily stock returns on acquiring firm and corresponding market index in each deal. We then use the standard OLS market model and two different robust regressions to examine the reliability and consistency of the statistical results. While most prior studies use samples either exclude deals in financial industry or including all deals, we form the sample deals in three different groups: a group including all deals, a group including deals in non-financial industry, and a group including deals in financial industry only. We examine the differences of the results using the three set of samples.

When comparing the results of the three different regressions, we find that the mean differences between the standard OLS and the robust regressions are statistically significant. The standard OLS market model produces smallest average negative abnormal returns than those of the two robust tests.

We find that no significant abnormal gain or loss in selected windows when all sample deals are included in calculating abnormal returns. When dividing the sample into two subsamples, deals in financial service industry and deals in non-financial industries, we find that positive abnormal returns appear in almost all selected windows in financial service industry and negative abnormal returns appear in almost all selected windows in non-financial industries.

We structure the paper as follows. We first review the relevant literature and develop hypotheses. We then provide a description of data and methodology and analysis of results. Final section discusses main findings and managerial implications.

LITERATURE REVIEW AND HYPOTHESES

Market Model and Distribution of Observations

The effectiveness of the standard OLS market model has been scrutinised under different conditions using observations from a variety of stock markets. It appears that most researchers generally agree with the conclusion that the standard OLS market model is well-suited in an event study when modelling normal returns (e.g., Fee & Thomas, 2004; MacKinlay, 1997; McWilliams & Siegel, 1997). However, much research in finance focuses on the developed or efficient markets, and the market conditions are most likely to be consistent with assumptions of theoretical models. These characteristics of more efficient markets may not exist in emerging markets (Bekaert & Harvey, 2002). As noted by Bekaert & Harvey (2003), emerging markets have long posed a challenge for finance, and standard models are likely inappropriate to address the specific circumstances arising in these markets. LeBaron and Samanta (2005) also state that stock returns in emerging markets demonstrate more systematically excess kurtosis than those in developed markets.

Theoretically, normal distribution and homoscedasticity (or equal variance) are two important assumptions for using standard OLS regression models (such as the standard market model) for inference or prediction (See, e.g., Gujarati, 2006). If the assumptions are not true, we may need an alternative robust regression to address the problematic data. We therefore examine the distribution of the stock returns for the acquiring firm and corresponding market portfolio in each deal and develop the following hypotheses.

- **Hypothesis 1:** Stock returns of the bidding firm has a non-normal distribution.
- **Hypothesis 2:** Stock returns of the market portfolio has a non-normal distribution.

In case the distributions of the stock returns in Brazil stock market are significant non-normal, alternative regression methods, such as robust regressions, are needed to address the problem data. As noted by Gujarati (2006), the other unbiased statistical methods may outperform the standard OLS if the distribution of observations is not normal and /or the outliers are severe.

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