Do Financially "Healthy" Bidders Make Better Acquisitions?

Yanchen Lu

A Thesis

in

The John Molson School of Business
Master of Science in Administration Program
(Finance Option)

Presented in Partial Fulfilment of the Requirements
for the Degree of Master of Science in Administration (Finance Option) at
Concordia University
Montreal, Quebec, Canada

November 2014

CONCORDIA UNIVERSITY

School of Graduate Studies

This is to certify that the thesis prepared

By: Yanchen Lu

Entitled: Do Financially "Healthy" Bidders Make Better Acquisitions?

and submitted in partial fulfillment of the requirements for the degree of

Master of Science in Administration (Finance Option)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

Dr. Claudien Mangen Chair

Dr. Rahul Ravi Examiner

Dr. Frederick Davis Examiner

Dr. Sandra Betton Supervisor

Approved by _____
Chair of Department or Graduate Program Director

_____
Dean of Faculty

_____
Date

ABSTRACT

Do Financially "Healthy" Bidders Make Better Acquisitions?

Yanchen Lu

Mergers and acquisitions (M&A) activities have been common research topics for decades, and there are numerous methods being developed to analyze the financial status or predict the performance of a company. In this thesis, companies are classified into two groups, as "healthy" and "unhealthy" bidders based on the financial leverage ratio and interest coverage ratio. I compared the performance of the "healthy" bidders group and the "unhealthy" bidders group over both the 60-trading day short and 42-month long term. The empirical results indicate that shareholders of "healthy" bidders gain from the takeover decision in general, while the shareholders of "unhealthy" bidders lose. In addition, a significant relationship is observed between the bidders' financial health and their announcement abnormal returns, with "healthy" bidder shareholders achieving higher abnormal returns.

Table of Contents

Lists of Tables

Lists of Figures

1. INTRODUCTION

Mergers and acquisitions (M&A) activities have been common research topics for decades, since the decision of takeover comes with many factors that must be considered. The motives behind takeover decisions and performance after the takeover have been among the top two topics. The benefits from the takeover for bidders, such as synergies, business expansion, and market share increases, have been examined in many papers (e.g. Walker (2000), Healy, Palepu and Ruback (1992), Clark and Ofek (1992). etc.). In addition, the outcomes of takeovers, both in the short run and the long run, have also been studied (e.g. Agrawal and Jaffe (2000), Dutta and Jog (2009), etc.). There are many perspectives on the success of a takeover, since a wide range of stakeholders are affected by the takeover event and many have unaligned interests. As shareholders are the residual owners of the company, gains or losses to shareholders are often taken as the main criteria to evaluate post-acquisition performance (Martynova and Renneboog (2008)).

One interesting question that draws attention is that, despite the various benefits that could be achieved by takeover bidders and the common finding that takeover activities create value for shareholders, the gains from this decision appear to mostly accrue for the shareholders of target companies (e.g. Andrade, Mitchell and Stafford (2001) and Martynova and Renneboog (2008)). It is no wonder why bidders companies' shareholders, on average, lose, while many companies still choose to make the decision to takeover other companies. Based on the consistent finding by previous literature that shareholders of takeover bidders do not have significant gains, in this paper I place bidder companies into a good group or a bad group based on their financial status two years before the takeover announcements. I then examine whether the outcomes of takeover activities for shareholders of bidder companies under various financial situations would also be different.

I classify companies into the two groups "healthy" bidders and "unhealthy" bidders based on the financial leverage ratio and interest coverage ratio two years before the takeover announcement date. Public companies that completed deals larger than US$0.2 million from 1997 to 2010 are considered. I compared the performance of the "healthy" bidders group and the "unhealthy" bidders group for both the short and long term. I also examined the relationship

between bidders' financial health status and their post-acquisition performance and control for several firm- and deal-related factors. Finally, to reduce the concern of possible size effects, I divide the "healthy" bidders group into two subgroups according to their size (their value in terms of market capitalization) and compare their respective performance to the "unhealthy" bidders group.

The empirical results indicate that shareholders of "healthy" bidders gain from the takeover decision in general, with their wealth maximized during the one-year period after the announcement date. However, even if the market reacts positively to the "unhealthy" bidders' decision to takeover before the announcement date, this decision does not save them from trouble, which is consistent with previous literature's conclusion on shareholders' losses. In addition, a significant relationship is observed between the bidders' financial health and their announcement abnormal returns, with "healthy" bidder shareholders achieving higher abnormal returns. For the two financial ratios in the definition of financial health used in this paper, the interest coverage ratio is found to be significantly positively related to the announcement abnormal returns, while the financial leverage ratio also shows consistently positive but insignificant relations. Finally, by looking at the performance of the "unhealthy" bidder group and the "healthy" bidder subgroup with comparable sizes, the difference between the abnormal returns of the two groups still exists, and the relationship found between financial health and post-acquisition performance does not appear to be simply a proxy for a size effect.

This paper is organized as follows: firstly, I will review the related literature and develop our hypotheses, which is followed by the data and methodologies. Secondly, results are presented and followed by a brief conclusion and discussion.

2. LITERATURE REVIEW

2.1 Determining financial status (statistical techniques vs. ratio analysis)

In this paper, I study the results of mergers and acquisition activities initiated by financially "healthy" companies and compare their performance to activities initiated by "unhealthy" companies. Thus, defining "healthy" becomes a top issue for this study. Over the past several

decades, numerous methods have been developed to analyse the financial status or predict the performance of a company. Past research has focused on two dimensions: ratio analysis and statistical model analysis. Researchers found that financial ratios reveal significant signals about a firms' financial state, starting in the 1930s, for example, Smith and Winakor (1935). Hickman (1958) and Beaver (1966) also found companies that experienced difficulties in meeting their debt obligations showed suspect ratios compared to companies able to pay their debts easily. Today, researchers still consider financial ratios as noteworthy elements to evaluate a company.

However, many academics were not satisfied with such isolated information, so they developed statistical models to integrate all useful information by taking advantage of statistical and programming techniques. For example, Vermeulen, Spronk, and Van der Wijst (1998) applied a multi-factor model, based on a series of exogenous risk factors rather than only on financial ratios, to model corporate failures. Gupta, Rao and Bagghi (1990) incorporated mathematical forecasting methods. In addition, Ohlson (1980) calculated the likelihood of distressed firms' outcomes by applying logistic analysis based on financial ratios.

In practice, the Altman Z score is the most widely used measure for financial distress identification. To overcome the problem of individual signals in ratio analysis, Altman (1968) adopted the technique of multiple discriminant analysis (MDA), which uses many ratios at the same time. The author developed a discriminant function that allocates different weights to five different ratios (working capital/total assets, retained earnings/total assets, EBIT/total assets, market value of equity/book value of total debt, and sales/total assets), and transformed these individual ratios into a single discriminant score or Z value. For example, Altman and Mcgough (1974) used the Altman Z model to evaluate whether a company was likely to remain an ongoing concern, in other words, the likelihood of continued operations. Many other studies on financial distress also employed this method for different purposes (Pastena and Ruland (1986), Katz, Lilien and Nelson (1985), Altman and Brenner (1981), and Haw, Pastena and Liline (1987)). Recent studies such as Selvam (2004), Alkhatib and Bzour (2001), and Idoge and Chukwuji (2014) found this model still useful for different countries and industries.

Another definition that is frequently used to describe a company's financial situation is the financial constraint. Researchers have developed different models to measure the presence and degree of a company's financial constraint. At first, financial constraint is tested by looking at

corporate investment and cash flows (see Fazzari, et al. 1988). Then Kaplan and Zingales (1997) found evidence to reject the relation between investment-cash flow sensitivities and financing constraints, and developed the KZ index[1], used by many other studies (i.e. Lamont, et al. 2001) to determine the financial constraint level. Another two indices, WW index[2] and SA index[3], developed by Whited and Wu (2006) and Hadlock and Pierce (2010), respectively, were also developed to measure firms' financial constraint. Li (2011) used five different measures of financial constraints (KZ index, WW index, SA index, age and size) to study the relationship between financial constraints and stock returns among R&D-intensive firms. They pointed that firms with a higher KZ index, higher WW index, higher SA index, younger age, and smaller size are more financially constrained than firms with lower KZ index, lower WW index, lower SA index, older age and larger size.

The development and application of the Altman Z score model is quite successful in the area of identifying and predicting financial status, and financial constraint measures are also effective indications of firms' financial situation. However, in this paper, I choose to use ratio analysis to classify my sample. The reason for this is that my focus is on firms' financial performance rather than overall status including operating performance as indicated in Altman Z score model. In Asquith, Gerther, Schanfstein (1991)'s study on junk bond issuers, financial distress is defined by using only the issuers' interest coverage ratios because their focus is on firms that get into financial distress due to higher leverage rather than relatively poor operating performance. In addition, I needed a clear way to identify firms with good financial performance, as well as the firms with financial constraints given by those financial constraint indices. As to other models, such as multi-factor models and logit analysis mentioned earlier, although they are also found quite effective, they are all more focused on predicting a firms' future performance. As my objective is to classify my sample as "healthy" and "unhealthy" during a specific time period, I do not need such sophisticated models, and ratio analysis is a simpler and more straightforward approach.

[1] The KZ-index is a relative measurement of reliance on external financing. The higher a KZ-index score, the higher likelihood of experiencing difficulties when financial conditions tighten.
[2] WW index uses six different factors created from Compustat data. Firm-level external finance constraints represent a source of undiversificable risk that is priced in financial markets.
[3] SA-index is an index built on firm size and age, which is simpler than KZ-index and WW-index.

2.2 Determining financial status (solvency and financial leverage)

Firms' financial status is primarily evaluated through its solvency and leverage. Solvency indicates a firm's capacity to meet its financial commitments; in other words, solvent firms have positive net assets and are able to meet current debt obligations. Firms' financial leverage information provides the view about firms' financing methods and also, to some degree, their ability to meet financial obligations. This information is provided by firms' financial statements and quantified by different financial ratios. Among those various ratios, we choose the interest coverage and leverage ratios as they provide the most relevant information on firms' solvency and financial leverage. Although there no prior literature provided direct definitions to identify financially "healthy" companies according to financial ratios, I can use their rules to guide the prediction of financial distress.

A firm's financial leverage ratio (debt/equity or total assets/equity) provide a general picture of how it finances or raises funds. The leverage ratio's importance can be shown by the fact that it has been used in so many research topics in the area of M&A. For example, the likelihood of becoming an acquisition target is of great interest and usefulness to both investors and policy makers, and the financial leverage level is the must-see ratio when modelling takeover possibilities. Holland and Hodgkinson (1994) contend that leverage was the only useful aspect in explaining the risk of takeover. In addition, lower leverage or less use of debt financing might be attractive for targets of firms with high leverage, which was verified by many empirical studies. For instance, Palepu (1986) found that targets are characterized by low growth and low leverage. Also, in the prediction of turning into financially distressed companies, the financial leverage ratio is considered by many authors. For example, both Powell (1997) and Theodossiou, et al. (1996) include the leverage in their logit models and find that leverage was an important determinant of takeover likelihood.

A corporation's interest coverage ratio is more directly related to its financial health state than other ratios. Asquith, Gerther, Schanfstein (1991) used only the interest coverage ratio to define financially distressed firms. Goergen and Renneboog (2002) used interest coverage ratio as a proxy for potential financial distress. Gay and Nam (1998) found that the lower a firm's interest coverage ratio, the greater its exposure to financial distress.

Moreover, I consider that whether a corporation is "healthy" or not should be a relative definition, which is to say, I cannot treat a firm as "healthy" without taking its peer companies in the industry into consideration. It is widely known that different industries have different capital structures according to their business operation needs, thus "healthy" financial ratios differ across industries. When Asquith, Gerther, Schanfstein (1991) studied junk bond issuers, they compared sample companies' interest expense and Earnings before Interest, Tax, Depreciation and Amortization (EBITDA) with the median of their industry. Ghosh and Jain (2000) created an industry-adjusted sample group in order to compare the financial leverage of the original sample with that of matched firms for targets and acquirers from their respective industries. To evaluate the financial and operational performance of distressed firms, Abstebro and Winter (2012) compared the mean and median of each firm's ratios to the respective industry's mean. Thus, due to the individual industry's specific characteristics, I include the industry's median ratio level in the definition of financial health used for this paper. I am confident that combining the financial leverage ratio and interest coverage ratio and their levels relative to industry will identify financially "healthy" firms in the sample.

2.3 Post-acquisition performance

As the reasons behind takeover activities range from expanding business to achieving synergies to being driven by managerial interests, what stakeholders care most about is not the merger or acquisitions activities per se, but the results, namely, the performance post acquisition. As the interests of different stakeholders, such as shareholders, bondholders, managers and employees, are not necessarily aligned, I consider shareholder's wealth as the primary metric. In the extent literature, mergers and acquisitions activities create shareholder value, with most of gains accruing for the target shareholders (Andrade, Mitchell and Stafford (2001)). In this paper, I verify this evidence by examining gains to bidders' shareholders.

Both abnormal stock returns immediately surrounding announcement dates and long-term movements after the event will be examined in this study. Fama (1969) developed the event study methodology to analyse short-term shareholder wealth effects, and this method has been the dominant approach since then. According to Martynova and Renneboog (2008)'s summary over past takeover waves, bidder shareholders earned abnormal returns statistically indistinguishable from zero, and for the most recent merger wave from 1990s, the findings of 17

studies were split almost evenly between positive and negative bidders' announcement abnormal returns. Andrade and Mitchell (2001) provided empirical evidence that all these positive and negative abnormal returns were not statistically significant.

Despite the popularity of the event study method, many problems exist when applying similar approaches to long-term studies, in both statistical and financially theoretical aspects. There is no consensus on the optimal method to apply for long-term event study. The results from samples in different countries and over different observation periods, ranging from one year to five years, show inconsistent results (Dutta and Jog (2009), Sudarsanam and Mahate (2003), Croci (2007), and Datta, Datta, and Raman (2001), etc.), with few studies reporting significant positive performance for acquirers, and most reporting negative or no abnormal returns (see Agrawal and Jaffe (2000) and Martynova and Rennebood (2008)).

Thus, this study will make a contribution to the current literature as I examine the takeover results using a sample of acquirers separated into financially "healthy" and "unhealthy" categories according to their financial leverage and interest coverage ratio two years before the announcement. Haw, Pastena and Lilien (1987) divided their acquired-firm sample into three groups – "healthy" firms, stable troubled firms, and declining troubled firms – according to the Altman Z score, and focused on the performance of each subgroup two months before the event date. Therefore, this study differs from both in the definition of financial "healthy" firms and in the choice of time periods for performance comparison between the subgroups.

3. HYPOTHESIS

As indicated before, my intent is to investigate if a financially "healthy" bidder will achieve better post-acquisition performance than a financially "unhealthy" one, both in the short term and in the long term. The first objective of this paper is to check if there is an actual difference in the abnormal return between "healthy" and "unhealthy" bidders in a [-30, 30] short term and a [-6, 36] month-long term event window.

H_{10}: There is no difference between the abnormal return of "healthy" and "unhealthy" bidders over both the [-30, 30] day short-term event window and [-6, 36] month long-term window.

H_{11}: "Healthy" bidders have higher abnormal returns than the "unhealthy" ones in both [-30, 30] day short-term and [-6, 36] month long-term window.

Previous research has shown that stock performance after the announcement of acquisitions is associated with both the financial leverage ratio (Holland and Hodgkinson (1994)) and interest coverage ratio (Asquith, Gerther, Schanfstein (1991)). In this study, I expect to see a positively significant correlation between a stock's abnormal return and the financial health factors in the short term.

H_{20}: No relationship exists between announcement abnormal return and financial health.

H_{21}: Financial health is related, positively or negatively, to announcement abnormal returns.

However, according to the literature I have reviewed, a company's size has an effect on the result. So another task here is to establish that the explanatory power of financial health is not simply a proxy for a size effect.

H_{30}: After controlling the firm size, there is no difference in the announcement abnormal returns between "healthy" and "unhealthy" bidders.

H_{31}: After controlling the firm size, there is a difference in the announcement abnormal returns between "healthy" bidders "unhealthy" bidders.

If the post-acquisition abnormal return still exists after controlling the size effect, then we can reject my third null hypothesis and conclude that the financial health, at least partially, drives the difference in stock price performance, between "healthy" bidders and "unhealthy" bidders.

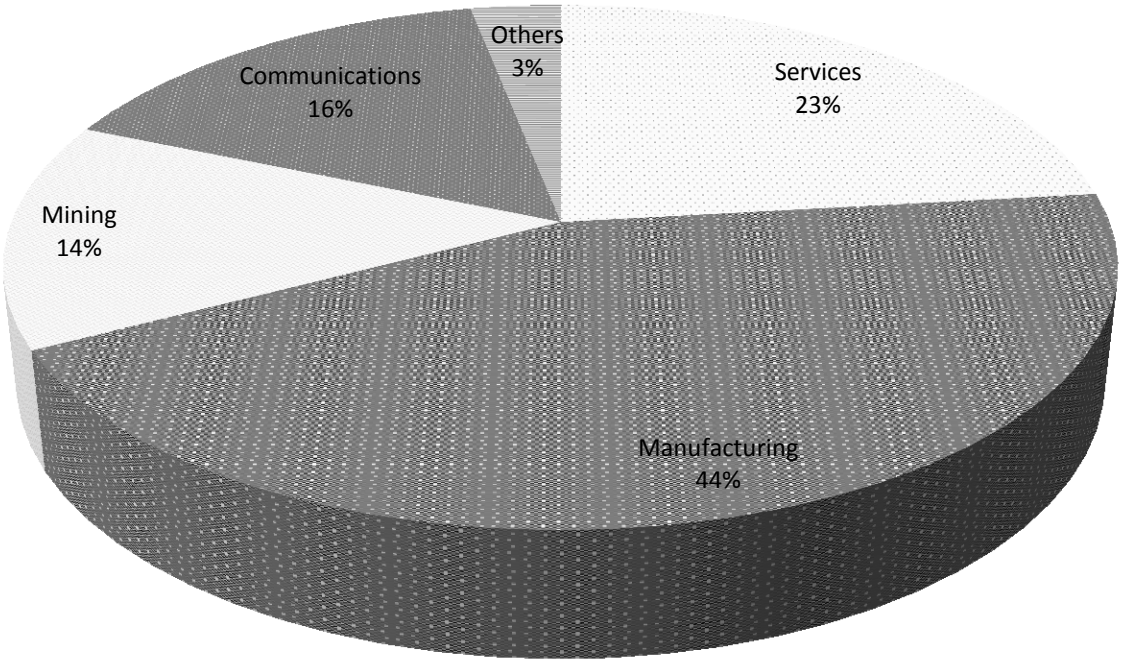
4. SAMPLE SELECTION AND DATA

I started with collecting data from the Securities Data Company's (SDC) US and non-US target database. In order to eliminate the interference of very small transactions, I chose deals with the minimum value of $0.2 million. The sample needed to meet the following criteria:

1. The announcement date was between 01/01/1997 and 31/12/2010.
2. The acquirer was a publicly traded company listed in either NYSE, NASDAQ, or AMX.
3. The deal status was completed.

No deals initiated after 31/12/2010 are included as I wanted to study the three-year, post-event performance. With the initial sample, I grouped all companies according to their industries, as indicated by their two-digit SIC code for a total of 3,354 companies distributed across 58 industries. I eliminated industries with less than 130 deals during the 13-year sample period (less than 10 deals per year) in consideration of the lack of activity. In addition, I removed finance and utility companies since the regulatory environment for them is unique. The inclusion of the communication industry justifies my choice of sample period starting from 1997 since this industry was deregulated through the Telecommunications Act of 1996. Figure 1 shows the industry distribution of the final sample.

Figure 1. Industry Distribution



In order to examine if there will be an effect when bidder and target are in the same industry, I also require all my sample transactions to report the target firm's SIC code

Companies must have two years of pre-acquisition data in CRSP and COMPUSTAT in order to be included in my sample. As a result, the final sample consists of 2369 firms. Table 1 summarizes the detailed process of data selection.

Table 1. Sample Selection Procedure	
Reason for Elimination from the Sample	Number of firms available
Deals collected from SDC	29015
Eliminated because of no available data from CRSP and COMPUSTAT two years before the announcement day	23051
(remaining)	(5964)
Eliminated because of less than 10 acquisition deals per year in the industry	968
Eliminated firms in the finance and utility Industry	2610
(remaining)	(2386)
Eliminated because of no available SIC code for the target companies	17
Final Sample	2369

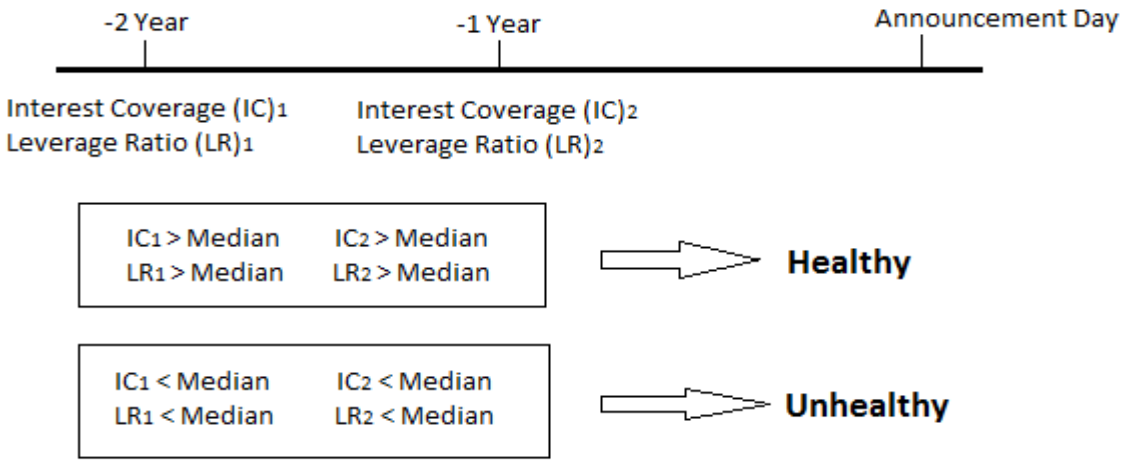
5. METHODOLOGY

First, we need to identify a company as "healthy" or "unhealthy". To define a company as "healthy", I compare each firm's interest coverage ratio and financial leverage ratio to the corresponding ratio's industry median. The interest coverage ratio is defined as a company's earnings before interest and taxes (EBIT) divided by its total interest expense, and is a proxy for liquidity. The financial leverage ratio is defined as total debt divided by total equity, and is a proxy for solvency. I collect eight quarterly observations for each ratio ending one quarter before the announcement date, and then average the eight quarterly ratios into two annual observations for both the interest coverage and financial leverage ratios. The criteria to classify the sample firms' financial status is as follows:

a. If both two annual ratios are higher than the industry median, the company is "healthy".
b. If both two annual ratios are lower than the industry median, the company is "unhealthy".

And is described in Figure 2.

Figure 2.Classification of "healthy" and "unhealthy"



Among the total sample, 1472 companies were grouped as financially "healthy" bidders, and 204 as financially "unhealthy" bidders. The remaining companies that did not satisfy one of the above two conditions were not considered separately in this study.

5.1. Acquiring firms' short term and long term performance

Moving on to examine both short-term and long-term performances of the two subgroups, event studies are the most common method of examining short-term return behaviour of firms experiencing an event, such as an acquisition. In an efficient capital market, stock prices adjust quickly to the public information contained in an acquisition announcement. Thus, the average abnormal stock market reaction at announcement is considered a direct measure of shareholders' wealth value changes. For each security i with return R_{it} in time period t relative to the event, we have:

$$e_{it} = R_{it} - K_{it} \; ;$$

Where K_{it} is the expected or predicted return given a particular expected return model, and e_{it} is the component of returns, which is abnormal or unexpected. A model of normal returns (expected returns unconditional on the event but conditional on other information) must be specified before an abnormal return can be determined.

In this paper, I used the market model to measure the abnormal return. The market model is stated as:

$$R_{it} = \alpha_i + \beta_i R_{M,t} + \varepsilon_{it} \ ;$$

The market model can be seen as a model with α_i and β_i constrained to zero and one respectively. In terms of market return $R_{M,t}$, I used both CRSP equally weighted and value weighted market index to measure abnormal returns for robustness. Assuming the announcement date as $d = 0$, then the period $d = -300$ to $d = -46$ is taken as an estimation period and the method of ordinary least squares (OLS) is adopted for the market model parameter estimation procedure.

For the short-term event study, daily abnormal returns are collected into cumulative abnormal returns (CAR) to measure the market reaction to the event announcement. The CAR starting at time d_1 through time d_2 is defined as:

$$CAR\ (d_1, d_2) = \sum_{d=d_1}^{d_2} (AR_t) \ ;$$

In this paper, I not only observe the immediate reactions effect around the announcement, but also capture the wealth changes caused by the event in a longer period, so a few short event windows like (d_{-1}, d_1) and (d_0, d_1) and two longer event windows (d_{-30}, d_{30}) and (d_0, d_{30}) are all taken into consideration. Furthermore, when applied to post-event periods, tests using this method provide information about market efficiency, since systematically nonzero abnormal returns following an event are inconsistent with efficiency and imply a potentially profitable trading rule.

For the long-term study, the fact that abnormal returns from event studies are imprecise is commonly understood, and there is no consensus about the most robust methodologies and statistical techniques. In this study, the buy-and-hold abnormal return (BHAR) method we use has been the commonly applied method to examine the long-term performance of acquiring firms since Barber and Lyon (1997). They claim that BHAR is one of the most appropriate methods to "precisely measure investor experience." This methodology attempts to measure the average long-term return by buying and holding securities of all companies in the portfolio until the end of a pre-specified holding period. The procedure is more realistic in terms of security holders'

real investment experiences, but it also suffers problems just as other methods. For example, the buy-and-hold portfolio sets a specific investment period, but different investors prefer different rebalancing periods. Since there is no perfect methodology for measuring long-term abnormal returns, and we are simply looking for one that provides reliable results, we believe BHAR fits our needs in this aspect. The buy-and-hold abnormal returns (BHAR) is calculated by:

$$BHAR_i = HPR_{Sample} - HPR_{Reference};$$

Where HPR_{Sample} is the holding-period return for the sample, and $HPR_{Reference}$ is the holding-period return for the reference portfolio. The reference portfolio is the market return calculated by using both CRSP equally weighted and value weighted indices as benchmarks.

Furthermore, the choice of window, or holding period for BHAR, is also under debate because the best window for us to fully capture the long-term, post-event related effects before these effects are compounded by the effects of other events is very hard to determine. Healy and Palepu (1995) investigated a case study of CUC International and they found that it took at least 16 months for the market to be convinced of a higher stock value. The most commonly used windows are 36 and 60 months; here I use 36 months in order to include more deals in the sample (see Mitchell and Stafford (2000), Megginson, Morgan and Nail (2002), Andre, Kooli, and L'Her (2004) etc.). Thus, the estimation period (-42, -7) months are employed to calculate three-year (36-month) BHARs.

5.2. Firms' financial status and other characteristics

From comparing short-term and long-term performances of firms under different financial status, I pieced together a general picture of whether firms with better financial status would make the merger or acquisition a better decision. However, I also wanted to measure whether a relationship exists between acquiring firms' financial healthiness and their post-event performance through regression analysis.

I used the cumulative abnormal returns (CAR) around the announcement date as the proxy for firms' performance. The event window I used is (d_0, d_{30}), which is widely used in past literature, to capture the wealth effects brought by the announcement. As to firms' financial status, I used a "healthy" dummy as the main independent variable. If a company is a "healthy" company as defined in the methodology, then the health dummy equals 1, and in all other situations equals 0.

In addition, I also tested to determine whether one of two ratios in my definition of financial health status, interest coverage ratio or financial leverage ratio play a more important role than the other in explaining M&A performance. Thus, two additional dummy variables, financial leverage dummy and interest coverage dummy, were included in the regression as independent variables. The financial leverage dummy equals 1 if a company's annual leverage ratios in both the one year before and the two years before the announcement date were higher than the median leverage ratio in its industry, and equals 0 otherwise. The interest coverage dummy applied the same criteria.

In addition to those main factors in the regression, it was necessary to control for deal- and firm-specific characteristics. Two aspects were taken into account in the regression, firm characteristics and deal-specific factors, as there was extensive literature indicating a relation between the bidder's abnormal return with firm or deal characteristics (see Moeller, Schlingemann, and Stulz (2005), Agrawal and Jaffe (2003), Andre, Kooli and L'Her (2004), and Dutta and Jog (2009) etc.). As to the firm characteristics, firm size, asset value, equity book-to-market (BM) ratio, Tobin's q, and weighted average cost of capital (WACC) were considered. In response to my third hypothesis, I included size in my equation to address the concern of possible firm's size effects on the results. The size variable was calculated as the natural log of firms' market value of equity one quarter before the announcement day. The assets value is the book value of a company's total assets and equity book-to-market (BM) ratio is as defined in Fama and French (1992, 1993). Tobin's q was defined as the book value of assets minus the book value of total equity plus the market value of equity, divided by the book value of asset. Finally, firms' WACC during one quarter before announcement day were obtained from Bloomberg.

To control for deal-specific characteristics, I used the firm type (public or private), mode of acquisition (friendly or hostile), related or unrelated target, payment method, and offer price premiums as the control variables. I treated firm type and mode of acquisition as dummy variables, with public companies equalling 1 and friendly acquisition attitude equalling 1, and all others 0. If bidder and target companies come from the same industry according to their first two-digit SIC code, I considered the target as related, and the dummy variable equals 1. The percentage of cash used in the total transaction payment and the offer price premium over the target stock price four weeks prior to the announcement day were taken as the last two variables.

These factors were considered since I wanted to explore whether any apparent performance differences between financially "healthy" or "unhealthy" firms might be caused by these deal- or firm-related factors rather than their financial status, and thus add robustness to my conclusions. In addition, throughout this paper, to remove the inflation effects, all the dollar amounts have been adjusted by the GDP deflator collected from US Bureau of Economic Analysis, using 2009 as the base year.

6. RESULTS

In this section, I take advantage of firms' WACC to justify the classification of my sample's financial status, followed by an analysis of post-acquisition abnormal return in both short-term and long-term windows. Then, I illustrate the descriptive statistics and regressions on firm- and deal-related characteristics.

6.1 definition of financial status

There is no previous literature that uses the same way to define firms as financial "healthy" or not as I used in this paper, thus I would like to double check my classification via the financial leverage ratio and interest coverage ratio, before I move on to the further study using this definition. I used sample firms' WACCs to check the classification of financially "healthy" and "unhealthy" firms since firms' WACCs also differentiate financially "healthy" firms from "unhealthy" ones. The two reasons that I did not use WACC directly as my criteria were that financial ratios data were more easily obtainable than WACC, and the cost of debt used in the calculation of WACC was an approximation for most firms since the corporate bonds usually do not trade in open market.

The Modigliani-Miller Proposition II Theory (MM II) defines cost of equity as a linear function of the firm's debt-equity ratio. According to them, a company's WACC rises with its financial distress. Hence, I expected the WACC of the "unhealthy" bidder to be higher than the WACC of the "healthy" bidder. The rationale is that if "healthy" sample firms' WACC is lower than that of the "unhealthy" sample during period before acquisition for each firm, which means "unhealthy" sample firms need to pay a higher rate to raise money in the market, then it justifies my classification of the total sample into the "healthy" and "unhealthy" groups. Table 2 shows

statistics of WACC one quarter before the announcement day, and we can see the obvious and significant differences between the level of WACC for the "healthy" and "unhealthy" bidder groups, no matter in mean or median measurement. Also, the minimum WACC for a "healthy" bidder of 0.2 occurred in November, 2010, for a company named Realpage Inc. Thus, I am confident that my method of grouping "healthy" and "unhealthy" samples is appropriate to help continue this study.

Table 2. WACC One Quarter Before Announcement Day[4]

	Healthy Bidder (1)	Unhealthy Bidder (2)	Total Sample (3)	Difference (1) - (2)
Mean	6.435	11.003	7.438	-4.568***
Median	6.3	10.3	6.7	-4***
Minimum	0.2	5.7	0.2	
Maximum	12.2	25.8	25.9	
Std. Deviation	1.5293	3.3037	2.7107	
N	784	77	1100	

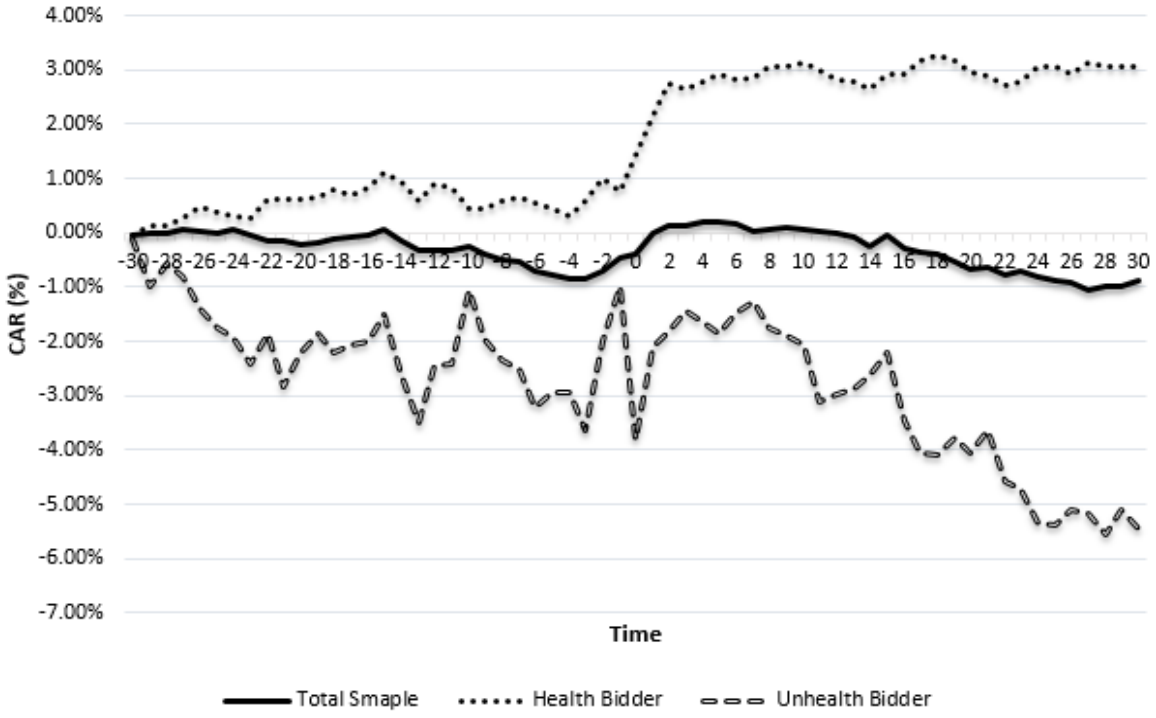
The symbols *, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 level, respectively, using a two-tail test.

6.2 Post-acquisition short-term performance

For the short-term performance, the first result presented is the comparison of the cumulative abnormal return (CAR) between financially "healthy" and "unhealthy" bidder groups. Figure 3 shows the equally weighted mean CAR for "healthy" and "unhealthy" bidders and also mean CAR for the total sample, which provides a direct impression of how "healthy" and "unhealthy" bidders' stock prices move in a 30-day prior-acquisition period to 30-day post-acquisition period.

[4] There is a relationship between my measure of financial leverage ratio (debt/equity) and WACC, however, as this study examines the cross-section of firms at different points in time, I expect the induced relation to be small.

Figure 3. Cumulative Abnormal Returns in Day [-30, 30]



From this figure, the "healthy" bidder group has a higher stock abnormal return than the "unhealthy" bidder group all the way from 30 trading days before to 30 trading days after the announcement. In the meantime, the total sample's return pattern is consistent with the literature that finds no significant bidders abnormal return. The difference grows starting from one day before the event day, and it reaches the highest point at 8.47% at the end of the first month. What is interesting here is that the smallest difference on abnormal return between "healthy" and "unhealthy" bidder is at the day $d = -1$, when the "unhealthy" bidder has a 2.35% rise from day -2 while the "healthy" bidder drops 0.12%. I interpret this phenomenon as the market reacting positively to the news that those companies with bad financial status are trying to improve their situation by means of acquisitions. Then, the result of the "unhealthy" bidders' following decreases of stock prices provides the point of view that this action cannot save their situation, at least not from the shareholder's perspective. What's more, the corresponding high trend of "healthy" bidders' stocks helped me reject my first hypothesis in the short run, and showed that

firms in a better financial situation make better acquisition choices than financially "unhealthy" firms.

Table 3 provides numerical results of comparison between two bidder groups in multiple short-term event windows from $d = -30$ to $d = 30$. When looking at the performance for the whole period, "unhealthy" bidders experienced significantly negative CARs (see windows (-30, +30) and (+0, +30)), which are highly consistent with the sharp drop after the event as shown in figure 3. Lastly, the high significance level of the unhealthy bidder group at least further verifies my conclusion that firms with concerns in financial aspects cannot solve their problems using takeover activities, or, in other words, financially "unhealthy" firms underperformed after the M&A event compared to firms with good financial conditions.

Table 3. CAR under Different Time Windows during Day [-30, 30]

	Healthy Bidder		Unhealthy Bidder		Total Sample	
Time Windows	Mean CAR N=1472	t value	Mean CAR N=204	t value	Mean CAR N=2369	t value
(-30,+30)	3.05%	1.62*	-5.44%	-1.77*	-0.88%	-0.89
(-2,0)	0.42%	2.03**	1.81%	1.782*	0.31%	1.63*
(0,+1)	0.65%	1.2	1.71%	0.756	0.60%	0.789
(-1,+1)	1.40%	1.89*	1.03%	1.988**	0.43%	0.032
(-2,+2)	1.78%	0.94	0.16%	1.354	0.83%	0.125
(+0,+30)	1.63%	0.54	-1.57%	-0.56	-0.50%	-0.027

The symbols *, ** and *** denote statistical significance at the 0.05, 0.01 and 0.001 level, respectively.

The other interesting result I would like to highlight for the short-window performance is regarding changes of firms' WACCs after the takeover event. I obtained each firm's WACC one year after the announcement date and compared the results to the WACC one quarter before that, which I used to justify my classification, and the results are shown in table 4. I recognized that the mean or median WACC for each group stayed almost the same from before the event to one year after the event. This finding has two implications. The first is that whether "healthy" or not, firms' cost of raising additional capital would not change according to mergers or acquisition activities. The other implication, and the more important one, is that, for financially "healthy" firms, their shareholders greatly benefit from this decision, while the only explanation for their

WACC staying the same would be that the shareholders' wealth increase comes at the expense of the firms' debt holders. Thus, one concern is whether these financially "healthy" firms will stay "healthy" in the long run, after this zero-sum game.

Table 4. Comparison of WACC One Quarter Before and One Year after the Announcement Day

	Healthy Bidder			Unhealthy Bidder			Total Sample		
	One Quarter before (1)	One Year after (2)	(2)-(1)	One Quarter before (3)	One Year after (4)	(4)-(3)	One Quarter before (5)	One Year after (6)	(6)-(5)
Mean	6.44	6.62	0.18**	11.01	11.09	0.08	7.44	7.55	0.11*
Median	6.3	6.5	0.2	10.3	11.2	0.9	6.7	7.1	0.4
Minimum	0.2	0.6	0.4	5.7	4.5	-1.2	0.2	0.6	0.4
Maximum	12.2	13	0.8	25.8	20.4	-5.4	25.9	25.9	0
Std. Deviation	1.53	1.91	0.38	3.30	2.71	-0.59	2.71	2.81	0.10
N	784	784		77	77		1100	1100	

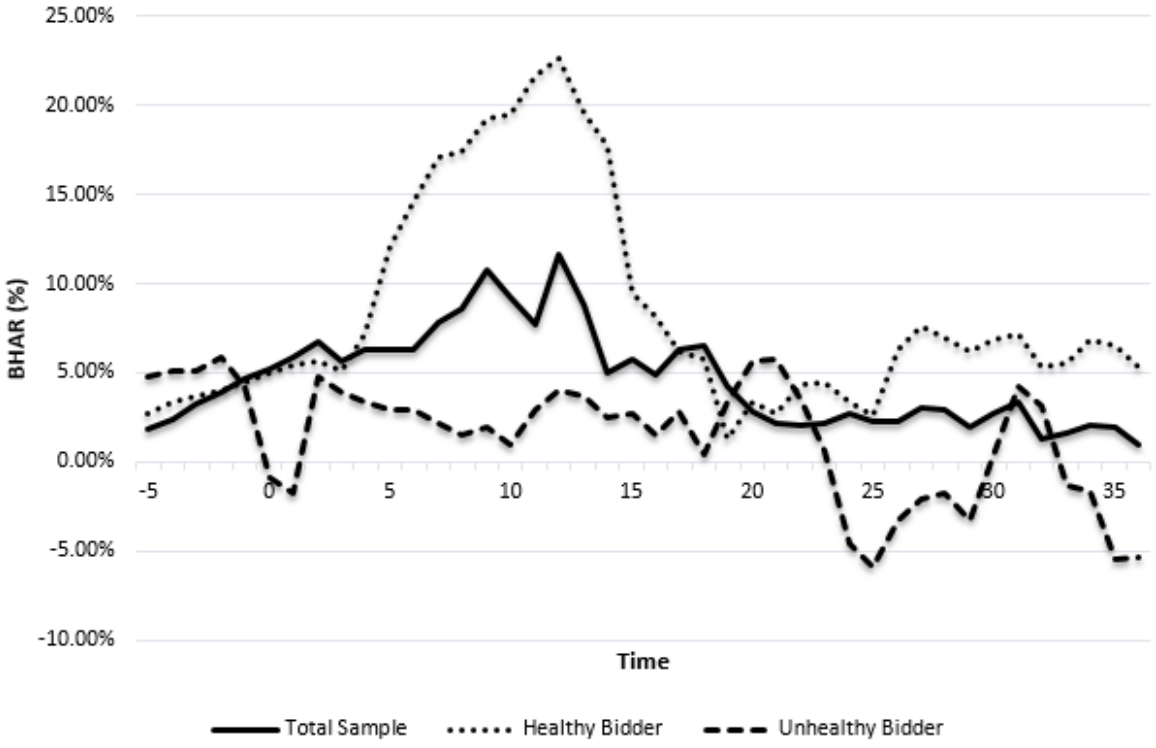
The symbols *, ** and *** denote statistical significance at the 0.05, 0.01 and 0.001 level, respectively, using a two-tail test.

6.3 Post-acquisition long-term performance

Figure 4 shows the results of buy-and-hold abnormal return (BHAR) for a 6-month prior- and 36-month post-acquisition period, and table 5 presents six different windows during this period. From figure 4, the performance for both "healthy" and "unhealthy" bidder groups during this whole period can be divided into three parts. The first part is from the beginning of this period until around the announcement date, and the second part is the following 18 months, followed by the last few months. In terms of healthy bidder groups, the sample companies show a significantly positive reaction to the takeover before the announcement date (see windows (-6, +0) and (-1, +1) in table 5). Then, the stock price rises to a large extent during the following year and half after the event, with the highest BHAR reaching 22.87%. In the last period, I consider that their reactions to the event have been totally digested**,** and the stock prices go back to the normal level. Their performances are still higher than the level before the event but insignificantly lower than that of the announcement date (see windows (-6, +36) and (+0, +36) in

table 5). Thus, from this long-term window, I take the opinion that takeover actions will do better for shareholders in the long run, with their wealth maximized during the year following the announcement.

Figure 4. Buy-and-Hold Abnormal Return in Month [-6, 36]



If we take the performance of "healthy" bidders as a benchmark during the three periods we have summarized, the "unhealthy" bidders group's performance also gives us many hints. During the first period, we can see "unhealthy" bidders showed significant declines especially during the first month after the announcement (see windows (-6, +0) and (-1, +1) in table 5), which is quite consistent with the short-term results shown before. When "healthy" bidders' shareholders enjoy their terrific time of gaining wealth, "unhealthy" bidders' stocks keep slightly dropping down after the shock of the takeover announcement (see window (0, +18) in table 5). The difference between BHAR of the two bidders groups was the largest at 18.37%. Later, when the market returns to normal, "unhealthy" firms started to present large volatilities from the 18th month. This was also the case for "healthy" bidders. What is understood from this situation as that after the

market absorbs all the information during the one-year period, some of the companies under worse financial status are able to save their situation through the takeover decision, while others are not, and the performance differences lead to the high volatility and shareholder losses averagely in the long run (see windows (-6, 36) and (+0, +36) in table 5) for those financially "unhealthy" groups. Finally, I can reject the first hypothesis also in the long run as performance after takeovers are better for "healthy" bidders than "unhealthy" ones both in the short-term and long-term periods.

One thing that draws my attention is the extremely high market reactions for financially healthy bidders during the first year. It is rare to see such highly positively market reactions, however, the rise only lasts around one year, followed by a sharp drop until 5% during the next half year. According to Healy and Palepu (1995), market needs at least 16 months to be convinced of a higher stock value, and here the extremely high value is obviously not permanent. I consider there is a possibility that these extremely high values are driven by some extreme values since the sample period covers both the internet bubble and financial credit crisis periods. In addition, the BHAR of the total sample behaves very normal and is highly consistent with earlier literature, which makes the results of two comparison groups more persuasive.

Table 5 displays six different windows from 6 months before to 36 months after the announcement date.

Table 5. BHAR under Different Time Windows during Month [-6, 36]

	Healthy Bidder		Unhealthy Bidder		Total Sample	
Time Windows	Mean BHAR N=1472	t value	Mean BHAR N=204	t value	Mean BHAR N=2369	t value
(-6,+36)	5.37%	1.7*	-5.33%	-0.44	1.02%	0.54
(-6,0)	2.25%	2.01**	-5.89%	-0.29	3.35%	1.46
(0,+18)	0.94%	0.97	-0.51%	-0.563	1.23%	0.773
(+19,+36)	3.90%	1.117	-8.69%	-0.88	-3.24%	-0.83
(-1,+1)	1.07%	1.767*	-6.03%	-1.579*	0.73%	1.91*
(+0,+36)	0.80%	0.25	-4.43%	-0.713	-4.24%	-1.002

The symbols *, ** and *** denote statistical significance at the 0.05, 0.01 and 0.001 level, respectively.

6.4 Regression analysis

In order to check the relationship between financial status and abnormal returns, I use the regression technique with firm- and deal-related factors as control variables. Table 6 showed the statistics of bidder characteristics in the aspect of firms and deals in panel A and panel B, respectively, including financially "healthy," "unhealthy" and total sample bidder groups, followed by the regression result in table 7.

From the transaction values in panel A, I found a large difference between the two bidder groups with $789 million compared to $86 million. However, when I took the bidders' market value of equity and assets' book value into consideration, as shown in the TV/Equity and TV/Asset ratio, their levels are much more similar. It is quite reasonable that large firms make big transactions. In terms of payment method through cash or equity, financially "healthy" bidders prefer to pay through cash, while "unhealthy" bidders are more willing to pay with their equities, which confirmed my earlier opinion that equities of financially "unhealthy" bidders are generally overvalued. In addition, the "unhealthy" bidders show a lower percentage of making acquisitions in the same industry and their high percentage level for both public and private target give us the idea that the "unhealthy" firms are eager to take acquisition actions so that they do not have too much preference for either targets from the same industry or public/private targets as other "healthy" companies do. Their higher likelihood to make a tender offer or a hostile offer provides us a similar impression.

From panel B in table 6, the first interesting observation is that both the asset value and market capitalization of financially "healthy" bidders, which can be proxies for firms' sizes, are more than 10 times larger than those of "unhealthy" bidders. I understand the reason for this as being the large difference between the sample number of these two groups (1472 for the financially "healthy" bidder group and 204 for the "unhealthy" bidder group). Then, the debt/asset ratio and leverage ratio also present a consistent result that the financial leverage level for "healthy" bidders was higher than "unhealthy" ones for around 30%. Additionally, Tobin's q and BM ratios (see Done, Conrad, and Dittmar (2003) and Fama and French (1995)) are frequently used as the criteria of justifying over- or under-valuation. These two ratios give the same impression that "unhealthy" bidders are generally overvalued, compared to "healthy" bidders.

Table 6. Firm and Deal Characteristics

Column (1), column (3) and column (5) present the mean of each characteristics of the healthy bidder, the unhealthy bidder and the total sample respectively. Column (2), column (4) and column (6) present the median value of each characteristic of the firm types. All the data are collected one quarter before the event to avoid the influence of the announcement. Market capitalization ($ million) is calculated by multiplying the shares outstanding and the closing price on that day. Leverage ratio is defined as debt divided by equity book value. Tobin's q is defined as the book value of assets minus the book value of equity plus the market value of equity, divided by the book value of assets. Book-to-market (BM) is defined as the ratio of the book value of a firm's common stock to its market value. [see Fama and French (1993)]. The transaction value is the total value of consideration paid by the acquiror, excluding fees and expenses, collected from SDC. Cash and equity in the consideration paid is also from SDC. Same industry deals involve targets with the first 2-digit Sic codeidentical to the one of the bidder. The symbols *, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 level, respectively, using a heteroscedastic one-tail test.

Panel A. Deal Characteristics

	Healthy Bidder		Unhealthy Bidder		Total Sample		Differences
	Mean (1)	Median (2)	Mean (3)	Median (4)	Mean (5)	Median (6)	(1) - (3)
Transaction Value	789.35	81.09	85.97	19.98	495.71	51.05	703.38***
TV/Equity (market)	0.15	0.03	0.14	0.06	0.14	0.0353	0.01
TV/Assets (book)	0.16	0.05	0.25	0.09	0.18	0.0454	-0.09
Cash in payment (%)	51.02		38.99		44.20		12.03
Equity in payment (%)	9.91		26.75		12.40		-16.84
Pure cash deal (%)	42.10		22.41		31.30		19.69
Pure equity deal (%)	5.05		15.63		8.65		-10.58
Tender-offer (%)	2.01		3.56		3.01		-1.55
Hostile deal (%)	0.00		1.47		0.17		-1.47
Same industry (%)	68.44		62.42		63.89		6.02
Public target (%)	14.23		19.53		16.15		-5.30
Private target (%)	38.87		55.78		44.93		-16.91
Subsidiary target (%)	44.96		23.24		37.54		21.72
N	1472	1472	204	204	2369	2369	

(continued)

Table 6 - Continued

Panel B. Bidder Characteristics

	Healthy Bidder		Unhealthy Bidder		Total Sample		Differences
	Mean (1)	Median (2)	Mean (3)	Median (4)	Mean (5)	Median (6)	(1) - (3)
Asset (book)	15,729.89	2,456.62	1,221.39	173.50	9,987.45	1,234.69	14508.50***
Market capitalization	14,958.32	2,933.58	1,384.95	432.57	10,753.06	1,477.68	13573.37***
Debt/asset (book)	0.42	0.48	0.19	0.18	0.36	0.44	0.23**
Leverage Ratio	1.35	0.40	0.96	0.10	1.24	0.33	0.39**
Tobin's q	2.21	1.77	3.47	2.24	2.64	1.78	-1.26***
BM (equity)	0.87	0.43	0.47	0.27	0.58	0.40	0.4**
N	1472	1472	204	204	2369	2369	

I first conducted the regressions with only firms and deal-related factors as independent variables, as shown in table 7 from model 1 and model 2. In order to observe the impact of a firm's financial status, I run the regressions with the "healthy" dummy and two ratio dummies and with other factors as control variables, and the results are shown in table 7 from model 3 to model 6. The last two regression models were to include offer premiums, which I will explain later. The regression covered the whole sample period from 1997 to 2010, and the dependent variable is CAR for day $(0, 30)$.

Table 7. Multivariate OLS regression analysis of CAR under Day [0, 30]

The dependent variable is the CAR for period [0, 30]. Health dummy equals 1 if the acquiror is healthy, otherwise 0. Leverage ratio dummy equals 1 if both years leverage are higher than the industry median, and equals 0 otherwise. It is the same for interest coverage dummy. Same industry dummy equals 1 if both target and bidder are in the same industry as indicated by the 2-digit SIC code. Size is the natural log of firms' market capitalization one quarter before the announcement day. Assets value is the natural log of asset book value. Attitude equals 1 if it is a friendly deal, otherwise equals 0. Cash in payment is the percentage of cash in the total deal payment. Tobin's q is the book value of assets minus the book value of equity plus the market value of equity, divided by the book value of assets. Book-to-market (BM) is the ratio of the book value of a firm's common stock to its market value. [see Fama and French (1993)]. WACC is obtained from Bloomberg for each firm one quarter before the announcement day. Premium is the percentage of offer price over the target stock price. Premium data are available only for public targe four weeks before the announcement day. For each variable I list the coefficient and the p-value (in parentheses). N is the number of observations. Respectively, the symbol *, ** and *** denote statistical significance at the 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.073 (0.143)	0.076 (0.278)	0.0347 (0.128)	0.0304 (0.152)	-0.0200 (0.733)	0.0390 (0.497)	0.0001 (0.999)	0.011 (0.861)
Health			0.0261 (0.049)**	0.0264 (0.047)**			0.03 (0.495)	
Leverage					0.0097 (0.488)			0.036 (0.445)
Interest Coverage					0.0560 (0.001)***	0.0253 (0.0602)*		0.036 (0.567)
Same Industry	-0.01 (0.407)	-0.008 (0.508)	-0.006 (0.597)		-0.004 (0.736)	-0.006 (0.655)	-0.014 (0.723)	-0.018 (0.652)
Public Target		-0.052 (0.237)			-0.0261 (0.57)	-0.0441 (0.3374)		
Assets Value	-0.003 (0.415)				-0.004 (0.363)		-0.003 (0.479)	
Size	0.01 (<.001)***	0.005 (0.151)	0.022 (0.001)***	0.022 (0.001)***	0.023 (0.001)***		-0.01 (0.272)	
Attitude	0.067 (0.078)*	0.069 (0.073)*			0.035 (0.291)	0.037 (0.264)	0.077 (0.451)	
Cash in Payment	0.023 (0.059)*	0.025 (0.04)**			0.022 (0.085)*	0.024 (0.059)*	-0.012 (0.792)	-0.021 (0.636)
Tender Offer		0.015 (0.684)			-0.016 (0.669)	-0.011 (0.777)	0.006 (0.911)	-0.008 (0.871)
BM(equity)	0.005 (0.06)*	0.007 (0.014)**	0.006 (0.021)**	0.006 (0.022)**	0.006 (0.019)**	0.005 (0.068)*		

continued

Table 7 - Continued

Tobin's q	-0.012 (<.001)***	-0.012 (<.001)***	-0.005 (<.001)***	-0.005 (<.001)***	-0.005 (<.001)***	-0.006 (<.001)***	0.002 (0.746)	
Premium							-0.001 (0.712)	-0.001 (0.749)
TV/Equity MV	0.041 (0.012)**	0.058 (0.002)***	0.032 (0.08)**	0.032 (0.082)**	0.034 (0.072)**	0.032 (0.088)**	0.019 (0.712)	0.026 (0.366)
WACC	-0.006 (0.009)***	-0.005 (0.083)**						
Adjusted R-Square	0.038	0.038	0.0454	0.046	0.0514	0.038	0.032	0.036
N	1065	1065	1297	1297	1297	1297	141	141

When I considered only firms and deal-related factors through models 1 and 2, all factors were significant except for the target choices of the same industry, public or private or other. In model 1, the significantly negative relationship between WACC and abnormal returns revealed again that firms with a high cost of capital cannot achieve high abnormal returns in response to the takeover announcement. Then I included the healthy dummy into the regression in models 3 and 4 and both revealed significantly positive effects of firms' financial health on abnormal returns. Thus, I could reject my second hypothesis and conclude that firms' financial health does have significantly positive effects on its performance after the acquisition announcement.

Then, I wanted to check which ratio plays relatively more roles in determining firms' post-acquisition performance, so I conducted the regression models 5 and 6. I discovered the significantly positive impact of interest coverage ratio on bidders' performance during the first month after announcement. The higher the bidders' interest coverage ratio, the better their solvent abilities, and the more positive the reaction of the market was to their takeover decisions. The leverage ratio was not significant in the statistical level, but I still saw the consistent positive relation between the leverage level and their post-event performance no matter what factors I controlled in the model. Taking the whole regression result table into consideration, I realized that whether targets were in the same industry and whether they were public, private or even

subsidiaries did not matter considering the post-acquisition performance. Furthermore, bidders' attitude on the acquisition became less important after taking financial health factors into account. However, the Tobin's q and BM ratios keep their significance level no matter what, and this is under expectation because for both financially "healthy" and "unhealthy" bidders, if their equities are overvalued, the market will definitely not react positively to their decision of making mergers or acquisitions.

For regression models 7 and 8, I wanted to examine whether offer premiums have any effects on post-event performance. Since offer premium data is only available for public companies, the sample data in models 7 and 8 was restricted to the 196 deals within the total sample. I did not see significantly important influence of offer premiums on firms' abnormal returns, and the significance of other factors also disappeared in these two models. This phenomenon can be explained either by the small sample size or the unimportance of the target's public status on the takeover activities.

Moreover, I was not surprised that in models 1 to 2, firms' sizes displayed significantly positive effects on the abnormal returns. This lead me to consider whether my results of post-event significant abnormal returns were the proxy of small firms' size effects, thus I included also sizes in my regression models 3 through 8. The simultaneous significance level of financial health status and the size factors eased my concern of size effects. While, in order to further confirm my conclusion, I conducted detailed research, reflected by statistics in table 8 and performance for different subgroups in figure 5.

Table 8. Firm and Deal Characteristics for Healthy Bidder Subgroups

The classification of large and small is based on the mean market capitalization of unhealthy bidder. The smaller 865 healthy bidders that have a mean market capitalization of 1,387.64, which is comparable to the mean market capitalization of unhealthy bidders of 1,384.95, are grouped into one subsample called small healthy bidder, while the rest are grouped into the large healthy bidder subsample. Column (1) presents the mean value of each characteristic for large healthy bidder, column (2) presents the small healthy bidder, and column (3) presents the whole unhealthy bidder group for compare. All the data are collected one quarter before the event to avoid the influence of the announcement. Market capitalization ($ million) is calculated by multiplying the shares outstanding and the closing price on that day. Leverage ratio is debt divided by equity book value. Tobin's q is the book value of assets minus the book value of equity plus the market value of equity, divided by the book value of assets. Book-to-market (BM) is the ratio of the book value of a firm's common stock to its market value. [see Fama and French (1993)]. The transcation value is the total value of consideration paid by the acquiror, excluding fees and expenses, collected from SDC. Cash and equity in the consideration paid is also from SDC. Same industry deals involve targets with the first 2-digit Sic codeidentical to the one of the bidder. The symblos *, ** and *** denote statistical significance at the 0.1, 0.05 and 0.01 level, respectively.

Panel A. Deal Characteristics

	Large Healthy Bidder	Small Healthy Bidder	Unhealthy Bidders	Difference		
	(1)	(2)	(3)	(1) - (2)	(1) - (3)	(2) - (3)
Transaction Value	1457.88	135.21	85.97	1,322.67***	1,371.91***	49.24
TV/Equity (market)	0.061	0.1874	0.14			
TV/Assets (book)	0.1267	0.2360	0.25			
Cash in payment (%)	48.15	53.3	38.99	-5.15	9.16	14.31
Equity in payment (%)	12.58	10.41	26.75	2.17	-14.17	-16.34
Pure cash deal (%)	33.6	45.72	22.41	-12.12	11.19	23.31
Pure equity deal (%)	6.81	4.7	15.63	2.11	-8.82	-10.93
Tender-offer (%)	1.32	2.98	3.56			
Hostile deal (%)	0	0	1.47			
Same industry	63.25	70.53	62.42			
Public target (%)	28.32	10.09	19.53			
Private target (%)	27.08	49.56	55.78			
Subsidiary target (%)	43.01	38.64	23.24			
N	607	865	204			

(continued)

Table 8 - Continued

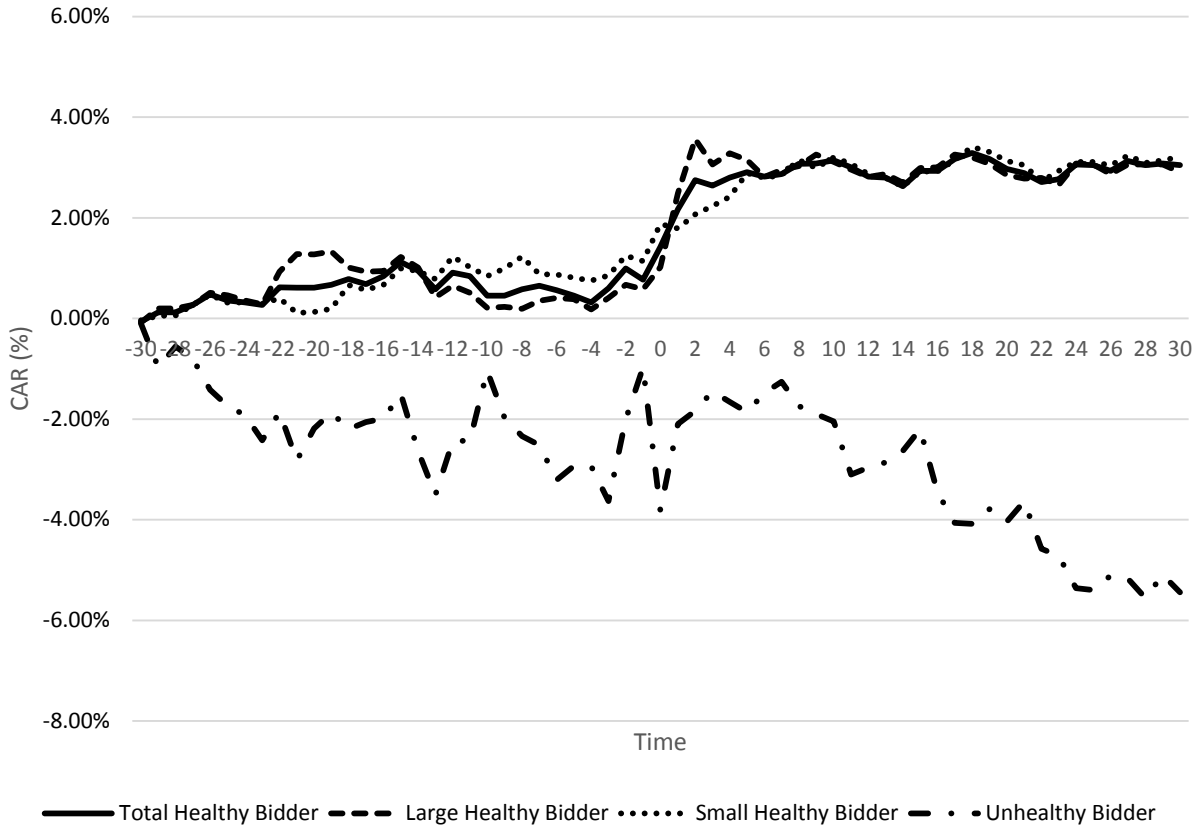
Panel B. Bidder Characteristics

	Large Healthy Bidder	Small Healthy Bidder	Unhealthy Bidders	Difference		
	(1)	(2)	(3)	(1) - (2)	(1) - (3)	(2)- (3)
Asset (book)	38,952.47	1,401.69	1,221.39	37,550.78***	37,731.08***	180.30
Market capitalization	36,597.51	1,387.64	1,384.95	35,209.87***	35,212.56***	2.69
Debt/asset (book)	0.5521	0.3002	0.19	0.2519**	0.3621*	0.11
Leverage Ratio	0.57	1.57	0.96	-1**	-0.39*	0.61
Tobin's q	1.42	2.71	3.47	-1.29*	-2.05	-0.76
BM (equity)	1.08	0.69	0.47	0.39**	0.61	0.22
N	607	865	204			

I divided the "healthy" bidders into two subgroups using the cut point of "unhealthy" bidders' mean market capitalization. The 865 "healthy" bidders that have a mean market capitalization of $1,387.64 million, which is similar to the mean market capitalization of "unhealthy" bidders of 1,384.95 million, are grouped into one subsample called small "healthy" bidders group, while the rest are the large "healthy" bidders group. In table 8, the small "healthy" bidders group has an asset book value of 1,401.69 million, and their leverage ratio, Tobin's q, the book-to-market ratio are all at comparable levels with the "unhealthy" bidders group. The rationale here is that if the abnormal return for the small "healthy" bidders group is also similar to the "unhealthy" bidder group, then the health effect is only a proxy for the size. Figure 5 shows the cumulative abnormal return (CAR) for total "healthy" bidders, large "healthy" bidders, small "healthy" bidders and the "unhealthy" bidders in a [-30, 30] event period. It shows clearly that both the large and small "healthy" bidders have a similar trend as the total "healthy" bidders, which follows an opposite trend than the "unhealthy" bidders. Therefore, after controlling the firm size, difference still exists between the "healthy" and "unhealthy" bidders. I can reject my last hypothesis with

confidence and conclude that size does not affect my earlier observation on the relationship between financial health status and their post-acquisition performance.

Figure 5. Cumulative Abnormal Return for Four Subgroups in Day [-30, 30]



7. CONCLUSION

Financial academics seem to have the consensus standpoint that takeovers create value for shareholders in a general level, with most gains to target shareholders. That is to say, shareholders of takeover bidders usually lose. However, if bidders are separated into different groups according to their financial status two years before the takeover announcement, will the results still the same?

The criteria to classify bidders into financially "healthy" and "unhealthy" groups is based on each company's financial leverage and interest coverage ratio, and their comparison with each ratio's median within the same industry. I did not choose complex statistical models or programming to classify the health status in consideration of the simplicity of financial ratios, and I also did not use the Altman Z score model since I focused exclusively on firms' financial performance rather than overall performance, including operating performance. My sample consists of 1,472 "healthy" and 204 "unhealthy" bidders.

In the short term, the "healthy" bidder's stock reacts positively to the announcement of takeover from 30 trading days before (due to rumours and inside information) to 30 trading days after the announcement. However, the reaction of "unhealthy" bidders' stocks is significantly positive at one day before the announcement, followed by the continuous decline from the announcement date. Thus, "unhealthy" bidders' decision to takeover cannot save them from trouble in financial aspects from the shareholder's standpoint. In the long run, "healthy" bidders' stock show higher levels three years after compared to one month before the announcement date, with shareholder's wealth maximized during the one year following the announcement. As to "unhealthy" bidders, the stocks keep falling in the 36 months after with large volatilities. Overall, financially "healthy" bidders do make better takeover decisions than "unhealthy" bidders for shareholders in both the short term and long term.

In addition, I also confirmed that there is a significantly positive relationship between a firm's financial health status and its post-announcement performance through regression analysis. I discovered that interest coverage ratios link positively to the post-event performance, and financial leverage ratio does not show significance in the positive relation. With many firms and deal-related factors, I had some other observations. For example, "unhealthy" bidders are usually overvalued according to their Tobin's q and BM ratios and also their high willingness to pay with equities rather than cash. I also found no evidence that targets' industry, targets' type (private or public), and offer price premiums relate to post-announcement abnormal returns. In order to exclude the possibility of size effects, I divided the "healthy" bidders group into a large and a small subgroup, with the small subgroup with comparable market capitalization as "unhealthy" bidders. I then compared the post-acquisition performance of the two subgroups and the "unhealthy" bidder groups and found that even the small subgroup of "healthy" bidders still

presented much higher abnormal returns than "unhealthy" bidders. Therefore, my results showing a significant relationship between a firm's financial health and post-acquisition performance is not a proxy for the size.

Another interesting result here is that I found that all sample bidders' WACC stay at the same level one year after the announcement as they were one fiscal quarter before the announcement. I cannot help thinking that for financially "healthy" bidders, with the WACC unchanged, the benefits for shareholders from the takeover actually come at the expense of firms' debt holders. In this case, whether these financially "healthy" bidders could stay healthy in the long term is going to be a concern.

8. REFERENCES

Agrawal, and F. Jaffe, 2003, Do takeover targets underperform? Evidence from operating and stock returns, *Journal of Financial and Quantitative Analysis,* 38: 721 -746.

Agrawal, and F. Jaffe, J.F., 2000, The post-merger performance puzzle. *Advance in mergers and acquisitions* 1, 7 -41

Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies*, *20*(5), 1429-1460.

Andre, P., Kooli, M., L'Her, J., 2004, The long-run performance of mergers and acquisitions: evidence from the Canadian stock market, *Financial Management*, Winter, 27 -43.

Asquith, P., 1983, Merger bids, uncertainty and stockholder returns, *Journal of Financial Economics* 11, 51 -83.

Asquith, Paul, Robert F. Bruner, and David W. Mullins, 1983, The gains to bidding firms from merger, *Journal of Financial Economics* 11, 121 -139.

Barber, B.M., Lyon, J.D., 1997, Detecting long-run abnormal stock returns: The empirical power and specification of test statistics, *Journal of Financial Economics* 43, 341 -372.

Barber, W., Lehavy, R., McNichols, M., Trueman, B., 2001, Can investors profit from prophets? Security analyst recommendations and stock returns, *The Journal of Finance* 56, 531 -568.

Ben-Amar, and Andre, 2006, Separation of ownership from control and acquiring firm performance: The case of family ownership in Canada*, Journal of Business Finance & Accounting* 33, 517 -543.

Bradley, Michael D., Anand S. Desai, and E. Han Kim, 1988, Synergistic gains from corporate acquisitions and their division between the stockholders of target and acquiring firms, *Journal of Financial Economics* 21, 3 -40.

Brav, A., 2000, Inference in long-horizon event studies: A Bayesian approach with application to initial public offerings, *The Journal of Finance* 55, 1979 -2016.

Brown, S.J., Warner, J.B., 1985, Using daily stock returns: The case of event studies, *Journal of Financial Economics* 14, 3 -31.

Eckbo, B.E., Maksimovic, Y., Williams, J., 1991, Consistent estimation of cross-sectional models in event studies, *Review of Financial Studies* 3, 343 -365.

Eckbo, B.E., Thorburn, K.S., 2000, Gains to bidders firms revisited: Domestic and foreign acquisitions in Canada, *Journal of Financial and Quantitative Analysis* 35, 1 -25.

Erik M. Vermeulen, Jaap Spronk, Nico van der Wijst, 1998, The application of the multi-factor model in the analysis of corporate failure, *Operational Tools in the Management of Financial Risks*, 59 -73.

Fama, E.F., 1998, Market efficiency, long-term returns, and behavioral finance, *Journal of Financial Economics* 49, 283 -306.

Fama, E.F., French, K.R., 1993, Common risk factors in the returns on stocks and bonds*, Journal of Financial Economics* 43, 153 -193.

Fama, E.F., French, K.R., 1995, Size and book-to-market factors in earnings and returns, *The Journal of Finance* 50*,* 131 -155.

Fama, E.F., Jensen, M.C., 1983, Separation of ownership and control, *Journal of Law and Economics* October, 301 -326.

Fazzari, S., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment.

Franks, J., Jarris, R., Titman, S., 1991, The postmerger share-price performance of acquiring firms, *Journal of Financial Economics* 29, 81 -96.

Fuller, K., Netter, J., Stegemoller, M., 2002, What do returns to acquiring firms tell us? Evidence from firms that make many acquirtions, *The Journal of Finance* 57, 1763 -1793.

Ghosh, A., 2001, Does operating performance really improve following corporate acquisitions? *Journal of Corporate Finance* 7, 151 -178.

Gregory, A., 1997, An examination of the long-run performance of UK acquiring firms, *Journal of Business Finance and Accounting* 24, 971 -1002.

Hadlock, C. J., & Pierce, J. R. (2010). New evidence on measuring financial constraints: Moving beyond the KZ index. *Review of Financial studies*, *23*(5), 1909-1940.

Healy, P.M., Palepu, K.G., Ruback, R.S., 1992, Does corporate performance improve after mergers? *Journal of Financial Economics* 31, 135 -175.

Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints?. *The Quarterly Journal of Economics*, 169-215.

Kaplan, S. N., & Zingales, L. (2000). *Investment-cash flow sensitivities are not valid measures of financing constraints* (No. w7659). National bureau of economic research.

La Cava, G., Richards, T., Shuetrim, G., & Vickery, J. (2005). *Financial Constraints, the User Cost of Capital and Corporate Investment in Australia*. Reserve Bank of Australia.

Lamont, O., Polk, C., & Saa-Requejo, J. (2001). Financial constraints and stock returns. *Review of financial studies*, *14*(2), 529-554.

Lang, and K. Martin, 1992, Postacquisition performance of acquiring firms, *Financial Management* 21, 69 -79.

Lang, Larrh H.P., Rene M. Stulz, and Ralph A. Walking, 1989, Managerial performance, Tobin's q, and the gains from successful tender offers, *Journal of Financial Economics* 24, 137 -154.

Li, D. (2011). Financial constraints, R&D investment, and stock returns. *Review of Financial Studies*, hhr043.

Limmack, R.J., 1991, Corporate mergers and shareholder wealth effects: 1977 -1986, *Accounting and Business Research* 21, 239 -251.

Livdan, D., Sapriza, H., & Zhang, L. (2009). Financially constrained stock returns. *The Journal of Finance*, *64*(4), 1827-1862.

Loughran, T., Ritter, J., 2000, Uniformly least powerful tests of market efficiency, *Journal of Financial Economics* 55, 361 -390.

Lyon, J.D., Barber, B.M., Tsai, C., 1999, Improved methods for tests of long-run abnormal stock returns, *The Journal of Finance* 54, 165 -201.

Martynova, M., Renneboog, L., 2008, A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking and Finance* 32, 2148 -2177.

Megginson, W.L., Morgan, A., Nail, L., 2004, The determinants of positive long-term performance in strategic mergers: Corporate focus and cash, *Journal of Banking and Finance* 28, 523 -525.

Mitchell, M.L., Stafford, E., 2000, Managerial decisions and long-term stock price performance, *Journal of Business* 73, 287 -329.

Morck, R., Shleifer, A., Vishny, R., 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293 -315.

R. F. Smith and A. H. Winakor, Changes in the Financial Structure of Unsuccessful Corporations, *University of Illinois: Bureau of Business Research* 1935.

Rau, P.R., Vermaelen, T., 1998, Glamour, value and the post-acquisition performance of acquiring firms, *Journal of F inancial Economics* 49, 223 -253.

S. B. Moeller, Frederik P. Schlingemann, and Rene M. Stulz, 2004, Firm size and the gains from acquisitions, *Journal of Financial Economics* 73, 201 -228.

S. B. Moeller, Frederik P. Schlingemann, and Rene M. Stulz, 2005, Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave, *Journal of Finance* 60, 757 -787.

Schwert, G. William, 2000, Hostility in takeovers: In the eyes of the beholders? *The Journal of Finance* 55, 2599 -2640.

Selvam, M., Vanitha, S., & Babu, M, 2004, A Study on Financial Health of Cement Industry-Z Score analysis, *The Management Accountant* 39, 591-593.

Servaes, Henri, 1991, Tobin's q and the gains from takeovers, The Journal of Finance 46, 409 - 419.

Shantanu Dutta, and Vijay Jog, 2009, The long-term performance of acquiring firms: A re-examination of an anomaly, *Journal of Banking & Finance* 33, 1400 -1412.

Shleifer, A., Vishny, R.W., 1986, Large shareholders and corporate control, *Journal of Political Economy* 95, 461 -488.

Whited, T. M., & Wu, G. (2006). Financial constraints risk. *Review of Financial Studies*, *19*(2), 531-559.

Y.P. Gupta, R.P. Rao, P.K. Bagghi, 1990, Linear goal programming as an alternative to multivariate discriminant analysis: a note, *Journal of Business Finance and Accounting* 17, 593–598.

Yuce, A., Ng, A., 2005, Effects of private and public Canadian merger, *Canadian Journal of Administrative Sciences* 22, 111 -124.