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Full Length Research Paper

The business effect of mergers and acquisitions on gaining firms in the U.S.

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Previous studies have examined acquiring firms undergoing mergers and acquisitions along with the impact that these events have on firm security prices. These studies have had mixed results. Some indicate negative impact on stock prices while others conclude that there is a positive effect. This study extends these previous studies by increasing both the number of firms sampled and the years evaluated. The first finding indicates that when acquiring firms are compared to firms not engaged in M&A activities, the acquiring firms' stock price effect is significantly negative, while the non-M&A firms' stock price effect is significantly positive. When the acquiring firms are evaluated by industry membership, findings suggest that firms engaged in M&A activities in all industries evaluated exert a significantly negative effect on stock prices, with the exception of the oil and gas industry along with the banking and financial services industry. These two industries were found to have a significantly positive effect on stock prices. These findings are important because they provide investors, managers and others with additional insight to the effects of mergers and acquisitions, from the acquiring firm's perspective, on security prices. This study indicates that firms in certain industries may be more positively impacted, from a stock price perspective, than firms in other industries.

Key words: Mergers, acquisitions, security prices, acquiring firms.

INTRODUCTION

Wall Street dealmakers are off to a busy start to 2014, as some of corporate America's most recognizable names have become involved in multi-billion-dollar mergers and acquisitions (M&A). American Airlines and US Airways announced they would be merging in an $11 billion deal, while private equity firm 3G and Warren Buffett's Berkshire Hathaway announced a $28 billion joint acquisition of food conglomerate H.G. Heinz. These two deals follow a $24.4 billion leveraged buyout of Dell by private equity firm Silver Lake Partners and the firm's founder, Michael Dell.

According to data from *Deallogic*, U.S. companies have spent $219 billion on M&A in 2013, a sharp increase from 2012, when firms spent just $85 billion during the same period. The uptick in mergers and acquisitions is said to have begun during 2009, with a near doubling over the previous year (2008). In 2014, U.S. firms are on pace to have the biggest year in M&A activity since 2000.

While all this activity may have the potential of benefiting shareholders of acquired firms — as well as lots of Wall Street investment bankers — what does it say about the acquiring firms and the overall health of the economy? Since the later part of the 20th century, M&A has tended to come in waves, spurred by the availability of credit, changes in government policy, or bursts of private-sector innovation. Deregulation, for instance, motivated a wave of mergers in the airline industry in the 1970s and the consolidation of the banking industry in the 1990s. But perhaps the most important factor in motivating these bursts of M&A is economic conditions, particularly the strength of the stock market. Mergers in particular are often financed with stock, and high stock values give companies the resources with which to make purchases.

According to *Forbes Magazine* (3/7/14), the stock market has been doing pretty well for a few years now, with the Standard and Poor's (S&P) 500 up more than 138% since its bear-market lows of 2008. So why are we now seeing the M&A boom? Surely one reason is that today's market is heavily fortified by quantitative easing. *Forbes* goes on to state that the Federal Reserve has taken unprecedented action to keep interest rates low in both the short and long term, and those efforts have kept stock prices high despite the weak economy. In other words, given central bank stimulus, a rising stock market is not quite the indicator it used to be.

In addition to predicting M&A activity, the stock market is also considered a leading indicator of economic growth, meaning increases in GDP generally follow bull markets. This is because stock prices reflect investors' expectations for a company's future income. A high stock price today represents investors' belief in big profits tomorrow. Taken in the aggregate, a surging stock market index is a predictor of increases in GDP down the line.

Forbes is quick to point out that the huge gains seen in stock prices since 2009 have also not been followed by robust economic growth. It is noted that this is probably because Fed action has done more to promote stock price increases than economic fundamentals. But this is exactly why we should be encouraged by this fast start to M&A activity in 2014, especially if it keeps up in the coming months. It may mean that recent stock market gains are once again reflecting confidence about future profits, and not just central bank stimulus.

Recent empirical studies (Girma, 2008; Hu, 2009; Yen and Andre, 2010; Kemal, 2011; Chatterjee, 2011), as detailed below, indicate that M&A activity may in fact have a negative impact on the acquiring firm's profits and subsequent stock price. But yet, given what has been described above, it appears that M&A has in fact helped to lift the stock market, and ultimately, acquiring firms' bottom lines and stock prices. So what impact does M&A in fact have on the stock price of acquiring firms? To resolve this issue, individual mergers and acquisitions must be analyzed and their impact on security prices evaluated.

PURPOSE

This study examines the market response to mergers and acquisitions from the acquiring firms' perspective. As previously noted, data provided from *Deallogic*, indicate that mergers doubled from 2008 to 2009 and increased to 158% in 2013 over 2012. *Forbes* magazine indicates that the market impact of these activities have been confounded by the effect of efforts by the Federal Reserve. This study will seek to analyze M&A activities of acquiring firms in the U.S. over a selected study period (2009-2012) and compare the market price effect to similar size firms in the same industries not engaging in M&A activities over the same study period. In addition, the M&A acquiring firms' study period will also be related to a base study period (2004-2007) for the same firms when they were not in the M&A process. The analyses of these results will help us better focus on the market effect of mergers and acquisitions, and if, in fact, they will help lift the overall economy in the long run.

LITERATURE REVIEW

Over the decades, there have been several extant studies conducted on the effect of M&A activities. Holmstrom (2001) found that mergers and acquisitions of acquiring firms improved not only the productivity but the corporate governance mechanism of U.S. firms. Olinger et al. (2006) found that mergers and acquisitions in the U.S. rose during the period from 1980-1999 mainly due to leveraged hostile takeovers and buyouts. Kemal (2011) found that the effects of M&A activities on the acquiring firm included a worsening of financial ratios, particularly those relating to liquidity, along with a pronounced drop in security prices. Chatterjee (2011) also notes a reduction in security prices of acquiring firms in the U.S. possibly as a result of direct and indirect acquisition costs. Altunbas and Ibanes (2004), on the other hand, found evidence of improvement in acquiring firms' return ratios and security prices. Hu (2009) examines post-acquisition periods of acquiring firms and finds mixed financial results with some acquiring firms posting a worsening security price effect while others showing a positive effect. This finding is furthered by Girma (2008) who finds post-acquisition security prices higher for predominantly larger firms and negative for predominantly smaller firms, though the sample size is small. Some firms have abnormal positive returns while other firms have abnormal negative returns. Hu (2009) concludes that the industry and year of acquisition play a role in subsequent return on the acquiring firm.

From a profitability perspective, Mantravadi and Reddy (2008) found evidence that acquiring firms experience

increases in profitability; however, the impact is strongest for firms in textile, banking and finance, and healthcare. Wong et al. (2009) conducted research focusing on security returns of acquiring firms, but their research was limited to firms in the Asian markets. Their findings indicated that the buying firms' market shares receive abnormal positive returns in periods after the M&A announcement. In contrast to this study, Yen and Andre (2010) surveyed a limited number of mergers and acquisitions in the U.S. and found that acquiring firms either suffer losses as the result of the activity, or at best, breakeven. Yen and Andre (2010) also found no evidence of immediate positive returns on security prices of the acquiring firms, and in fact discovered an associated decline in security prices among these firms, although corporate governance procedures seemed to improve.

One of the explanations of how such studies might have such differing results associated with mergers and acquisitions is offered by Williams (2010). Williams (2010) indicated that researchers often overlook the marketing synergies that may result from mergers and acquisitions, which lay at the heart of either failure or success of the endeavor by the acquiring firm. Williams (2010) found that horizontal integration offers the best chance at success and profitability of acquiring firms. Also, Williams (2010) discovered that the more established the acquiring firm is (that is, more long- lived) the greater likelihood it has of realizing increased profitability. Williams (2010) also notes limitations in time periods studied. Ismail et al. (2011) also suggest that reasons for conflicting results from various studies on M&A activities may be because of the scope (which is limited in both numbers of mergers and acquisitions and time frames covered) of the studies and most of the above studies focus on a single industry, with the exceptions of Hu (2009) and Mantravadi and Reddy (2008), which assess U.S. acquiring firms' security prices by industry for limited time periods. Also, Ismail et al. (2011) find that past studies do not adequately assess firm size or time in industry, both of which might have an effect on results.

Recent merger and acquisition literature is conflicted in its analysis of the results associated with acquiring firms. Some studies indicate a negative impact on the acquiring firm and its stockholders (Girma, 2008; Hu, 2009; Yen and Andre, 2010; Chatterjee, 2011; Kemel, 2011), while other studies find abnormal positive results (Altunbas and Albanes, 2004; Hu, 2009; Girma, 2008; Wong et al., 2009). Because M&A activities have hit new highs over recent years, it is important that we obtain a better understanding of the effect of such activities on the acquiring firm and their stockholders. This study will attempt to do just that by analyzing the effect of mergers and acquisitions on the acquiring firms' stock price by year and industry from 2009-2012, thus increasing the scope of the study and providing a broader base by which to statistically measure any security price impact of mergers and acquisitions on acquiring firms.

Hypothesis development

As previously noted, extant studies assessing the effects of mergers and acquisitions contain many varying results. These studies indicate minimal, negative and even positive impact on stock prices of acquiring firms. In order to better place in perspective the stock price effect of mergers and acquisitions, acquiring firms that have engaged in M&A activities between 2009-2012 are compared to similar size firms that have not engaged in M&A activities over the same period. This time period was selected because it represents the post-financial crisis period of the U.S. Economic recovery was said to have begun in the first quarter of 2009 (*U.S. Bureau of Labor Statistics*). By utilizing both increased sample periods and total numbers of firms (in continuance of the Ismail et al., (2010)'s study) and comparing to a control group of non-M&A firms, the results of this study can then be compared to past studies and assessed for areas of conformity and departure. This gives rise to the first hypothesis, stated in the null form:

H1: The share price responses to unexpected earnings of acquiring firms engaged in merger and acquisition activities is not significantly different from those of firms not engaged in merger and acquisition activities.

Some past merger and acquisition studies (Hu, 2009; Mantravadi and Reddy, 2008), which assess U.S. acquiring firms' security prices by industry for limited time periods indicate that the effect of M&A activities on security prices varies by industry, with certain industries showing a greater effect than others. In order to assess this phenomenon, the group of acquiring firms that have engaged in M&A activities between 2009-2012 is broken down by major industry and the industry effect is analyzed. This gives rise to the second hypothesis, stated in the null form:

H2: The share price responses to unexpected earnings of acquiring firms engaged in merger and acquisition activities is not significantly different when assessed by industry category.

Still other studies in the area of mergers and acquisitions attribute the effect of M&A activities on stock prices to time-specific metrics (Ismail et al., 2011; Williams, 2010). In order to assess this, a sensitivity analysis is conducted for both acquiring firms engaging in M&A activities during the study period 2009-2012, and firms not engaging in M&A activities during this same time period. These two groups of firms are then compared to a base study period (2004-2007). This study period was selected since it:

1. Represents a time period when mergers and acquisitions were slightly down in the U.S.; and
2. It represents a time period prior to the onset on the

Table 1. Sample of acquiring firms engaged in M&A activities, 2009-2012.

	Number of acquiring firms
Total U.S. firms	2,049
Firms eliminated due to insufficient Compustat data	123
Firms eliminated due to insufficient CRSP data	208
Total sample firms	1,718

Sources: EDGAR, Compustat, CRSP.

Table 2. Sample of acquiring firms engaged in M&A activities by industry 2009-2012.

Industrials	301
Oil/Gas	288
Utilities	244
Real Estate	229
Transportation	204
Banking/Financial Services	196
Healthcare	177
Other	79
Total sample firms	1,718

Source: Compustat.

Table 3. Sample of firms not engaged in M&A activities by industry 2009-2012.

Industrials	290
Oil/Gas	215
Utilities	199
Real Estate	150
Transportation	188
Banking/Financial Services	202
Healthcare	158
Other	98
Total sample firms	1,500

Source: Compustat.

financial crisis in the U.S. Results would provide additional information on whether the effect is time-specific. This gives rise to the third hypothesis, stated in the null form:

H3: The share price responses to unexpected earnings of acquiring firms engaged in merger and acquisition activities and those not engaged in such activities is not significantly different when compared to the same firms in a base study period.

Sample selection

The aim of this study is to investigate the share price behavior of publicly traded firms that are identified as the acquiring firm in a merger and acquisition in the U.S. A database was assembled for the study years 2009-2012 utilizing a Lexis-Nexis and Electronic Data-Gathering, Analysis and Retrieval (EDGAR) search. The database was compiled to capture all announced mergers and acquisitions along with the announcement release date. The availability of earnings and security return information was then assembled for these firms using Compustat and Center for Research on Security Prices (CRSP) data bases for earnings and security price information respectively. Table 1 indicates the total number of U.S. firms identified as the acquiring firm in a merger and acquisition activity. It also indicates the numbers of firms disqualified for insufficient Compustat and/or CRSP data for the study years.

Table 1 reflects the total sample of acquiring firms during a merger and acquisition during the study period 2009-2012.

In order to assess any industry differences among the acquiring firms, a further database was compiled detailing the above M&A firms by industry. Table 2 indicates the industry breakdown of the 1,718 firms in the study sample.

Table 2 reflects the acquiring firms presented in Table 1 broken done by major industry during the study period 2009-2012.

Because some prior studies indicate that the stock reaction to M&A activities of acquiring firms may perhaps be firm or time-specific, an additional sample is assessed of firms not engaged in M&A activities during the study period, that are the same general size and from similar industries. This sample consists of 1,500 firms identified by industry in Table 3.

Table 3 reflects a sample of similar firms not engaged in merger and acquisition activities during the study period 2009-2012. This sample is used for comparative purposes.

Although the above hypotheses and sample selection overcome deficiencies of past studies (that is, expanded sample, expanded time periods, more full analysis of industries and comparison to a base period), they do not overcome all of the criticisms posed by Ismail, et al. (2011) who find that past studies do not adequately assess firm size or time in industry, both of which might have an effect on results. To the extent these issues are

not addressed, their absence poses a limitation to the overall findings of the study.

METHODOLOGY

Ordinary least squares (OLS) regression was used to test the models for all hypotheses. The reason for using OLS measurement was to remain consistent with the approach used by prior researchers (Williams, 2010; Kemal, 2001; Altunbas and Albanes, 2004; Holmstram, 2001), thus insuring comparability to prior studies. Cross-sectional dependence and heteroskedasticity are not likely to be present in stock return metrics since sample firms are not affected by common event dates (Binder, 1985; Bernard, 1987; Grammatikos and Yourougou, 1990). However, whenever a set of multiple regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an inter-pretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIP) was utilized. This approach was used in Hu (2009), Andre (2010), Kemel (2011), Ismail et al. (2010) and Wong et al. (2009). When the VIP factor exceeds a value of 10, multicollinearity is said to be present (O'Brien, 2007).

Hypothesis one methodology

The purpose of the test of the first hypothesis is to assess the relative information content of unexpected earnings to share prices in a cross sectional analysis of all 1,718 acquiring firms involved in merger and acquisition activities for the study period 2009-2012. In addition, an assessment of unexpected earnings to share prices in a cross sectional analysis of all 1,500 firms of similar size and industry not involved in similar M&A activities is also made during the same study period. The results of both groups are then analyzed for any similarities or differences. The following regression model (similar to that used in Williams, 2010; Kemal, 2001; Altunbas and Albanes, 2004; Holmstram, 2001) is used to test empirical results:

$$CAR_{it} = a + b_1UEM_{it} + b_2UENM_{it} + b_3MB_{it} + b_4B_{it} + b_5MV_{it} + e_{it} \quad (1)$$

Where: CAR_{it} = Cumulative abnormal return firm i, time
t A = Intercept term
UEM_{it} = Unexpected earnings for firm i, time t, for all merger firms in sample
$UENM_{it}$ = Unexpected earnings for firm i, time t, for all non-merger firms in sample
MB_{it} = Market to book value of equity as proxy for growth and persistence
B_{it} = Market model slope coefficient as proxy for systematic risk
MV_{it} = Market value of equity as proxy for firm size
e_{it} = error term for firm i, time t

The coefficient "a" measures the intercept. The coefficient b_1 is the earnings response coefficient (ERC) for all merger firms in the sample (1,718). The coefficient b_2 is the ERC for all non-merger firms in the sample (1,500). The coefficients b_3, b_4, and b_5, are assessed for any potential contributions to the ERC for all firms in the sample. To investigate the effects of the information content of earnings on security prices, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients b_3 through b_5 are included in the study. Unexpected earnings (UE_i) is measured as the difference between the actual earnings (EA_i) and security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service(IBES) (EXi). The unexpected earnings are scaled by the firm's stock price (P_i) 180 days prior to the forecast:

$$UE_i = \frac{(EA_i - EX_i)}{P_i} \quad (2)$$

For each cross sectional sample firm, an abnormal return (AR_{it}) is generated for event days –1, 0, and +1, where day 0 is defined as the release date of the M&A activity identified by EDGAR. The Dow Jones News Retrieval Service (DJNRS) is also reviewed to insure that confounding factors, such as change of corporate ownership or form, or management change, are minimized by excluding any firms which contain these events. The market model is utilized along with the CRSP equally-weighted market index and regression parameters are estimated between –290 and –91. Abnormal returns are then summed to calculate a cumulative abnormal return (CAR_{it}). Hypotheses 1 is tested by examining the coefficients associated with the unexpected earnings of the two samples (that is, b_1, and b_2).

Hypothesis two methodologies

The purpose of the test of the second hypothesis is to assess the relative information content of unexpected earnings to share prices in a cross sectional analysis of all 1,718 acquiring firms involved in merger and acquisition activities by industry membership for the study period 2009-2012. This test will help determine if certain industries demonstrate stronger security price reaction while undergoing M&A activities. In assessing empirical results by industry, a regression model similar to the one used in hypothesis one, and in conformance with that used in Hu (2009) and Mantravadi and Reddy (2008), is replicated. The following model used is:

$$CARit = a + b_1UEI_{it} + b_2\,UEG_{it} + b_3UEU_{it} + b_4UER_{it} + b_5UET_{it} + b_6UEB_{it} + b_7UEH_{it} + B_8UEO_{it} + b_9MB_{it} + b_{10}B_{it} + b_{11}MV_{it} + e_{it} \quad (3)$$

Where: CARit = Cumulative abnormal return firm i, time t
a = Intercept term
UEIit = Unexpected earnings for firm i, time t, for all industrial firms in sample
UEGit = Unexpected earnings for firm i, time t, for all oil/gas firms in sample
UEUit = Unexpected earnings for firm i, time t, for all utility firms in sample
UERit = Unexpected earnings for firm i, time t, for all real estate firms in sample
UETit = Unexpected earnings for firm i, time t, for all transportation firms in sample
UEBit = Unexpected earnings for firm i, time t, for all banking/financial services firms in sample
UEHit = Unexpected earnings for firm i, time t, for all healthcare firms in sample
UEOit = Unexpected earnings for firm i, time t, for all other firms in sample
MBit = Market to book value of equity as proxy for growth and persistence
Bit = Market model slope coefficient as proxy for systematic risk
MVit = Market value of equity as proxy for firm size
eit = error term for firm i, time t

Hypothesis three methodology

While hypothesis one assess differences on security prices among acquiring firms engaged in M&A activities versus those not engaged in M&A activities during the same time period, it does not adequately assess the effect of time-specific differences. In order

Table 4. Stock price effect of merger and non-merger firms, test of hypothesis 1.

a	b_1	b_2	b_3	b_4	b_5	Adj. R^2
.04	-.04	.07	.12	05	.19	.195
(.60)	(2.47)[a]	(2.59)[a]	(.38)	(.44)	(.29)	

Model: $CAR_{it} = a + b_1UEM_{it} + b_2UENM_{it} + b_3MB_{it} + b_4B_{it} + b_5MV_{it} + e_{it;}$ b_1 = information content of all acquiring firms in the sample (1,718); b_2 = information content of all non-merger firms in the sample (1,500); b_3 = control variable for growth and persistence; b_4 = control variable systematic risk; b_5 = control variable firm size; a = significant at .01 level; study period = 2009-2012.

to assess this, a comparison must be made of the relative information content of unexpected earnings to share prices in a cross sectional analysis of all 1,718 acquiring firms involved in merger and acquisition activities for the study period 2009-2012 to the same firms in periods which they are not undergoing M&A activities (2004-2007). These results are then assessed against the relative information content of unexpected earnings to share prices in a cross sectional analysis of all 1,500 firms not involved in merger and acquisition activities for the study period 2009-2012 compared to the same firms in a similar base period (2004-2007). Results are then compared to help determine if time is a factor in determining the effect of stock price changes, thus overcoming the criticism of prior studies by Williams (2010), and Ismail et al. (2011). The following regression model is used:

$$CAR_{it} = a + b_1D_1UE_{it} + b_2D_2UE_{it} + b_3MB_{it} + b_4B_{it} + b_5MV_{it} + e_{it} \quad (4)$$

Where: CAR_{it} = Cumulative abnormal return firm i, time
t a = Intercept term
D_1UE_{it} = Dummy variable for unexpected earnings for firm i, time t, for all merger firms in sample where 1= 2009-2012, 0= 2004-2007
D_2UE_{it} = Dummy variable for unexpected earnings for firm i, time t, for all non-merger firms in sample where 1= 2009-2012, 0= 2004-2007
MB_{it} = Market to book value of equity as proxy for growth and persistence
B_{it} = Market model slope coefficient as proxy for systematic risk
MV_{it} = Market value of equity as proxy for firm size
e_{it} = error term for firm i, time t.

RESULTS

Hypothesis one results

Results for Hypothesis one are indicated in Table 4. Findings indicate that when assessing the impact of mergers and acquisitions from the acquiring firm's perspective for the time period 2009-2012, there tends to be a significant negative impact on stock prices of the acquiring firms, quite possibly as a result of associated high acquisition costs as posited by Hu (2009; Yen and Andre, 2010). Firms not engaged in merger or acquisition activities during the same period tend to reflect a significant positive impact on stock prices. This finding runs contra to extant research (Altunbas and Albanes, 2004; Girma, 2008; Hu, 2009; Wong et al., 2009), that indicates minimal to positive security price impact of acquiring firms. Hypothesis one, which suggests no difference between the two sample groups must, therefore, be rejected.

In addition, whenever a set of multiple regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIP) was utilized. Values of VIP exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 1, a VIP of 1.2 was observed, thus indicating the non-presence of significant multicollinearity.

Table 4 reflects the results of the assessment of information content through the running of the regression formula above. For the total sample of firms engaged in mergers and acquisitions (b_1 variable) the Earnings Response Coefficient is negative (-0.04) and significant at the .01 level. For the total sample of firms not engaged in merger and acquisition activities (b_2 variable) the Earnings Response Coefficient is positive (0.07) and significant at the .01 level. This indicates that firms undergoing merger activities during the study period have a negative effect on stock prices while those not in the process of merger activities have a positive effect on stock prices. Other variables assessed in the model are not significant at traditional levels.

Hypothesis two results

As indicated in Table 5, the response coefficients b_1 through b_8 represent unexpected earnings for all acquiring firms engaged in M&A activities during the study period 2009-2012, broken down by industry. Only firms falling into the oil/gas and banking and financial services industries tend to have positive impact on se-curity prices at conventional significance levels. All other industries reflect a negative security price association at conventional significance levels. This result helps to clarify previous studies that reflect positive security price association while other studies reflect negative security price association. Clearly, when an industry analysis is conducted it is evident that some industries on whole reflect a move in one direction while other industries reflect a move in an opposite direction. These results could be as a result of the size of the firms in the industries or the duration of the firms in the industries

Table 5. Stock price effect of merger firms by industry, test of hypothesis 2.

a	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	b_9	b_{10}	b_{11}	Adj. R^2
.05	-.05	.10	-.08	-.15	-.11	.09	-.13	-.07	.08	.02	.15	.201
(.42)	(2.36)[a]	(2.41)[a]	(1.97)[b]	(1.59)[c]	(1.46)[c]	(2.40)[a]	(2.51)[a]	(1.96)[b]	(.35)	(.51)	(.24)	

Model: $CAR_{it} = a + b_1UEI_{it} + b_2\ UEG_{it} + b_3UEU_{it} + b_4UER_{it} + b_5UET_{it} + b_6UEB_{it} + b_7UEH_{it} + b_7UEO_{it} + b_8MB_{\ it} + b_9Bit + b_{\ 10}MV_{\ it} + e_{it;}$ b_1 = information content for industrial firms; b_2 = information content for oil/gas firms; b_3 = information content for utility firms; b_4 = information content for real estate firms; b_5 = information content for transportation firms; b_6 = information content for banking financial services firms; b_7 = information content for healthcare firms; b_8 = information content for all other firms; b_9 = control variable for growth and persistence; b_{10} = control variable systematic risk; b_{11} = control variable firm size; a = significant at .01 level; b = significant at .05 level; c= significant at .10 level; study period = 2009-2012.

Table 6. Stock price effect of merger and non-merger firms compared to a base study period, test of hypothesis 3.

a	b1	b2	b3	b4	b5	Adj. R2
.05	-.03	.07	.11	.04	.22	.223
(.60)	(2.45)[a]	(.59)	(.36)	(.49)	(.21)	

Model: $CAR_{it} = a + b_1D_1UE_{it} + b_2D_2UE_{it} + b_3MB_{it} + b_4B_{it} + b_5MV_{it} + e_{it;}$ b1 =dummy variable for information content of all acquiring firms in the sample (1,718); b2 = dummy variable for information content of all non-merger firms in the sample (1,500); b3 = control variable for growth and persistence; b4 = control variable systematic risk; b5 = control variable firm size; a = significant at .01 level; study period = 2009-2012 if $D_1/D_{\ 2}$ =1, 2004-2007 if $D_{\ 1}/D_2$ = 0.

which they comprise, as posited by Ismail et al. (2011). Hypothesis two, which suggests that the security price effect of acquiring firms engaged in M&A activities are not significantly different across industry must, therefore, be rejected. The Variance Inflation Factor (VIP) was again utilized to assess multicollinearity in the regression model. In the test of hypothesis 2, a VIP of 1.8 was observed, thus indicating the non-presence of significant multicollinearity. Table 5 reflects the results of the assessment of information content by industry through the running of the regression formula above. Only the oil and gas industry (b_2 variable) (.10) and the banking and financial services industry (b_6 variable) (.09) reflect an increase in stock prices while undergoing merger and acquisition activities during the study period. These results are significant at the .01 level. All other industries reflect a decrease in stock prices while undergoing merger and acquisition activities during the study period. Other variables assessed in the model are not significant at traditional levels.

Hypothesis three results

As indicated in Table 6, the response coefficient b_1 is a dummy variable that represents the effect of the unexpected earnings for all acquiring firms engaged in M&A activities during the study period of 2009-2012 when compared to a base period outside the time frame of the M&A activities represented by years 2004-2007. Coefficient b_2 represents a dummy variable indicating the effect of the unexpected earnings for all firms not engaged in M&A activities during the study period of 2009-2012 when compared to the same base period of 2004-2007. The b_1 variable is significantly negative, while the b_2 variable is positive but not significant at conventional levels. These results indicate that when varying time periods are assessed, acquiring firms engaged in M&A activities possess significantly negative security price effects while engaged in those activities relative to periods when they are not undergoing M&A activities. With respect to firms not undergoing M&A activities, time period differences are not significantly different with regards to impact on security prices. Hypothesis three, which suggests that the security price effect of acquiring firms engaged in M&A activities are not significantly different from those of firms not engaged in M&A activities across time, must therefore, be rejected.

The Variance Inflation Factor (VIP) was again utilized to assess multicollinearity in the regression model. In the test of hypothesis 3, a VIP of 1.9 was observed, thus indicating the non-presence of significant multicollinearity. Table 6 reflects the results of the assessment of information content of comparing firms engaged in merger and acquisition activities for the study period 2009-2012 (b_1 variable) compared to firms not engaged in merger and acquisition activities during a base period of 2004-2007 ($b_{\ 2}$ variable) through the running of the regression formula above. For the total sample of firms engaged in mergers and acquisitions (b_1 variable) the Earnings

Response Coefficient is negative (-0.03) and significant at the .01 level. For the total sample of firms not engaged in merger and acquisition activities during the base period (b_2 variable) the Earnings Response Coefficient is positive (0.07) and significant at the .01 level. This indicates that the timing element for non-merger firms is inconsequential in associating with firms undergoing merger activities. Other variables assessed in the model are not significant at traditional levels.

Conclusion

The first finding indicates that when acquiring firms, totaling 1,718, are compared to firms not engaged in M&A activities, totaling 1,500, during the study period 2009-2012, the acquiring firms' stock price effect is significantly negative, while the non-M&A firms' stock price effect is significantly positive. Chatterjee (2011) finds that direct costs of the acquisition, such as the purchase price itself, along with indirect costs such as legal, accounting and other costs, may be responsible for some of the downward pressure on the stock price subsequent to the acquisition.

When the acquiring firms are evaluated by industry membership, findings suggest that firms in all industries evaluated exert a significantly negative effect on stock prices, with the exception of the oil and gas industry along with the banking and financial services industry. These two industries were found to have a significantly positive effect on stock prices. This could be as a result of firm size or duration in the industry as posited by Ismail et al. (2011).

In order to assess if time periods were a factor in sample differences, samples from both the acquiring firms and non-M&A firms for the study period 2009-2012 were compared against a base period when neither was undergoing merger or acquisition activities, 2004-2007. Findings suggest that for the non-merger sample, there is no significant difference between the time periods. However, for the acquiring firms' sample, the 2009-2012 period reflects significantly negative stock price effects as compared to the 2004-2007 base period. This could be as a result of the post-recession hype in acquisitions and loose Fed policies as posited by *Forbes*.

These findings are important because they provide investors, managers and others with additional insight into the effects of mergers and acquisitions, from the acquiring firm's perspective, on security prices. In particular are the results of the analysis of these firms by industry. This study indicates that firms in certain industries may be more positively impacted, from a stock price perspective, than firms in other industries. In other words, perhaps through the industry's sheer size of its firms or the length in the firms in those industries, some industries are able to overcome handicaps that place a drag on the security prices of other industries and their associated firms.

Conflict of Interests

The author has not declared any conflict of interests

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