Is Merger a Good Choice? Identifying Factors that Influence Decisions

Soumen N. Ghosh
Tennessee State University, USA

Omobitan Omobolaji
Tennessee State University, USA

Abstract
Mergers and Acquisition have become a routine affair in the Corporate World. The most recent announcement by Microsoft and its acquisition of Activision Blizzard has been a case in Point. By looking at the recent mergers (past 10 years) and selecting a sample (66) of publicly traded companies we tried to identify the key determinants of such M&A decisions. We posit that the decision to Merge or Acquire can be captured in a simple Binary Logistic model. Our results show that Market Cap; Earnings per Share and the domicile of the Corporation (US or outside) are key determining factors for the decision to merge or acquire. Policy implications suggest that corporations review all the financials, particularly the earnings per share and the market caps very carefully before taking the final decision.

Keywords: Merger and Acquisition; Publicly traded companies; Logistic Regression

JEL codes: G34; L00; L10, L13

1.1 INTRODUCTION

1. Introduction
Just as we are about to submit this article the news about Microsoft’s acquisition of Activision Blizzard for an unprecedented amount of 68 Billion dollars storms the business world. In recent years, a few companies are rapidly growing, becoming more efficient, effective, flexible, adaptive, and more profitable which helps them to be well positioned in the market place, and others are languishing or withering away. Those companies who realize that without these aforementioned qualities, it will be impossible to be highly competitive in the market tend to get bigger and more profitable. And in the process either merge with companies that have similar scope or acquire their smaller counterparts to garner bigger market share. Mergers and acquisitions have, therefore, become increasingly used by firms to strengthen and maintain their market share and position. This has been perceived as a relatively fast and efficient way to reach new markets however, the success is not guaranteed (Schuler and Jackson, 2001). Some literatures have also mentioned that majority of industries do not see themselves competing effectively globally without growing and expanding through deals that lead to mergers and acquisitions (Lucenko, 2000, Galpin and Hemdon, 1999;
Deogun and Scannell, 1998, Deogun and Scannell, 2001). A relatively new paradigm in the area of Merger and Acquisition has emerged and known as Special Purpose Acquisition Company (SPACs) also known as a Blank Check Company that can be defined as a company who does not operate commercially but established solely for the purpose of raising capital through an Initial Public Offering (IPO) in order to acquire an already existing company or merger purpose which typically takes two years to complete an acquisition, or they must return their funds to investors. It is important to note that at the time of an Initial Public Offering (IPO), a Special Purpose Acquisition Company (SPAC) has no business operation in existence nor particular target company to acquire. Of recent, SPACs became increasingly popular, engaging popular underwriters and investors such as Goldman Sachs, Credit Suisse, and Deutsche Bank, as well as retired or semi-retired senior executives seeking shorter-term business opportunities (Young, 2020).

Statistics have shown that since 2003, SPACs have raised more than $31 billion in U.S. markets (Dimitrova, 2017) and more than 50 SPACs have been established in the U.S as of August 2020 raising approximately $21.5 billion (Young, 2020).

A merger or an acquisition of a company can however be defined as the blend of two or more companies into a new company or corporation. The major difference between a merger and acquisition depends on how the combination of the companies is carried out. A merger is a mutual collaboration between two companies in becoming one, while acquisition is the takeover of a weaker firm by a stronger one. Both firms gain the advantage of taxation, synergy, financial benefit, and incremental competitiveness, however, some adverse effects must be considered such as organizational culture collision, an increase in employee turnover, inheriting debt, and many others (Moskovicz, 2018). Mergers and acquisitions are commonly done to expand a company’s reach, expand into new segments, or gain market share to increase shareholder value. However, an acquisition may happen in order to achieve economies of scale, diversification, greater market share, increased synergy, cost reductions, or new niche offerings.

1.1 Data description

SPACs are established by sponsors ad or investors who are knowledgeable or have expertise in a particular business with the aim of going after deals in that particular area. When a SPAC is created, the founders may already have one acquisition target however will not identify the target to avoid extensive disclosures during IPO process. Hence, the IPO investors have zero knowledge of what company they would be investing in (Young, 2020).

Funds raised by a SPAC during an IPO is put in a trust account that bears interest and these funds cannot be disbursed unless to complete an acquisition or in other situations, a refund to investors if SPAC gets liquidated. In addition, a SPAC has 2 years to either complete a deal or be liquidated. In some instances, some earned interest gotten from the trust can be utilized by a SPAC as its working capital and after an acquisition is completed, a SPAC is added on one of the major stock exchanges (Young, 2020).

SPACs have a few advantages because selling to a SPAC can be an attractive option for the owners of a smaller company, which are often private equity funds. First, selling to a SPAC can add up to 20% to the sale price compared to a typical private equity deal. Being acquired by a SPAC can also offer business owners what is essentially a faster IPO process under the guidance of an experienced partner, with less worry about the swings in broader market sentiment (Young, 2020). Another key benefit of merging with a SPAC is Public Listing. They offer a relatively easy path to a public listing, without market or pricing risks. With public equity, companies can offer
more attractive compensation packages to key employees and a valuable non-cash currency for financing acquisitions.

On the other hand, like any initial public offering, SPACs are susceptible to execution risk if the market isn't as receptive as expected. Likewise, investors can reject any proposed business combination, adding another source of risk that a standard IPO doesn't have to worry about.

1.2 Difference between a SPAC Acquisition and a Traditional Merger & Acquisition

A SPAC acquisition is almost the same as the traditional merger and/or acquisition based on the acquisition transaction. In a SPAC acquisition transaction, a shareholder approval is required for the acquisition who will then file a proxy statement with the proposals seeking shareholder approval. In the proxy statement, a detailed description of the proposed acquisition as well as governance is important. The proxy statement will also have the financial information of the target company, which will be comprised of the company's historical financial statements and pro forma financial statements indicating the effect of the acquisition (Bradley, 2021).

If the shareholders in SPAC approve of the acquisition and there is a regulatory matter for clearance, then the acquisition process will proceed the way a traditional merger or acquisition would. This is where there is an overlap between the SPAC Acquisition and the traditional merger or acquisition. However, at this stage, the SPAC acquisition transaction is different from the traditional merger and acquisition transaction. This is because after the closing, the target business becomes a publicly traded company by virtue of the combination with the SPAC. This means that the combined business must have the appropriate management, governance, and financial reporting processes in place to operate as a public company (Bradley, 2021).

1.3 Purpose

The purpose of this study, however, aims to analyze the probability of a merger and acquisition based on some important financial information of involved companies such as the market cap, total assets and total liabilities which are indication of the size of the company. We focus, in this paper, the role that the above mentioned factors play in determining the probability of larger companies merging or acquiring smaller companies or vice versa using their several financial information as our predictor variables.

2. Literature Review

a) Reasons why companies merge

According to Schuler and Jackson (2001), companies merge for several reasons however, most frequent reasons are:

- Dominating the market through horizontal merging
- Control of channels through vertical merging
- Risk diversification, cost reduction, and synergies through hybrid merging
- Increased growth for world-class leadership and global reach
- Market and competition survival
- Leverage and flexibility
- Potential adoption of disruptive technologies
- Cash acquisition, tax deferment and excess debt capacity
- Acquisition of larger assets to facilitate borrowing
- Gains from finance and power
- Talent, Knowledge, and technology.

b) Reasons for failure

On the other hand, M&A’s fail for several reasons, listed below:

- Unrealistic Expectations
- Poorly planned, hastily constructed, and unskilled M&A execution
- Missing talent during the process
- Unchecked culture clashes between two entities
- Failed transition management
- Driving forces behind M&A is power and politics rather than productive objectives
- Drain financially
- Defensive motivation
- Underestimation of costs associated with transitioning
- Executives are not focused on the core business (Charman, 1999, Sparks, 1999, Doz and Hamel, 1998).

2.2. SPACs and M&A’s

The studies that have been conducted on SPACs is quite limited however current literature covers various aspects such as the institutional structure, major stakeholders' incentives and some factors that determine a successful merging executed by SPACs. Some studies such as Schultz (1993), Chemmanur and Fulghieri (1997) and Garner and Marshal (2007) covers the institutional structure and design of SPACs.

According to Schultz (1993) who modelled the reasons why companies utilize units which are bundles of common stock and warrants during the initial public offering and the reason for committing to issue more stocks at a future date at the exercise price of the warrant. His study found out that the major stumbling block are their small sizes, low earnings, and low asset value. Hence, he found out that the units proffer solutions for the cost related problem arising from the free cash flow given to managers at the time of IPO. Chemmanur and Fulghieri (1997) stated that unit IPOs proffer solution to the information asymmetry problems and allows companies who are considered otherwise risky by outsiders to showcase their true value. Garner and Marshal (2007)
on the other hand tested the outcome of Schultz (1993) and Chemmanur and Fulghieri (1997) research and they found that companies who are risky assign a relatively high proportion of their firm’s value to the warrants at the time of the IPO in order to increase underpricing.

Jog and Sun (2007) and Thompson (2011) studied the incentives of the three major stakeholders of SPACs: founders, underwriters, and investors. This paper reported that managers of successful SPACs earned on average 19 times their initial investment. Hale (2007) and Thompson (2011) report that, on average, underwriters receive compensation of around 7% of gross proceeds obtained at the offering. Lewellen (2009) and Thompson (2011) report that part of the underwriters’ compensation is deferred until consummation of the merger while for investors, SPACs are considered a risk-free note and a call option where the maturity of the note is typically two years.

Ignatyeva et al. (2012) report performance of 2.5% after the announcement of the merger and attribute it to returns on the risk-free note rather than a signal of the potential quality of the SPAC. Datar et al. (2012), states that the operational performance of SPAC acquired firms is significantly inferior to their industry peers and to contemporaneous IPO firms. They report that after the merger, SPAC acquired companies that are more highly leveraged, smaller in size, have lower investment levels and lower growth opportunities than firms that conduct a conventional IPO. While comparing SPACs performance with a sample of similar IPOs, they report negative returns in the long term for both groups and underperformance of SPACs relative to the peer IPO’s. In general, they recommend that investors stay away from SPACs.

Rodrigues and Stegemoller (2012) report that SPACs do not exhibit IPO underpricing, with initial returns near zero and gross spreads similar to traditional IPOs. Howe and O’Brien (2012) indicate that neither managerial nor institutional ownership is associated with the performance of SPAC securities.

Jenkinson and Sousa (2009) study the performance and characteristics of SPACs that successfully conducted a merger and report that half of the deals were value destroyers. Tran (2010) using a sample from 2003 to 2008, reports that SPACs are less likely than other comparable IPOs to execute merger combinations and that SPACs tend to focus on acquisitions of private companies as their primary targets. He also finds that merger success is positively related to the involvement of institutions that want to invest in SPACs - both pre-merger and post-merger. Lakicevic and Vulanovic (2011) examine the major merger determinants and find a positive impact on SPACs’ mergers by underwriters who specialized in the SPAC market, such as EarlyBirdCapital. They also find that a merger is more likely if a larger proportion of the money raised in the IPO is deposited in a trust fund.

3. Data and Methodology

The data for this study comprises of a list of companies that have merged or been acquired over the last ten years. Major information extracted on these companies include the company who acquired or merged with what company and the year the merger or acquisition happened. This information was represented as a binary or a dummy variable, coded as 1 or 0 where the company who acquired the other is represented as 1 while the company who got acquired is represented as 0. Other financial information extracted includes each company’s market cap (MC), debt-equity ratio (DE), Earnings Before Interest, Tax, Depreciation, and Amortization (EBITDA), Return on Equity (ROE), Return on Assets (ROA), Earnings per share (EPS), Current Ratio (CR), Total Assets (TA) and Total Liabilities (TL). In addition, these companies were categorized as a US and
Non-US companies, where US companies were represented as a 1 dummy and non-US as a dummy of 0.

A list of the largest merger and acquisitions over the last ten years was extracted from Wikipedia while their respective financial information was extracted from several sources such as Mergent online, Macro Trends and google search. We have a sample size of 66 companies; the extracted data was maintained in Microsoft Excel and was analyzed for Binary Logistic Regression using SPSS statistical software. We checked for multicollinearity and removed any variable that is highly correlated with any other variable before running the regression model

4. Results and Discussions

Table 1 below represents the descriptive statistics of the variables used in this study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy</td>
<td>66</td>
<td>0</td>
<td>1</td>
<td>.50</td>
<td>.504</td>
</tr>
<tr>
<td>MC</td>
<td>66</td>
<td>0</td>
<td>482</td>
<td>81.79</td>
<td>92.600</td>
</tr>
<tr>
<td>DE</td>
<td>66</td>
<td>-8</td>
<td>9</td>
<td>1.07</td>
<td>1.811</td>
</tr>
<tr>
<td>EBITDA</td>
<td>66</td>
<td>-89</td>
<td>65</td>
<td>22.15</td>
<td>22.994</td>
</tr>
<tr>
<td>ROE</td>
<td>66</td>
<td>-134</td>
<td>62</td>
<td>5.74</td>
<td>34.995</td>
</tr>
<tr>
<td>ROA</td>
<td>66</td>
<td>-60</td>
<td>35</td>
<td>3.96</td>
<td>12.916</td>
</tr>
<tr>
<td>EPS</td>
<td>66</td>
<td>-16</td>
<td>18</td>
<td>1.67</td>
<td>4.471</td>
</tr>
<tr>
<td>CR</td>
<td>66</td>
<td>0</td>
<td>9</td>
<td>1.72</td>
<td>1.300</td>
</tr>
<tr>
<td>TA</td>
<td>66</td>
<td>1442</td>
<td>671722</td>
<td>104671.39</td>
<td>134073.223</td>
</tr>
<tr>
<td>TL</td>
<td>66</td>
<td>781</td>
<td>732896</td>
<td>78449.80</td>
<td>122311.672</td>
</tr>
<tr>
<td>US</td>
<td>66</td>
<td>0</td>
<td>1</td>
<td>.91</td>
<td>.290</td>
</tr>
</tbody>
</table>

Table 2 below represents the correlation Test (testing for the presence of multicollinearity) for all the independent variables

<table>
<thead>
<tr>
<th>Control Variables</th>
<th>MC</th>
<th>DE</th>
<th>EBITDA</th>
<th>ROE</th>
<th>ROA</th>
<th>EPS</th>
<th>CR</th>
<th>TA</th>
<th>TL</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td>1.000</td>
<td>-.152</td>
<td>.136</td>
<td>.183</td>
<td>.083</td>
<td>.198</td>
<td>-.018</td>
<td>.392</td>
<td>.280</td>
<td>-.023</td>
</tr>
<tr>
<td>Significance 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>0</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>DE</td>
<td>-.152</td>
<td>1.000</td>
<td>-.133</td>
<td>.033</td>
<td>-.091</td>
<td>-.177</td>
<td>-.253</td>
<td>-.076</td>
<td>-.057</td>
<td>-.064</td>
</tr>
<tr>
<td>Significance 1</td>
<td>.226</td>
<td></td>
<td>.289</td>
<td>.792</td>
<td>.470</td>
<td>.159</td>
<td>.042</td>
<td>.546</td>
<td>.652</td>
<td>.611</td>
</tr>
<tr>
<td>df</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>EBITDA</td>
<td>.136</td>
<td>-.133</td>
<td>1.000</td>
<td>.627</td>
<td>.734</td>
<td>.461</td>
<td>-.264</td>
<td>-.170</td>
<td>-.525</td>
<td>.022</td>
</tr>
<tr>
<td>Significance 1</td>
<td>.279</td>
<td>.289</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.033</td>
<td>.177</td>
<td>.000</td>
<td>.859</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>63</td>
</tr>
</tbody>
</table>

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The correlation table above shows that there is a correlation between ROE and ROA with a value of 0.748 hence ROE variable was dropped from the predictor variables to eliminate the effect of variable autocorrelation in our model.

The omnibus tests of the model coefficients table above indicate the overall model significance. With the chi-square test being statistically significant, it indicates that our overall model is statistically significant with a value of 0.000.

Table 4 below represents the Model summary.
This model summary is usually treated as the Pseudo R² treated as rough analogies of R² in least square regression. Stated loosely, we can say that our model explains about 62.7% of our dependent variable. Furthermore, the Hosmer and Lemeshow test (Chi-square: 12.317 with 7 degrees of freedom) indicates non-significance with a value of 0.091. However, a non-significant value is an indicator of a good model fit for this test. Hence, this value indicates a good model fit. Table 5 below is the classification table and shows the observed versus predicted and shows percent correctly predicted.

### Table 5. Classification Table for the Predictive model

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percent correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy 0</td>
<td>26</td>
<td>78.8</td>
</tr>
<tr>
<td>Dummy 1</td>
<td>27</td>
<td>81.8</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>80.3</td>
</tr>
</tbody>
</table>

This first row of the table represents the specificity of the model while the second-row percentage represents the sensitivity of the model. However, the overall classification accuracy is 80.3%.

Table 6 below represents the regression coefficients, Standard Errors and Wald test statistics.

### Table 6. Variables in the Equation

<table>
<thead>
<tr>
<th>Step 1a</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC</td>
<td>.048</td>
<td>.016</td>
<td>9.448**</td>
<td>1</td>
<td>.002</td>
<td>1.050</td>
</tr>
<tr>
<td>DE</td>
<td>.164</td>
<td>.194</td>
<td>.718</td>
<td>1</td>
<td>.397</td>
<td>1.178</td>
</tr>
<tr>
<td>EBITDA</td>
<td>.015</td>
<td>.028</td>
<td>.305</td>
<td>1</td>
<td>.580</td>
<td>1.016</td>
</tr>
<tr>
<td>ROA</td>
<td>.032</td>
<td>.061</td>
<td>.280</td>
<td>1</td>
<td>.597</td>
<td>1.033</td>
</tr>
<tr>
<td>EPS</td>
<td>-.236</td>
<td>.138</td>
<td>2.909*</td>
<td>1</td>
<td>.088</td>
<td>.790</td>
</tr>
<tr>
<td>CR</td>
<td>-.167</td>
<td>.350</td>
<td>.227</td>
<td>1</td>
<td>.634</td>
<td>.846</td>
</tr>
<tr>
<td>TA</td>
<td>.000</td>
<td>.000</td>
<td>1.545</td>
<td>1</td>
<td>.214</td>
<td>1.000</td>
</tr>
<tr>
<td>TL</td>
<td>.000</td>
<td>.000</td>
<td>.408</td>
<td>1</td>
<td>.523</td>
<td>1.000</td>
</tr>
<tr>
<td>US</td>
<td>4.485</td>
<td>2.155</td>
<td>4.333**</td>
<td>1</td>
<td>.037</td>
<td>88.693</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.499</td>
<td>3.037</td>
<td>6.097**</td>
<td>1</td>
<td>.014</td>
<td>.001</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 1: MC, DE, EBITDA, ROA, EPS, CR, TA, TL, US.
b. ** designates that the variable is statistically significant at 5% or better
c. * designate that the variable is statistically significant at 10% or better

The table above represents the regression coefficients, standard errors, Walds test, significance levels and the odds ratio (OR) which is represented as the Exp(B) of the model. Generally, to interpret the Odds Ratio (OR), an OR > 1 indicates that as scores on the predictor
increase, there is an increasing probability of the case falling into the target group on the dependent variable. An odds ratio (OR) < 1 can be interpreted as decreasing probability of being in the target group as scores on the predictor increase. If the OR = 1, then this indicates no change in the probability of being in the target group as scores on the predictor changes. Hence, for this test we use ODDS instead of probabilities.

From Table 6 above, Market cap is a positive and significant (b = 0.048, s.e. = 0.016, p = 0.002) predictor of the probability of merger and acquisition, with the OR indicating that for every one unit increase on this predictor, the odds of merger and acquisition change by a factor of 1.050 (meaning the odds are increasing).

Earnings per share (EPS) is a negative and significant (b = -0.236, s.e. = 0.138, p = 0.088) predictor of the probability of merger and acquisition. The OR indicates that for every one unit increment on the predictor, the odds of merger and acquisition decrease by a factor of 0.790 (meaning that the odds are decreasing).

US variable (whether the company is a US company) is also a positive and significant (b = 4.485, s.e. = 2.155, p = 0.037) predictor of the probability of merger and acquisition, with the OR indicating that for every one unit increase on this predictor, the odds of merger and acquisition change by a factor of 88.693 (meaning the odds are increasing).

Market cap is a positive predictor of merger and acquisition, and this is logical in the sense that market share represents the market share of one company relative to another which also measures what the company is worth in the open market. Hence, a larger market cap indicates a higher probability of merging or acquiring another company with a smaller market cap. Earnings per share on the other hand has a negative relationship with merger and acquisition, which means as Earnings per share increases, the probability of merger and acquisition reduces. This can be explained in the sense that as the company’s profitability increases the probability of merger and acquisition reduces. This is logical because as the company grows with increased profitability, the likelihood of wanting to be acquired or merged with another company reduces since the company is already doing well on its own.

5. Conclusion

The result of our binary logistic regression model indicates that three of our predictor variables (market cap, Earnings per share and company being a US company) are statistically significant in predicting the probability of merger and acquisition where market cap and US company were found to have a positive relationship, Earnings per share was found to have a negative relationship. Contrary to our original ideas, we could not ascertain that Total Asset and Total liabilities are significant in predicting merger and acquisitions.

5.1 Recommendations

This paper’s major research question was to determine the probability of merger and acquisition based on some important financial information of companies such as its total assets, total liabilities, Earnings per share, market cap, debt-equity ratio etc. We hypothesized that bigger companies tend to acquire smaller companies. We used a dummy variable 1 and 0 to represent this variable of bigger companies acquiring smaller companies and we ran the binary logistics model in both ways (1,0 and 0,1). The result of our regression models was both the same with variables such as market cap, Earnings per share and US companies all significant in both scenarios.
Our major recommendations would therefore be that for any merger and acquisition plans, a critical analysis of the company’s financial information that wants to merge or be acquired must be carried out in order not to inherit the company’s accumulated debt or poor functionality. In addition, merger and acquisition should be done between or among companies with similar businesses else the merging will not be successful.

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