

Analyzing the Interaction and Consequences of International Financial Merger & Acquisitions on Nonresident Alien Rates for Higher Education Leadership in the United States

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The study used this data to determine the effect between time and merger status upon the DVs of revenue, fall enrollment rates, and nonresident alien rates beginning the AY of the Financial M&A event and 5 years after the event. The results of the study do indicate that nonresident alien rates did grow favorably over the five years for both Financial M&A HEIs and non-merging HEIs but that the interaction effect between time and merger status upon nonresident alien rates was not significant. This suggests that other factors caused growth in nonresident alien rates apart from M&A activity. Researchers have noted that globalization has become an increasing factor in higher education and that there exists increasing competition for nonresident alien students. Therefore, the most effective means of improving nonresident alien rates seems to lie somewhere other than Financial M&A initiatives.

Keywords: merger, acquisitions, higher education institutions

INTRODUCTION

Colleges and universities are merging at an unprecedented rate, even though mergers and acquisitions in all industrial sectors experience a 45% – 75% failure rate (Ahammad et al., 2017; Azziz, Hentschke, Jacobs, Jacobs, & Ladd, 2017; Risberg & Meglio, 2012). Yet despite empirical findings that have exhibited these high levels of failure, the application of merger and acquisition initiatives for all business sectors continues to accelerate (Ahammad et al., 2017; Azziz et al., 2017; Risberg & Meglio, 2012). Like leaders in other industrial sectors, higher-education administrators pursue merger and acquisition (M&A) even though they lack archival, empirical indicators that M&A activities can improve specific performance metric goals for higher education institutions (HEIs) (Williams, 2017).

THEORETICAL FOUNDATION

The selection of a theoretical framework by the study serves to inform the reader regarding the orientation or “lens” through which the study examines the data (White, 2014). Curtis et al. (2016) state that every correlational study requires a theoretical framework that explains why DVs might be related to

each other. Therefore, after a review of the different types of theoretical frameworks used by various studies in the literature, this study selected the Event Study theoretical framework. The Event Study theoretical framework attempts to discover interaction effects between conditions attributable to the intervention by seeking longitudinal differences between conditions for dependent variables (Russell, 2017a). This study sought to discover if and to what extent, if any, was there an interaction effect between time and merger status upon a specified DV for Title IV HEIs. Therefore, this study chose the Event Study theoretical framework because it best suited the purpose and objectives of this study.

The Event Study theoretical framework attempts to discover differences between conditions attributable to the event or intervention under study by examining differences in DVs from before and after the event while controlling for extraneous variables (Russell, 2017a). James Dolley first developed the Event Study theoretical framework to examine the impact an announcement of a stock split made on the price of a stock (Sorescu et al., 2017). Dolley hypothesized that the event in question, the announcement of a stock split, would not affect stock prices and that the stock would not experience abnormal variations in price due to the announcement (Sorescu et al., 2017). Thus, Dolley developed the Event Study theoretical framework as a methodology so that he could analyze any differences between conditions in the price of the stock that he could attribute to the announcement event (Sorescu et al., 2017).

PURPOSE OF THE STUDY

The purpose of this quantitative, causal-comparative study was to examine if or to what extent there were interaction effects between time and merger status upon revenues, fall enrollment rates, and nonresident alien rates for Title IV HEIs located in the United States (Elbourn et al., 2017; Ober et al., 2018). This study designates the following performance metrics as the study DVs: nonresident alien ratios and utilizes the following definitions for these terms: *Nonresident alien rate*. The number of nonresident aliens who enroll in an HEI for credit during the official fall reporting date or October 15 (Delgado-Márquez, Hurtado-Torres, & Bondar, 2011; OECD, 2017). IPEDS defines nonresident aliens as people who maintain their residence in the United States only temporarily and who do not possess the right to reside in the United States indefinitely (U.S. Department of Education, 2018).

RESEARCH QUESTION AND HYPOTHESES

This study selected the DVs for the research study because WCU ranking organizations use these metrics to determine international comparative rankings of HEIs (Cantwell & Taylor, 2013; Docampo et al., 2015). The study has delimited the following DVs for examination: nonresident alien rates (Andreescu et al., 2015; Ripoll-Soler, 2014). The study independent variables (IV) of merger status (the between-subjects factor) and time, expressed as Period 1 and Period 2 (the within-subjects factor) together with the DVs were chosen to examine the extent of any statistically significant interaction effect between time and merger status upon nonresident alien rates.

The study performed a separate two-way mixed ANOVA analysis of interaction effects for each of the three DVs (McWilliams & Siegel, 1997; Rani, Yadav, & Jain, 2015; Russell, 2017a). The following research question and hypotheses guided this research study:

RQ₁: *To what extent, if any, is there an interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs?*

H₁₀: *There is not a statistically significant interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs.*

H₁: *There is a statistically significant interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs.*

The research question and hypothesis sought to discover statistically significant interaction effects, if any, between time and merger status and nonresident alien rates for Title IV HEIs.

RESEARCH DESIGN

In quantitative methodology researchers have established two major distinctions for quantitative research designs (Curtis et al., 2016). Curtis et al. (2016) define these distinctions as the distinction between IVs and DVs; and the distinction between experimental and non-experimental methods. Experimental methods utilize manipulation of variables while non-experimental methods measure two or more variables from the same unit of analysis (Curtis et al., 2016).

This study used a non-experimental design because the study was incapable of manipulating the IVs and DVs to answer the research question (Curtis et al., 2016). This study elected to utilize a causal-comparative (ex post facto) research design for several different reasons. First, the study chose the causal-comparative design because researchers indicated a lack of objective studies which show the interaction effects between merger status and time upon specific DVs. This study also adopted this design due to the continuous ratio scale nature of the IPEDS data. A third deciding factor for this study to choose the causal-comparative (ex post facto) design came about because of the nature of the study. To manipulate any of the variables a researcher would need to initiate M&A activity for two HEIs primarily for research purposes. Since this requires years of planning and the outlay of substantial resources this type of manipulation remains outside the purview of most researchers (Curtis et al., 2016). Researchers use an ex post facto design when they examine historical data with no opportunity for data manipulation. Finally, the base research question should dictate the design (Curtis et al., 2016). Therefore, the purpose of the design was to examine if there were interaction effects between the within-subjects factor and the between-subjects factor (the M&A event) upon the individual DVs over time (the within-subjects factor). The unit of analysis consisted of post-merger HEIs in the United States who self-report continuous, ratio level, institutional data regarding various mandated metrics to the IPEDS database (Fuller, 2011). This design allowed the study to assess the historical effects of an M&A event on specified DVs and determine the significance of changes in the DV 5 years after an M&A event.

RESULTS AND DISCUSSION

The study examined the results by using an alpha of 0.05. The analysis revealed no significance for the main effect of merger status, $F(1, 158) = 0.00, p = .974$. This indicated that both the levels of merger status were similar. The analysis showed significance for the main effect of time, $F(1, 158) = 10.03, p = .002$, indicating significant differences between the values of nonresident alien rates and nonresident alien rates plus 5 years. The analysis did not discover any significance between the time and merger status, $F(1, 158) = 3.28, p = .072$. This result indicates that for all combinations of the time and merger status, the relationship between the outcome and the interaction of merger status was not significantly strengthened or modified.

The results of the analysis for research question RQ₁ show that no significant interaction effect exists between time and merger status upon nonresident alien rates. The study failed to reject the null hypothesis H₁₀.

RQ₁: *To what extent, if any, is there an interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs? No significant interaction effects exist between time and merger status upon nonresident alien rates.*

H₁₀: *There is not a statistically significant interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs. The study failed to reject the null hypothesis.*

H₁: *There is a statistically significant interaction effect between time and merger status upon nonresident alien rates for Title IV HEIs. The study rejects the hypothesis.*

Table 1 presents the ANOVA results.

TABLE 1
MIXED MODEL ANOVA RESULTS FOR NONRESIDENT ALIEN RATES AND
NONRESIDENT ALIEN RATES PLUS 5 YEARS.

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η_p^2
Between-Subjects						
Merger status	1	1935.53	1935.53	0.00	.974	0.00
Residuals	158	282682275.09	1789128.32			
Within-Subjects						
Time	1	322643.50	322643.50	10.03	.002	0.06
Merger status: Time	1	105524.13	105524.13	3.28	.072	0.02
Residuals	158	5084870.87	32182.73			

Post-Hoc

The study used Tukey comparisons of the mean contrasts based on an alpha of 0.05. The study used Tukey comparisons to test the differences in the estimated marginal means for every combination of the between-subject and within-subject effects.

Between Effects

For the 1 category of merger status, the study results found significantly less nonresident alien rates than nonresident alien rates plus 5 years, $t(158) = -3.52, p < .001$. The study found no significant differences for the 0 categories of merger status. Table 2 presents the marginal means contrasts for the mixed model ANOVA.

TABLE 2
MARGINAL MEANS CONTRASTS FOR EACH COMBINATION OF WITHIN-SUBJECT
VARIABLES FOR THE MIXED MODEL ANOVA FOR NONRESIDENT ALIEN
RATES AND NONRESIDENT ALIEN RATES PLUS 5 YEARS

Contrast	Difference	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Merger status 0					
Nonresident alien rates - Nonresident alien rates plus 5 years	-27.19	28.36	158	-0.96	.339
Merger status 1					
Nonresident alien rates - Nonresident alien rates plus 5 years	-99.83	28.36	158	-3.52	< .001

Note. Tukey Comparisons were used to test the differences in estimated marginal means

The results of the analysis for research question RQ₁ showed significance for the main effect of time, and the study did not find significant interaction effects between time and merger status upon study DVs. Therefore, the study failed to reject the null hypothesis H₁₀.

Results for Nonresident Alien Rates. The study results revealed no significance for the main effect of merger status, $F(1, 158) = 0.00, p = .974$. In other words, completion of M&A activities does not innately

impart favorable improvement of nonresident alien rates. The results of the study do indicate that nonresident alien rates did grow favorably over the five years for both M&A HEIs and non-merging HEIs but that the interaction effect between time and merger status upon nonresident alien rates was not significant. This suggests that other factors caused growth in nonresident alien rates apart from M&A activity. Russell (2017a) reports that M&A activities increase tuition and fees by 7% for undergraduate students, which may provide insight as to the reason why nonresident alien rates did not grow as a result of M&A activity. That same study showed that the newly combined HEI experienced an increase in market power.

Many of the M&A HEIs examined in this study consisted of HEIs at the junior college level. A research project should consider an examination of M&A HEIs which only include STEM-oriented HEIs at or above the four-year baccalaureate level to see if the effects of completing M&A activities for larger research universities provide significant interaction effects between time and mergers status upon nonresident-alien rates. Williams (2017) reports that M&A activities have not been effective in raising WCU rankings for the HEI and therefore, may not cause a significant boost in brand recognition in the international arena. The literature indicates that immediate benefits do not present themselves in the short term (Ripoll-Soler (2014). Researchers have noted that globalization has become an increasingly important factor in higher education and that there exists increasing competition for nonresident alien students. Therefore, the most effective means of improving nonresident alien rates seems to lie somewhere other than M&A initiatives.

THEORETICAL IMPLICATIONS

Johnes (2014) stated that a rigorous analysis of merger effects using a control group of similar non-merging HEIs was desired to make objective comparisons. The Event Study theoretical framework provides for this objective comparison and was ideal for supporting a rigorous analysis of merger effects. Because the Event Study theoretical approach allows the researcher to discover if an event interacts with a specific DV in a statistically significant way and assumes that the research will account for confounding factors. This study utilized non-merging comparison HEIs to account for confounding factors, thus meeting the expectation of the Event Study theoretical framework. This accounts for variations in measurements that might accrue to the M&A HEI due to exogenic shocks.

FUTURE IMPLICATIONS

This study only touched on what researchers could study in this area. While the results of the analysis in this study lacked significance except for fall enrollment rates, researchers could replicate this study tailored to specific HEI performance metrics. This way HEI administrators would have access to objective data when conducting strategic planning for their HEIs. Also, researchers interested in achieving HEI WCU status could undertake a variant of this study to research which performance metrics provide the greatest boost to research strength, teaching quality, and international outlook. Upon attaining this data HEI administrator could focus on instituting M&A activity or improving programs to boost those metrics that will provide upward pressure for improvement in WCU rankings.

RECOMMENDATIONS FOR FUTURE PRACTICE

This research recommends that HEI administrators and other stakeholders identify the specific metrics and goals that a proposed M&A initiative is expected to achieve. Then researchers should study the specific metrics that the HEI needs to improve to see if historical support for M&A activity justifies M&A activity to improve those metrics. Once HEI stakeholders possess this information they will have the ability to objectively consider the return on investment and opportunity costs associated with the proposed M&A initiative during the strategic planning process.

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