How can acquirors predict returns from mergers and acquisitions using cultural distance?

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ABSTRACT

Prior research indicates cross-cultural mergers and acquisitions (M&A) often destroy synergy value for acquirors. This quantitative correlational-predictive study created a predictive model of the extent to which a U.S. acquiror's stock-price return in the first year after a foreign M&A is affected by the national cultural distance (NCD) between the acquiror and its foreign target company, consistent with research that posits cultural friction retards PAI. The theoretical framework included a qualitative model of the relationship between NCD, defined by its seminal theory, and the level of M&A success, consistent with the seminal efficient market hypothesis, moderated by post-acquisition integration (PAI) per its seminal theory. The research question asked if, and to what extent, the combined dimensions of NCD predict an acquiror's buy-and-hold abnormal return (Acquiror BHAR) in the first year after cross-cultural M&A. A stratified random sample of U.S. companies acquiring foreign target companies between 2012 and 2021 yielded 200 cases from 37 target company nations. Multiple linear regression (MLR) analysis of the predictive relationship between NCD and first-year Acquiror BHAR showed the combined dimensions effectively predict first-year Acquiror BHAR, $F(4, 195) = 5.375$, $p < .001$, R^2 adj = .081, with a mean return 10.5% worse than the market. The study contributes to the body of knowledge on the effect of NCD on Acquiror BHAR in the intermediate period between the announcement date and years later when PAI is completed. Future research with additional predictor variables is recommended to increase the explanatory power of the MLR model.

Keywords: Post-acquisition integration, mergers and acquisitions, national cultural distance, buy-and-hold abnormal return

INTRODUCTION

Summary

This study developed a predictive model of acquiror financial performance after cross-cultural mergers and acquisitions (M&A) based on the cultural differences between the acquiror and its foreign targeted company. A multiple linear regression (MLR) model was built to quantify the relationship between four dimensions of national cultural distance (NCD) on post-M&A acquiror buy-and-hold (stock price) abnormal return (Acquiror BHAR), based on research that posits NCD can retard post-acquisition integration (PAI) and defer or decrease synergy realization. Quantification of the challenges cultural difference creates for PAI from this research can help mitigate stock-price reductions and the associated value destruction acquirors can suffer from failed cross-cultural M&A. This study directly addressed this problem space by quantifying the predictive relationship between NCD and Acquiror BHAR in the first year after the M&A, thus filling a gap in the scholarly literature on this topic and advancing the practice of PAI.

Motivation of the Study

Academic research has found that cross-cultural M&A more often destroys than creates value for acquirors (Chand et al., 2023), forfeiting the strategic rationale of these corporate strategic actions intended to create synergies (Kroon et al., 2022). Yet, no clear understanding of the reasons for these failures has been reached (Xie et al., 2017). While most research has concluded that NCD has a major influence on the practice of international business (Correa da Cunha et al., 2022), there is a lack of quantitative support for the predictive relationship between specific dimensions of NCD and the subsequent M&A performance (Korzeb et al., 2022). While most studies have employed only the Kogut and Singh (KSI; Kogut & Singh, 1988) measure of NCD (Shenkar et al., 2022), the limitations of that instrument have led other researchers to suggest a need to study the individual cultural distance dimensions instead (Huang et al., 2017), including the direction of the difference between them (Galdino et al., 2022). Also, while the majority of studies of the effect of NCD on cross-cultural M&A performance demonstrate a benefit to the acquiror stock price in the short-term around the announcement date (Hsu et al., 2021) and in the long-term after the targeted company has been fully integrated (Takhtehkar & Rademakers, 2020), few studies examine the intermediate period after the frictions of NCD have become apparent to investors and before PAI is completed.

From a practical standpoint, the ongoing massive value invested by businesses globally on cross-cultural M&A (Angwin et al., 2022), combined with the all-too-frequent value destruction that ensues from failure to achieve expected synergies (Eulerich et al., 2022), supported the need for additional research on M&A success (King et al., 2021). Research, such as this study, which identifies a focus opportunity for acquirors to avoid or mitigate the negative effects of NCD on synergies, can have a substantial positive effect due to the high value currently lost on cross-cultural M&A annually. Practical tools, such as the predictive model of post-acquisition acquiror stock-price returns based on cultural differences between the acquiror and its targeted company, can assist acquirors to avoid or limit negative cultural effects from cross-cultural M&A in all phases of the transaction, supporting the value of this research. Further research should be done to add additional predictor variables to develop a more comprehensive understanding of the various factors predicting the M&A results.

BACKGROUND TO THE PROBLEM

Prior Research

The problem space for this research is the PAI process for cross-cultural M&A. The most significant factors contributing to goal attainment in cross-cultural PAI have inspired research using both qualitative and quantitative methods. Researchers have developed a diverse body of knowledge for effective PAI, with various theoretical foundations and methodologies, but the results have not been consistent or conclusive. Qualitative studies have predominantly applied case study designs in various contexts (e.g., Rodríguez-Sánchez et al., 2019; Thelisson et al., 2019). These studies were successful in finding enablers of PAI success, but their generalizability to other contexts has been limited by sample sizes, scientific methods, and statistical analysis (Eyisi, 2016). In contrast, other studies have used quantitative methods to identify predictive relationships between M&A antecedents and outcomes to address the limitations of qualitative studies (e.g., Hughes et al., 2020; Rozen-Bakher, 2018). Quantitative studies have primarily employed correlative designs capable of finding generalizable results for a limited subset of cross-cultural PAI success factors but were unable to advance a fundamental theory of PAI success across diverse strategies and contexts (Wei & Clegg, 2020).

Theoretical Foundations

Like other topics in management research, M&A is an area without a single unified theory upon which to frame the study (Teerikangas & Colman, 2020), partly due to the complexity of the topic (King et al., 2021). The research question of this study was synthesized from four theoretical foundations from prior research. This section describes each of these individually and how their synthesis led to the hypothesized predictive relationship between NCD and Acquiror BHAR in this research.

Conceptual Model: Teerikangas and Thanos' (2018) PAI Model

A review of the empirical literature on the problem space revealed various models of the M&A process, the most relevant of which was selected as the theoretical framework for this research, the theoretical model that posits the relationship between the variables (Varpio et al., 2020). Teerikangas and Thanos (2018) formulated this PAI model, including antecedents theorized to influence PAI success, functional mediators of PAI, and outcome measures of M&A performance. Relevant to this study, the PAI model relates NCD as a cultural antecedent to the PAI process, recognizes the PAI process as the primary mechanism by which the acquiror captures M&A value, and identifies acquiror post-acquisition performance as an outcome of PAI (Teerikangas & Thanos). This PAI model provides the theoretical framework of the predictive relationship between the predictor NCD variables, moderated by value creation during the cross-cultural PAI process, and the resulting M&A performance as measured by the criterion Acquiror BHAR variable shown conceptually in Figure 1 (Appendix).

Hofstede's Theory for the Predictor NCD Dimensions

In 1980, Geert Hofstede merged the concepts of national culture and distance in the first version of his seminal work *Culture's Consequences*. This book, and its future versions and editions (Hofstede, 1984, 2001), became one of the most cited books in social research (Beugelsdijk et al., 2017). In subsequent decades, Hofstede and other researchers demonstrated his four dimensions – power distance, uncertainty avoidance, individualism, and masculinity – are independent measures of national culture (Hofstede, 2001). Hofstede operationalized these four orthogonal dimensions of national culture (as indicated in Table 1, Appendix) with a quantitative score to calculate the NCD between dozens of countries, enabling researchers to apply NCD as a quantitative variable. Though other dimensions of NCD and their associated differences have been formulated by other researchers, the Hofstede indices are by far the most common operational measure of NCD applied to international business research (Shenkar et al., 2022). The Hofstede dimensions and the theory behind them have persisted across the decades due to their simplicity, geographic coverage, and popularity amongst management researchers (Correa da Cunha et al., 2022).

Haspeslagh and Jemison's Process Model of Post-Acquisition Integration

Mergers and acquisitions were a rapidly growing business practice with scant research support before the publication of the seminal 1991 book *Managing Acquisitions,* by Haspeslagh and Jemison, which created the dominant paradigm for PAI research (Eulerich et al., 2022). They theorized the strategic rationale for an acquisition should inform the implementation of all aspects of the M&A process, including PAI, to achieve the desired organizational benefits (synergies) from the transaction (Haspeslagh & Jemison, 1991). The Haspeslagh and Jemison (1991) foundation supported the view that M&A synergies are gained or lost during the PAI process, fundamental to the PAI model and this study. It inspired a substantial increase in M&A research (King et al., 2020) and remains the most popular theoretical foundation for PAI studies (Thelisson et al., 2019). Because of the importance of the topic and the high failure rate in practice, the research on the topic of M&A has skyrocketed since 2000 (Xie et al., 2017), with a growing body of extant literature on the PAI phase (Thelisson et al.). Yet a definitive explanation why many M&A do not meet their goals remains inconclusive (Steigenberger & Ebers, 2023).

Fama's Efficient Market Hypothesis for Stock Prices as a Measure of Performance

The criterion variable used to measure M&A success in this study is Acquiror BHAR, commonly used in event studies, a type of research used to measure the relative return of a company or portfolio stock price against a reference stock or portfolio of stocks in response to a corporate event such as an M&A. Event studies are based on the foundational efficient market hypothesis (EMH) theory, originally posited by Eugene Fama and other finance researchers in the late 1960s. The EMH postulates that stock prices are efficient and reflect all available information about the future cash flows of a firm, incorporating all information available to the stock market (Fama & MacBeth, 1973), including synergies projected to accrue to the acquiror from M&A (Cording et al., 2010). Acquiror BHAR has become the predominant measure of M&A performance in longer-term event studies (Galdino et al., 2022; King et al., 2021).

Synthesis of the Foundations

Tying these foundations together, this research developed a predictive relationship between the antecedent NCD (Hofstede, 2001) and an outcome of PAI effectiveness (Acquiror BHAR), related by the PAI model (Teerikangas & Thanos, 2018), which was based on the Haspeslagh and Jemison (1991) seminal theory of PAI. This study synthesized these theories into the hypothesis that NCD impedes the PAI process, delaying the realization of M&A synergies. As investors become aware of these synergy delays, they incorporate this information into the acquiror's stock price as postulated by the EMH (Fama & MacBeth, 1973), reducing the acquiror's BHAR in the first year after the M&A. Together, these theories and the conceptual model define the theoretical foundation for this proposed study and respond to the challenge noted in extant literature (Angwin et al., 2022) to identify and quantify factors of PAI success.

Research Question and Hypotheses

Based on these theoretical foundations, this study explored the research question as to if, or to what extent, the dimensions of NCD, combined, between public U.S.-based acquirors and their foreign targeted companies, predicted the Acquiror BHAR in the first year after the M&A. The null and alternative hypotheses tested were:

H_0: The dimensions of NCD, combined, between public U.S.-based acquirors and their foreign targeted companies, do not significantly predict the Acquiror BHAR in the first year after the M&A.

H_A: The dimensions of NCD, combined, between public U.S.-based acquirors and their foreign targeted companies, do significantly predict the Acquiror BHAR in the first year after the M&A.

METHODOLOGY

Introduction

This study employed a quantitative methodology with a correlational-predictive design. The differences between the acquiror and its targeted company for the four original Hofstede (2001) NCD dimensions formed the predictor variables for the study. As a superior measure for longer-term event studies (Boateng et al., 2019), Acquiror BHAR was used as the measure of M&A success, analyzed within an MLR model. The foundational PAI model for this study suggested an inverse relationship between NCD and the efficiency of PAI, leading to lower synergy realization when cultural differences are greater (Teerikangas & Thanos, 2018).

Study Variables

There were four predictor variables and one criterion variable for this study. The four predictor variables described the difference in national cultures between the acquiror and their targeted company based on Hofstede's original four dimensions of NCD (Hofstede, 2001). These four NCD dimensions: power distance, individualism, uncertainty avoidance, and masculinity, are operationalized in the values survey module (VSM) instrument published by Hofstede and

Minkov (2013). This research did not use the most popular measure of NCD for international business research, the Kogut and Singh Index (KSI; Shenkar et al., 2022). The KSI was rejected to avoid its "illusions" of symmetry and equivalence (Shenkar, 2001), instead using the original Hofstede dimensions as independent predictors.

The criterion variable was the Acquiror BHAR in the first year after the M&A, based on the common use of this measure for longer-term financial event studies (Mitchell & Stafford, 2000), such as M&A performance (King et al., 2021). Acquiror BHAR measured the excess acquiror stock-price return above the S&P 500 index of large U.S. company stocks, over the same first-year period after the M&A. The BHAR calculations used archival corporate data retrieved from the Mergent Online financial database and the Yahoo! Finance website. For this research, the evaluation window was the first 252 stock trading days (one year) after the transaction closed, the M&A date. A calculated value of zero for Acquiror BHAR indicated the acquiror's return in the year after the acquisition was the same as its market benchmark, values greater than zero indicated the acquiror achieved a superior return, and values less than zero indicated the acquiror lagged the market return.

To measure this effect, it was important to consider the temporal nature of the PAI process, which transpires over years for cross-cultural M&A (Teerikangas & Thanos, 2018). Event studies of M&A rely on the assumption that investors have all the information needed about the synergies expected from the transaction during the event window (Cording et al., 2010). In practice, however, acquirors often fail to account for NCD-related delays in synergy realization (Iyer, 2017), and it takes time for the market to overcome initial acquiror optimism and realistically assess synergy timing (Rau & Vermaelen, 1998). The one-year event study window for this research was selected to avoid overconfidence of the market around the M&A announcement date (Hsu et al., 2021) and the long-term stability of the acquiror after the NCD barriers are overcome and PAI is completed (van Oorschot et al., 2023). This intermediate period was designed to capture a dip in acquiror stock prices that might occur between initial market euphoria and the long-term synergy realization period when cash flow effects of NCD-retarded synergies are evident (Hsu et al.).

Sample Selection

The population for this research was all cross-cultural M&A transactions for U.S.-based corporations. On average, approximately 10,000 cross-cultural M&A transactions occur annually (Liang et al., 2017), a disproportionate share of which involve U.S. acquirors. Permission was granted to use the premier commercial database of global M&A transactions to gather the sample for this study. The unit of analysis was an M&A transaction when a North American-based acquiror purchased all or a majority interest in a foreign targeted company. The target population selected to represent these transactions consisted of all such M&A valued greater than $1 million, between 01/01/2012 and 12/31/2021, available in a global M&A database as of 01/04/2022 (3,351 transactions).

The sample for this research consisted of a randomly selected subset of the target population for which: (1) all variables could be calculated, (2) multiple transactions by the same acquiror were excluded, and (3) the relative size (RS) of the targeted company was sufficiently large to influence the acquiror's stock price. Data for the predictor NCD variables was available for 78 nations, including most of the M&A cases, and the data for the criterion variable of Acquiror BHAR was available for the public U.S.-based acquirors in the target population.

Consideration of the RS of the targeted company was consistent with prior research on acquiror return (e.g., Bauer, King, & Matzler, 2016; Hsu et al., 2021) because a small, targeted company has an insignificant influence on the share price of the acquiror after the M&A regardless of the efficacy of the PAI process. As such, to measure a significant effect, only targeted companies with an RS between 0.1 and 1.0 were included in the data sample, representing M&A where the target company was at least 10% and not more than 100% of the market value of the acquiror.

After eliminating the cases that did not meet the inclusion criteria for the research dataset, including multiple M&A by the same acquiror, 320 valid cases remained in the target population. From these a stratified random sampling approach was employed to increase the diversity of target nations in the dataset and reduce the sampling error for the predictive correlational model created in the study (Acharya et al., 2013). The 320 valid cases were organized into strata by target-company nation, selecting all cases from strata with few members, and randomly sampling from the target company nations with many members to achieve a 200-case sample size. This sample size more than doubled the a priori minimum sample size of 92 cases required to achieve a Type I error probability $\alpha = .05$, power of the test $(1 - \beta) = .80$, and effect size $f^2 = .15$ as calculated by G*Power (Faul et al., 2009).

Variable Calculations

Each of the four NCD predictors was a ratio variable, calculated as the difference between index scores for the two nations on the same cultural dimension from the archival VSM-13 database, available online at Geert Hofstede's website (Hofstede & Minkov, 2013). The index score for the home country of the target company was subtracted from the acquiror home country score for each cultural dimension to create the four variables: Δ Power Distance Index (PDI Distance), Δ Uncertainty Avoidance Index (UAI Distance), Δ Individualism Index (IDV Distance), and Δ Masculinity Index (MAS Distance). In this way, these predictor variables represented both the magnitude and direction of the cultural distance between the acquiror and its target company on each of these four dimensions, consistent with calls for additional research using these four individual dimensions (Bauer, Matzler, & Wolf, 2016; Maseland et al., 2018) and to consider the potential asymmetric effect of negative and positive differences (Galdino et al., 2022).

The criterion variable for this predictive-correlative study was Acquiror BHAR, which measured the relative return of the acquiror (Mitchell & Stafford, 2000). The S&P 500 index of large U.S.-based corporations (S&P 500) was used as the relevant reference portfolio since all acquirors were U.S.-domiciled. In this way, acquiror stock-price returns were compared to the overall U.S. stock market return during the first year after the M&A date to calculate abnormal returns, enabling the criterion variable to distinguish the difference between acquiror-specific and market-level price changes.

Calculation of the Acquiror BHAR research data began with the M&A date when the cross-cultural M&A transaction was consummated, as retrieved from the Mergent Online financial database, the acquiror's corporate website, or other online financial reports. Next, daily closing prices for the company's stock price and the S&P 500 adjusted closing index value for each of the 252 stock trading days following the M&A date, by convention representing a calendar year of equity trading (Hsu et al., 2021) were sourced from the Mergent Online financial database or Yahoo Finance! web site. Third, these 252 daily acquiror stock price percentage changes were calculated and multiplied to calculate the compounded

price change for the acquiror stock in the first year after the M&A date. Similarly, the price change for the S&P 500 stock index was calculated as the product of the 252 daily percentage changes in the index price over the same period.

Thus, Acquiror BHAR was calculated by the formula:

$$BHAR_{Acquiror} = R_{Acquiror} - R_{S\&P500} = \prod_{i=1}^{i+251}(1 + ADR_i) - \prod_{i=1}^{i+251}(1 + SDR_i)$$

Where:

- $BHAR_{Acquiror}$ was the Acquiror BHAR in the first year after the M&A
- $R_{Acquiror}$ was the buy-and-hold acquiror stock price return for the year
- $R_{S\&P500}$ was the buy-and-hold S&P 500 index return for the year
- $ADR_i = \left(\frac{P_i}{P_{i-1}} - 1\right)$ was the daily return for the acquiror stock price *P* on day *i*
- $SDR_i = \left(\frac{S_i}{S_{i-1}} - 1\right)$ was the daily return of the S&P 500 index price *S* on day *i*
- P_i and S_i were the closing prices at the end of trading day *i*, adjusted for splits, dividends, and capital gains distributions, with *i* ranging from 1 to 252.

The RS of the targeted company to the acquiror indicated the ratio of the market value of the targeted company relative to the acquiror. The RS variable was calculated as a continuous ratio variable as RS = TV / EV, where TV was the transaction value of the M&A, representing what the acquiror agreed to pay as a measure of its enterprise value, and EV was the enterprise value of the acquiror at the time of the acquisition, based on the sum of the market value of acquiror equity and debt. Archival data from the global M&A database was the source of the TV and EV data for all cases.

Assumption Checks

The research dataset was then tested for the eight assumptions necessary to use MLR analysis as planned for this study. These tests included: (1) one criterion variable measured on a continuous or nominal level, (2) two or more predictor variables measured on a continuous or nominal level, (3) the observations are independent, (4) a linear relationship exists between the predictor and criterion variables, (5) the residuals demonstrate homoscedasticity across the values of the criterion variable, (6) the predictor variables are not highly correlated with each other, (7) there are no significant outliers, high-leverage values, or highly influential data points that distort the MLR model parameters, and (8) the regression model errors must be approximately normally distributed (Laerd Statistics, 2015).

The first and second assumptions were met by the variables selected for the study. Independence of observations was demonstrated by the Durbin-Watson statistic of 1.830 calculated by SPSS. Linearity was visually confirmed by examining scatterplots and partial regression plots for each predictor variable against the criterion variable individually and the four predictor variables collectively (Laerd Statistics, 2015). The homoscedasticity of residuals was

verified by a visual inspection of the scatter plot of studentized residuals versus unstandardized predicted values of the criterion variable using the multiple regression equation. The predictor variables were shown to not be highly correlated with each other by the correlation coefficients and Tolerance/VIF values of the predictor variables calculated by SPSS. For assumption seven, two cases were found to be outliers and replaced with other valid, randomly selected cases. After these replacements, no significant outliers, high-leverage values, or highly influential data points that distorted the MLR model parameters remained in the research dataset. Finally, visual inspection of a superimposed normal distribution, and a normal P-P plot, as recommended by Laerd Statistics, confirmed the regression model errors were approximately normally distributed. Since all eight assumptions were met, the research dataset was analyzed using MLR as planned (Eagle, 2024).

Data Analysis

The 200 M&A cases in the research dataset were run in an MLR model in SPSS with the statistical significance of the study measured by the *F*-test of the MLR analysis of variance (ANOVA). A p-value < .05 indicated the combination of the predictors explains more of the variance in Acquiror BHAR than expected by random error alone, leading to the rejection of the null hypothesis for the research question of the study with 95% confidence (Lock et al., 2017). The model effect size indicated the practical significance of the overall MLR model. In particular, the adjusted coefficient of determination R^2 indicated the proportion of the variance of the criterion variable Acquiror BHAR explained by the predictor variables of NCD included in the model (Laerd Statistics, 2015). In conjunction with a theoretical framework for the relationship between the variables, correlational research can inform evidence-based practice (Curtis et al., 2016).

RESULTS

Descriptive Findings

As reproduced in Table 2 (Appendix), SPSS created a full range of descriptive statistics for each variable in the research dataset. These measures included the minimum, maximum, and mean values for the 200 cases, the sample standard deviation, the standard error for the distribution of $\bar{x}$, defined as SE = $s/\sqrt{n}$, and the skewness and kurtosis for each variable. The criterion variable Acquiror BHAR averaged -10.5%, indicating that, on average, acquirors suffered a negative return compared to the S&P 500 index over the first year following cross-cultural M&A, as expected. However, there was a large variation in Acquiror BHAR, ranging from -110.6% to 172.5%.

The four predictor variables measured the differences of the national culture dimensions between the U.S. acquiror companies and their foreign targets. Positive values indicated the U.S. score for the variable was higher than the score for the foreign home nation of the target company, and negative values indicated the U.S. score was lower. Table 3 (Appendix) interprets these national cultural differences for the expected characteristics of the acquired employees in the target company (Hofstede & Minkov, 2013). These interpretations are subject to the caveat that not every company, and certainly not every employee within a given company, is aligned with their national cultural score for these variables (Taras et al., 2016).

Results for the Research Question

This research studied the question: it is not known if, or to what extent, the dimensions of NCD, combined, between public U.S.-based acquirors and their foreign targeted companies, predicted the Acquiror BHAR in the first year after the M&A. The SPSS MLR model summary (as indicated in Table 4, Appendix) presents the multiple correlation coefficient (R = .315), indicative of a moderate, positive linear correlation between the combination of NCD predictor variables and the resulting Acquiror BHAR (Laerd Statistics, 2015). This table shows the coefficient of determination value of the model, adjusted R^2 = .081, which is the best estimate of the true population variance (Laerd Statistics). This indicates the four original Hofstede NCD predictor variables (Hofstede, 2001), combined, explain approximately 8.1% of the variance of Acquiror BHAR, representing a medium effect size for research in the behavioral sciences according to Cohen (1988). Considering the many confounding variables that affect a company's stock price movement relative to the market, the size of this effect indicates the combination of these NCD variables adds practical information about first-year acquiror BHAR after cross-cultural M&A.

Inferential statistics from the F-test presented in the SPSS MLR analysis of variance (ANOVA) table (as indicated in Table 5, Appendix) was used to evaluate the hypotheses for this research question. This F-test found that the proportion of the variance explained by the MLR model was significantly greater than what would be expected by random chance if there was no correlation between the predictor and criterion variables (Lock et al., 2017). The F-statistic of 5.375 was highly significant, with less than a .001 chance of occurrence if there was no linear relationship between the variables. The null hypothesis H_0 was rejected since the p-value was less than the preselected probability of a Type I error, $\alpha = .05$. This provided statistically significant evidence that the four original Hofstede dimensions of NCD (Hofstede, 2001), combined, between public U.S.-based acquirors and their foreign targeted companies, do significantly predict the Acquiror BHAR in the first year after the M&A, $F(4,195) = 5.375$, $p < .001$.

A would-be acquiror can predict its Acquiror BHAR for a cross-cultural M&A using the parameters of the MLR model with the y-intercept b_0 and slope coefficients b_1 of the MLR, as shown in the SPSS coefficients table (as indicated in Table 6, Appendix). The linear model is: *Acquiror BHAR = -15.148 + .045 x PDI Distance + .595 x IDV Distance - .336 x UAI Distance + .430 x MAS Distance.* Each distance in this predictive formula is calculated as the acquiror nation index for that NCD dimension minus the target country index.

In conclusion, the predictive linear MLR model of first-year Acquiror BHAR was effective, and the null hypothesis was successfully rejected. The ANOVA F-test model was significant, indicating the MLR with the four NCD predictor variables, in combination, effectively predicts Acquiror BHAR, explaining approximately 8.1% of the variance of that criterion variable. This observed effect size of the MLR model was in the medium range for social science research (Cohen, 1988). A post-hoc power analysis for the MLR model ($p < .001$) as calculated by G*Power (Faul et al., 2009) showed the power of the test was $(1 - \beta) = .908$, with the observed effect size $f^2 = .081$, $\alpha = .05$, sample size $n = 200$, and four predictors.

CONTRIBUTIONS AND IMPLICATIONS

Study Contributions

This research has contributed to filling a gap between what is known and what is yet to be understood about acquiror value destruction (Chand et al., 2023) caused by cultural frictions in the PAI process of cross-cultural M&A (Kroon et al., 2022). The differences in the findings of this study compared to prior research included the variables selected, how they were calculated, and the period of the criterion variable. This study also contributed a predictive model that acquirors can use to estimate the effect of NCD on M&A performance based on the direction of the differences of the cultural dimensions between the acquiror and its targeted company.

The calculation of the NCD predictor variables to avoid the fallacies of symmetry and equivalency (Lim et al., 2016) was a distinguishing feature of this study, enabling a better understanding of the effect of cultural differences on PAI success compared to most prior research. The study also contributed to the extant body of knowledge based on the selected intermediate period over which acquiror performance was measured, the first year after the M&A date, when the effect of cultural distances on PAI will be most evident. Most prior research studied the effect on the acquiror stock price in the short-term around the announcement date (e.g., Ahmad et al., 2022; Rahahleh & Wei, 2013), in the long-term after the targeted company has been fully integrated (e.g., Takhtehkar & Rademakers, 2020), or both (e.g., Boateng et al., 2019; Chakrabarti et al., 2009; Hsu et al., 2021).

Theoretical Implications

This research contributes to the theoretical understanding of the frictions of cultural distance in the PAI process, supporting the theories and theoretical framework upon which the study was founded. The theoretical framework theorized the predictive relationship between antecedents and outcomes of the PAI process based on the PAI model developed by Teerikangas and Thanos (2018), providing essential theoretical support for the relationship between the predictor and criterion variables required to draw conclusions from this non-experimental study (Curtis et al., 2016). The statistically significant finding that the overall MLR model provided quantitative support for the PAI model, reinforcing its utility, and corroborating other research based on the relationship between cultural differences and PAI effectiveness. Additionally, the findings supported the utility of Hofstede's (1980) seminal theory of NCD, and the values survey module (VSM) instrument created by Hofstede and Minkov (2013) used to calculate the predictor variables.

Likewise, these results supported the seminal theory of the PAI process from Haspeslagh and Jemison (1991) and the EMH (Fama & MacBeth, 1973). The strong statistical significance of the MLR model supports the utility of the first year Acquiror BHAR criterion variable and its theoretical foundation in the EMH to measure synergy expectations consistent with the Haspeslagh and Jemison process theory of PAI. In summary, the four theoretical foundations upon which the research was designed were supported by the results.

Practical Implications

In addition to adding to the theoretical body of knowledge on cross-cultural PAI in the extant literature, the predictive model developed in this research can provide practical value to companies wishing to grow internationally by acquiring foreign companies. Prior qualitative

studies developed theoretical models of the PAI process, which include the influence of NCD on M&A performance (e.g., Rodríguez-Sánchez et al., 2019; Teerikangas & Thanos, 2018) but did not quantify a predictive relationship between the individual dimensions of NCD and M&A outcomes in the critical first year of the M&A. Better understanding this predictive relationship can help acquirors better plan their PAI strategies and manage their synergy expectations in at least four phases of the M&A process.

In the target selection phase of M&A, the predictive MLR model developed in this research can quantify the potential impact of the target's national culture on the acquiror's share price. Acquirors can use those predictions to adjust the expected synergies from the transaction. The revised synergy estimates can be factored into the enterprise valuation to improve the expected value that will accrue to the acquiror from the M&A, possibly leading to a revision of the target selection search to more culturally favorable nations.

In the negotiation phase, enterprise valuation for price negotiations or a competitive bidding process to establish the appropriate consideration for the acquiror to pay for the target company can incorporate NCD-adjusted synergy. This will help acquirors avoid overpaying and destroying shareholder value with the M&A if the NCD reduces the target company valuation. Or, in the case of increased synergies due to favorable NCD effects, it can help the acquiror justify a higher price to complete the deal.

Acquirors typically lack the information needed to accurately predict the deal synergies that will occur once an acquisition agreement has been made (Basuil, 2011). The predictive model from this research can help them set more realistic goals for the quantity and timing of synergies expected from the acquisition including first-year NCD effects, enabling more accurate expectations to be set internally with employees and externally to the investment community. This can approve internal alignment, mitigate stock price fluctuations, and improve management credibility with the market.

Finally, the findings of this study relative to the effect of NCD differences can support PAI strategies that decrease value losses and accentuate the potential gains from cultural differences. Recent research (Ye et al., 2023), indicates that at least in some contexts, the outcome of cross-cultural acquisitions can be significantly influenced by the managerial approach to address cultural frictions in PAI. Countermeasures that might otherwise be considered too expensive without those estimates can be justified based on the predicted magnitude of NCD-related frictions.

LIMITATIONS AND FUTURE RESEARCH

Limitations

All research studies have limitations. These should be acknowledged and specified in the interest of transparency for those who will reference study results, (Theofanidis & Fountouki, 2018). Limitations from the data collection and cultural level used were identified in the present study.

First, despite efforts to include a wide range of target countries using a stratified sampling approach to select cases, the study remained dominated by developed target countries. Additionally, all acquiror companies in the study were U.S.-based. As a result of this data limitation, the study results may not be generalizable to non-U.S.-based acquirors, or M&A of target companies based in developing economies.

Second, this study relied on the Hofstede measures of national culture for the predictor variables. There are many levels of culture, and national culture explains only a fraction of the variability between organizations and the individuals within them (Taras et al., 2016; Tung & Stahl, 2018). An acquiror concerned about the potential negative effect of cultural distance exposed in this study would be wise to consider the deeper levels of culture specific to their target company.

Future Research Opportunities

Three directions are enumerated for potential future research to follow up on the theoretical and practical findings of this study. First, an extension of the cases to include acquiror nations other than the U.S. would clarify whether these results are robust to all acquiring nations. With emerging nation acquirors included, a comparison could determine if these findings differ for emerging and developed market acquirors as hypothesized by prior research (Zhang et al., 2019). Second, the set of target nations could be expanded to include a greater proportion of developing economies. Even though a stratified random sampling technique was used to include as many target companies from emerging nations as possible in the research dataset for this study, developed nations still dominated the list of target companies. Third, one or more of the many antecedents of cross-cultural M&A hypothesized to influence PAI in prior research (e.g., King et al., 2021; Teerikangas & Thanos, 2018; Xie et al., 2017) could be included as addition predictor variables in the MLR. Additional antecedents would likely improve the model's predictive capability and explain a greater portion of the variance of Acquiror BHAR.

Conclusion

The problem space of this study resulted from a synthesis of literature on the PAI challenges of cross-cultural M&A. Despite persistent losses for acquiring companies on average (Eulerich et al., 2022), the strategic practice of M&A for foreign growth continues to be popular for corporations (Fischer et al., 2021). These ongoing losses provided an opportunity to address a problem of relevance that added to the body of knowledge in the literature, while also contributing to the practice of cross-cultural M&A, the primary purpose of which is to add strategic value for the acquiror company (Lin & Ho, 2021). An MLR model of the effect of the original four Hofstede dimensions of NCD distance on Acquiror BHAR in the first year after the cross-cultural M&A found strong statistical significance for the predictive capability of the NCD predictor variables, combined, and explains 8.1% of the variance in first-year Acquiror BHAR. The result is a significant, theoretically important, and practically useful contribution to the study and practice of cross-cultural PAI.

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APPENDIX OF TABLES AND FIGURE

Figure 1

Predictive model for this study based on the PAI Model of Teerikangas and Thanos, 2018

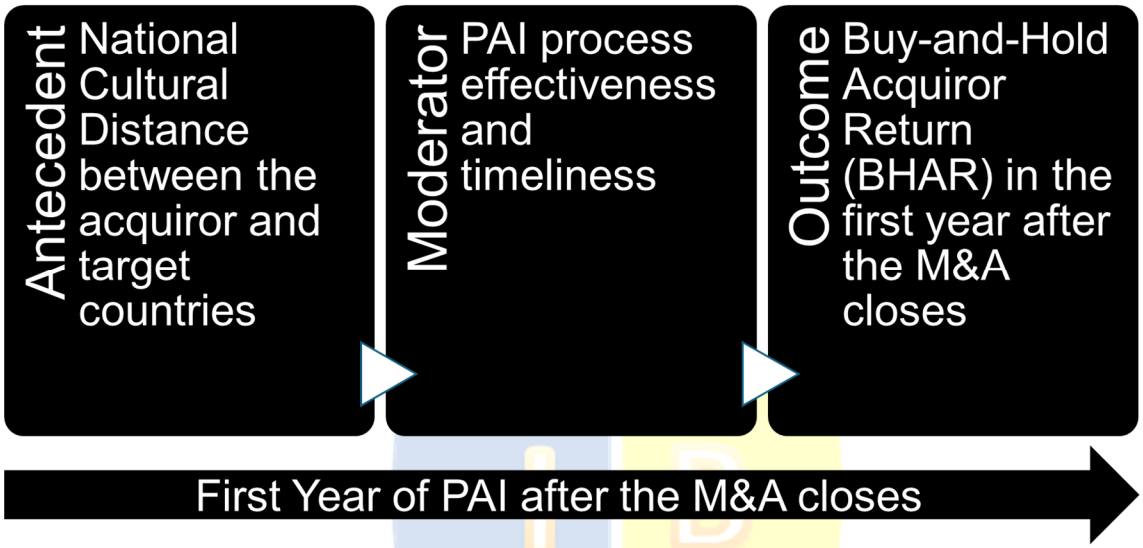

Table 1

Conceptual Definitions of Hofstede's Original Four Cultural Dimensions (Hofstede et al., 2010)

Cultural Dimension	Conceptual Definition
Power Distance (PDI)	Power distance is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally.
Individualism (IDV)	Individualism is the extent to which people feel independent, as opposed to being interdependent as members of larger wholes.
Uncertainty Avoidance (UAI)	Uncertainty avoidance deals with a society's tolerance for uncertainty and ambiguity.
Masculinity (MAS)	Masculinity is the extent to which the use of force is endorsed socially.

Table 2

Descriptive Statistics for the 200 Cases of the Research Study Variables

Variable	Mean	Standard Deviation	Standard Error	Min.	Max.	Skewness	Kurtosis
PDI Distance	-3.45	19.298	1.365	-64	29	-.501	-.378
IDV Distance	25.42	18.723	1.324	1	78	.974	.429
UAI Distance	12.95	22.027	1.558	-33	57	.710	-.472
MAS Distance	-13.96	22.266	1.574	-58	38	.178	-1.127
Acquiror BHAR	-10.52%	41.095%	2.906%	-110.6%	172.5%	.953	2.567

Table 3

Interpretation of the Predicted Characteristics of Acquired Employees for Positive and Negative Values of the NCD Predictor Variables (Hofstede & Minkov, 2013)

NCD Distance Variable	Meaning if Positive	Meaning if Negative
PDI Distance	Expect power and privilege to be more evenly distributed between organizational levels.	Expect higher levels of the organization to exert more power and have more privileges than lower levels.
IDV Distance	Expect to collaborate and be rewarded more interdependently.	Expect to work and be rewarded more independently.
UAI Distance	Tolerate more uncertainty, ambiguity, flexibility, and risk.	Prefer more standardization and structure, with lower risk.
MAS Distance	Desire a more cooperative, inclusive, and equitable work environment.	Comfortable with a more aggressive, dominant work environment.

Table 4

SPSS MLR Model Summary Showing the R, R^2, and Adjusted R^2 Inferential Statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.315[a]	.099	.081	39.399%	1.830

[a]Predictors: (Constant), MAS Distance, UAI Distance, IDV Distance, PDI Distance
[b]Dependent Variable: Acquiror BHAR

Table 5

ANOVA[a] Table Showing the F-Statistic and Significance Level

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	33377.204	4	8344.301	5.375	<.001[b]
	Residual	302698.351	195	1552.299		
	Total	336075.555	199			

[a]Dependent Variable: Acquiror BHAR
[b]Predictors: (Constant), MAS Distance, UAI Distance, IDV Distance, PDI Distance

Table 6

Coefficients[a] Table Showing the y-Intercept and Individual Predictors' Slope Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for β	
		β	Std. Error	β	*t*	Sig.	Lower Bound	Upper Bound
1	Constant	-15.148	5.407		-2.801	.006	-25.812	-4.484
	PDI Distance	.045	.173	.021	.258	.797	-.297	.386
	IDV Distance	.595	.172	.271	3.465	<.001	.256	.934
	UAI Distance	-.336	.132	-.180	-2.548	.012	-.597	-.076
	MAS Distance	.430	.144	.233	2.975	.003	.145	.715

[a]Dependent Variable: Acquiror BHAR