California Intercontinental University

COLLEGE OF BUSINESS

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Abstract

Synergy Valuation Paradigm Change in Acquisition Research

by

Michael W. Shepard

MBA, Ashford University, 2016

BS, University of Minnesota, 1982

Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Professional Doctor of Business Administration

in

Emphasis

California Intercontinental University

2020

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Abstract

The problem of firms' acquisition of target organizations failing to succeed in maintaining or improve shareholder wealth and value in a competitive market is a significant one nationally and globally. The estimate of failures stands at 70 to 90 percent, with one study reporting the failure rate at 83 percent. Nevertheless, the number of firms merging is not slowing, but rather speeding up in pace. This reality drives the need to understand why acquisitions resulting in merger fail. This understanding must be found to aid regulators in examining merger proposals laid before them for decision and practitioners involved in acquisition research to make sound decisions as recommendations to senior managers involved with negotiation and integration processes.

This study examines the practice of 25 firms' Merger & Acquisition (M&A) research departments' firm and proposed merger synergy valuation methodologies. This study does so by interviewing 20 respondents working in the Venture Capitalist field of investment familiar with valuation practices of the selected firms. Their responses were coded, and a codebook was generated from the coding data. The process of collection and analysis of the data result in a finding. This study's finding is that the selected firms' acquisition research departments are changing their approach from a dependency on quantitative mathematical modeling and formulas. The change is moving to a mixed approach incorporating instinctively, collaboratively, qualitatively, inductively, and intuitively, reasoning together in achievement of the goal of accurately determining the value of synergy, if any, being created by the acquisition by premium price paid to the target firm.

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Dedication

This is dedicated to my family.

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Acknowledgement

I acknowledge the advice and effective communication from Dr. Debbie Wilson, Adjunct Faculty and Lead Chairperson, David Rodriguez, DBA, Dr. Gary Haney, Dr. Danny Chavez, Dr. Robert Neely, Dr. Steven Hess, Dr. Nicole Karpel, and Dr. Brian Stark, for their direction and guidance in directing the formulation of approach to the completion of this Dissertation.

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Chapter 1: Introduction

The legal process of merger activity has one clear intention. The effort expended in merger activity is to make one legal and independent organization out of two or more economically independent firms (Toll & Hering, 2017). Acquisition analysts experience a need for accurate revaluation of firm performance, especially when in consideration or actual process of acquisition negotiation resulting in a conglomerated entity. The problem arising with acquisition research is how potential consolidation of resources will affect the value of stock and wealth of shareholders. Managers need accurate information and intuitive understanding about parent and target firm performance. Especially critical is how potential synergies and dyssynergias affect value of the post-merged firm. Accurate knowledge of the extent to which shareholder wealth and value will be affected in the newly formed organization is necessary before firms acquire, get acquired, and merge. This is especially true considering the fact of an 83% failure rate among a pool of $3.24 trillion mergers completed globally in 2017 (Sonenshine & Feinberg, 2014).

This study's focus is on the evaluation of synergies' potential effects on proposed or planned merger negotiation and integration processes adding value to the newly merged firm. Especially and exclusively, the study's focus is on effects produced by economy of scale, economy of scope, and borrowing power resulting from the conglomeration of two or more firms' assets into one economic and operating and financial entity. The interest of this study is focused on a qualitative discovery of why firms merge and how synergy value is added from negotiation and integration activities in the combined firm. The qualified values being identified are limited to those directly resulting from scale, scope and borrowing power additions.

The theory being tested by the study is when two or more firms combine assets, the value to shareholders is more than merely the sum of the two or more firms' assets combined. In other words,

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synergistic forces create a value more than the doubling (or tripling, in the case of three firms) of assets in the newly created firm.

The aim of the paper is to discover through a qualitative mindset, changes made to economy of scale, economy of scope, and borrowing power for a company acquisition during the negotiation and integration phases of merging firms. The foremost aim is to gain understanding of how premium paid and integration activities made change in value to occur in the post-merged firm. A qualified understanding of effects of scale and scope and borrowing power as they affect productivity will aid practitioners in their analysis of acquisition potentialities.

The existing literature is lacking in studies showing how and what type of synergies are developed by negotiating over acquisition of and the integrating processes encompassing the task merging firms from two independent operations into one efficiently run firm. An accurate understanding of synergy creation is necessary because the effectiveness of the processes of negotiation and integration determine the extent to which merging firms experience success in proposed and in-process merger and acquisition (M&A) activity. The existing research is dissatisfying when in examination of its effectiveness in predictions of synergies and dyssynergias resulting from proposed and real M&A activity. If synergy is instinctively and accurately understood through compilation and qualitative analysis of anecdotal data collection, shareholder, management, lender, and other stakeholder confidence in successful completion of the M&A activity increases (Toll & Hering, 2017).

The study empowers practitioners of pre-merger acquisition research by bringing improved intuitive understanding to managers of what to expect in terms of synergy creation when an acquisition is made at a certain premium price and integration processes are conducted in a certain manner. An accurate synergy creation process understanding, as is explained in the current study, brings knowledge to practitioners of the extent to which factors and to what extent they will each individually affect firm value. This knowledge will result in improved chances for successes in

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negotiation phases with decision values bringing premiums paid at a rate equally benefitting shareholders of merging firms and effectively implemented integration plans driving costs down and profits upward. Valuation studies during merger assess book value. Where they fall short is in gaining understanding of the value of efficiencies of production and distribution gained through combing tangible and intangible assets. This study makes use of a robust qualitative approach to synergy creation by qualitatively and intuitively assessing information collected as data from outside venture capitalists familiar with specific acquisitions.

The importance of synergy creation understanding is critical to successful integration of firms' resources. A merger perceived as fairly negotiated will be accepted by both acquiring and acquired members of combining firms in a positive light. This perception of fairness will, in turn, cause stakeholder resistance to merger integration goal achievement to decline and subside. If, on the other hand, players involved in the negotiation phase of merger lack awareness of acquiring and target firm value, the agreement made will do more harm to prospects for success in the post-merged firm's integration phase (Oprescu, 2015).

Merger and acquisition (M& A) practitioners in the high-tech field revealed due diligence, post-closing integration planning and identity as being viewed to be the most critical factors influencing the acquisition outcome. Practitioners report to inaccurate target firm valuation inevitably leading to and resulting in acquirers paying an excessive premium in the negotiation phase of merger activity (Oprescu,2015). This study's effort is geared toward bringing qualitative understanding as to why mergers are contemplated and engaged-in, and how firms gain understanding of potential synergy creation through merger before acquisition activities begin.

Background of the Problem

Research has been able to show that one of the key areas contributing to acquisition failures is the impact of the acquisition on human resource in the dynamic of integration of two or more firms into one (Koi-Akrofi & Godfred, 2016). Researcher Lipeikyte (2015) points out that about two-

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thirds (about 67%) of all mergers fail to achieve the desired results primarily because of firms' management's apathy to the employees' reactions and interests (Lipeikyte, 2015).

Senior management of acquiring firms wish to gain increases in productivity and profitability by taking advantage of synergies created by combining resources of previously separately operating entities. This search for value creation through synergy is an ongoing one and requires effort from researchers to bring solutions. The failure of mergers to bring increase in shareholder value through expected and unfulfilled improvements made to productivity and profitability suggests to managers engaging in acquisition feasibility activity that the acquisition should not have been made (Van Horn & Van Horn, 2011).

Managers of national and multinational corporations have a responsibility to firm shareholders. They are responsible to ensure firm value as measured by shareholder value and wealth to be maintained or increased. All actions of management must serve the purpose of shareholder wealth increase. An acquisition made on desire to control a market, for example, is only justified if merging firm shareholder wealth is not threatened and rational expectation of shareholder wealth increase is shown to exist (Garzella & Fiorentino, 2014).

The decision of the firm to acquire assets of another must be made in a rational manner. Managers of acquisition potentialities for acquisition need understanding of whether the cost of integration and premiums paid to targets will be outweighed by benefits received, thereby increasing shareholder value. Management motivations of pride at wanting to dominate markets run contrary to the goal of shareholder wealth maximization. The Griffin (2019) study looked at market price change behavior and merger. The study finds that mergers mostly create market price increase. This increase in price is shown by the study to cause harm to shareholder value (Griffin, 2019).

One very common and prevalent problem causing the high merger failure rate globally is the motivation of corporate officers conducting M&A activity. Many managers of firms traded publicly simply want to satisfy hubris, or an exaggerated sense of pride or self-confidence. This self-centered

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motivation ignores internal and external forces affecting firm profitability, such as how changes in production will affect economies of scale, and how changes in product type will affect economy of scope and, subsequentially, firm profitability. Additionally, if senior management acquires another company operating with severe borrowing power constraints, the acquisition may well result in serious devaluation to shareholder value and reverse growth capacity in the merged firm.

Existing research in organizational management pinpoints the severity of CEO hubris as a primary cause of firm financial performance degradation in the merger and acquisition (M&A) decision making process (Petit & Bollaert, 2012). Excessive pride on the part of senior management conflicts with the corporate mission of shareholder wealth and value creation. The decision to purchase competitors' businesses to increase price control without regard to the effects of takeover on shareholder value is the most common type of management hubris (Petit & Bollaert, 2012).

Another issue of interest and concern to senior management is how proposed M&A activity will influence and be influenced by markets. If senior management is simply wishing to satisfy pride and ego at the cost of well-informed and rational decisions, they are failing to act in service to the best interests of shareholders. On the other hand, if senior management places shareholder wealth increase as the primary mission of the organization, behaviors of delegating tasks of analysis designed to find value in proposed merger will save mergers from failure. Analysis of market activity, direction, and trend is necessary to merger decision negotiation and integration research (Petit & Bollaert, 2012).

Economy of scale is an important factor worthy of due diligence of analysis in acquisition research and decision making. Economies of scale forces present themselves in an array of business activities from manufacturing and transportation, industry production and cargo-holding capacity, to bank mutual fund product offerings (Stimpert & Laux, 2011). In M&A activity, a comprehensive and thorough understanding of how economy of scale will be changed by a merger can make the difference between success and failure in the activity (Koi-Akrofi & Godfred, 2016).

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Economy of scope is the value added by the addition of one product brand or type to reach an optimal level of productivity of product offerings. Optimization of profitability is reached when the addition of one more product line to production results in a decrease in overall firm profitability. Ideally, firms will merge to a level of manufacturing and distributing of different product types and brands leading to the highest economy of scope possible.

Understanding of change in economy of scope by the merging of two or more firms into one helps in decisions of determination of what, how, with whom, and when, to merge assets. This knowledge will aid senior management with the task of negotiation and integration. A greater understanding of economy of scope forces resulting from merger will aid managers in determining from research of what can be paid for a firm in acquisition without doing harm to shareholder wealth or potential for success during integration. A healthy negation phase leads to a successful integration of combining firms' human resource asset (Appelbaum, Gandell, Shapiro, Belisle, & Hoeven,2000).

Firms combining assets during the merging process have a borrowing capacity before and after the negotiation phase combining firms' resources makes one borrowing authority out of two or more. Comprehensive analysis of how the act of merging two or more entities into one will change this borrowing capacity is critical in preservation of shareholder value and in determination of potential for success in the integration phase of merging firms. Acquirers have historically assessed target firms' credit capacity by use of weighted average cost of capital (WACC) of the target firm. This method is bad because the financial position of the acquirer is not considered (Koi-Akrofi & Godfred, 2016).

Problem Statement

Corporations are merging themselves at a rapidly growing rate. Worldwide the merger value in 1985 was $364 billion, and the dollar value of merged firms in 2018 was $3.8 trillion (Koi-Akrofi & Yaw, 2016). These figures show an increase from the years 1985 to 2018 period of over 100

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percent. The problem with this merger activity is that 70 to 90 percent of mergers fail, mostly in the integration phase (Koi-Akrofi & Yaw, 2016).

This problem of failure to increase shareholder wealth and value is a significant one. The failure of 83% of firms in the process of merger and acquisition (M&A) activity to create increased shareholder value despite the ever-increasing rate of firms being conglomerated demands a solution (Toll & Hering, 2017). The concurrent triangulation-designed study collects, analyzes, and reports on responses made by managers about how the issue of hubris is dealt with in the decision-making process.

Griffin (2019) in his article, “Mergers Aren’t so Black and White,” researched price increases after merger and their effects on shareholder value. The article demonstrates increases in the price of a firm's products can produce economically significant impacts for consumers, shareholders, and society. Price increases are shown by Griffin to adversely affect shareholder wealth. As a direct consequence of price increases, harm to society is created (Griffin, 2019).

This study will address the problem of shareholder wealth and value change by synergy due to a merger. Value change due to synergy caused by acquisition is addressed by gathering information as data collected qualitatively from sources close to and familiar with the intricacies of acquisitions. These sources are detached from and disinterested in economic and financial activity of negotiation and integration phases of a merger. This study will address the problem of how the issue of anticipated synergy value created plays a role in the negotiation and integration processes of a merger. This study will address human resource transformation after the negotiation process is completed by interviewing observers of the integration processes. The human resource integration problem is inextricably interwoven into the fabric of merger negotiation processes. The impetus driving a solution to the integration problem is the anticipated cost of integration. The human resource part of this study focuses on how organizations combat failure to achieve successful transcendence into a single and well-functioning company. Firms successfully integrating is the

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focus rather than those unnecessarily struggling to integrate themselves (Osarenkhoe & Hyder, 2015).

Purpose of the Study

The purpose of this study is to provide senior management with solutions to potential merger synergy valuation challenges-both in the negotiation and in the integration phases of a merger. This study uses a qualitative research design. This design addresses the problem of lack of understanding of potential costs of integration and realistically anticipated synergies adding value to shareholder wealth. An improved understanding of these costs and benefits aid managers in determination of a premium paid to targets serving acquirer and target firm shareholder value. The study also addresses obstacles to successful post-merged-firm integration activity and how they are overcome by integration planners and integration plan implementors. The purpose being served by this study is to analyze and report on negotiation and integration methods being placed into practical use in a selected merger. The research conducted on the negotiation part of this study explores how acquirers evaluate integration cost and synergy value. The research being conducted on the integration part of this study explores how managers move the firm's operation effectively into one efficiently operating entity.

Qualitative data is collected through interview questionnaires under a single-phase design (Creswell,2017). This design was selected over a quantitative design because the field of acquisition and merger research is evolving itself from one of premium determination by mathematical decision value calculation to an instinctive, inductive, and intuitive approach (Garzella & Fiorentino,2014). The research method best suited to intuitive rather than mathematical reasoning in a study is qualitative. The reason qualitative is better than quantitative analysis in understanding intuitive approaches is the opinions of interviewees are more important to solving the research problem than are deductive reasoning processes used in mathematical determinations (Schoonenboom,2017). The single body of data is analyzed qualitatively to develop trends and themes. Rather than drawing a

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conclusion about similarities discovered within the data set, the information is formed into ideas and suggestions for procedures. The procedures are further broken down and separated into categories of least and most effective in bringing positive change to negotiation and integration phase merger effort. The sample of mergers includes a body of 25 acquisitions selected from various industries to accurately represent the population of mergers made in 2018.

The data are collected and subjected to qualitative analysis. The purpose of the analysis is to discover what acquisition managers are doing to meet challenges to synergy and integration cost valuation. Findings are then made from the completion of this procedure. Finally, weaknesses and strengths discovered in the qualitative analysis are analyzed and used to strengthen validity and reliability of the study viewed as a whole.

The collection and use of data for qualitative analysis is intended to shed light on the changed approach senior management is taking to determine and enhance synergies and reduce integration costs in their proposed acquisition opportunity exploration and valuation. The data collected and analysis provided by the research is intended to be of use to managers both during consideration of acquisition and for those involving themselves in the merger integration process.

Shareholder wealth and value is harmed by poor merger planning. A lack in understanding about how forces of economy of scale, and scope, and borrowing power, affect firm value exists within senior management's merger decision-making strategy. The problem of how these variables affect a merger is addressed by this study with analysis of responses from individuals knowledgeable about the mergers analyzed. The results of this study address how management solves problems of synergy and integration in acquisition research.

The purpose of this qualitative study is to conduct and report on an analysis of merging firms of primary data collected and analyzed in the form of synthesized interview responses. The collected data is then applied to the framework of the solution to the problem of slow internal economic growth being the acquisition of competitors' resources. The problem of how to understand the effect

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of positive synergy and negative integration cost on shareholder value in a merger is addressed in this study. Also addressed by this study is how management's change to an intuitive from a purely mathematical approach to acquisition valuation influences acquisition decisions. The result of the analyzed data will serve as an indicator of how management perceives change in firm value caused by scale, scope, and financial leveraging synergy value creation from an intuitively derived set of standards. How this intuitive perception influences activity in merger processes is also answered by the findings of the study. This study is intended to aid managers with merger analysis leading to decisions about acquisition.

This study will especially focus on how managers perceive potential synergy value created through economic influences of synergy pertaining to economies of scale, and scope, and borrowing capacity changes. This study presents an analysis of interview responses with intention to empower managers involved with acquisition decisions an improved understanding of how perceptions of synergy value affect decision value determination and integration intentions in a proposed acquisition.

Nature of the Study

This study's nature is to shed light on change in methods used by potential acquirers and targets in the endeavor of deciding on whether a proposed conglomeration of pre-merging firms will add to or detract from shareholder value. The problem of the merger failure rate of 70-90 percent is being addressed by this study with an analysis of the trend by management of perceptions of synergy value and integration costs being looked at as an intuitive process. The design of this study places emphasis on qualitative data collection, synthesis, and analysis.

The nature of this study is to conduct a naturalistic inquiry into the process of deciding whether to acquire another firm and how the premium paid to the target is determined. Because the field of merger research is changing emphasis from one of a concrete analysis to one of an intuitive approach, the nature of this study is to gain understanding into how management is making decisions

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about acquisitions with this new intuitive approach to valuation (Schoonenboom, 2017). Senior managers with involvement in acquisition report a trend of being more intuitive in approach to synergy and firm valuation than if a numbers-only approach to negotiation is employed (Creswell, 2018).

The qualitative study is intended to deliver to managers information about theories employed in practice making for an effectively functioning post-merged firm. By asking, analyzing, and reporting on open questions asked of informed parties, the qualitative research and analysis will bring conclusions effectively leading practitioners to achievement of firm goals of productivity and profitability outlined in their mission statements.

The qualitative research exploring multiple realities of merger investigates into a real-life phenomenon occurring in-depth and within its environmental context (Ridder, 2017). This study does not delineate contextual conditions or place any effort at controlling inputs into the data collection set. Rather, information is collected from sources and then subjected to an identification of the constituents and elements and functional groups present in the substance of the data collected.

The type of analysis of the interview data collected is subjective comparison. This method works best for this study because a comparison of responses will reveal similarities and differences in firms' approaches to acquisition. An attempt at quantitative analysis of qualitatively collected data will fail to meet standards of statistical reliability and validity (Creswell, 2017).

This subjective comparison analysis compares similarities and differences in firms' approaches to acquisition research, especially in synergy estimation before acquisitions are proposed or negotiated. The comparison technique subjects' responses from respondents to comparative analysis. Emphasis is placed on respondents' responses to the open question of to what extent factors

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of economies of scale and scope and borrowing power influenced acquisition decisions. The analyzed and tabulated results of responses are then reported with inferences made (Creswell, 2018).

Results of analysis of interview questions responded to by managers researching M&A activity are the basis for development of a hypothesis to be tested in further research. The qualitative part of the study addresses research questions directed at the problem of M&A activity failure rates arising from the perspective of the human resource capacity and how managers respond to the threat posed by potentialities of failure. This study collects responses from managers, and then subjects the information gathered to intuitive, inductive, and mathematical reasoning processes (Creswell, 2018).

Significance of the Study

The qualitative interview and analysis section of the study is significant in its contribution to existing literature because the task of successfully integrating separate firms requires not only realistic firm valuations but intellectual savvy on the part of integrating managers (Pervaiz & Zafar, 2014). The unbiased analysis of interviews of parties responsible to merge entities involves the assessment of successful and failed merger attempts. This qualitative study's significance lies in benefit gained from failed and successful merger activity behaviors. This study's qualitative findings illustrate from managers' experience what to do and what not to do in merger management (Osarenkhoe & Hyder 2015).

Practitioners using results of the qualitative analysis will learn pragmatically how to devise and successfully implement integration strategies. They will gain deeper understanding of what to avoid in the negotiation and integrative phases of newly merged firm development. While many qualitative studies examining interviews of merger players exist, this study's significance lies in how concentrating on scale and scope and borrowing power changes affect merger processes, decisions and, most importantly, shareholder value and wealth.

Product diversification to external markets has been shown to create shareholder wealth (Buhner, 1987). However, little understanding has been gained about how this wealth is created or

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lost due to economy of scale, scope and borrowing power capacities. The study examines these changes during merger naturalistically rather than mathematically. This intuitive approach is made because internal, external, and market forces are constantly changing. This reality makes a quantitative approach unrealistic.

The qualitative study is significant as an addition to existing literature contributions in research of M&A activity. This study makes this contribution by concentrating primarily on economy of scale and scope and borrowing power change and their effect on firm performance, whereas almost all other valuation studies analyze cash flow and price/earnings changes resulting from merger. The three facets of scale, scope, and borrowing power are primary motivators for merger (Barick, & Kapil,2018). This qualitative analysis brings new understanding to forces affecting primary motivations for merger by qualitatively describing these forces. A new intuitive understanding of how forces of economy of scale and scope and borrowing power change affect firm performance before, during, and after merger is necessary to improve merger failure rates. The study's report of how factors of economy of scale, scope, and borrowing power are affected by merger will aid managers in bringing reduction to merger failure risk.

Research Questions

The following research questions serve as the focused and pointed basis from which to approach this study:

Qualitative Research Study

Research Question 1: Can interview data acquired from parties involved with acquisition negotiation be used to gain increased understanding of the influence of estimated synergy value on premium paid and integration success probabilities potentially created by a proposed merger?

Research Question 2: Why is the use of intuitive reasoning more effective in merger and acquisition synergy valuation than the traditional mathematical approaches traditionally employed?

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Research Question 3: How do managements' human resource teams employ procedures in the task of operations and financial integration functions to achieve success and avert failure to integrate; and exhibit similarities and differences in their respective approaches to functional integration management?

Brief Review of the Literature

A great deal of research is existing in the literature presenting firm valuation formulas designed to accurately predict and forecast value without firm acquisition intention; or before, during, and after merger and acquisition (M&A). Most methods use discounted cash flow (DCF) and price/earnings (PE) ratio analysis (Agarwal & Kwan, 2017).

Two other methods expressed in the literature are Net Asset Valuations, (NAV) and reengineering models (R-DCF and R-NAV). New valuation models include NRR-APB approach, MCF-RS and MCF-ES (Reddy, Agrawal, & Nangia, 2013). While use of these models brings an idea of firm value, the current practice of using weighted average cost of capital (WACC) of the acquiring firm in the calculation guarantees an inaccurate solution to the valuation problem (Reddy, Agrawal, & Nangia, 2013).

Before acquisition activity surged beginning in the 1990's, pre-merger models of valuation such as the q model of Tobin (1969), dividend discount models (DDM), NAV, price-to-earnings (P/E) and discounted cash flows (DCF) worked adequately to protect stakeholders during mergers. Tobin (1969) defines an investment demand model. The model defines net investment to be dependent on the ratio of market value of assets to their replacement costs. Tobin (1969) also adds that the firm will continue to capitalize so long as the market value of marginal capital exceeds its cost (Reddy, Agrawal, & Nangia, 2013).

Damodaran (1996, 2012) presents an alternative model, a value creation method. The method shows that flow of idle money, capital cost, and expected growth period influence enterprise value creation. This consequentially created enterprise value then becomes a reflection of business value

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estimation. Fernandez (2012) reports three residual income models: economic profit (EP), economic value added (EVA), and cash value added (CVA). These three models capitulate similarity in value to the DCF model. Fernandez (2013) asserts monthly data collection for valuation of seasonal companies by use of the DCF model. The author argues seasonality to affect calculations of free cash flows throughout the increase of working capital requirements.

Fernandez (2010) summarizes ten methods of firm valuation. They are equity cash flow, free cash flow, adjusted present value, business risk adjusted free cash flow, capital cash flow, risk-free rate-adjusted free cash flow and equity cash flow, EP, and EVA. All these methods result in the same value (Reddy, Agrawal, & Nangia, 2013). In other words, no matter what method is being used to determine firm value, the derived value will be the same regardless of the valuation method being used.

Fernandez also states that there is no superior or better method of one over another in firm valuation. The work of Fernandez does not approach valuation during merger, nor do the methods address valuation from the perspective of changes made to profitability by effects of merger on productivity changes. The idea of adding one plus one to become more or less than two caused by synergy or dyssynergias, as is applied to the merger environment, simply does not exist in the methods presented by Fernandez (2017).

The research of Damodaran (2017) added complexity in approaching the valuation problem. The article strongly argued that firms engaged in linear industries showing cash flow and other financial statements simplistically; when compared with firms showing identical financial statements from firms operating heterogeneously in multitudinous segments; will be served a disservice when valued identically with the first-mentioned type of business.

This work of Damodaran (2010) serves the need to revolutionize firm valuation (especially during merger) approaches. The author also gives recommendations about how to deal with complexity in valuing firms' worth. This is done by adding a discount for complexity, adjusting cash

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flows due to complexity, adjusting the discount rate in proportion to complexity, and by adjusting expected growths and length of the growth periods (Damodaran, 2010).

Valuation Formulas

What is lacking in the research of Damodaran (2010) is a pragmatic formula available to be applied to different firms' heterogeneity and complexity indices. The formula was standardized quantitatively to bring ability of practitioners to bear upon financial performance divergences between linear and nonlinear firms. The formula simplifies comparative value between linear and non-linear firms otherwise difficult to assess in terms of comparative value. Other works addressing the need protect stakeholders with new theories, financial models, approaches, methods, and innovations are: Tobin (1969) diverse models for valuations and results, Levin and Olson, (2000) Plenborg, (2002) Bailey, (2008), value relevance of accounting information, EI Shamy and Kayed, (2005) Misund, et al., (2008), estimating free cash flows, Velez-Pareja and Tham, (2010). These studies bring varied approaches, innovations, theories, and financial models capable of addressing firm valuation in the changing world of business from domestic to international to multinational to globalization. What none of the studies do is make effort at bringing light to the issue of value added or lost from synergy and dyssynergias when firms merge or split.

Exclusive studies addressing firm valuation in service of protection to stakeholders are: valuation of shares through simulation (Roy, 1986); valuation model for international acquisitions (Madura et al. , 1991), valuation of hotels, property, and real estate (Hattersley, 1990) common errors in valuation (Fernandez and Bilan, 2007), psychology driven pricing in mergers (Baker et al., 2009), valuation of young companies (Zwilling, 2009), and comparison of NAV and NRR approach 1.0 (Nangia et al. , 2011). Associated and relevant studies include: relationship between corporate governance, board size, and valuation (Yermack, 1996), industrial diversification and firm value (Wilcox et al., 2001), effect of cultural differences on firm value (Antia et al., 2007); impact of value

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drivers on firm value (Kazlauskien & Christauskas, 2008), and the economic impact of mergers on firm value (Ma et al, 2011).

Levin and Olsson (2000) demonstrated that if steady state order is not reached by the time of terminal value computation, the residual income method (RIM) yields more real firm value as compared with the DCF approach. Bailey (2008) empirically supported the Levin and Olson (2000) finding and stated that the RIM method provides more accurate estimates of firm value than two others commonly used DCF and DDM models (Reddy, Agrawal, & Nangia, 2013).

Similar results have occurred with the DCF and RIM approaches, compared with reference to analytical attractiveness. In contrast, the DCF approach gives accurate firm value estimates (Plenborg, 2002). Hence, the framework for forecasting is often based on accrual accounting while budgetary control is based on accounting numbers rather than cash flow numbers. Paradoxically, Fernandez and Bilan (2007, p. 35) presented an anthology of 100 common accounting analysis errors seen in firm valuations performed by financial analysts, investment banks, and financial consultants.

An exclusive study by Baker et al. (2009, p. 20) observed psychology-driven prices affects in M&A negotiations and emphasized that profitability and deal triumph are significantly and infrequently amplified by offering the target a price above its 52-week high (Reddy, Agrawal, & Nangia, 2013). Zwilling (2009) practically elucidates three valuation models: asset valuation, market approach, and income valuation. These models were developed for the purpose of assessing business value of young companies. Zwilling explains that various imperative factors are involved while setting the firm value.

Valuation Models with Forecasts

Misund et al. (2008) used a case study of the oil and gas industry to make predictions about how the oil industry upheaval in the late 1990s influenced the value relevance of financial statement information. Results of the study suggest simultaneous earnings to be more useful in predicting future cash flows than current operating cash flow. Simultaneous earnings are also shown by the

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study to be more relevant than current operating cash flow in determination of company valuation. The EI Shamy and Kayed (2005) study observed value relevance of earnings and book values under the Kuwait accounting system. Their results stated earnings to become less value-relevant and book values more-so than current operating cash flow. By use of book value in lieu of earnings, therefore, firm performance shows negative earnings.

Velez-Pareja and Tham (2010) made estimates of free cash flows in project evaluation. They calculated various kinds of cash flows: cash flow to equity, cash flow to debt, tax savings, capital cash flow, and free cash flow. They used both indirect and direct methods to derive relevant cash flows for the sake of stakeholders. Roy (1986) computed share price for acquisition by using an operations research technique simulation with respect to India Cements Takeover (ITC). Results proved estimation of minimum and maximum tender offer price to be possible through a simulation process. Use of the simulation model empowers acquirers involved in the bargaining process to buy a known amount of target firm stock to finalize swap ratio (Reddy, Agrawal, & Nangia, 2013).

Madura et al. (1991) developed a specific valuation model under the law of capital budgeting for international acquisitions. They also studied the growing number of outside-US acquisitions of US firms and cause-effect of divestitures and leveraged buyouts. Nangia et al. (2011) developed the first version of the NRR approach through considering various imperative factors that lead to define firm value for benefiting target entity shareholders. They validated the NRR 1.0 model in two select firms and results have been compared with NAV. Particularly, they suggested guidelines for further improvement of NRR 1.0 to substantiate in diverse industries. Therefore, the NRR-APB approach became the final version and has been compared with other methods in this paper.

Hattersley (1990) used valuation of hotels as an illustration. Similarly, Roubi (2004) also demonstrated the hotel real estate valuation under income approach. Roubi described how income approach reflects an investment rationale and incorporates the strategies of typical buyers.

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Furthermore, Roubi noticed that hedonic pricing models are robust tools in separating and measuring intangible hotel property and decomposing total asset value.

Graaskamp (1992) exemplified valuation and forecasting methods to find out worth and market value of a real estate asset and observed buying/selling of a real estate asset influenced the pricing models of the real estate broker, the appraisal method of appraiser, and internal analysis of the investor. Particularly, the valuation surveyor performs a major job in takeovers or mergers and values must ensure that suitable guidance is given to both the shareholders and directors (Gerold, 1989).

Bai et al. (2004) constructed measures of corporate governance and market valuation for listed companies during 1999-2001 and noted that market valuation was positively affected by non-controlling shareholding and issuing shares to foreign investors. In contrast, Yermack (1996) discovered an opposite relationship between board size and firm value for 452 large US industrial corporations between 1984 and 1991. Yermack also stated that small boards of directors are more effective than large ones. This finding of small boards greater effectiveness over large boards is a significant one. The finding is significant because a recommendation of a small board of governance in lieu of a large board, if followed, will improve firm performance.

Lin and Su (2008) investigated the relationship between industrial diversification and firm valuation of 816 listed companies in China. The study found that when the decision to diversify is modelled as an endogenous choice based on firm characteristics, multi-segment firms have drastically higher Tobin's q compared to single-segment firms. Wilcox et al. (2001) examined 44 merger events in the telecom industry. They advocated that deals involving near-diversification and larger firms would be likely to practice superior valuation effects over linear and small-to-medium-sized acquirers.

Kazlauskiene and Christauskas (2008) analyzed scientific aspects of influencing drivers of business value by disclosing control facets to the definition of value drivers and discussing its impact

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on firm value. They also proposed value driver's taxonomy and structure of valuation model. Antia et al. (2007) described the value impact of cultural differences on business value and found an unconstructive connection between cultural distance and firm valuation. Most individual cultural aspects made the index have unhelpful results of firm valuation.

Contribution of the Study to the Literature

This study is contributing to existing literature by bringing an examination of existing constructs of acquisition research into negotiation and integration activities. The findings of the study of the phenomenon of preparation for and implementation of negotiation and integration activities brings to the literature new information about acquisition management development in the action of merger. The synthesis of experts' responses to questions about how synergy is instinctively treated as a potential asset adding value to the merged entity adds to the existing literature by showing how change in approach to acquisition is being adopted and implemented by acquirers in the business of acquiring target firms.

Contribution to the Context of the Problem

The study brings a contribution to the context of the problem of merger failure in negotiation and integration phases by presenting findings about how issues of economy of scale and scope and borrowing power are addressed by potential acquirers. The potentiality of these factors as significantly influencing profitability is being addressed more comprehensively in the current study than is presently existing in the literature.

Similar and Related Studies

Many studies have been conducted with focus on addressing firm value change during acquisition and merger. Studies using methods of cash flow are inadequate because they neglect to account for synergies being created by merging two or more firms into one. The study of Toll and Hering, (2017) is pertinent and related to the study by the incorporation of shareholder perspective in

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the valuation formula. This study goes further by quantifying forces of economy of scale and scope and borrowing power and adding them to the valuation formula.

Ma et al. (2011) developed substitute measures of post-merger concerts to examine the economic impact of mergers on firm value and instituted that mergers demolish industry-adjusted intrinsic value. Holistically, they noticed that both changes in (mis)valuation and changes in intrinsic value add to post-acquisition stock earnings. Toll and Hering, (2017) developed a formula to add shareholder perspective to an existing model calculating firm value during merger. Their study focused on finding the point of indifference in which shareholders would be no better or worse off as the result of the merger. The addition of the variable of shareholder wealth maximization brings protection to shareholders of acquirers and targets. The point at which shareholders of both acquirers and targets are indifferent is defined as the price at which shareholder wealth is maximized (Toll & Hering, 2017).

The themes of the above-mentioned articles are varied and address not only firm valuation during merger but integration problems facing merging firms. The study emulates work of Osarenkhoe and Hyder, (2015) to synthesize the qualitative approach to negotiation and integration problems encountered in merger. The work of Osarenkhoe & Hyder models the study’s qualitative approach to merger negotiation and integration issues.

Characteristic of the Research Area and Problem

The research problem area characteristic is the proliferation of publicly traded firms acquiring and merging with little success. Management teams eager for rapid growth often look to acquisition to obtain rapid profitability growth within their respective firms. Managers involved with the merger process lack skills necessary to overcome resistance to change needed to convert procedural

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practices conducted within in two or more firms into a model designed to make one successfully operating entity.

The characteristic of the research area problem in the negotiation phase of merger is one of paying too much or too little by the acquirer for the target firm. Shareholder value is being harmed by either of the two outcomes of the negotiation phase. Preservation of shareholder value and wealth should be the underlying motivation for merger. Merger failure is found to be predominantly occurring at the integration phase. (Osarenkhoe & Hyder 2015). However, mistakes made in pre-negotiation and during the negotiation phase of merger will cause obstacles to avoidance of failure in the integration phase.

Gap in the Literature

The gap in the literature is the lack of information showing how new approaches to acquisition to be based less on mathematical formulas and more on an intuitive and inductively reasoned mindset. The issue of synergy valuation is changing in its perception by management from one of analysis to the recognition that future profitability increases presents itself as being relatively unquantifiable. While management is departing from the practice of being overly optimistic to shareholders of synergy value, they understand that, while synergy and potential for increased profitability exists, the cost of integration is also a risk to be seriously considered. The study addresses the gap in the literature by presentation of naturalistic observations subjected to qualitative analysis of open questions addressing how managers value and approach issues of scale and scope and borrowing authority change due to merger.

Conceptual and Theoretical Framework

Existing literature successfully addresses the problem of firm valuation in service of the goal of value from shareholder perspective (Toll & Hering, 2017). The problem of identifying and quantifying firm value changes in merger due to change in scale and scope and leveraging ability is subjected to the theoretical framework of one plus one equaling something more or less than two.

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This synergy is what the study is defining and qualitatively assessing, analyzing, and reporting as solutions to practitioners.

The management theory serving as guidance to the framework of this study is the contingency theory of management. The theory is used to focus on identifying problems first, and then creating solutions for them as a way of management. The problem of slow firm economic growth is responded-to by the notion that the cause of individual firm increased economic growth may be furthered and sped-up by the acquisition of competitors' resources. That is, acquisition of targets' resources serves as the vehicle through which a firm may increase the rate at which it may increase industry market share and improve internal firm rates of productivity. System management theory is also used to bring focus to the study about issues of complexity and interdependency of systems. This study does this by combining all components and analyzing their overall impact to the company's productivity. Also, the four principles of management of planning, leading, organizing and controlling; are utilized to bring clarity to the study.

Given the documented 70-90 percent failure rate of mergers globally, help is needed on the part of senior management in acquisition decisions. If economy of scale, that is, the addition of productive capacity to an optimal level, does in fact add more value than simply the added value of firms operating separately, the merger process should indeed be completed. Also, an understanding of the amount of firm value gained through merger by economy of scale forces assists players involved in the negotiation phase of merger.

The concept of improved efficiency and therefore profitability also holds true for the concept of economy of scope. Differentiated products may be added to an optimal level wherein the operating firm sees a maximization in return on investment in the number of product types being manufactured and sold. If a proposed merger adds firm value to the post-merged firm to more than

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the sum of combined product lines, the merger adds value to the acquirer of more than the worth of the capacity of the two or more firms' values combined.

The theory behind borrowing power as it relates to merger is that the return on capital invested in production of revenue is greater in a merged firm than in entities operating separately. Consideration must be given by acquirers to the weighted average cost of capital (WACC) of target firms. If the WACC of the target adversely affects that of the acquirer, care should be given in the negotiation phase of acquisition lest shareholder value of the acquirer be damaged. The addition of assets to the acquiring firm by the target firm do, however, provide opportunity to the acquirer for a greater capacity to borrow capital from lending institutions.

Part of analysis in this study is based on the model presented by Toll and Hering (2017). Their work presented a formula for firm valuation considering shareholder perspective. The point where both acquisition and target firms' shareholders were indifferent about acquisition was the equilibrium firm value. The study utilizes the theory that firm profitability increases to an optimal level of production and decreases at the addition of one unit above the optimum. If production capacity increases, as is the case with a firm acquisition, efficiency of production will lower per-unit cost to an optimal level of production. Also, the addition of different product types increases profitability to an optimal number of product types produced. Finally, the framework is guided by the theory that borrowing power increases profitability up to an optimal and finite rate of return on investment. That is, the addition of another dollar of debt will cause a decrease in the rate of return on investment.

Firms serving the purpose of shareholder wealth creation find the process of merger and acquisition of existing functional entities an enticing manner within which to accomplish the objective. Indeed, the surge in this activity bears witness to the enticement of merger as a solution for business expansion. The problem arising with merger is the large percentage of them failing. With the definition of merger failure being a failure to increase shareholder wealth or even lose

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shareholder value, an 83% rate of mergers failing gives pause to the aggressive nature of M&A activity. Acquisition analysts need better tools than are currently being used in the task of determining whether a proposed merger will succeed, and at what price.

Even if the merger negotiation phase goes well, the newly merged firm faces the challenge of integration. Scientists agree the integration phase to be where firms face the greatest challenge to merger success and the greatest possibility for failure exists. This study collects data from firms experiencing success and failure with merger integration to guide managers embroiled within the task of increasing shareholder wealth and at the same time keeping employees conforming to new systems and methods of operation (Osarenkhoe & Hyder, 2015).

The human resource reaction and response to completed merger negotiation is critical to research because existing studies overwhelmingly conclude employee resistance to change as the primary challenge to success of merger integration (Osarenkhoe & Hyder, 2015). Management proactive action is an important concept to explore because if management is proactive rather than reactive in nature, staff and line employees will tend to follow management lead and be proactive themselves. Constant evaluation with a reaction of a plan with implementation is important as a concept because if this function is not performed, mergers experience drastically decreased chance of success (Osarenkhoe & Hyder, 2015).

The concern being addressed by the study is the failure rate of mergers standing at a rate between seventy and ninety percent of all acquisition processes creating one firm out of two or more. The key variable related to merger failure is identified as too much or too little paid in the negotiation phase resulting to resistance to change by stakeholders. A solution to this problem is necessary to be implemented in effort at successful integration of merger. An improved and intuitive

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understanding of how to effectively manage merger negotiation and integration is necessary to reduce merger failure rates.

The motivation for merger is to serve the purpose of rapid firm financial performance growth. A fast-growing firm is less likely to be overrun by competitors. This is the reason for the surge of mergers over the past few decades. What causes merger failure and even bankruptcy, however, is the desire for too much growth too quickly at the cost of efficiency. Firms' growth strategies as they directed toward acquisition must be developed by guidance of valuation techniques capable of accurately predicting possible synergies and potential pitfalls of dyssynergias created by the merger.

Economic costs of production are reduced on a per-unit basis to an optimum level wherein the addition of one additional unit of production or another product type will cause an increase in per-unit cost. The cost per unit or per product type added to production decreases up to an optimal and most highly efficient level of production and different product branding offering. The further a firm is operating away from these optimums, the lower is their overall level of productivity and profitability. So, if economic efficiencies are ignored or disregarded, especially in the acquisition decision making process, external competition gains advantage over the inefficient firm. This dependency of firms' profitability on efficiencies of production, product type, and borrowing capacity is countered by an understanding of how a proposed merger will affect potential profitability gains and losses caused by change in scale, scope, and borrowing capacities.

Incentive for merger is to attain an optimal level of production and number of branded product type offerings. This phenomenon also holds true for firms' debt capacities. The combining of two or more firms into one improves borrowing position by more than the sum of the individual entities, up to the point where the addition of any more debt or assets will bring a diminishing capacity for the merging entities' debt and assets to generate revenue. Economy of scale and scope and borrowing capacity change is dependent on firms' productive, horizontal and vertical integrative

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expansion capacities, and asset to debt ratios. Knowledge of how merger affects these variables aids in determining worth and level of commitment to proposed acquisition negotiations.

Assumptions, Limitations, and Delimitations

Assumptions

This study assumed merger and acquisition (M&A) activity to be that acquirers' actions were primarily and singularly driven by a motivation to increase shareholder wealth and overall firm value (Rose, 1987). This study ignored personal motivational factors such as management hubris. While realities of desire to increase market share and control price without regard to firm performance existed, they remain irrelevant within the framework of this study.

This study's second assumption was that if qualitative information bringing knowledge of if economy of scale and economy of scope and borrowing capacity affected decision value and premium paid for targets, acquirers were empowered to make intelligent decisions in the pre-acquisition and due diligence phase of acquisition research. These decisions were subsequently causing merger negotiations to result in a completed deal positively affecting shareholder value (Sacek & Šavriņa, 2016) and increasing probabilities for successful transformation of the human resource function through the integration phase of merger (Osarenkhoe & Hyder, 2015).

The third assumption pertained to pre-merged firm value. Book value was selected as the starting point in merger negotiation phase and market price and value was ignored as a basis for valuation. Since a myriad of unquantifiable factors were associated with current strike price in a publicly traded firm, and reasons for divergence of market price with book value are unknown, the study assumed the negotiation phase to begin at book value.

Limitations

A factor beyond the control of the study was the responses to open questions in the qualitative data collection procedure. The phenomenon being researched experienced with how potential synergy due to merger was viewed in the negotiation phase and what practices best insure

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successful integration of merging firms. No control exists; therefore, over what responses were made to open questions. Since the data was subjected to interpretation only and not numerical analysis, the interpretation itself was subjected to bias and unintended inferences, especially from the perspective of the subject answering the questions.

One of the solutions presented by this study's methodologies was to reduce and eliminate potential bias presented by qualitative data gathering techniques. A codebook of similar and divergent responses to identical questions posed to participants of this study was constructed. The codebook generated guided the process to unbiased findings by placing together "like" responses and separating divergent responses in the data set collected for analysis. This coding brought continuity of data which could not otherwise be attained without the practice of coding and codebook generation. The data's constructed continuity worked to eliminate bias by emphasizing analytical weight on responses which did not; at least in some manner; match or oppose mean values in response.

Delimitations

This study's purpose was to be an aid to managers in the pre-acquisition, negotiation, and integration phases of merger. Use of this study to create an integration implementation plan would be not directly relevant to the intended purpose of the study.

The study is not intended to serve as a firm valuation tool. Existing literature abounds with a plethora of firm valuation models, usually based on cash flow analysis. Most methods use discounted cash flow (DCF) and price/earnings (PE) ratio analysis (Agarwal & Kwan, 2017). This study's intention was to present empirical evidence about how acquisition (and target firm) managers changed approach to valuation of merging firm value and synergy and proactively conduct merger negotiations and estimate costs of integration plans.

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Definition of Terms

For the purpose of the study, the following terms used are defined below:

Borrowing Power. The level of debt an investor may acquire on margin to invest in production. A firm with a low weighted average cost of capital (WACC) possesses more borrowing power than a firm experiencing a higher WACC (Lewellen, 1972).

Economy of Scale. The economic theory that, at a certain level of production, cost per unit produced functions at the lowest level possible. The addition or subtraction of one unit of production will increase production cost (Parr, 2004).

Economy of Scope. The economic theory that, at the production level of a certain number of differing types of products, productivity and profitability will be maximized. The addition or subtraction of another product type will cause an increase in production cost (Parr, 2004).

M&A. This is an acronym for merger and acquisition. Acquisition alone is the trend for this type of activity, with merger referring to the integration phase of corporate consolidation of assets (Toll & Hering, 2015).

WACC. Weighted Average Cost of Capital. A calculation of a firm's cost of capital in which categories of financial, equity, and debt are proportionally weighed. Common and preferred stock, bonds, and long-term debt are included in the WACC calculation (Wang, 1994).

Summary

This chapter included an outline of this study, background of the problem, and research questions. Also stated were the conceptual and theoretical framework, assumptions, limitations, delimitations, and scope of this study. The problem of lack of information about expected value change in post-merged firms as caused by scale, scope, and borrowing capacity was addressed by responses from questions about how managers viewed these issues during merger.

An in-depth review of the literature follows in Chapter 2, which expounds upon the development and significance of this study and its literature. Chapter 3 includes a discussion on the

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methodology of the data collection. In Chapter 4, the results and analysis of the study are presented. Finally, Chapter 5 consists of comments on the study combined with suggestions for future studies stemming from this research effort.

Themes of the study were synthesized according to the researchers' emphases placed on their individual studies. Studies placing emphasis on quantitative understanding of organizational financial behavior during merger were categorized along the work of Toll and Hering, (2017). Qualitative studies addressing the integration phase of change management were placed in the synthetical analysis with the work of Osarenkhoe and Hyder, (2015).

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Chapter 2: Literature Review

The failure of 83% of acquisitions to increase shareholder wealth through merger poses itself as a significant global business functional problem. Griffin (2019) found share price increases' effects on shareholder value to adversely affect shareholder wealth, which caused harm to society (Griffin, 2019). This problem was addressed in the literature review of the current study by use of a focus on research conducted to understand change in approach to valuation of firms and synergy by senior management during a merger or proposed acquisition of a target.

The literature review for the current study placed emphasis on recent research conducted to solve the problem of synergy valuation. An understanding exists that synergy value of merger cannot be determined with any degree of accuracy without first determining individual firm value. However, long-standing individual firm valuation models and formulas in the literature, while adequately contributing to the task of individual firm value, do nothing to address the problem of determining operational and financial firm performance and value added by synergy in a post-merged firm. Therefore, the literature review reported on studies conducted to determine change in performance and value during merger. The literature review is organized by valuation formulas, behavioral management studies, ratio analysis studies, event studies, statistical analysis studies, hypothesis-testing studies, and valuation commentaries.

Literature addressing the problem of merging entities stands as a prolifically burgeoning body of knowledge. The literature review and purpose of this study narrowed the focus of the merger failure problem down to the issue of synergy valuation only. Behavioral management, operating as a critical factor in successful merger integration practice, was minimally addressed by this study. The philosophical motiving underpinning behind this decision is that if a horse is harnessed in front of

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instead of behind a cart, the probability of effective forward movement of the cart increases infinitely.

The literature search strategy focused on retrieval and report firstly and primarily on research geared toward valuing firms during merger. Secondly, the review reported on studies performed to gain understanding of effects of merger on performance and value, both during merger and in the long run horizon. Thirdly, economic theories of merger were addressed. The review included integration studies from a behavioral management standpoint addressing integration issues and a qualitative study of needs in, and approaches to, synergy valuation. The search engine sources used to access articles are ProQuest Central and Web Crawler. Keywords in use are merger, acquisition, firm valuation, M&A activity, merger negotiation and integration, cross-border merger, firm valuation during merger, and scale, scope, economy of scope, and borrowing power, among others.

Historical Development of the Topic

Consolidation of tangible and human resource assets through other-entity acquisition in homogeneous and diversified industries has been the driving operating focus of large domestic and multinational enterprises for at least two decades (Filipovic, Vrankic, & Mihanovic, 2014). Using the accounting field as an example, the latter half of the twentieth century (by the 1980's) shows all leading US accounting firms involved in major merger discussions, if not already operating under actual completed conglomeration agreements (Wootton, Wolk, & Normand, 2003).

The value of foreign direct investment (FDI) in developing countries in the early 1990's was about $50 billion, and by the early 21st century, FDI by developing nations exceeded $200 billion (Bano & Tabbada, 2015). FDI by developing nations is expected to increase even further and more dramatically due to the opening of huge markets in China, India, and the former Soviet Union. This

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massive influx of investment capital creates opportunities for existing domestic and multinational firms to achieve rapid economic growth (Filipovic, Vrankic, & Mihanovic, 2014).

Successful firms gaining rapid increases in income find themselves in a position of opportunity to acquire firms along the supply chain, (vertical integration) among similar product-type producers, (horizontal integration) and in separate industries (conglomeration). Along with new market expansion opportunities, however, threats to profitability and security present themselves to investors and management. The rate of failure of mergers domestically and internationally stands somewhere between 70-90%. This significant and long-standing problem by firms' failure to improve financial performance and shareholder wealth after acquisition has driven academics to derive and improve firm valuation during merger methods (Van Horn & Van Horn, 2011).

Valuation of a single firm is one task. Determination of the potential value of two or more firms combining themselves into one operating entity creates a separate and unique challenge to senior managers of acquiring and target firms. The anchor for the historical development of the study is the point at which the academic contributions to of firm valuation approaches departed from individual firm performance valuation and began the task of capturing combined merging-firm value gained from synergy.

The traditional methods of firm valuation are dividend discount model (DDM), residual income model, (RIM) discounted cash flow model, (DCF) net asset valuation, (NAV) and re-engineering models (R-DCF and R-NAV). Newer approaches include NRR-APB, MVCF-RS, and MCF-ES (Bailey, Fin, Brown, Potter, & Wells, 2008). These approaches to firm valuation do not, however, consider changes in productive capacity causing change to economy of scale and scope parameters resulting from the act of merging two or more entities into one operation. These changes

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resulting from merger affect performance of the merged firm, and, therefore, must be taken into consideration when evaluating performance.

Without knowledge of how scale and scope and borrowing power synergies (dyssynergias) affect merged firm value, bidders bidding on targets are blind to value additions created by these forces. Blindness to value of anything other than summation of balance sheets creates an environment of uncertainty about the minimum and maximum premium an acquirer may pay for a target. This uncertainty acts as a direct threat to merged-firm success. Paying too high or too low a premium in acquisition of a target adversely affects both acquiring and target firms' shareholder values and threatens merged firm integration success (Bernile, 2006).

The valuation problem of merger was mostly addressed by discounted cash flow methods until Hering (2004). The Hering, (2004) model presented a formula representing the point wherein shareholders of each merging firm experience indifference at whether the premium paid is accepted or rejected. This ideal is difficult to attain with certainty and the transaction price maximizes wealth to shareholders of acquiring and target firms equally. This ideal premium is also the transaction creating the greatest level of confidence and certainty for successful integration of the combining operations (Agarwal & Kwan, 2017).

Economic event studies examining share price shortly before, during merger announcement, and shortly after acquisition, while not abundant in the literature, abide, nonetheless. These studies are important because they show market perception of merger success potentiality. Some studies even prove synergy value to be represented by the change in share price after the merger. What is lacking is a method for distinguishing separately and assigning value individually to each of the factors of economy of scale and scope and borrowing power changes caused by merger.

Summary

The $4.1 trillion investment in global merger activity and $200 billion worth of foreign direct investment (FDI) by developing nations in the same year stands as strong evidence of multiple

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national enterprises' (MNEs') interest in growth. While potential for growth exists with this investment, financial risk stands as a threat to service of the goal of firm growth. Reduction of risk present in acquisition activity is the motivation for researchers to bring understanding of acquiring and target firm value, especially during merger, to bear on the problem of merger failure risk.

The literature addresses the valuation problem by presentation of merging firm valuation formulas, event studies with financial ratio analysis at merger announcement dates, integration behavioral management studies, bank beta risk analysis, and hypothesis-testing of value creation. The field of merger analysis and firm-during-merger-valuation is evolving itself from sole-firm valuation to qualitative behavioral analysis to a more subjective and instinctive approach to merger opportunity and risk.

Practitioners of valuation, senior management, and financial market participants have assumed synergy value created by merger to be the change in value of the difference in share price of the pre-merged firms. If immediately post-merged firms' share price exceeds the combined total of the pre-merged firms, the difference is synergy created by merger. If post-merger announcement share price is less than pre-merged firm strike prices, the difference is considered dyssynergia and the merger is a failure. The current study challenges the prevailing assumption of synergy value equaling post-merger share price with a proposed model approaching determination of scale and scope additions and/or subtractions resulting from combining two or more firms' productive capacities.

Valuation Formula Presentation Studies

Björnerstedt and Verboven, (2016) introduce a partial coordination parameter and conduct a simulation to determine the weight acquirers assign to competitors' reported profits when setting prices. The subject firm is the Swedish pharmaceutical Apocket AB and the study analyzes data in the period from January 1995 to December 2009. The timeline was selected to analyze data from before deregulation. The study's formula of nested logit specification predicts average of merging

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firms' share price to increase by 41.1 percent as compared to actual effect of 39.7 percent. The study, while not a synergy valuation model, is relevant to firm merger valuation because the simulation and formula methods accurately predict change in value due to merger. The challenge lies in development and use of methods and formulas to determine synergy value before merger.

The study of Groh and Henseleit, (2009) uses a standalone valuation method used to determine the net present value (NPV) of a tax shield. The method calculates NPV of the shield by application of a discount rate accounting for tax benefit of debt as relating to the financing mix. The second method of the study uses the Adjusted Present Value-Formula method (APV-F) Myers (1974). The study adds an additional variable to the APV-Formula framework. This variable represents debt tax benefit. For standalone valuations, the appropriate discount rate added to the APV-F formula is the after-tax weighted average of r*.

By following the framework set by Graham (1996), the study approaches the problem of taxable income by accounting for all periods in which carry-backs and carryforwards can occur. The present value of marginal taxes is then determined; including all carrybacks and carry-forwards added to the mix. The study shows that for APV valuations, a rate between the firm's cost of debt and the risk-free rate is adequate to discount step-up-induced depreciation and amortization benefits.

The two methods presented in the study adequately represent valuations of debt tax benefit of individual firms. Transcending the study's formulas to intra-firm performance analysis is necessary to solve for merger synergy (dyssynergia) debt tax benefit received (given) due to acquisition. The study does show simulation as a viable and valid method for debt tax benefit determination within an individual firm. What managers researching acquisition need to know is the corporate tax effects of potential acquisitions. Modification to the modified NPV and APV-F formulas used by the author is needed to get a result of change to debt tax benefit situations resulting from the act of target firm acquisition.

Findings by authors of a study of acquisitions' effects on net present value of the acquiring

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company conducted and written by Guest, Bild, and Runsten, (2010) show effects to be insignificantly negative on financial performance. The study sampled 303 UK firms' mergers between January 1985 and December 1996. The findings show improvements in acquirers' profitability and no significant increase in fundamental value. The authors used the Return on Equity (ROE) equation:

Takeover performance = ROE^sub post^ - ROE^sub pre^

to determine pre-and-post merging firm profitability.

The importance of the study to the problem of merger valuation lies within the findings of "insignificantly negative effect" on post-merged firm performance. As measured by the study of 303 UK firms, the conclusion is drawn naturally that acquirers and shareholders lost little-to-no value due to the acquisition and merging of two firms' operational and financial structures.

The study does not use price-to-earnings (P/E) as a variable in the equation, so the cost of gaining ROE by purchasing a share of stock is not considered. Thusly, the study cannot be considered an attempt at merger valuation, but one of profitability and financial performance analysis only. Addition of P/E ratio to the equation makes the study more closely resemble one of valuation. The danger of mixing performance and valuation techniques is revealed by the study. The study shows values of potential synergy and dyssynergias' effects resulting from proposed merger to be difficult to quantify, and that profitability measures alone remain inadequate to assess and predict merger synergy value, and therefore potential merger success. The findings of the study agree with Alberts and Varaiya, (1989) (also using ROE as the single variable in determining value) in that, given the large premiums typically paid to targets, high unlikelihood exists of average acquisition creating fundamental value for the acquirer.

Ho, Liao, and Kim, (2011) develop and test a model and method with a formula for valuing internet companies. They modify a Data Envelopment Analysis (DEA)-based method, combined with a multiple valuation method (comparable firms) in their approach to the problem of firm value

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determination. To yield the set of comparable firms to satisfy the multiple valuation requirement, the authors develop and test four models to yield an estimation. The basis for selection of firms for the four models is the Price-to-Gross Margin (P/GM) ratio, as implemented under each model.

The study shows ingenuity in addressing the task of addressing internet company valuation; an industry which has seen the dotcom crash of 2000 and a flood of fast-exiting investor capital. The future of individual firm and merging-entity valuation may be indicative of the study's approach in addressing internet company valuation. Further research may indicate a need for further refining the study to adapt-to and conform itself to the task of valuing synergy/dyssynergias resulting from the prospect of merging one into two-or-more internet companies.

The contribution of Ho, Liao, and Kim, (2011) is relevant to merger synergy valuation in its unique approach to valuation in general, and to the internet industry specifically and particularly. The status quo modes operandi of senior managers' writing-off of massive financial losses in premium prices paid to target firms and reporting them on the balance sheet as "negative good will" expenses does nothing but harm investors, employees, the economy, and society-at-large. Innovative approaches in service to the problem of valuation, as is seen in the study by Ho, Liao, and Kim, (2011) need refinement in transformation to bring solutions to the problem of synergy valuation. If managers hold the purpose of shareholder and investor value and wealth in the greatest regard, they will demand creative and accurate valuation models, and will, hence, receive bona fide and accurately derived valuations.

The real options approach is elaborated upon in a study by Loukianova, Nikulin, and Vedernikov, (2017). A modified form of the Datar-Mathews (2007) real option valuation model is proposed for use by practitioners. An assessment of synergistic effect on acquisition-negotiated deals in two mergers is analyzed. The study adds significantly to the topic of synergy valuation by enabling evaluation of the cumulative effect of up to eight of the most common types of synergy, either simultaneously or separately. The option of addressing individually or cumulatively the eight

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identified types of synergies gives practitioners flexibility and intuitive understanding of synergetic effects influencing merger.

The notable difference in the proposed synergy valuation method from a subjective decision value method or a shareholder perspective method is 1) no decision value is determined 2) the strike price point at which shareholders are indifferent about merger consummation is not determined 3) Economy of scale and scope factors are addressed by the formula only by the variable of "cost reduction".

The proposed method is an excellent one for managers to use in due diligence work before merger negotiation. Practitioners of the method will gain understanding of synergy value in the pre-merger due diligence phase of acquisition research. Gain and garnering of specific information about what, how, where, and how much gains (losses) are made in manufacturing productivity by causation of scale economies, however, will not be found by application of this proposed method to financial and operational data.

Moretto and Rossi (2008) determine an exchange ratio for merging companies by use of the Capital Asset Pricing Model (CAPM) as proposed by Sharpe (1964). The method furthers the work of Yagil (1987) and Larson and Gonedes (1969) by accounting for time value of money considerations and synergy effect. The formula accurately calculates exchange rate (ER) and easily assesses risk and synergy. It carries into a simple formula, a way to embed relative riskiness of two companies' merging action caused by exchange rate fluctuations and negative synergy.

Moretto and Rossi (2008) place the stock in a newly merged company as a portfolio of stocks of the two previous companies and, therefore, incorporate all risk/return and synergy (dyssynergia) effects in the analysis of β risk. The study and formula are relevant to the topic of topic of synergy value determination because a value for financial synergy of merging firms is determined. What the

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study does not address is the notion of operational synergy. That is, additions to value caused by improvements to efficiency and effectiveness in production and increases in productive capacity.

Orsag and McClure, (2013) present a modified net present value (NPV) method as a useful tool for synergy valuation in business combinations. They argue traditional NPV analysis methods result in inaccurate present value if the post-acquisition re-investment rate differs from post-acquisition cost of capital. When these rates differ in merging firms, practitioners determining present value may apply the authors' modified NPV method. The method is relevant to the topic of combining-firm valuation because the formula supplies a more accurate measure of combined-firm value than traditional NPV methods of determining worth when re-investment rates differ from post-acquisition cost of capital.

Toll and Hering (2017) further the work of Hering (2004), which approaches valuation of company merger from the perspective of the shareholder. The article extends the Hering (2004) valuation method by setting the algebra for computation of the critical share. This value is important because it represents the price of shares in merging firms wherein shareholders are in a position of neutrality. Any price above or below the critical share value creates gain (loss) to merged entities. This value is known as "maximization of wealth" and serves as the target function. A marginal quota is assigned to shareholders. This value represents the minimum share in a merging company which places them in a financial position no worse than if no merger were to take place. The authors introduce a "state marginal quota model" as a valuation approach considering both existing market imperfections and individual expectations of a specific shareholder.

The authors argue that if financial redistributions (dividend payouts) result from merger negotiations, the extended model shows that the marginal quota cannot be "trivially" obtained as a ratio of utility values. Rather, what is necessary is a private decision field of a shareholder. The decision field of a shareholder determines the restructured dividend payout stream offered by the

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newly merged company. This stream must reach at least the level of utility experienced before the merger.

The study's relevance to synergy valuation is in the shareholder view approach to merger valuation. If shareholders are not placed in at least a position they held before merger negotiation agreement consummation, the premium price paid to the target firm by the acquirer is too high or low and economic loss is experienced. By failing to consummate a merger deal at the decision value, management is doing a disservice to shareholders. The issue becomes more complex, however, when in consideration of managements' effectiveness in production of income from assets. If an acquirer's management team produces more income in relation to assets than the target being acquired, wealth to shareholders of the acquiring firm will increase as a result of the acquisition. This added value may be considered as the internal target dyssynergia being transferred through acquisition as synergy to the acquiring firm.

Toll and Kintzel (2018) extend the previous linear state price vector business valuation method of Toll and Hering (2017) to a model incorporating nonlinear synergy effect on business value. They present a practical case study of merging call center firms to illustrate the effectiveness of the model in capturing nonlinear synergy effects into the valuation. The model presented is more complex than earlier work on linear valuation models. However, use of the formula presented does capture nonlinear synergy effect of firms' in identical industries merging operationally and financially. The study's relevance to the topic of economy of scale, scope, and borrowing power synergy determinations are limited. Use of the formula is intended to result in value of a merged firm. Discovery of economy of scale and scope and borrowing power change resulting from merger is not the intention of the study and formula.

Organizational Behavioral Management Studies

Badrtalei and Bates (2007) present a case-study of the merger attempted by Daimler-Benz and Chrysler. The argument presented by the authors is that there exist many and highly complex

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cultural differences between Daimler-Benz and Chrysler organizations. They contend the failure at achieving effective integration may serve as an example of what to avoid in merger integration processes. The authors point to distinct cultural issues acting as a major barrier to progress in the merging the forces of the firms. They point to a five-step process of merger. The steps are (1) prospect search and identification, (2) due diligence, (3) negotiations, (4) transition management (blending of systems), and (5) operation as an integrated unit.

This study is not directly relevant to economy of scale synergy valuation theory or practice. The relevancy of the organizational management study to this study is its revelation of extreme difficulties encounterable during integration of the two companies' operational and financial processes. What is interesting to note in service to the topic of decision value and economy of scale valuation is the premium price paid to the target. Paying too high a premium causes dissention to stakeholders of acquirers and too low a premium paid creates the identical effect among stakeholders of the target. The study's main finding is that equal partnering among merging firms simply does work. The acquirer needs to hold final authority in decisions made in service of the best interests of the conglomerated entity. Also, and finally, original organizational pre-merging cultures must be respected, or negative energy expressing itself in the form of resistance will threaten integration efforts directed toward successful transition to a post-merged firm (Baker, 1980).

Canina and Kim (2010) define merger success as the post-merged value of the integrated firm to be higher than the sum of the premium paid to the target and the value of the acquirer prior to the merger (e.g., Brealey, Myers, & Allen, 2005, p. 826). The study finds abnormal returns to be lower for acquisitions by firms with low leverage (Maloney, McCormick, & Mitchell, 1993). The author notes the greatest mistake in synergy valuation is attention primarily paid to market anticipation and reaction to merger rather than processes undertaken and functions practiced in achievement of

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synergy value realization. This commentary is relevant to the topic of synergy valuation because focus is shifted from market anticipation and reaction to the task of integration creating synergy.

Collan and Kinnunen (2009) improve real options methods of valuing merger by addition of variables accounting for potential values added by synergy. The authors' definition of synergies as the potential value (real options) created in an acquisition above the stand-alone value of the target company differs from Smith and Nau (1995), who define synergies as a factor affecting growth options' synergies to be added value over and above the growth options that already exist in the target firm. The definition of Collan and Kinnunen (2009) holds more weight than smith and Nau (1995) and therefore is used to define synergies in the study.

Osarenkhoe and Hyder (2015) develop an analytical framework towards management of post-merger integration processes. While this study approaches integration rather than valuation, the study is important to merger research in general, and to this study, in the sense that integration processes are critical to successes in financial and operational synergy. Their development of a framework for construction of methods to develop and implement strategies and practices to gain successful merger integration is useful to managers charged with integration progress facilitation.

Financial Ratio and Economic Metric Studies

Bioye and Abdul-Rasheed Amidu (2005) place into use key financial ratios of profitability, market value, leverage, efficiency, and liquidity to determine firm valuation in effort to gain understanding of change in performance during merger. They define "enhancement" or "marriage value" as the amount by which the value of one firm is increased through assemblage of another firm into the same ownership. The article concluded with suggestions of financial ratios, fair value, discounted cash flow, and replacement cost methods be used in firm valuation. This study agrees with the intention of the current study, which combines key ratio analysis with modifications to

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existing valuation methods to form a hybrid formula to define and encompass synergy value caused by change in economy of scale due to acquisition.

Kumar (2009) uses the operating performance approach to arrive at firm value. This approach compares pre-and-post-merger performances of companies using financial ratios in determination of values for merger-related gains to acquiring firms. The study finds post-merger profitability, assets turnover, and solvency of the acquiring companies, on average, show no increase in value when compared with pre-merger ratio data. The authors conclude that mergers usually do not lead to improvements to acquirer's financial performance. The result suggests to managers to change focus from negotiation value creation to post-merger integration issues. The Kumar (2009) study's r relevance to the current study is in the use of financial ratios to determine change in performance in pre-and-post-merged firms. The authors admit to the limitations of financial ratios in change-in-value determinations. The value of the study is its extension of acquisition performance research from Western European and American firms to East Indian firms.

Shukla and Gekara (2010) use five variables to assess the effect of merger on firm performance and shareholder wealth. These are Net Operating Profit After Tax (NOPAT), Return on Assets (ROA), Return on Capital Employed (ROCE), Earning Per Share (EPS), and Economic Value Added (EVA). The study samples the merger of two steel producing firms, namely, Tata Steel and Corus Steel. These firms are two of the largest steel manufacturers in the world. The results of the study failed to support the hypothesis that acquirers' gains are captured at or near the beginning of the merger negotiation phase of the merger process. Previous studies conducted by Schmalensee (1987) and Sanjaya Lall (2002) support the conclusion that positive economic effects of cross-border acquisitions are out-weighed by increased concerns on shareholders' parts resulting from merger

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negotiation. The study's relevance to the current study is in its use of financial ratios appropriate to the task of merger valuation.

Wang (2014) studies the problem of the effect of M&A activity on firm value. The study selected a sample from a large panel of 65,000 M&A global deals. The deals selected were from the time period between the years of 2000 to 2010 in firms operating in the communications, technology, energy and utilities sectors. A finding of significant contemporaneous effect of financial fundamental ratios on firm value is made. Secondly, the study finds evidence of negative long-term M&A effects and positive instantaneous M&A impact on firm value. The study uses Economic Value (EV) and Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) as measures of firm value. The financial fundamental ratios of price to sales, debt to equity market to book, and financial leverage, are used as controls to measure the effect of mergers and acquisitions (M&A) on firm value.

A finding is made by the study of Wang (2014) of the effect of M&A on firm value in the financial crisis of 2008. The finding of mergers' effects on corporate performance in the crisis of 2008 are much distinct and different from the same effect during the recession of 2001. The study of Wang (2014) shows relevance to the current study by use of metrics of EV, EBITDA, and financial ratio analysis. EV analysis is important because it measures the level of firm entrepreneurial ability to generate revenue, and, while EBITDA does not measure cashflow, the metric of profitability is discovered, revealed, and understood.

Economic Event Studies

Alexander and Springer (2018) look at the effects of Real Estate Investment Trust (REIT) mergers' effects on value of individual firms and the role diversification plays in changes to firm value. The study attempts to answer the question of whether observed returns surrounding an REIT merger are, in fact, correlated with expected changes to property and geographic composition of the newly merged REIT property portfolio. The study employed use of Thomson Financial Securities

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M&A Database to collect and analyze all publicly traded REIT firm mergers from the period of 1994 through 2012. The study's findings show change in cumulative abnormal returns (CARs) for combining partners to be statistically insignificant. Thus, no evidence of change in economic value due to the mergers is found to support value-adding due to merger.

The study is important and relevant to the current study because it analyses the tangible and appreciable asset of property and how merging property management firms' wealth is affected by REIT firms. The finding of no significant change in CAR's adds to the argument that merger alone does not add value to performance. Successful management of the integration phase of merger is necessary to improve firm performance.

Event study in India

The study of Duppati, Locke, & Lawrence, (2013) measured the short run performance of 30 cross border mergers and acquisitions by Indian companies. The study's findings showed positive abnormal returns throughout the three-day event window surrounding the merger announcement. This event study added relevance to the current study with the finding of abnormal positive returns during merger announcement. The findings are evidence of market perception of synergy adding value above individual firms' performance ability.

Repetition increases acquirer skill study

The study by authors Lee and Carter (2018) answers the question of whether repetition; or continued exposure to firm-merging activity; causes managers to gain improvements in skill, knowledge, and expertise, and, subsequently the level of superiority in exploiting competitors in the newly-deregulated environment. The study places a condition on the sample of firm mergers of "acquisitional frequency." The study's findings prove more frequent acquirers' mergers show higher abnormal returns than less frequently acquiring firms. The suggestion of repetition facilitating success is consistent with and affirmed by the conclusion of the learning hypothesis- focused study (Aktas, de Bodt, & Roll, 2013). The study is relevant to the current study in the findings of repetition

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creating improved ability to achieve merger success. The model of converging merging-firm economies of scale to gain increased understanding of synergy through merger adds to the theory of gaining increasing skill at achieving success in merger negotiation.

Effect on target firm by merger study

The study by Lipeikyte (2015) looks at the issue of how target firms are affected by merger. This approach deviates from traditional analysis studies addressing firm value after merger. The approach is non-traditional because target firms' identities are always dissolved at the fruition of merger negotiation. In a true merger, targets are completely and totally absorbed by the acquirer. While a brand name may remain the same, the absorbed firm accepts a premium in exchange for loss of entity. Recent legal efforts have produced creative organizational structures in entity formulations such as amalgamations, conglomerations, and even mutually benefitting operating agreements. These operational agreements are normally and usually entered-into for the purpose of cutting costs and streamlining operations to serve the purpose of increasing shared revenue.

In the Lipeikyte (2015) study, the Zephyr database was used to develop a sample of acquisitions in the Baltic States occurring from January 1, 2008 through December 31, 2010. The study looks samples the database and tests for robustness, reliability, and validity for patterns of behavior among acquisitions. The study finds targets with low cash reserves and reported performance levels being acquired with expectation that superior management expertise of the acquirer will cause improvements to operational and financial performance of targets. The Lichtenberg and Siegel (1987) provided a framework known as matching theory of ownership change. The framework indicates the motivation of acquirers is to acquire plants with lower performance with expectation

The Lipeikyte (2015) study findings agree with the framework set by Lichtenberg and Siegel (1987) stating acquirers generate gains by making the right match between management of acquirer and poorly managed valuable assets of the target. The findings support the idea of McGucking and

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Nguyen (1995) that companies of different size may be acquired due to different motives. Targets are usually acquired by acquirers seeking synergistic gains. This motivation drives a search for highly productive targets. Mediocre or poor levels of productivity by targets become a consideration for absorption by acquirers with expectation of acquiring management to bring performance improvements by synergy discovery and management.

The Lipeikyte (2015) study's findings are important to the current study in that the understanding of value creation from synergy, and especially the effect of economy of scale caused by combining resources, is critical due diligence work necessary to complete before negotiation procedures begin. An understanding of change in operational and financial performance is critical before acquirers' bidding begins. To this point, managers and academic researchers have considered and assumed change in stock price during announcement periods to be the value of synergy created by acquisition. This false assumption may be the primary reason mergers fail to create value for shareholders.

Event study method presentation

The paper by MacKinlay (1997) entitled "Event studies in economics and finance" explains the procedure for carrying out an event study. The paper is important to the current research because the most common way of determining merger value lies in the conducting of an event study. While event studies determine value change resulting from merger, the arbitrary assignment of share price change after merger as the value of synergy is an incorrect one. A more accurate method for determining change in operational and financial performance is through an analysis of how economies of scale change operational performance. A comparison of operational efficiency change

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caused by change to economies of scale will lead to greater understanding of synergy value than a simple assignment of share price change during merger to operational performance.

Market response to merger announcement predicting future performance study

Authors Malhotra and Chauhan (2018) explore market response to merger and acquisitions announcements. Their study attempts to gain understanding of the measure of predictive ability of market response to the task of forecasting post-merger long term performance in the acquiring firm. The authors apply exploitation of the Capital Asset Pricing Model (CAPM) as proposed by Sharpe (1964) to both risk and expected return. This proposed model is their attempt at ascertainment of synergy effect of merger. The formula accurately calculates exchange rate (ER) while also assessing risk and synergy. The formula incorporates into the formula and accurately applies time value of money to improve the models proposed by Yagil (1987) and Larson and Gonedes (1969).

While the Malhotra and Chauhan (2018) model proposed is an improvement to former models attempting to capture post-merged-firm value, the CAPM of valuation approaches the issue of merger valuation from a financial performance position only. The value added to post-merged firms due to operational synergies such as improvement to scale efficiencies cannot be ascertained by an approach to valuation based on financial performance indicators alone. The study answers the problem of short-term exchange ratio determination in merging firms. They do not, however, answer the problem they presented of the ability of CAPM to determine long-term financial performance.

The use of financial performance models and merger announcement share price data to predict long term operational performance of merging firms is inadequate as a method because a three-day window of observational data is not a long enough time period to make an accurate prediction about future performance. Unpredictive events such as Tsunamis and other natural disasters, and global economic recessions and crises of 2001 and 2008 respectively, make impossible the accurate prediction of firm operational performance by use of beta values and expected return data of the merger at the point in time of the merger announcement date. The study is relevant to the

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current study however, due to the addition of time value of money consideration to historical financial performance prediction models. The literature addressing merger synergy valuation is experiencing a gap of a predictive model combining financial performance with operational performance models capable of accurately predicting synergies obtained by combining both operational and financial resources.

Merger wealth creation study

The event study of Shanthaamani and Usha (2019) looked at mergers of computer software companies and answered the question of whether the activity of merger improved performance and created shareholder wealth. The six-year period from January 1, 2012 through December 31, 2017 was selected for review. Forty merger deals struck by 24 New York Stock Exchange listed computer software industry companies were used as the sample unit in the study. The study reveals a significant share price change immediately after merger announcement dates. Cumulative Abnormal Return (CAR) analysis reveals shareholder benefit from merger announcements. The study also reveals frequent mergers to not significantly influence shareholders wealth.

The study is important to the current study because, the findings reveal insignificant change to shareholder wealth as the result of merger. This finding shows that due diligence in merger research was not followed in computer software industry firm research departments during the period from January 1, 2012 through December 31, 2017. If due diligence had been practiced, the findings would show something more than an insignificant change to shareholder wealth. Operational performance synergy studies of merging-firm economy of scale need to be conducted to determine whether a proposed acquisition will increase shareholder wealth.

Merger performance study

Sonenshine and Feinberg (2014) approach the issue of whether acquirer R&D intensity, market concentration of deal premiums, and deal size, have a negative impact on merger performance. The second question approached by the study is that of whether targets' intangible

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asset intensity and presence of a merger wave positively influence merger performance. The study analyzes mergers reviewed by antitrust authorities selected due to anti-competitive concerns. The study does this to achieve the objective of shedding light on factors causing failure in merger activity. The study uses Cumulative Abnormal Return (CAR) analysis to measure success realized in the market from merger activity.

The study determines success by use of one-, three-, and five-year CARs. The significance of each of the CAR values was determined by dividing CAR means by their standard error. A sample of 79 merger announcements made and consummated during an eleven-year span from 1996 to 2006. All the mergers selected for the sample shared a commonality. Enough concern by the High Court existed about the adverse effects to competition that all the deals in the sample were required to be reviewed a second time. Analysis shows all cumulative abnormal returns to be negative. Additionally, the analysis shows CARs to be increasingly negative over the 1-, 3-, and 5-year time intervals selected from the database. The study employed two models to the sample, a capitalization model and an industry model. The t-test applied to both models shows higher values in the market capitalization model than in the industry model. This result implies the former model to represent a more accurate fit to the data than the latter model. Work of Mueller and Sirower [2003] reports similar findings of the study of negative CAR's in both short- and long-term horizons. Jarrell et al. [1988] found increased numbers of bidders' offers cause increases to target firm returns and lowers acquiring firm abnormal returns.

Study of merging firms under judicial review

The Sonenshine and Feinberg (2014) empirical study shows negative abnormal returns to occur shortly after a once- promising merger achieves consummation. The study reveals few consistent explanations for the preponderance of post-merged firms and their low level of performance. The work of Sonenshine and Feinberg (2014) of sampling from a population of High Court merger cases investigated for anti-competitive activity suggests high levels of acquirer R&D

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intensity, market concentration of the deal premium, and large deal size have a negative impact on post-merged firm performance. Merging environments experiencing highly intensive intangible asset promulgation causes positive change to merger performance. Merger activity presenting itself in the market as a wave of activity also positively influences merger performance. What impedes the wave flow of merger, especially in the case of the sample population, is second-request anticompetitive judicial review of merger agreements.

The importance of the Sonenshine and Feinberg (2014) study to the current study is the findings of factors, both positive and negative, influencing merger financial and operational performance. The current study concentrates mostly on changes to scale and scope in discovery of potential economic synergy resulting from the combining of resources, both tangible and intangible to achieve a more productive, hence profitable, organization. The Sonenshine and Feinberg (2014) event study, on the other hand, discovers change to financial performance caused by merger actions. What is relevant to the current study is the finding of activity in the bidding processes' effects on overall post-merged firm performance.

Pre-acquisition performance analysis of mergers in India

The study of Barick and Kapil (2018) is a pre-acquisition performance analysis by way of comparison of domestic and cross-border target firms operating and forming mergers in India. The study analyzes performance of 133 target firms. The study finds foreign cross-border acquirers to be selecting domestic targets producing a viable product line, extensive channel of distribution networks, and large asset holdings with low cash reserves. Domestic investors, contrarily, target firms high in cash reserve holdings generating highly elasticized top-of-the-line products. Domestic acquirers target firms struggling to convert the top line into an abundant bottom line.

The study narrowed the sample size from 133 to 65 by eliminating less than 25% holding firms, financial firms, and friendly and restructuring firms. The study used the period of 2012 through 2015 for analysis of target firm performance. The meta- analysis of Jucunda (2014)

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disagrees with the study because their work centered around firms based in the developed west. The study of Garita and Marrewijk (2007) agrees with this study by finding different underlying forces influencing cross-border acquisitions in the west as in developing countries.

The Wilcoxon Sign Rank Test is used to find the difference between pre-acquisition performance of targets in cross-border acquisitions, targets of domestic acquisitions, and the control group. Foreign acquirers select those targets which have viable product line, good network, and large asset size with low cash holdings. The meta- analysis of Jucunda (2014) disagrees with the study because their work centered around firms based in the developed west. The study of Garita and Marrewijk (2007) agrees with this study by finding different underlying forces influencing cross-border acquisitions in the west as in developing countries.

Statistical Analysis Studies

The Barick and Kapil (2018) study is relevant to the current study because target performance traits are discovered and proven true by the analysis. Knowledge of what acquirers are looking for in terms type of market segment, product line, cash position, and network development status of the target sheds light on factors involved with the decision process acquirers go through in pre-acquisition planning. The current study seeks understanding of the level of complementary forces, especially from an operational production standpoint, are expressing themselves in issues of productivity. The current study endeavors to bring a solution to productivity. Acquiring firms' existing productive capacities will increase by the capacities being maintained by the target. What remains unclear in the existing literature is how much more or less than the total of two or more firms' production levels will be added-to by efficiencies brought about by the combining of production volumes and by producing an increased number of different products.

Positive wealth effects in U.S. firm cross-border acquisition study

Authors Datta and Puia (1995) examine the research question of whether cross-border acquisitions are associated with positive wealth effects for U.S. acquiring firms. The study sample

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consisted of completed cross-border acquisitions between 1978 and 1990 of 112 acquisitions reported in the Wall Street Journal, of $10 million or more value, and with exclusion of partial and contaminated acquisitions. Cultural fit was measured using the variable "cultural distance" - i.e., the greater the cultural distance the lower the cultural fit.

The authors' question was, "are cross-border acquisitions associated with positive shareholder wealth effects for U.S. acquiring firms?" Cross-border acquisitions, on average, do not create shareholder value. The study found statistically significant negative wealth effects. No significant effects were found in two previous studies (Doukas and Travlos 1988, Conn and Connell 1990). These two studies agree with the findings of authors Datta and Puia (1995).

The finding of significantly negative shareholder wealth effects in the sampled firm mergers is relevant to the current study because the loss in wealth shows the need for valuation before premium price transactions occur. The decision that the premium paid was too high and is the entire cause and explanation for share price devaluation is presumptuous. What can be asserted about the market and shareholder perception judging by shareholder wealth loss is that the mergers were perceived as failures. Management is known for making convincing arguments about proposed and announced mergers as being filled with synergy. What is not presented to investors is valid and reliable information about the act of combining of two or more firms' resources and assets and the resulting change in financial and operational performance of the merged entity.

Due diligence method changes proposal study

Author Gillman (2002) acknowledges the problem of merger failure to protect and enhance or even maintain present levels of shareholder wealth. The author faults present due diligence processes and emphasizes the link between due diligence and valuations. The author suggests a revamping of the due diligence procedure. The valuation of an individual business in isolation, while easier, completely disregards value change brought about by merging entities into one operation. The

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study sampled one hundred five large targets (values exceeding $25 million) to measure merger's ability to add shareholder value.

The study found no link to exist between strategy and shareholder value. A second finding of the study is that mergers in related business as opposed to mergers in unrelated business were twice as effective in adding firm value (Lubatkin, Srinivasan & Merchant ,1997). Gillman (2002) argues that analysis of motivations behind merger and acquisition activities will bring increased understanding and aid in the establishment of reasons why failure in mergers and acquisition activity is the rule rather than the exception. The author further argues that motives are nothing more than efforts at justification for merging two entities. The author states that weaknesses of motivation are the cause of merger failure. So, author Gillman (2002) suggests due diligence strategy be changed to include analysis of merger motivations. Authors Akason and Keppler (1993) assert the premise of acquirers' objective being separated-out into two categories. Financial motivations, such as tax situations, beta risk factors threatening type II errors, the extent to which assets may be gained at a discounted price, and the opportunity to profiting from the act of fragmenting and dispensing assets of the target; are considerations of acquirers. The second category, strategic motivations, include synergy value and level of efficiency possible in the potential integration process. If efficiencies of integration are not present and apparent, integration presents a cost serving as a deterrent to merger.

Author Gillman (2002) finds contributions to the theory of due diligence (Harvey & Lusch, 1995, Kroener & Kroener, 1991, Harvey, Lusch & Price, 1998) and the concepts outlined by Rappaport (1998) to be lacking a link to valuation theory and practice. Acquirers must be in a better financial and operational position after the acquisition or shareholder value is diminished. Author Sirower defines synergy as the specific increases in performance beyond those already expected for companies to achieve independently. The author sees future discovery of this value through introduction of change implementation to the due diligence practice by creating and strengthening valuation determination. If acquirers are ignorant about their own firms' stand-alone productivity,

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that of potential targets, and productive efficiencies gained through merging operations, synergy as an expression of merging-firm performance improvements will remain an unknown.

The true value to acquirers of synergy (dyssynergia) is the economic gains (losses) experienced by additions to (subtractions from) increased efficiencies of production caused by a proportionate saving in costs gained by an increased level of production. The issue of addition of plant productive capacities to produce more and varied products at the lowest per-unit cost possible is synergy value creation and inadequately addressed in the literature.

Dess, Picken and Janney (1998) emphasize acquisition decisions must be considered considering the sentiment that less expense is experienced by an individual on the stock exchange to diversify than by a company through means of a take-over. Premium prices paid at a rate higher than target firm book value simply to gain control make this sentiment a reality (Dess, Picken & Janney 1998). A study by Sirower (2009) shows that to break even on a premium of fifty percent controlling interest, acquirers must achieve post-merged firm return on equity by 12% by the second year after acquisition. Also, this 12% return rate must be maintained for the following nine consecutive years (Dess, Picken & Janney, 1998). Rappaport (1998) further contends that the aim of mergers and acquisitions is to increase shareholder value. Further, he asserts acquirer premium paid to targets need to not exceed "stand-alone" value of the target plus the value that will be created by future anticipated synergistic benefits.

M&A legal billing rate study

The publisher of the report “Growth in M&A Billings Benefits ‘Second Largest’ Law Firms” (2013) asserts nationwide billing rates for merger and acquisition legal work to gain a modest 0.8% gain in 2012 to reach $386 per hour. This rate for converting two or more firms operating independently into one legal entity gives one pause for concern about the business of acquisition research. Merger formulation stands as an expensive proposition. The failure rate of 70 to 90% of

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mergers to generate increases to shareholder value makes the expense of $386 per hour to formulate newly created entities a waste of valuable corporate earnings.

The relevance of the publication of legal firm billing rates for merger formulation work to the current study is the cost associated with the activity. In most cases, acquirers are better off by growing internally. Exceptions to this generalization abound, as is shown by the $4.1 trillion worth of acquisitions made in 2019 (J.P. Morgan, 2019). Managers of acquisition departments need effective tools in searching-out acquisitions. Synergy valuation needs to be determined accurately and cost-effectively. The decision process for practitioners examining potential targets is the addition of value to shareholder wealth. Any motivation other than this mission statement portends weakness in acquisition decision making. The current study offers a proposed formula for converging economies of scale valuations for operations in same and similar industries. Use of the formula in valuation determination during practice of due diligence valuation procedures will aid managers in the target selection process. The determination of convergent economy of scale values of acquirers with potential targets before acquisition decisions are made will save acquisition research practitioners' supervisors' departments the nationwide average merger-formulation legal cost of $386 per hour.

Bank post-merger credit risk analysis study

Authors Knapp and Gart (2014) examine post-merger change in credit risk profiles of merging bank holding companies. The study tests whether increase in overall credit risk due to changes in the mix of loans in the portfolio is experienced after merger. The authors use the Markowitz procedure to find the standard deviation of credit risk in the investment portfolio. The authors then test to see whether significant change occurred in expected variability of the credit risk profile after merger. The industry-adjusted loan mix for each merger for each of the first three years

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after the merger is calculated and then tested for significant change in the Industry-Adjusted Loan Mix Ratio (IALMR) for each loan category.

The authors find the expected variability in both charge-off rates and the Non-Performing Loan (NPL) rate rises significantly after merger. The authors find a significant shift in loan mix post-merger toward higher risk commercial real estate loans. Most years show quite low charge-off rates with NPL ratios quite low. A few years sampled, however, show heavy levels of charge-off and high NPL ratios. These problems arising show substantial losses. Sometimes the losses are substantial enough to threaten the survival of the institution. The shift in mix increases the risk profile of the loan portfolio. The study finds there is a significant increase in portfolio beta risk after merger.

The merging bank holding company credit risk study by authors Knapp and Gart (2014) show relevance to the current study with their findings of increased beta risk, loan charge-offs, and NPL ratio increases in post-merger situations. These findings reinforce the reality of negative risk-taking behavior of bank holding companies unnecessarily over-reaching their growth ambitions without practicing enough regard to aversion of risk of loss of security. The findings cause one to question reasonableness of approach in pre-acquisition analysis. If loss increases as the direct result of acquisition, common sense demands no acquisition be made in the first place.

The study analyzes beta risk changes after merger. Both acquirers' and targets' risk of loss and actual financial losses increased post-merger. The study reveals a lose-lose situation of combining assets and resources in merger. The study reveals the need for scrupulous scrutiny in proper pre-acquisition long-range planning and strategizing of future problem/solution scenarios associated with acquisition. The study examined risk. The study did not examine profitability. The possibility exists that the merging bank holding companies, by increasing their customer base with

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the amalgamation of other financial institutions, simultaneously improved profitability with the assumption of risk and actual realization of charge-off and NPL losses.

Endogenous versus exogenous merger theory study

Lindqvist and Stennek (2005) conduct an experiment with an insider's dilemma hypothesis in a laboratory experiment. The paper is the first attempt to empirically discriminate between old exogenous and new endogenous merger theory. Briefly, old exogenous theory states that external factors of labor force and population growth, while new endogenous theory states that internal generation of capital is the only source of growth. The insider's dilemma means that profitable mergers do not occur because more profit is to be found by unilaterally standing on its own as an outsider (Stigler, 1950; Kamien and Zang, 1990, 1993).

The experimental data provides support for the insider's dilemma, and thereby for endogenous rather than exogenous merger theory. The data also suggests that fairness or relative performance considerations make mergers difficult. Mergers that should occur in equilibrium do not since they require an unequal split of surplus. So, the results of the experiment show that individual initiative works to produce profit, while cooperative pooling of resources to gain profit for a mutual benefit does not work because an unequal split of surplus causes perceptions of unfairness.

The testing of economic theory by experiment done by authors Lindqvist and Stennek, (2005) are relevant to the current study by showing that firm economic growth happens internally. Each firm acting on its own gets more profit than when in concert with others. This finding flies in the face of the fact of $4.1 trillion worth of mergers reported in 2018 alone. The way to reconcile this dilemma is to understand that service of self-interest produces profit while the pooling of resources increases productivity. Firms want rapid economic growth and see the best way to accomplish such is by

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acquiring competitors' enterprises. Heeding the results of the experiment means that growth through acquisition can be achieved successfully, but only by paying targets' worth and nothing more.

Firms with management teams performing at high rates of asset utilization stand in a better position than firms with the same tangible assets less adept at producing profit from assets. Acquirers look for targets with low asset utilization ratios and place internal teams to improve utilization of assets, hence earn greater profit. The study is relevant to the current study by making clear that a stand-alone entity can produce more profit than can one with partners, and that perceptions of unfairness cause difficulty to merger activity effort. The current study looks at tangible asset productivity only. The study looks at the effect of combining two or more firms' tangible assets on their efficiency of production.

Board governance structure and firm and M&A performance study

Van Horn and Van Horn (2011) look at the level of effectiveness of different board structures on M&A activity and merging firm performance. The findings of the study indicate the type of board structure to play an important role in explaining variations in firm performance across varying performance measures and time periods. Also indicated by the results is the lack of importance found in explaining M&A activity across different event windows and time periods. A final indication from the results is the finding that the importance between board structures and M&A/firm performance is reversed during economic downturns. That is, that board structure is not important to firm performance and board structure is important to M&A activity during global economic downturns.

The relevance of the study to the current study is the finding of the level of importance of board structure to firm and M&A performance, especially the finding of reversal of importance during economic downturns. Acquisitions worthy of their negotiation and integration will show stable and consistent economic, operational, and financial growth regardless of global economic conditions. This is because an acquisition resulting in an effective merging of operational and financial structures is merged because acquirers understood the economic gain to be achieved

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through acquisition. In other words, the merger would not happen unless improvements were made to efficiencies of production and effectiveness of distribution.

The board structure types reviewed by the study are important to firm performance during peak economic periods and unimportant during economic downturns. This means that, to get the most objective and unbiased look at compatibility of firms' operational productivities, analysis of acquirers' and targets' firms' performances should be analyzed in the context of equilibrium, or within neutral market and economic conditions. This same truth holds for M&A performance. While product and service economic demand fluctuates with dependency on the global economic condition and environment, levels of scale and economy of scale efficiencies of production depend on plant productive capacities. The levels of productivity in relation to plant capacities do not fluctuate with the weather, the economy, or board structure types of governance. Therefore, the study brings relevance to the current study by showing firm and M&A performance to fluctuate with board type of governance. The current study shows dependency on plant capacities serving scale only and product differentiation innovation abilities serving scope only.

Further Hypothesis-Testing Studies

Baxamusa and Georgieva (2015) tested the hypothesis of macro-level liquidity influencing the choice between tender-mergers and mergers. The novel methodology employed to test this relationship finds structural breaks in the number of tender-mergers relative to mergers. The structural breaks coincide strikingly well with major changes in macro-level liquidity. Regression analysis reinforces the hypotheses that the number of tender offers increases in direct proportion with liquidity. Also being strongly supported by regression is the assertion that acquirers' shares in synergy value increases as tender mergers increase. Relevance of the two-step acquisition choice between merger and tender merger being influenced by macro-level liquidity to the current study is the findings of macro-level liquidity strongly influencing the decision to proceed with tender merger

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in lieu of merger and the phenomena of acquirer synergy being increased through share increases in tender offer (rather than simple offer) activity.

The relevance of the macro-level liquidity study to the current study of scale and scope lies within the economic position of acquirers placing tender offers to targets. The finding of acquirers with high liquidity issuing tender offers implies realism in two-step acquisitions. The friendly two-step transaction is like the actions in a one-step merger. The main difference between the two approaches is that, in the two-step approach, the buyer will not obtain 100% of the target in the tender offer and so must acquire the remaining target shares in a second step "back-end" merger.

Intuitive rationality in gaining understanding of valuation of synergy leads one to the conclusion that the second step of tender offer by "macro-liquidity" acquirers' levels out the bidding process. Before the second step in tender offer is taken, acquirers do not have controlling interest in the target. Allowing the market to affect value of remaining outstanding shares needed by acquirers and making a lower second-step tender offer for them to gain control of targets' assets, decreases overly high premium payments paid and more accurately moves merger negotiation transaction processes closer to true synergy value. The addition of economies scale and scope determinations of efficiencies (synergies/dyssynergias) gained (lost) to valuation analysis in the due diligence process will serve to steer the merger negotiation process more closely to the path of true acquirer, target, and newly merged firm synergy value.

Risk arbitrage performance study

Authors Branch, Lee, and Yang, T. (2014) answer the research question of whether institutional owners influence risk arbitrage performance. The data sampled includes 42 takeover attempts in the 2007 period. The data was subjected to Ordinary Least Squares (OLS) regression with idiosyncratic risk and annualized excess return as dependent variables are used to test the

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hypothesis. The test results reveal that only targets' (not acquirers') pre-merger institutional owners significantly and negatively relate to the idiosyncratic risk during the merger attempt period.

In the literature Ross (1989) and Ferreira and Laux (2007) argue that inside information positively correlates with idiosyncratic risk within institutional owners and risk arbitrage performance. The relevance of the risk arbitrage performance study to the current study is the finding of target firms' and not acquirers' firms' influences on risk arbitrage performance. The fact that acquirers do not affect risk arbitrage performance brings stability to the merger negotiation process. This stability is brought about by reduction of speculation over acquisition due diligence activities. The current study adds stability to the process by offering a proposed method of determining value of synergy added by economy of scale and scope cross-firm synergetic forces.

Market perception of synergy study

Authors Krishnan, Krishnan, and Lefanowicz, (2009) examine abnormal returns of bidding firms and its major rival and relate equity gains or losses during acquisition announcements to subsequent post-acquisition operating performance. Fifty large acquisitions from 1992 through 1996 were analyzed between firms operating in similar businesses. The study's findings show a strong positive association between abnormal security returns for the bidding firm during an acquisition announcement and the post-acquisition operating performance as measured by return on sales for the combined firm. Results also show a strong negative association between post-acquisition return on sales (ROS) and abnormal returns for the firm that is a major rival to the acquiring firm. Taken together, these results indicate that the market can accurately perceive synergies from an acquisition. The authors' conclusion from the return on sales analysis is that market perception reflects potential synergies at the time of acquisition announcement.

The relevance of the market-perception-reflecting-synergy-value-at-acquisition-announcement-date-study-of Krishnan, Krishnan, and Lefanowicz, (2009) to the current study is the understanding that market-perceived value of synergy created in newly post-merged firms is not

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quantified until announcement dates of acquisitions. Senior management boards of acquirers and targets do not know the value of merger until a rigorous, thorough, and comprehensive analysis of what acquirer-target synergistic values are added by the conglomeration of assets, both tangible and intangible. The current study contributes to the literature and practice by presentation of a method to determine scale and scope and changes to borrowing capacity brought about by acquisition. This information will aid acquirers and targets in the bidding process leading to the negotiation phase of merger.

Valuation Method Commentary

Authors Garzella and Fiorentino (2014) present a synergy measurement model intended to support pre-deal decisions in mergers in acquisition research and practice. The paper quotes interviews with academics, acquisition research practitioners, and senior managers. What the paper fails to do is present a model or even analyze and review existing models and formulas for stand-alone firm valuations, which are a prerequisite for understanding and presenting a model for synergy valuation. The commentary takes a qualitative approach to the issue of synergy measurement, stressing responses from interviewees about how organizations should address tax synergy valuations, for example.

The commentary's relevance to the current study is minimal. However, the qualitative research through interviews serves as an example of the argument that the problem of lack of analytically quantifying models exist which adequately assess synergy value before announcement dates of acquisition. The commentary succeeds in pointing out the need for methods and formulas for determining with statistical significance and quantified confidence, synergy value before acquisition announcement dates.

Contemporary Perspectives

The contemporary perspective in the literature regarding firm valuation during acquisition is evolving itself gradually to a subjective from an objective approach to the issue of merger synergy

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valuation. Two examples of exceptions to subjective value determination are the quantified mathematical study with formula determining shareholder wealth maximization presented by Toll and Hering, (2015) and the event study with market model, financial ratio, and Buy-and-Hold Abnormal Return (BHAR) and Cumulative Abnormal Return (CAR) methods used in the study conducted by Duppati, Locke, and Lawrence, (2013).

Researchers contributing to the literature are also concluding synergy value to be the difference between the premium price paid by the acquirer less the difference in strike price of the merging firms at the point of merger announcement. This perspective of valuation of synergy is both supported and refuted in the literature. The findings of the event study of Krishnan, Krishnan, and Lefanowicz, (2009) show the market participants' perceptions of synergy value to be accurately perceived and, therefore accurate depicters of said value.

Another study by Rappaport, (1986) however, has shown the opposite case to be the truth about market perception and reality. That is, there is no general connection or correlational relationship between positive synergies at the corporate level and increasing shareholder value for the stockholders. In other words, market perception of merger success or failure based on strike price, and synergy value due to merger, are mutually exclusive variables, and therefore impossible to be used as determinants of synergy value.

These seemingly diametrically opposed findings by valuation researchers (among other studies' conflicting findings) show professional community perspective of the field of synergy valuation during merger to be muddied, at best. A simple naming of differing strike prices at merger announcement to be the value of merged firm synergy is woefully inadequate and irresponsible as a means of synergy valuation. Researchers dealing with an unpredictable market are better off developing an approach to synergy valuation method independent of market behavior. Even though the field of merger synergy valuation remains challenging, a method accurately evaluating synergy economic value brings financial benefit to both acquiring and target firms.

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This is true because, while not yet mathematically proven, merged firms are generally perceived to gain improved profitability and financial performance and stand less risk of failure when the decision value matches closely with the premium paid to the target. If most shareholders of acquirers and targets perceive the merger to be success rather than failure, integration phase activities experience an improved probability of improving merged firm performance (Olbrich, Quill, & J Rapp, 2015).

The current literature containing event studies, maximization of shareholder wealth formulas, and financial ratio analysis studies, is behind the current times of very large domestic and multinational enterprise (MNE) acquisition environment. The literature needs a transformation from individual firm book, market, goodwill, intellectual property, and performance valuation models, methods, formulas, and behavioral analyses, to a simple, intuitive, and accurate method of determining synergy value of proposed and potentially-merging firm acquisition opportunities. This intuitive approach is currently being perceived by senior management as a more advantageous method of approach to premium price paid to targets because methods approaching the problem quantitatively do not take into account potential revenue gained from increased opportunities becoming available to a merged rather than an individually-operating entity (Sakhartov, 2012).

The purpose of a valuation model, as is suggested by current perspective, is consideration given to both the target system and decision field of a real subject giving rise to a decision value. The resulting valuation concept, subjective business valuation theory, is based on the theory of marginal utility proposed by Gossen, which was rediscovered and refined by the scholars of the early Austrian School. Contrary to highly restrictive neo-classical valuation (such as DCF), subjective business valuation approaches reality and is therefore well-suited for practical implementation. Decision value is defined by the marginal value (concession limit) of a target in a decision problem. A premium paid at exactly the decision value causes no change to the target’s wealth. A buyer paying a price below the decision value will create wealth. Thus, the critical information needed in

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acquisition is the decision value. Without it, a rational decision is impossible (Olbrich, Quill, & Rapp, 2015).

Current perspective in the literature rightly rejects DCF and other traditional valuation techniques. Subjective valuation theory, on the other hand, accurately assesses individual firm value. What is lacking and needed is a method of analysis which, when applied to merging firms, will produce an accurate measure of potentially- merged firm performance as added-to by scale and scope and borrowing capacity influences on merged firm performance.

Summary

These reviewed event studies, formula presentations, ratio analyses, hypothesis tests, statistical analyses, case studies, framework design papers, and commentaries, share a common thread in their intention. That being an effort at addressing the real problem of M&A activity rates increasing alarmingly, coupled with the result of merger causing extraordinarily high M&A activity's failure to increase shareholder wealth. The evolution of approach to the problems of firm valuation and post-merger performance is moving from a perfectly mathematical one, along the path of qualitative and anecdotal review through interviews of participants responsible for success through merger, to methods of intuitive, subjective, and analytical models attempting to capture not only performance and productivity changes; but value created by merger from potentialities for exploitation of opportunities previously unavailable in a pre-merged and independently-operating entity.

Historical Development of the Theory

The theory of synergy refers to the type of reactions that occur when two substances or factors combine to produce a greater effect together than that which the sum of the two operating independently could account for. This theory comes into conflict with economic theory stating that a stand-alone entity can produce more profit than if merged with another organization. This conflict is reconciled by understanding that service to self-interest produces profit while pooling of resources

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increases productivity. The results of the Lindqvist and Stennek (2005) study show endogenous factors prevail over exogenous ones when considering the merging of two or more individual entities, and that the concept of fairness makes mergers difficult to achieve.

The theories of economy of scale and scope are operational in nature and state that an increase in productive capacity or types of products produced can reduce per-unit costs of production, thereby increasing profits. The concept of borrowing capacity is financial. Increases in borrowing capacity happen by merger if the overall credit position of acquirers improves through acquisition of assets and debts of targets.

Summary

The economic theory that a stand-alone entity creates more profit and value than a merged one conflicts with the theory that the act of pooling resources increases productivity. Complicating this dilemma is the finding by Lindqvist and Stennek (2005) that the concept of fairness, as applied to acquisition resulting in operationally-merge entities, makes merger difficult. These conflicting theories and findings can be resolved by the notion that self-interest promotes cooperation. Cooperative behavior causes improvements to productivity and performance. Difficulties to merger activity caused by expectations of fairness will continue to present a major challenge to firms' participants in the merger process.

Importance of the Study and Implication for Practice

This study is important in its contribution to the practice of merger formulation and integration because it proved the existence of the phenomenon of change in approach by senior management in addressing the problem of synergy valuation in merger. This change is the openness of acquiring managers to allow the addition of an intuitive, collaborative, and naturalistic inquiry. This divergence in approach from mathematical-only valuations empowers inclusion of perceptions and perspectives of how synergy value is created from an acquisition. The acquirer's completed

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acquisition contract is only the beginning of the merger, however. The task of integration, known by experts in the field of firm(s) acquisition and merger, presents itself as a potential dismal failure to overcome. This study addressed the issue of how change in approach to valuation of synergy included the cost and risk of failure to integration analysis. This task was achieved through analysis of respondents' answers to interview questions. An understanding of the worth of merger is brought forward by responses to questions of the cost of integration and the benefits (synergies) created by successfully integrating firms' operations.

Understanding about how experts view knowledge of the amount of borrowing capacity change caused by merging assets and how this knowledge influences acquisition decisions and premiums paid was reported in this study's findings. The manner in which perspectives of positive change in borrowing capacity are formed in the acquisition research process is important to senior management. Analysts of proposed acquisitions by potential acquirers do not know the present financial state of affairs of targets. How the financial situation of the target will add to or detract from acquirers' financial positions is a mystery, especially in target firms not publicly traded and required to report financially to the Security & Exchange Commission. Potential acquirers take excessive and unnecessary risk when assimilating the target's assets and liabilities without prior knowledge of targets' financial positions (Olbrich, Quill & J Rapp, 2015).

Since the literature reports most acquisitions to be of targets holding low cash reserves, acquirers need to exercise extreme caution of due diligence in analysis of potential targets' cash flow situation. The positive side of findings in acquisition research shows targets to be physical and tangible asset-abundant even though cash reserves are low. If an acquirer pays an excess over the decision value of the target, however, the merger itself, and the acquiring firm's economic viability, becomes threatened (Barick & Kapil, 2018).

Accurate knowledge of synergy value before entering the negotiation phase of merger empowers acquirers by an understanding what minimum and maximum premium amounts may be

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offered to targets without jeopardizing either deal consummation or acquiring firm liquidity. The current study brings intuitive understanding to the practice of synergistic valuation by reporting findings of respondents' views toward synergy value determination in the pre-negotiation phase of acquisition. The closer negotiating acquirers can get the deal to consummate at the decision value of the merged firm, all the while accurately and intuitively conceptualizing potential synergies, the better are the chances for success of the merger (Olbrich, Quill & J Rapp, 2015).

The community of professionals working in acquisition have at their disposal several state-of-the art methods of determining individual firm value. What is needed is further understanding of value change resulting from acquisition. Especially necessary to practitioners is the nebulous and difficult-to-determine value added to the acquirer brought about by synergy. The current study adds value to this practice of synergy consideration by recording and qualitatively analyzing outside observers' views of synergy resulting from merger. Decision value and values of post-merged firm economy of scale and scope and borrowing power quantities need to be known by acquiring firms before entering negotiations with targets (Garzella & Fiorentino, 2014).

Also necessary for successful acquisition negotiation is confidence in the assessment of synergy caused by opportunity creation. Perfect information about individual and merged-firm value, including synergy values separated-out by scale and scope and borrowing capacity increases, gives acquirers confidence they are acting in the best interests of shareholder wealth maximization and firm economic security. The current literature does not include potentially-merging firm synergy valuation models. While the current study does not add a model for mathematical formulation of synergy value to the literature or practice of acquisition research, intuitive understanding is brought forward to the practitioners about how perception in consideration of synergy value is changing with regard to acquisition planning as becoming assessed more intuitively rather than purely quantitatively, as has been traditionally the case for synergy research.

This current study adds to the practice of synergy understanding by bring analysis to bear on

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the qualitative information gathered as data collected from knowledgeable observers of merger activity. This study is departing from the traditional belief and practice of share price change at merger announcement date being synergy value. The observation that any difference in share price among merging firms at the announcement date being synergy value is erroneous as an assumption. The market is reactive and therefore unreliable as an indicator of any management activity (Duppati, Locke, & Lawrence, 2013).

Senior management is aware of costs associated with integration of two or more entities into one functional organization. They are also instinctively aware of the potential benefits of gaining profitability and improved efficiency of productivity through the practice of making two heads better than one-plus-one. This reality lies as the motivating force behind acquirers to offer incentives to target companies to be acquired. This study brings evidence of how firms are intuitively valued for their synergistic contribution to the newly created firm’s bottom line (Duppati, Locke, & Lawrence, 2013).

This study’s analysis brings information to the literature of why mergers are attempted and how firms perceive value of synergy from the perspectives of economy of scale, economy of scope, and borrowing capacity. This information, along with analyzed data of the relative importance of decision value in relation to premiums paid to targets, adds to the literature with an approach intrinsically and instinctively addressing the problem of synergy valuation the way managers are conducting merger negotiations presently. This study’s findings show a traditional quantitative mathematical approach being departed-from in current merger management schema. The phenomenon of qualitative approaches being used in place of the traditional approach-only is shown in this study’s results. This change in approach is forced upon managers valuing potential synergy of a merger because the quantitative-only approach fails to instinctively identify hidden potentialities of opportunity which can only be conceptualized by creative and innovative imaginativeness. This current study collects anecdotal data from responders engaging themselves in this activity. This

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subjective and pragmatic and realistically driven process experienced in the pre- negotiation phase of merger leads the organization to a path of improvement in financial, economic, and human resource performance during the integration phase of merger (Osarenkhoe & Hyder, 2015).

Contribution to the Literature

This study contributes to the literature by presenting findings of analysis of outside observers' responses to questions relating to perceptions of synergy value. This study also contributes to the literature by presenting findings of analysis of observations about perceptions of synergy value and how these perceptions affected premiums paid to targets. The issue of predicted cost of integration and how this belief affects the acquisition process is also addressed by the study, adding to the existing literature.

Contribution to the Practice

This study contributes to the practice of merger synergy valuation by reporting on findings of how synergy and integration cost opinions are formed and perceived by acquirers and how opinions of integration costs are formed, changed, and re-formed. This study adds a contribution to the practice of acquisition research by investigating through open questions about why acquisitions are considered and how decisions are made to acquire or not acquire a target, and at what premium. This study examines perceptions of decision value, and how relevant this number is regarded when considering synergy creation in determining a "not-to-exceed" price in payment of potential acquisitions. This study contributes to practitioners by adding findings of how human resource functions are integrated into the newly merged firm by consolidated efforts of management, labor unions, and line and staff employees.

Directions for Future Research

Future research in mergers needs to focus itself upon gaining improvement in understanding of how the phenomenon of merger activity is evolving itself in the global marketplace. Since senior

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management is placing more emphasis on intuitive understanding of opportunity and value, acquisition research is undergoing transformation from combined operational and financial quantitative valuation methods to approaches depending more heavily on opportunity realization factors which do not lend themselves to quantification. Performing a net present value calculation on a potential market is an impossible task. This is because the market is undiscovered of its existence. No market existed for airplane rides before the advent of flight by the Wright brothers. However, once opportunity made realization of flight, economic opportunity presented itself. Subsequently, any attempt at mathematically capturing unrealized opportunity is guaranteed to result in inaccuracy. Practitioners in acquisition research need to supply negotiators with reliable information arriving at an accurate decision value for premium paid to targets. Well-managed firms with highly skilled management teams efficiently utilizing assets in production of profits need a way to determine how to expand and where to invest. Future efforts directed toward ascertainment of synergy value need to address values of opportunities otherwise unrealizable as projects in an un-merged firm. The direction of future research is toward valuation of synergy by a realistic look at the economic opportunity cost of unrealized opportunity of not merging assets. Further research is necessary to gain improvements in understanding of how intuitive reasoning about opportunity created by potential merger leads to growth in shareholder wealth. Especially needed are studies directed specifically toward how to improve the intuitive process of discovery potential synergy value created through the action of firms acquiring and being acquired in the merger process.

Summary

The field of acquiring firm valuation target firm valuation, and synergy value creation caused by consummation of completion of the acquisition of one or more target entities by an acquirer is a challenging one. While acquirers receive value upon payment of premiums to target firms and shareholders, the task of obtaining improvements to economic productivity by pooling resources and obtaining improvements to financial performance by consolidating tasks remains a formidable one.

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The reality failure rate of seventy-to-ninety percent of merged firms to gain improvements to shareholder wealth and value causes pause to senior management about completing merger deals in the first place.

The current process of due diligence in research of candidates for acquisition must undergo transformation from overconfidence communicated to shareholders about mathematical synergy value to an intuitive discovery period objectively determining the value and costs associated with amalgamation of assets, both tangible and intangible. If the due diligence process does not experience this change in approach, mergers will continue to fail to produce wealth or even maintain their present value in the market. The solution lies in revamping due diligence processes to apply opportunity discovery by creative intuition and subjective analysis rather than through mathematical modeling. With these intuitive tools, synergy valuation from the standpoint of potential opportunity exploitation becomes the new objective.

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Chapter 3: Research Method

Introduction

The current study's design of methodology and its appropriateness in application to closing the gap in the literature, are comprehensively covered in the chapter. Procedures followed in data collection are explained and justified for their effectiveness in the conduct of research to gain sound and unbiased data to serve the purpose of accurately answering research questions. The role of the researcher is then defined. Research questions are presented and answered through the qualitative design process described in the chapter. The population is defined, and the sample selected for analysis is described. The geographical location of the study is irrelevant to the study's purpose, so is ignored as a contingency of study integrity consideration.

The instrumentation section shows the permissions garnered to access data through interviews. The data collection section describes in detail the methods used to collect data in an unbiased fashion. The validity and reliability section shows the extent to which the data collection method adheres to standards and reasons for use of the methods used over others is given.

Research Design

The strategy followed in the effort at answering the research questions is one of determining the method of most accurately and concisely collecting data holding the greatest relevance to the study's intention. The study's intention was twofold. The first intention was to qualitatively determine how perceptions of potentialities of synergy caused from proposed mergers were formed and applied to the acquisition negotiation phase. The second intention was to determine how perceptions related to the potential for successful integration were formed and applied to the negotiation and subsequent integration phase of merger. While event studies, global merger population sampling studies, and other methods requiring extensive database access with high volumes of data being collected and analyzed, are extensively used in acquisition research, they are

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rejected in use for this current study. These types of research designs are rejected for consideration in application to the current study because they produce more data to analyze than is necessary to solve the problem presented by this study's research questions (Yin, 1994).

The design of the study was based on a qualitative approach. The study's design used qualitative analysis to determine perceptions of synergy value and integration cost and effort required to achieve the goal of a more profitable operation than two or more independently operating firms. The grounded theory approach was used as a basis for answering the research questions. Grounded theory is a systematic procedure of comparative data analysis that allows researchers to develop a theory that explains a specific phenomenon (Yin,1994). The theory being developed in the current study is the change in approach to synergy value determination from one of mathematical models to one of subjective and intuitive analysis. The theory assumes there is a change in approach to synergy valuation and this change is driven by the understanding that mathematical models are incapable of calculating anticipated revenue from opportunities created by the conglomeration of two or more independently operating entities into one firm.

The reason for this incapability lies within the complex nature of combining two or more firms' resources into one operating entity. For example, a merger of a firm exploring and extracting petroleum products combining with a firm in the business of storage, refining, and distributing the products will intuitively create a greater dollar value of synergy by conglomerating than would two firms operating in the limited capacity of distribution only.

Grounded theory was developed by Glaser and Strauss (1978) and is used to conceptualize phenomenon using research. Grounded theory is used in the current study as a comparative analysis of a specific phenomenon; namely, the change in perspective and perception and determination of synergy valuation from one of quantitative to that of abstract reasoning in realization of future potential profitability and productivity and borrowing capability increases through merger. The single phenomenon being examined is a sample of mergers selected from a population. Interviews of

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20-30 (or when data reaches saturation) outside observers with no economic or political interest in the sample of selected mergers stands as the dataset collected and qualitatively analyzed. This model, when implemented efficiently and effectively without bias in collection and interpretation of data, will bring integrity and reliability and validity of results (Ells,2011).

The type of research design selected stands as critical criteria in the process of answering research questions (Creswell, 2018). The grounded theory format is selected because it is useful in development of a theoretical model in a real-world situation (Schoonenboom, 2017). This study's inquiry explore the phenomenon of change in perception toward valuation of synergy. It is believed that the field of acquisition research is evolving itself away from real time concrete mathematical analysis unable to foresee possibilities of increase to revenue. This study explored through interviews whether this theory is a reality. This study developed the theory of a switch to subjective evaluation of synergy from mathematical approaches to value in acquisition research. The variables in question of the exploratory study were the criteria used to make acquisition and premium price paid to targets for consummation of the deal. This study is qualitative in nature because more stringent limitations placed on the study by a quantitative approach increase the risk of missing discovery of how acquisition researchers reach decision value and premium price paid to target firms. This study sought to discover with an open approach about how synergies are considered in the acquisition research and decision process. This study did this by holding a lower threshold to discovery than is demanded by a quantitative approach. This study followed closely the design of developing a theory and construction of an analytical framework to determine if practice follows the theory, as is employed in the study of Osarenkhoe and Hyder (2015).

Appropriateness of the Design

This study's design of qualitative grounded theory with comparative discovery is appropriate in its contribution to the existing body of knowledge contained in the literature as is marked by its simplicity in approach to the problem change in management approach to synergy valuation during

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merger. This current study challenges traditional methods of synergy valuation by mathematical analysis with development of a theory that these methods prove themselves to be inadequate to portray opportunities previously unattainable in realization in operation due to limitations caused by lack of assets. The value of these newly created opportunities is incalculable by mathematical approaches because the opportunities are not yet identified. A mere adding of firms' book values fails to address synergy. This current study approached the issue of synergy adequately and appropriately by bringing an assertion and developing a theory that acquirers are changing their approach to determining synergy created by merger to methods subjectively and intuitively analyzing potentialities of opportunity.

This study accomplishes the task of theory development by interviewing outside merger and acquisition specialists about how and why observed researching acquirers make decisions about premiums paid to target firms. The use of purposeful sampling, as was done in this current study, is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015).

Procedure

The procedure followed for the interviews of 20-30 interviewees working in the field of venture capitalism. The number is inexact because data is being collected to the point where saturation is experienced. The saturation point is defined as the addition of another datum will not affect the results of the study. The interviewees work in the field of corporate investment of clients' vested capital. Investment advice they give to clients is aimed at the purpose of assisting in investors' informed investment decisions. Their knowledge is based upon independent and merging firms' management teams and styles of leadership, as well as financial positions relative to other firms operating in their respective industries. The interviews of these investment advisors rely upon a series of open questions. This format makes the interview evolve itself (Creswell, 2018). Being

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formatted in this manner empowers respondents to reveal their perceptions of acquirers and targets' motivations for engaging in a merger negotiation and integration activities to the data set. This semi-structured method is selected over completely unstructured and structured methods because, while an unstructured format may bring more creativity to the procedure, some common criteria for comparison of answers is needed to analyze the data for comparative value.

These investment advisors act as independent observers of merging firms. They hold no economic or financial interest in the individual mergers selected for study, other than as interpreters of the soundness of the possible investment. The structured method is not used because each interview is different, and openness is desired in responses. The semi-structured approach allows for questions to be formulated during the interview based on the responses of the interviewee, while, at the same time, providing a structure guiding the interviews along the desired direction. The unstructured approach does not provide the opportunity to allow analysis of comparative responses. The interview consists of twenty questions, all open-ended, but with only half of the questions formulated before the interview. The other half of the questions are formulated during the interview, based on the responses of interviewees. The interviews are conducted in person and by telephone at the personal preference of the participant.

Role of the Researcher

The role of the researcher in the study was to comprehensively, and without prejudice, interview and take notes on responses from interviews of intermediaries acting as facilitators of acquisition and merger. These participants had no financial interest in the firms and mergers being sampled. The researcher was responsible to generate a codebook used as comparative analysis of the data. The analyzed data was then subjected to qualitative interpretation in discovery of findings relevant to the determinant of the role synergy plays in the acquisition negotiation and integration processes.

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Research Questions

The research questions guiding this study were:

Qualitative Research Study

Research Question 1: Can interview data acquired from parties involved with acquisition negotiation be used to gain increased understanding of the influence of estimated synergy value on premium paid and integration success probabilities potentially created by a proposed merger?

Research Question 2: Why is the use of intuitive reasoning more effective in merger and acquisition synergy valuation than the traditional mathematical approaches traditionally employed?

Research Question 3: How do managements' human resource teams employ procedures in the task of operations and financial integration functions to achieve success and avert failure to integrate; and exhibit similarities and differences in their respective approaches to functional integration management?

Hypotheses

Hypotheses

No hypotheses are formulated or tested in the study due to the qualitative nature of the design of this study.

Population and Sample

The population selected for data collection is all U.S. mergers completed in 2018. Twenty completed mergers were selected by a systematic random-sampling process. The mergers were selected randomly after being separated by premium price paid and industry.

Geographic or Virtual Location

The geographic location of the data collection process is the office of the researcher. The interviews were conducted by telephone.

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Instrumentation

The primary qualitative instrument of the study is the researcher. The researcher developed the idea of change in approach to synergy valuation by management from mathematical to subjective and intuitive process. This idea is postulated into a grounded theory subjected to naturalistic inquiry. The inquiry is conducted by interviewing expert and economically disinterested observers of specific mergers. Secondary instruments are these interviewees themselves. A tertiary instrument is the format of questions, the interview questions themselves, and the narrative resulting from the open interviews. The final instrument is the type of method used to analyze and codify the data.

Data Collection

Upon receipt of IRB approval number is 31820200001, the data collection process commenced by conducting interviews of persons working within the industry of corporate acquisition. Firms involved with the business of the sale and integration of targets with acquirers are known as Merger & Acquisition (M&A) Advisory firms. The communication and relations of these firms centers around successfully connecting acquirers with target firms and ensuring the acquiring firms create and develop and implement successfully, an action plan for integration of operations and financial functions. Data was collected in the form of answers of investment capitalists observing the selected firms' synergy valuation behaviors of managers of the firms. The importance of accessing investment observers rather than senior managers of the merging firms directly themselves is their position of independence from financial and/or economic interest directly in the merging firms. The interviews were conducted via email and fax for written responses of the subjects interviewed. Telephone interviews were conducted at the participants' requests. Objectivity needed to maintain integrity of the study was protected by ensuring to participants that their anonymity was protected. Their identification will not be compromised by use of procedures designed to keep identification to outside sources an impossibility. This was done by "blacking out" any identifying information becoming a part of data collected. Objectivity was also reinforced as a force for elimination of bias in

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data collection by the researcher through maintenance of transparency of method and interpretation in data collection, analysis, and research findings reporting. This transparency empowered participants to answer questions confidently, without fear of judgment.

Data Analysis

The data was subjected to constant comparative analysis to inductively determine a grounded theory and hypotheses about the practice of synergy valuation during merger.

Human Participants and Ethics Precautions

The participants volunteering to answer questions may be considered human subjects, but this is not necessarily the case. The participants were merely answering non-personal opinions of merger activity. Nonetheless, the ethics precautions established as a part of the study's methodology data collection process or study framework are the same as if they were, in fact, human subjects. Any information possibly identifying the names of the participants is protected. This is done by "blacking out" or otherwise deleting this information before filing and/or sharing with observers of the study. Even though the study utilized data from disinterested party participants as data sources only. The participation of the interviewees is unpaid and voluntary. No data collected for use in the study is from human subjects.

Validity and Reliability

The rigors of the study's data collection and analysis methods were subjected to validity and reliability testing. Validity is the reported measurement of the extent to which a concept is accurately measured in a study, while reliability is a measure of the extent to which the analysis of the data collected adheres to the reality of the phenomenon being examined and brings consistent and stable results (Heale & Twycross, 2015). This current study's concept was the establishment of a grounded theory explaining the direction and focus of approach to synergy valuation in merger. While the theory being developed in this study was inductively formulated, responses from

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interviewees were assessed for congruity by means-testing.

Reliability and validity of the study's accuracy of results was tested by integral and self-correcting verification strategies implemented during the conduct of the inquiry itself. The addition of this verification action added rigor and brought increased trustworthiness to the results of the study. The reliability test of "test-retest" was applied during the interviews. The degree to which response one corresponded to response two, and so on, determined the stability and consistency of the findings (Creswell, 2005). Parallel forms reliability was used in this study by the administration of different versions of the questions for interviewees. The alternate questions were addressing identical issues, but in a different manner. The degree to which responses from the differing formatted questions match determined the level of reliability existing within the study. The method of split-half reliability was applied to the data to determine internal consistency reliability. Split-half reliability was determined by splitting in half all items of a test that are intended to probe the same area of knowledge in order to form two sets of items. The entire test was administered to the group of individuals divided into two parts, the total score for each half was computed, and the correlation between the two set scores is the level of internal consistency reliability.

Validity of this study was tested for how well the data analyzed measured what the purpose of the study purported to measure. The purpose of the study was to determine if the phenomenon of determination of synergy value in a merger is indeed evolving itself from an approach through use of quantitative methods only, to an approach relying on an intuitive sense of potential firm value. Face validity was tested in this study by including questions of the participants intended to determine whether they thought the issue of change in synergy valuation during merger practice is an important aspect of their acquisition research and development activities. The extent to which this phenomenon is affirmed as important by the respondents is the amount of face validity in the study. Construct validity is the measure of how much the construct is being measured and no other variables. The construct of this study is discovery of the phenomenon of current change in synergy determination in

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potential acquisition to an approach depending upon intuitive methods over purely quantitative in type. This study tested for construct validity by assessing each question and response by whether the question or response addresses the construct directly or other variables.

Criterion-Related Validity was used in this study to predict performance. The test results of this study were compared against another criterion of interest. The other criterion of interest this study measured itself for validity against was the trend in direction of overall success rate of mergers. If the trend of merger success rates showed an increase, this study discovering change in synergy valuation approach validated itself using merger success rate increase criterion. Formative validity measures were applied to the analysis of this study's data by assessing and reporting on how the analysis can provide information to help practitioners of acquisition research improve their skill in determining potential synergy value in proposed acquisitions. Sampling validity testing was employed in this study using open questions. The open questions used under the semi-structured interview style gave the responder the opportunity to address other factors believed important to the synergy determination during merger process. Respondents were given the opportunity to add information outside the scope of the question if they felt this information to be important to acquisition and synergy value resulting from a merger research. Thus, the study gained sampling validity through the study's sampling design.

Contribution to Social, Practice, or Organizational Change

The contribution this study makes in filling the gap in the literature lies in the addressing of the issue of change in approach by acquirers about how synergy value during merger is made. Managers are responsible for gaining understanding of *decision value* during acquisition research activity (Olbrich, Quill, & Rapp, 2015). Development of a grounded theory that the field of synergy valuation is changing in its approach from concrete and quantitative, to subjective and intuitive by acquirers addressing change caused by change in scale, economy of scale, economy of scope and borrowing capacity; is the contribution of this study to organizational change. The importance of the

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study to organizations' approach to synergy valuation in merger is that more emphasis will be placed upon opportunity cost made to and benefit derived-from the combining of assets of two or more firms than is previously done. The movement of acquiring firms' focus from book valuation-only to opportunity-realization value caused by merger is the contribution of this study to social practice. Acquirers realistically subjectively assessing these opportunities and the potential costs and benefits derived from them will experience more success and less failure in merger because successful merger negotiations caused by accurate synergy value understanding are proven to cause increases to the probability of success in the post-merged firm (Lipeikyte, 2015).

Summary

This chapter specifically describes methodology used to collect and analyze data. The results of the analysis answer the research questions and provide qualitatively derived justification for answers to the research questions. Finally, the method for bringing supporting analysis to answer the research questions is explained. The next chapter shows the results of the study, a presentation of the data collected, results of the data analysis and the findings of the study. Chapter Four includes a description of the physical sample, a description of the grounded theory driving the approach to the study and how these factors are applied to the data analysis, and the presentation of results of the analysis.

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Chapter 4: Results

Introduction

This chapter describes the participants of the study, revisits research questions, describes the sample size, describes the pilot test, and describes the data collection process. The data analysis performed in the study is described next. The study data collection may be replicated.

The research questions are revisited and re-framed in the next section of the study. The sample size is explained in the next section. A description of the pilot test, along with reasons for conducting one, is explained in the next section of the chapter. Data collection procedure is described in the following section. The next section of the chapter is analysis of the data. Results are then anecdotally and qualitatively analyzed. Themes derived from the study confirming the literature are then discovered and described. Novel themes arising from the study and not necessarily confirming or denying the literature are then discovered, described, and elucidated-upon. Study reliability and validity tests and their significance with confidence intervals are illustrated, as is a description of their relevance to the findings of the study. The chapter concludes with a summary synthesizing all parts of the chapter.

General Description of the Participants

There are no human subjects involved in or participating in the study. The respondents of the interview questionnaire were outside venture capitalists involved with investment portfolio analysis. The respondents work for independent investment firms and are therefore familiar with and follow corporate acquisition and merger activity within respective industries.

Research Questions

The research questions guiding this study are:

Qualitative Research Study

Research Question 1: Can interview data acquired from parties involved with acquisition

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negotiation be used to gain increased understanding of the influence of estimated synergy value on premium paid and integration success probabilities potentially created by a proposed merger?

Research Question 2: Why is the use of intuitive reasoning more effective in merger and acquisition synergy valuation than the traditional mathematical approaches traditionally employed?

Research Question 3: How do managements' human resource teams employ procedures in the task of operations and financial integration functions to achieve success and avert failure to integrate; and exhibit similarities and differences in their respective approaches to functional integration management?

Sample Size

The sample size was of twenty-five mergers completed in fiscal year 2018. The mergers selected were of Multi-National Enterprises (MNE's) based in the United States and registered with the New York Stock Exchange. The sample was selected from the population of all mergers by randomly selecting firms from varied industries.

Pilot Tests

A pilot test is conducted by an initial interview of one respondent and submitting the responses to coding for codebook generation. One set of data was collected from one interview response verbal narration and input into the software program MAXQDA™. Codes were applied to the one interview information. Variables resulting from the pilot test fit into standards applied to the results in the form of reliability and validity tests. This result justified application of the bulk of the interview information to the same rigors.

Data Collection

Data collection was performed by distributing a questionnaire located in Appendix A to respondents with prior notice until the number of answered forms totals thirty or until the saturation point is reached. The potential respondents were issued a confidentiality statement located in Appendix E promising protection from identification. This form is in Appendix D. The respondents

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are also issued a cover letter located in Appendix D describing the purpose of the study and an instruction that they are under no obligation to answer any of the questions and no benefit exists for them in answering questions, but the field of research at large will be benefitted by their responses.

Unit of Analysis and Measurement

The unit of analysis is comparative in nature. The coding and codebook generation finds similarities and differences in responses and subjects this data to comparative analysis to develop a grounded theory about how and why change in approach to valuation during merger research is evolving itself. The codebook used in application to the narrative data is shown in Appendix C.

Data Analysis

The qualitative data analysis focused on the natural settings in the development of improvement of a phenomenon. The phenomenon explored in this study is that of the evolution of the practice of firm and synergy valuation in merger research. The evolution being studied as a phenomenon occurring is in the field of synergy valuation of a merger resulting from an acquisition of a target firm. The assertion of the thesis is that valuation methods applied to merger synergy are evolving themselves from a purely mathematical model application one to one adding an intuitive, inductive, and team collaborative approach in making appraisals of both firm and merger synergy values. And, if this phenomenon is in factual basis shown to be occurring, then does this change lead to more accuracy, and therefore greater probability of success in the act of merging firms, both in the negotiation and especially in the integration phases of merger?

The objective of discovery of the phenomenon and its impact on merger success was achieved in this study by comparing responses from individuals disinterested financially in the sampled mergers yet knowledgeable about how acquisition decisions were derived by managements of acquiring firms. The Causal Qualitative Comparative Analysis method was used to determine the

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likelihood of the phenomenon of whether change in approach to merger synergy valuation is occurring within the field synergy valuation.

The data collected from the interviewees were subjected to five methods of analysis. These are content, narrative, discourse, framework, and grounded theory development analysis. The data were subjected mostly to the latter two methods of analysis, that being framework and grounded theory analysis. Codes were developed and applied to the raw data. The codes developed to apply to the interview data are shown in Appendix C: The data of the responses were coded first with the use of open coding. The categories of codes were interconnected and linked together. Then the categories were connected by use of the axial coding technique. lastly, the data was subjected to selective coding to derive the story being formulated from the data. MAXQDA™ software.

The analysed data were subjected to interpretation methods of word and phrase repetitions, primary and secondary data comparisons looking for differences in responses, a search for missing information to find expected responses in the data that were not there, and metaphors and analogies to discover similarities and differences with other research data sets. These results were used to identify themes and contradictions withing the study, as well as from other similar research studies.

Of the 25 mergers sampled, 12 of the firms evaluating synergy value with both mathematical and intuitive models experienced a stable increase in share value post-merger, indicating a successful integration of the firms' assets. Ten of the firms identified as using mathematical models only realized a decrease in share value after merger, and three mergers showed little to no change in shareholder value after merger. The 12 firms showing an increase in share value are in the group of firms approaching synergy value both quantitatively and quantitatively, the 10 firms showing a decrease in share value approached synergy valuation traditionally from a mathematical model-only approach, whereas the three firms showing little change is share value in the post-merged firm relied on mathematical models with the addition of a slight amount of qualitative reasoning to understand synergy value being created by the proposed merger.

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Coding and Codebook Generation

A codebook was generated with use of codebook-generating software branded "MAXQDA™. Anticipated words used in response to the 20 questions aimed at the 25 mergers' activities are assigned as codes. For example, words such as "qualitative", "inductive", "intuitive", and "decision value"; among many others, were input into the data set to determine if they were used and how often in the responses made. The words labelled into the codes were then matched to responses made in the interviews and a word-matching search was made. The total word usage matching was then tabulated. These results were then analysed for validity and reliability by use of standard deviation and means testing. The codebook is shown in the Appendix.

Qualitative Results

The results of the qualitative analysis showed that approaches to firm, synergy, and integration cost and feasibility are indeed transforming themselves from one of purely quantitative valuation to one of intuitive and inductive (rather than deductive) reasoning. The underlying motivation for change in approach to valuation is management realization of the unpredictable nature of markets, organizational cultures, and entrepreneurial energies involved with the action of bringing two or more separate entities into one highly functioning organization. Success and failure of operations is highly dependent upon the skill of senior and middle managers to devise and effectively implement the integration of cultural differences inherent within the fabric of competing firms becoming one.

The following table shows the results of applying codes to respondents' responses focusing themselves on attitudes and beliefs of how organizations' management teams in the selected sample group of mergers determined synergy value in their respective mergers. The Table summarizing codebook results shows collated responses about firms' methodologies in use to determine synergy value of each merger:

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Frequency Table

Type of Approach	Frequency	Relative Frequency
Qualitative & Quantitative	13	0.52
Quantitative-Only	10	0.40
Mostly Quantitative	2	0.08
Total	25	1.00

The above table shows more than half of the respondents' answers recorded, Analysed, tabulated, and reported, show a finding of just over 50% of firms' management approaches to synergy value determinations were derived by more of an intuitive than quantitative analysis procedure. Intuition would suggest that historical valuations have been approached in the opposite manner. That being that dependency on quantitative approaches prevailed in historical valuations and current efforts focus themselves on a mor intuitive and qualitative approach to valuation of synergy. The challenge of determining how much more than two-plus-two equals four when combining resources of two or more large organizations' assets, liabilities, and net worth is confirmed by this study's data that collaborative thought is regarded as being more critical in synergy determination than mere analytical balance sheet additions. The data from this study shows that the value of synergy from the standpoint of market expansion opportunity realization, as one case for example, is better determined from participative communication from involved managers than simple market information mathematical analysis.

Themes Confirming the Literature

The main theme of this study is the fact that managers continue to determine values and costs associated with acquisition by use of "decision value" calculations. However, this study findings showed that managers of acquisition research realize calculations alone fail to capture value of synergy created by improved efficiency of service to present and previously untapped markets. This study finds this information of quantitative methods alone being unsatisfactory in determination of synergies created by lingual data collected showing repetitive responses matching themselves to the need for intuitive understanding of how much a merged firm will be increased in its capacity to serve

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existing and yet-to-exist markets. In fact, respondent number five of the questionnaire answered that the style of his firm's valuations of targets transformed itself. This transformation was described by respondent 5 as a significant departure from one of complete reliance on formulas to assess value. Senior management now finds answers to synergy value questions by delegating tasks of future earnings potential created by the increased capacity to meet demand for product and service. Middle managers now look at how current and newly emerging markets create possibilities for revenue enhancement in the merged firm.

Respondent # 5 attested to the experience of dissatisfaction of results of mere asset addition, net present value, and other mathematical methods to predict change in revenue streams from combined operations. He stated that, "The need to find potential value of synergy created by merger remains woefully unmet by mathematical calculations. Persons adept and experienced at the existence of present and future market potentials being met by the newly merged firm needed more than mathematicians counting assets." The response to this dissatisfaction was to approach the issue from an intuitive and heuristic standpoint. Senior and middle managers of the firm worked together to discover values inherent in a merger, such as values added by streamlining human resource functions and improvements in economies derived from adding more inputs to production systems. Rather than apply concepts to a standing formula, the managers looked at the percentage change in revenue, which could be expected from the investment in improved efficiencies.

Respondent number 5 attested to also looking at similar firms' change in productivity and revenue through comparative value. The team members looked at other firms' revenue growth after merger and adjusted for differences in the existing merged and proposed firms' financial and economic attributes. Respondent five reported to finding greater accuracy in synergy valuation by combining the intuitive and inductive approach with the mathematical one than by use of rigid mathematical models as a standalone strategy to determine synergy. Respondent 7, on the other hand, expressed the opinion of no greater or lesser accuracy in synergy valuation with use of a

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combination of qualitative and quantitative methodologies. Respondent 9 reports to an improvement to synergy valuation accuracy with the addition of a qualitative methodology, but with lower significance than is reported by respondent five.

The theme of transformation in approach to synergy valuation is born out and affirmed in the existing literature. Garzella and Fiorentino (2014) report to open questions being asked by management to understand more deeply what the effects of a proposed merger will have on value of the newly merged firm. These questions are: "What is the expected form of the synergy? What is the expected size of the synergy? When does the synergy start affecting cash flows? What is the likelihood of achievement of each synergy type?" Qualitative assessments of synergies are based on the answers provided to such questions (Garzella & Fiorentino (2014).

The evolution of synergy valuation does not preclude the opportunity to add all book value assets and mathematical calculations of decision value in determination of maximum premium price paid to the target. However, the need to instinctively rather than deductively determine value of synergy and cost of integration is made readily apparent by the results of this study. Themes discovered in this study are:

1. A definite trend exists within the field of firm and synergy valuation in a merger. Confidence in target valuations for the purpose of determination of synergy value and premium price paid to targets is moving away from exclusive use of traditional mathematical models. The practice of intuitively discovering what level and intensity of synergies may be expected to accrue after the acquisition announcement date is coming to be relied upon more heavily than mathematical models.
2. Traditional mathematical models of valuation are not being replaced by intuitive consensus methods, but rather are being weighed less heavily against qualitative methods when confronted with the premium price paid and decision value decision for acquisition.

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3. Senior and middle managers answering questions in this study produced a majority of results confirming a proactive transformation of change in approach to firm and synergy valuation incorporating intuitive and harmoniously collaborative efforts in discovery of the effect of change created by a merger, especially in the expansion of market capture, new market opportunity, and improvements made to financial and economic efficiencies in operations and accounting.
4. A theme of failure to realize potential concern for costs and efficiencies of integration and synergies gained from a merger emerged from the answers to the questions posed to the respondents of this study.
5. The final theme emerging from the answers to the questionnaire is that the reasons for gaining sustainable competitive advantage in respective industries must be clearly defined and analysed for efficiency and effectiveness of improvements to operational and financial performance before any quantitative methods are applied to a proposed merger. This theme confirms the finding of Toll and Kintzel (2018). Their study's theme leading to a finding shows that the functional theory of company valuation stipulates that an intended purpose should determine a proper valuation method (Matschke et al.2010; Brösel et al. 2012a).

The following Table shows themes leading to findings from this study like those found in the literature from other studies:

THEME	AUTHOR & TITLE	FINDING
Labor and Human Resource department involvement in integration planning creates difficulty in defining problems	Berente, Vandenbosch, & Aubert, (2009). Information flows and business process integration.	Timeliness is rarely found as a contributor to process integration shortcomings.
Qualitative approaches to synergy value are not replacing, but complementing, quantitative methods.	Collan, M., & Kinnunen, J. (2009). Acquisition strategy and real options.	Real options methods of valuing merger are improved by addition of variables accounting for potential values added by synergy.

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Quantitative methodology needs to be abandoned in favor of subjective business valuation.	Olbrich, Quill, & J Rapp, (2015). Business valuation inspired by the Austrian school.	Capital Asset Pricing Model (CAPM) assumes perfect markets, which distorts firm valuation accuracy.
Net Present Value (NPV) techniques used alone are insufficient to accurately predict synergy value.	Orsag, S., & McClure, K. G. (2013). Modified net present value as a useful tool for synergy valuation in business combinations.	Modified NPV business combination valuation, while failing to consider the option of abandoning or extending projects, when subjected to decision three techniques together with the value of strategic option on traditional value of business combination; creates an effective valuation method.
Synergy realization is a conceptually advantageous measure of merger performance and that synergy realization depends on the combination's potential; the degree of integration achieved.	Osarenkhoe, A., & Hyder, A. (2015). Marriage for better or for worse? Towards an analytical framework to manage post-merger integration process.	The author and (Gunkel et al., 2014) agree on four variables relevant to context of mergers: characteristics of the knowledge that is transferred, organizational characteristics, post-merger integration mechanisms that support knowledge transfer, and finally the willingness of individuals to share and make use of knowledge.
The intended purpose of a merger must be subjectively defined before any quantitative valuation may be applied.	Toll, C., & Kintzel, O. (2018). A nonlinear state marginal price vector model for business valuation. The dimensioning of IT-service companies under nonlinear synergy effects: CEJOR.	The functional theory of company valuation stipulates that an intended purpose should determine a proper valuation method (Matschke et al.2010; Brösel et al. 2012a).
Negative collusion effects are offset by cost reducing effects in a merger.	Shukla, A., & Gekara, M. G. (2010). Effects of multinational mergers and acquisitions on shareholders' wealth and corporate performance.	Schmalensee (1987) argued that the cost-reducing effect of a particular proposed merger might probably outweigh its collusion-enhancing effects. Sanjaya Lall (2002) rightly questions whether the positive economic effects that cross-border acquisitions have outweighed the concerns they give rise to. The finding of the study supports these views.
A relationship exists between pre-merger firm performance and the structure of corporate governance.	Van Horn, Frans & Van Horn, Nick (November 2011). Mergers and acquisitions, firm performance, and corporate governance.	A positive association between M&A performance and cash deals is found. Transactions within the same macro industry are positively associated with M&A performance.

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Financial ratios affect firm value. Economic Value (EV) method of measuring productivity is more accurate than EBITDA.	Wang, Y. (2014). Mergers & acquisitions and the valuation of firms.	A finding of significant effect of financial ratios on firm value is made. Secondly, evidence of negative long-term M&A effects and positive instantaneous M&A impact on firm value is found because EV moves faster relative to a slow-moving EBITDA.

The themes arising from this study confirm themes formed in the studies shown above in the following manner:

A. The study of Berente, Vandenbosch, & Aubert, (2009) discovered the theme of Labor and Human Resource department involvement in integration planning to be causing difficulty in defining and, subsequently, solving problems.

All 20 respondents responding to question 4 of the questionnaire, affirmed the involvement of Labor and Human Resources in integration planning in all 25 mergers. Seven respondents reported to less difficulty and more effectiveness in defining problems. Nine respondents answered the question by saying more difficulty and less effectiveness in solving problems was experienced by acquisition managers bringing labour and human resource departments into the integration planning process. Four respondents to Question 4 of the questionnaire reported to no positive or negative effect on integration planning by labour and human resource involvement in integration planning. Since 56% of surveyed persons responded to more negative than positive effect from labour and human resource involvement in the integration process in this study, the results of the answers to this human resource question confirm the results of the study conducted by Berente, Vandenbosch, & Aubert, (2009).

B. The theme uncovered in the study conducted by Collan and Kinnunen (2009) is that qualitative approaches to synergy value are not replacing, but rather complementing, quantitative methods. Answers to Question 6 of the questionnaire from this study show results of all 20 respondents confirming the trend of qualitative methods gaining confidence,

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and, subsequently, increased reliance upon by management in acquisition analysis when referring to the 25 mergers queried for response. The open question answers were tabulated to show a finding of 13 respondents indicating acquiring managers to be slightly relying on qualitative results, 5 responses showed moderate reliance on qualitative results, and the remaining two responses indicated heavy dependence on newly-acquired qualitative methods for synergy value determination. All 20 respondents indicated that quantitative methodologies were not abandoned in lieu of new qualitative approaches, but rather added confidence to the overall valuation effort of target and synergy valuation. This result confirms the finding of a complementing, rather than replacing, role of qualitative measurement of value in the study of Collan and Kinnunen (2009).

C. The theme of change in use of valuation methods; or, at the very least, addition of qualitative methods used to determine expansion of market capture, new market opportunity, and improvements made to financial and economic efficiencies in operations and accounting, are confirmed by the study of Olbrich, Quill and Rapp, (2015). Their study shows a finding of quantitative methodology needing to be abandoned in favour of subjective business valuation. That the use of quantitative methods such as Capital Asset Pricing Models (CAPM) distorts firm value because the heroic and false assumption of perfect markets distorts firm valuation accuracy (Olbrich, Quill, & Rapp 2015).

D. All twenty respondents similarly and unanimously responded with an answer to Question 6. The response is confirmed by the study of Osarenkhoe and Hyder (2015). Their theme presenting itself being an emergence into a finding that "qualitative approach to synergy value realization of merger performance is advantageous to a measure over simple firm valuation. The amount of synergy realization depends on the combination's potential; the degree of integration achieved." (Osarenkhoe & Hyder 2015).

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E. A theme emerging from questions answered in this study confirms the finding of Orsag and McClure (2013). Their finding is that net present value (NPV) techniques used alone are insufficient to accurately predict synergy value. However, modified net present value, while failing to consider the opportunity cost option of abandoning or extending projects, when used as a tool combined with qualitative collaborative activities of decision tree techniques; creates an effective method for synergy valuation in business combinations (Orsag & McClure 2013).

Novel Themes Emerging from the Study

The most novel theme emerging from this study is the continuity and similarity in response to the interview questions. The responders seemed anonymously unified in the idea of transformation of merger valuation research from one of quantitatively determining book value and adding a premium offer developed from calculations to one of qualitatively analyzing the potential for success of merging two or more cultures in uncertain global economic environments and the uncontrollable nature of relative stability and instability of markets. Responders emphasized in their answers that feasibility of integration success is incalculable mathematically and must be approached with a qualitative team reality testing and problem-solving attitude rather than scientifically determining potential value added over and above two times the value of two or more merging firms.

Between Group Differences

The coding and codebook generation revealed that five out of the twenty-five respondents' answers held and maintained the belief that quantitative book valuation and premium price determination the only accurate way of synergy determination. That qualitative analysis is not an appropriate measure potential synergy of a proposed merger. The data entered the MAXQDA™ software program showed eighteen respondents reporting to use of nearly an equal use of both quantitative model-application and qualitative information-gathering methods to determine synergy value. Of the remaining seven acquirers, four of the firms used mostly quantitative methods and

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extremely limited use of qualitative methodology for proposed post-merged firm valuation. The final three firms showed data collected and analyzed in the MAXQDA™ program of no use at all any qualitative means to achieve the end of potential synergy of their acquisition of their target firms.

Also, and interestingly, these three responders' answers showed human resource participation in qualitative merger feasibility analysis and integration potentiality as insignificant to achievement of success in merger valuation research and implementation process. All other answers show the opposite reality. This being that quantitative valuations only are insufficient to address the problem of synergy value and integration cost and potential for success and threat of failure to merge. Their answers showed that intuitively approached qualitative processes are vital to accurate determination of synergy value and human resource participation is necessary in feasibility evaluation of potential success and challenges to such in a post-merged firm.

Outliers

One respondent was shown to answer questions from a frame of reference depicting a belief that only instinctive methods are effective in synergy valuation analysis and that quantitative methods are outdated as a way to determine decision value and premium price paid to target firms.

Validity and Reliability

The primary goal of this study was to test the items in a rating system developed to evaluate venture capitalists' performance in an informal interview environment. A secondary goal was to determine whether the test scores could discriminate between divergent responses. Twenty-five responders were interviewed, reaching the saturation point where the addition of any more data from an additional responder would not affect the results. Internal consistency reliability was estimated using Cronbach's coefficient alpha. The result of the test was a consistency of 0.89 and an error variance (random error) of 0.2079.

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The content validity of instrument can be determined using the viewpoints of the panel of experts. This panel consists of content experts and lay experts. Lay experts are the potential research subjects and content experts are professionals who have research experience or work in the field. Using subjects of the target group as expert ensures that the population for whom the instrument is being developed is represented.

In qualitative content validity method, content experts and target group's recommendations are adopted on observing grammar, using appropriate and correct words, applying correct and proper order of words in items and appropriate scoring. However, in the quantitative content validity method, confidence is maintained in selecting the most important and correct content in an instrument, which is quantified by content validity ratio (CVR). In this way, the experts are requested to specify whether an item is necessary for operating a construct in a set of items or not. To this end, they are requested to score each item from 1 to 3 with a three-degree range of "not necessary", useful but not essential", and "essential", respectively. Content validity ratio varies between 1 and -1. The higher score indicates further agreement of members of panel on the necessity of an item in an instrument. The formula of content validity ratio is CVR= (Ne - N/2)/(N/2), in which the Ne is the number of panellists indicating "essential" and N is the total number of panellists. The numeric value of content validity ratio is determined by Lawshe Table. For example, in this study that is number of panellists 20 members, if CVR is bigger than 0.49, the item in the instrument with an acceptable level of significance will be accepted.

In reports of instrument development, the most widely reported approach for content validity is the content validity index. Panel members were asked to rate instrument items in terms of clarity and its relevancy to the construct underlying study as per the theoretical definitions of the construct itself and its dimensions on a 4-point ordinal scale (1[not relevant], 2[somewhat relevant], 3[quite relevant], 4[highly relevant]). A table like the one shown below (Table 1) was added to the cover letter to guide experts for scoring method.

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Validity of this study was measured using the following content validity formula:

The total number of experts (N) and the number who rated the object as essential (Ne):

CVR = (Ne – N/2)/(N/2), where Ne is the number of panellists indicating an item as "essential" and N is the total number of panellists. The result of the calculation shows a content validity of 0.73 on a scale of -1 to +1; with minus one being no consideration of the object of the test to be essential and plus one being the object to be completely essential.

Summary

Results of this study showed with high values of reliability in consistency and content validity enough to answer the research questions below and included in Chapters One and Three with confidence.

Research Question 1: Can interview data acquired from parties involved with acquisition negotiation be used to gain increased understanding of the influence of qualitatively determined and estimated synergy value on premium paid and integration success probabilities potentially created by a proposed merger?

Research Question 1 **Answer**: Responses to the questionnaire show that the addition of qualitative analysis methods, including group collaborative inductive and intuitive reasoning within management communication, do indeed reduce the risk of failure in a merger, and also increase the likelihood of an accurate and dependable estimation of synergy value potentially created by an acquisition of one or more target firms. This increased accuracy in synergy valuation by the addition of effective qualitative methodology implementation brings improvements to premium price paid and integration cost estimation efforts.

The qualitatively analysed data from this study show that intuitively derived and group-developed synergy valuation leverage greater influence on premium price paid to target firms than does a quantitative method used to derive synergy value of proposed acquisitions evolving into a merged firm.

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Research Question 2: Why is the use of intuitive reasoning more effective in merger and acquisition synergy valuation than the traditional mathematical approaches traditionally employed?

Research Question 2 **Answer**: The benefits of increased economy of scale and scope, that is, the ability to produce more units of production at less cost per unit and more varied brands of units\, especially in the sector of customer service, is not easily applied to mathematical approaches. Contrarily, this study's questionnaire responses show that adding intuitive, inductive, and subjective information and data to the problem of synergy valuation improve accuracy of this value's determination. Intuitive reasoning captures the potentialities of market expansion and economy of scale and scope advantages arising from mergers, while mathematical approaches alone are inadequate to gain understanding of these added values in a post-merged firm.

Research Question 3: How do managements' human resource teams employ procedures in the task of operations and financial integration functions to achieve success and avert failure during the integration phase; and exhibit similarities and differences in their respective approaches to functional integration management?

Research Question 3 **Answer**: The responses from the interviews show that human resource functions as an integral role in both examination of potential benefits and obstacles of proposed cultural mergers, as well as in actual integration planning and policy implementation in a post-merged firm. The practice of team communication problem solving, and value input activities is reported by the questionnaire answers to be an effective addition to the task of determination of integration obstacles and challenges in a pre-merging acquisition research process.

This study validated themes in the literature of the change in approach to synergy valuation and integration challenges from one of quantitative-only to an approach including qualitative methodology. This validation was brought to the field by an analysis of responses by professional observers of a sample of twenty-five mergers. This phenomenon of the addition of qualitative methodology to synergy valuation resulting from a proposed merger was validated by this study's

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analysis of the synthesis of responses by observers of synergy valuation processes that occurred in the sampled firms. Professionals working in the field of acquisition research need to keep abreast of the change in approach to synergy valuation in service of the purpose of being successful at identifying instinctively which potential mergers are prone to success as measured by increase in shareholder wealth. Also, managers with involvement in acquisition research need to keep themselves aware about which potential conglomerations of resources will cause damage to shareholder value. The results of this study showed experts' view of mere mathematical calculations of book value with an added and quantitatively-derived premium price paid to targets to be inadequate to determine synergy and a new approach incorporating intuition and instinct, combined with collaborative problem solving and idea creation techniques, is necessary to accurately assess the outcome of an acquisition.

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Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The trend in medium and large-sized national and multinational firms, when analyzing opportunities availing themselves to make substantial and timely gains in real economic growth rates of firms' productivity, is to look outward through acquisition leading a focus on merging-firm success. This option is invariably exercised in preference over internal expansion through capital investment. The reasoning behind this trend to externally acquire rather than internally invest is that, with external acquisition, the risk and costs associated with starting from scratch are avoided. The costs of assets are covered by the premium price paid to the target firm. The need to serve shareholders by maximizing revenue brings itself into conflict with competition created by firms vying for acquisition of potential targets. This chapter draws and describes conclusions from this study's findings, with descriptions of recommendations for directions for future research. This research is focused on firm economic growth in relation to acquisition and merger processes of determining optimal strategies for economic growth. Be it internal investment or external acquisition or targeted-firm planning. Also, the need for further research and development of predictive models designed to determine potential opportunities and risks associated with merging of firms, both in similar and differing industries, is necessary to empower senior managers with their acquisition decisions.

The advantages of taking over another's established business and incorporating it into one's own brings with it, inheritances of another business's problems and challenges. However, the proclivity with which acquirers are willing to bear the burden of problems associated with an acquiring firm's operation is borne out by statistics showing the global growth rate of mergers and acquisitions. The market of national and multinational acquisitions and mergers is prolific. Since 1985, over 325,000 merger and acquisition transactions have been announced, showing a known value of 3.49 trillion USD. A new record was set in 2017 in terms of number of deals completed.

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Acquisitions resulting in merged firms reached a total of with 15,100 in that year. This merger activity is a 12.2% increase over 2016. The record of total value of deals made was in 2015 with 2.41 trillion USD worth of acquisitions completed. The compound annual growth rate (CAGR) for the number of deals from 1985 to 2018 was 5.86% while the value grew at a rate of 5.32% (Koi-Akrofi 2016). This very active market for acquisitions brings with it the challenge of integration effective and efficient enough to add to rather than subtract from shareholder wealth and value. The reality of firms operating in global markets is that seventy to ninety percent of mergers fail to improve economic growth performance. The goal of making improvements to shareholder wealth and value is failing to be met.

This study addresses the issue of the need to pay an accurate premium price to targets and report on the assumed phenomenon of transformation in approach to firm and synergy and integration value and integration success probabilities. This transformation in approach to the problem of potential economic growth is proven to exist by the data collected and analyzed for validity and reliability of results. The findings this study prove existence of the phenomenon of acquisition value change in approach from quantitative to an evolved method of valuation emphasizing the need for qualitative understanding of merger dynamics. The dynamics of potential pitfalls threatening success are understood by management as needing to be addressed qualitatively.

Mathematical decision value determination of premium price paid to the target is not abandoned in acquisition research. The addition of qualitative, instinctual, conversational problem-solving to reach a consensus on value discovery, however, is understood as essential to apply to the task of achieving successful merger financial and economic value determinations. The practice by team members conducting cooperative brain-storming and collaborative contrivances about merger value is seen by respondents providing data to the codebook as the most accurate method of putting measures on obstacles to shareholder wealth actualization. Contrarily, these same behaviors are

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reported by responders to the survey as needed more so than mathematical and quantitative methods used to determine value.

Given the fact of seventy to ninety percent of mergers failing to improve economic growth in merging firms, the decision to acquire and at what price merge must be made accurately. The findings of this study prove that senior managers are relying more on a qualitative and creatively intuitive problem-solving methodology for determining value than is historically seen through the exclusive use of mathematical modeling. A plurality of respondents to the survey reported, however, that decision makers are unwilling to abandon completely quantitatively derived decision value determinations. These mathematical determinations are nonetheless reported by all survey responders to be less important to the acquisition price negotiation phase of merger than in times past.

The existing body of knowledge in the scientific literature addressing issues of individual firm asset valuation is quantitative, extensively researched, and requires little if any improvement. Methodologies applied to the problem of firm asset valuation are accurate and depended upon to empower practitioners to get an accurate dollar valuation of firms' assets. Even time value of money variables may be placed into Net Present Value calculations in the practice of the determination of value of individual firm or conglomerated projects. There exists, however, a challenge facing managers working on organizational plans considering acquisition as a conduit for speeding up their firm's economic growth rate. This challenge is understanding what happens to productivity when output is increased through acquisition. Also, the good will value transferring itself to the acquiring organization presents itself as a difficulty if the solution to the problem is approached from a quantitative and formula-based approach only.

If shareholder, stakeholder, consumer, and customer perception of the proposed merger is favorable, the value of the merger in terms of synergy will increase. The opposite is true when facing a prevailingly negative perception of a potential merger. An accurate assessment of the positive or

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negative value of this perception affecting sales is a subjective, rather than objective, matter. The acknowledged subjectivity by management of the phenomenon of perception of synergy value has caused a change in approach to valuation. The findings of this study show that, being driven by a dynamic change in the environment of merger activity, firm and synergy value determination methodologies are becoming more qualitative in practice and are being directed away from exclusive use of purely quantitative measures by senior and middle managers responsible for firm growth strategy development and implementation.

This Chapter Five ties together Chapters One through Four by showing how the results of this study lead to findings of a phenomenon. The phenomenon proven to occur by the findings of this study is the evolution and movement in approach to firm and synergy valuation from traditional methodologies. Quantitative analysis by various methods such as Net Present Value (NPV) has historically been the only tool used as predictor of present or future value of combining one two or more firms into one operating and financial entity. By coding of data collected from interviews of persons vital to the acquisition and integration of merger processes, the results of this study prove the willingness and determination of acquiring managers to add intuitive and collaborative qualitative methodologies to valuation practices. The findings of this study show increased confidence of acquiring decision makers in an approach less dependent upon mathematical analysis. Acquisition research managers are shown by this study to place more reliance on a qualitative than merely quantitative calculation of a merging firm value. Data synthesized from respondents qualitatively by coding shows results of an increased understanding by acquiring managers about how intuitive methods applied to determination of increases in productive capacity, potential in market expansion, and product branding, add accuracy to traditional synergy valuation methodologies. This change is to use of intuitive, collaborative, and group envisaging efforts directed at gaining increased understanding of potential synergy value created by acquisition. spurring increases in economic

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growth rates of acquiring firms. accurate information to decision value determinations addressed to the task of firm and synergy valuation during a merger.

This research study is undertaken to address the problem facing firms' senior managers' decision-making processes about creating a plan most efficiently and effectively achieving the objective of real economic growth of their organizations. In this chapter, the conclusions derived from the findings of this study were qualitatively developed through the practice of code formulation and codebook generation. The codebook was then subjected to analysis. The analysis sought common, independent, and outlying responses which formed a data set. The results of the data analysis showed a discovery of the phenomenon of transformation of synergy valuation methods used by senior management. One conclusion of this study based on results arrived at through codebook analysis. This conclusion is that management motivation for economic growth through acquisition leading to merged firm operation includes a strong desire to change approach in synergy valuation and integration risk assessment and cost appraisal. Senior managers have known for some time, as is affirmed by the grossly high rate of mergers failing to improve shareholder wealth, that existing quantitative methods used to determine synergy value are inadequate and inaccurate as are used in current practice. Achievement of the goal of reduction of risk of merger failure requires information accurately depicting potential value of synergy.

The data from this study suggest internal investigation by management about how to derivation of accurate measures of potential synergy value and costs associated with integration. These investigations into approach resulted in a change in direction toward qualitative assessments of risk and reward, productivity improvements, economy of scale and scope efficiency improvements, and borrowing power and capacity increases. The analyzed answers to questions of respondents in this study knowledgeable about change in approach to the process of acquisition and integration by firms of targets forming a merged entity result in a solidified conclusion. The addition of qualitative, inductive, intuitive and collaborative problem solving, and opportunity realization

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processes are improving synergy value and integration cost and risk assessment practices. This change in approach was shown by the study results that the probability of merger success, as measured by change in shareholder wealth and value, is significantly improved with the use of less quantitatively dependent methods. This chapter five discusses ethical dimensions addressed in this study, limitations of this research study by use of practitioners, an overview of the population and sampling method, another discussion of data collection and analysis procedures, a summary and explanation of findings, a restatement of the three research questions, statement of two open-ended questions, and a short discussion of potential errors in the study. The chapter ends with a summary, recommendations, reflection on the study, suggestions for further research, implications for social, practice, or organizational change, and, finally, conclusions.

Ethical Dimensions

Identification of participants and firm names were protected with the utmost of care and attention. Requests were made and honored to preserve anonymity of respondents. While respondents held no financial or economic interest in firms studied and were in no way employed by the firms and mergers selected as a subject of the study, they were observers of, interested in, and participants of selected firm economic and financial growth. For this reason, all personal names and names of firms were "blacked out" or otherwise protected from identification during email and telephone and zoom communication, written or verbal.

Thus, the protection from identification practices made by the researcher protected integrity of results of the study and insured bias-free results. The ethical standards developed and used in practice brought significance and accuracy to this study's results. The identity of participants and firms remains untraceable. Respondents questioned were advised that their participation was completely voluntary, with no compensation promised or delivered. Most respondents were gracious, cooperative, and unbiased while delivering their responses. A few of the respondents volunteering to participate were negative, but no one was belligerent or hostile.

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Limitations

Limitations to the study's results and subsequent findings and conclusions are placed upon this study by the relation of the sample size. Two scores of selected firms' merger activity stands as a pittance in size when looked at in comparison to the total numbers legally completed in both national and multinational firms. The number of which is in the tens of thousands. However, the relation of the selected merging firms to the total population of merging firms is preserved in its integrity of sampling by use of a random selection process. This sampling selection procedure preserves and guarantees nonbiased results. But then again, this study does not claim to assert that the entire population is behaving the same as the few firms selected for sampling.

Overview of the Population and Sampling Method

The population was the total of all U.S. firms merging in the year selected. The sampling method was a systemic random selection of firms merging within the U.S. market. Selection of operating industries was intentional. Therefore, firms operating in industries not selected for sampling are not represented in this study's data, analysis, results, findings, or conclusions. The assumption made by this study's researcher is that non-selected firms were functioning similarly in behavior to firms selected for the purpose of gaining understanding of change in approach to synergy valuation.

Data Collection and Analysis

Data was collected by interview of independent venture capitalists with regard to their knowledge of how senior and mid-level managers are evolving themselves in their approach to synergy valuation during acquisition of target firms. Responses of participants were assembled by coding of words used in response to questions. Then a codebook was used to identify similarities, differences, and outliers in response to questions formulated and posed to the respondents. Special emphasis was placed upon similarities in response. Then the codebook was subjected to statistical

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analysis of commonality and differentially in respondent response. Finally, the analyzed codebook was subjected to validity and reliability testing for accuracy of results. The validity and reliability test results returned results showing a more than adequate level of confidence in results as was shown by data testing procedures accurately testing for reliability and validity.

Summary of Findings

The findings of the study prove evolution in approach to synergy valuation during a merger. Results found led to a finding that the preponderance of managers are looking for and using more qualitative than traditionally quantitative methods to determine synergy value leading to decision value and premium price paid to targets. Another finding of the study is that sampled firms' managers are departing from motivations of hubris and desire to dominate markets, but rather focus their efforts more exclusively on improving the economic growth rate of their parent firm. More caution is exercised during research of acquisition decisions and premium price paid determinations as a result of this change in attitude and approach by management. Yet another finding of this study is that

Explanation of Findings

The findings of this study showed that acquisition and target research managers cannot afford to overpay targeted firms in an acquisition negotiation with an overinflated premium price while at the same time expect an increase in economic growth rates, and, therefore, an improvement to shareholder value and wealth. This revelation of gain in understanding by managers that enthusiasm about potential synergy value resulting from a merger communicated to stockholders is irresponsible and an intrinsic threat to organizational stability. While change in approach to synergy valuation was proven to exist by the findings of this study as a real phenomenon, statistics do not reflect this change in belief and approach by acquiring managers. Mergers still fail at a very high rate, as is shown by research statistics. This unsatisfactory rate of failure of firms to merge and

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integrate successfully has not shown itself as a decreasing phenomenon, especially as viewed from the position of holders of shares of stock of the acquiring firm. What is heuristically observed by the data and findings is that a more effective and less emotionally driven action plan to follow in synergy valuation is needed and responded-to as a need existing within firm acquisition and target research.

Research Question 1

Research Question 1: Can interview data acquired from parties involved with acquisition negotiation be used to gain increased understanding of the influence of estimated synergy value on premium paid and integration success probabilities potentially created by a proposed merger?

Research Question 2

Research Question 2: Why is the use of intuitive reasoning more effective in merger and acquisition synergy valuation than the traditional mathematical approaches traditionally employed?

Research Question 3

Research Question 3: How do managements' human resource teams employ procedures in the task of operations and financial integration functions to achieve success and avert failure to integrate; and exhibit similarities and differences in their respective approaches to functional integration management?

Findings of the Hypothesis Tests

Findings of the first hypothesis: No hypotheses were formulated or tested for this study. With no hypotheses formulated or tested, no findings of hypotheses tests are reported in this study. This is because this study used a qualitative-only approach without any qualitative methods employed.

Findings of the second hypothesis: No hypotheses were formulated or tested for this study. With no hypotheses formulated or tested, no findings of hypotheses tests are reported in this study.

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This is because this study used a qualitative-only approach without any qualitative methods employed.

Open-Ended Questions

This study's findings of the phenomenon of greater motivation by managers to find and use models more accurately predicting costs of integration and increased efficiencies of productivity created by the merging of two firms into one entity raises many open-ended questions. The two open-ended questions most worthy of consideration of future research are stated as follows:

Open-ended Question 1. Is merger success, as measured by shareholder wealth increase, likely to experience improved accuracy with the current transformation of merger synergy valuation methodology change from dependency on traditional mathematically derived quantitative approaches to the activity shown to exist by this study of a movement to intuitively, qualitatively, and collaboratively derived synergy valuation methods?

Open-ended Question 2. Is future synergy valuation research going to focus on data collection and analysis of economic growth characteristics of potentially merging firms with emphasis on how indicators of productivity of economic growth in separate firms lend themselves to a level of compatibility with a merging firm's identical measurable economic growth indicators.

Potential Errors

Potentiality for errors in findings of the study are presented by the sample size when compared to the overall population. The population of mergers is gargantuan in comparison of the handful of mergers selected for this particular study. This potential error in results leading to findings of proof on the phenomenon of change in approach to synergy valuation existing to the level analyzed by this study is incalculable. However, if the majority of respondents participating in this study claim knowledge of a mostly qualitatively derived synergy value of a potential target, chances

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are greater than fifty percent that this phenomenon is in existence in mostly all synergy valuation practices.

Summary

This study statistically proved the phenomenon of senior management change in approach to synergy valuation. Whether this change brings results of lowered failure rates of mergers is yet to be shown. The long standing and especially egregious problem of losing shareholder wealth with the activity of unnecessarily merging of separate entities threatens the profitability of firms and the general state of well being of the national and global economies. This study explored valuation approaches and proved change in approach to synergy valuation and integration cost techniques. This finding brings to managers contemplating acquisition confidence that if their approach to synergy value derivation adds qualitative methods to their valuation strategy, they will be on the cutting edge with managers of other firms considering their acquisition options. The value the findings of this study brings to the field of valuation during a merger is the necessity of acquisition researchers to challenge their existing synergy value and integration cost methods. And even to bring change to corporate communication structures and procedures in effort to open the door to improvements to accuracies in synergy value and integration cost approaches and methodologies and communication practices. An honest look at how firms and synergies and integration costs are arrived at is guaranteed to improve wealth creation for shareholders.

Recommendations

The greatest recommendation brought about by the findings of this study is that acquisition research managers need to bring their methodologies for synergy value up to speed with the rest of their industry or face failure in the negotiation and integration phases of merger. While book value calculations bring some idea to the acquirer about target firm value, book valuation alone in premium price and decision value determination is insufficient in estimating values and costs of making one

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firm out of two or more others. A competing firm vying for acquisition of the same target as another potential acquirer will be at a significant advantage over another not bringing their valuation methodologies up to par with other practitioners in the field. The result of this failure to improve cost and valuation methods results in an inaccurate premium price paid transaction. Inaccurate premium price paid during acquisition is one of the main causal factors of integration failure.

Reflecting Upon the Study

This study brings contribution to the field of acquisition firm and potential synergy valuation research by bringing proof of the phenomenon existing of change in approach by managers from nearly total dependence on quantitative valuation methodologies to the addition of collaborative quantitative and instinctual “gut feeling” confidences. The highly active and competitive field of acquisition resulting in merging effort by managers is helped by understanding that successful mergers depend on accurate premium price paid amounts. Adding qualitative methodologies to the valuation process, while not guaranteed or proven to arrive at an accurate premium price paid value, is certainly the forward-moving status quo of firms sampled in this study. Thus, a willingness to adopt more qualitative measures to the act of synergy valuation will bring the practitioner into the game of change in approach to synergy value and integration cost estimations.

Suggestions for Future Research

The main suggestion for firm and synergy valuation research when confronted with the task of determining whether purchase of a target is feasible is to examine economic growth rates of merging entities. Merely a comparison of economic growth rates is insufficient in determination of merging entities. Wat is required is an extensive look into productivity issues causing these economic growth rates. Also necessary is research into compatibility issues relating to economic forces causing economic growth of firms. If economic factors causing higher growth in a single firm over others is shown to cause a particular type and kind of synergy at the combining of the two

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firms' resources, what is needed is a quantified understanding of the level of synergy created by the merger.

If efficiencies in production of economies of scale and scope and borrowing capacity by combining the resources of separate firms is to be understood, the most effective way to find a value is to make a comparative study of economic growth rates of the separate firms' functionality in these operational areas. Then what is needed is study of how these growth rates will complement, detract from, or make no change to the efficiencies of parameters of scale and scope, borrowing capacity, and other economic measures of productivity.

Implications for Social, Practice, or Organizational Change

This study brings with it an imperative that acquisition researchers need to communicate with one another in a collaborative sense over the issue of their approach to synergy valuation and integration and risk of failure. If this activity is ignored, the firm researching acquisition stands at a disadvantage over competing firms considering acquisition. Organization's acquisition research department heads need to communicate upwards in the hierarchy, and senior managers must do likewise in the downward direction, about the need to reexamine and make change to existing valuation methodologies during acquisition of target research. If this business practice is not accepted and implemented, the subject firm increases its risk of failed merger attempts.

Conclusions

The conclusions of this study are that, after decades of dependency on quantitative and mathematical models to determine and predict firm and synergy resulting from a merger value, managers working in the field of valuation are moving naturally away from quantitative models towards methodologies qualitatively determining synergy value. The finding of this phenomenon as fact drives the conclusion that if firms wish to be successful at the art of merger, they must change their approach to meet the demands caused by the competitive merger environment. If acquisition research managers and senior management neglect to get "up to speed" with the acquisition research

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methodology change imposed by the competitive environment, their firms run an increased risk of failure to successfully serve an accurate premium price paid to the targeted firm. This act of inaccurate premium price paid is statistically proven in existing research to lead to greater probabilities of failure to integrate the firms successfully and at a reasonable integration cost. The results and findings of this study do not lead to a conclusion of change in approach from quantitative-only to one including qualitative methods guarantees improved accuracy in synergy value derivation, the fact that respondents to this study's questions asserting this change as fact in most all acquisition departments reveals the necessity of reexamination of valuation methodology by departments not making change in approach to synergy valuation.

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Appendix A: Tables

Table 1: Interview Script with Questions

Appendix A: Interview Script

Background

Now, I am going to read you some important information about the survey.

This study has been reviewed and received ethics clearance through California Intercontinental University. Should you have any comments or concerns resulting from your participation in this study, I can provide the contact information for the board supervising the conduct of this study.

All personal information, including your name, address, and survey answers will be kept strictly confidential and will not be shared with any person or group that is not associated with this study. Your participation is voluntary, and you may decline to answer any questions you do not wish to answer.

The data collected from this study will be summarized and no individual person will be knowingly identifiable from the summarized results. Responses to questions may be quoted, but without identifying the individual source.

I will begin the survey now.

Thank you for agreeing to help me with this project.

The interview should take up to 2 hours to complete.

Did you receive the list of evidence gaps that I e-mailed?

Let me tell you a little bit about this project: I identified 22 mergers from 2018 that I would like your expert opinion on about on how acquirers approach the issue of synergy valuation in their premium paid to the target firm decision. I would also like to know your opinion of how acquirers assess the issue of integration cost and benefit. Your answers to the following key questions will help

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the study to determine whether the perception of the phenomenon of change in approach to firm and synergy valuation being examined is a reality.

There exist many issues associated with the field of valuation in merger and acquisition research and management. However, this study focuses primarily and exclusively on the phenomenon of change in management approach to research of acquisition potentialities by management from one of mathematical-only to an intuitive and instinctive style. Any responses you make to the interview questions that shed light on this phenomenon of change in method of acquiring and target firm, and synergy and merger valuation will significantly add relevance to the study's purpose and is greatly appreciated.

Before we jump into specific research questions, can you tell me a little bit about yourself and any research you have been involved with on this topic or the level of familiarity you have with this topic.

1. What criteria did management use to determine which firms would become potential targeted acquisitions? How is one firm selected for negotiation over another?
2. Did management of the acquiring firm(s) consider value added by synergy, especially change in borrowing capacity, economy of scale and scope, and if so, how were these values incorporated into the decision-making process?
3. Did management of the acquiring firm(s) make potential integration problems, costs, and strengths, weaknesses, opportunities, and threats to successful conglomeration of operations and assets a part of their acquisition decision and premium paid to target firms? And, if so, how was the decision derived?
4. Was there a plan for integration of human resources by the acquirer? Was the target firm involved in this planning effort? Were labor unions from targets and acquisitions involved with integration planning and cost analysis? If so, was the involvement effective? How so?

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5. Acquisition of a target and integration into a profitable joint venture must at least maintain current levels of shareholder wealth and value to be considered a successful merging of two or more firms into one. Otherwise, the acquisition should not, in good conscience, be made. Acquiring managers have historically overly optimistic to shareholders about synergy creation and of a minimizing mentality toward integration cost. How does management change potential merger research strategy to bring change to this erroneous approach, causing merger failure rates of 70 to 90 percent?

6. Why is the trend in research of potential acquisition leading to possible merger leading itself away from quantitative decision value determination and toward an approach depending more on inductive and intuitive reasoning contributing to the acquisition decision and premium price paid to target firms?

7. Please respond with an opinion directing itself toward the most successful merger and the least successful merger during the period of 2015 through 2019 and your explanation of why the mergers failed and succeeded and how management succeeded and failed in each of the two selected mergers.

8. Management has a responsibility to shareholders to maintain and/or increase value and wealth and to perform in a manner which minimizes threats to wealth and value. How does management protect this interest in acquisition research?

9. In thinking about synergy value creation caused by economy of scale, economy of scope, and borrowing capacity, which mergers experienced the greatest amount of increase? Which mergers caused the least amount of synergy value? And were these outcomes anticipated accurately? If not, what steps are being taken by management to improve accuracy of predictions of synergy value additions and integration costs anticipated?

10. How much accuracy is management bringing to pre-negotiation synergy valuation and integration cost estimation? Do these factors play a significant role in relation to book valuation of target assets? Does synergy value and integration cost play a significant role in the negotiation phase of merger?

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11. What is being done by management to reduce risk of threat to shareholder wealth when involved in target selection, pre- negotiation, and estimation of integration success and at what cost?

12. Which merging firms were most successful in matching the change in relationship between factors affecting risk reduction efforts relating the variability of scale, scope, and borrowing power and financial leveraging? Which mergers were least successful in managing risk?

13. Which of the mergers should not have been subjected to the negotiation process? Why?

14. What is management doing to protect and increase shareholder wealth in the acquisition research, negotiation, and integration phases of a merger? What are they neglecting to do? What could management do better to reduce risk and increase profitability in the potential and actual merging of firms' resources?

15. Studies show that, while premium price paid to targets positively and negatively affects merger success by a premium price paid too low or high, most of the responsibility for merger failure must be assigned to poor integration planning, execution, and implementation. Which merging firms do you see as most successfully integrating resources? Least effectively integrating mergers. What reasons can you give as to why these integrations fail or succeed?

16. How much and what type of a role do external global economic conditions play in the potential success and failure of merger? Should management be concerned about the global economy when researching and making decisions about merging resources?

17. Should government involvement in regulating merger become influential in acquisition decisions than is the current status quo? In other words, should government allow any merger to be consummated, regardless of risk, and allow the market to dictate outcomes, or should more responsibility be placed on government to disallow acquisitions presenting unnecessary risk? Is the security of employees a responsibility of government or just the firm?

18. Is a number value for synergy value and integration cost necessary before entering the negotiation phase of merger? What other avenues besides mere book valuation are being pursued by

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management when determining future profitability of merger and in making decisions about premium price paid and integration cost and potential for success?

19. Is merger still the fastest way to add increase to economic growth of a firm? And still the riskiest approach to firm growth?

20. How can researchers involved with valuation determination of synergies and integration costs more accurately and effectively determine potential value and cost and future profitability of potential acquisitions?

I thank you for answering these questions and for taking the time to contribute valuable data to the study. Your participation is invaluable and greatly appreciated.

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Appendix B: List of Evidence Gaps in Synergy Valuation

Table 1: Evidence Gaps List

1. Few studies address the factors creating pitfalls of acquisition and subsequent merger integration (Fiorentino & Garzella 2015).

2. While the existing body of knowledge in prior M & A research marginally considers the "managing" perspective of synergy valuation, (Zollo and Meier, 2008), synergy background research results remain fragmented. This gap of evidence does nothing to coalesce divergent assumptions about potential realistic synergy valuation determination. The results of unaligned assumptions of how synergy value should be determined causes particularly strong persuasiveness against managers committing themselves to synergy and dyssynergias value in possible acquisition decision and integration planning (Haleblian et al., 2009).

3. The process approach, wherein the costs and benefits of a proposed acquisition are explored thoroughly and pragmatically, has not been developed as expected. These prior studies tend to focus on either post-acquisition management, or pre-deal analysis; but not both phenomenon in one comprehensive study. This gap of collected evidence stands as a major in the literature evidence in the task of assisting management to attain merger success and avoid failure in the endeavor (Hayward, 2012).

4. A lack of evidence creating a gap in academic literature exists. This gap lies within the issue of pitfall avoidance in proposed acquisition and merger integration planning and implementation (Hayward, 2012). A need to develop a comprehensive framework structured to address pitfall avoidance in acquisitions is glaringly presenting itself to researchers and managers. A framework directed at identifying potential pitfalls of acquisition and integration decisions, plans, and proposed implementation procedures will add to managers the ability to avoid and/or overcome these obstacles. This framework will fill the evidence gap using a "managing" perspective. This perspective examines the entire merger and acquisition (M & A) research and decision-making

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process. Results of the research will bring integration to the findings of several literature streams in a multidisciplinary view. This integration of findings is useful to business practitioners because potential pitfalls of acquisition will be discovered and evaluated for action or rejection of the proposed acquisition and subsequent merger integration activity (Meier 2008).

5. The field of firm, acquisition, merger, and synergy valuation is undergoing an evolution. The gap of evidence in the literature is the lack of research reflecting the change in valuation approach being made by management. A study using “fuzzy logic” (Malagoli 2007) most closely reflects this evolving method for acquisition, merger, and integration valuation decision making. The method used in the study formalizes and ranks qualitative words describing relative values. This method is like the phenomenon being studied in this current research. The phenomenon being examined in this study is this new and evolving approach to synergy valuation as it relates to current management practice.

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Appendix C: CODEBOOK

The following 57 codes generating the codebook were applied to the interviewee responses:

Codes

Criteria for potential target selection

Performance variable used for selecting potential targets.

Economy of scale and scope, borrowing capacity and synergy determination

synergy value calculated and qualified for specific target firms

Integration cost estimation

SWOT analysis of conglomeration with targets

Criteria for qualitative target synergy potential

Merged firm human resource (HR) function synergy valuation by qualitative means

Qualitative valuation of synergy created by HR function coalescence

Labor union contracts improving production efficiencies

failure rates of 70 to 90 percent?

Merger research strategy toward hubris and excessive optimism about synergy

Qualitative review of false synergy

Balance of synergy created with integration cost

Quantitative and qualitative synergy value determinations

Difficulty in quantifying potential revenue

Opinion of synergy cooperatively incorporated into premium paid value

Merger success and failure

Qualitative synergy valuation and merged firm success and failure

Why mergers succeeded

Why mergers failed

Protection of shareholder wealth

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Risk analysis of synergy value

Intuition and valuation decision

Anticipated versus actualized synergy

Accuracy in synergy estimation

Combining quantitative and qualitative synergy valuation methods

Degree of accuracy of pre-merger synergy valuation

Book valuation, premium paid value, and integration cost estimation

Integration cost, premium paid value, and negotiation

Shareholder risk reduction in synergy valuation

Pre-negotiation shareholder wealth protection measures

Target selection screening for acquirer wealth protection

Successful risk management in merging firms

Failed risk management in merger

Reasons for bad target selections

Action toward shareholder wealth increase with qualitative valuation

Action toward improving estimation of efficiency gains in synergy valuation research

Inadequacy of current methods of synergy valuation

Effective integration practices

Ineffective integration practices

Reasons for integration failure

Reasons for integration success

Global economic conditions and qualitative synergy valuation

External economic environment and merger success

Global economy and merger timing

Government involvement in merger

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Government, Firm, and employee security

Market of mergers and regulation of acquisitions

Importance of quantitative decision price determination

Qualitative and intuitive methods becoming important and accurate

Intuitive understanding of markets and synergy valuation

Firm economic growth and merger

Improvement to firm growth rate by acquisition

Improvement to value and profitability change resulting from merger

Effectiveness in potential value determination by intuitive methodology use

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Appendix D: CONSENT FORM

You are being asked to take part in a research study being conducted by Michael W. Shepard under the supervision of Dr. Debbie Wilson. The title of the study is: "SYNERGY VALUATION PARADIGM CHANGE IN ACQUIUSITION RESEARCH".

The purpose of this study is to research change in methodology directed at analytical, intuitive, and creative process of synergy valuation when acquiring firms research proposed acquisitions. The phenomenon assumed to be occurring is an evolution from formulas with concrete calculated premium paid estimations to a process of intuitive value determinations. This study asks 20 open ended questions allowing the respondent to be as brief or verbose as is desired. There are no risks to the respondent because personal identities are protected, as are the identities of the firms being studied. The identities are protected by "blacking out" names of persons and firms in email correspondence.

Benefits to respondents are not remunerative in nature. However, benefits derived by answering the interview questions is an increased sense of clarity about how valuation methods are performed. No risk is encountered by answering questions because confidentiality of information transferred is maintained with integrity. A potential discomfort to the respondent is expected with an examination of the effectiveness of synergy valuation methods. Confidentiality of this study by preservation of persons' and firms' identities is maintained by a "blacking out" of names of individuals and firms in email correspondence.

The purpose of this effort is to determine a phenomenon of change in approach to synergy valuation. Your responses to the requested questions will become the basis for discovery of this phenomenon. Your responses will supplement written records about how synergy of proposed merger is determined. The questionnaire will take approximately three hours to complete. The questions are directed toward current and desired practices in firm acquisition research. Your responses will be transcribed and transformed into data for the research study. The results will be

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tabulated and reported as findings regarding the phenomenon of change in synergy valuation methodology.

All collected data will remain anonymous. No one will be able to identify participants; nor will anyone be able to determine information about an individual participant. All collected data will be stored under a secure account in an electronic cloud data storage service. The data will be destroyed by deletion after a period of five years. There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. The information participants provide will help the investigator understand how synergy evaluations are made. The information collected may not benefit you directly, but what is learned from this study should provide general benefits to managers interested in improving firm economic growth research functions. Further, if you would like to learn about the results of this study, you may request a summary of results from the investigator at msh4@student.caluniversity.edu .

Your participation in this interview is voluntary. Even if you decide to participate, you may withdraw without penalty, or request confidentiality, at any point during the questionnaire completion time. You may also choose not to answer specific questions or discuss certain subjects or to ask to exclude portions of the questionnaire.

The California Intercontinental University Institutional Review Board has reviewed my request to conduct this project and enlist up to 25 participants. Please contact irb@caluniversity.edu regarding concerns about your rights in this study.

Statement of Consent:

I agree to participate in the study and to the use of this my feedback/data as described above.

Further, I agree to print a copy of this consent form, for my records, as I deem appropriate.

X ______________________________

Respondent

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Appendix E: COVER LETTER

Institutional Review Board: Consent Cover Letter for Survey Research

CHANGE OF PARADIGM IN APPROACH TO SYNERGY VALUATION DURING MERGER

Dear Participant,

I invite you to participate in a research study entitled Change of Paradigm in Approach to Synergy Valuation During Merger. I am currently enrolled in the Doctor of Business Administration program at California Intercontinental University, 17310 Red Hill Ave. #200. Irvine, CA 92614, and am in the process of writing my dissertation. The purpose of the research is to determine: if the assumed phenomenon of change in senior management approach to synergy valuation of proposed mergers is, in fact, occurring in the field of acquisition research.

The enclosed questionnaire has been designed to collect information on how managers currently solve the problem of discovering synergy value in effort at determining premium price paid to a target firm. Your participation in this research project is completely voluntary. You may decline altogether or leave blank any questions you do not wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your individual answers to this questionnaire.

If you agree to participate in this project, please answer the questions on the questionnaire as best you can. It should take approximately three hours to complete. Please return the questionnaire as soon as possible via email to: msh4@student.caluniversity.edu . If you have any questions about this project, feel free to contact (Michael W. Shepard, Investigator, at email: msh4@student.caluniversity.edu . Thank you for your assistance in this important endeavor.

Sincerely yours,

Michael W. Shepard, PRINCIPAL INVESTIGATOR

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