

**THE EFFECTS OF HUMAN CAPITAL AND VOLUNTARY HUMAN CAPITAL  
DISCLOSURES ON INVESTORS' DECISION-MAKING AND ASSESSMENTS OF  
FIRM VALUE**

Gabriel Dean Saucedo

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in  
partial fulfillment of the requirements for the degree of

Doctor of Philosophy  
in  
Business, Accounting and Information Systems

John J. Maher, Chair  
Robert M. Brown  
Devi R. Gnyawali  
J. Gregory Jenkins  
Velina Popova

March 26, 2014  
Blacksburg, VA

Keywords: Human Capital, Audit Disclosures, Audit Reporting, Attestation, Management  
Reporting Credibility

© 2014, Gabriel Dean Saucedo

# **THE EFFECTS OF HUMAN CAPITAL AND VOLUNTARY HUMAN CAPITAL DISCLOSURES ON INVESTORS' DECISION-MAKING AND ASSESSMENTS OF FIRM VALUE**

Gabriel Dean Saucedo

## **ABSTRACT**

A common cliché found in annual reports is “our employees are our most important, valuable asset.” While many companies claim human capital is an important asset and source of valuable earnings, there is nary a human asset found in financial statements. This research paper investigates the usefulness and importance of voluntary human capital disclosures. The 2 X 2 X 2 experiment manipulates firm financial performance, non-GAAP voluntary disclosures, and disclosure attestation to identify the extent to which human capital disclosures influence investor decision-making related to assessments of management credibility and firm value. The research described in this dissertation also investigates the interactive effects of auditor attestation on voluntary disclosure.

The primary hypothesis examines whether firms providing strong human capital disclosures will have higher credibility ratings and stock price associations than firms not providing such disclosures. I find that when presented with human capital metrics, investors' assessments of credibility and firm stock price are attenuated by human capital disclosures, especially during periods of strong financial performance. Results also suggest investors key in on both non-financial and financial human capital metrics. Based on cognitive processing time, analyses indicate investors spend more time processing strong human capital disclosures. Another important hypothesis examines if firms receiving attestation services over voluntary human capital disclosures will have higher credibility ratings than firms not receiving such services. I find some evidence investors cognitively acknowledge the presence of auditor

attestation reports when they are presented, and both credibility and stock price assessments are impacted by attestation services.

Overall, the original research described here makes a contribution to the existing literature by providing unique insight as to how human capital information is viewed by investors. Current reporting standards focus on financial assets, physical assets, and technological/intellectual property. This can result in significant transparency issues when publicly traded firms fail to adequately disclose human capital risks. Organizations undoubtedly have substantial unreported human capital benefits and risks, which can have a potentially significant market valuation impact. The research conducted and reported in this paper illuminates the potential benefits of human capital disclosures to both internal and external firm stakeholders.

## **DEDICATION**

This dissertation is dedicated to my parents, who have never questioned my goals, dreams, or destinations. To Anne and Jack Schneider, for teaching me how to fully express myself through words and emotions, and loving me to the moon and back. To Jo Ann and Dean Saucedo, for full conviction and support in who I have been, who I am, and who I am yet to be. I would also like to dedicate this dissertation to my late grandparents: Dorothy Lyons, Howard Petersen, Ladie Saucedo, and Tony Saucedo. It is because of their hard work, passion, and love for their families that I have been able to complete this journey and many other adventures.

I would also like to thank my siblings, nephew, and niece, for all their encouragement and virtual support over the last four years. Thanks to Chris, Charlotte, Aidan, and Cora for timely visits to Blacksburg and making me feel like one of the coolest uncles in the world. Thanks to Nick for joining me on the emotional journey to Virginia and ensuring I never miss a beautiful sunrise. And thanks to Hannah, for the ultimate privilege of being a big brother and reminding me that love has no boundaries.

## ACKNOWLEDGEMENTS

First and foremost, I want to thank my dissertation chair, Dr. Jack Maher, for taking a chance on this behavioral researcher, and for providing guidance and support throughout all four of my years at Virginia Tech. I have benefitted tremendously from his writing critiques, and his first day advice to always carry an umbrella in Blacksburg has kept me dry on numerous occasions. I am also very grateful for Dr. Maher's patience during the hours we spent massaging this paper into what it is today.

Next I would like to thank the members of my committee for their significant time commitment and instrumental feedback that boosted the quality of this dissertation: Dr. Robert Brown, Dr. Greg Jenkins, Dr. Velina Popova, and Dr. Devi Gnyawali. Thank you to Dr. Brown for his guidance throughout the entire program and deep, genuine support during my job search. His timely jokes, friendly laughs, and surprise office visits kept me grounded and smiling. Thank you to Dr. Jenkins for being an amazing mentor, confidant, and friend. It has been an honor and an invaluable experience to learn from him how to become an effective researcher and successful academic. I look forward to working with Dr. Jenkins on projects in the years to come. Thank you to Dr. Popova for being there whenever I needed academic or career advice, and also giving me the opportunity to teach an audit course for an entire semester. Last, thank you to Dr. Gnyawali for serving on my committee and for offering his expertise and excitement regarding human capital research.

I would like to acknowledge additional members of the Department of Accounting and Information Systems (ACIS). I want to thank Dr. Reza Barkhi for his vigilant support, including his assistance to obtain department financial support for my dissertation participants. I also greatly appreciate the feedback I received during the dissertation proposal stage from Dr. France

Belanger, Dr. John Brozovsky, and Dr. Bowe Hansen. Last, I would like to thank Kathy Caldwell, Phyllis Neece, and Arnita Perfater. It is only because of their patience, genuine concern, attention to detail, and occasional sugary treat that I made it through to this last year in the program.

A very special thanks to my starting class in the Ph.D. program: Kathy Enget, Joanna Garcia, Alan Stancill, and Nicole Wright. Thanks also to Eric Negangard for being a great friend and special part of my Virginia Tech experience. We have endured mathematical economics, comprehensive exams, countless seminars, and dissertation proposals. We are an eclectic group, but I cannot imagine having done the last four years without them. Thanks as well to the following Ph.D. students that preceded me for providing invaluable assistance throughout the program: Dr. Owen Brown, Dr. Rebecca Fay, Dr. Kerry Inger, Dr. Ryan Leece, Dr. Mike Ozlanski, Dr. John Pyzoha, and Dr. Todd White. Thanks also to the other Ph.D. students that have laughed, yelled, and debated with me: Brandon Ater, Anne-Marie Caporale, Christine Gimbar, John Lauck, Joe Rakestraw, Ian Twardus, Mark Sheldon, Trent Henke, Jillian Lei, Arthur “Tripp” Petzel, and Jamie Zhou. Also, much of what we do could not be done without a few of the greatest Ph.D. spouses: Abbey Ater, MJ Gimbar, and Ashley Negangard. I really cannot begin to express how fortunate I am to be a “Hokie” with the above individuals.

I am extremely grateful for the financial assistance I received from the ACIS Department, including funding through the John E. Peterson, Jr. & Mary Jane C. Peterson Ph.D. Fellowship, Wayne E. Leininger Scholarship, Frederick M. Richardson Scholarship, and Ronald J. Patten Scholarship. I am also very appreciative of financial support from Virginia Tech Accounting Alumni and the Virginia Society of Certified Public Accountants.

I am also indebted to the seminar participants at the following universities for their insights that helped refine this dissertation: the University of Denver, Loyola Marymount University, Pepperdine University, Portland State University, and Seattle University.

Last, thanks to my family and friends for their support and encouragement throughout this life-changing process. Specifically, thanks to those that first welcomed me to Blacksburg including Heather Grandelli, Kaushal Joshi, Greg & Heather Longo, Emily Moscato, John Quigley, and Ty Ratthaporn Chatchaidech. Finally, I have received continued emotional support from my two best friends: Ryan Mitchell and Lisa Pascuzzi. From three time zones away they have kept me sane and I know they will be the first to welcome me back to Seattle!

## TABLE OF CONTENTS

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
<b>CHAPTER 2: BACKGROUND AND RELATED LITERATURE.....</b>	<b>8</b>
<b>2.1 Human Capital.....</b>	<b>8</b>
2.1.1 Definition & Overview .....	8
2.1.2 Human Capital in Today’s Market .....	9
2.1.3 Relation of Human Capital to Firm Value and Performance.....	11
<b>2.2 Transparency.....</b>	<b>13</b>
2.2.1 Definition & Overview .....	13
2.2.2 Transparency, Market Value, and Firm Performance.....	14
<b>2.3 Voluntary Disclosure .....</b>	<b>16</b>
2.3.1 Definition & Overview .....	16
2.3.2 Impact of Voluntary Disclosure on Firms .....	17
2.3.3 Voluntary Disclosure, Human Capital, and Political Economy Theory .....	18
<b>2.4 Accounting Assurance .....</b>	<b>19</b>
2.4.1 Definition & Overview .....	19
2.4.2 Assurance & Attestation in Today’s Market .....	20
2.4.3 Linking Attestation Services to Human Capital Disclosure .....	23
<b>CHAPTER 3: HYPOTHESIS DEVELOPMENT .....</b>	<b>24</b>
<b>3.1 Hypothesis 1 – Human Capital Disclosure &amp; Management Credibility .....</b>	<b>24</b>
<b>3.2 Hypothesis 2 – Auditor Attestation &amp; Management Credibility.....</b>	<b>25</b>
<b>3.3 Research Questions 1 &amp; 2 – Interactive Effects of Human Capital Disclosure .....</b>	<b>25</b>
<b>3.4 Hypothesis 3 – Human Capital Disclosure &amp; Firm Value .....</b>	<b>26</b>
<b>CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY .....</b>	<b>28</b>
<b>4.1 Research Design and Independent Variables.....</b>	<b>28</b>
<b>4.2 Dependent Variables.....</b>	<b>29</b>
<b>4.3 Experimental Materials.....</b>	<b>31</b>
<b>4.4 Pretesting of Experimental Instrument .....</b>	<b>33</b>
<b>4.5 Sample.....</b>	<b>33</b>
<b>CHAPTER 5: DATA ANALYSIS .....</b>	<b>36</b>
<b>5.1 Manipulation Checks.....</b>	<b>36</b>
<b>5.2 Preliminary Analysis .....</b>	<b>38</b>
<b>5.3 Hypothesis 1 – Human Capital Disclosure &amp; Management Credibility .....</b>	<b>39</b>
<b>5.4 Hypothesis 2 – Auditor Attestation &amp; Management Credibility.....</b>	<b>40</b>
<b>5.5 Hypothesis 3 – Human Capital Disclosure &amp; Firm Value .....</b>	<b>41</b>
<b>5.6 Research Question 1 – 2-Way Interactive Effects of Human Capital Disclosure .....</b>	<b>43</b>
5.6.1 Research Question 1 Using Management Credibility Revision .....	43
5.6.2 Research Question 1 Using Stock Price Revision .....	44
<b>5.7 Research Question 2 – 3-Way Interactive Effects of Human Capital Disclosure .....</b>	<b>45</b>
5.7.1 Research Question 2 Using Management Credibility Revision .....	46
5.7.2 Research Question 2 Using Stock Price Revision .....	46
<b>5.8 Cognitive Reactions .....</b>	<b>47</b>
<b>5.9 Affective Reactions.....</b>	<b>49</b>

5.10 Reliance on Subsequent Disclosures .....	51
5.11 Alternate Interpretation of Experimental Design.....	52
5.12 Mediation Analysis .....	54
5.13 Covariates .....	55
5.14 Perception of Experimental Company Attributes .....	57
5.15 Summary of Results.....	57
<b>CHAPTER 6: CONTRIBUTIONS, LIMITATIONS, AND FUTURE RESEARCH.....</b>	<b>59</b>
6.1 Limitations.....	59
6.2 Contributions .....	60
6.3 Future Research .....	63
<b>REFERENCES.....</b>	<b>64</b>
<b>APPENDIX A: INSTRUCTIONS AND BACKGROUND INFORMATION .....</b>	<b>92</b>
<b>APPENDIX B: PRESS RELEASE.....</b>	<b>100</b>
<b>APPENDIX C: INITIAL ASSESSMENT OF MANAGEMENT’S REPORTING CREDIBILITY AND INVESTOR’S WILLINGNESS TO INVEST .....</b>	<b>102</b>
<b>APPENDIX D: VOLUNTARY HUMAN CAPITAL DISCLOSURE MANIPULATION .</b>	<b>105</b>
<b>APPENDIX E: ATTESTATION MANIPULATION.....</b>	<b>107</b>
<b>APPENDIX F: SECOND ASSESSMENT OF MANAGEMENT’S REPORTING CREDIBILITY AND INVESTOR’S WILLINGNESS TO INVEST .....</b>	<b>110</b>
<b>APPENDIX G: RELIANCE ON SUBSEQUENT DISCLOSURE QUESTION .....</b>	<b>114</b>
<b>APPENDIX H: MANIPULATION CHECK &amp; AFFECTIVE REACTION QUESTIONS .....</b>	<b>115</b>
<b>APPENDIX I: DEMOGRAPHIC INFORMATION.....</b>	<b>118</b>
<b>APPENDIX J: IRB APPROVAL LETTER.....</b>	<b>120</b>

## LIST OF FIGURES

<b>FIGURE 1:</b> EXPECTED EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY AND FIRM STOCK PRICE ASSESSMENTS .....	72
<b>FIGURE 2:</b> FLOWCHART OF EXPERIMENTAL PROCEDURES .....	73
<b>FIGURE 3:</b> EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY .....	74
<b>FIGURE 4:</b> EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' STOCK PRICE ASSESSMENTS .....	75
<b>FIGURE 5:</b> 2 X 2 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY .....	76
<b>FIGURE 6:</b> 2 X 2 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL DISCLOSURE ON INVESTORS' FIRM STOCK PRICE ASSESSMENTS.....	77
<b>FIGURE 7:</b> 2 X 4 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL / ATTESTATION DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY.....	78
<b>FIGURE 8:</b> 2 X 4 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL / ATTESTATION DISCLOSURE ON INVESTORS' FIRM STOCK PRICE ASSESSMENTS.....	79

## LIST OF TABLES

<b>TABLE 1: SUMMARY OF EXPERIMENTAL RESEARCH DESIGN AND APPROXIMATE CELL SAMPLE SIZES .....</b>	<b>80</b>
<b>TABLE 2: EXPERIMENTAL SAMPLE SELECTION AND PARTICIPANT DEMOGRAPHIC INFORMATION .....</b>	<b>81</b>
<b>TABLE 3: CELL MEANS AND PARAMETRIC TESTS WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE.....</b>	<b>82</b>
<b>TABLE 4: NON-PARAMETRIC TESTS WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE.....</b>	<b>83</b>
<b>TABLE 5: CELL MEANS AND PARAMETRIC TESTS WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE.....</b>	<b>84</b>
<b>TABLE 6: NON-PARAMETRIC TESTS WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE.....</b>	<b>85</b>
<b>TABLE 7: INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS UNDER DIFFERENT FIRM FINANCIAL REPORTING CONDITIONS (\$) .....</b>	<b>86</b>
<b>TABLE 8: INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS COMPARING PARTICIPANTS WITH INTENT TO BUY AND INTENT TO SELL.....</b>	<b>87</b>
<b>TABLE 9: INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS CONTRASTS COMPARING METRICS.....</b>	<b>88</b>
<b>TABLE 10: CELL MEANS AND PARAMETRIC TESTS SUPPLEMENTAL ANALYSIS OF WILLINGNESS TO RELY ON FUTURE EARNINGS ANNOUNCEMENT .....</b>	<b>89</b>
<b>TABLE 11: CELL MEANS AND PARAMETRIC TESTS WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE 2 X 4 SUPPLEMENTAL ANALYSIS .....</b>	<b>90</b>
<b>TABLE 12: CELL MEANS AND PARAMETRIC TESTS WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE 2 X 4 SUPPLEMENTAL ANALYSIS .....</b>	<b>91</b>

## CHAPTER ONE

### INTRODUCTION

A common cliché found in countless annual reports is “our employees are our most important, valuable asset.” While companies claim human capital is an important asset and source of valuable earnings, there is nary a human asset found in financial statements (CIMA and AICPA 2012).<sup>1</sup> Irrespective of this absence in prescribed accounting statements, human capital is now the primary source of wealth creation in developed nations, with all signs indicating the importance of human capital will only continue to grow (Christian 2010). McKinsey and Company posit that the most important corporate resource over the next 20 years will be human capital, as it is the premier source of future competitive advantage for a firm (cited in Gnyawali and Offstein 2008). Research also shows firms that excel at human capital management significantly outperform their counterparts (CIMA and AICPA 2012). However, investors currently have little information to help distinguish between firms *promoting* human capital and firms *straining* human capital. Firms *promoting* human capital recognize the competitive advantage of the workforce, and work to mitigate human capital risks such as undesired turnover. Firms *straining* human capital fail to clearly understand the importance of the workforce as a key source for the generation of revenues and the creation of value.

The research described here investigates the usefulness and importance of human capital metrics and voluntary human capital disclosures. The behavioral experiment attempts to identify the extent to which voluntary disclosures of human capital metrics influence investor decision-making related to assessments of disclosure credibility and firm value. From a political economy perspective, the disclosure of such human metrics, if valued, should have positive impacts on

---

<sup>1</sup> Chartered Institute of Management Accountants and American Institute of Certified Public Accountants 2012.

firm management credibility, as well as on firm value. Fundamentally, this is an interesting and relevant research setting to examine whether investors really do value what company management often declares to be “the most important asset.” This research will also investigate the interactive effects of auditor attestation services on voluntary disclosure and firm performance. The broad array of information used in making business decisions has expanded rapidly and extensively subsequent to the Sarbanes-Oxley Act, creating a strong demand for new types of auditor assurance services.

### *What is Human Capital? Why Study Human Capital?*

Human capital is defined as the combination of factors possessed by individuals and the collective workforce of a firm (Abeysekera 2008; Flamholtz 1972; Lev and Schwartz 1971). Human capital includes knowledge, skills and technical ability, personal traits (e.g., attitude, commitment, intelligence), ability to learn, creativity, leadership, and teamwork. Employees and their idiosyncratic knowledge and capabilities can become central to a firm’s success, as well as represent a key source of value creation and revenue generation. By providing investors with evidence of long-term value creation through emphasis on human capital, companies can help reduce excessive short-term financial emphasis. Consequently, companies that believe in the superior value of their human capital have good reason to share any information that may improve public perception of their financial capital. Leading edge companies such as Google, Best Buy, and Sysco are increasingly adopting sophisticated methods of analyzing employee data to enhance their competitive advantage (Davenport et al. 2010). Human capital analysis can assist management in optimal decision-making regarding employee recruitment, training, retention, and engagement. For example, through human capital metrics and analysis, companies

like Starbucks and Best Buy can precisely identify the value of a 0.1% increase in engagement among employees at a particular store (Davenport et al. 2010).

Regulatory securities commissions, such as the Securities and Exchange Commission (SEC) in the United States, require extensive disclosure regarding all major assets. However, they do not require disclosure of what, for most organizations, is their largest asset: the workforce (HCMI 2012). This creates two issues of significance. First, and perhaps most intriguingly, there is a transparency issue when publicly traded organizations fail to adequately disclose human capital issues and risks of significant value. Second, the lack of disclosure obscures a company's talent management effectiveness. With no transparency of the efficient utilization of the typical firm's single largest asset and expense, investors are expected to rely on historical financial performance and management's voluntary discussion of the business. Undoubtedly some organizations have substantial unreported human capital risks and, at present, there is no regulation requiring this information be reported or assured.

Voluntary human capital disclosures have just started to appear in traditional financial statement packages in Australia, Canada, China, Finland, New Zealand, Norway, Sweden, the United Kingdom, and even the United States (Christian 2010). The extent of these disclosures across countries is minimal, however, and with no specific governing standards there is little consistency between companies and countries. Therefore, it currently remains relatively premature to identify a large population of firms disclosing human capital metrics. However, the Human Capital Management Institute (HCMI 2012) still asserts human capital statements can be structured in such a way as to provide a clear, quantitative standard with which investors can gain insight, instead of relying on anecdotal examples and instinct. Human capital metrics can often provide the greatest incremental insight when they appear at "odds" with traditional

financial measures, and when interpreted in light of appropriate context. For example, if traditional financial results are disappointing for a specific reporting period, but human capital measures are trending positively, investors might consider this a potentially important leading indicator that financial performance will improve in future reporting periods.

True integration of human capital valuation in existing financial statements is difficult for two reasons. First, present rules-based accounting standards (i.e., GAAP) neither require, nor allow, straight up valuation of human resources. Even principle-based international standards (i.e., IFRS), though pressing a more flexible valuation agenda overall, do not promulgate the recording of human capital in financial statements. Second, there is no objective, verifiable way of putting a value on human capital such that it could appear on the traditional balance sheet. While nonhuman capital such as equity shares can be traded on the open market, human capital never falls under true ownership of any firm (Flamholtz 1972; Gnyawali and Offstein 2008). Furthermore, individual human capital can transfer firms, leaving little benefit or value to the prior firm upon departure (Arthurs et al. 2009; Gnyawali and Offstein 2008).

### *Transparency and Human Capital*

Market transparency is generally believed to be a key mechanism that reduces information asymmetry between firms and among market participants, thereby helping to promote greater market efficiency. In fact, the opacity of markets was viewed as an important contributor to the recent global financial crisis and the Savings and Loan crisis of the late 1980s (Mosso 2010). In cases like these, investors and regulators often discover pertinent information too late to prevent a potential crisis from happening or to minimize its harmful effects.

Transparency also provides stakeholders a clearer understanding of a firm's operations, including

which parts of the firm are more profitable. This, in turn, places pressure on firm management to produce acceptable results in all facets of a company's operations.

Research shows the measurement of human capital through nonfinancial metrics can help solve certain transparency issues and information asymmetry concerns in the interest of capital accumulation (Arthurs et al. 2009; Welbourne and Andrews 1996; Abeysekera 2008), as well as improve investment decisions, amplify cross-company benchmarking techniques, and link financial results to the workforce (Abeysekera 2008; CIMA and AICPA 2012; Williams 1999). Further linking transparency and voluntary disclosure, Cheung et al. (2010) find there is a positive and significant relation between firm transparency, delivered through voluntary disclosure, and market valuation. Political economy theory posits disclosure in accounting reports such as the annual report is viewed as a means to create, sustain, and legitimize activities in the private interests of the firm (Williams 1999). Following political economy theory, as well as Fennema and Koonce (2012), a firm with positive human capital metrics can use timely, transparent voluntary disclosures as a suitable and germane way to reduce the cost of raising financial capital.<sup>2</sup>

#### *Auditor Attestation and Human Capital*

Firms can boost the credibility of their voluntary disclosures with disclosure-specific attestations. The AICPA's Statements on Standards for Attestation Engagements (SSAEs) outline assurance procedures such as compliance attestation and management discussion and analysis attestation.<sup>3</sup> The public accounting profession has a long history of developing and

---

<sup>2</sup> Fennema and Koonce (2012) discuss how those involved in financial reporting and voluntary disclosure routinely make decisions about how to describe transactions and economic events. Key components of these decisions include how to label information, whether to aggregate or disaggregate it, and how frequently to provide it.

<sup>3</sup> See <http://www.aicpa.org/Research/Standards/AuditAttest/Pages/SSAE.aspx>.

working with the AICPA assurance methodology, while auditors, with extensive knowledge of systems, processes, and frameworks, have the capability to identify misstatements and discrepancies in voluntary disclosures. Therefore, management could seek out attestation credibility for human capital disclosures as a way to add incremental transparency value, and to further reduce the cost of raising financial capital (cf. Dhaliwal et al. 2011).

Recent actions by the AICPA and the National Association of State Boards of Accountancy (NASBA) to change the definition of “attest” in the Uniform Accountancy Act (UAA) provide additional incentive to understand the current benefits of auditor attestation reports. Specifically, the AICPA and NASBA have proposed an amendment that would require that only CPAs operating within a CPA firm could perform examinations, reviews, and agreed upon procedures under SSAEs.<sup>4</sup> These changes in the UAA are seen as necessary by the AICPA and NASBA because of the growth of attest services. Evolving marketplace and client needs have led to increased requests for CPAs and other professionals to provide attestation on items such as sustainability reports, greenhouse gas emissions, controls on service organizations, and XBRL-tagged data. These services can currently be performed by non-CPAs using the AICPA’s professional standards. However, the scope and complexity of these reports, in addition to the reliance by the public on these reports, bring to question whether non-CPAs have the proper qualifications to provide these services using AICPA standards and reporting language. Assuming public protection is paramount, and knowing CPAs must complete rigorous educational, examination, and experience requirements, firms that provide stakeholders

---

<sup>4</sup> See the AICPA meeting agenda and materials related to the attest definition change at: <http://www.aicpa.org/research/standards/auditattest/asb/pages/asbmeetingagendaandmaterialsJuly2012.aspx>.

voluntary disclosures can potentially boost credibility and share value with auditor attestation reports.

The remainder of this paper is organized as follows. Chapter 2 provides background information and a review of the related literature. Chapter 3 develops the proposed hypotheses and research questions, while Chapter 4 describes the research methodology. Chapter 5 details the specific analyses performed to examine the proposed hypotheses and research questions. Chapter 6 provides a discussion of this paper's contributions, followed by related references, figures, tables, and appendices.

## CHAPTER TWO

### BACKGROUND AND RELATED LITERATURE

This chapter provides a summary of the literature relevant to the hypotheses and research questions addressed in this study. Formal hypotheses are then developed in Chapter 3.

#### **2.1 Human Capital**

##### *2.1.1 Definition & Overview*

Capital, defined from a general accounting perspective, is a source of income, and its worth is the present value of future income discounted by a rate specific to the owner of the source (Lev and Schwartz 1971). Weisbrod (1961) wrote one of the first accounting-related research streams defining and detailing *human capital*. In this work, Weisbrod asserted it would be useful if academics could develop a conceptual framework to estimate the value of assets in the form of human capital. Weisbrod further posited that if there is to be discussion about the value of a person, the value term needs to be clarified, and of value to whom needs to be defined. Ten years later, Lev and Schwartz (1971) followed up on the assertions of Weisbrod (1961), asserting that human capital is recognized as an important factor in explaining and predicting economic growth, and therefore should be treated in modern economic theory on par with other forms of financial assets.

The push for human capital in these works did not come without resistance (Flamholtz 1972), however, and the authors themselves remarked on significant conceptual issues (Weisbrod 1961; Lev and Schwartz 1971). Lev and Schwartz (1971) specifically commented on three important measurement issues. First, human capital cannot be purchased or owned by the firm, and therefore cannot be recognized as an accounting asset. Second, the labor force cannot be considered an asset since it does not have measurable service potential extending beyond the

current period. This concern is addressed in more detail by Flamholtz (1972), who argues human capital can move freely (i.e., people will likely make many role changes during a career), and at the same time, the knowledge, skills, and abilities embedded within human capital are at the subjective deployment of the capital itself, not the firm. Third and finally, the measurement of human capital presents notable objective difficulties for financial statement presentation.

In summary, while the early accounting literature related to human capital raised relevant issues, there was still momentum supporting the disclosure of human capital values. More specifically, disclosure of human capital values could provide financial statement users with valuable information. The relevance of this information lies in the fact that it concerns components regarding future firm earnings not currently reported by accounting firms.

### *2.1.2 Human Capital in Today's Market*

The persistent search for profits, new products and markets, innovative technologies, and streamlined processes of firms has changed the nature of capital accumulation in the current economic environment. Since capital is to a large extent mobile, it is imprudent to analyze capital as if it were immobile and attached to particular activities and firms (Abeysekera 2008). The transience of economic capital *and* human capital makes it imperative for a firm to convince capital providers to remain with the firm.

From a practical perspective, data collected by CIMA and AICPA (2012) of over 300 CEOs, CFOs, and HR Directors highlight that over two-fifths of survey participants attributed firm failure to the inability to achieve key financial targets because of ineffective people management and retention. In the corresponding report, CIMA and AICPA (2012) go on to comment that accountants have the ability to unite financial facts and nonfinancial information to provide data and insight from a position of independence and objectivity. Additional data

analysis of surveys and interviews find investors and analysts view human capital data as a venue for transparency. Investors and analysts cannot currently quantify the worth of human capital and they must take any related report on faith (McCann 2011). At the same time, however, investors and analysts mimic earlier concerns regarding the ultimate valuation of human capital, as well as the comparable, objective reporting of human capital (McCann 2011).

While there may be certain requirements to disclose nonfinancial information like human capital metrics to certain groups (such as specific regulators), no regulation requires this information be disclosed in the form of a stand-alone report for the general public. In the United States, the SEC requires extensive disclosure regarding all major assets including financial assets, physical assets, and technological/intellectual property such as patents. However, public companies are required to disclose virtually nothing about their human capital other than the compensation packages of top executives (McCann 2011). Consequently, stakeholders are not privy to potentially important human capital issues and risks, and must default decision-making to historical figures and voluntary admissions of management. Assuming many firms have substantial unreported human capital exposure, such reliance puts a significant amount of credibility and faith in management.

The Human Capital Management Institute (HCMI 2012) asserts human capital disclosures quantify the workforce with objective, verifiable, and value-based conservative valuation principles. Furthermore, HCMI (2012) asserts human capital statements can be structured in such a way as to provide a clear, quantitative standard with which investors can gain insight, instead of relying on anecdotal examples and instinct. Organizations like HCMI have already developed and deployed three unique statements for organizations to disclose human capital information including: 1) a human capital *impact* statement; 2) a human capital

*asset* statement; and 3) a human capital *flow* statement. These statements combine data from management's accounting information systems and human resource systems.

The human capital *impact* statement serves as a supplement to the traditional income statement, and measures the period impact of human capital on financial performance. Key metrics included on a sample human capital impact statement can include revenue per full time employee, total cost of workforce, profit per full time employee, market capitalization value per full time employee, and return on human capital investment. The human capital *asset* statement attempts to quantify the total value of the workforce by breaking down differential value contributions by job category. Key metrics include headcount deployment and headcount retention. Lastly, the human capital *flow* statement traces the flow of human capital across multiple dimensions by period, such as a quarter or year, showing where and how human capital is allocated and utilized in an organization. More specifically, this statement breaks down major workforce flows across employee lifecycles and details hiring, transfers, promotions, and terminations by period. The human capital flow statement provides insight regarding changes and relative talent gains within each employee category and job group.

### *2.1.3 Relation of Human Capital to Firm Value and Performance*

The market value for S&P 500 companies deviates greatly from the book value. This value gap indicates the physical, financial assets reflected on firms' balance sheets comprise less than 20% of the true value of the average company (HCMI 2012). There is limited recent academic work linking human capital and accounting valuation in accounting-specific research, however, what has been done to date supports a significant connection between the two. Pantzalis and Park (2009) investigate whether, and how well, firms' stock market valuations reflect their employees' collective skills and effectiveness relative to that of their industry peers

and competitors. Results indicate, controlling for firm effects and risks, that portfolios with strong human capital skills and effectiveness systematically outperform portfolios with weak human capital skills and effectiveness. In addition, research by Bontis and Fitz-Enz (2002) and Bassi and McMurrer (2004) demonstrate a clear linkage between investment in human capital and public U.S. company stock prices. These works specifically show a relationship between a firm's training investments and stock performance in the following year. For example, the investment portfolios of Bassi and McMurrer (2004) outperformed the S&P 500 market by 3.1%-4.4% annually, or a combined 29.2%-37.5% from 1996-2001.

Prior research has also linked employee metrics to earnings quality (Kim et al. 2012) and to financial performance (Margolis and Walsh 2001; Waddock and Graves 1997). Providing support that human capital metrics are not just a first world ideal, Orazem and Vodopivec (1997) find evidence that points to rapidly increasing marginal returns from human capital in transition economies. In initial public offering settings, results indicate that human resource value can predict initial investor reaction and firm long-term survival (Welbourne and Andrews 1996).

While human capital research linking metrics to performance and valuation is relatively sparse in the accounting literature, there has been notable work completed in the management field. A conceptual model constructed by Barney (1991) links human capital resources and sustained competitive advantage. Barney's model assumes strategic resources are heterogeneously distributed across firms and that these differences are stable over time, thus allowing for an examination of the link between firm resources and sustained competitive advantage. Barney then identifies four empirical indicators of human capital that can generate sustained competitive advantage: value, rareness, imitability, and sustainability. Quantitative

and qualitative analysis of survey questionnaires collected by Gates and Langevin (2010) indicate firm performance is positively associated with the development of human capital metric systems that enable an organization to measure, value, manage, and sustain performance. Emphasizing the importance of human capital skills for strategic management, Bailey and Helfat (2003) find management successors with less transferable (related-industry) skills have greater variance of firm performance.

## **2.2 Transparency**

### *2.2.1 Definition & Overview*

Barth and Schipper (2008) define financial reporting transparency as “the extent to which financial reports reveal an entity’s underlying economics in a way that is readily understandable by those using the financial reports” (p. 176). Following Barth and Schipper (2008), the definition of transparency hinges on the concepts of underlying economics and readily understandable. The underlying economics of a firm include the firm’s assets, liabilities, equity, and cash flows, as well as the entity’s risks. By incorporating risk into the concept of underlying economics, Barth and Schipper (2008) acknowledge risk as an important interactive component with an entity’s resources, claims to those resources, and cash flows. In general, this concept is consistent with the conceptual frameworks of both the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) (Bushman and Smith 2003; Barth and Schipper 2008). Financial reports need to not just include information about an entity’s underlying economics, but also be understandable in order to be transparent. This involves a certain level of scrutiny to ensure financial statements include enough detail to be helpful to users, but not so much as to obscure an entity’s underlying economics.

### *2.2.2 Transparency, Market Value, and Firm Performance*

Bushman and Smith (2003) propose three channels through which transparent accounting information can be helpful to users and directly affect firm economic performance.<sup>5</sup> First, transparent financial accounting information assists managers and investors in identifying and evaluating investment opportunities. The absence of reliable and accessible information impedes the flow of capital toward investments that are expected to have high returns and away from investments with poor prospects (Bushman and Smith 2003; Bushman et al. 2004). Consequently, transparent information reduces estimation risk and the cost of capital. Lang et al. (2012) also find evidence that greater firm transparency leads to lower transaction costs.

Second, transparent financial accounting information facilitates shareholder monitoring and the effective exercise of shareholder rights. This helps alleviate information asymmetry and mitigates self-interested behavior by managers. Many studies of reporting transparency examine its effects on users' abilities to detect earnings management. These studies generally report that more transparent disclosures, meaning those that are easier to process, lead to greater detection of earnings management (Hirst and Hopkins 1998; Hunton et al. 2006). At the same time, firms with a history of earnings management and weaker monitoring systems tend to choose a less transparent financial reporting format (Hunton et al. 2006). Interestingly, Hirst et al. (2004) find managers' frequent lobbying efforts for the option to employ less transparent reporting formats provides indirect evidence that firm managers believe the costs and benefits of earnings management are affected by disclosure transparency. This behavior more specifically suggests that firm managers believe there is a benefit to choosing less transparent disclosures. Hunton et

---

<sup>5</sup> The channels through which transparent financial accounting information can directly affect firm economic performance, proposed by Bushman and Smith (2003), also align with the role of disclosure in capital markets proposed by Healy and Palepu (2001).

al. (2006) experimentally find more transparent reporting requirements will reduce earnings management or change the focus of earnings management to less visible methods.

Third, transparent financial accounting information reduces adverse investment selection and liquidity risk. A firm's precommitment to the timely disclosure of high-quality financial accounting information reduces investors' risk of loss from trading with more informed investors, thereby attracting more funds in the capital markets, lowering liquidity risk (Diamond and Verrecchia 1991; Botosan 1997; Bushman and Smith 2003). More recently, using a global sample, Lang and Maffett (2011) find firms with greater transparency based on accounting standards, auditor choice, earning management, analyst following, and forecast accuracy experience less liquidity volatility, fewer extreme illiquidity events, and lower correlations between firm-level liquidity and both market liquidity and market returns. Interestingly, the results of Lang and Maffett (2011), as well as Lang et al. (2012), are particularly pronounced during crisis periods.

Using the Barth and Schipper (2008) definition described previously, financial reporting transparency is associated with the extent to which information presented in financial reports reveals underlying economics and decreases asymmetry among investors because information is readily understandable. Research supports that financial statements with transparent financial reporting can be beneficial to reducing the cost of capital (Easley and O'hara 2004; Amihud and Mendelson 1986; Botosan 1997; Botosan and Plumlee 2002; Piotroski 1999), increasing investor information quality (Lambert et al. 2012), and providing positive macroeconomic benefits (López de Silanes et al. 1998). These research papers identify characteristics of financial reporting that foster transparency including disaggregation, salience, choice of measurement basis, comparability, implementation decisions, and financial statement display. Dasgupta et al.

(2010) find empirical and theoretical support that in more transparent reporting environments, stock prices are more informative about future events. Consequently, when the events actually happen in the future, there is less surprise impounded into the stock prices. Thus, a more informative stock price today provides higher return synchronicity in the future.

## **2.3 Voluntary Disclosure**

### *2.3.1 Definition & Overview*

In accounting practice, a primary mechanism for firm transparency is disclosure. Firms make voluntary disclosures for three main reasons: 1) to promote a reputation for transparent reporting; 2) to reduce the information risk assigned to the firm's stock; and 3) to address the deficiencies of mandatory reporting (Graham et al. 2005). Based on the surveys and interviews conducted by Graham et al. (2005), the biggest barriers to voluntary disclosure are fear of setting a disclosure precedent that may be difficult to maintain in the future and concerns about giving up proprietary information to competitors.

Healy and Palepu (2001) deliver a comprehensive literature review on disclosure, in which they discuss multiple research questions including: 1) the role of regulation; 2) management reporting decisions regarding voluntary disclosure; and 3) the consequences of disclosure. Voluntary disclosure research has historically focused on the second of these questions: the motivation of management to voluntarily disclose. For example, managers who anticipate a debt or equity issuing have an incentive to voluntarily disclose (Healy and Palepu 1993), and managers that expect bad earnings news are more than twice as likely to pre-disclose the bad news than are firms with good news (Skinner 1994, 1997). Across these scenarios, there is a reduction in asymmetric information and a consequent reduction in firms' cost of external financing by voluntarily disclosing (Healy and Palepu 2001).

### *2.3.2 Impact of Voluntary Disclosure on Firms*

Current research on voluntary disclosure continues to focus on firm motives for accounting disclosure, while acknowledging the intersection with positive accounting theory (Healy et al. 1999; Healy and Palepu 2001; Healy and Palepu 1993). Following Healy and Palepu (2001), there are three primary economic outputs from voluntary firm disclosure: 1) improved stock liquidity; 2) reduced cost of capital; and 3) increased information intermediation. Research by Diamond and Verrecchia (1991) and Kim and Verrecchia (1994) find investors can have increased confidence that stock transactions occur at fair prices when firms have high levels of disclosure. This consequently increases the liquidity in the firm's stock. Furthermore, Healy et al. (1999) find firms that expand disclosures experience significant contemporaneous increases in stock prices that are unrelated to current earnings performance, while Gelb and Zarowin (2002) find firms that expand disclosures have high stock price associations with contemporaneous and future earnings relative to firms that do not expand disclosures.

In regard to cost of capital, literature shows there is consistently a negative relationship between the extent of voluntary disclosures and the cost of equity capital (Botosan 1997; Botosan and Plumlee 2002; Piotroski 1999). However, more recent research related to management earnings forecasts indicate there may be different information content between good news and bad news forecasts, which may then have asymmetric impacts on the cost of equity capital (Kim and Shi 2011). Specific findings indicate bad news forecasters experience a significant increase in the cost of equity capital in the one month after managers disclose their earnings, but good news forecasters do not experience significant changes in the cost of equity capital in the one month after managers disclose their earnings. These results are robust across the magnitude of changes in the cost of capital for good news forecasters and bad news

forecasters (Kim and Shi 2011). Kothari et al. (2009) and Rogers et al. (2009) both find good news disclosure from management may lack credibility, and is therefore discounted in the market by investors in the short-term.

Finally, voluntary disclosure lowers the cost of information acquisition, and enables financial analysts to create valuable new information (Bhushan 1989a, 1989b; Healy et al. 1999; Lang and Lundholm 1993; Lang and Lundholm 1996). For example, firms with more informative disclosures have larger analyst followings, less dispersion in analysts forecast accuracy, and less volatility in forecast revisions (Healy et al. 1999; Bhat et al. 2006).

Disclosure is inherently desirable for users of financial statements. However, Loewenstein et al. (2011) challenge whether, and to what extent, disclosures actually improve economic outcomes. The magnitude of economic impact depends critically on what information is delivered, how it is delivered, and how it is utilized. Loewenstein et al. (2011) and Aggarwal and Jorion (2012) note potential costs of accounting transparency to include: trading against the firm, loss of firm competitive advantage, user interpretation error, and firm preparation costs.

### *2.3.3 Voluntary Disclosure, Human Capital, and Political Economy Theory*

Political economy theory posits disclosure in accounting reports such as annual reports is viewed as a means to create, sustain, and legitimize activities in the private interests of the firm (Williams 1999). Following political economy theory, as well as Fennema and Koonce (2012), a firm with positive human capital metrics can use timely voluntary disclosures as a suitable and germane way to reduce the cost of raising financial capital. Similar voluntary disclosure activities take place over firm Corporate Social Responsibility (CSR) activities. Ball et al. (2000) and Adams (2004) contend that when CSR information is voluntarily disclosed, the disclosures are used to support management objectives and bolster the firm's desired image. At the same

time, however, Al-Tuwaijri et al. (2004) find that good disclosure of CSR information is associated with good CSR performance, which in turn manifests in improved firm performance. Recent research has also been conducted by Baik et al. (2008) regarding the reliability and transparency of voluntary non-GAAP disclosures by real estate investment trusts (REITs). More specifically, the findings of Baik et al. (2008) suggest that industry guidance and assurance procedures over non-GAAP REIT disclosures curtailed managers' opportunist reporting practices, thus leading to greater reliability and transparency in the related financial statements.

Because firm management has incentives to make self-serving voluntary disclosures, in alignment with political economy theory, it can still be hard to confirm if management disclosures are truly credible. In addition, the extent to which disclosures mitigate misallocations in the capital market depends on the degree of credibility of the information disclosed. There are potentially two mechanisms to increase the credibility of voluntary disclosures (Healy and Palepu 2001). First, independent, outside intermediaries (i.e., CPA firms) can provide assurance about the quality of firm disclosures. Second, voluntary disclosures can be confirmed through the validation of prior disclosures. For example, a forecast of quarterly firm revenues and earnings can be compared to actual quarter realizations.

## **2.4 Accounting Assurance**

### *2.4.1 Definition & Overview*

As previously noted, outside intermediaries can boost the credibility of firm disclosures (Healy and Palepu 2001). Attestation services by auditors, for example, provide a report on a subject matter, or an assertion about subject matter, that is the responsibility of another party. The Auditing Standards Board (ASB), which is part of the American Institute of Certified Public Accountants (AICPA), issues the Statements on Standards for Attestation Engagements (SSAEs)

to provide guidelines and rules for CPAs that provide attestation services. These guidelines cover several different areas associated with attestation services including professional requirements, compliance with generally accepted accounting principles (GAAP) and Sarbanes-Oxley requirements, procedures, documentation, reporting on internal control, and financial forecasts and projections. The SSAE is continuously updated and revised by the ASB.

Auditors have historically provided investors with independent assurance that firms' financial statements conform with GAAP. The fact that stock prices react to earnings announcements suggest that investors regard accounting information as credible (Kothari 2001). However, prior to the Sarbanes-Oxley Act, very little disclosure research directly examines whether or not auditors significantly enhance the credibility of reported financial statements. In fact, most evidence historically suggests that auditor qualifications do not provide timely signals to the capital market (Healy and Palepu 2001).

Healy and Palepu (2001) deliver three potential explanations for the paucity of evidence on the value of auditor assurance to investors. First, investors can perceive auditors as acting in the primary interests of the firm that hire them, rather than in the interest of the firm's investors. Second, auditors have historically provided assurance only on firm annual reports, making it difficult for auditors to provide other routine, timely signals to the market. Third, and likely true whether in fact or in appearance, investors can perceive auditors as concerned only about minimizing legal liability, rather than enhancing the credibility of financial reports.

#### *2.4.2 Assurance & Attestation in Today's Market*

After the passage of Sarbanes-Oxley, and in today's market in general, the broad array of information used in making business decisions has expanded rapidly and extensively, creating a strong demand for new types of assurance and attestation services. To evaluate the overall

performance of a business entity, it is essential to evaluate not only the items that are included in financial statements prepared in accordance with generally accepted accounting principles, but also other critical performance areas like processes, financial resources, nonfinancial resources, and markets. Holstrum and Hunton (1998) assert the practice of financial accounting, business reporting, and auditing ignores most of the critical information in all but the financial performance area. However, much of the value in today's global market is largely contained within processes, markets, and nonfinancial resources. For example, in some countries upwards of 50% of a nation's gross domestic product is based in knowledge, which is imbedded in human capital (Gnyawali and Offstein 2008). Furthermore, McKinsey and Company posit that the most important corporate resource over the next 20 years will be human capital, as it is the premier source of future competitive advantage for a firm (cited in Gynawali and Offstein 2008). In theory, but more importantly in practice, companies can have modest financial statements relative to market value, but possess excellent intellectual resources, efficient processes, and outstanding potential in exploding markets. Consequently, there should be a demand for professional services that provide assurance regarding information quality. Investors, managers, customers, and other users of firm information should demand high quality information that is relevant, reliable, timely and, in an appropriate mode and format. A major challenge for providers of assurance and attestation services in meeting these demands is to construct services that abide by, and meet, ASB and AICPA standards (O'Dwyer 2011).

Only a small number of empirical studies have examined the demand drivers for the voluntary adoption of assurance and attestation services. This is largely because the assurance of financial reports of public companies has been mandated by law for the better part of the twentieth century, and research has focused on issues associated with this context. Chow (1982)

was one of the first major studies to examine voluntary assurance, investigating this issue from the agency theory perspective, and arguing that agency costs are associated with the voluntary adoption of financial statement audits. Other research adopts a different perspective, and views the demand for assurance as an effective within-company control mechanism to compensate for the loss of control induced by organizational design and the resultant loss of observability of subordinate behavior (Abdel-Khalik 1993). Abdel-Khalik (1993) argues the loss of internal control may potentially give rise to moral hazard problems and an increasing likelihood of distorted communication, and research results indicate larger companies are more likely to voluntarily demand assurance and attestation services.

The association between assurance and control is approached from a related but different angle by Blackwell et al. (1998) who argue that the demand for assurance stems from the need to mitigate information asymmetry with institutional creditors. Blackwell et al. (1998) find assurance and attestation are perceived by institutional creditors as an effective means of control. Similarly, Carey et al. (2000) examine family businesses in Australia and find the voluntary demand for assurance is associated with information asymmetry and loss of control, such that the proportion of non-family managers and non-family directors is positively associated with the demand for external assurance. Consistent with Chow (1982), Carey et al. (2000) find the demand for assurance is also associated with higher levels of debt.

Cohen et al. (2011) examine retail investors' perceptions of the decision-usefulness of economic performance, governance, and corporate social responsibility disclosures. Their findings indicate the most popular reporting venues for voluntary-type disclosure information are through audited filings and third parties. Cohen et al. (2009) assert economic performance indicators, of which human capital metrics could be an example, are of immediate and strong

value relevance to the long-term viability of a firm. Furthermore, Cohen et al. (2009) argue it is possible investors perceive auditing-type practices over disclosures lend a higher degree of scrutiny, which adds to the reliability of the value-relevant information imbedded in disclosures.

#### *2.4.3 Linking Attestation Services to Human Capital Disclosure*

Similar to human capital information, firms choosing to disclose corporate social responsibility (CSR) information do so voluntarily. While Hobson and Kachelmeier (2005) suggest managers have incentive to distort voluntary disclosures, recent voluntary disclosure research for CSR information find evidence suggesting the incorporation of assurance services is related to the incentive of firms to increase the credibility of their CSR reporting (Simnett et al. 2009). In addition, assurance services over CSR reports are associated with lower analyst forecast error (Dhaliwal et al. 2012). It follows that reports for which attestation services are received are likely to be more informative to analysts and financial statement users. This aligns with research conducted by Simnett et al. (2009), which provides evidence that firms seeking to enhance the credibility of their CSR reports are more likely to have their CSR report assured. Findings from Dhaliwal et al. (2011) also indicate external assurance on voluntary CSR disclosures significantly reduce the cost of equity capital.

The above discussion indicates that assurance and attestation services can act as a useful control mechanism to enhance the credibility of disclosed information and facilitate greater user confidence. Hence, it should result in more appropriate resource allocation decisions and credibility assessments by investors when human capital disclosures are present.

## CHAPTER THREE

### HYPOTHESIS DEVELOPMENT

This chapter documents the primary hypotheses and research questions. In forming hypotheses from the related literature, I address two overarching questions: 1) Do investors perceive voluntary human capital disclosures as credible? and 2) Do investors perceive voluntary human capital disclosures as informative regarding firm value?

#### **3.1 Hypothesis 1 – Human Capital Disclosure & Management Credibility**

To address the first overarching question, Mercer (2005) suggests more forthcoming disclosure leads to higher perceived credibility. Firms who are able to credibly communicate information have less analyst forecast dispersion, lower analysts forecast errors, lower bid-ask spreads, and lower costs of capital than less credible firms (Barron et al. 1999; Botosan 1997; Sengupta 1998; Healy et al. 1999). Firms should therefore be highly concerned about the credibility of disclosures because credibility is associated with firm value. Voluntary disclosure literature has also examined the economic outputs of disclosure, including improved stock liquidity, reduced cost of capital, and increased information intermediation (Healy and Palepu 2001). For example, Diamond and Verrecchia (1991) and Kim and Verrecchia (1994) find investors can have increased confidence that stock transactions occur at fair prices when firms have high levels of disclosure. Healy et al. (1999) find firms that expand disclosures experience significant contemporaneous increases in stock prices, and Gelb and Zarowin (2002) find firms that expand disclosures have higher stock price associations to firms that do not expand disclosures.

It follows that firms who provide voluntary information about positive human capital should have higher perceived credibility than firms who do not provide such disclosures. This

leads to my first hypothesis, to be tested using experimental methodologies:

**H<sub>1</sub>:** Firms providing strong voluntary human capital disclosures will be rated as having higher credibility than firms providing baseline voluntary human capital disclosures.

### **3.2 Hypothesis 2 – Auditor Attestation & Management Credibility**

Other literature cited in Section 2.4 indicates assurance serves as a useful control mechanism to enhance the credibility of disclosed information and facilitates greater user confidence. Although Hobson and Kachelmeier (2005) suggest managers have incentive to distort disclosures, voluntary disclosure literature over nonfinancial reporting metrics finds evidence suggesting the incorporation of assurance services is related to the incentive of firms to increase the credibility of their reporting (Simnett et al. 2009). In addition, assurance services over voluntary nonfinancial reports are associated with lower analyst forecast error and reduced cost of equity capital (Dhaliwal et al. 2012).

It follows that firms who receive assurance services over voluntary human capital disclosures should be expected to have higher perceived credibility than firms who do not receive such assurance. This leads to my second hypothesis, to be tested using experimental methodologies:

**H<sub>2</sub>:** Firms receiving third-party assurance services over voluntary human capital disclosures will be rated as having higher credibility than firms not receiving third-party assurance services over voluntary human capital disclosures.

### **3.3 Research Questions 1 & 2 – Interactive Effects of Human Capital Disclosure**

Finally, research shows the measurement of human capital through nonfinancial metrics can help solve certain transparency issues and information asymmetry concerns, as well as

improve investment decisions, amplify cross-company benchmarking techniques, and link financial results to the workforce (Abeysekera 2008; CIMA and AICPA 2012; Williams 1999). As previously stated, human capital metrics can often provide the greatest incremental insight when they appear at “odds” with traditional financial measures.

This leads to the following research questions, to be tested using experimental methodologies:

**RQ<sub>1</sub>:** Do investors react differently when firm financial results (strong or weak) interact with human capital disclosures (strong or baseline)?

**RQ<sub>2</sub>:** Do investors react differently when firm financial results (strong or weak) interact with human capital disclosures (strong or baseline), and when the human capital disclosures are accompanied by an independent assurance report?

### **3.4 Hypothesis 3 – Human Capital Disclosure & Firm Value**

To address the second overarching question, there is limited literature linking human capital and firm value in accounting-specific research; however, what has been done to date supports a significant connection between the two. Pantzalis and Park (2009) find investment portfolios with strong human capital skills systematically outperform portfolios with weak human capital skills. Bontis and Fitz-Enz (2002) and Bassi and McMurrer (2004) also specifically show a relationship between investments in employee training and stock performance in the following year.

Prior archival research has also linked employee metrics to earnings quality (Kim et al. 2012), and to financial performance (Margolis and Walsh 2001; Waddock and Graves 1997). In initial public offering settings, results indicate human capital value can predict initial investor

reaction and a firm's long-term survival (Welbourne and Andrews 1996), while Orazem and Vodopivec (1997) find evidence of rapidly increasing marginal returns from human capital in transition economies. More generally, studies show that more complete disclosures are associated with positive stock price effects (Botosan 1997; Miller 2002).

Following extant literature, I therefore propose the following hypothesis to address the relationship between human capital metrics and firm market value, which will be tested using experimental methodologies:

**H<sub>3</sub>:** Firms providing strong voluntary human capital disclosures will have higher stock price assessments than firms providing baseline voluntary human capital disclosures.

See Figure 1 for a graphical interpretation of the expected impact on credibility and stock price associations from the proposed manipulations.

## **CHAPTER FOUR**

### **RESEARCH DESIGN AND METHODOLOGY**

This chapter documents the methodology used to test the hypotheses and research questions posed in Chapter 3. Section 4.1 introduces the general research design and the operationalization of the independent variables. Section 4.2 describes the dependent variables of interest, and Section 4.3 details the experimental materials deployed for data collection. Section 4.4 documents the pretesting of the experimental instrument. The final section, Section 4.5, describes the participants included in the final sample.

#### **4.1 Research Design and Independent Variables**

Since disclosure of human capital information is completely voluntary, the introduction of this new information should be incremental to existing investor knowledge of firms. Following expectancy violations theory, people predict the future based on schemas and other beliefs formed over time. When predictions do not come true according to expectations, people then try to understand what has happened and perhaps modify their schemas to cope with the new situation. Human capital disclosures, combined with auditor attestation, can trigger certain expectancy discrepancies in investors, especially if existing investment decision activities are grounded in prior financial information.

To examine the effects of voluntary human capital financial statement disclosure (transparency) on investors' decision making, I utilize a 2 X 2 X 2 between subjects experiment with investor participants. The experimental manipulations include firm financial performance (strong/weak), human capital disclosure (strong/baseline), and attestation report (present/none). An experiment is appropriate to investigate this issue because specific archival data is not yet available to address how this type of voluntary disclosure will impact investors' decisions. The

experimental participants in this study are derived from pre-screened subjects in Qualtrics.<sup>6</sup> Table 1 displays a summary of the research design and the initial desired cell sample sizes.

#### **4.2 Dependent Variables**

The primary dependent variable for Hypothesis 1 and Hypothesis 2, as well as Research Question 1 and Research Question 2, is the change in the participants' perceived credibility of management's reporting. Credibility is measured following Mercer (2005), which is adapted from McCroskey (1966) and Leathers (1992). The credibility construct is comprised of management's perceived competence and perceived trustworthiness in financial reporting. Each sub-construct is then measured by three previously validated questions from Mercer (2005). For purposes of this research paper, the reliability of the sub-constructs is reassessed to ensure questions consistently measured a common construct. The sub-constructs in the study yield a Cronbach's alpha of .87.<sup>7</sup> A credibility composite score is formed by summing the participants' responses to individual questions. A final change in credibility number is then calculated, using the difference between the first and second assessments of credibility, for the primary dependent variable.

Following Mercer (2004), and to support Hypothesis 3, indirect measures of management's reporting credibility are also assessed to provide additional insight into the economic significance of credibility revisions. Indirect measures of management's reporting

---

<sup>6</sup> Qualtrics is a global, web-based market research company specializing in data collection and analysis. Qualtrics provides an easy-to-use Internet platform connecting researchers with pre-screened experimental participants. According to the Company website ([www.qualtrics.com](http://www.qualtrics.com)), approximately 1,300 universities worldwide, including every major university in the United States, access Qualtrics.

<sup>7</sup> The Cronbach's alpha of these sub-constructs in Mercer (2005) is 0.78. The theoretical value of Cronbach's alpha varies from zero to 1. Higher values of Cronbach's alpha are more desirable, with an assessment of 0.70 or higher a traditional reliability cutoff (Cohen et al. 2003).

credibility are calculated using firm stock price assessments. Participants received the stock trading price of the experimental company directly prior to the earnings announcement and the participants provided a revised stock price at two separate times following the experimental manipulations, similar to Brown-Liburd et al. (2012). The magnitude of the stock price revisions serve as a second dependent variable, corroborating that the observed changes in credibility from the manipulations have an effect on the assessed value of the company's stock.

The experimental materials also examine whether changes in perceived credibility of management's reporting affect the participants' willingness to rely on future financial disclosures and reporting provided by management. This additional assessment is performed because previous research suggests investors are more likely to rely on information provided by managers who are perceived to be highly credible (Hirst et al. 1999; Williams 1996) and management establishes a reputation based on previous disclosures (Williams 1996). Following Mercer (2005), participants in the case received a copy of management's earnings announcement for the next quarter, and they assessed their willingness to rely on that announcement when determining expected earnings for a subsequent quarter. Consistent with Mercer (2005), this is a positive news earnings announcement because previous research suggests reporting credibility is important for enhancing the believability of positive news forecasts and disclosures from management (Williams 1996).

Participants' cognitive and affective reactions to the experimental manipulations are assessed through specific questions imbedded in the case materials. While no specific hypotheses are generated for cognitive and affective reactions, the supplemental analyses performed in Chapter 5 enrich the findings for the predicted hypotheses and also generate questions for future research. Five additional attributes of the experimental company's financial

reporting and information environment are also collected, including cost of capital, earnings predictability, information asymmetry, human capital, and transparency. Lopez (2009) suggests the perceptions of these attributes can alter the magnitude of investor stock price revisions. Therefore, these variables are collected for potential control variables. Robustness tests related to these company-specific variables are documented in Chapter 5.

### **4.3 Experimental Materials**

Each participant completed an investment case, modified from Mercer (2005), for a hypothetical company.<sup>8</sup> The instrument revolves around a hypothetical software company, and participants are asked to assess both the reporting credibility of management and the company's stock price. See Figure 2 for a flowchart of experimental procedures.

First, participants provided informed consent and reaffirmed they possessed the required attributes of an investor. Participants then received an overview of the company, a set of the company's prior year financial statements, the auditor report related to the company's prior year financial statements, a consensus earnings announcement for the current quarter, and a final earnings announcement for the current quarter. The first manipulation sets participants' expectations in an investment scenario, based on the financial statements and earnings information. This high performing firm / low performing firm manipulation sets the tone for a potential investor expectancy discrepancy in the future. Specifically, the high performing firm manipulation conveys a positive earnings trend while the low performing firm manipulation conveys a negative earnings trend. Participants were then asked to indicate their individual

---

<sup>8</sup> In an experimental setting utilizing 244 MBA students as proxies for investors, Mercer (2005) found that managers' disclosure decisions affect their credibility with investors. More specifically, more forthcoming disclosure has a positive effect on the reporting credibility of management, especially when management is forthcoming about negative news. However, these credibility effects do not persist over time.

investor confidence and willingness to invest, and also evaluate managements' reporting credibility.

During the next stage of the experiment, participants received the human capital disclosure manipulation and the attestation manipulation. The human capital disclosure manipulation is administered at two levels: strong human capital disclosures (above industry average) and baseline human capital disclosures (approximately equal to industry average). Participants in the strong disclosure group were provided voluntary disclosure data indicating a *positive* trend in human capital metrics. Participants in the baseline disclosure group were provided voluntary disclosure data portraying a *static* trend in human capital metrics. The attestation manipulation that accompanied the human capital disclosures is manipulated at two levels. Half of the participants in both disclosure manipulations received an auditor attestation report over the human capital disclosure, while the other half of the participants in both disclosure manipulations did not receive any additional assurance over the voluntary human capital disclosure.

Upon review of all experimental materials, including the final two manipulations, participants were once again asked to indicate their individual investor confidence and willingness to invest, and to evaluate managements' reporting credibility. If human capital statements truly provide additional, unique transparency for investors, then the experimental investors should appropriately handle the expectancy violation encountered with the second manipulation. Furthermore, the inclusion of an auditor attestation report over the voluntary disclosure should boost investor confidence in, and reliance on, the human capital metrics as a vehicle of transparency.

In the final stages of the experimental instrument, participants indicated the likelihood they would rely on subsequent earnings announcements to form future earnings forecasts, followed by comprehension, manipulation check, and demographic questions. Appendix A through Appendix I detail the specific experimental materials in hard copy for this research design.

#### **4.4 Pretesting of Experimental Instrument**

The experimental materials went through one round of pretesting and two rounds of pilot testing, each with a distinct purpose. First, the instrument was pretested with 13 accounting PhD students to ensure the task was realistic, the instructions were clear, and both the GAAP and non-GAAP figures imbedded in the case were consistent and reasonable. At the same time, the instrument was reviewed by accounting academics at a major mid-Atlantic university. Changes to the task instructions, manipulation check questions, and non-GAAP figures were made based on the feedback received. Second, the instrument was pilot-tested in two separate rounds, using approximately 30 experienced investors in each pilot. The purpose of the two pilot tests was to ensure investor participants acknowledged, comprehended, and processed the unique information contained within the experimental materials, specifically the voluntary human capital disclosures and auditor attestation report. The pilot tests also ensured terminology was consistent with practice and the experimental task was appropriate for actual investors. Based on these pilot tests, manipulation check questions were slightly modified for clearer syntax and purpose. The final experimental sample does not include observations from the pilot tests.

#### **4.5 Sample**

The final experimental case was completed online by both non-professional and professional investors who had conducted at least one (1) buy or sell stock transaction within the

last twelve (12) months. The use of online methods to recruit subjects is an emerging technique utilized in various disciplines including accounting (e.g. Brown et al. 2011; Rennekamp 2012; Brown-Liburd et al. 2012; Lambert et al. 2012; Brazel et al. 2012), management (e.g. Long et al. 2011) and marketing (e.g. Hagtvedt 2011; Mohr et al. 2012).<sup>9</sup>

All participants were recruited with the assistance of Qualtrics. Before being invited to participate in the case, Qualtrics verified participating individuals met the desired investor criteria using information previously supplied to Qualtrics by the participants. Once participants provided their informed consent to complete the experiment, they also had to reaffirm they met the desired investor criteria by answering questions about their recent investing activity. If participants did not meet the required investor criteria, their participation in the survey was terminated.<sup>10</sup> Participants were compensated approximately \$2 by Qualtrics for their completed responses. Qualtrics maintained anonymity of investor responses throughout the entire experiment and I had no direct contact with the participants. In addition, Qualtrics mediated compensation between all participants and myself.<sup>11</sup>

The final sample contains responses from 191 individuals. Demographic information detailed in Table 2, Panel B indicates participants in my experimental sample have sufficient knowledge to complete the experimental procedures. The mean age of participants is 43.5 years,

---

<sup>9</sup> Specific top-tier accounting journals that have recently included research with online participants include *Journal of Accounting Research* (Rennekamp 2012); *Accounting, Organizations and Society* (Perreault and Kida 2011); and *Accounting Horizons* (Bagley et al. 2012).

<sup>10</sup> Participants were pre-screened through Qualtrics based on self-reported investible assets of at least \$10,000 and being at least eighteen (18) years of age. When completing the investment case, participants were asked to confirm they had purchased or sold at least one (1) individual stock (not mutual fund or index fund) within the previous twelve (12) months. See Appendix A.

<sup>11</sup> Based on the age and desired investing experience screens set for participants, Qualtrics charged \$6 per participant. Approximately \$2 was paid to each participant, with the remaining \$4 retained by Qualtrics for technical support, administrative fees, and participant recruitment expenses.

with males representing nearly 53% of the sample. Approximately 68.6% have at least a bachelors' degree, with an average rank income between \$75,000 to \$100,000. The mean work experience is 19.9 years, with an average of 2.9 years public accounting experience and 12.7 private accounting experience. Approximately 20.4% of participants hold an active state CPA license.

The mean investing experience is 11.6 years, with approximately 23.0% of participants indicating they conduct stock transactions as part of their normal employment responsibilities. Participants made, on average, 91.9 stock transactions in the last year, actively trading approximately 49.2% of their personal portfolio. Participants analyzed financial statements over 8 times in the last year, reading the audit report 67.0% of the time and reading financial statement disclosures 73.3% of the time. Over 62% of participants indicated their personal portfolio contained software stock(s). Of these 62% of participants, software stock accounts for approximately 37.4% of their portfolio.

## **CHAPTER FIVE**

### **DATA ANALYSIS**

This chapter provides an account of the data analysis conducted for this stream of research. In Section 5.1, I consider participants' comprehension of relevant facts related to the experimental case. In Section 5.2, I discuss the preliminary analysis used to assess the assumptions underlying the various statistical tests. Sections 5.3 through 5.7 detail the tests of my primary hypotheses and research questions. Sections 5.8 through 5.10 detail supplemental analyses conducted to further explore the nature of my results. The first of these analyses, Section 5.8, examines investors' cognitive reactions associated with management's disclosure decisions. The second analysis in Section 5.9 examines the strength of affective reactions related to management's financial news disclosure and to management's human capital disclosure. The third analysis in Section 5.10 considers the impact of financial and non-financial information on investors' willingness to rely on subsequent earnings announcements to form an earnings forecast. Sections 5.11 through 5.14, outline robustness tests performed to ensure the validity of the documented results, including the consideration of covariates. Section 5.15 provides a brief summary of results related to the hypotheses and research questions.

#### **5.1 Manipulation Checks**

Prior to examining the effectiveness of the manipulated variables, an analysis was conducted to ensure participants paid adequate attention to the case materials. After providing responses to the dependent measures, all experimental participants were asked to respond to questions regarding firm financial performance, management's human capital disclosures, and the presence/absence of an auditor attestation report related to management's human capital

disclosures (see Figure 2 for a flowchart of experimental procedures and Appendix H for manipulation check questions).

In total, two hundred forty participants completed the experimental study (as shown in Appendices A thru I). However, only one hundred ninety-two participants (80.0%) correctly responded to all three manipulation check questions.<sup>12</sup> First, participants were asked to recall whether the Q1 2013 earnings for the hypothetical company in the case were higher or lower than analyst consensus earnings (i.e. financial performance manipulation). Two hundred two participants (84.2%) provided the correct response based on their respective experimental group. Next, participants were asked the following “Yes/No” question related to the human capital disclosure manipulation: “After reviewing actual earnings for Q1 2013, did you review any additional disclosures related to Galaxy Games Inc.?” Two hundred one participants (83.8%) provided the correct response to this question. Finally, participants were asked the following “Yes/No” question related to the attestation manipulation: “Where the human capital disclosures of Galaxy Games Inc. accompanied by an auditor attestation report?” Two hundred twenty-five participants (93.4%) correctly responded to the attestation manipulation check. In total, forty-eight participants incorrectly answered 1, 2, or 3 manipulation check questions, effectively eliminating them from the forthcoming analyses. One (1) final experimental participant was also excluded from final analyses due to outlier demographic responses, thus leaving a final experimental pool of one hundred ninety-one participants ( $n = 191$ ).<sup>13</sup> See Table 2, Panel A for a breakdown of the final experimental sample.

---

<sup>12</sup> The failure rate of these screens is comparable to existing research using electronic survey methods (Andrews et al. 2003; Oppenheimer et al. 2009), including Qualtrics (e.g. Brown-Liburd et al. 2012).

<sup>13</sup> The participant documented 2012 years of professional work experience in addition to making over 1 million personal buy/sell transactions a year.

Table 2, Panel B provides demographic data for the final one hundred ninety-one participants. There is no significant difference (all  $p > 0.10$ ) between experimental cells for any demographic factors. These findings provide evidence that work experience, investment experience, and other demographics of the final experimental pool are consistent across all groups.

## **5.2 Preliminary Analysis**

Analysis of variance (ANOVA) models test the hypotheses and research questions regarding the effects of financial performance, human capital disclosures, and auditor attestation on each of the dependent variables: investor credibility revision and investor stock price revision. Preliminary analyses test whether the data meets the three basic assumptions of an ANOVA model: independent observations, normal distribution of the dependent variables, and homogeneity of variance (Keppel 1991, p. 97).

The first assumption, independent observations, is addressed in the experimental design by randomly assigning the case participants to one of eight experimental conditions (see Table 1 for all eight experimental cells). A visual investigation was conducted for the second assumption, normal distribution of the dependent variables, with boxplots and normal probability plots of the data. The visual investigation raised concerns regarding the normality of the data for both of the two primary dependent variables: investor credibility revision and investor stock price revision. While a normal distribution of dependent variables is ideal, it is not altogether uncommon to encounter this ANOVA violation when a dependent variable is categorical (e.g., investor credibility ratings) or not continuous (e.g., investor stock price assessments). Furthermore, although ANOVA is robust to modest violations of this assumption (Ferguson 1981, p. 245), the normality violation led to supplemental analyses with the Mann-Whitney two-sample rank-sum

test. The Mann-Whitney is a nonparametric test that makes no assumptions regarding the distribution of the data (Mann and Whitney 1947; Wilcoxon 1945). Finally, the third assumption, homogeneity of variance, was examined using Levene's statistic for the dependent variables. Evidence of equal variance (all  $p > 0.10$ ) is found in the data and therefore the data does not violate standard guidelines regarding the third assumption.

### **5.3 Hypothesis 1 – Human Capital Disclosure & Management Credibility**

Hypothesis 1 examines the effects human capital disclosure type on investor's perceptions of managements' reporting credibility. Specifically, Hypothesis 1 predicts management's reporting credibility will be higher when investors are provided strong human capital disclosures than when provided baseline human capital disclosures. Tables 3 and 4 reflect the parametric and non-parametric results of testing for Hypothesis 1, respectively. Figure 3, Part A and Part B graphically display the results.

The primary assessment of reporting credibility utilizes the scale developed by (Mercer 2005). Participants assessed reporting credibility before and after receiving the experimental manipulations, and the change in the assessments serves as my primary dependent variable. Table 3, Panel A presents the mean credibility revisions, standard deviations, and cell sizes for each of the treatment groups. The mean management credibility revision of participants receiving the strong human capital disclosure manipulation is .5489. The mean management credibility revision of participants receiving the baseline human capital disclosure manipulation is -.0510. Independent sample t-tests (not shown) indicate a significant difference in the mean management credibility revision ( $p < .0001$ ).

Table 3, Panel B presents the ANOVA results. The ANOVA shows a significant main effect for Human Capital ( $F = 33.73$ , one-tailed  $p < .0001$ ). Therefore, these results, using this

measure of reporting credibility, support Hypothesis 1. This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 4, Panel B ( $Z = -4.4190$ , one-tailed  $p < .0001$ ). These results suggest investors rate management's reporting credibility higher when provided strong human capital disclosures than when provided baseline human capital disclosures. These results are consistent with Mercer (2005), and suggest more positive human capital disclosure leads to higher perceived credibility. These findings also bolster research by Healy and Palepu (2001) and Diamond and Verrecchia (1991), indicating voluntary human capital disclosures can increase information intermediation and investor confidence, respectively.

#### **5.4 Hypothesis 2 – Auditor Attestation & Management Credibility**

Hypothesis 2 examines the effect auditor attestation procedures have on investor's perceptions of managements' reporting credibility. Specifically, Hypothesis 2 predicts firms receiving third-party assurance services over voluntary human capital disclosures will be rated as having higher credibility than firms not receiving third-party assurance services over voluntary human capital disclosures. The parametric and non-parametric results for Hypothesis 2 can also be found in Tables 3 and 4, respectively. Figure 3, Part A and Part B graphically display the results.

Once again, the primary assessment of reporting credibility utilizes the scale developed by (Mercer 2005). Participants assessed reporting credibility before and after receiving the experimental manipulations, and the change in the assessments serves as my primary dependent variable. Table 3, Panel A presents the mean credibility revisions, standard deviations, and cell sizes for each of the treatment groups. The mean management credibility revision of participants receiving the attestation letter manipulation is .4190. The mean management credibility revision of participants not receiving the attestation letter manipulation is .1108. Independent sample t-

tests (not shown) indicate a significant difference in the mean management credibility revision ( $p < .0001$ ).

Table 3, Panel B presents the ANOVA results. The ANOVA shows a significant main effect for Attestation ( $F = 4.32$ , one-tailed  $p = .0390$ ). Therefore, these results, using this measure of reporting credibility, support Hypothesis 2. This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 4, Panel C ( $Z = 1.9428$ , one-tailed  $p < .0268$ ). These results suggest investors rate management's reporting credibility higher when human capital disclosures are accompanied by an auditor attestation report than when human capital disclosures are not accompanied by an auditor attestation report.

### **5.5 Hypothesis 3 – Human Capital Disclosure & Firm Value**

In order to assess whether investors perceived human capital disclosures as informative regarding firm value, and to supplement Hypothesis 1, I also conduct a human capital disclosure analysis using stock price revision, an alternative measure of reporting credibility, as the dependent variable. Price revision is often considered to be an indirect measure of reporting credibility (Mercer 2004), and could allow for inferences about the potential economic significance of the results. Hypothesis 3 specifically predicts firms providing strong voluntary human capital disclosures will have higher stock price assessments than firms not providing such disclosures. Tables 5 and 6 reflect the parametric and non-parametric results of testing for Hypothesis 3, respectively. Figure 4, Part A and Part B graphically display the results.

Following Mercer (2004), the change in the stock price serves as the primary dependent variable for Hypothesis 3. Participants provided stock price assessments of the company in the experimental case materials before and after receiving the experimental manipulations. Table 5, Panel A presents the mean stock price revisions, standard deviations, and cell sizes for each of

the treatment groups. The mean stock price revision of participants receiving the strong human capital disclosure manipulation is \$1.0785. The mean stock price revision of participants receiving the baseline human capital disclosure manipulation is  $-\$.0240$ . Independent sample t-tests (not shown) indicate a significant difference in the mean stock price revision ( $p < .0001$ ).

Table 5, Panel B presents the ANOVA results. The ANOVA shows a significant main effect for Human Capital ( $F = 12.42$ , one-tailed  $p = .0005$ ). Therefore, these results support Hypothesis 3. This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 6, Panel B ( $Z = -3.5974$ , one-tailed  $p = .0002$ ). Collectively, the results suggest firms providing strong voluntary human capital disclosures will have higher stock price assessments than firms not providing such disclosures.<sup>14</sup> These results extend the archival work of Pantzalis and Park (2009), who find investment portfolios with strong human capital skills systematically outperform portfolios with weak human capital skills. Furthermore, these results suggest more comprehensive positive disclosures are strongly associated with positive stock price effects (Botosan 1997; Miller 2002), and firms that expand disclosures are likely to have higher stock price associations compared to firms that do not expand disclosures (Gelb and Zarowin 2002).

---

<sup>14</sup> Although *a priori* predictions were not made for the effect of auditor attestation procedures on investor stock price revisions, Table 5 and Table 6 show the parametric and non-parametric main effects, respectively. The mean stock price revision of participants receiving the attestation manipulation is \$.9801. The mean stock price revision of participants not receiving the attestation manipulation is \$.1368. The ANOVA in Table 5, Panel B shows a significant main effect for Attestation ( $F = 4.96$ , two-tailed  $p = .0272$ ). This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 6, Panel C ( $Z = 2.9189$ , two-tailed  $p = .0035$ ). Collectively, the results suggest firms providing attestation reports with human capital disclosures will have higher stock price assessments than firms that do not provide attestation reports with human capital disclosures.

## 5.6 Research Question 1 – 2-Way Interactive Effects of Human Capital Disclosure

Research Question 1 is designed to investigate the possible interactive effect of firm financial performance and human capital disclosures on perceived reporting credibility and investor stock price revisions.

### 5.6.1 Research Question 1 Using Management Credibility Revision

The ANOVA results with credibility revision as the dependent variable are provided in Table 3, Panel B. Analyses show a marginally significant interaction between Financial Performance and Human Capital ( $F = 3.47$ , two-tailed  $p = .0639$ ). Contrasts were performed to assess the interactive effect of firm financial performance and human capital disclosures. Under strong firm financial performance, the contrasts presented in Table 3, Panel C show a significant difference in the means of credibility revisions between the two human capital disclosure treatments ( $F = 8.73$ , two-tailed  $p = .0040$ ). This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 4, Panel D ( $Z = 3.0374$ , two-tailed  $p = .0024$ ). Under weak firm financial performance, the contrasts presented in Table 3, Panel C also show a significant difference in the means of credibility revisions between the two human capital treatments ( $F = 25.71$ , two-tailed  $p < .0001$ ). This result also remains consistent when the non-parametric Mann-Whitney U test is employed in Table 4, Panel D ( $Z = -4.7732$ , two-tailed  $p < .0001$ ). Therefore, the results of the contrasts and the non-parametric Mann-Whitney U tests are consistent with the interpretation that effects of human capital disclosure are dependent on firm performance. These results specifically suggest that when firms are performing strong financially, management credibility can be augmented by voluntary human capital disclosures, especially positive voluntary human capital disclosures above industry average. However, if firms are performing weak financially, management credibility may not be attenuated by

voluntary human capital disclosures and can actually be diminished with baseline, industry average human capital disclosures. Furthermore, these findings signal that in times of weak financial performance, investors are likely to hinge credibility assessments on primary firm information contained within the core GAAP financial statements rather than voluntary non-GAAP disclosures. The interactive effects of firm financial performance and human capital disclosures on management credibility can be seen graphically in Figure 5.<sup>15</sup>

### 5.6.2 Research Question 1 Using Stock Price Revision

The ANOVA results with stock price revision as the dependent variable are provided in Table 5, Panel B. Analyses show a significant interaction between Financial Performance and Human Capital ( $F = 4.57$ , two-tailed  $p = .0338$ ). Contrasts were performed to assess the interactive effect of firm financial performance and human capital disclosures. Under strong firm financial performance, the contrasts presented in Table 5, Panel C show a significant difference in the means of stock price revisions between the two human capital disclosure treatments ( $F = 8.71$ , two-tailed  $p < .0001$ ). This result remains consistent when the non-parametric Mann-Whitney U test is employed in Table 6, Panel D ( $Z = 2.0885$ , two-tailed  $p = 0.0367$ ). Under weak firm financial performance, the contrasts presented in Table 5, Panel C show a significant difference in the means of stock price revisions between the two human capital disclosure treatments ( $F = 19.78$ , two-tailed  $p < .0001$ ). This result also remains

---

<sup>15</sup> *a priori* predictions were not made for the effect of firm financial performance on perceived management credibility revisions, but Table 3 and Table 4 show significant main effects, indicating investors perceive management as more credible if firm financial performance is strong rather than weak. In addition, no *a priori* predictions were made for the interactive effects of firm financial performance and auditor attestation on management credibility revisions, or the interactive effects of human capital disclosures and auditor attestation on management credibility revisions. The way the experimental case materials were designed to increase external validity for the primary hypotheses and research questions in this study create too much noise to directly examine these effects.

consistent when the non-parametric Mann-Whitney U test is employed in Table 6, Panel D ( $Z = -3.3787$ , two-tailed  $p = .0007$ ). Therefore, consistent with management credibility revisions, the results of the contrasts and the non-parametric Mann-Whitney U tests suggest that effects of human capital disclosure are dependent on firm performance. These results specifically suggest that when firms are performing strong financially, firm stock price associations can be augmented by voluntary human capital disclosures, especially positive voluntary human capital disclosures above industry average. However, if firms are performing weak financially, firm stock price associations may not be attenuated by voluntary human capital disclosures and can actually be diminished with baseline, industry average human capital disclosures. Consistent with credibility revisions, these findings signal that in times of weak financial performance, investors are more likely to hinge stock price assessments on primary firm information contained within the core GAAP financial statements rather than voluntary non-GAAP disclosures. The interactive effects of firm financial performance and human capital disclosures on stock price assessments can be seen graphically in Figure 6.<sup>16</sup>

### **5.7 Research Question 2 – 3-Way Interactive Effects of Human Capital Disclosure**

Research Question 2 investigates the possible interactive effect of firm financial performance, human capital disclosures, and auditor attestation procedures on perceived reporting credibility and investor stock price revisions.

---

<sup>16</sup> Similar to footnote 14, *a priori* predictions were not made for the effect of firm financial performance on stock price revisions, but Table 5 and Table 6 show significant main effects, indicating investors make higher stock price associations if firm financial performance is strong rather than weak. In addition, no *a priori* predictions were made for the interactive effects of firm financial performance and auditor attestation on stock price revisions, or the interactive effects of human capital disclosures and auditor attestation on stock price revisions. The way the experimental case materials were designed to increase external validity for the primary hypotheses and research questions in this study create too much noise to directly examine these effects.

### *5.7.1 Research Question 2 Using Management Credibility Revision*

The ANOVA results with credibility revision as the dependent variable are provided in Table 3, Panel B. Analyses reveal no significant 3-way interaction ( $F = .09$ , two-tailed  $p = .7586$ ). Consequently, the null hypothesis that investors do not react differently when firm financial results interact with human capital disclosures, and when the human capital disclosures are accompanied by an independent assurance report, cannot be rejected in relation to credibility assessments. However, the previously discussed main effects and interactive effects provide unique insight into investor judgment and decision-making related to firm performance, human capital disclosures and, and auditor attestation. In addition, the supplemental analyses performed in Sections 5.8, 5.9, and 5.10 provide additional insight into investors' cognitive and affective reactions to human capital disclosures and auditor attestation reports.

### *5.7.2 Research Question 2 Using Stock Price Revision*

The ANOVA results with stock price revision as the dependent variable are provided in Table 5, Panel B. Analyses show no significant 3-way interaction ( $F = .48$ , two-tailed  $p = .4902$ ). Once again, the null hypothesis that investors do not react differently when firm financial results interact with human capital disclosures, and when the human capital disclosures are accompanied by an independent assurance report, cannot be rejected in relation to firm valuation assessments. However, the previously discussed main effects and interactive effects provide unique insight into investor judgment and decision-making related to firm performance, human capital disclosures and, and auditor attestation. In addition, the supplemental analyses performed in Sections 5.8, 5.9, and 5.10 provide additional insight into investors' cognitive and affective reactions to human capital disclosures and auditor attestation reports.

## 5.8 Cognitive Reactions

As an initial proxy of the amount of attribution processing, the amount of time spent completing the materials is measured for participants across all three primary manipulations. Using independent sample t-tests, I find no significant difference in time spent between the firm financial performance conditions (strong financial performance  $\mu = 16.04$  minutes; weak financial performance  $\mu = 16.35$  minutes). I also find no statistically significant difference in time spent between the human capital disclosure conditions (strong human capital disclosure  $\mu = 17.38$  minutes; baseline human capital disclosure  $\mu = 14.92$  minutes). As participants across both the firm financial performance manipulation and human capital disclosure manipulation received the same amount of case materials, the absence of statistically significant results is not altogether surprising. However, the means described above do indicate a difference of over two minutes in attribution processing for participants receiving the strong human capital disclosure condition compared to the baseline human capital disclosure condition. This difference can suggest investors continue to process and integrate positive disclosure news more than negative (baseline) disclosure news (Mercer 2004, 2005). Independent sample t-tests comparing time spent between the auditor attestation conditions reveal a marginally significant difference (auditor attestation  $\mu = 18.19$  minutes; no auditor attestation  $\mu = 14.31$  minutes, two-tailed  $p = .0908$ ). These results provide evidence consistent with case participants adequately acknowledging and processing the auditor attestation manipulation.

To investigate another proxy for attribution processing, this time specifically related to the processing of human capital disclosures, participants across all manipulations were also asked how intensely they considered each of the four human capital disclosure metrics (see Appendix H). Recall that Research Question 1 investigated the interactive effects of firm

financial performance and management's voluntary human capital disclosure decisions. Analyses indicate that both assessments of credibility and firm stock price assessments are dependent upon the interactive effects of firm financial performance and human capital disclosure type. Results from Mercer (2005) indicate that negative firm financial performance results in more attribution processing than positive firm performance. Contrary to Mercer (2005), my results find more intense processing of human capital disclosures for three of the four human capital metrics provided in the strong firm financial performance conditions compared to the weak firm financial performance decision. Means and p-values are provided in Table 7. Data continues to support the expectation that firm financial performance influences the amount of attribution processing (Mercer 2005), but in relation to human capital disclosures it is positive news information with more bearing on attribution than negative news information.<sup>17</sup>

Within the case materials, the participants were asked their intent to buy or sell stock in the experimental company on a 9-point Likert scale (9 = Strong Buy; 1 = Strong Sell). By splitting investor buy decisions (6 and above) and investor sell decisions (5 and below), I find investors in the buy condition consider all four of the human capital metrics more intensely than investors in the sell decision.<sup>18</sup> Means and p-values are provided in Table 8.

Finally, Table 9 presents specific results comparing overall intensity scores for each human capital metric contrasted with every other metric. Means of the contrasts indicate investors considered employee satisfaction percentage and revenue per employee more intensely than employee turnover and training expenses per employee. The differences in means are also

---

<sup>17</sup> In separate statistical analyses, results indicate no difference in the intensity of human capital metric processing between either human capital conditions (strong or baseline) or auditor attestation condition (auditor attestation or no auditor attestation).

<sup>18</sup> Results are robust if investor intent to buy or sell are split into investor buy (5 and above) and investor sell (4 and below).

statistically significant. No significant difference is found in intensity between the employee satisfaction metric and the revenue per employee metric. Interestingly, the employee satisfaction percentage is a unique human capital metric (HCMI 2012), while the revenue per employee metric is a fairly common financial, albeit non-GAAP, metric embedded within financial statements. The intensity scores in Table 7 through Table 9 suggest investors cognitively process non-GAAP human capital disclosures along with standard GAAP financial information if such information is provided, especially during periods of strong financial performance.

### **5.9 Affective Reactions**

The second supplemental analysis examines participants' affective responses to the firm financial performance manipulation and the voluntary human capital disclosure manipulation. Mercer (2005) predicts that although cognitive reactions determine investors' short-term credibility assessments, longer-term credibility assessments are determined by overall affective reactions. Furthermore, these overall affective reactions are determined by the stronger of affect related to financial performance or affect related to disclosures.

To test related affect-based effects using my experimental case, participants were asked to provide assessments of their affect related to both firm financial performance and management's voluntary human capital disclosure decision. Specifically, participants were asked their level of surprise related to the manipulations, their intensity of thought related to the manipulations, if the manipulations made them feel good, and if the manipulations made them feel bad. Immediately after experiencing the experimental manipulations, participants provided these assessments on comparable 9-point Likert scales, where high numbers reflected strong positive affect and low numbers reflected strong negative affect (the last question was reverse coded).

The strength of affect related to firm financial performance is calculated as the absolute value of the difference between the participant's response and the scale midpoint for each question. The strength of affect related to the voluntary human capital disclosure is calculated in the same manner. Following Mercer (2005), the relative strength of participants' affective responses is then calculated by subtracting the strength of voluntary human capital disclosure decision affect from the strength of firm financial performance affect. If affective reactions to firm financial performance are stronger than affective reactions to human capital disclosure decisions, the mean of this relative affect measure should be significantly positive. On the other hand, if affective reactions to human capital disclosure decisions are stronger, the mean of the relative affect measure should be significantly negative.

In relation to firm financial performance surprise and voluntary human capital disclosure surprise, the mean non-tabulated relative affect is negative ( $\mu = -0.2513$ ) and significantly different than zero ( $t\text{-value} = -2.32, p = 0.0089$ ). These results indicate participants were more "surprised" by the presence of the human capital disclosure in the experimental company's financial statement package than by the firm financial performance (strong or weak). In relation to whether the manipulations caused participants to feel good/bad, the relative non-tabulated affect is positive ( $\mu = .2251$ ) and significantly different than zero ( $t\text{-value} = 2.11, p = 0.0358$ ). Consistent with the findings of Kasznik and Lev (1995) and Mercer (2005), good/bad affective responses to firm financial performance are stronger than affective responses to disclosure decisions. As applied to specific case materials in this research, this effect can partially be attributed to the fact that neither human capital disclosure had real "weak" metrics. Firms are not likely to voluntarily disclose bad news metrics. Therefore, the voluntary human capital disclosures in the experimental materials were assessed either strong or baseline (compared to

industry averages). No significant affect differences were found in relation to thought intensity between the two manipulations.

### **5.10 Reliance on Subsequent Disclosure**

The third supplemental analysis follows Mercer (2005), who suggests credibility revisions can affect investors' willingness to rely on earnings announcements when forming future earnings forecasts, especially when earnings forecasts are positive. Participants were asked to express their likelihood to rely on a positive earnings forecast (on a 9-point Likert scale) in the subsequent quarter after the quarter of the experimental case (see Appendix G). This analysis provides additional insights into the economic significance of credibility revisions.

Table 10, Panel A provides the cell means and standard deviations of investors' willingness to rely on management financial reporting in a subsequent period. Table 10, Panel B provides the ANOVA model which tests the main and interactive effects of firm financial performance, human capital disclosures, and auditor attestation on investors' willingness to rely on a subsequent period positive news disclosure. The ANOVA shows no significant main effects or interactive effects with the exception of the Firm Performance main effect ( $F = 10.13$ , two-tailed  $p = .0017$ ).<sup>19</sup> Independent sample t-tests (not shown) indicate participants are more likely to rely on positive news subsequent disclosures after a period of strong financial performance rather than after a period of weak financial performance ( $t\text{-value} = 3.23$ , two-tailed  $p = .0015$ ) with means of 6.5213 and 5.6907, respectively. These results suggest investors enter a period after weak financial performance with a certain level of skepticism about future positive earnings.

---

<sup>19</sup> Non-parametric Mann-Whitney analyses yield the same results as the ANOVA.

### 5.11 Alternate Interpretation of Experimental Design

As previously documented, two hundred one experimental participants (83.8%) correctly responded to the human capital manipulation check question, while two hundred twenty-five participants (93.4%) correctly responded to the attestation manipulation check. Results documented in Chapter 5 also provide evidence the experimental participants both cognitively and affectively responded to the human capital and auditor attestation manipulations upon consideration of the time spent on the manipulated variables and individual responses to experimental questions. It is surprising, however, a stronger interactive effect is not found between the human capital disclosure manipulation and the auditor attestation manipulation. ANOVA results in Table 3, Panel B are insignificant with credibility revision as the dependent variable ( $F = 0.00$ , two-tailed  $p = .9948$ ). ANOVA results in Table 5, Panel B are also insignificant with stock price revision as the dependent variable ( $F = 1.26$ , two-tailed  $p = .2634$ ). One possible explanation for this insignificant interaction is the proximity of the human capital and attestation manipulations to each other in the experimental materials. For external validity purposes and to mimic real-world reporting conditions, the human capital disclosure manipulation was presented with an auditor attestation report in half of the experimental conditions. Consequently, even though the majority of participants appropriately responded to the respective manipulations, they may have treated the human capital and attestation manipulations as a single manipulation. This conceptually creates a 2 X 4 experimental design with firm financial performance manipulated at two levels (strong/weak) and human capital manipulated at four levels (strong human capital with attestation/strong human capital without attestation/baseline human capital with attestation/baseline human capital without attestation).

Table 11, Panel A and Table 12, Panel A present the mean revisions, standard deviations, and cell sizes for both credibility revision and stock price revision, respectively, assuming a 2 X 4 analysis. Figure 7 and Figure 8 graphically plot the mean revisions.

Table 11, Panel B presents the 2 X 4 ANOVA results for credibility revision. The ANOVA shows a significant Financial Performance main effect ( $F = 109.27$ , two-tailed  $p < .0001$ ), as well as a Human Capital & Attestation main effect ( $F = 12.67$ , two-tailed  $p < .0001$ ), consistent with prior analysis for Hypothesis 1 and Hypothesis 2. A significant interactive effect is once again not found with credibility revision as the dependent variable ( $F = 1.60$ , two-tailed  $p = .1908$ ). However, tests of contrasts (not shown) reveal a significant difference in credibility revision comparing disclosures with auditor attestation and disclosures without auditor attestation ( $F = 3.99$ , two-tailed  $p = .0437$ ). These results suggest the presence of an auditor attestation report can boost perceptions of management credibility when accompanying human capital disclosures, but as Figure 7 presents these results are more pronounced for firms with strong financial performance.

Table 12, Panel B presents the 2 X 4 ANOVA results for stock price revision. Consistent with the previous 2 X 4 credibility analysis, the ANOVA shows a significant Financial Performance main effect ( $F = 19.83$ , two-tailed  $p < .0001$ ), as well as a Human Capital & Attestation main effect ( $F = 5.88$ , two-tailed  $p = .0007$ ). These results also follow previous tests of Hypothesis 3. Unlike the 2 X 4 credibility analysis, a marginally significant interactive effect is found with stock price revision as the dependent variable ( $F = 2.12$ , two-tailed  $p = .0995$ ). Additional tests of contrasts (not shown) also reveal a significant difference in stock price revision comparing disclosures with auditor attestation and disclosures without auditor attestation ( $F = 4.86$ , two-tailed  $p = .0287$ ). These results suggest the presence of an auditor

attestation report can boost investor stock price assessments when accompanying human capital disclosures. As Figure 8 presents, these results are pronounced for firms with both strong and weak firm financial performance.

In summary, this supplemental analysis attempts to tease out the interactive effects of human capital disclosure and auditor attestation. Following Figure 7, it is clear credibility revisions are higher for firms in the strong financial performance condition than the weak financial performance condition. However, firms in the strong firm financial performance condition receive noticeable credibility revisions when an attestation report accompanies the human capital disclosures. Interestingly, firms in the weak firm financial performance condition do not receive this same attestation credibility revision bump whether receiving baseline human capital disclosures or strong human capital disclosures. Following Figure 8, stock price revisions are also higher for firms in the strong financial performance condition than the weak financial performance condition. However, while firms in the strong firm financial performance condition receive positive stock price revisions when an attestation report accompanies the human capital disclosures, it is firms in the weak firm financial performance condition that receive significant stock price bumps when an attestation report accompanies the human capital disclosures.

### **5.12 Mediation Analysis**

Within the experimental materials, participants were asked on separate occasions to rate their perceptions of management credibility and then indicate their stock price assessments. The credibility ratings were taken prior to the stock price assessments on both occasions. This supplemental analysis considers whether the rating of firm credibility mediates the relationship between the independent experimental conditions and stock price assessments following Baron and Kenny (1986).

Step one of the analysis tests for a significant relationship between the independent variables and the primary dependent variable. Table 5, Panel B shows the significant main effects of financial performance, human capital disclosure, and auditor attestation on stock price revision, as well as the firm financial performance and human capital disclosure interaction effect on stock price revision. Step two of the analysis tests for a significant relationship between the independent variables and the expected mediating variable. Table 3, Panel B shows the significant main effects of financial performance, human capital disclosure, and auditor attestation on credibility revision, as well as the firm financial performance and human capital disclosure interaction effect on credibility revision. These results indicate credibility ratings may mediate the relationship between the experimental conditions and stock price assessments. Step three of the analysis tests for significant effects of the mediator variable, credibility, on the dependent variable, stock price, using analysis of variance. The results (not shown) indicate credibility ratings are not significant predictors of stock price for any main effects or interactive effects (all two-tailed  $p > 0.10$ ). The fourth step of the analysis tests if the significance of the independent variables on the dependent variable, stock price, is mitigated by the inclusion of the mediating variable, credibility rating, in the model. As expected after the results of step three, the inclusion of the credibility scores as a covariate did not mitigate the significant main effects or interactive effects reported in Table 5, Panel B. Overall, the results of the mediation analysis suggest credibility ratings do not mediate the relationship between the independent variables and stock price assessments.

### **5.13 Covariates**

As part of the experimental case, a series of demographic questions were asked of each participant. These questions include participant age, gender, education, work experience (in

years), income, stock trading experience (in years), stock transactions per year, percentage of portfolio actively traded, financial statement analyses performed in the last year, percentage of portfolio including software stock, propensity to read audit reports, propensity to read financial statement disclosures, public accounting experience (in years), private accounting experience (in years), and CPA license-holder (See Appendix I). In addition, participants were asked at the beginning of the case materials whether or not they purchase or sell stocks as part of their employment responsibilities. There does not appear to be a significant difference (all  $p > 0.10$ ) between experimental cells for any demographic factors. These findings provide evidence that the work experience, investment experience, and other demographics of the final experimental pool are consistent across all groups.

Covariate analyses are run for each of the variables listed above in relation to tests of Hypothesis 1, Hypothesis 2, and Hypothesis 3, as well as Research Question 1 and Research Question 2. All findings are robust after consideration of demographic questions, including whether or not participants purchase or sell stock as part of their employment responsibilities. Only the percentage of portfolio including software stock had any remote impact on results, though not statistically significant. This is likely driven by the fact that only one hundred nineteen (62.3%) of participants indicated they owned software stock, which would subsequently decrease the statistical power of results based on the 2 X 2 X 2 experimental design.

Covariate analyses are also performed using final credibility ratings and final stock price assessments as the dependent variable, with the initial credibility rating and initial stock price assessment as the covariate, respectively. Results for Hypothesis 1, Hypothesis 2, and Hypothesis 3, as well as Research Question 1 and Research Question 2, are consistent with Table 3, Panel B and Table 5, Panel B in these models.

#### **5.14 Perception of Experimental Company Attributes**

As participants recorded their second assessments of reporting credibility and stock price assessments, they were asked a series of questions related to attributes of the experimental company in the case materials. These attributes include cost of capital, earnings predictability, information asymmetry, human capital, and transparency (See Appendix F). No significant difference was found (all  $p > 0.10$ ) between experimental cells for any company attributes. These findings provide evidence that perceptions of experimental company attributes are consistent across all groups. Covariate analyses were run for each company attribute in relation to tests of Hypothesis 1, Hypothesis 2, and Hypothesis 3, as well as Research Question 1 and Research Question 2. All findings are robust after consideration of company attributes.

Independent sample t-tests (not shown) provide supporting evidence that participants cognitively digested the presence of the human capital disclosures ( $t$ -value = 2.25,  $p = .0258$ ). Specifically, participants' assessments of human capital of the company in the experimental materials had a mean of score of 6.60 (on a 9-point Likert scale). In other independent sample t-tests (not shown), participants in the strong financial reporting condition assessed earnings predictability marginally higher than participants in the weak financial reporting condition ( $t$ -value = 1.79,  $p = .0751$ ). This result supports findings in Section 5.10 regarding reliance on subsequent disclosures.

#### **5.15 Summary of Results**

Overall, analyses indicate both human capital disclosures and auditor attestation reports have significant effects on both investors' assessments of management credibility and stock price associations. In support of Hypothesis 1 and Hypothesis 3, investors make higher credibility and stock price assessments if presented strong human capital disclosures than when presented

baseline human capital disclosures. In support of Hypothesis 2, investors make higher credibility assessments if presented an auditor attestation report than if no auditor attestation report is provided. Results for the auditor attestation manipulation are robust across stock price assessments. In relation to Research Question 1, results indicate investors make higher credibility assessments and stock price associations when firms are performing strong financially, and both assessment can be augmented by voluntary human capital disclosures. If firms are performing weak financially, credibility assessments and stock price associations are not as likely attenuated by voluntary human capital disclosures and can actually be diminished with industry average human capital disclosures. No 3-way interaction is present upon consideration of both credibility assessments and stock price associations for Research Question 2.

## **CHAPTER SIX**

### **CONTRIBUTIONS, LIMITATIONS, AND FUTURE RESEARCH**

This final chapter summarizes the main contributions of this paper, along with potential limitations and future research streams. This research is one of the first in the accounting literature to experimentally explore the impact of human capital, and human capital disclosures, on investors' assessments of credibility and firm value. More specifically, the behavioral experiment explores the extent to which voluntary disclosures of human capital metrics alter investor decision-making. From a political economy perspective, the disclosure of such human metrics, if valued, should have positive impacts on the perception of firm management credibility, as well as on firm cost of capital. The disclosure of human capital metrics should also be impounded in firm value.

#### **6.1 Limitations**

This study may suffer from some limitations due to choices made in the experimental design. First, an experiment in general suffers from threats to external validity, as it may not completely replicate what may happen in a real setting. However, care was taken in this paper to ensure the experimental materials replicated actual financial statements disclosures, and were consistent with previously published work (Mercer 2005). Second, the behavior of the participants in this study may not be representative of all shareholder investors. As with any experiment, the use of a small sample of participants may be a threat to the external validity of a study. Due to the difficulty of recruiting experienced investors, and to avoid experimenter selection bias, I employed Qualtrics to obtain my experimental participants. Participants came from a range of professional work experience and investment experience. However, participant demographics were predominantly comparable to similar studies using investors in an

experimental setting (Mercer 2004; Mercer 2005; Ozlanski 2013). Third, investors in this experimental setting were unable to request additional information, or ask clarifying questions, to aid them in their assessments. Consequently, some response data may be more participant guess than legit participant judgment and decision-making.

There may also be limitations related to the specific manipulation of human capital disclosures. First, the human capital manipulation was split between strong human capital disclosures (above industry average) and baseline human capital disclosures (approximately equal to industry average). As it is not common for firms to actively disclose negative news, the true strength and magnitude of strong or baseline disclosures are hard to evaluate. Non-disclosure of human capital metrics could stem from weak metrics a firm does not want to report publicly, but also simply a lack of disclosure knowledge or disclosure preparation resources. Second, calculation and construction of human capital disclosures can be complex in practice, as data is combined from both accounting information systems and human resource systems. A combination of human capital metrics incorporating satisfaction, retention, training, and performance factors were chosen, which according to HCMI (2012) are key to human capital management. The industry averages used as benchmarks in both disclosures were based on 2012 data provided by the National Society of Human Resource Management. The experimental instrument also went through one round of pretesting and two rounds of pilot testing to boost external validity regarding the human capital disclosures. Still, the instrument data may not generalize to all companies.

## **6.2 Contributions**

This paper makes three distinct contributions to extant literature. First, it brings an alternative measure of human capital valuation to the forefront of accounting literature. The

human capital statements proposed by companies such as HCMI are structured in such a way as to provide a clear, quantitative standard with which investors can gain valuable firm insight, instead of relying on anecdotal examples and market instinct. Although not a required component in traditional financial statements under either GAAP or IFRS, many companies heavily rely on human capital to compete. Consequently, it is reasonable to expect human capital information to provide a signal to investors regarding firm value. My research finds that when presented with human capital metrics, investors' assessments of credibility and firm stock price are attenuated by human capital disclosures, especially during periods of strong financial performance. Results also suggest investors key in on both non-financial human capital metrics, such as employee satisfaction, as well as financial human capital metrics, such as revenue per employee. Based on cognitive processing time, analyses indicate investors spend more time processing strong human capital disclosures than baseline (i.e. industry average) human capital disclosures.

Second, this paper examines the impact of auditor attestation procedures on voluntary disclosures. Corporate and public interest in voluntary reporting continues to grow, and companies now routinely request a level of assurance on their supplemental reports. The public accounting profession has a long history of developing and working with the AICPA assurance methodology, and auditors have relevant experience to facilitate the identification of misstatements in voluntary disclosures. However, there is little extant literature examining the reliance stakeholders put on auditor attestation reports, despite auditor reliability and credibility. Consequently, my research evaluates stakeholder (specifically shareholder) responses to attestation documentation surrounding voluntary disclosure in order to identify if such documentation truly provides incremental shareholder value. My results suggest investors do

cognitively acknowledge the presence of auditor attestation reports when they are presented, and both credibility and firm stock price assessments can be impacted by such reports. The degree to which investors value and rely on auditor attestation reports are important grounds for future research.

Finally, this paper supplements existing research regarding accounting information transparency and disclosure. Political economy theory posits disclosure in accounting reports highlights firm activities in the private interests of the firm. It follows that a firm with positive human capital metrics should take advantage of human capital disclosures as a suitable and germane way to reduce the cost of raising financial capital. Previously, little has been known regarding the incorporation of human capital metrics into investors' financial analyses, and therefore additional human capital disclosures can be arbitrary. In an experimental setting, my results indicate that investors do cognitively process human capital, non-GAAP, disclosures when they are presented, especially under strong firm financial performance conditions. Analyses also indicate investors have positive affective reactions to human capital disclosures. Considering all analyses and results, it appears the demand for more information, including non-GAAP information, by external financial statements users is not superficial. Investors in my experimental case actively processed the human capital information provided. Analyses and results can be a signal to financial statement preparers the benefits of voluntary disclosures, such as human capital metrics, especially during times of strong firm financial performance.

Overall, the research proposed here provides new insights into the importance and usefulness of human capital information as viewed by investors. While current reporting standards focus on financial assets, physical assets, and technological/intellectual property, very little is considered relative to human capital. This lends to significant transparency and

assurance issues when publicly traded firms fail to adequately disclose human capital issues and risks. With little to no human capital transparency, investors are implicitly forced to rely on alternative sources such as historical financial performance and management's voluntary discussion of the business. Some organizations undoubtedly have substantial unreported human capital benefits and risks, which can have a potentially significant market valuation impact. The research conducted in this paper illuminates the potential benefits of human capital disclosures and the incremental information that can be provided to stakeholders of the firm.

### **6.3 Future Research**

Future research in this academic stream, using both archival and experimental methodologies, can focus on determining what specific human capital metrics, or combination of metrics, are of incremental benefit to stakeholders, and at what point is such disclosure information useful for decision-making. More analysis can be performed to specifically examine if and how investors integrate human capital, non-GAAP, disclosure information with traditional GAAP financial statements and disclosures.

As previously indicated, the experimental design used in this paper did not allow for a thorough analysis of attestation reports on investor judgment and decision-making. Participants exposed to the auditor attestation letter in this study took significantly longer to complete the case materials, but based on when the manipulation was introduced it is difficult to disentangle all the individual effects of the attestation report. As the AICPA and the National Association of State Boards of Accountancy work to change the definition of "attest" in the Uniform Accountancy Act, and considering client needs have led to increased requests for CPAs and other professionals to provide attestation procedures, stakeholder reactions to CPA attestations will be a bountiful realm for future research.

## REFERENCES

- Abdel-Khalik, A. R. 1993. Why Do Private Companies Demand Auditing? A Case for Organizational Loss of Control. *Journal of Accounting, Auditing & Finance* 8 (1): 31-52.
- Abeyssekera, I. 2008. Motivations Behind Human Capital Disclosure in Annual Reports. *Accounting Forum* 32 (1): 1-13.
- Adams, C. A. 2004. The Ethical, Social and Environmental Reporting-Performance Portrayal Gap. *Accounting, Auditing & Accountability Journal* 17 (5): 731-757.
- Aggarwal, R. K., and P. Jorion. 2012. Is There a Cost to Transparency? *Financial Analysts Journal* 68 (2): 108-123.
- Al-Tuwaijri, S. A., T. E. Christensen, and K. Hughes. 2004. The Relations Among Environmental Disclosure, Environmental Performance, and Economic Performance: a Simultaneous Equations Approach. *Accounting, Organizations and Society* 29 (5): 447-471.
- Amihud, Y., and H. Mendelson. 1986. Asset Pricing and the Bid-Ask Spread. *Journal of Financial Economics* 17 (2): 223-249.
- Andrews, D., B. Nonnecke, and J. Preece. 2003. Electronic Survey Methodology: A Case Study in Reaching Hard-to-Involve Internet Users. *International Journal of Human-Computer Interaction* 16 (2): 185-210.
- Arthurs, J. D., L. W. Busenitz, R. E. Hoskisson, and R. A. Johnson. 2009. Firm-Specific Human Capital and Governance in IPO Firms: Addressing Agency and Resource Dependence Concerns. *Entrepreneurship Theory & Practice* 33 (4): 845-865.
- Bagley, P., D. Dalton, and M. Ortegren. 2012. The Factors that Affect Accountants' Decisions to Seek Careers with Big 4 versus Non-Big 4 Accounting Firms. *Accounting Horizons* 26 (2): 239-264.
- Baik, B., B. K. Billings, and R. M. Morton. 2008. Reliability and Transparency of non-GAAP Disclosures by Real Estate Investment Trusts (REITs). *The Accounting Review* 83 (2): 271-301.
- Bailey, E. E., and C. E. Helfat. 2003. External Management Succession, Human Capital, and Firm Performance: an Integrative Analysis. *Managerial and Decision Economics* 29 (4): 347-369.
- Ball, A., D. L. Owen, and R. Gray. 2000. External Transparency or Internal Capture? The Role of Third-Party Statements in Adding Value to Corporate Environmental Reports. *Business Strategy and the Environment* 9 (1): 1-23.

- Barney, J. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management* 17 (1): 99-120.
- Baron, R. M., and D. Kenny. 1986. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology* 51 (6): 1173-1182.
- Barron, O. E., C. O. Kile, and T. B. O'Keefe. 1999. MD&A Quality as Measured by the SEC and Analysts' Earnings Forecasts. *Contemporary Accounting Research* 16 (1): 75-109.
- Barth, M. E., and K. Schipper. 2008. Financial Reporting Transparency. *Journal of Accounting, Auditing & Finance* 23 (2): 173-190.
- Bassi, L., and D. McMurrer. 2004. How's Your Return on People? *Harvard Business Review* 82 (3): 18.
- Bhat, G., O. K. Hope, and T. Kang. 2006. Does Corporate Governance Transparency Affect the Accuracy of Analyst Forecasts? *Accounting & Finance* 46 (5): 715-732.
- Bhushan, R. 1989a. Collection of Information About Publicly Traded Firms: Theory and Evidence. *Journal of Accounting and Economics* 11 (2): 183-206.
- . 1989b. Firm Characteristics and Analyst Following. *Journal of Accounting and Economics* 11 (2): 255-274.
- Blackwell, D. W., T. R. Noland, and D. B. Winters. 1998. The Value of Auditor Assurance: Evidence from Loan Pricing. *Journal of Accounting Research* 36 (1): 57-70.
- Bontis, N., and J. Fitz-Enz. 2002. Intellectual Capital ROI: a Causal Map of Human Capital Antecedents and Consequents. *Journal of Intellectual Capital* 3 (3): 223-247.
- Botosan, C. A. 1997. Disclosure Level and the Cost of Equity Capital. *The Accounting Review*: 323-349.
- Botosan, C. A., and M. A. Plumlee. 2002. A Re-Examination of Disclosure Level and the Expected Cost of Equity Capital. *Journal of Accounting Research* 40 (1): 21-40.
- Brazel, L. F., T. Carpenter, K. L. Jone, and J. M. Thayer. 2012. Do Nonprofessional Investors React to Fraud Red Flags? *Working Paper*.
- Brown-Liburd, H., J. Cohen, and V. Zamora. 2012. The Effects of Corporate Social Responsibility Investment, Assurance, and Perceived Fairness on Investors' Judgments. *Working Paper*.
- Brown, T., K. Rennekamp, N. Seybert, and W. Zhu. 2011. Who Stands at the Top and Bottom of the Slippery Slope? *Working Paper*.

- Bushman, R., and A. Smith. 2003. Transparency, Financial Accounting Information, and Corporate Governance. *Economic Policy Review* 9 (1).
- Bushman, R. M., J. D. Piotroski, and A. J. Smith. 2004. What Determines Corporate Transparency? *Journal of Accounting Research* 42 (2): 207-252.
- Carey, P., R. Simnett, and G. Tanewski. 2000. Voluntary Demand for Internal and External Auditing by Family Businesses. *Auditing: A Journal of Practice & Theory* 19 (s-1): 37-51.
- Cheung, Y.-L., P. Jiang, and W. Tan. 2010. A Transparency Disclosure Index Measuring Disclosures: Chinese Listed Companies. *Journal of Accounting and Public Policy* 29 (3): 259-280.
- Chow, C. W. 1982. The Demand for External Auditing: Size, Debt and Ownership Influences. *The Accounting Review*: 272-291.
- Christian, M. S. 2010. *Human Capital Accounting in the United States*. edited by Wisconsin Center for Education Research. National Bureau of Economic Research (NBER). Cambridge, MA: NBER.
- CIMA and AICPA. 2012. *Chartered Global Management Report: Talent Pipeline Draining Growth*. London, United Kingdom: CIMA/AICPA.
- Cohen, J., P. Cohen, S. West, and L. Aiken. 2003. *Applied Multiple Regression/Correlatoin Analysis for the Behavioral Sciences*. Mahway, NJ: Lawrence Erlbaum Associates, Publishers.
- Cohen, J., L. Holder-Webb, L. Nath, and D. Wood. 2011. Retail Investors' Perceptions of the Decision-Usefulness of Economic Performance, Governance, and Corporate Social Responsibility Disclosures. *Behavioral Research in Accounting* 23 (1): 109-129.
- Cohen, J., L. Holder-Webb, and D. Wood. 2009. Corporate Reporting of Non-fFnancial Leading Indicators of Economic Performance and Sustainability. Available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1420977](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1420977).
- Dasgupta, S., J. Gan, and N. Gao. 2010. Transparency, Price Informativenss, and Stock Return Synchronicity: Theory and Evidence. *Journal of Financial and Quantitative Analysis* 45 (5): 1189-1220.
- Davenport, T. H., J. Harris, and J. Shapiro. 2010. Competing on Talent Analytics. *Harvard Business Review* 10 (88): 52-58.
- Dhaliwal, D. S., O. Z. Li, A. Tsang, and Y. G. Yang. 2011. Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: the Initiation of Corporate Social Responsibility Reporting. *The Accounting Review* 86 (1): 59-100.

- Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure. *The Accounting Review* 87 (3): 723-759.
- Diamond, D., and R. Verrecchia. 1991. Disclosure, Liquidity, and the Cost of Capital. *The Journal of Finance* 66: 1325-1355.
- Easley, D., and M. O'hara. 2004. Information and the Cost of Capital. *The Journal of Finance* 59 (4): 1553-1583.
- Fennema, M. B., and L. Koonce. 2012. Mental Accounting in Financial Reporting and Voluntary Disclosure. *Journal of Accounting Literature* 29: 1-29.
- Ferguson, G. A. 1981. *Statistical Analyses in Psychology and Education*. New York, NY: McGraw-Hill.
- Flamholtz, E. G. 1972. On the Use of the Economic Concept of Human Capital in Financial Statements: a Comment. *The Accounting Review* 47 (1): 148-152.
- Gates, S., and P. Langevin. 2010. Human Capital Measures, Strategy, and Performance: HR Managers' Perceptions. *Accounting, Auditing & Accountability Journal* 23 (1): 111-132.
- Gelb, D. S., and P. Zarowin. 2002. Corporate Disclosure Policy and the Informativeness of Stock Prices. *Review of Accounting Studies* 7 (1): 33-52.
- Gnyawali, D., and E. Offstein. 2008. Human Capital. In *Encyclopedia of Business Ethics and Society*, edited by R. Kolb. Thousand Oaks, CA: SAGE Publications, Inc., 1074-1077.
- Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The Economic Implications of Corporate Financial Reporting. *Journal of Accounting and Economics* 40 (1): 3-73.
- Hagtvedt, H. 2011. The Impact of Incomplete Typeface Logos on Perceptions of the Firm. *Journal of Marketing* 75 (4): 86-93.
- HCMI. 2012. Human Capital Financial Statements Whitepaper. Available at: <http://www.hcminst.com>.
- Healy, P. M., A. Hutton, and K. G. Palepu. 1999. Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure. *Contemporary Accounting Research* 16: 485-520.
- Healy, P. M., and K. G. Palepu. 1993. The Effect of Firms' Financial Disclosure Strategies on Stock Prices. *Accounting Horizons* 7: 1-11.
- Healy, P. M., and K. G. Palepu. 2001. Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature. *Journal of Accounting and Economics* 31 (1): 405-440.

- Hirst, D. E., and P. E. Hopkins. 1998. Comprehensive Income Reporting and Analysts' Valuation Judgments. *Journal of Accounting Research* 36: 47-75.
- Hirst, D. E., P. E. Hopkins, and J. M. Wahlen. 2004. Fair Values, Income Measurement, and Bank Analysts' Risk and Valuation Judgments. *The Accounting Review* 79 (2): 453-472.
- Hobson, J. L., and S. J. Kachelmeier. 2005. Strategic Disclosure of Risky Prospects: A Laboratory Experiment. *The Accounting Review* 80 (3): 825-846.
- Holstrum, G. L., and J. E. Hunton. 1998. New Forms of Assurance Services for New Forms of Information: the Global Challenge for Accounting Educators. *The International Journal of Accounting* 33 (3): 347-358.
- Hunton, J. E., R. Libby, and C. L. Mazza. 2006. Financial Reporting Transparency and Earnings Management. *The Accounting Review* 81 (1): 135-157.
- Kasznik, R., and B. Lev. 1995. To Warn or Not to Warn: Management Disclosures in the Face of an Earnings Surprise. *Accounting Review* 70 (1): 113-134.
- Keppel, G. 1991. *Design and Analysis: A Researcher's Handbook*. Englewood Cliffs, NJ: Prentice-Hall.
- Kim, J. W., and Y. Shi. 2011. Voluntary Disclosure and the Cost of Equity Capital: Evidence from Management Earnings Forecasts. *Journal of Accounting and Public Policy* 30 (4): 348-366.
- Kim, O., and R. Verrecchia. 1994. Market Liquidity and Volume Around Earnings Announcements. *Journal of Accounting and Economics* 17: 41-68.
- Kim, Y., M. S. Park, and B. Wier. 2012. Is Earnings Quality Associated with Corporate Social Responsibility? *The Accounting Review* 87 (3): 761-796.
- Kothari, S. 2001. Capital Markets Research in Accounting. *Journal of Accounting and Economics* 31 (1): 105-231.
- Kothari, S., X. Li, and J. E. Short. 2009. The Effect of Disclosures by Management, Analysts, and Business Press on Cost of Capital, Return Volatility, and Analyst Forecasts: a Study Using Content Analysis. *The Accounting Review* 84 (5): 1639-1670.
- Lambert, R. A., C. Leuz, and R. E. Verrecchia. 2012. Information Asymmetry, Information Precision, and the Cost of Capital. *Review of Finance* 16 (1): 1-29.
- Lambert, T., B. J. Luippold, and C. M. Stefaniak. 2012. Audit Partner Disclosure: Potential Implications for Investor Reaction and Auditor Independence. *Working Paper*.
- Lang, M., K. V. Lins, and M. Maffett. 2012. Transparency, Liquidity, and Valuation: International Evidence on When Transparency Matters Most. *Journal of Accounting Research* 50 (3): 729-774.

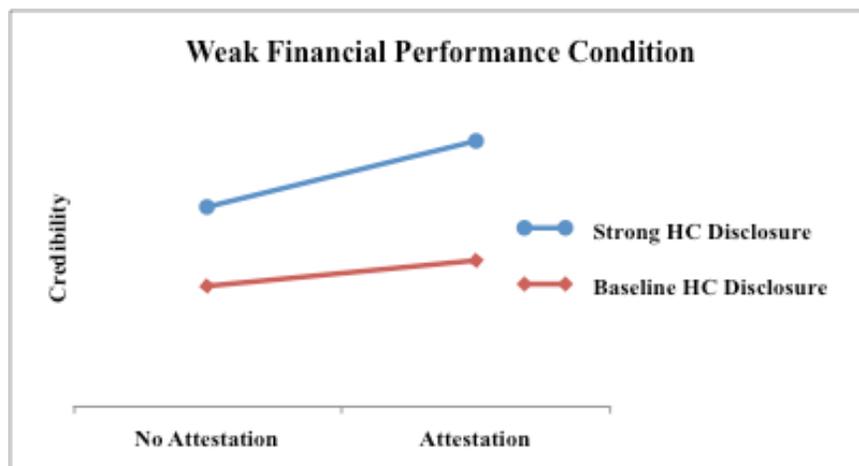
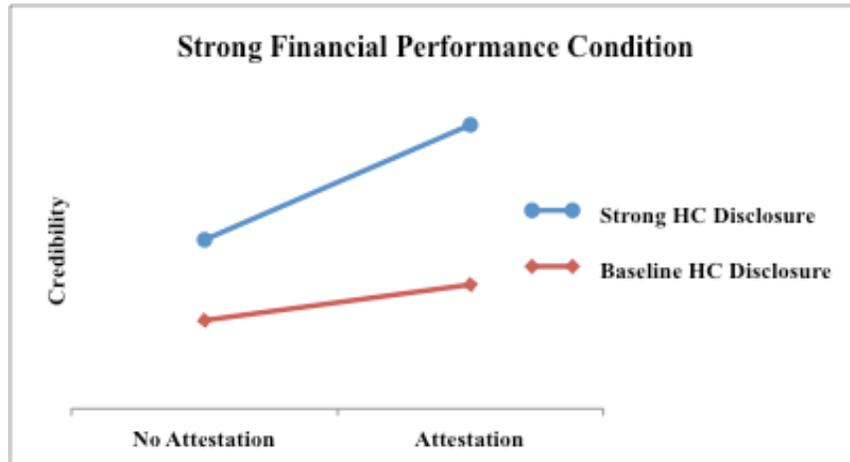
- Lang, M., and R. Lundholm. 1993. Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures. *Journal of Accounting Research* 31 (2): 246-271.
- Lang, M., and M. Maffett. 2011. Transparency and Liquidity Uncertainty in Crisis Periods. *Journal of Accounting and Economics* 52 (2): 101-125.
- Lang, M. H., and R. J. Lundholm. 1996. Corporate Disclosure Policy and Analyst Behavior. *The Accounting Review*: 467-492.
- Leathers, D. G. 1992. *Successful Nonverbal Communications: Principles and Applications*. New York, NY: MacMillan.
- Lev, B., and A. Schwartz. 1971. On the Use of the Economic Concept of Human Capital in Financial Statements. *The Accounting Review* 46 (1): 103-112.
- Loewenstein, G., D. M. Cain, and S. Sah. 2011. The Limits of Transparency: Pitfalls and Potential of Disclosing Conflicts of Interest. *American Economic Review: Papers and Proceedings* 101 (3): 423-428.
- Long, C. P., C. Bendersky, and C. Morill. 2011. Fairness Monitoring: Linking Managerial Controls and Fairness Judgments in Organizations. *Academy of Management Journal* 54 (5): 1045-1068.
- López de Silanes, F., R. La Porta, A. Shleifer, and R. Vishny. 1998. Law and Finance. *Journal of Political Economy* 106: 1113-1155.
- Lopez, T. J., S. D. Vandervelde, and Y. Wu. 2009. Investor Perceptions of an Auditor's Adverse Internal Control Opinion. *Journal of Accounting and Public Policy* 28 (3): 231-250.
- Mann, H. B., and D. R. Whitney. 1947. On a Test of Whether One of Two Random Variables is Stochastically Larger Than the Other. *The Annals of Mathematical Statistics* 18 (1): 50-60.
- Margolis, J. D., and J. P. Walsh. 2001. *People and Profits?: The Search for a Link Between a Company's Social and Financial Performance*. Mahway, NJ: Lawrence Erlbaum Associates, Inc.
- McCann, D. 2011. Power from the People: Can Human Capital Financial Statements Allow Companies to Measure the Value of their Employees? In *CFO Magazine*. Available at: <http://www.cfo.com/printable/article.cfm/14604427>.
- McCroskey, J. C. 1966. Scales for the Measurement of Ethos. *Speech Monographs* 33 (1): 65.
- Mercer, M. 2004. How do Investors Assess the Credibility of Management Disclosures? *Accounting Horizons* 18 (3): 185-196.
- . 2005. The Fleeting Effects of Disclosure Forthcomingness on Management's Reporting Credibility. *The Accounting Review* 80 (2): 723-744.

- Miller, G. S. 2002. Earnings Performance and Discretionary Disclosure. *Journal of Accounting Research* 40 (1): 173-204.
- Mohr, G., D. Lichtensteint, and C. Janiszewski. 2012. The Effect of Marketer-Suggested Service Size on Consumer Responses: The Unintended Consequences of Consumer Attention to Calorie Information. *Journal of Marketing* 76 (1): 59-75.
- Mosso, D. 2010. Transparency Unveiled: Financial Crisis Prevention through Accounting Reform. *Accounting Horizons* 24 (1): 95-107.
- O'Dwyer, B. 2011. The Case of Sustainability Assurance: Constructing a New Assurance Service. *Contemporary Accounting Research* 28 (4): 1230-1266.
- Oppenheimer, D. M., T. Meyvis, and N. Davidenko. 2009. Instructional Manipulation Checks: Detecting Satisficing to Increase Statistical Power. *Journal of Experimental Social Psychology* 45 (4): 867-872.
- Orazem, P. F., and M. Vodopivec. 1997. Value of Human Capital in Transition to Market: Evidence from Slovenia. *European Economic Review* 41 (3): 893-903.
- Ozlanski, M. E. 2013. Effects of Principles vs. Rules Based Accounting Standards and Expanded Auditor Reporting on Investor's Perceptions of Management's Reporting Credibility. *Working Paper*.
- Pantzalis, C., and J. C. Park. 2009. Equity Market Valuation of Human Capital and Stock Returns. *Journal of Banking & Finance* 33 (9): 1610-1623.
- Perreault, S., and T. Kida. 2011. The Relative Effectiveness of Persuasion Tactics in Auditor-Client Negotiations. *Accounting, Organizations and Society* 36 (8): 534-547.
- Piotroski, J. 1999. The Impact of Newly Reported Segment Information on Market Expectations and Stock Prices. *Unpublished Manuscript, University of Chicago*.
- Rennekamp, K. 2012. Processing Fluency and Investors' Reactions to Disclosure Reliability. *Journal of Accounting Research* 50 (5): 1319-1354.
- Rogers, J. L., D. J. Skinner, and A. Van Buskirk. 2009. Earnings Guidance and Market Uncertainty. *Journal of Accounting and Economics* 48 (1): 90-109.
- Sengupta, P. 1998. Corporate Disclosure Quality and the Cost of Debt. *The Accounting Review*: 459-474.
- Simnett, R., A. Vanstraelen, and W. F. Chua. 2009. Assurance on Sustainability Reports: An International Comparison. *The Accounting Review* 84 (3): 937-967.
- Skinner, D. 1994. Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research* 32: 38-61.

- . 1997. Earnings Disclosures and Stockholder Lawsuits. *Journal of Accounting and Economics* 23: 249-283.
- Waddock, S. A., and S. B. Graves. 1997. The Corporate Social Performance-Financial Performance Link. *Strategic Management Journal* 18 (4): 303-319.
- Weisbrod, B. 1961. The Valuation of Human Capital. *The Journal of Political Economy* 69 (5): 425-436.
- Welbourne, T. M., and A. O. Andrews. 1996. Predicting the Performance of Initial Public Offerings: Should Human Resource Management be in the Equation? *Academy of Management Journal* 39 (4): 891-919.
- Wilcoxon, F. 1945. Individual Comparisons by Ranking Methods. *Biometrics Bulletin* 1 (6): 80-83.
- Williams, S. M. 1999. Voluntary Environmental and Social Accounting Disclosure Practices in the Asia-Pacific Region: An International Empirical Test of Political Economy Theory. *The International Journal of Accounting* 34 (2): 209-238.

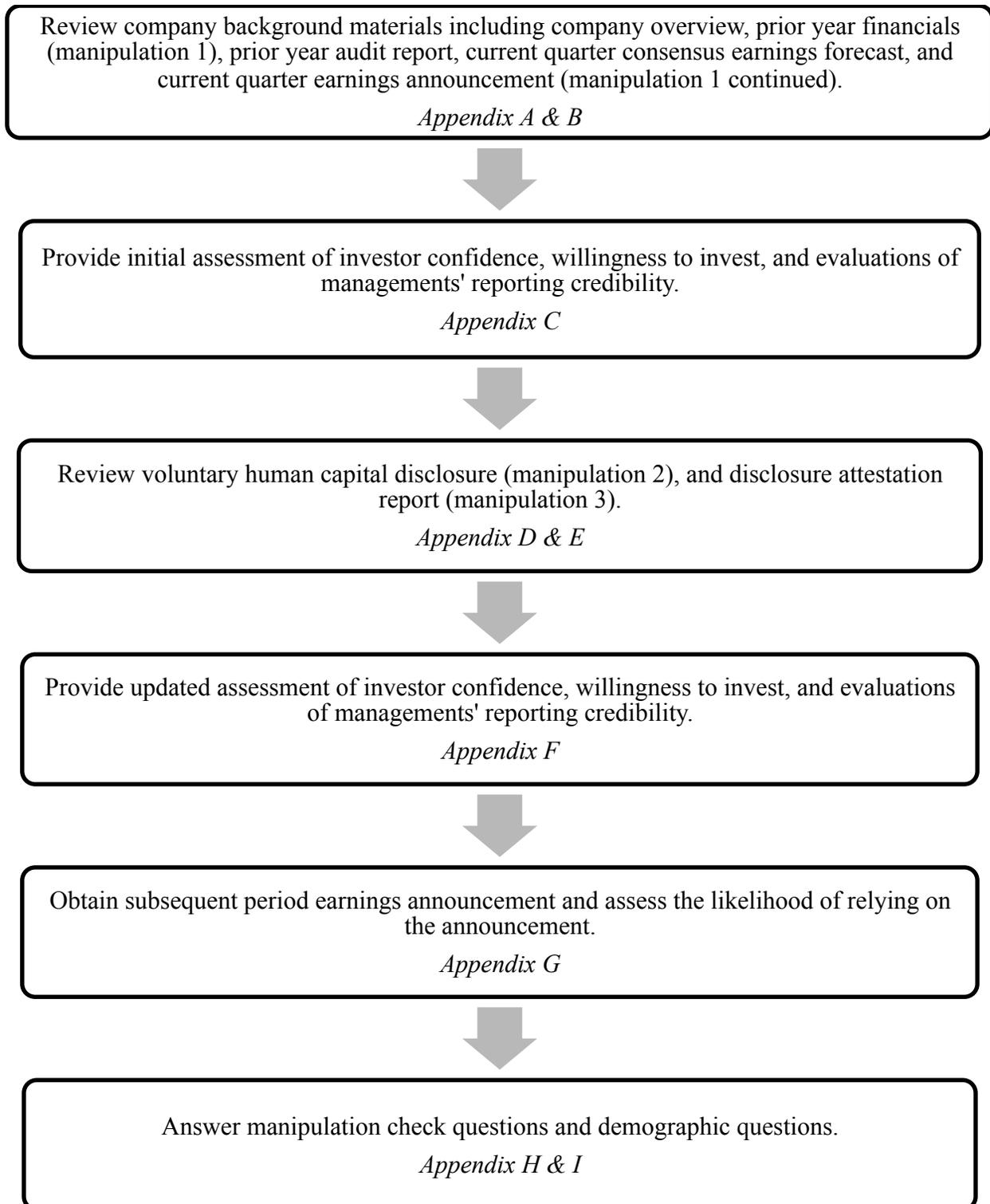
**FIGURE 1**

**EXPECTED EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY AND FIRM STOCK PRICE ASSESSMENTS**



**FIGURE 2**

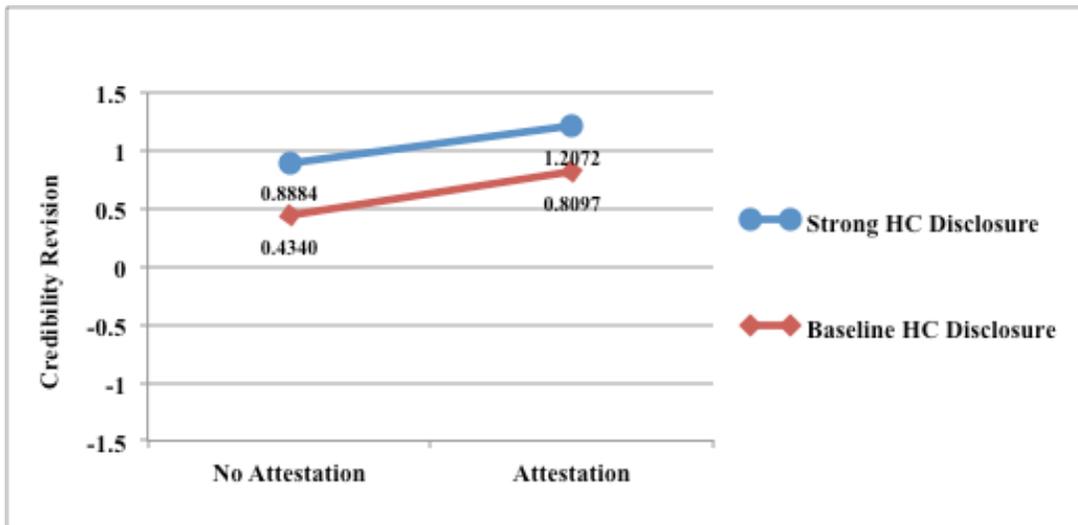
**FLOWCHART OF EXPERIMENTAL PROCEDURES**



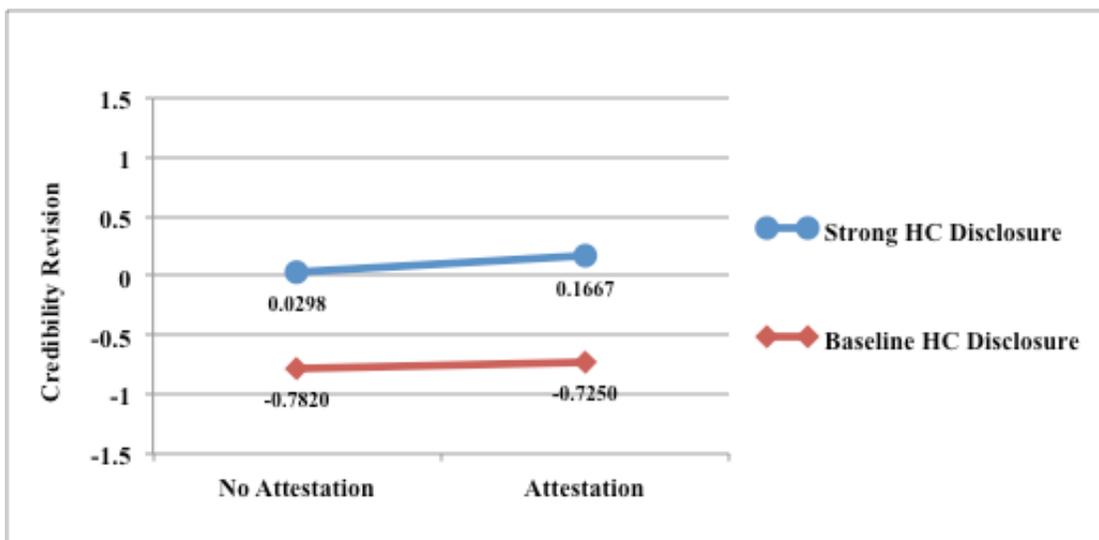
**FIGURE 3**

**EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY**

*Panel A: Credibility Revision – Strong Financial Performance Condition*



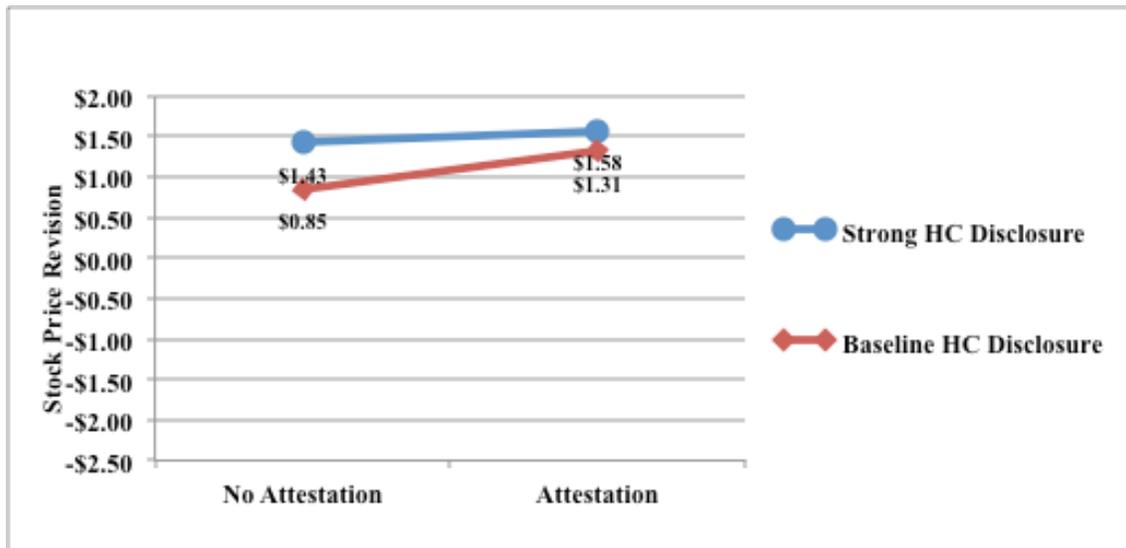
*Panel B: Credibility Revision – Weak Financial Performance Condition*



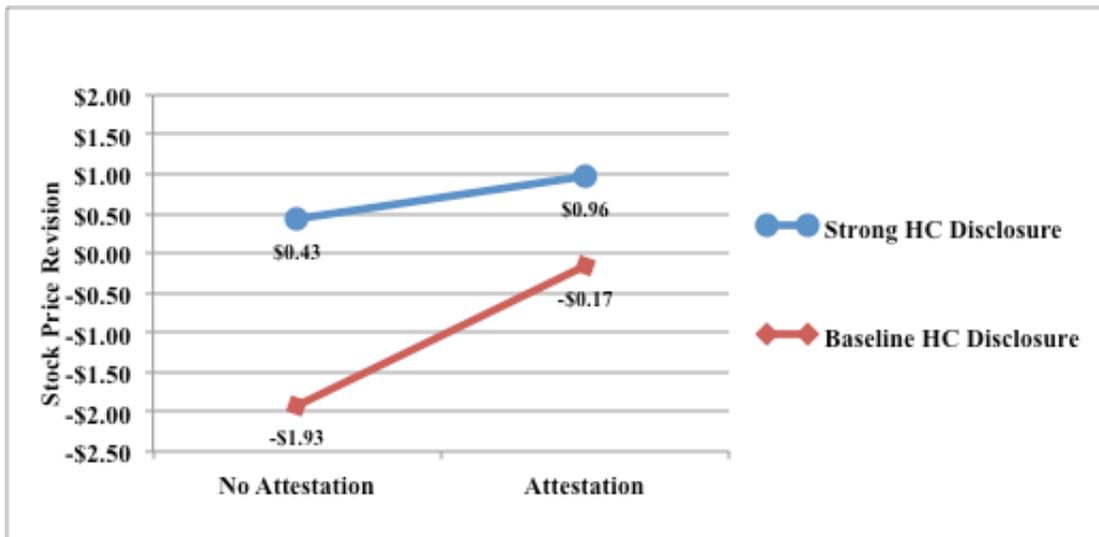
**FIGURE 4**

**EFFECTS OF FIRM FINANCIAL PERFORMANCE, HUMAN CAPITAL DISCLOSURE, AND AUDITOR ATTESTATION MANIPULATIONS ON INVESTORS' STOCK PRICE ASSESSMENTS**

*Panel A: Stock Price Revision – Strong Financial Performance Condition*

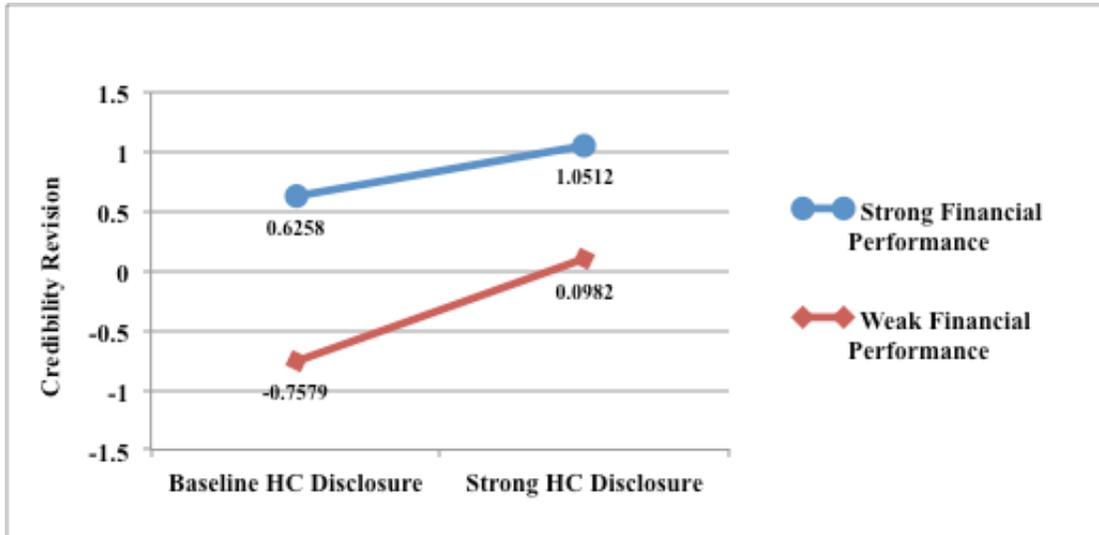


*Panel B: Stock Price Revision – Weak Financial Performance Condition*



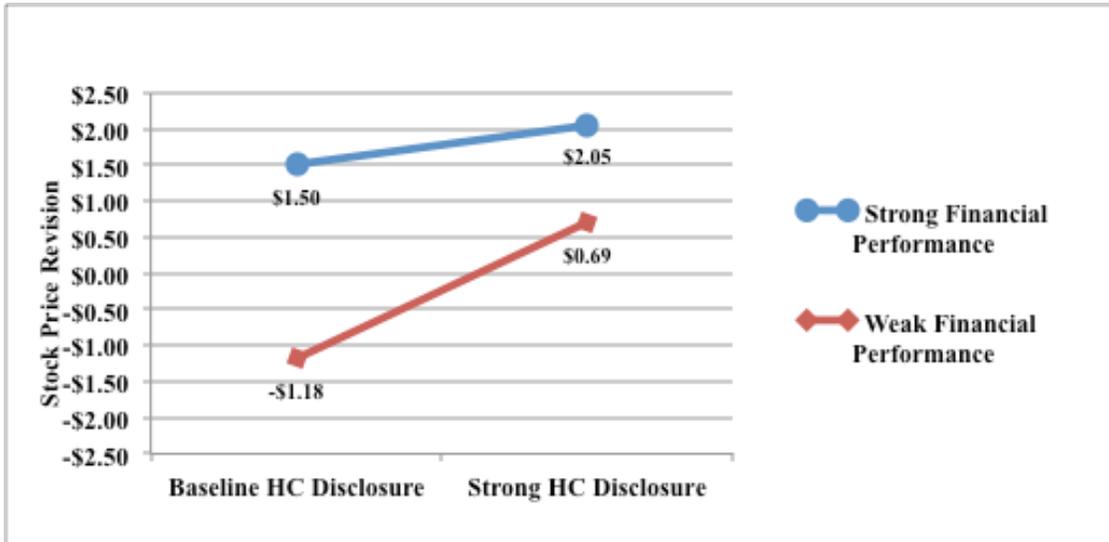
**FIGURE 5**

**2 X 2 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY**



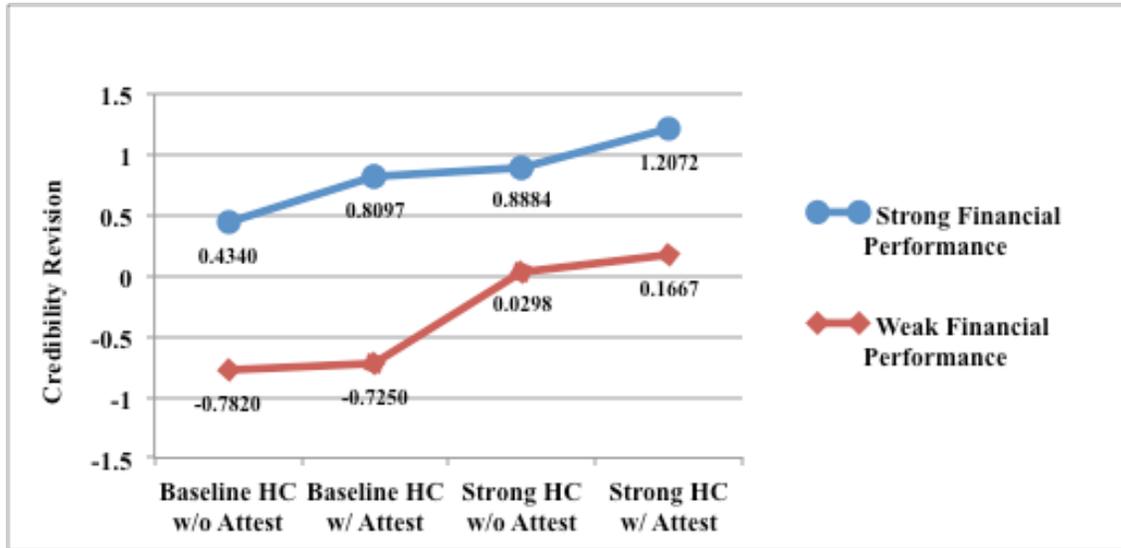
**FIGURE 6**

**2 X 2 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL DISCLOSURE ON INVESTORS' FIRM STOCK PRICE ASSESSMENTS**



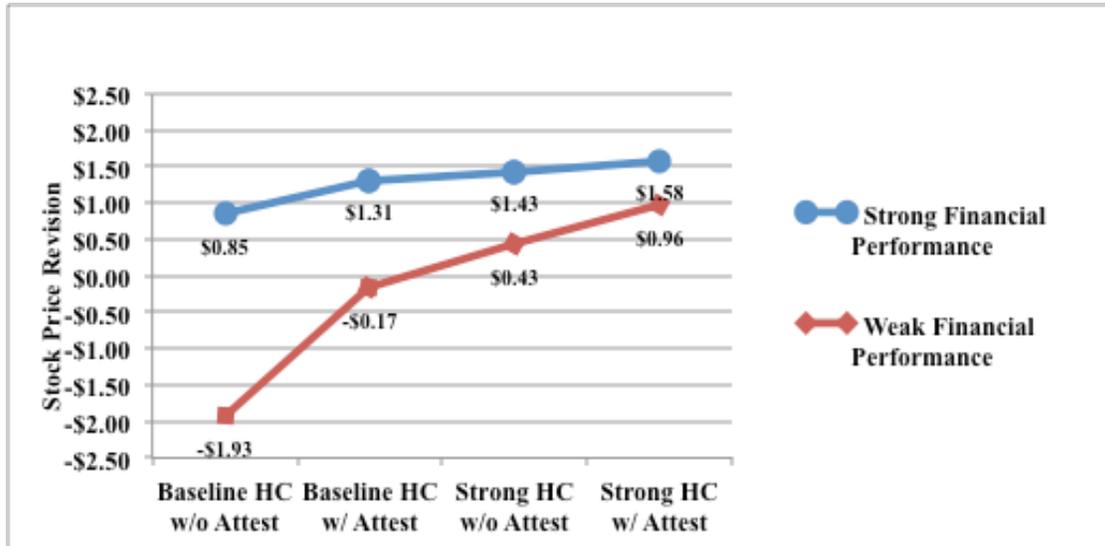
**FIGURE 7**

**2 X 4 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL / ATTESTATION DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT'S REPORTING CREDIBILITY**



**FIGURE 8**

**2 X 4 EFFECTS OF FIRM FINANCIAL PERFORMANCE AND HUMAN CAPITAL / ATTESTATION DISCLOSURE ON INVESTORS' FIRM STOCK PRICE ASSESSMENTS**



**TABLE 1**

**SUMMARY OF EXPERIMENTAL RESEARCH DESIGN  
AND APPROXIMATE CELL SAMPLE SIZES**

**Strong Financial Performing Firm (Manipulation 1)**

<b>Voluntary Human Capital Disclosure Manipulation (Manipulation 2)</b>	<b>Attestation Manipulation (Manipulation 3)</b>	
	<b>No Auditor Attestation</b>	<b>Auditor Attestation</b>
<b>Strong Human Capital Metrics</b>	Cell A 25 Participants STRONG EFFECT	Cell B 25 Participants VERY STRONG EFFECT
<b>Baseline Human Capital Metrics</b>	Cell C 25 Participants WEAK EFFECT	Cell D 25 Participants SEMI-WEAK EFFECT

**Weak Financial Performing Firm (Manipulation 1)**

<b>Voluntary Human Capital Disclosure Manipulation (Manipulation 2)</b>	<b>Attestation Manipulation (Manipulation 3)</b>	
	<b>No Auditor Attestation</b>	<b>Auditor Attestation</b>
<b>Strong Human Capital Metrics</b>	Cell E 25 Participants SEMI-STRONG EFFECT	Cell F 25 Participants STRONG EFFECT
<b>Baseline Human Capital Metrics</b>	Cell G 25 Participants VERY WEAK EFFECT	Cell H 25 Participants WEAK EFFECT

**TABLE 2**  
**EXPERIMENTAL SAMPLE SELECTION**  
**AND PARTICIPANT DEMOGRAPHIC INFORMATION**

*Panel A: Experimental Sample Selection*

Initial Qualtrics Sample	240
- Subtract Failed Manipulation Checks	(48)
- Subtract Improbable Demographic Information	(1)
= Final Experimental Sample (n = )	191

*Panel B: Participant Demographic Information (n = 191)*

Variables	Mean	Std. Dev.
Age	43.54	15.43
Work Experience (Years)	19.91	14.37
Public Accounting Experience (Years)	2.86	1.02
Private Accounting Experience (Years)	12.69	1.46
Trading Experience (Years)	11.58	11.52
Number of Buy/Sell Transactions per Year	91.87	744.75
Percentage of Portfolio Actively Traded	49.15%	30.66
Percentage of Sample with Software Stock in Portfolio	62.30%	
Percentage of Portfolio Containing Software Stock	37.37%	29.51
Number of Financial Statements Analyzed within Last Year	8.47	13.98
Percentage of Time Audit Report is Read	67.01%	
Percentage of Time Disclosures are Read	73.30%	
Male / Female Participants	52.88% / 47.12%	
CPA / Non-CPA	20.42% / 79.58%	
Trade for Work / Do Not Trade for Work	23.04% / 76.96%	

**TABLE 3**

**CELL MEANS AND PARAMETRIC TESTS  
WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE**

*Panel A: Mean (Standard Deviation) Changes in Management's Reporting Credibility*

**Strong Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	.8884 (.5618) n = 23	1.2072 (.6617) n = 24
<b>Baseline Human Capital Metrics</b>	.4340 (.5977) n = 23	.8097 (.8620) n = 24

**Weak Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	.0230 (.9792) n = 26	.1667 (.8014) n = 26
<b>Baseline Human Capital Metrics</b>	-.7820 (.6555) n = 26	-.7250 (.8910) n = 19

*Panel B: ANOVA Results*

Source	DF	MSE	F-Stat	p-value	
Financial Performance	1	61.76	105.61	< .0001	(b)
Human Capital	1	19.72	33.73	< .0001	(a)
Attestation	1	2.53	4.32	0.0390	(a)
Financial Performance X Human Capital	1	2.03	3.47	0.0639	(b)
Human Capital X Attestation	1	0.00	0.00	0.9948	(b)
Financial Performance X Attestation	1	0.73	1.24	0.2669	(b)
Financial Performance X Human Capital X Attestation	1	0.06	0.09	0.7586	(b)

(a) one-tailed test

(b) two-tailed test

*Panel C: Tests of Contrasts*

Comparisons	F-Value	p-value (two-tailed)
Strong Firm Performance, Strong vs. Baseline Human Capital	8.73	0.0040
Weak Firm Performance, Strong vs. Baseline Human Capital	25.71	< .0001

**TABLE 4****NON-PARAMETRIC TESTS  
WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE***Panel A: Mann-Whitney U Test Results for the Effect of Firm Financial Performance*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value two-tailed
Strong Firm Financial Performance	94	127.91	12024.0	7.8574	< .0001
Weak Firm Financial Performance	97	65.07	6312.0		

*Panel B: Mann-Whitney U Test Results for the Effect of Human Capital Disclosure Type*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value one-tailed
Strong Human Capital Disclosures	99	113.04	11190.5	-4.4190	< .0001
Baseline Human Capital Disclosures	92	77.67	7145.5		

*Panel C: Mann-Whitney U Test Results for the Effect of Auditor Attestation Report*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value one-tailed
Auditor Attestation Report	93	103.98	9670.0	1.9428	.0268
No Auditor Attestation Report	98	88.43	8666.0		

*Panel D: Mann-Whitney U Test Results for the Effect of Human Capital Disclosure Type Under Firm Financial Performance*

Source of Variation	N	Z	p-value two-tailed
Strong Firm Financial Performance	94	3.0374	.0024
Weak Firm Financial Performance	97	-4.7732	< .0001

**TABLE 5**

**CELL MEANS AND PARAMETRIC TESTS  
WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE**

*Panel A: Mean (Standard Deviation) Stock Price Revisions*

**Strong Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	1.4274 (1.7504) n = 23	1.5758 (2.3437) n = 24
<b>Baseline Human Capital Metrics</b>	.8491 (3.6198) n = 23	1.3121 (1.9383) n = 24

**Weak Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	.4277 (1.1397) n = 26	.9615 (1.8431) n = 26
<b>Baseline Human Capital Metrics</b>	-1.9258 (2.7833) n = 26	-.1663 (1.8218) n = 19

*Panel B: ANOVA Results*

Source	DF	MSE	F-Stat	p-value	
Financial Performance	1	103.26	20.12	< .0001	(b)
Human Capital	1	63.77	12.42	0.0005	(a)
Attestation	1	25.46	4.96	0.0272	(b)
Financial Performance X Human Capital	1	23.46	4.57	0.0338	(b)
Human Capital X Attestation	1	6.46	1.26	0.2634	(b)
Financial Performance X Attestation	1	8.00	1.56	0.2134	(b)
Financial Performance X Human Capital X Attestation	1	2.45	0.48	0.4902	(b)

(a) one-tailed test

(b) two-tailed test

*Panel C: Tests of Contrasts*

Comparisons	F-Value	p-value (two-tailed)
Strong Firm Performance, Strong vs. Baseline Human Capital	8.71	< .0001
Weak Firm Performance, Strong vs. Baseline Human Capital	19.78	< .0001

**TABLE 6****NON-PARAMETRIC TESTS  
WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE***Panel A: Mann-Whitney U Test Results for the Effect of Firm Financial Performance*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value two-tailed
Strong Firm Financial Performance	94	111.22	10455.0	3.7542	.0002
Weak Firm Financial Performance	97	81.24	7881.0		

*Panel B: Mann-Whitney U Test Results for the Effect of Human Capital Disclosure Type*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value one-tailed
Strong Human Capital Disclosures	99	109.84	10874.5	-3.5974	.0002
Baseline Human Capital Disclosures	92	81.10	7461.5		

*Panel C: Mann-Whitney U Test Results for the Effect of Auditor Attestation Report*

Source of Variation	N	Mean Rank	Sum of Rank	Z	p-value two-tailed
Auditor Attestation Report	93	107.96	10040.5	2.9189	.0035
No Auditor Attestation Report	98	84.65	8295.50		

*Panel D: Mann-Whitney U Test Results for the Effect of Human Capital Disclosure Type Under Firm Financial Performance*

Source of Variation	N	Z	p-value two-tailed
Strong Firm Financial Performance	94	2.0885	.0367
Weak Firm Financial Performance	97	-3.3787	.0007

**TABLE 7****INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS  
UNDER DIFFERENT FIRM FINANCIAL PERFORMANCE CONDITIONS (\$)**

<b>Human Capital Disclosure Metric</b>	<b>Mean Intensity Strong Firm Performance (\$)</b>	<b>Mean Intensity Weak Firm Performance (\$)</b>	<b>Difference in Intensity</b>	<b>t-value</b>	<b>p-value two-sided</b>
Employee Satisfaction %	6.8710	6.4021	.4689	2.05	.0419
Employee Turnover %	6.6237	6.2165	.4072	1.57	.1175
Training Expenditures per Employee	6.6237	6.0825	.5412	2.36	.0194
Revenue per Employee	6.9355	6.3196	.6159	2.60	.0102

**TABLE 8****INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS  
COMPARING PARTICIPANTS WITH INTENT TO BUY AND INTENT TO SELL**

<b>Human Capital Disclosure Metric</b>	<b>Mean Intensity Buy Position</b>	<b>Mean Intensity Sell Position</b>	<b>Difference in Intensity</b>	<b>t-value</b>	<b>p-value two-sided</b>
Employee Satisfaction %	7.0678	5.9167	1.1511	5.16	< .0001
Employee Turnover %	6.7966	5.7917	1.0049	3.89	< .0001
Training Expenditures per Employee	6.8051	5.5972	1.2079	5.39	< .0001
Revenue per Employee	7.0932	5.8472	1.2460	5.38	< .0001

**TABLE 9**

**INTENSITY OF THOUGHT FOR SPECIFIC HUMAN CAPITAL METRICS  
CONTRASTS COMPARING METRICS**

<b>Human Capital Disclosure Metric</b>	<b>Mean Intensity Position</b>	<b>Difference in Intensity</b>	<b>t-value</b>	<b>p-value two-sided</b>
Employee Satisfaction %	6.6316	0.2158	2.03	.0433
Employee Turnover %	6.4158			
Employee Satisfaction %	6.6316	0.2842	2.84	.0051
Training Expenditures per Employee	6.3474			
Employee Satisfaction %	6.6316	0.0105	0.10	.9226
Revenue per Employee	6.6211			
Employee Turnover %	6.4158	0.0684	0.69	.4879
Training Expenditures per Employee	6.3474			
Employee Turnover %	6.4158	-0.2053	-1.89	.0607
Revenue per Employee	6.6211			
Training Expenditures per Employee	6.3474	-0.2737	-3.34	.0010
Revenue per Employee	6.6211			

**TABLE 10**

**CELL MEANS AND PARAMETRIC TESTS  
SUPPLEMENTAL ANALYSIS OF  
WILLINGNESS TO RELY ON FUTURE EARNINGS ANNOUNCEMENT**

*Panel A: Mean (Standard Deviation) Willingness to Rely on Future Earnings Announcement*

**Strong Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	6.5217 (1.3774) n = 23	6.6250 (1.5551) n = 24
<b>Baseline Human Capital Metrics</b>	6.3478 (1.7218) n = 23	6.5833 (1.5581) n = 24

**Weak Financial Performing Firm**

Voluntary Human Capital Disclosure Manipulation	Attestation Manipulation	
	No Auditor Attestation	Auditor Attestation
<b>Strong Human Capital Metrics</b>	5.6154 (2.1181) n = 26	5.9231 (1.9580) n = 26
<b>Baseline Human Capital Metrics</b>	5.5385 (2.1020) n = 26	5.6842 (1.7967) n = 19

*Panel B: ANOVA Results*

Source	DF	MSE	F-Stat	p-value	
Financial Performance	1	32.93	10.13	0.0017	(a)
Human Capital	1	0.91	0.28	0.5975	(a)
Attestation	1	1.95	0.60	0.4393	(a)
Financial Performance X Human Capital	1	0.03	0.01	0.9283	(a)
Human Capital X Attestation	1	0.00	0.00	0.9718	(a)
Financial Performance X Attestation	1	0.05	0.01	0.9037	(a)
Financial Performance X Human Capital X Attestation	1	0.26	0.08	0.7794	(a)

(a) two-tailed test

**TABLE 11**

**CELL MEANS AND PARAMETRIC TESTS  
WITH CREDIBILITY REVISION AS THE DEPENDENT VARIABLE  
2 X 4 SUPPLEMENTAL ANALYSIS**

*Panel A: Mean (Standard Deviation) Changes in Management's Reporting Credibility*

Firm Financial Performance Manipulation	Human Capital / Attestation Manipulation			
	Baseline HC w/o Attestation	Baseline HC w/ Attestation	Strong HC w/o Attestation	Strong HC w/ Attestation
<b>Strong Financial Performance</b>	.4340 (.5977) n = 23	.8097 (.8620) n = 24	.8884 (.5618) n = 23	1.2072 (.6617) n = 24
<b>Weak Financial Performance</b>	-.7820 (.6555) n = 26	-.7250 (.8910) n = 19	.0298 (.9792) n = 26	.1667 (.8014) n = 26

*Panel B: ANOVA Results*

Source	DF	MSE	F-Stat	p-value
Financial Performance	1	63.91	109.27	< .0001 (a)
Human Capital & Attestation	3	7.41	12.67	< .0001 (a)
Financial Performance X Human Capital & Attestation	3	0.94	1.60	0.1908 (a)

(a) two-tailed test

**TABLE 12**

**CELL MEANS AND PARAMETRIC TESTS  
WITH STOCK PRICE REVISION AS THE DEPENDENT VARIABLE  
2 X 4 SUPPLEMENTAL ANALYSIS**

*Panel A: Mean (Standard Deviation) Stock Price Revision*

Firm Financial Performance Manipulation	Human Capital / Attestation Manipulation			
	Baseline HC w/o Attestation	Baseline HC w/ Attestation	Strong HC w/o Attestation	Strong HC w/ Attestation
<b>Strong Financial Performance</b>	.8491 (3.6198) n = 23	1.3121 (1.9383) n = 24	1.4274 (1.7504) n = 23	1.5758 (2.3437) n = 24
<b>Weak Financial Performance</b>	-1.9258 (2.7833) n = 26	-.1663 (1.8218) n = 19	.4277 (1.1397) n = 26	.9615 (1.8431) n = 26

*Panel B: ANOVA Results*

Source	DF	MSE	F-Stat	p-value	
Financial Performance	1	101.76	19.83	< .0001	(a)
Human Capital & Attestation	3	30.19	5.88	0.0007	(a)
Financial Performance X Human Capital & Attestation	3	10.87	2.12	0.0995	(a)

(a) two-tailed test

**APPENDIX A  
INSTRUCTIONS AND BACKGROUND INFORMATION**

**General Instructions**

Thank you for participating in this study. The purpose of the study is to investigate how individuals make investment decisions. The results from this study will help educate a large number of accounting professors and accounting academics about investor decision-making. This study will also fill a void in the academic literature and educational curriculum. Your participation today should take approximately 20 minutes. If at any time you have questions or concerns about the study, please contact Gabriel Saucedo, PhD Candidate, at gabriel7@vt.edu. Thank you in advance for your time and participation.

Alternatively, if at any time you have questions or concerns for the Institutional Review Board (IRB) at Virginia Tech, please contact Dr. David M. Moore, IRB Chair, at moored@vt.edu.

**Anonymity of Responses:** All data are being collected in a manner that ensures your complete anonymity. You will not be required to divulge any personally identifiable information that can be used to distinguish your individual responses.

**Before proceeding, please provide your consent that you agree to participate in this study.**

\_\_\_\_\_ I agree to participate.

\_\_\_\_\_ I do not agree to participate.

**Before proceeding with this study, please also answer two questions about yourself.**

- 1) Did you purchase or sell at least one (1) individual stock (not mutual fund or index fund) within the previous twelve (12) months? (circle one)

Yes

No

- 2) Do you purchase or sell stocks as part of your employment responsibilities? (circle one)

Yes

No

## **Specific Instructions**

For the purposes of this study, you are asked to assume that you currently hold common stock of Galaxy Games Inc., a premier developer and publisher of entertainment software. You will be provided with background information and selected financial information about Galaxy Games. Based on this information, you will be asked to provide several judgments about Galaxy Games and its management. The case information is not intended to include all the information that would be available if you were evaluating the common stock of Galaxy Games, Inc. However, for purposes of this study, please base your judgment upon the information provided.

The following case materials contain several sets of instructions indicating how to proceed. Specific instructions will be shaded in gray. Please read the instructions carefully.

## **BACKGROUND INFORMATION**

Prior to your decision to purchase additional stock in Galaxy Games Inc. you reviewed the company's most recent annual report. Background information and financial data from that annual report are shown on the following pages. Please review this information before moving on to the next part of the case.

### **Company Background**

Galaxy Games Inc. is a Washington State-based company, which develops and publishes entertainment software. After establishing the Galaxy Games label in 2004, the company quickly became one of the most popular and well-respected makers of web-based computer games. By focusing on creating well-designed, highly enjoyable entertainment experiences, Galaxy Games has maintained an unparalleled reputation for innovation, creativity, and quality despite increased competition and new market entrants. The Company's primary product is its entertainment software (computer games), but success in the global gaming community has spurred production of Galaxy Games action figures, novels, comics, trading cards, board games, and apparel. The Company markets its products directly to its customer through its web-based interfaces, as well as through a trained, customer-focused sales team.

### **Products**

The Company's designers and sales team work collaboratively to develop new products that are responsive to the needs and wants of its customers. The development of new products always attempts to precede customers' expectations, and pushes ingenuity and creativity for a new gaming experience. Customers of Galaxy Games purchase software licenses, which enable them to utilize the gaming applications for a specific period of time. During this period, customers receive software updates and customer support. Galaxy Games merchandise is sold through its online retail space and in gaming stores located in malls worldwide. The Company is currently

in the process of the third expansion to the bestselling and award-winning subscription-based online role-playing game, *Constellation Quest*.

**BACKGROUND INFORMATION (continued)**  
***FOR PARTICIPANTS IN THE STRONG FINANCIAL PERFORMANCE CONDITION***

**Galaxy Games Inc. – Annual Financial Information**

**Income Statement**  
(in millions except per share data)

	<b>Fiscal year ended December 31</b>		
	<b>2012</b>	<b>2011</b>	<b>2010</b>
Total Revenues	\$ 4,856	\$ 4,755	\$ 4,447
Operating Expenses	3,405	3,427	3,278
Operating Income	1,451	1,328	1,169
Interest Expense and Other, Net	7	3	1
Provision for Income Taxes	309	246	214
Net Income	<u>\$ 1,149</u>	<u>\$ 1,085</u>	<u>\$ 956</u>
Earnings Per Share	<u>\$ 1.03</u>	<u>\$ 0.95</u>	<u>\$ 0.81</u>

**Balance Sheet**  
(in millions)

	<b>As of December 31</b>	
	<b>2012</b>	<b>2011</b>
<i>Assets</i>		
Total Current Assets	\$ 6,274	\$ 5,380
Long-Term Assets	7,926	7,897
Total Assets	<u>\$ 14,200</u>	<u>\$ 13,277</u>
<i>Liabilities and Stockholders Equity</i>		
Current Liabilities	\$ 2,652	\$ 2,556
Long-Term Liabilities	231	229
Stockholders Equity	11,317	10,492
Total Liabilities and Stockholders Equity	<u>\$ 14,200</u>	<u>\$ 13,277</u>

**BACKGROUND INFORMATION (continued)**  
***FOR PARTICIPANTS IN THE WEAK FINANCIAL PERFORMANCE CONDITION***

**Galaxy Games Inc. – Annual Financial Information**

**Income Statement**  
(in millions except per share data)

	<b>Fiscal year ended December 31</b>		
	<b>2012</b>	<b>2011</b>	<b>2010</b>
Total Revenues	\$ 4,856	\$ 4,957	\$ 5,265
Operating Expenses	3,405	3,383	3,532
Operating Income	1,451	1,574	1,733
Interest Expense and Other, Net	7	11	13
Provision for Income Taxes	309	372	404
Net Income	<u>\$ 1,149</u>	<u>\$ 1,213</u>	<u>\$ 1,342</u>
Earnings Per Share	<u>\$ 1.03</u>	<u>\$ 1.11</u>	<u>\$ 1.25</u>

**Balance Sheet**  
(in millions)

	<b>As of December 31</b>	
	<b>2012</b>	<b>2011</b>
<i>Assets</i>		
Total Current Assets	\$ 5,380	\$ 6,274
Long-Term Assets	7,897	7,926
Total Assets	<u>\$ 13,277</u>	<u>\$ 14,200</u>
<i>Liabilities and Stockholders Equity</i>		
Current Liabilities	\$ 2,556	\$ 2,652
Long-Term Liabilities	229	231
Stockholders Equity	10,492	11,317
Total Liabilities and Stockholders Equity	<u>\$ 13,277</u>	<u>\$ 14,200</u>

## **BACKGROUND INFORMATION (continued)**

In conjunction with the financial statements for the fiscal year ended December 31, 2012, you also reviewed a copy of the audit report, which was included in the Company's financial statements from the fiscal year ended December 31, 2012.

### **REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and Stockholders of Galaxy Games Inc.:

We have audited the accompanying balance sheets of Galaxy Games Inc. as of December 31, 2012 and 2011, and the related statements of income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2012. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2012 and 2011, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2012, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Galaxy Games Inc.'s internal control over financial reporting as of December 31, 2012, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria), and our report dated February 10, 2013 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Big 4 CPA Firm  
Seattle, Washington  
February 10, 2013

## **BACKGROUND INFORMATION (continued)**

After reviewing the prior year financial information, you decided to do some more searching. Specifically, you obtained the following Q1 2013 information about Galaxy Games Inc. from an online financial database.

There are currently twenty Wall Street analysts covering Galaxy Games Inc. The consensus analyst earnings forecast for Galaxy Games for the quarter ending March 31, 2013 is \$0.26.

The price per share of Galaxy Games Inc. directly before the release of the actual Company earnings announcement is \$14.94.

**APPENDIX B  
PRESS RELEASE**

**PRESS RELEASE**

***FOR PARTICIPANTS IN THE STRONG FINANCIAL PERFORMANCE CONDITION***

Shortly after obtaining Galaxy Games Inc.'s expected earnings for the quarter, you review the following press release that reports the actual results of Galaxy Games for the first quarter of the 2013 fiscal year.

**GALAXY GAMES INC. REPORTING  
EARNINGS PER SHARE OF \$0.30 FOR THE  
QUARTER ENDED MARCH 31, 2013.**

May 8, 2013  
The Associated Press

Seattle (AP) – Galaxy Games Inc. today reported Q1 2013 EPS of \$0.30, \$0.04 better than the consensus analyst estimate of \$0.26. The company reported revenue for the quarter of \$1.21 billion.

Galaxy Games Inc., based in Washington State, develops and publishes entertainment software. The company also recognizes revenues from action figures, novels, comics, trading cards, board games, and apparel.

For more information, contact the Galaxy Games Inc. investor relations department at 1-800-555-7314.

**PRESS RELEASE**

***FOR PARTICIPANTS IN THE WEAK FINANCIAL PERFORMANCE CONDITION***

Shortly after obtaining Galaxy Games Inc.'s expected earnings for the quarter, you review the following press release that reports the actual results of Galaxy Games for the first quarter of the 2013 fiscal year.

**GALAXY GAMES INC. REPORTING EARNINGS  
PER SHARE OF \$0.22 FOR THE QUARTER ENDED  
MARCH 31, 2013.**

May 8, 2013  
The Associated Press

Seattle (AP) – Galaxy Games Inc. today reported Q1 2013 EPS of \$0.22, \$0.04 lower than the consensus analyst estimate of \$0.26. The company reported revenue for the quarter of \$1.21 billion.

Galaxy Games Inc., based in Washington State, develops and publishes entertainment software. The company also recognizes revenues from action figures, novels, comics, trading cards, board games, and apparel.

For more information, contact the Galaxy Games Inc. investor relations department at 1-800-555-7314.

**APPENDIX C**  
**INITIAL ASSESSMENT OF MANAGEMENT'S REPORTING CREDIBILITY AND**  
**INVESTOR'S WILLINGNESS TO INVEST**

**Questions**

Based on the information you have been provided, indicate your beliefs about each of the following statements regarding Galaxy Games management's **competence in managing Galaxy Games Inc.**

- 1) I believe that Galaxy Games management is very competent at running Galaxy Games.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 2) I believe that Galaxy Games management is expert at running their company.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 3) I believe that Galaxy Games management is very intelligent.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

Based on the information you have been provided, indicate your beliefs about each of the following statements regarding Galaxy Games management's **financial disclosure/reporting competence.**

- 4) I believe that Galaxy Games management is very competent at providing financial disclosures.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 5) I believe that Galaxy Games management has little knowledge of the factors involved in providing useful disclosures.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree



12) What is your recommendation to buy/sell shares of Galaxy Games Inc. to others?

1	2	3	4	5	6	7	8	9
Strong Sell								Strong Buy

**APPENDIX D**  
**VOLUNTARY HUMAN CAPITAL DISCLOSURE MANIPULATION**

**HUMAN CAPITAL DISCLOSURE**

***FOR PARTICIPANTS IN THE STRONG HUMAN CAPITAL DISCLOSURE CONDITION***

Galaxy Games Inc.'s auditors performed standard review procedures over the 10-Q for the fiscal quarter ended March 31, 2013.

In addition to obtaining the Galaxy Games Inc. earnings announcement, and reading the financial statements for the fiscal quarter ended March 31, 2013 posted by the SEC, you obtained a copy of the following voluntary disclosure summary information from the Company's website.

**Human Capital Metrics**  
**(figures are as presented)**

	<b>For the 365-Days Ended 3/31</b>		<b>Industry Avg.</b>
	<b>2013</b>	<b>2012</b>	
Employee Satisfaction %	92%	88%	81%
Employee Turnover %	7%	11%	13%
Employee Training Expenditures (in \$)	\$ 1,465	\$ 1,399	\$ 1,182
Revenue per Production/Design Employee (in \$)	\$ 352,726	\$ 336,780	\$ 294,744

\* Industry averages are taken from statistics provided by the United States Society for Human Resource Management. The metrics provided follow guidelines set forth by the Society for Human Resource Management and the American National Standards Institute, and are calculated as follows:

***Employee Satisfaction % =***

Average employee satisfaction score derived from internal Galaxy Games Inc. employee surveys.

***Employee Turnover % =***

Number of separations during the year divided by the average number of employees during the year times 100.

***Training Expenditures per Production/Design Employee (in \$) =***

Total dollar amount of expenses classified as training expenses during the year divided by the average number of production/design employees during the year.

***Revenue per Production Design/Employee (in \$) =***

Total revenues for the year divided by the average number of production/design employees during the year.

## **HUMAN CAPITAL DISCLOSURE**

### ***FOR PARTICIPANTS IN THE BASELINE HUMAN CAPITAL DISCLOSURE CONDITION***

Galaxy Games Inc.'s auditors performed standard review procedures over the 10-Q for the fiscal quarter ended March 31, 2013.

In addition to obtaining the Galaxy Games Inc. earnings announcement, and reading the financial statements for the fiscal quarter ended March 31, 2013 posted by the SEC, you obtained a copy of the following voluntary disclosure summary information from the Company's website.

#### **Human Capital Metrics (figures are as presented)**

	<b>For the fiscal quarter ended 3/31</b>		
	<b>2013</b>	<b>2012</b>	<b>Industry Avg.</b>
Employee Satisfaction %	80%	81%	81%
Employee Turnover %	13%	13%	13%
Training Expenditures per Production/Design Employee (in \$)	\$ 1,195	\$ 1,013	\$ 1,182
Revenue per Production/Design Employee (in \$)	\$ 294,682	\$ 295,503	\$ 294,744

\* Industry averages are taken from statistics provided by the United States Society for Human Resource Management. The metrics provided follow guidelines set forth by the Society for Human Resource Management and the American National Standards Institute, and are calculated as follows:

***Employee Satisfaction % =***

Average employee satisfaction score derived from internal Galaxy Games Inc. employee surveys.

***Employee Turnover % =***

Number of separations during the year divided by the average number of employees during the year times 100.

***Training Expenditures per Production/Design Employee (in \$) =***

Total dollar amount of expenses classified as training expenses during the year divided by the average number of production/design employees during the year.

***Revenue per Production/Design Employee (in \$) =***

Total revenues for the year divided by the average number of production/design employees during the year.

## APPENDIX E ATTESTATION MANIPULATION

### **ATTESTATION MANIPULATION** ***FOR PARTICIPANTS IN THE AUDITOR ATTESTATION CONDITION***

In addition to the 10-Q for the fiscal quarter ended March 31, 2013, you obtained the following attestation report related to the human capital disclosures of Galaxy Games Inc.

#### **REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and Stockholders of Galaxy Games Inc.:

##### **Introduction**

We have been asked to provide assurance on selected data and statements of Galaxy Games Inc. (the “Company”) contained in the Company’s human capital disclosures. The human capital disclosures are the responsibility of management. Our responsibility is to express an opinion on the selected data and statements indicated below based on our assurance work performed.

##### *Assurance Work Performed*

For the human capital disclosures issued by the Company on March 31, 2013, we obtained an understanding of the systems used to generate, aggregate and report the data. We assessed the completeness and accuracy of the data reported by visiting the Company’s facilities to test systems and review data. During visits of the Company’s facilities, we inspected documentary evidence and held interviews with accounting management and human resource management groups. We tested the calculations made and assessed data trends in discussion with Company management.

We read all the human capital disclosures to confirm that there are no material inconsistencies based on the work we have performed.

##### **Basis of Opinion**

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants and, accordingly, included examining, on a test basis, evidence supporting the human capital disclosures and performing other procedures as we considered necessary in the circumstances. Therefore, we planned and carried out our work to provide reasonable, rather than absolute, assurance on the reliability of the selected data and statements that were subject to assurance. We believe our work provides a reasonable basis for our opinion.

##### *Considerations and Limitations*

It is important to read the data and statements in the context of the basis of reporting provided by Company management. Human capital data and assertions are subject to more inherent limitations than financial data, given both their nature and the methods used for determining, calculating or estimating such data.

Our assurance scope is limited to those specific matters mentioned in our opinion below. We have not provided assurance over all voluntary disclosures, nor have we undertaken work to confirm that all relevant issues are included. In addition, we have not carried out any work on financial and economic performance data and data reported in respect of future projections and targets. Accordingly, no opinion is given in respect of them. Where we have not provided assurance over previous years' data this is clearly disclosed.

To obtain a thorough understanding of the financial results and financial position of the Company, the reader should consult the Company's audited financial statements for the year ended December 31, 2012.

*In Our Opinion*

The human capital data (together with the notes) prepared by the Company for the quarter ended March 31, 2013, properly reflect the performance of the Company. In addition, the assertions and matters discussed in the voluntary disclosures are fairly described and supported by underlying documentary or other evidence.

Big 4 CPA Firm  
Seattle, Washington  
May 8, 2013

**ATTESTATION MANIPULATION**  
***FOR PARTICIPANTS IN THE NO AUDITOR ATTESTATION CONDITION***

No additional information will be provided.

**APPENDIX F**  
**SECOND ASSESSMENT OF MANAGEMENT'S REPORTING CREDIBILITY AND**  
**INVESTOR'S WILLINGNESS TO INVEST**

**Questions**

Based on the totality of information you have been provided, indicate your beliefs about each of the following statements regarding Galaxy Games management's **competence in managing Galaxy Games Inc.**

- 1) I believe that Galaxy Games management is very competent at running Galaxy Games.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 2) I believe that Galaxy Games management is expert at running their company.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 3) I believe that Galaxy Games management is very intelligent.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

Based on the totality of information you have been provided, indicate your beliefs about each of the following statements regarding Galaxy Games management's **financial disclosure/reporting competence.**

- 4) I believe that Galaxy Games management is very competent at providing financial disclosures.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 5) I believe that Galaxy Games management has little knowledge of the factors involved in providing useful disclosures.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree



12) What is your current recommendation to buy/sell shares of Galaxy Games Inc. to others?

1	2	3	4	5	6	7	8	9
Strong Sell								Strong Buy

Based on the totality of information you have been provided, please respond to the following additional questions about Galaxy Games Inc.

13) The **cost of capital** for a company is a weighted average of the cost of equity and the cost of debt. The **cost of capital** is often described as the required rate of return for a project. It is also known as the hurdle rate or the discount rate. What is your assessment of the **cost of capital** for Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Low Cost of Capital								High Cost of Capital

14) **Earnings predictability** is a measure of how reliable future earnings can be forecasted by knowing current earnings. Predictability is generally based on the stability of year-to-year quarterly earnings comparisons. What is your assessment of the **predictability of earnings** for Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Low Earnings Predictability								High Earnings Predictability

15) In economics and contract theory, **information asymmetry** is present when one party to a transaction has more or better information than other party (e.g., the company management has better information than the investors). What is your assessment of the **information asymmetry** for Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Low Information Asymmetry								High Information Asymmetry

16) **Human capital** is defined as the combination of factors possessed by individuals and the collective workforce of a firm. **Human capital** includes knowledge, skills and technical ability, personal traits (e.g., attitude, commitment, intelligence), ability to learn, creativity, leadership, and teamwork. What is your assessment of **human capital** value at Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Weak Human Capital								Strong Human Capital

17) **Transparency** is the extent to which investors can be sure about a company's real fundamentals and true risk. That is, transparency revolves around the extent to which financial statement users understand the underlying transactions that form the basis of the basic financial statements. Alternative definitions of **transparency** included in financial reporting are "easily understood," "very clear," "frank," and "candid." What is your assessment of the **transparency** of Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Low								High
Transparency								Transparency

**APPENDIX G**  
**RELIANCE ON SUBSEQUENT DISCLOSURE QUESTION**

**PRESS RELEASE**

On June 15, 2013 (i.e., the following quarter), Galaxy Games Inc. management voluntarily issued the following press release.

**GALAXY GAMES INC. EXPECTING  
EARNINGS OF \$0.33 FOR THE QUARTER  
ENDING JUNE 30, 2013.**

June 15, 2013  
The Associated Press

Seattle (AP) – In a presentation to industry analysts, Galaxy Games Inc. CEO Tony Petersen indicated that the company currently expects EPS to be \$0.33 for Q2 2013. This estimate is \$0.05 above the current consensus forecast of \$0.28.

Galaxy Games Inc., based in Washington State, develops and publishes entertainment software. The company also recognizes revenues from action figures, novels, comics, trading cards, board games, and apparel.

For more information, contact Galaxy Games Inc. investor relations department at 1-800-555-7314.

**Question**

- 1) I would rely on the above management announcement in forming an earnings forecast for Galaxy Games Inc.?

1	2	3	4	5	6	7	8	9
Strongly Disagree								Strongly Agree

**APPENDIX H**  
**MANIPULATION CHECK & AFFECTIVE REACTION QUESTIONS**

**Questions**

Please answer the following questions in the order presented.

- 1) Were Galaxy Games Inc.'s earnings higher or lower than the analyst consensus earnings forecast for the Q1 quarter ended March 31, 2013?

Higher than the consensus forecast	Lower than the consensus forecast
---------------------------------------	--------------------------------------

- 2) How surprised were you by the earnings discrepancy between the consensus earnings forecast and actual earnings?

1	2	3	4	5	6	7	8	9
Not at All Surprised							Very Surprised	

- 3) How intensely did you think about the reasons for the earnings discrepancy?

1	2	3	4	5	6	7	8	9
Not at All							Very Intensely	

- 4) The earnings discrepancy caused me to feel good.

1	2	3	4	5	6	7	8	9
Strongly Disagree							Strongly Agree	

- 5) The earnings discrepancy caused me to feel bad.

1	2	3	4	5	6	7	8	9
Strongly Disagree							Strongly Agree	

## Questions

Please answer the following questions in the order presented.

- 1) After reviewing actual earnings for Q1 2013, did you review any additional disclosures related to Galaxy Games Inc.?

Yes No

- 2) If Galaxy Games Inc. did provide any additional disclosures, were they accompanied by an attestation report from the auditor?

Yes No N/A

- 3) How surprised were you by this disclosure (or lack of disclosure)?

1	2	3	4	5	6	7	8	9
Not at All								Very
Surprised								Surprised

- 4) How intensely did you think about the reasons for this disclosure (or lack of disclosure)?

1	2	3	4	5	6	7	8	9
Not at								Very
All								Intensely

- 5) The disclosure (or lack of disclosure) caused me to feel good.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

- 6) The disclosure (or lack of disclosure) caused me to feel bad.

1	2	3	4	5	6	7	8	9
Strongly								Strongly
Disagree								Agree

7) How intensely did each of the following voluntary disclosure metrics impact your evaluation of Galaxy Games Inc. management and investment decisions?

*Employee Satisfaction %:*

1	2	3	4	5	6	7	8	9
Not at								Very
All								Intensely

*Employee Turnover %:*

1	2	3	4	5	6	7	8	9
Not at								Very
All								Intensely

*Training Expenditures per Production/Design Employee:*

1	2	3	4	5	6	7	8	9
Not at								Very
All								Intensely

*Revenue per Production/Design Employee:*

1	2	3	4	5	6	7	8	9
Not at								Very
All								Intensely

**APPENDIX I**  
**DEMOGRAPHIC INFORMATION**

**Demographic Questions**

Before finishing the experiment, please answer the following questions about yourself.

- 1) What is your current age? \_\_\_\_\_
- 2) Please indicate your gender.      Male      Female
- 3) Please indicate your highest degree obtained.
  1. High School Diploma
  2. Associates Degree
  3. Undergraduate Degree/Bachelors
  4. MBA
  5. Masters Degree (other than MBA)
  6. Doctor of Philosophy
- 4) How many years of full-time work experience do you have? \_\_\_\_\_
- 5) What is your approximate annual household income? (circle one)
  1. \$0 to \$25,000
  2. \$25,000 to \$50,000
  3. \$50,000 to \$75,000
  4. 75,000 to \$100,000
  5. \$100,000 to \$125,000
  6. \$125,000 to \$150,000
  7. \$150,000 to \$175,000
  8. \$175,000 to \$200,000
  9. More than \$200,000
- 6) How many years have you been buying/selling individual equity or debt instruments? If you indicated “No” to question 6) above write “N/A”.  
\_\_\_\_\_
- 7) How many buy or sell transactions do you make during a year?  
\_\_\_\_\_
- 8) Approximately what percentage of your investment portfolio do you actively trade?  
\_\_\_\_\_

9) How many times (during the past 12 months) have you evaluated a company's performance by analyzing its financial statements?

\_\_\_\_\_

10) Do you currently hold stocks or bonds of software companies in your investment portfolio?

Yes

No

11) What is the approximate percentage of your investment portfolio that is comprised of software companies? If you indicated "No" to question 11) above write "N/A".

\_\_\_\_\_

12) Do you typically read and evaluate the auditor report(s) that accompanies a company's financial statements when making buy/sell decisions for your investment portfolio?

Yes

No

13) Do you typically read and evaluate the disclosures of management that accompanies a company's financial statements when making buy/sell decisions for your investment portfolio?

Yes

No

14) How many year of public accounting experience do you have (i.e., working for an accounting firm as an accountant)?

\_\_\_\_\_

15) How many years of private accounting experience do you have (i.e., working for a company or firm other than an accounting firm)?

\_\_\_\_\_

16) Do you currently maintain an active CPA license?

Yes

No

**APPENDIX J**  
**IRB APPROVAL LETTER**



Office of Research Compliance  
Institutional Review Board  
North End Center, Suite 4120, Virginia Tech  
300 Turner Street NW  
Blacksburg, Virginia 24061  
540/231-4806 Fax 540/231-0959  
email [irb@vt.edu](mailto:irb@vt.edu)  
website <http://www.irb.vt.edu>

**MEMORANDUM**

**DATE:** September 13, 2013  
**TO:** Gabriel D Saucedo, Velina K Popova  
**FROM:** Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)  
**PROTOCOL TITLE:** The Effects of Human Capital and Voluntary Human Capital Disclosures on Investors' Decision-Making and Assessments of Firm Value  
**IRB NUMBER:** 13-796

Effective September 12, 2013, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

**PROTOCOL INFORMATION:**

Approved As: Exempt, under 45 CFR 46.110 category(ies) 2  
Protocol Approval Date: September 12, 2013  
Protocol Expiration Date: N/A  
Continuing Review Due Date\*: N/A

\*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

**FEDERALLY FUNDED RESEARCH REQUIREMENTS:**

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

*Invent the Future*

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY  
*An equal opportunity, affirmative action institution*