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Human capital in the human resource function: The positioning and impact of the chief human resource officer

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Abstract

In recent years, interest in human capital as a strategic resource of the firm has created new streams of research oriented on the value of strategic human resource management, high performance work systems, and human capital as resource of the firm for competitive advantage. The Chief Human Resource Officer (CHRO) serves as the steward of human capital of the firm, yet little is known about the nature and impact of this critical role that is charged with building strategic advantage with the human capital resources of the firm. Over the past decade the CHRO has risen to take a prominent seat as a part of the Top Management Team (TMT) in firms today. This research consists of three separate studies to further our understanding of the role and impact of the CHRO.

The first study considers the potential antecedents that attribute to this rise through a review of the Standard & Poor's 500 Index companies over a 15 year period. Using a contingency analysis, this sample of 4980 firm-years shows that innovation intensity and human capital intensity of the firm are weakly linked to the rise of the CHRO. International complexity is found to have a negative relationship with global CHRO leadership suggesting that geographic complexity leads to more decentralization of human resources practices.

The second study explores the impact of the CHRO consistent with upper-echelon theory that posits firm outcomes to be a reflection of the top leaders. As the steward of human capital of the firm, the CHRO strives to create a great place to work, which is highly linked to firm performance. This study includes firms that have been ranked as a Great Place to Work (GPTW), a proven and consistent index of companies has been in place since 1998 sponsored by the Great Place to Work Initiative ™. I capture the GPTW firm rankings from 2000 to 2014 and create a matched sample for a total of 248 unique firms with a total of 3968 firm-years of analysis. The results show a clear link between the CHRO level and ranking as a Great Place to Work. This is the first such study that provides a clear link between the CHRO and a firm-level outcome.

The third portion of this thesis provides a review of the characteristics and role of the CHRO over the 15 year period. A review of the human capital of the CHRO's over time highlights a dramatic shift in the gender balance to 51% female for the first time in 2014. The low tenure and frequent movement of the CHRO across the S&P500 sample raises questions concerning the careers in the profession as well as the ability for CHRO's to apply firm-specific knowledge for competitive advantage.

This study is the first to uncover a variety of insights related to the CHRO as the steward of human capital of the firm. Limitations, new research questions and implications for practice, and future research streams are discussed.

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Acknowledgements

Undertaking a doctorate degree after retiring from an active business career may be considered by many to be an unnatural act. This often times humbling experience of learning the science behind our profession of management has been a rewarding experience that would not have been possible without the active support and encouragement of my family. I first must pay a special thank you to my wife, Teresa for her patience, understanding, and forgiveness as I have taken yet another career choice that strains family life. To my children, Margaret Anne, Michael, and Madeline who have grown up accustomed to my absence from home, I thank you for your understanding and encouragement while I have been engrossed in my research and grappling with being a student again. Perhaps my adventure will serve as a reminder of the importance of ongoing education in your lives.

It is one thing to be dedicated toward the accomplishment of a dissertation, yet is quite another to find one's way through the process to completion. To guide me, prod me, and question me along the way was not an easy job since I do not represent a typical Ph.D. student. Toru Yoshikawa took on this challenge as my supervisor and patiently guided me along the way. His responsiveness, understanding, and insight were exactly what I needed to see this project through. Thank you Toru!

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In short, taking on the challenge of a Ph.D. after the age of 50 is not an individual undertaking. It requires a team of supporters at home and across the university. I am fortunate to have support in every direction to make this endeavor possible. Thank you.

Introduction: Statement of the Research Problem

In recent years, research has firmly established a strong linkage between human capital and firm performance (Crook, Todd, Combs, Woehr, & Ketchen, 2011; Hitt, Biermant, Shimizu, & Kochhar, 2001). The increasing focus on human capital as a critical resource of the firm has brought about a convergence of the research related to the resource-based view (RBV), strategic human resource management (SHRM), and high performance work practices (HPWP) (Combs, Liu, Hall, & Ketchen, 2006; Ployhart & Moliterno, 2011). While the advances of research have shed light on the practices related to human resource management, the strategic considerations of human capital for competitive advantage continue to be an elusive area. A recent survey by the Conference Board shows that human capital is the number one challenge facing CEOs today (Mitchell, 2014). More work is needed to help further our understanding of managing human capital as a strategic resource of the firm.

Managing human capital is generally considered to be the primary role of human resource professionals in the firm. Typically, the human resource (HR) leaders and department are charged with developing the policies, practices, and customs for managing employees (Barney & Wright, 1998). While human capital is viewed as a strategic resource of the firm, the role of the head of the HR function or Chief Human Resource Officer (CHRO) has only recently emerged as a senior position worthy of a seat on top management teams. Given the increasing focus on human capital for competitive advantage, the role and positioning of the CHRO begins to emerge as a critical consideration for top management.

The research on the top management team (TMT) is well documented as various disciplines converge to understand the functional team member roles and to explore the composition, size, power, and impact of these roles (Menz, 2012). Studies have highlighted the roles of the chief operating officer (Marcel, 2009), the chief information officer (Banker, Hu, Pavlou, & Luftman, 2011), chief financial officer (Venus & Engelen, 2012), and the chief marketing officer (John, 2008; Nath & Mahajan, 2011). Notably absent from the functional TMT research is insight on the role, positioning, power and impact of the CHRO.

This gap in the upper echelon and TMT research is notable as the strategic management scholars have only recently taken more interest in human capital. In the disciplines of human resource and organizational behavior, scholars have largely centered on the practices and policies of the profession, not the nature and the role of the CHRO, leader and steward of the human capital resource of the firm. Not only does this gap in the literature leave unanswered questions for researchers, but also creates uncertainty in practice. While many human resource professionals make arguments for HR as a strategic function, little evidence exists to support how the HR function and the CHRO role should be positioned in the firm to create positive results (Tamkin, Reilly, & Strebler, 2006).

Addressing the role and positioning of the CHRO is important for two key reasons. First, taking a strategic view of the CHRO and uncovering more about this role in light of the TMT research will further our understanding of functional TMT membership. Second, exploring the linkage between the CHRO and HR practices will help uncover insight on the context and implementation of HR practices. Through this effort, I aim to explore the intersection of the strategy

research on top management teams and the strategic human resource research on high performance work practices.

Purpose of this Research

This research centers on the role of the Chief Human Resource Officer (CHRO) with the purpose of addressing the gaps in literature and the questions in practice. To date, limited work has been done to understand the positioning and impact of the CHRO. What drives the strategic rise of the CHRO position in the firm? What is the impact of this role on HR outcomes and firm performance? The purpose and contribution of this research can be considered in three distinct sections:

Part 1: Uncover the Antecedents that Give Rise to the CHRO on the TMT

Functional TMT research highlights the importance and the rise/fall of roles such as the CMO, CTO, COO, CFO, etc. to the TMT, but not the CHRO role. From my preliminary analysis, the rise of the CHRO to the upper echelon seems clear, but the antecedents have not yet been considered. *What factors cause firms to elevate the CHRO to the TMT? Why do companies appoint a CHRO?* Using contingency theory, this study uncovers the factors that are driving this trend. Using a panel data from the Standard and Poor's composite index of 500 firms, this research highlights new perspectives on the potential factors that contribute to the rise of the CHRO to the TMT. This study provides insight and adds to the literature on not only the CHRO role, but also the changing nature of the TMT functional roles.

Part 2: Identify the Impact of the CHRO role

Upper echelon researchers have studied the power structures of the TMT and the influence of roles on strategic outcomes, but the impact of the CHRO role is not yet fully explored. Given the critical nature of human capital in the firm, understanding the impact of the CHRO in the TMT will shed light on the influence of this role. As noted by Finkelstein (1992), the individual members of the TMT do not work in isolation as they are affected by the CEO's orientation as well as other members of the TMT. Building on recent work related to the impact of functional TMT members (Medcof, 2008; Nath & Mahajan, 2011), this study will further our understanding of influence in the upper echelon related to the CHRO.

To consider the impact of the CHRO, I use the evidence of good human resource practices in the firm as shown by being a "Great Place to Work." Does the presence of a CHRO in the TMT make an impact on good human resource practices? Under what conditions (TMT dynamics, CEO orientation) is the CHRO effective? The CHRO will work to positively influence the firm toward high performance work practices. However, the success of such efforts may depend on the TMT and CEO dynamics that affect the impact of the functional leader.

HPWP have been identified as one of the ideal outcomes for HR professionals as a way to contribute to firm performance. *Under what conditions is the CHRO best able to make an impact on the outcomes of the firm?* This linkage of the CHRO role and the outcome of being a great place to work will provide a unique contribution to the TMT and strategic HRM literature.

Overall, this research study brings together the disciplines of strategic human capital, human resource management, and the top management team in a way that provides new insights on role that is responsible for the human capital of the firm. These insights make a contribution to the TMT literature and to the strategic HRM advocates by clarifying the impact of the CHRO role.

Part 3: Review the Human Capital of the CHRO

As this is one of the first studies to examine the role of the CHRO, I have taken the opportunity to better understand the human capital of this role. While there are several studies that highlight CEO, CFO, and other top leader demographics to better understand potential links between such factors as age, gender, education, tenure, and compensation, no such study has reviewed these factors for the CHRO to date (Menz, 2012).

In this part of my research, I intend to address the question, "Who is in the CHRO Role?" This analysis of the data on CHROs will provide insight on the trends shaping the careers of HR professionals and potentially surface new findings related to the factors that drive success in human resource. This analysis will include a few of these factors over time, by industry sector, and include a comparison related to being a Great Place to Work.

This portion of the study aims to provide a review from which new research ideas and agendas may surface. This review of the CHRO role will be of interest to both HRM and TMT scholars interested in this emerging role in firms today.

Background/Literature Review

The scope of this research effort spans across the disciplines of strategic management and human resource management. It is important to address the literature in these often divergent areas in a way that fits with the focus of this effort. I therefore will cover the literature in three distinct sections. First, I will start with a review of the human resource management including the human resource function. Second, I will cover strategic human capital including the resource-based view of the firm, strategic human resource management and high performance work practices. Third, I will review the work on top management teams including upper echelon theory, the composition of the TMT membership, the dynamics of the TMT, and functional roles in the TMT.

1. Human Resource Management

Early Origins of the HR Function

To appreciate the context and role of the chief human resource officer, it is often helpful to understand the origin of the human resource function. The intellectual origins of human resource management can be traced back to the labor and industrial economist, John R. Commons who published *Industrial Goodwill* in 1919 (Kaufman, 2001). With the early focus on addressing labor problems, the industrial and labor relations discipline grew with the industrial revolution. While labor was abundant and cheap, the practices were basic and policies not formalized. At this time, it was not considered important enough to create a separate department or group to address labor issues (Matherly, 1926). In much of the world, the situation changed during the First World War as labor

resource became scarce and more valued, giving rise to the introduction of the "Personnel Administration Department."

Peter Drucker introduced the term "Human Resource" as a concept for workers and suggested that employees can be resources comparable to other firm resource (Drucker, 1954). The idea of a Human Resource Function evolved from Bakke's 1958 description of a needed managerial function to address personal administration, labor relations, human engineering, and executive development (Marciano, 1995). Over time, the function grew in both scope and prominence fueled in part by regulatory compliance as labor laws, employment practices, and public sentiment on employment have evolved.

Human Resource Management as a Research Field

Human resource management (HRM) was brought to prominence in the academic literature in the 1980's as a new field of study through the work of Tichy, Fombrun, and Devanna (1982) followed by the seminal work by Beer, Spector, Lawrence, and Mills (1985) outlining HRM as a construct. Scholars expanded research on HRM practices, and suggested an aspirational relationship between strategy and HRM practice (Miles & Snow, 1984; Schuler & Jackson, 1987). As a result, the notion that human resource management can actually create strategic value was popularized in both practice and research (Lengnick-Hall, Lengnick-Hall, Andrade, & Drake, 2009). At the same time, there was a significant amount of work to be done to understand the impact of human resource practices at a micro level.

Many organizational behavior and human resource management scholars have advanced the micro-level understanding of practices in the areas of

managing individuals in such areas as recruitment, selection, performance management, compensation, incentives, training, job design, and motivation. The advances in the micro-level research have helped to further the understanding of effective practices and have created depth to the HR profession in practice.

The Changing Role of HR Professionals in Practice

The micro-level HRM advances have also helped define the HR profession through organizations such as the Society of Human Resource Management in America and the Chartered Institute of Personnel and Development in the UK. These professional societies, along with other country-based associations, have established professional standards and certifications for those in the HR profession. David Ulrich's book (1997), *Human Resource Champions*, defined clear roles for HR practitioners and accelerated the movement away from HR administration to HR management. Ulrich introduced four conceptual roles (HR Business Partner, Change Agent, Administration Expert, and Employee Advocate) that remain prominent in practice today and serve as an organizing mechanism for the HR function of the firm.

With deep roots in administration, the HR function has been transitioning to a more strategic management role in the firm. Since the late 1990's leaders in HR functions have been working to change the nature and reporting of the function through a process of "HR Transformation" as outlined by Michael Beer (1997). Following the scandals and failings of business leaders in the 2000's (e.g. Enron, Tyco, Countrywide, Lehman, etc.), additional focus on HR at the senior levels as further escalated the prominence of HR. Legislation such as Sarbanes Oxley Act and the Dodd-Frank Financial Reform, and the Consumer

Protection Act coupled with public sentiment on executive compensation, performance management, and succession created more need for HR involvement in senior management (Wright & Snell, 2005). While these regulations had a direct impact on the services industries, the overall orientation and focus on risk management became clear across all industry sectors. This overall elevation and change in the HR function is outlined by Wright, et al. (2011) in three stages: first, going strategic in the 1980's, second, getting a seat at the business table in the 1990's, and third, addressing failings of leaders in the 2000's. The rapid change of the HR function has been a rich period of growth for practitioners and researchers alike as new insights and findings have been uncovered. Yet, in this rapid formation and escalation of the HRM practice and function, little work has been done to understand the emerging role of the Chief Human Resource Officer as the leader of this now strategic function in the firm.

High Performance Work Practices

Building the links between HR practices and firm performance was first clearly demonstrated by Mark Huselid (1995) and his seminal research that defined high performance work practices (HPWP) and linked them to corporate financial performance. In short, high performance work practices include elements that foster motivation (e.g., incentive compensation, employee participation), employee skill development (training), and employee consideration (e.g., flexible work arrangements) (Becker & Huselid, 1998). As a result of these practices, organizations experience lower turnover, higher productivity, and better decision-making (Kehoe & Wright, 2013; Posthuma, Campion, Masimova, & Campion, 2013). While some argue that such "best"

practices increase labor costs (Cappelli & Neumark, 2001), it is generally accepted that the adoption of such HPWP are linked with improved firm performance. Several studies have also confirmed this linkage in various industries (Collins & Clark, 2003; Ichniowski, Shaw, & Prennushi, 2013), across geographies (Guthrie, 2001; Takeuchi, Lepak, Wang, & Takeuchi, 2007; Wang, Yi, Lawler, & Zhang, 2011), and over time (Tregaskis, Daniels, Glover, Butler, & Meyer, 2013). The research shows strong results through meta-analysis, yet uncovers a stronger relationship in the manufacturing sectors (Combs et al., 2006) due to the focus on managing capital investments, which can be associated with higher employee skill levels (Datta, Guthrie, & Wright, 2005). Research and documentation of high performance work practices continues to make advances as scholars identify potential taxonomies (Posthuma et al., 2013) and implementation insights for practice.

The measurement of HPWP is completed through company surveys and the results are generally held privately. One such listing of firms with high performance work practices is completed by the Great Place to Work Initiative each year since 1998. The evaluation and publication of the "100 Best Places to Work" follows a methodology each year to select the best employers based on the results of the work practices. Each firm must complete manager surveys, employee surveys, and company information that is then evaluated by the Great Place to Work Initiative (Burchell & Robin, 2010). This research is completed each year that represents more than 6,000 organizations, 50 countries, and 10 million employees (Levering, 2014). The Great Place to Work results have been verified with academic researchers to show that firms on the 100 Best list demonstrate effective work practices and show superior firm performance

relative to their peers (Fulmer, Gerhart, & Scott, 2003; Riggle, Edmondson, & Hansen, 2009) . The Great Place to Work initiative and other similar efforts have helped highlight the potential benefits of adopting high performance work practices amongst the human resource practitioners.

While high performance work practices have captured the attention of practitioners and researchers, the role of human resource professionals in adopting such practices has not yet been fully considered (Murphy & Southey, 2003). While creating an effective workplace is typically a goal of human resource leaders (Boxall & Purcell, 2003), limited work has been done to determine the factors such as the positioning and power of the CHRO in successfully adopting HPWP. By understanding the role of the CHRO and the impact on outcomes that affect firm performance, I hope to bring new insight for practice and research.

2. Strategic Human Capital

Origins and Resurgence with RBV

While the concept of human resource management was evolving as a function within firms, economists had started to recognize human capital at a national level. From an economic perspective, human capital is the capability of the labor force in a nation that can lead to economic progress and advantage (Burton-Jones & Spender, 2012). The term human capital became popularized by the Nobel Prize winner, Gary Becker, with his book on Human Capital (1964). Economists continue to use various measures of national human capital in relation to productivity and economic prosperity (Barro, 2001; Mincer, 1974; Schultz, 1961).

Around the same period, management scholars also recognized that the firm can be considered as a bundle of resources and capabilities that combine to develop competencies that can fuel growth (Penrose, 1959; Selznick, 1957). The introduction of the resource-based view (RBV) of the firm by Wernerfelt (1984) followed by Jay Barney's framework (1991) restarted the interest on internal firm resources such as human capital. While there are varying definitions, human capital is generally defined as the knowledge, skills, and abilities embodied by people of the firm (Coff, 2002). The resource-based view suggests that for sustained competitive advantage, resources such as human capital must be viewed as valuable, rare, without substitute, and non-inimitable (Barney, Wright, & Ketchen, 2001). While some debate about RBV continues among scholars (Barney et al., 2001; Barney, 2001; Lockett, Thompson, & Morgenstern, 2009; Priem & Butler, 2001), the general notion that internal firm resources can be a source of competitive advantage is widely accepted. Building on the RBV perspectives, scholars extended the idea of resources to consider dynamic capabilities (Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997) and other internal resources (Hoskisson, Hitt, Wan, & Yiu, 1999) which has further increased the interest on the human capital of a firm. Scholars in the fields of both strategy and in HRM are working to better understand the links between human capital and firm performance, however from two slightly different perspectives.

Human Capital: A Top-down Perspective

Researchers in strategic management have studied human capital as a firm resource and have found strong links to firm performance (Crook et al.,

2011; Frank & Obloj, 2014; Hitt et al., 2001). Drawing on RBV, strategy scholars take the argument that resources can create competitive advantage and that more work should be done to understand the "Human Capital Resource" (HCR) of the firm (Barney & Wright, 1997). The initial arguments towards a human capital theory by Lepak and Snell (1999) increased the interest in better understanding the human capital resource from a top-down perspective. The emergence of the human capital resource as a source of competitive advantage has given rise to the challenge of considering a multi-level model (Ployhart & Moliterno, 2011) and new interest in "micro-foundations"(Barney & Felin, 2013; Eisenhardt, Furr, & Bingham, 2010; Foss & Lindenberg, 2013). This new orientation has prompted some interest in a more multidisciplinary approach to consider combinations of the human capital resource that are complex and firm-specific (Ployhart, Nyberg, Reilly, & Maltarich, 2014).

The emphasis of firm-specific knowledge and resources may enable the firm to create resources that can lead to sustainable competitive advantage through the development of specialized skills or practices (Barney, 1991; Wang, He, & Mahoney, 2009). Due to the critical nature of firm-specific investments, research has shown that innovative knowledge assets can lead to asymmetry among managers as there is a need to provide more managerial discretion in making decisions related to resources (Wang & Barney, 2006). When investing in firm-specific resources, the informal employee relations may become more critical to foster employee willingness to support firm interests (Wang & Barney, 2006; Wang et al., 2009). This focus on innovation may de-emphasize standards across departments and lessen the importance of a central human resource functional leader. In this case, the management of the human capital of the firm

becomes a critical function of line managers instead of a functional leader such as a CHRO.

Still other research veins are working to incorporate both human capital and the idea of social capital (Buller & McEvoy, 2012). While many insightful practice approaches to human capital have embraced this concept of human capital as a complex system that is linked to strategy (Thomas, Smith, & Diez, 2013), the research agenda is now aligned to provide new insights in this direction.

SHRM: A Bottom-up Perspective

HRM scholars generally distinguish strategic human resource management (SHRM) as a separate and distinct field from the micro-human resource management (Boxall, Purcell, & Wright, 2007; Jackson, Schuler, & Jiang, 2014). Strategic HRM is centered on organizational performance and emphasizes HRM as a system instead of a collection of practices targeted at individuals. SHRM scholars have also clearly linked to the RBV movement to build momentum for HRM as a strategic consideration (Wright, Dunford, & Snell, 2001; Wright & Snell, 1998). Several conceptual and theoretical arguments have been put forward in SHRM to lay the groundwork for linking HRM to firm performance (Becker & Huselid, 2006; Ferris, Hochwarter, Buckley, Harrell-Cook, & Frink, 1999; Jackson et al., 2014; Wright & Snell, 1991). However, the aptly named "black box" that clearly links specific HR policies and practices to unit level performance has been a somewhat elusive in both research and practice. Viewing the human capital resource as the mediator

between HRM practice and firm performance, SHRM scholars take a "Bottom-up" approach towards the same goal of understanding this linkage.

We are at a time of convergence between the fields of SHRM and strategic human capital as scholars work to bridge the micro and macro domains (Crocker & Eckardt, 2014; Huselid & Becker, 2011). At the same time, the financial impact of such HR programs and the valuation of human capital in both practice and research is starting to raise new questions (Fulmer & Ployhart, 2013). While this offers an exciting future of providing new insight in the field, it will also raise challenges related to casual ambiguity, system complexity, and context-specific differentiation.

Strategic Human Capital in Practice

The notion that human capital is a strategic resource has been widely accepted in practice as evidenced by popular press (Michaels, Handfield-Jones, & Axelrod, 2001), management consultants (Smith, 2010), and leadership forums such as the World Economic Forum (Schwab, Sala-i-Martin, & Greenhill, 2011). The Conference Board survey of CEOs puts human capital as the top challenge that CEOs are facing in both 2013 and 2014 (Mitchell, 2014). While there is general acknowledgement of the strategic nature of human capital in both research and practice, little attention has been placed on how the human resource professionals in the organization can help address the challenges associated with the human capital resource. Bruce Kaufman (2012) provides a critical review of the progress in strategic human resource management in the United States over the last 30 years and suggests that we deserve a D or F grade due in part to the lack of actionable managerial principles for practice. In other

words, we have agreed on the strategic nature of human capital, yet have provided practitioners few clues that they can use to address this area of business management.

So what does a strategic human resources leader do in practice to add value? While some perspectives on the role of the senior human resource leaders being strategic partners (Barney & Wright, 1997) have helped position the function in a strategic light, little has been done to shed light on the role of human resource professionals. Some research has shown that the capabilities and effectiveness of the human resource professionals do in fact make an impact on results (Huselid, Jackson, & Schuler, 1997; Park, Gardner, & Wright, 2004), however the causal linkage is unclear. As such, how does a firm determine and/or justify the role of the CHRO? The ambiguity and the unclear value of such a role remain a challenge for those who might advocate the strategic nature of human capital and the need for a CHRO to be present in the top management team. Data from such efforts as the Cornell University CHRO survey (Wright, Stewart, & Cornell University, 2011) provide some insight on the activities occupying the time and attention of the CHRO, but lack the insight about the power and impact of the role (excerpts from this survey are found in Appendix A). More research is needed to help understand the rationale for escalating the CHRO role and the impact of such a role on firm performance. To date, much work has been on other top management team roles and I will cover that literature in the next section.

3. The Top Management Team and the Upper Echelon

Upper Echelon Theory

The seminal work by Hambrick and Mason (1984) put forth the idea that the firm is a reflection of the top management team and ignited research on boards and top executive teams. The concept of the upper echelon making strategic choices about the firm comes from the earlier perspective by John Child (1972) who advanced the concept of a "dominant coalition" from Cyert and March's (1963) work on the behavioral theory of the firm. Hambrick and Mason built on these prior concepts to put forth the idea that senior executives use their cognition, perceptions and their degree of power to influence the strategic choices that result in organizational outcomes. In other words, the firm changes and takes shape as a reflection of the top management team.

Significant research has been done to understand the role and the impact of the chief executive officer (CEO) due to the perceived importance of this role in both management and governance of the firm (Daily & Schwenk, 1996). With the increasing complexity and globalization of business, insightful scholars have considered the impact of governance (Yoshikawa & Rasheed, 2009) and board composition (Dalton, Daily, Ellstrand, & Johnson, 1998; Dalton & Dalton, 2011). The increasing pace of business coupled with new levels of risk and uncertainty has placed more demands on the role of the CEO (Cannella, Park, & Lee, 2008). The performance, power, and compensation of CEOs have been a subject of substantial research over the last several decades (Core, Holthausen, & Larcker, 1999; Haleblian & Finkelstein, 1993; Warner, Watts, & Wruck, 1988), however more attention is now being placed on the top management teams. Recognizing the limitations of one individual, business leaders are relying more

on the combined capacity of the top management teams (Cannella et al., 2008). As such, the study of the top management team and the individual members is a relatively new and growing stream of research (Menz, 2012).

The Changing Composition of the Top Management Team

The Top Management Team (TMT) or "C-suite" is generally defined as the CEO and the direct reports to the CEO. (Carpenter, Geletkanycz, & Sanders, 2004). Following the general concepts of specialized leaders outlined by Mintzberg (1973), many firms have increased the number of functional leaders on the TMT to address the demands and complexity facing businesses today (Guadalupe, Li, & Wulf, 2014). These functional leaders often include such titles as the Chief Technology Officer (CTO), Chief Marketing Officer (CMO), Chief Strategy Officer (CSO), and Chief Human Resource Officer (CHRO) and are aligned to the management of the business function. Historically, the TMT members primarily included general management positions that lead designated units of the business based on product, segment or geography. As businesses have grown in complexity through globalization, new competition, and technological advances, the composition of the top management team has changed (Guadalupe et al., 2014).

The antecedents and consequences for these changes to the TMT have been explored for several of the functional roles. For example, the history and the rise of the CFO role has been linked to not only accounting regulation but also to the increasing drive for shareholder returns (Zorn, 2004). The rise of the chief strategy officer has been linked to structural complexity of the firm (Menz & Scheef, 2013), while the presence of a chief information officer on the TMT

has been linked to business strategy when technology is a differentiator (Banker et al., 2011). Recent work to review supply chain management executives presence in the TMT shows that operating margins are lower when a Chief Supply Chain officer is present in a TMT (Wagner & Kemmerling, 2014). What are the antecedents to the rise of the CHRO to the TMT? No research has been done to date to shed light on the rise and consequences of the CHRO in the TMT.

Top Management Team and the CEO

In most cases, the CEO has an impact on the composition and the nature of the TMT of the firm. The CEO operates at a level above the other TMT members and is often put into a dual role as both chief executive officer and chairman of the board in many US firms. Significant research has been done on the role, power, and impact of the chief executive officer on the firm (Carpenter et al., 2004). Studies have considered succession (Huson, Malatesta, & Parrino, 2004), duality (Baliga, Moyer, & Rao, 1996), and types of experience (Carpenter, Sanders, & Gregersen, 2001). While many of these efforts attempt to directly link CEO characteristics to firm performance, the results are often mixed. Over the years, the focus of research has shifted from being CEO-centric to an upper echelon orientation as evidence has suggested that certain factors, changes, and demographics among the TMT members are better predictors of outcomes than the elements of a CEO considered independently (Dalton et al., 1998; Wiersema & Bantel, 1992). Others have suggested that it is more meaningful to understand the CEO tenure along with the CEO-TMT relationship to improve the line of sight impact of the CEO influence (Simsek, 2007).

While the dynamics of the relationship between the CEO and TMT are not easily understood in research due to the contextual nature, it is clear that the tenure of the CEO may have an impact on the structural and managerial decisions. Historically, scholars suggested that CEO tenure could be viewed in stages such as a life cycle (Hambrick & Fukutomi, 1991). This relationship between tenure and performance is now acknowledged as a bit more complex (Carpenter et al., 2004), yet tenure does generally shape the risk-taking behavior of the CEO. This might suggest that the degree to which a CEO is wedded to the status quo could be a factor in the TMT composition.

CEO tenure can play an important role in structural decisions such as those related to the composition of the TMT and the rise of functional leader levels (Crossland & Hambrick, 2007). Research on CEO decision-making shows that tenure is highly linked to decision-bias (Chiu, Pathak, Hoskisson, & Johnson, 2014) which is consistent with other human behavior studies related to the preference of the status quo over time (Kahneman, Knetsch, & Thaler, 1991). Therefore, CEO tenure could be an important factor when considering the composition or changes to the composition to the TMT.

In addition to CEO tenure, the CEO work experiences also can play a role in strategic decisions (Carpenter et al., 2001). Managerial skills have recently become more important than specific functional or firm-specific skills for CEOs (Murphy & Zabojnik, 2004). General skills have been clearly linked to CEO compensation (Custodio, Ferreira, & Matos, 2012) and show that the general orientation is brought about through prior positions, firms, and industries that shape the perspective and orientation of the CEO. The orientation of the CEO could also have an impact on the human resource management programs and the

ability of the CHRO to execute more strategic initiatives. This and other factors related to the demography of the upper echelon continue to be of high interest as researchers examine indicators of the potential outcomes of the firm in active streams of TMT research (Hambrick, 2007).

Dynamics in the TMT: Heterogeneity, Interdependence, and Power

Following the seminal work of Hambrick and Mason (1984) which suggests that it is combination of the TMT membership that influences the outcomes of the firm, several studies on the diversity and composition of the TMT were launched. While there is general belief that TMT diversity creates improved decision processes and therefore improved firm outcomes, the evidence is rather mixed (Knight et al., 1999). In addition, the causal ambiguity is high as it is often unclear how TMT members influence each other and the organization towards an outcome (Priem, Lyon, & Dess, 1999). More recently, the heterogeneity of the TMT has been shown to be linked to firm performance in light of conditional factors such as international expansion strategy (Carpenter & Fredrickson, 2001; Naranjo‐Gil, Hartmann, & Maas, 2008). The heterogeneity of the TMT has been called a "two-edged sword" (Finkelstein & Hambrick, 1990) since greater diversity can have both positive and negative effects. On one hand, greater diversity can lead to an increase in alternatives, considerations, and thoroughness. On the other hand, it can lead to conflict, communication challenges, and slower decision-making (Cannella et al., 2008). The heterogeneity of the TMT has been shown to affect TMT power (Smith, Houghton, Hood, & Ryman, 2006). Heterogeneity of the TMT is also linked to increasing internationalization (Carpenter & Fredrickson, 2001).

Structural interdependence has most recently come to the forefront as a moderator of upper echelon predictions (Hambrick, Humphrey, & Gupta, 2014). Interdependence, the degree to which individuals affect each other when performing their roles, has long been studied in the team literature and recently studied in relation to the TMT (Barrick, Bradley, Kristof-Brown, & Colbert, 2007). The structure of the TMT can take on both a vertical dimension, a hierarchy based on their levels, as well as a horizontal dimension, the degree to which the roles are arranged to affect each other (Hambrick et al., 2014). This nascent area of research is continuing to evolve as researchers study the nature of TMT structures.

New studies that incorporate heterogeneity and structural interdependence as part of a research model will help make a significant contribution to the understanding of the TMT dynamics. This is an area that will help further the effect of the upper echelon theory in the context of TMT member power.

Power in the context of the TMT is generally defined as the capacity of the role holder to exert his/her will (Finkelstein, 1992). When considering the strategic choice of TMT members, scholars argue that power must be considered as a central element that can affect outcomes (Child, 1972). Finkelstein (1992) outlined a set of dimensions that include structural, expert, ownership, prestige, and relationship as sources of TMT member power. While a number of these dimensions relate to the individual characteristics of the role holder, the measurement and use of position power has been accepted in the TMT research when considering power distribution (Smith et al., 2006), power concentration (Greve & Mitsuhashi, 2007), and CEO power (Pollock, Fischer, & Wade, 2002).

Limited work has been done regarding the power of individual TMT members to understand how the role might be positioned to influence outcomes.

Functional TMT Members

As the composition of top management teams has shifted in the last several years, several researchers have worked to understand the nature and impact of many of the functional roles. One of the key principles in TMT research is that the addition of a functional TMT member affects the outcomes (Hambrick & Cannella, 2004) as outlined in the upper echelon theory. This emerging stream of TMT research has been approached both by functional research (marketing, accounting, information systems, etc.) as well as by strategic management scholars. Research on functional TMT roles has led to new insight with several roles (for a complete overview of functional TMT member research, see Menz, 2012).

For example, there has been active debate in practice and research about the reporting and position level of the chief information officer (CIO) of the firm(Gerow, 2012). While many argue that the CIO should report directly to the CEO and be at the same level as other TMT members, the research suggests that this argument only holds true when certain organizational conditions are in place (information technology is core to the differentiation strategy). Otherwise the CIO is better positioned as a part of the CFO team as a means to realize efficiency synergies (Banker et al., 2011). This new research on the role of the CIO has helped lend insight to practice while also adding to the perspective on functional TMT membership.

In the field of marketing there has been significant debate on the value of a chief marketing officer (CMO). A study by Nath and Mahajan (2011) found that neither the presence nor the absence of a CMO in the TMT had any effect on firm value. However, they also identified the importance of power for functional TMT members and found a potential effect of the CMO role on sales growth in highly divisionalized TMTs. This new insight has spurred other research efforts on the CMO role as the active debate on this role continues in both practice and research (Eric Boyd, Chandy, & Cunha Jr, 2010).

While the role of the chief financial officer (CFO) has been widely studied due to the regulatory requirements and the prominence in corporate risk profiles (Zorn, 2004), recent research is focused on the success and value in this role. In a review of generalist vs. specialist skills in the CFO role, Datta and Iskandar-Datta (2014) find that more 'scarce' and 'strategic' CFO command a higher pay premium than others. This stream of research on the human capital in the upper echelon furthers the understanding of what characteristics are desired and needed on the TMT.

Other individual TMT member studies have been conducted on chief strategy officers, chief sustainability officers, and chief technology officers, yet no study has yet been completed to help us understand the chief human resource officer (CHRO). Research on the CHRO could provide a welcomed addition to the growing stream of literature on the functional top management team members.

Conclusion of Literature Review

This review of the fields of research related to human resource management (HRM), strategic human capital, and top management teams (TMT) highlights a number of important findings in the current literature. First, the literature on strategic human resource management and strategic human capital are converging to create new insights on how to manage human capital as a resource. At the same time, limited work has been done to determine how to organize and manage the function charged with human capital management. The role of the CHRO seems to be rising to be a part of the TMT. Yet, it is unclear what factors are linked with the rise in the CHRO level and the impact of this role on the TMT. *What factors drive the rise of the CHRO to the top management team?* Addressing this question will add new insight to the TMT literature and provide needed clarity in practice.

Second, the research on HRM has confirmed a clear link between high performance work practices (HPWP) and firm performance, yet little has been done to understand the role or influence of human resource functional leaders in establishing these work practices. *Under what conditions does the chief human resource officer make an impact in making the firm a great place to work?* Addressing this question not only fills a gap in the research literature, but also helps answer questions about the CHRO in practice.

Part 1 – What drives the rise of the CHRO?

In this part of the research, I examine the antecedents that give rise to the CHRO to the TMT by considering firm human capital drivers and CEO decision-making factors. In this section, I will cover the research approach, methods, analysis, results, and note the limitations.

Theory and Hypotheses

To address the research question, I use contingency theory to identify the antecedents that give rise to the CHRO position in the firm. Similar approaches have been taken to understand the impact of the COO (Marcel, 2009) and the antecedents that give rise to the CSO presence in the TMT (Menz & Scheef, 2013). A summary of the research can be found in Appendix B.

There may be several reasons for a firm to raise the reporting level of the CHRO and add this position to the TMT. To determine potential antecedents, I completed an analysis of the literature on TMT functional leaders along with the HRM literature on HR functional leaders. Consistent with other TMT function-specific research, I narrowed the potential areas to a core set of antecedents that give rise to the role of the CHRO (Menz, 2012).

First, as firms grow their workforce, the complexity and intensity of the human capital challenges increases, which can increase the management attention on human resource (Boxall et al., 2007). Recent regulatory requirements have also increased the complexity related to employment practices. Compliance with such legislation such as Sarbanes Oxley Act and the Dodd-Frank Financial Reform has added to the complexity of human resource management practices (Wright & Snell, 2005). Risk management is often a

critical aspect of managing human resources. As the firm expands the base of employees, the management associated with ensuring the compliance of human resource practices increases.

As the workforce size increases, the additional human resource effort associated with the hiring, training, compensating, and retaining people also increases. In addition, the greater number of employees also increases the potential risks associated with employment and employee-related issues (Cascio & Boudreau, 2012). As a result, a firm with a large number of employees is likely to have a greater number of human resource professionals (Fitz-Enz, 2000). This relationship between the total number of employees and the human capital intensity is well established in practice. Generally, the human resource function is often benchmarked based on department cost per total employees or number of HR personnel to total employee population (Fitz‐enz, 1997).

Human Capital Intensity

The *human capital intensity* of the firm can place additional emphasis on ensuring the right human capital is available at the right time for the smooth operation of the business. I define *human capital intensity* as the number of employees in the firm. The work effort in human resource management is commensurate with the number of employees due to the nature of activities associated with attracting, hiring, compensating, and retaining employees. As the leader of the human resource function, the CHRO is expected to oversee the functions and processes to recruit, train, and retain the human capital to effectively execute strategies and operations (P. Wright et al., 2011).

While the management of this function can take on various forms, it follows that greater *human capital intensity* will escalate the management of this function to a more strategic level. Research on the rise of the CFO to more strategic levels was linked to a parallel intensity related to the work performed by the function, financial reporting (Zorn, 2004). I therefore expect that it is more likely for firms with a high human capital intensity to have a CHRO positioned at a higher level and as a part of the TMT than other firms.

> *H_1: Firms with higher levels of human capital intensity are more likely to have a CHRO in a higher level in the top management team than other firms.*

Innovation Intensity

Second, as competition intensifies, more firms are turning towards innovation to create competitive advantage. The increasing attention on innovation in recent years is notable. *The Wall Street Journal* reports that the number of companies that mention some form of "Innovation" in their quarterly reports has increased 64% in the past five years (Kwoh, 2012). Innovation often has direct implications on the human capital of the firm through practices requiring more creativity, risk-taking, and collaboration (Chesbrough & Crowther, 2006). Innovation can also require more context-specific human resource practices that foster creative and reward desired behaviors (Sartori & Scalco, 2014).

Firms with an orientation toward innovation often require specialized needs for skills in the organization, which can place additional demands and criteria on the recruiting and hiring practices of the firm (McKee, 1992).

Innovation activities are frequently centered on creating firm-specific capabilities that require unique sets of knowledge and skills. These firm-specific resources and the associated knowledge are not easily transferable outside the firm or even understood across organizational boundaries (Grant, 1996). The mix of human capital can also change as a firm may require more knowledge workers in key locations to support innovation. A focus on innovation may also bring about an increased level of attention to the environmental, social, and demographic impact on human capital, particularly in light of fostering innovation to introduce change (Wiersema & Bantel, 1992). Firm-specific knowledge and skills are required for innovation and can create a stronger appropriation of economic rents from R&D investments (Helfat, 1994). As a firm places more emphasis on innovation for future success, the demands for specialized talent and specialized human resources will likely increase, thus building *Innovation Intensity*.

Innovation intensity has been used as a variable in other functional TMT member studies as it may signal an increased need for functional expertise (Nath & Mahajan, 2011). It is logical to expect that a higher level of *innovation intensity* would lead to more strategic attention to human capital and highlight the value of managing an effective human resource capability. It would follow that this attention on value of human capital would elevate the level of the CHRO in the organization. Other TMT studies show that the increase of strategic importance of functional activity is linked to the rise of the functional TMT leader. Menz and Scheef (2013) find a positive link between strategic activity (e.g. mergers and acquisitions) and the rise of the chief strategy officer. Strand (2014) explores the rise of the chief sustainability officers and finds that the rise to the TMT is often related to the internal needs of the firm related to

sustainability practices. It follows that greater focus on innovation would lead to an increased level of human resource management and a corresponding rise in the level of the CHRO.

> *H_2: Firms with higher levels of innovation intensity are more likely to have a CHRO in a higher level in the top management team than other firms.*

International Complexity

Globalization of many industries continues to increase as firms look for new markets, seek favorable locations for operations, and face new levels of competition across borders. The need to manage human capital across multiple geographic regions requires knowledge and experience in local customs, regulatory requirements, and local relationships (Boxall & Purcell, 2003). The complexity of managing human resources across borders has been well noted by scholars in the strategic human resource management field (Sparrow, Scullion, & Tarique, 2014). The regulations for managing human resources across countries may require different policies and programs related to employment agreements, compensation, data management, working conditions, and benefits. In addition to regulatory differences, organizations often seek to create standards across geographic locations in areas such as performance management, employee development, career management, and communication. Balancing the desire for global standards with the cultural norms across borders is one of the common challenges related to international human resource management (Sparrow et al., 2014).

As firms expand globally, they often consider expansion in emerging markets and begin to think more strategically about the cost and availability of human capital needed for business operations (Rugman & Doh, 2008). The rapid rise in outsourcing to low-cost locations, the growing consumer markets in emerging economies, and new global business models have created significant shifts in the workforce demographics for many firms (Cascio & Boudreau, 2012). These workforce shifts coupled with the complexity of human resource practices across borders raise the importance of local and regional human resource management decisions, policies, and programs. This *International complexity* for a firm places additional requirements on location-specific knowledge. Local customs and practices would lead line managers to develop customized programs and solutions to address the unique firm-specific initiatives in their areas. Research shows that managerial discretion can help create more relationship-based governance mechanisms (Wang et al., 2009) which would be needed in international locations. This distribution of responsibility for strategic attention on human capital would therefore be resident in the local management rather than centralized into a common headquarters function. It would follow that these local needs would diminish the attention on central function and decrease the strategic importance and level of the CHRO in the organization. Other TMT studies show that the increase of strategic importance of functional activity is linked to the rise of the functional TMT leader. However, when this functional activity is embedded in the responsibility of the line management, there is no rise in power or level for the functional leader. This is illustrated by Lamberti and Noci (2009) in their study of the chief marketing officer under various market orientation structures. The same is true in the management of quality in firms.

While many firms once had specialized functions and managers for quality, these activities were moved to line positions over time to allow for firm-specific and location-specific application (Harrington & Williams, 2004). It follows that greater international focus will require more location-specific knowledge which would lead to an increase in local management focus on human resources and less reliance on a corporate functional leader such as the CHRO at the head office.

International complexity can not only add operational burden, but also accentuate the need for location-specific human resource policies and programs to be addressed. As *international complexity* increases it follows that the management of the human resource function becomes more localized, thus diminishing the need for an elevated level of the CHRO role in the top management team.

> *H_3: Firms with higher levels of international complexity are more likely to have a CHRO in a lower level in the top management team than other firms.*

CEO Tenure

Elevating the level of any functional leader requires a decision by the CEO. The chief executive officer must be willing to take the decision to make the structural change but may be resistant to making changes. Researchers have shown that tenure is highly linked to strategic decisions and firm performance (Finkelstein & Hambrick, 1990). Long CEO tenure has been linked to persistent, unchanging strategies and strategies that conform closely to industry standards (Finkelstein & Hambrick, 1990; Hambrick & Fukutomi, 1991). Studies have

examined the impact of CEO tenure in the context of making strategic choices and show a clear linkage between long tenure and persistence to the keeping the status quo (Chiu et al., 2014). Results consistently show that as tenure increases, the range of strategic choice becomes more limited as executives tend to stay in familiar patterns.

Factors such as increasing human capital intensity, innovation intensity, and international complexity, may signal a need for more focus on strategic human resource management. Early in the role, the CEO is generally more open to make adjustments based on this information, while a CEO with longer tenure may continue with the status quo (Henderson, Miller, & Hambrick, 2006). This is consistent with CEO research on the effect of tenure on decision making (Ferreira, Raisch, & Klarner, 2014; Miller, 1991; Weng & Lin, 2014).

Recent research on CEO tenure shows that as a CEO tenure increases, the firm-employee relationship becomes stronger (Luo, Kanuri, & Andrews, 2014), which may also decrease the CEO interest in making changes with HR leadership. It follows that as the CEO spends time with people in the organization, a degree of comfort and relationship is established. Not only is this true with the wider organization, but also with the TMT. A study by Simsek (2007) shows that the CEO-TMT interface is an important intervening mechanism for the execution of strategic activities and the formation of working relationships.

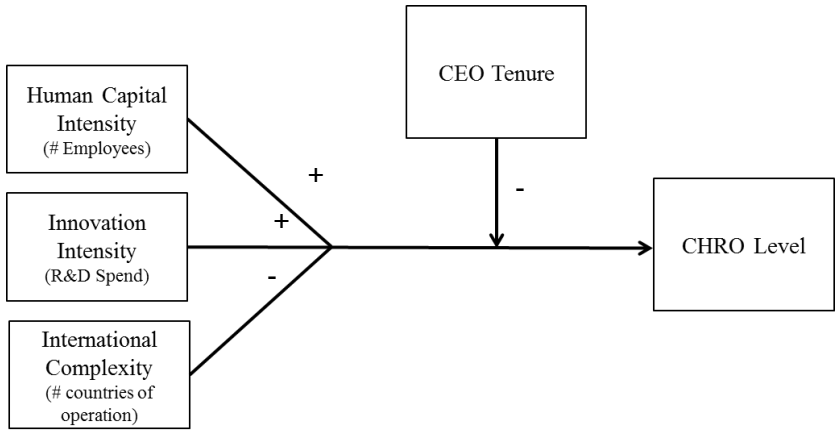
When considering the rising strategic importance of the CHRO role due to human capital intensity and innovation intensity, a CEO with a long tenure may be less likely to support a structural change by adding this role to the TMT while a CEO with a less tenure may be more likely to support such a structural

change. I therefore expect CEO tenure to moderate the relationship between firm factors (human capital intensity, innovation intensity, and international complexity) and the level of the CHRO.

H_4: The longer the CEO's tenure, the weaker the relationship between CHRO Level and the CHRO strategic drivers (human capital intensity, innovation intensity, and international complexity).

A summary of the conceptual model for the antecedents that give rise to the role of the CHRO is found in Figure 1.

Figure 1: Antecedents to the Rise of the CHRO



Research Methods

Sample and Data

To obtain a sample of firms, I used the Standard & Poor's (S&P) industrial index of 500 companies over a period of 15 years. Consistent with the findings of Combs, et al. (2006), industry can play a role in the orientation to human resources and impact of human resource management practices. In their

meta-analysis of high performance work practice studies, manufacturing firms consistently show a clear link between human resource practices and firm performance. Manufacturing organizations often rely more on human resource practices to develop skills and motivate employees (Evans & Davis, 2005). The complexity of manufacturing jobs often requires a higher skill level and a higher orientation towards quality than in the service industries. In service industries, the customer and other external forces influence the work environment and the work practices of the employees (Bowen & Ford, 2002). I have therefore considered industry as an important control in this study.

For each of the companies, I have collected data for a 15 year period (2000-2014) to examine lag effects and changes over time. The S&P 500 sample changes over time which reduces the size of the sample. In addition, the changes to firms through merger activity, de-listing, and restructuring have also reduced the sample. While missing data have slightly reduced the sample, the total firm years included is 4960. Consistent with other TMT studies, firm data was extracted from Bloomberg reporting. CEO information was obtained from BoardEx. CHRO information was obtained through BoardEx and manually through company annual reports for each of the firm-years. This sample size is more robust than other TMT studies to help draw out our understanding of antecedents of the rise of this functional role.

Dependent Variable

As described above, *CHRO Level* is the dependent variable as measured by the hierarchical title in the organization. Following other TMT researchers (Hambrick et al., 2014) the hierarchical level is calculated by counting the

number of title gradations in the upper echelon (always including the CEO as the top management position). To accomplish this, I reviewed TMT titles such as COO, EVP, SVP, VP, Director, and Manager to determine the level for the CHRO in the firm.

To ensure accuracy of this measure, I first determined the number and label for each of the hierarchical levels used by the firm (e.g. CEO=0, EVP=1, SVP=2, VP=4, etc.). I then determined the level of the CHRO within this firm-contextual leveling system. Since not every firm uses the title "Chief Human Resource Officer," I searched for the highest ranking title related to human resource management. For completeness, I searched for other titles that include naming conventions such as: "Chief People Officer," "Senior Vice President of HR," "Executive Vice President of Human Resources," "Global Vice President of Human Capital," "Chief Talent Officer," "Executive VP of People Matters," or "Director of Human Resources."

Independent Variables

Human Capital Intensity is defined as the number of employees in the firm. I measure *Human Capital Intensity* as the log of total of employees on record for the firm in a given year. The number of employees is retrieved from company reporting and captured in the Bloomberg database.

Innovation Intensity is defined as the emphasis on innovation for future success. I measure *Innovation Intensity* as the ratio of R&D expense to sales. R&D data is drawn from the Bloomberg database which is a proven source of accurate company financial information. This measure is consistent with other

TMT research using innovation as a variable (Menz, 2012; Nath & Mahajan, 2011).

International Complexity is defined as the dependence on international markets as a source of revenue. *International Complexity* is measured using the percent of international revenues to total global revenues. *CEO Tenure* is set to the length of time that the CEO is in the role. The tenure of the CEO will be recorded from BoardEx data.

As is the practice with other TMT research studies (Hambrick & Cannella, 2004), I will use a broad group of control variables such as: *Size* as measured by the logarithm of total revenues; *Industry*, as classified in primary SIC codes; *Firm Performance*, as measured by return on assets, and *Time*, as indicated by the year of analysis.

Analysis

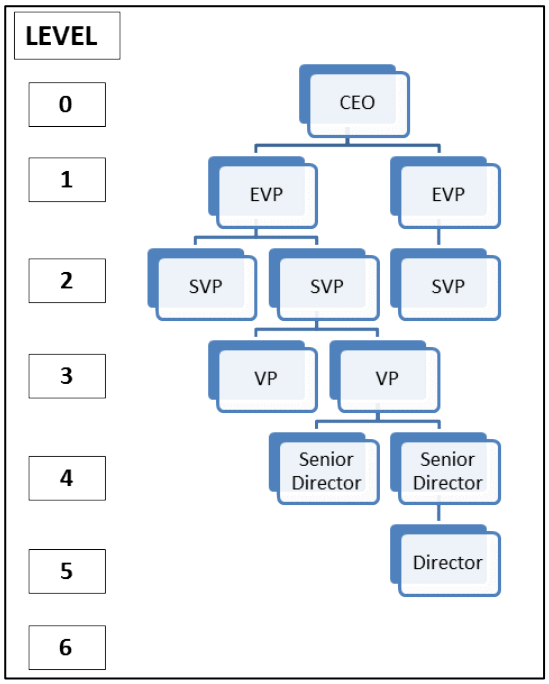
To assemble the data for this sample, I started with the Bloomberg datasets for the S&P 500 firms and extracted a historical set of firm data for the years 2000-2014. To capture the CHRO and CEO data, I extracted historical BoardEx data files on the top management teams for the S&P 500 group of companies over the same period. To merge these datasets, I created a unique firm-year key as a common identifier. This provided an unbalanced panel data set over the 15 year period for the S&P 500 companies.

To uncover the CHRO role in the TMT data, I completed a number of filters using various titles related to human resource management, human capital, people, and talent. While there were more than 100 unique title types, I found a relatively consistent use of human resources as a descriptor coupled with a

hierarchical title such as “Executive Vice President Human Resources,” or “Chief Human Resource Officer.” For each firm-year, I reviewed the human resource management positions reported by the firm in that year. If there was more than one role, I selected the most senior hierarchical title to represent the CHRO for that year. In the event of a transition year, I selected the individual that occupied the role for more time during that year.

To determine the level of the CHRO, I reviewed the levels in the TMT each year to identify the relative hierarchical level of the CHRO. Consistent with Hambrick et.al (2014), I used a method of categorizing titles to develop a numerical value. Considering the CEO as level 0, I then worked down the set of hierarchical titles to determine the level for each firm-year. After finding a maximum of five levels in the data set, I assigned a level 6 to each firm year where no CHRO appeared in the TMT data. This is consistent with the observation that each firm does have a role leading the human resource management function, but it may be at a lower level. An example of the numbering of levels is shown in Figure 2 below.

Figure 2: Illustrative Example of Determining the Level of the CHRO



To provide a clearer view of the results, I later reversed the level numbers so the greater numbers were associated with higher levels (i.e., reporting to the CEO = 6… no CHRO = 1). To address the time series nature of the data, I used a lag factor of one year (t -1) between the independent variables and the CHRO level. This is consistent with other TMT analysis approaches as the firm level factors may impact the nature and the level of the positions in the subsequent year (Menz & Scheef, 2013).

To formulate the effect of CEO Tenure as a moderating variable on the relationships of the other independent variables to CHRO level, I followed the common practice of centering the means of the independent variables to avoid multicollinarity (Kenny, 2008).

Given the nature of the unbalanced panel data, I completed the Hausman test to determine the appropriateness of either fixed effects or random effects

(Hausman & Taylor, 1981). The results indicated the need to use a fixed effects model which is consistent with the intent of understanding the differences within each firm over time. Using the fixed effects model will control for industry and other external characteristics of an individual firm.

A common challenge using unbalanced panel data is that of endogeneity. Using the instrumental variables estimator, I test for endogeneity and find no endogenous variables. For completeness, I also check for heteroskedasticity using the White/Koenker test statistic and find the disturbance is homoscedastic.

Results

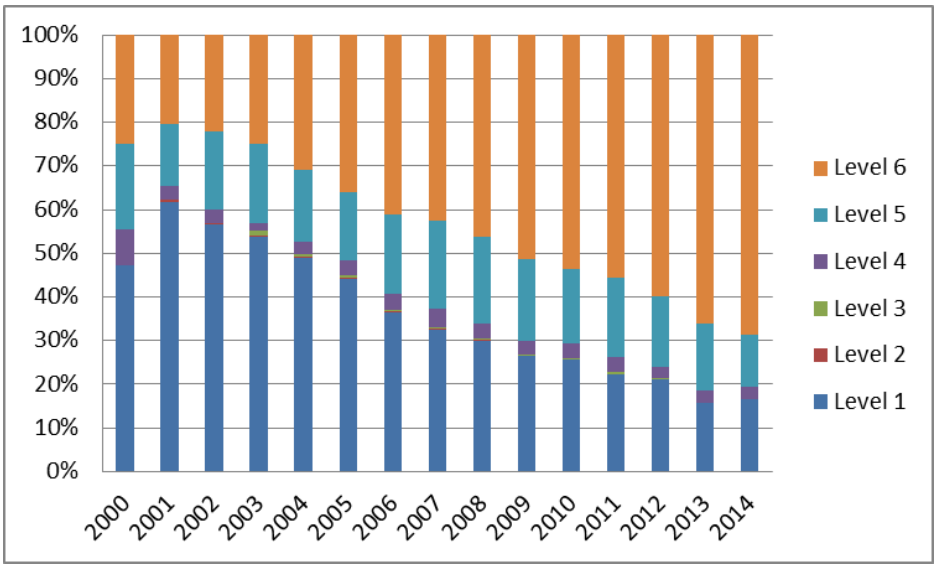
The descriptive statistics are shown in Table 1 for all the key variables. Since not all firms report R&D expenses and international revenue, the number of observations for these variables is significantly less than the other variables in the sample.

Table 1: Descriptive Statistics for Key Variables

Variable	N	Mean	Std. Dev.	Min	Max
CHRO Level	4,372	3.96	2.26	1.00	6.00
Firm performance	4,908	5.84	7.30	-99.94	101.43
Firm size	4,922	3.82	0.51	1.90	5.35
CEO Tenure	4,960	4.49	4.73	0.00	44.30
Innovation Intensity	2,859	3.14	5.16	0.00	43.49
Human Capital Intensity	4,418	4.18	0.62	0.95	5.73
International Complexity	2,702	0.24	0.27	-1.74	6.03

Taking a closer look at the changes of the CHRO level over time confirms the phenomenon of the rise of the CHRO to higher levels in the firm. This is illustrated in Figure 3.

Figure 3: CHRO Level Distribution over Time



The correlation matrix in Table 2 shows no significant correlations among the explanatory variables and the control variables. As expected, the total number of employees is significantly correlated with the control variable of total revenues. The correlations between CHRO level and the independent variables are all generally positive. Checking for collinearity using the Belsley, Kuh, and Welsch (1980) diagnostic yields a condition number of 40.49 that is relatively low, but over the suggested limit of 30 (using the coldiag function). This may be due to the relationship between the number of employees and the size of the firm.

Table 2: Correlation Matrix for Key Variables

	1	2	3	4	5	6	7
1 CHRO Level	1.00						
2 Firm Performance	0.07*	1.00					
3 Size	0.24*	-0.01	1.00				
4 CEO Tenure	-0.08*	-0.02	-0.03	1.00			
5 Innovation Intensity	0.00	0.04	-0.22*	-0.02	1.00		
6 Human Capital Intensity	0.22*	0.02	0.79*	-0.01	-0.15*	1.00	
7 International Complexity	0.12*	-0.24*	0.04	0.04	0.25*	0.23*	1.00

* = $p < .01$

The final results are shown in Table 3. I ran several different models to test for relationships. In the first model I test the control and independent

variables using fixed effects which yield an overall R^2 measure of 0.16. I also run the lagged model (the level in the next year) and find similar results. To understand any industry effect, I also run a random effects model and find no significance.

Table 3: Results of Regression Output

	Model 1[a]	Model 2[b]	Model 3[c]	Model 4[d]
Controls:				
Industry	-	-	-	Y
Year	Y	Y	Y	Y
Firm Performance	0.001	0.002	0.004	0.005
Firm Size	-0.383	-0.268	-0.653	-0.175
Independent Variables				
CEO Tenure	0.006	-0.015	0.048	-0.336^{+}
Innovation Intensity	0.064	0.078^{+}	-0.007	0.003
Human Capital Intensity	1.052*	1.003^{+}	1.132*	0.744^{+}
International Complexity	-2.416**	-2.377**	-1.458*	-0.443
Moderating Variables				
CEO Tenure x Innovation		-0.012	0.000	-0.011
CEO Tenure x Human Capital		-0.003	-0.006	-0.004
CEO Tenure x International		0.003	-0.013	-0.078
Constant	-.874	-1.023	0.287	-2.745
N	1162	1162	1086	1162
R^2	0.16	0.16	0.14	0.13

*** p<0.01; * p<0.05; $^{+}$ p<0.10*

a = fixed effects; *b* = fixed effects with moderators; *c* = fixed effects lagged; *d* = random effects

Human Capital Intensity as measured by the total number of employees shows a strong coefficient and is significant. Therefore, Hypothesis 1 is supported. As firms increase their total number of employees it is clear that there is an impact on the level of the CHRO. *Innovation Intensity* as measured by

R&D expense over total sales shows no significance. Therefore, Hypothesis 2 is not supported.

International Complexity as measured by the percentage of international revenue shows a large coefficient that is significant. Hypothesis 3 is supported. As expected, the negative coefficient shows that higher levels of international complexity are less likely to be linked with a CHRO at a higher level. The complexity of international regulation and local customs requires location-specific knowledge which would suggest that location-specific knowledge is needed instead of global functional knowledge. *CEO Tenure* does not show a direct effect and the moderator variables are also not significant and have mixed coefficients with only a slight impact on the overall model. Hypothesis 4 is therefore not supported. Consistent with other functional leader research, there is no clear link between the senior level presence of a CHRO and firm performance as measured by return on assets.

While the phenomenon of the rise of the CHRO is clearly shown in the data, the antecedents for this rise remain unclear. In this analysis I have uncovered a clear link between CHRO level and human capital intensity. I have also uncovered a link between CHRO level and international complexity, which suggests the need for location specific knowledge in HR management. The link between innovation intensity and the CHRO level also shows a weak relationship which is worthy of further exploration.

Discussion

This study is one of the first efforts to focus on the rise of the role of the CHRO. I have highlighted the phenomenon of the rise of this role to a more strategic level in the TMT. Little has been noted about the role of human resource professionals in research to date, and this clear rise in the level seems consistent with the rise in the academic interest in human capital as a strategic resource of the firm. I have explored this phenomenon by examining the antecedents that may contribute to this trend and have uncovered a clear link with international complexity.

The significant new finding on international complexity and the relation to global vs. local roles raises new insight on the challenge of global operations and raises new questions on nature of CHRO roles. To date, the review of local vs. global responsibilities has not been a consideration in the TMT functional research. This finding may be reflective of the differences between a multi-domestic international strategy, transnational strategy and a global corporate strategy.

In addition, human capital intensity shows a link with the level of the CHRO and highlights the potential relationship to the size of the employee base as human capital of the firm. While there have been streams of research on human capital practices, little has been done to consider the role of human resource leaders in managing the overall function.

As illustrated in this research, there is a clear rise of the CHRO over the past 15 years. Considering institutional theory, this may be attributable to the mimicking of institutional models (DiMaggio & Powell, 1983). As noted by Oliver (1991), the mimetic effect may be one of the underlying factors that

causes firms to copy practices or structures from successful firms. This mimicking of structures can be furthered by the advice from consulting firms or external associations (DiMaggio & Powell, 1983). As firms compete and seek to beat their rivals, imitation of structures and initiatives is well noted in research (Lieberman & Asaba, 2006). The consistent rise in the CHRO position may be attributed to an imitation effect as firms begin to add this position in the TMT. Future work on top management team composition by industry might help to highlight the potential imitation effect over time.

While there are several limitations to this study, it does provide a contribution across various fields. This research adds a missing piece to the growing literature on functional TMT membership by adding insight on the CHRO. The clear linkage between international intensity and CHRO level is an important consideration for the growing field of international human resource management (IHRM) as researchers strive to understand the role of global and local human resource practices (Boxall et al., 2007). In addition, the relationship between CHRO level and human capital intensity is a potential contribution to understanding the link between the size of a function and the strategic nature in the TMT. This study points to a potential imitation effect which has not been a topic in TMT research to date which raises more questions for future studies on functional TMT roles.

Limitations and Future Research

While I have worked to optimize the research effort, it is important to note several limitations with this study. First, the rise of the CHRO may be related to external forces of the firm such as the societal pressure for diversity in

top management teams. While the data did not suggest that external events or other factors contribute to the rise of the CHRO, I cannot rule out such a possibility. If the rise of the role was due to regulatory changes or other popular opinion, we would expect to see a more significant rise in a shorter period of time rather than the gradual rise over 15 years.

Second, the data set is from the S&P 500 firms which generally represents a cross-section of industries, but generally only includes larger firms. In addition, these firms are all listed in the USA, which may provide for a common geographic context and may contribute to the potential of imitation between firms. Future research that considers more globally diverse sets of firms within an industry group may help advance our understanding of the potential mimic effect for this functional TMT role. Research that includes a sample of smaller firms may yield clearer insights for the link between the level of CHRO and the number of employees.

Third, the availability of the data on the CHRO from BoardEx is somewhat limited as this position is not regularly reported. The traditional reporting requirements of the Security and Exchange Commission (SEC) require only the top five compensated executives. In some cases, firms do not disclose other senior leaders while others provide detailed information on many of the top executives. This inconsistency of reporting coupled with the increasing availability of information through various internet sources during this time may artificially inflate the rise of TMT members. Future research based on other data sets from search firms or other proprietary data sources may yield more accurate information on the CHRO.

Fourth, the dynamics and composition of the TMT are not considered in the scope of this study. Studies show that the CHRO spends more time with the CEO than with other members of the TMT (P. M. Wright et al., 2011). This dynamic is not shown in this study and may be a topic of future research to better understand the role of the CHRO. New efforts are beginning to uncover potential linkages between TMT roles as a new stream of research (Chaffin, Gamache, & McNamara, 2014). Further analysis in future studies on the TMT composition and interplay between the CHRO level and other roles may shed more light in examining multiple factors.

This study raises several implications for future research in light of the role of the CHRO. While this study points out the rise of the role, there is still much to be learned about the nature of the role in terms of title, activities and responsibilities. There have been numerous studies on other roles such as the CEO, COO, and CFO to highlight the nature of the role (Menz, 2012) and the nature of managerial discretion in the upper echelon (Hambrick, 2007; Wagner & Kemmerling, 2014). There are many titles in use across firms and job responsibilities are likely quite varied, therefore further insight on the patterns and nature of the role might help us understand the need for this role in the top management team. Following upper echelon theory, the nature of this role will in some way have an impact on outcome of the firm (Donald C. Hambrick & Phyllis A. Mason, 1984).

Another area of future study is the impact of the CHRO role on firm decisions, functional outcomes, firm strategy, or on the nature of the TMT. While many firms are elevating the role of the HR leader, the outcome and impact of this role is so far unclear. While this study shows no direct link to firm

performance, there may be an impact to a functional outcome related to the human capital resource of the firm (e.g., employee engagement, high performance work practices and other commonly used measures). Research in the field of human resource management is largely centered on practices, and this linkage to the leadership of the function may provide new perspectives for both research and practice.

Conclusion

Upper echelon researchers have advanced our understanding of the nature and impact of top management teams and the functional leaders contained within these teams. This research provides a small contribution to the growing body of literature by considering the rise of the CHRO role. I show a clear linkage between international intensity at the level of the CHRO in the firm. This suggested that local knowledge of customs and practices becomes more important than centralized leadership when expanding internationally. I also find a relationship between human capital intensity and the CHRO level. This suggests that firms with an agenda of innovation may also be more likely to view human capital as a strategic resource. Given the lack of clear firm-level drivers for the rise of the CHRO, this study also suggests that a mimetic effect may be taking place since there is a lack of clear antecedents that may cause the escalation of this role. More research is needed to understand the nature of this emerging role, the impact of the CHRO, and the conditions by which they exist in the TMT of firms. The understanding of the CHRO role is of interest to scholars in the fields of human resource management, strategic human capital,

and top management teams. I hope this study helps in taking a step forward in considering the CHRO role in these fields of research.

Part 2: The Impact of the CHRO Role

In this part of the research, I expand on the upper echelon theory to explore the linkage between the CHRO role and the outcome of being a great place to work. In addition, the moderating effects of the TMT composition and structure will help understand the conditions for the CHRO to create impact. This study will add to the recent research on functional TMT roles by providing new insight on the impact of such functional TMT members.

Theory and Hypotheses

Legitimate power through the nature and level of the role in the firm has been noted to affect a manager's ability to influence the strategic agenda as well as the distribution of firm resources (Hambrick, 1981). While an individual may have informal power due to relationships and personal characteristics, I focus here on the formal power awarded to the position. Following other TMT power studies, the *CHRO Level* is the hierarchical position level in the organization (Greve & Mitsuhashi, 2007).

A TMT member positioned at a high level will have more influence on the outcomes of the firm (Pfeffer & Lammerding, 1981). Power distribution within the TMT has been the subject of several studies that show an inconsistent distribution depending on the roles, levels, and other factors (Smith et al., 2006). It follows that a TMT functional member with significant role power due to the level of the role will be more likely to achieve the desired outcomes for the functional role. This is consistent with the work of Nath and Mahajan (2011) on

the power of the chief marketing officer and the impact on firm marketing and sales.

Great Place to Work

In the case of the CHRO, one of the desired outcomes is the adoption of high performance work practices in the business (Boxall & Purcell, 2003). To be successful, each member of the TMT must have the right skills, the right motivation, and the ability to perform their responsibilities (Castanias & Helfat, 1991). For the CHRO, we assume the skills and motivation are in place since the individual was qualified for the role and that the individuals at this level are sufficiently motivated to achieve an outcome beneficial to the firm (Castanias & Helfat, 2001).To adopt new practices and policies that affect the workforce of the firm requires the cooperation and effort across all divisions and functions of the firm. As such, a CHRO with more role power would be more likely to achieve the adoption of HPWP in the firm.

When firms have effective high performance work practices in place, they may be recognized as a "Great place to work" by the Great Place to Work Initiative (GPTW) based in San Francisco. GPTW has been evaluating companies using a consistent methodology based on elements of high performance work practices (HPWP) since 1997 (Burchell & Robin, 2010). Each company that is evaluated is asked to distribute 225 surveys to randomly selected employees, based on a very specific procedure. The survey consists of 55 items designed to measure a broad range of employee responses such as fairness, credibility, pride, and other indicators of employee attitudes (Fulmer et al., 2003). The surveys are both confidential and anonymous to the company as

the correspondence is directly with the Great Place to Work Institute. In addition to the employee survey, each company is required to complete a People Practices Inventory (PPI), a 29 page company questionnaire that was designed by the management consulting firm, Hewitt Associates. The thorough nature of the evaluation and consistency of the methodology using the Great Place to Work Trust Index© provides reliable ranking process over time (Levering, 2014). Areas measured and reported by GPTW include employee ratings on: great challenges, great atmosphere, great rewards, great pride, great communication, and great bosses (Levering, 2015).

The *Great Place to Work* results are published by *Fortune Magazine* each year and companies on the list will commonly use this ranking as a way of further promoting the firm with potential employees or other external parties. This acknowledgement of positive employee relations and work practices would be perceived positively by external stakeholders and increase the acknowledgement of the human resource management function leadership. One of the common goals of the CHRO is to demonstrate value and impact management perception of the value of the HR function (Sheehan, De Cieri, Cooper, & Brooks, 2014). The CHRO will have strong interest in achieving a high GPTW ranking as both a personal accomplishment as well as a recognizable contribution to the success of the firm.

It follows therefore that the greater the CHRO Role Power, the more likely that a firm will be recognized as a great place to work.

H_5: The firm's level of GPTW ranking is positively related to the CHRO Level in the firm.

Personal Connections of the CEO

Due to the reporting relationships, the CEO has influence on the agendas and objectives for each of the TMT members. The nature of the GPTW initiative is external recognition of the firm through the public listing and ranking of the firms, which features prominently in the press. A CEO may view the GPTW ranking as a positive external endorsement of the firm as well as his/her management of people. The CEO orientation toward external stakeholders has been a topic related to the CEO personal connections (Fanelli & Misangyi, 2006). Personal connections have been linked to higher compensation and provide the CEO with assurance and security in the labor market that facilitates potential risk of new initiatives by mitigating any career concerns (Engelberg, Gao, & Parsons, 2009). Not only does research note the value of CEO external connections (Geletkanycz, Boyd, & Finkelstein, 2001), but also the influence on corporate decision-making (Carpenter & Westphal, 2001). The greater the number of CEO personal connections, the more that he/she may oriented towards the external perceptions of the firm. Research has shown the CEOs with more connections tend to invest more in innovation and improvement initiatives (Faleye, Kovacs, & Venkateswaran, 2014).

A CEO with a large number of connections would have knowledge from outside the firm and more significant social capital through connections with other executives in other firms. It follows that CEOs with a larger external network would be more supportive of the CHRO interest in achieving an external recognition and high ranking as a Great Place to Work. As CEO network size increases, it moderates the relationship between the CHRO level and the GPTW rankings.

H_6: As the number of CEO personal connections increases, it positively affects the relationship between GPTW Ranking and CHRO Level, thus increasing the GPTW Ranking.

TMT Heterogeneity

The composition and diversity of the other TMT members may either accentuate or dampen the position power of the CHRO. Hambrick et al. (1996) studied the heterogeneity of the TMT and the impact on taking competitive actions. Following the upper echelon research, the power of an individual TMT member is affected by *TMT heterogeneity* (Carpenter, 2002; Hambrick et al., 1996). The heterogeneity of TMT member age, tenure, and gender are commonly used factors in upper echelon studies when considering the diversity of the team composition (Richard & Shelor, 2002). Wiesema and Bantel (1992) examined the heterogeneity of TMTs within the Fortune 500 and found positive relationships between factors such as age and tenure on decisions related to strategic change. Consistent with research on diversity, a high level of heterogeneity in the TMT may lead to more ideas, difference of opinion, innovation, and consideration of alternatives when faced with strategic choice (Wiersema & Bantel, 1992). Gender diversity has been shown to have an impact on decision-making in top management teams as it affects the communication and interaction between the group members (Milliken & Martins, 1996). Top management teams with higher gender diversity have been noted to be more proactive in managing corporate social responsibility initiatives (Bear, Rahman, & Post, 2010). Gender diversity has also been linked to improving the TMT

orientation to other investments related to innovation and management practices (Dezsö & Ross, 2012).

The heterogeneity of the TMT (age, gender, and tenure) can influence the outcomes of the group and the strategic choices for the firm. It follows that the heterogeneity of the TMT would also have an impact on the individual agenda or desire of any one of the members. This is consistent with the work of Hambrick and Mason (1984) on the upper echelon characteristics affecting strategic choices that may influence firm outcomes.

It follows that the ability of the CHRO to influence the decision to adopt various high performance work practices in a diverse TMT will be higher as the team is more likely to be open to new ideas and considerations. When in a TMT that has less heterogeneity, the team is more likely to maintain the status quo (Wiersema & Bantel, 1992) and therefore not fully explore or entertain the suggestions of the CHRO about high performance work practices. I expect that the TMT heterogeneity to positively affect the relationship between CHRO Level and GPTW rankings.

H_7: As TMT Heterogeneity increases it positively affects the relationship between GPTW Ranking and CHRO Level, thus increasing the GPTW Ranking.

TMT Structural Interdependence

The *TMT Structural Interdependence* has recently come to the forefront as a consideration in affecting TMT member influence (Hambrick et al., 2014). Structural Interdependence is defined as the degree to which roles and administrative mechanisms are arranged such that members of an executive

group affect each other. In other words, the structure of the team can affect how the TMT operates. Some TMTs may operate rather independently, while others may be highly interdependent. A TMT comprised of heads of autonomous business units and limited functional members would tend to operate independently as each member operated his/her business unit without consideration or coordination with the other TMT members (Hill & Hoskisson, 1987). However, a TMT comprised of both line management leaders along with functional leaders may need to operate more interdependently as their roles and decision-making are intertwined (Wageman, 1995). However, this interdependence may be limited if there is a significant difference in levels between members of the TMT, especially when a COO might be present (Hambrick & Cannella, 2004) since the COO creates an additional level in the TMT. It follows that TMT Heterogeneity will only affect TMT processes and outcomes to the extent that the members of the TMT are communicating and working with each other.

Consistent with Hambrick, et al (2014), I will consider both the horizontal and vertical interdependence. Horizontal interdependence, the degree to which roles are arranged such that the actions and effectiveness of peers affect each other, by averaging the number of functional titles in relation to TMT size. The vertical structural interdependence, the degree to which members are peers vs. hierarchically disparate, will be measured by number of distinct hierarchical levels in the TMT.

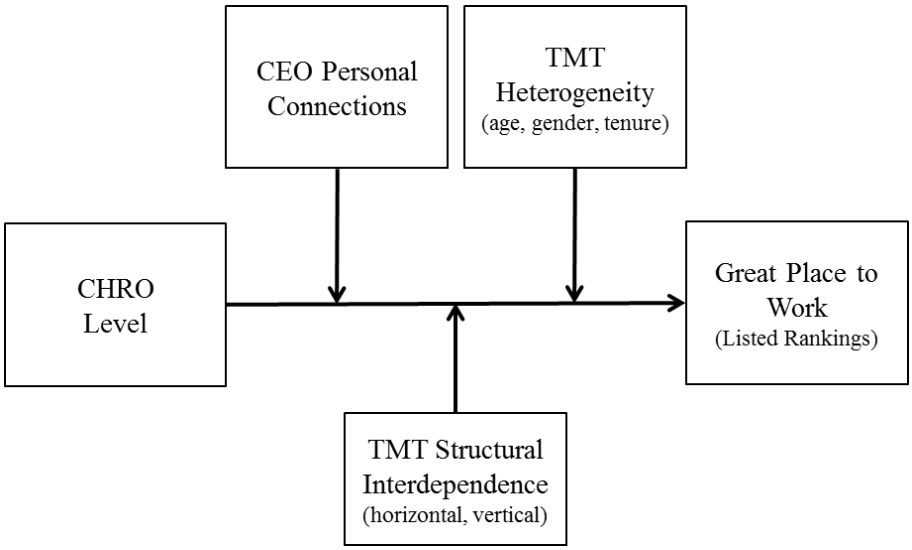
As *Structural Interdependence* increases, the members of the TMT work more closely together and must communicate with each other for execution of strategic initiatives. The interdependence would also apply to decision-making as

each of the TMT members work together (Finkelstein, Hambrick, & Cannella, 2009). Research shows that a TMT with high structural interdependence would communicate more regularly and likely have more cohesion (Barrick et al., 2007). It follows that a functional TMT member such as the CHRO would more likely have access and relationships with the other TMT members to accomplish strategic objectives. The relationship between the CHRO's level and the GPTW ranking would be enhanced by high TMT Structural Interdependence, thus increasing the likelihood of achieving a high GPTW ranking.

H_8: As the TMT structural interdependence increases, it positively affects the relationship between CHRO Level the GPTW ranking, thus increasing the GPTW Ranking.

The conceptual research framework for this part of the research study is as follows:

Figure 4: The Impact of the CHRO



Research Methods Part 2

Sample and Data

For this part of the research, I start with the firms listed in the Great Place to Work (GPTW) database. GPTW has been ranking companies since 1998 which results in a possibility of 1700 unique firms during between 1998 and 2014 (17 year period). Initial analysis shows 351 unique companies in the rankings across this period as many firms are ranked in the top 100 for multiple years. Of these 351 organizations, 193 represent listed firms with available data for analysis.

To complete the sample, I generated a list of comparable firms to these 193 ranked firms. To select a set of firms for comparison, I followed the control firm matching procedure suggested by Barber and Lyon (1997) and used in other research using GPTW data (Fulmer et al., 2003). For each of the ranked companies, I found a matching company based on (a) industry, (b) size, and (c) scaled operating performance using the Standard and Poor's Capital IQ as a data source. This matching procedure is commonly used in financial studies using matched pair financial performance analysis (Barber & Lyon, 1997).

The following algorithm is taken from Fulmer et al (2003) and was used to select matching firms:

1. Compare based on industry SIC code. If there is at least one company in the same 4-digit industry code group with total assets within 25% to 200% of the target company, the firm with the closest operating income/assets ratio to the target is choses as the matching firm.

2. If no company meets criterion (1), the matching pool is expanded to the group of companies in the same 3-digit industry code as the target, also with the same size range restriction. If no match is found, the same procedure is followed with a larger group of companies in the same 2-digit industry code group, again with the same size restriction.
3. If one of the 100 Best companies is delisted from Bloomberg (e.g. ENRON), it and its matching company are eliminated from the analysis. If a matching company is delisted from Bloomberg while information on the corresponding 100 GPTW Company is still available, a replacement matching company is selected using the above algorithm.

As a result of this process, I ended up with a total of 248 unique firms for analysis over a 15 year period. This total of 3968 unique firm-years for analysis was reduced slightly due to missing data or company delisting for a final total of 3745 unique firm-years. For each firm year, I collected firm data from Bloomberg and collected the TMT, CEO, and CHRO data from BoardEx database and archives.

The BoardEx database tracks board member and senior executive information for listed companies around the world. The database is updated regularly and provides quality assurance on the accuracy of information on each of the profiles. BoardEx is a common source for TMT research and provides a unique compilation of C-suite leader information. The BoardEx data was merged with the Bloomberg firm data using a unique firm-year key to develop the final panel data set for this study.

Dependent Variable

The *GPTW Ranking* for the 100 best places to work each year is available from the Great Place to Work Initiative. I recorded this data and created a dummy variable for GPTW to indicate ranking. For example, "0" is the value for having no ranking; "10" is for those firms ranked between 100-91; "9" is for those firms ranked between 81-90; "8" is for those firms ranked 71-80; and so on to achieve a quantifiable ranking score for each firm in the year that it achieved a ranking. The ranking information for each year is available on the Great Place To Work Initiative ® web site (Levering, 2015) and was converted into a master data table. Since many firms appear in the top 100 list for multiple years, the years of ranking and the placement in the ranking for each year was recorded in the master data table.

Independent Variables

The *CHRO Level* is measured by the hierarchical title in the organization. Following other TMT researchers (Hambrick et al., 2014) the hierarchical level will be calculated by counting the number of title gradations in the upper echelon (always including the CEO as the top management position). This might result in reviewing titles such as COO, EVP, SVP, VP, Director, and Manager to determine the level for the CHRO in the firm.

For the *CEO Personal Connections*, I have followed the approach of Engelberg, Gao, and Parsons (2009) who use the BoardEx database to examine external networking for CEOs. BoardEx tracks relationships from prior employment, board positions, and social role history. Two people in the BoardEx

database share a personal connection if they have a common employer in a given year, if they served on the same board at the same time, and the like with service organization roles. For all connection types, BoardEx considers that two individuals are connected in future years which assumes that personal connections only increase and never decrease. To help address this skewed factor associated with tenure and age, I use the natural log of the personal connections in my analysis.

For the TMT membership, I include the company officials (senior management) as reported in BoardEx data during each period year. All US listed firms must report the CEO and four most highly paid managers based on SEC requirement. Other officers and company officials are also reported in company documents and captured in BoardEx. I therefore define the TMT membership to those officials that are reported by the company and captured in BoardEx. To obtain the historical information, I downloaded the historical BoardEx files for each year of the sample period. Each company will report at least the five most highly compensated individuals as this is required by the SEC. However, most organizations actively report all other members of management with significant responsibilities, which more accurately represents the leadership where strategic decisions are made. Using these reported officers is also in line with the literature that reports the top management team varies in size and composition of people (Carpenter & Sanders, 2002).

For each of the *TMT heterogeneity* factors (age, gender, and tenure) I measure TMT heterogeneity as the standard deviation of the team member data as found in the BoardEx data set. Individual TMT member age was captured for each year using year of birth for the calculation. Gender data is recorded in

BoardEx and was assigned as either male (1) or female (0). Tenure in the firm will be captured using BoardEx for each TMT member.

The *TMT Structural Interdependence* was measured by both the horizontal interdependence and the vertical interdependence, following the work of Hambrick, et al. (2014). Horizontal interdependence was calculated by determining the proportion of functional titles to the size of the TMT. Vertical interdependence was created by counting the number of title gradations in the TMT each year.

As is the practice with other TMT research efforts (Hambrick & Cannella, 2004; Menz & Scheef, 2013), I use a broad group of control variables such as: *Size* as measured by the logarithm of total revenues; *Industry*, as classified in primary SIC codes; *Outside Board Membership*, as the percent of external board members, *Firm Performance*, as measured by total shareholder returns, *Sales to Assets*, a ratio to address variation within industries, and *Sales Growth* over the prior year.

Analysis

Similar to other studies involving GPTW, I have taken steps to ensure that the GPTW ranked company financial data and the matched company financial data have a similar profile through the matching procedure described above. I then examined the differences between the GPTW ranked companies and the matched firms to understand the potential differences between them with simple t-tests. The complete steps using the Standard and Poor's Capital IQ system are shown in Appendix C. The frequency of the GPTW rankings by year

is shown below in Table 6. A complete listing of the firms and the GPTW scores by year is shown in Appendix D.

Table 4 Distribution and Frequency of GPTW Score by Year

Year	GPTW Score											Total
	0	1	2	3	4	5	6	7	8	9	10	
1999	180	14	2	4	2	9	0	0	1	0	1	213
2000	199	3	1	2	3	2	0	1	1	0	3	215
2001	195	4	4	2	3	3	4	0	0	1	2	218
2002	190	8	3	4	1	3	4	4	0	0	3	220
2003	193	5	3	1	5	5	1	7	1	1	2	224
2004	199	5	3	4	4	5	2	4	1	0	1	228
2005	201	5	3	3	7	3	3	3	0	2	2	232
2006	203	5	4	4	5	3	3	2	2	1	3	235
2007	209	3	5	3	3	2	4	2	3	2	3	239
2008	211	5	4	4	5	6	2	2	0	1	4	244
2009	213	4	2	4	3	5	4	3	3	1	4	246
2010	213	5	3	3	3	4	1	3	4	4	4	247
2011	209	10	4	2	3	5	2	5	1	0	7	248
2012	214	4	1	4	5	0	0	5	5	3	5	246
2013	221	5	1	2	3	2	2	1	0	5	3	245
2014	216	3	2	2	4	4	1	4	3	3	3	245
Total	3,266	88	45	48	59	61	33	46	25	24	50	3,745

To measure the level of the CHRO and ensure accuracy of this measure, I follow the same process as used in part one of this research project by determining the number and label for each of the hierarchical levels used by the firm (e.g. CEO=1, EVP=2, SVP=3, VP=4, etc.). I then determined the level of the CHRO within this firm-contextual leveling system. Consistent with the prior study, I found over 100 unique titles related to the human resource management function in this process. This is consistent with the observation that each firm does have a role leading the human resource function, but it may be at a lower level. Consistent with the findings from Part 1 of my research, the data shows the

general increase in level of the CHRO in this sample as well, but with more variation across the range of levels.

To formulate the effect of CEO Personal Connections as a moderating variable on the relationship between CHRO Level and GPTW Ranking, I followed the common practice of centering the means of the independent variables to avoid multicollinarity (Kenny, 2008). I completed this same process to create all the other moderating variables (Heterogeniety: Age, Gender, Tenure; TMT Structural Independence: Horizontal, Vertical).

Given the nature of the unbalanced panel data, I completed the Hausman test determine the appropriateness of either fixed effects or random effects (Hausman & Taylor, 1981). The results indicated the need to use a fixed effects model which is consistent with the intent of understanding the differences within each firm over time. Using the fixed effects model will control for industry and other external characteristics of an individual firm.

A common challenge using unbalanced panel data is that of endogeneity. Using the instrumental variables estimator, I test for endogeneity and find no endogenous variables. For completeness, I also check for heteroskedasticity using the White/Koenker test statistic and find the disturbance is homoscedastic.

One of the limitations of using a matched sample is the potential for bias between the GPTW ranked companies and the matched sample. Before completing the analysis, I check for any significant relationships for the variables between the GPTW ranked firms and the others using a logistical regression. I created a dummy variable (1=GPTW ranked company; 0= Firm never ranked) and completed the regression using the control variables and the independent

variable, CHRO Level. The logistic regression results show no significant differences between the two types of companies.

Results

The descriptive statistics for each of the variables is shown in Table 10. The number of observations for independent board directors and for the tenure of the top management team members reduced due to missing data. Using the fixed-effects model will cause the independent board directors to likely drop out of the model since there is limited change within a firm. In spite of this limitation, the other variables are well represented. The negative values for the moderator variables occurred through the centering process.

Table 5 Descriptive Statistics

	N	Mean	St. Dev	Min	Max
GPTW Ranking	3,745	0.61	1.92	0.00	10.00
Firm Performance	3,412	19.78	75.24	-98.28	2619.42
Sales to Assets	3,586	0.93	0.70	-0.56	5.99
Firm Size	3,607	3.54	0.75	-0.66	5.69
Sales Growth	3,548	0.13	9.25	-177.85	449.31
Independent Directors	1,685	80.08	11.09	20.00	100.00
CHRO Level	3,745	2.76	1.88	1.00	6.00
CEO Connections	3,047	6.29	1.16	2.64	8.61
TMTAge Hetero	2,489	5.78	2.65	0.00	18.38
TMT Gender Hetero	2,513	1.06	0.12	1.00	2.00
TMT Tenure Hetero	1,182	2.74	2.08	0.00	13.63
TMT Horz Interdep	3,101	0.50	1.66	0.00	75.38
TMT Vert Interdep	3,118	20.37	2.13	3.00	25.00

The variable correlations are shown in Table 6. No significant correlations are noted among the explanatory variables and control variables in

this model. Further checking for collinearity using the Belsley, Kuh, and Welsch (1980) diagnostic yields a condition number of 29.78 which is quite acceptable, but slightly close to the suggested guidance of 30 (using the collinearity diagnostic function).

Table 6: Correlations between Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 GPTW Ranking	1.0000												
2 Firm Performance	-0.0304	1.0000											
3 Sales to Assets	-0.0172	0.0167	1.0000										
4 Firm Size	0.0784*	-0.0903*	0.1462*	1.0000									
5 Sales Growth	-0.0070	0.1542*	-0.0291	-0.0866*	1.0000								
6 Independent Directors	-0.0118	-0.0213	-0.0255	0.2212*	-0.0506*	1.0000							
7 CHRO Level	0.0809*	-0.0567*	-0.0228	0.2478*	-0.0441*	0.1160*	1.0000						
8 CEO Connections	0.1041*	-0.0199	-0.1717*	0.4545*	-0.0197	0.1962*	0.1597*	1.0000					
9 TMT Age Hetero	0.0096	0.0332	-0.0168	-0.1930*	-0.0089	-0.2489*	-0.0739*	-0.1599*	1.0000				
10 TMT Gender Hetero	-0.0401*	-0.0130	0.0281	0.0301	-0.0295	0.0260	0.0490*	0.0663*	-0.0489*	1.0000			
11 TMT Tenure Hetero	0.0586*	0.0153	0.0965*	0.0248	-0.0640*	-0.2108*	-0.0429	-0.0113	0.0941*	0.0705*	1.0000		
12 TMT Horz Interdep	-0.0217	-0.0002	-0.0300	-0.0037	0.0299	-0.0355	-0.0064	-0.0231	0.0195	-0.0214	-0.0105	1.0000	
13 TMT Vert Interdep	-0.0695*	0.0128	0.0868*	-0.3134*	0.0831*	-0.1210*	-0.0267	-0.2991*	0.0502*	-0.0467*	0.0327	0.0554*	1.0000

** p < .05*

Due to the number of variables and conditions, I run several models to better understand the relationships (shown in Table 7). To start, I first analyze the control variable and independent variables (Model 1). The overall model has a low R^2 value which raises concern about the fit and choice of variables; however the F-test shows significance (prob >F = 0.001). The model shows that the control variables of firm size and the number of independent directors are both significant. It also shows at the main effect of the CHRO level is significant and that the TMT tenure heterogeneity is significant.

Adding the moderating variables in model 2 shows that TMT age heterogeneity is significant with a negative coefficient and the associated moderator is also significant. Since the relationship between the independent variables and GPTW ranking may occur over time, I use leading values in model 3. In other words, I use the values of the variables in the prior year (t-1) to check the effect on the GPTW ranking. This confirms the relationships in model 2 and also highlights TMT tenure heterogeneity with a significant relationship. To further explore the relationship, I run model 4 with lagging values of the independent variables. In other words, I use the values of the variables in the future year (t+1) to check the effect with the GPTW ranking. With model 4, I note that CHRO level is no longer significant, suggesting that the rise of the CHRO occurs prior to the GPTW ranking. To understand other potential effects that may be masked by the fixed effects model, I ran a random effects model (model 5).

Table 7: Regression Output with GPTW Ranking as Dependent Variable

	Model 1[a]	Model 2[b]	Model 3[c]	Model 4[d]	Model 5[e]
Controls:					
Firm Performance	0.001	0.000	0.000	0.001	0.000
Industry	-	-	-	-	N
Year	N	N	N	N	N
Sales to Assets	0.066	-0.239	0.179	0.129	-0.007
Firm Size	-0.954*	-0.809*	-0.855*	-0.554^{+}	-0.070
Sales Growth	0.000	0.000	0.002	0.000	0.000
Independent Directors	0.012^{+}	0.013^{+}	0.015*	0.011*	0.004
Independent Variables					
CHRO Level	0.074*	0.090**	0.077*	0.040	0.016
CEO Connections	0.000	0.000	0.000	0.000	0.000
TMT Age Hetero	-0.008	-0.099*	-0.102*	-0.083*	-0.035
TMT Gender Hetero	-0.608	1.429	1.074	0.681	-0.074
TMT Tenure Hetero	0.06*	0.057	0.09**	0.075**	0.044*
TMT Horz Interdep	-0.046	0.286	0.017	0.293	0.186
TMT Vert Interdep	-0.001	-0.028	-0.040	-0.029	-0.016
Moderating Variables					
CEO Connect x CHRO Level		0.000	0.000	0.000	
TMT Age Het x CHRO Level		0.024*	0.017^{+}	0.017*	
TMT Gend Het x CHRO Level		-0.525*	-0.157	-0.170	
TMT Tenure Het x CHRO Level		0.006	0.002	0.004	
TMT Horz Het x CHRO Level		-0.079	-0.013	-0.062	
TMT Vert Het x CHRO Level		-0.006	-0.020	-0.012	
Constant	3.204	1.596	2.421	1.075	0.396
R^2	0.09	0.12	0.10	0.09	0.06

*** p<0.01; * p<0.05; $^{+}$ p<0.10*

a = fixed effects; *b* = fixed effects with moderators;

c = fixed effects lagged; *d* = fixed effects leading; *e* = random effects

Across the models, the coefficient for firm size is negative, which may indicate that as firms become quite large, it may be more challenging to become a GPTW company. The percent of independent directors is significant suggesting that the external perspective of independent directors may contribute to making the firm a great place to work. Board composition has been examined in multiple studies (Carpenter & Westphal, 2001; Dalton et al., 1998) and show mixed results on the impact of independent directors on firm performance. Based on the work of Pfeffer and Salancik (1978), the decisions of a firm are based on external influences that can come from independent directors. Studies have

shown that independent directors can influence strategic decision-making due to their external network ties (Byrd & Hickman, 1992; Finkelstein et al., 2009). This linkage between independent directors and GPTW Ranking is a new relationship that may be worthy of future exploration.

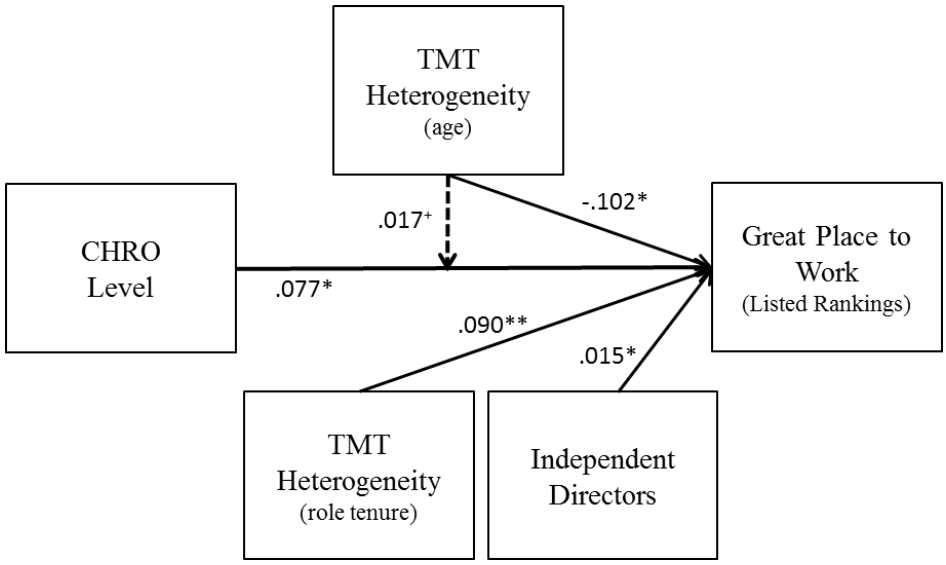
The independent variable CHRO level is significant and seems to indicate a clear linkage with GPTW ranking. I therefore find support for hypothesis 5 that the level of the firm's GPTW ranking is positively related to the CHRO level in the firm. This linkage between the level of the CHRO and the GPTW ranking seems to indicate that the higher the CHRO level, the more position power resides in this TMT role to affect firm outcomes. This is consistent with upper echelon theory and the findings of other functional TMT research (Carpenter et al., 2004; McHenry & Culbertson, 2011). To further understand this finding, I created a number of lead and lag variable scenarios for the CHRO level. In other words, I explored if the CHRO was at a high level prior to the year of the ranking (leading), or following the year of the ranking (lagging). Due to the nature of the unbalanced panel data, the time series vector autoregressive modeling option is not available to enable the completion of the Granger causality tests. Using an instrumental variable two stage model with TMT size as an instrument, I find support for the relationship between the CHRO level and GPTW ranking.

As an additional analysis, I filtered the sample to only include the firms that had been ranked in the GPTW listing at least once during the period of my study. Running the model for this subset of the data confirmed the significant relationship between the CHRO level and the GPTW ranking further suggesting that a higher CHRO level may lead to a higher GPTW ranking. Using this data subset of only GPTW ranked firms, I ran multiple model analyses and replicate

the same pattern using the leading and lagging values for CHRO Level. I further tested using a logistical regression on the years of ranking (Ranked this year = 1; otherwise=0) and find strong support for the same relationship where CHRO Level coefficient is .568 (p=0.001).

I find that moderating relationships related to the TMT are largely not supported in the model other than a weak relationship with TMT age heterogeneity. I do find that there is a direct positive affect of the TMT tenure heterogeneity. This suggests that greater diversity of TMT member tenure may contribute to GPTW rankings. At the same time, TMT age heterogeneity shows a negative relationship with GPTW rankings. Research has shown that the diversity of team members can influence the decision-making and outcomes of the team (Cannella et al., 2008; Knight et al., 1999) and these findings deserve further exploration.

Figure 4a: Summary Study Findings



In summary, the results show a strong linkage between GPTW Ranking and the CHRO Level, which supports hypothesis 5. However, hypotheses 6, 7, and 8 are not supported. In this analysis, I show the clear relationship between the CHRO level and the GPTW ranking, which provides new insight on this functional TMT member as we seek to better understand the impact of this functional leader. In addition, I discover a linkage between GPTW ranking and the independent directors which may highlight not only a new factor in human resource practice influence, but also new insight on the influence of independent directors on firm outcomes. I find a relationship between GPTW ranking and TMT age heterogeneity, suggesting that a significant range of ages in the TMT may slightly inhibit the GPTW ranking. This study also uncovers the relationship between GPTW ranking and TMT tenure heterogeneity, which suggests that a wider range of tenure may slightly contribute to the GPTW ranking.

Discussion

This study on the Great Place to Work initiative is one of the first research studies on the emerging role of the Chief Human Resource Officer. This research is the first to show the linkage between the CHRO and a firm-level outcome. With the rise in the TMT hierarchy, the CHRO will have more power and influence on decisions and resource allocation (Hambrick, 1981). This study provides new insight on connection between the level of the CHRO and a human resource outcome, Great Place to Work Rankings. Only recently have TMT researchers found way to show the link between functional TMT member roles and desired outcomes (Germann, Ebbes, & Grewal, 2015).

To confirm my earlier work (part 1), I duplicate the findings of my first study using this GPTW data set and show the clear rise of the CHRO role to the top of the TMT over time. This is significant as this sample includes a variety of firms with a wider range of sizes and characteristics. From these two studies, it seems clear that the rise of the CHRO is a confirmed phenomenon over the past 15 years. While other TMT positions have not been sustained (e.g. Chief Sustainability Officer) after a short rise, the long-term nature of this effect seems to indicate a lasting effect as it follows a similar pattern as the CFO (Strand, 2014; Zorn, 2004). Given the recent rise of the CHRO, this is a significant insight for both practice and research.

Human resource management researchers have shown the impact of high performance work practices on firm performance to indicate the critical nature of the function of human resource management within the firm (Becker & Huselid, 1998; Huselid, 1995). The Great Place to Work Initiative has been studied using high performance work practices, yet no work has been completed to link these practices to the nature and role of the leader of the function in the firm. This study begins to provide a needed link between the positioning of the CHRO and the potential impact on the firm. While I was not able to show an effect on firm performance for the GPTW Rankings for this sample, a review by industry may help delineate a clearer light of sight to performance.

The results of this study also highlight the potential influence of independent board members on firm-level initiatives such as being a GPTW ranked firm. Independent directors bring external perspectives and external network ties. Board composition has been shown to have an impact on monitoring of firm management (Byrd & Hickman, 1992), but the impact on

firm-level outcomes has been debated in the literature (Dalton et al., 1998; Dalton & Dalton, 2011).

The TMT tenure and TMT age heterogeneity both emerged as potential factors that influence GPTW ranking. These TMT composition characteristics have been found to be significant in other studies related to strategic change (Wiersema & Bantel, 1992). The negative relationship with age heterogeneity in this study is inconsistent with other findings and may be a factor of the time-based nature of the data set. This study highlights the influence of the TMT members on the role and outcome of a functional leader and provides a new contribution to the TMT functional research.

This study was designed to also show the impact of the TMT structural interdependence, and CEO personal connections, but these elements were not significant. This suggests that other endogenous factors about the firm may be lead to being a Great Place to Work. One such consideration is the organization culture. While research has shown a clear impact of adaptive organizational culture on firm performance (Kotter John & Heskett James, 1992), the factors that shape organization culture can be difficult to identify (Barney, 1986; Thomas et al., 2013). More research is needed to understand if culture or other factors may have an impact on making the firm a Great Place to Work.

This research also has practical insight for business leaders and human resource professionals. Over the last two decades, human resource professionals have been asking for a seat at the "TMT Table" to have influence on firm outcomes (Cappelli & Singh, 1992). I have demonstrated in this study that there is a clear linkage between the GPTW ranking and the level of the CHRO, which helps further the argument for HR practitioners and consultants when

considering structural changes. While there is more work to be done to demonstrate the value of the CHRO role to the firm, this study provides an important first step in linking the CHRO to a clear positive outcome.

Limitations and Future Research

While I have worked to optimize the research effort, it is important to note several limitations with this research. First, the use of a matched sample to understand the differences between companies that are ranked as Great Places to Work and those firms that are not ranked can create challenges. It is never possible to perfectly mirror a company as there are too many dimensions to fit. While I have done my best to find matching firms for the period of this study and tested the comparison across firms, there may still be differences between these two sets of firms.

Second, the dynamics of the top team and the power of an individual may be derived from multiple sources, including interpersonal effectiveness. While this study cannot account for this micro-level phenomenon, the large size of the sample helps to mitigate this limitation. Future studies that consider case examples of the CHRO may help surface new considerations that may factor into the decision-making that affects human resource management practices and policies at the TMT level. While it may not be possible to determine all the factors that affect TMT decision-making on human resource policies, more work should be done to uncover the factors that might be related to the TMT composition, heterogeneity, and structure.

Third, participation in the GPTW process is optional for each firm each year, and the decision to participate may be related to the level of the CHRO

rather than to the actual ranking. In addition, the GPTW information is centered on the USA while many of the firms operate globally, which may create inconsistencies in comparison. The participation decisions are only known by the Great Place To Work Institute and remain confidential. Future research efforts that study the effect of only firms that are actively pursuing the ranking by GPTW, would provide clearer insight on the validity of the ranking.

Forth, much of this analysis relies on historical data that has incomplete or missing data elements. While the sample is still large enough, there is a risk that some of the missing data could provide further insight. Fifth, the GPTW data is clear, yet is not fully transparent to completely assess the linkage to the HPWP. While this has been accomplished in other studies (Fulmer et al., 2003), it is beyond the scope of this analysis. Future research to better link the Great Place to Work initiative with high performance work systems would provide a clearer outcome measure for human resource professionals.

While there are several limitations, the study has shown a clear link between the level of the Chief Human Resource Officer and being a Great Place to Work which provides a new contribution to the research on functional leaders in top management teams.

Conclusion

The phenomenon of the rising level of the Chief Human Resource Officer has been clearly demonstrated in this study. There is significant interest in this functional TMT role from strategic management scholars as well as human resource management researchers. This is the first TMT research effort to consider the level of the CHRO and the potential impact of this role on the firm.

The value of being a Great Place to Work has been well documented in the research and this study makes a clear link between this outcome and the level of the CHRO in the firm. Not only does this open new research questions and pathways, it also provides important insight to practitioners and consultants on the structural considerations for the level of the CHRO in the TMT. While there are still many unanswered questions, I hope that this study will fuel more research to further our understanding of the nature and impact of the role of the CHRO in the TMT.

Part 3: The Human Capital of the CHRO

The two prior studies represent pioneering work into the role of the CHRO as a part of the TMT, yet do not consider the personal demographic information of the person holding this role. In this part of my research, I have taken a closer look at the demographics of the CHRO such as age, education, experience, and relationship with CEO. In other words, I am exploring the human capital of the CHRO. By better understanding the demographics of the CHRO, new areas for future research may emerge for scholarly interest.

Importance of Human Capital in TMT Roles

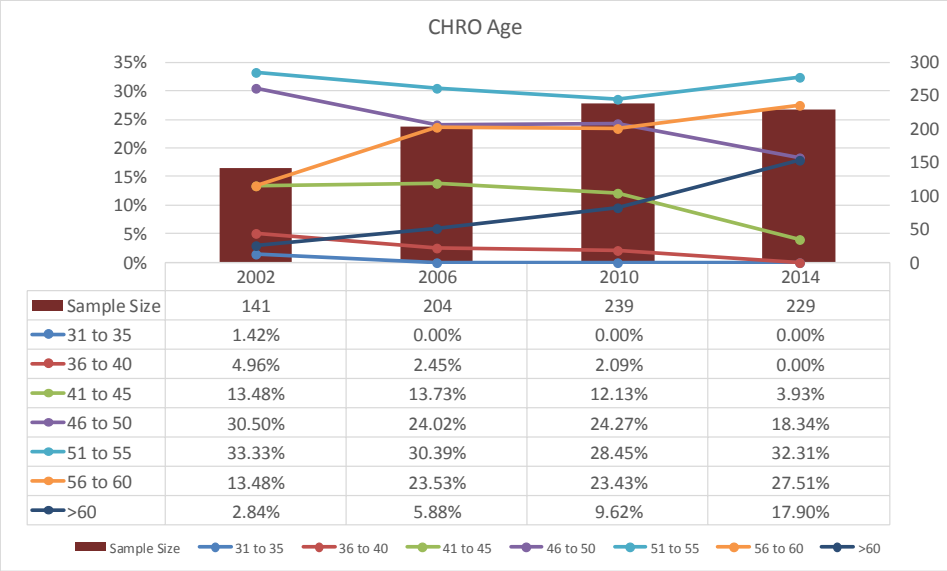
Demographics of the CEO and TMT members has been an ongoing stream of research as scholars have drawn links between CEO characteristics and R&D spending (Barker III & Mueller, 2002), tenure and organizational performance (Simsek, 2007), and education with firm outcomes (Gottesman & Morey, 2006; Wiersema & Bantel, 1992). TMT member human capital has also been linked to compensation (Datta & Iskandar-Datta, 2014) (Finkelstein et al., 2009) as a measure of value to the firm. Marcel (2009) found that the characteristics of the TMT members made a difference on firm performance when a COO was present as a part of the TMT. The characteristics of TMT members continue to feature as an important aspect of TMT research. To date very little has been done to understand the human capital of the CHRO. A study by Cappelli and Yang (2010) profiled human resource heads in the Fortune 100 in 2009 to provide an overview for practice on the nature of the role and the demographics of top human resource management leaders in the USA. They

found only modest changes in the role and nature of the incumbents in top HR roles over time. However, with the rise of the role, a more current review of characteristics such as education, age, personal connections, and tenure of the CHRO may help uncover information that is important for the careers of practitioners as well as potential areas for future research. In this review, I will provide analysis on the age, tenure, gender, education, and personal network of the CHRO using the S&P 500 dataset with individual demographic data from BoardEx.

CHRO Age

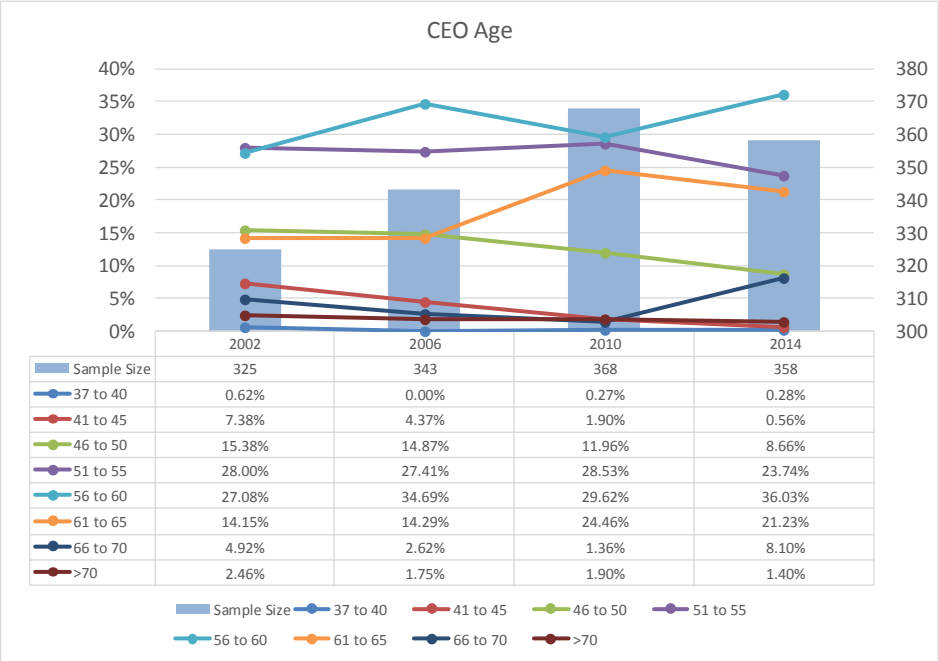
The average age of the CHRO has been increasing over the past decade. In 2002, the average age of the CHRO was 51.1 years and by 2014 the average age has increased to 53.0 years. This is in the same age range as other TMT members where the average age is 52.3 across my sample. The changing age of the CHRO by age range is shown in Figure 5. While this may be reflective of the general ageing of the workforce, it may be also a function of the more strategic and senior level of the role across firms. The contrast with the CEO age profile does not show the same shift in age groups and may therefore be a function of the changing role of the CHRO rather than general management demographics. This general increase in the age of the CHRO is consistent with the work of Cappelli and Yang (2010) in their review of top HR officers in the Fortune 100. Additional reviews of the TMT age may help shed light on if this change in the CHRO age demographic might be unique to this role or a shared characteristic of upper management roles in firms today.

Figure 5: CHRO Age



	2002	2006	2010	2014
Sample Size	141	204	239	229
31 to 35	1.42%	0.00%	0.00%	0.00%
36 to 40	4.96%	2.45%	2.09%	0.00%
41 to 45	13.48%	13.73%	12.13%	3.93%
46 to 50	30.50%	24.02%	24.27%	18.34%
51 to 55	33.33%	30.39%	28.45%	32.31%
56 to 60	13.48%	23.53%	23.43%	27.51%
>60	2.84%	5.88%	9.62%	17.90%

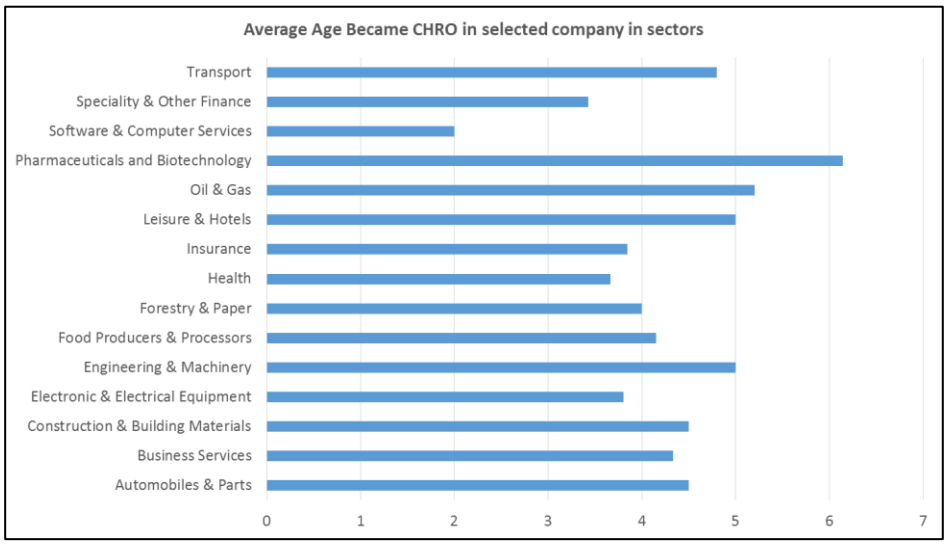
Figure 6: CEO Age



	2002	2006	2010	2014
Sample Size	325	343	368	358
37 to 40	0.62%	0.00%	0.27%	0.28%
41 to 45	7.38%	4.37%	1.90%	0.56%
46 to 50	15.38%	14.87%	11.96%	8.66%
51 to 55	28.00%	27.41%	28.53%	23.74%
56 to 60	27.08%	34.69%	29.62%	36.03%
61 to 65	14.15%	14.29%	24.46%	21.23%
66 to 70	4.92%	2.62%	1.36%	8.10%
>70	2.46%	1.75%	1.90%	1.40%

A review of CHRO Age by industry (Figure 7) shows some differences that are likely linked to the average age of the TMT in each sector. Additional analysis to compare the relative age by industry may yield clearer patterns.

Figure 7: CHRO Age by Sector



	25-30	31-35	36-40	41-45	46-50	51-55	56-60
Age became CHRO normalized	1	2	3	4	5	6	7

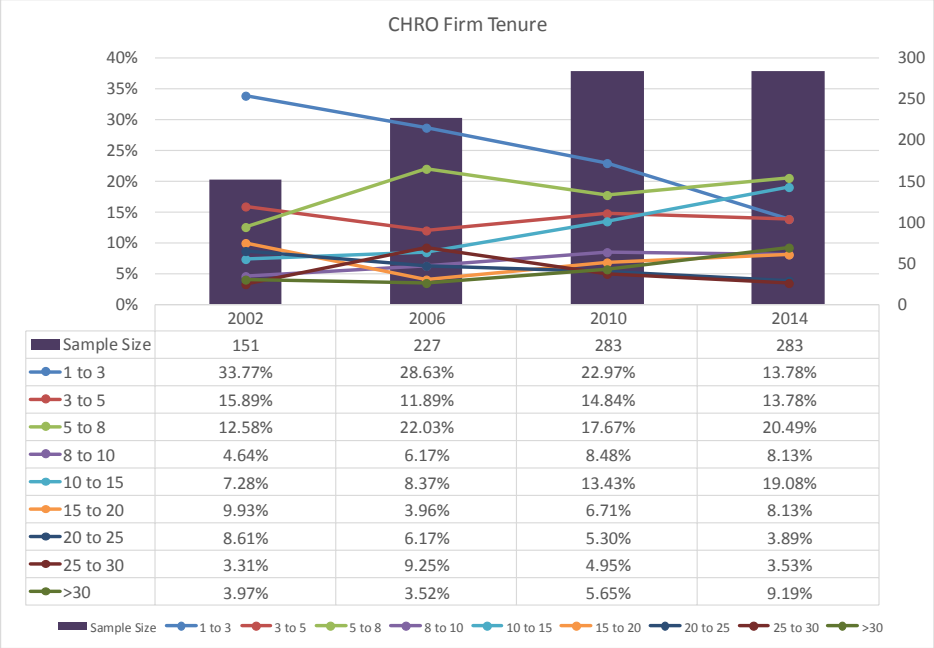
CHRO Tenure

The firm tenure of the CHRO has remained relatively consistent over time with a slight increase during the economic recession following 2009. The average firm tenure of a CHRO is 7.8 years compared to 13.1 years for the average TMT member. As shown in Figure 8, there is a decline in the number of CHRO's with only 1-3 years of experience within the firm. This may be a signal of the maturity of the role in firms as many CHRO's have historically been externally sourced for their role (P. M. Wright et al., 2011). As a functional role, the skills of the CHRO are more easily transferable across firms and industries

(P. Wright et al., 2011). As shown in Figure 10, the firm tenure of the CHRO varies greatly by industry.

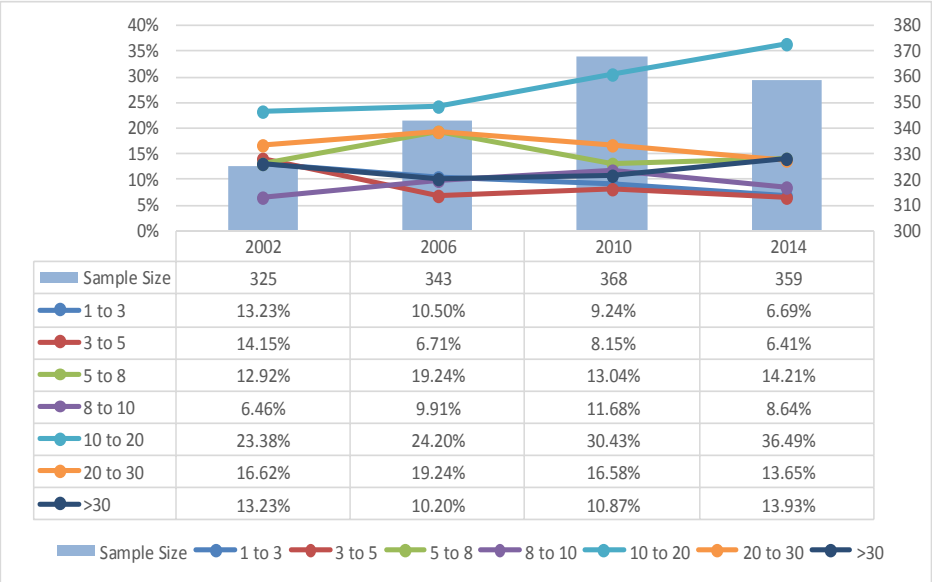
The role tenure of the CHRO has risen from 2.7 years to 3.2 years during the period of 2000 to 2012. The average role tenure for the TMT members is 3.9 years, significantly higher than the CHRO. However, as shown in Figure 11, the number of CHRO's with less than 3 years of experience in the role has decreased rather significantly.

Figure 8: CHRO Firm Tenure



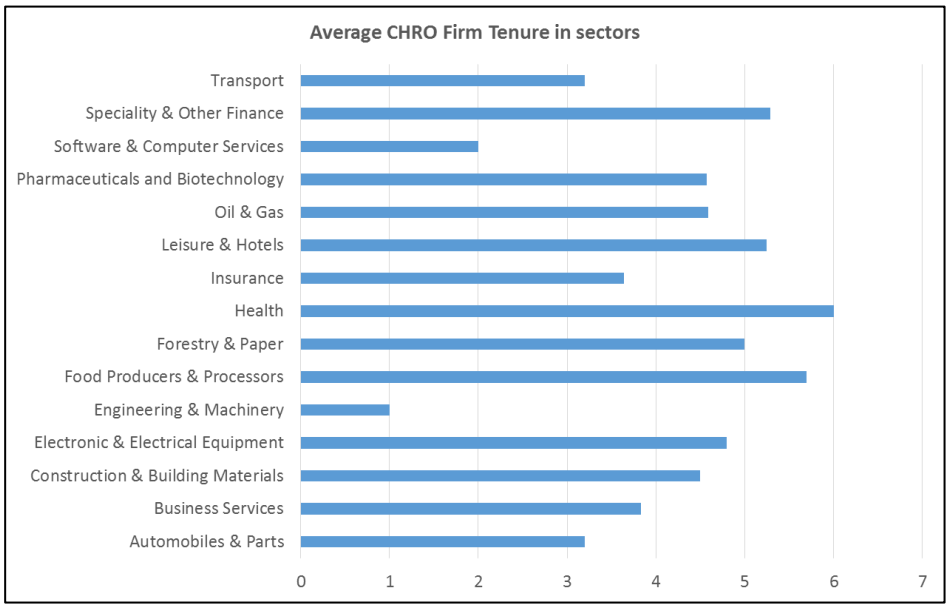
	2002	2006	2010	2014
Sample Size	151	227	283	283
1 to 3	33.77%	28.63%	22.97%	13.78%
3 to 5	15.89%	11.89%	14.84%	13.78%
5 to 8	12.58%	22.03%	17.67%	20.49%
8 to 10	4.64%	6.17%	8.48%	8.13%
10 to 15	7.28%	8.37%	13.43%	19.08%
15 to 20	9.93%	3.96%	6.71%	8.13%
20 to 25	8.61%	6.17%	5.30%	3.89%
25 to 30	3.31%	9.25%	4.95%	3.53%
>30	3.97%	3.52%	5.65%	9.19%

Figure 9: CEO Firm Tenure



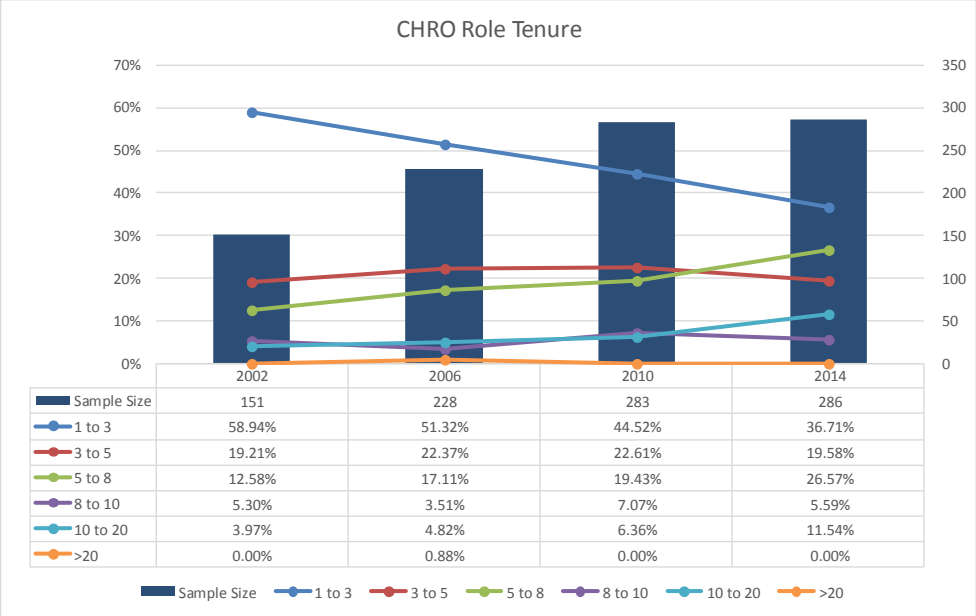
	2002	2006	2010	2014
Sample Size	325	343	368	359
1 to 3	13.23%	10.50%	9.24%	6.69%
3 to 5	14.15%	6.71%	8.15%	6.41%
5 to 8	12.92%	19.24%	13.04%	14.21%
8 to 10	6.46%	9.91%	11.68%	8.64%
10 to 20	23.38%	24.20%	30.43%	36.49%
20 to 30	16.62%	19.24%	16.58%	13.65%
>30	13.23%	10.20%	10.87%	13.93%

Figure 10: CHRO Firm Tenure by Industry Sector



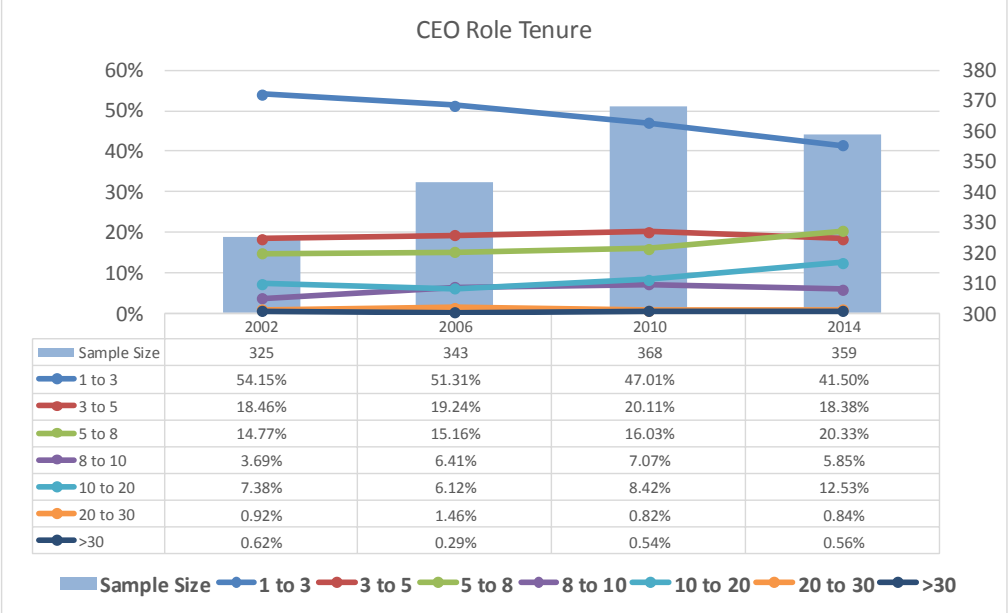
	1 to 3	4 to 5	6 to 8	9 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35
CHRO Firm Tenure normalized	1	2	3	4	5	6	7	8	9

Figure 11: CHRO Role Tenure



	2002	2006	2010	2014
Sample Size	151	228	283	286
1 to 3	58.94%	51.32%	44.52%	36.71%
3 to 5	19.21%	22.37%	22.61%	19.58%
5 to 8	12.58%	17.11%	19.43%	26.57%
8 to 10	5.30%	3.51%	7.07%	5.59%
10 to 20	3.97%	4.82%	6.36%	11.54%
>20	0.00%	0.88%	0.00%	0.00%

Figure 12: CEO Role Tenure



	2002	2006	2010	2014
Sample Size	325	343	368	359
1 to 3	54.15%	51.31%	47.01%	41.50%
3 to 5	18.46%	19.24%	20.11%	18.38%
5 to 8	14.77%	15.16%	16.03%	20.33%
8 to 10	3.69%	6.41%	7.07%	5.85%
10 to 20	7.38%	6.12%	8.42%	12.53%
20 to 30	0.92%	1.46%	0.82%	0.84%
>30	0.62%	0.29%	0.54%	0.56%

CHRO Gender Diversity

Over the past several years there has been a dramatic shift in the gender of the CHRO. As shown in Figure 13, the percentage of female CHRO's has surpassed the number of males. 51% of CHRO's are female across the S&P500 companies. While the number of women in leadership roles has been increasing, this rapid increase in the human resource profession may be unique. Over the same period with the same sample, the number of female CEOs shifted from 1.4% to 4.1%. Additional analysis across the TMT role members might highlight other patterns related to gender diversity.

Figure 13: CHRO Gender Diversity

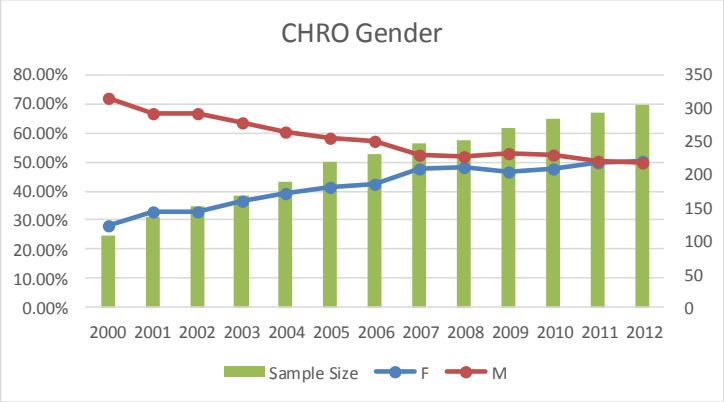
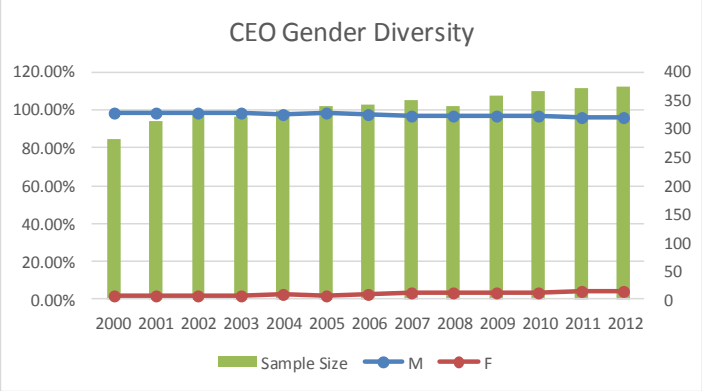


Figure 14: CEO Gender Diversity

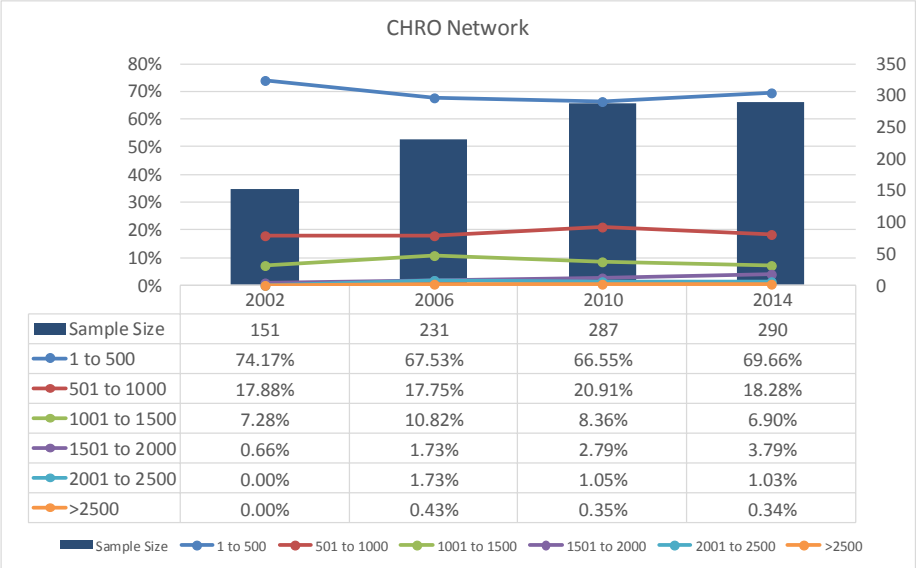


Personal Connections of the CHRO

Personal connections with others are measured in the BoardEx system by tracking common linkages between individuals such as being employed by the same firm during the same period. Other connections are achieved through common board positions and university connections. For the CHRO, the number of these connections is on average 497, while the CEO average is close to 900 connections. The average across the TMT is 473, slightly less than the CHRO which might indicate that the CHRO is better connected outside the firm. This is consistent with the lower firm tenure as the CHRO has likely been employed by a larger number of firms and has made additional personal connections in the process. The number of external connections has been linked to compensation for top executives as the personal connections create new opportunities and some level of personal security (Geletkanycz et al., 2001). However, the number of personal connections varies based on the nature of the industry sector as shown in Figure 16. Industries such as professional services rely much more heavily on personal networks of executives while that may not be the case in "Closed System" manufacturing sectors such as the automotive industry.

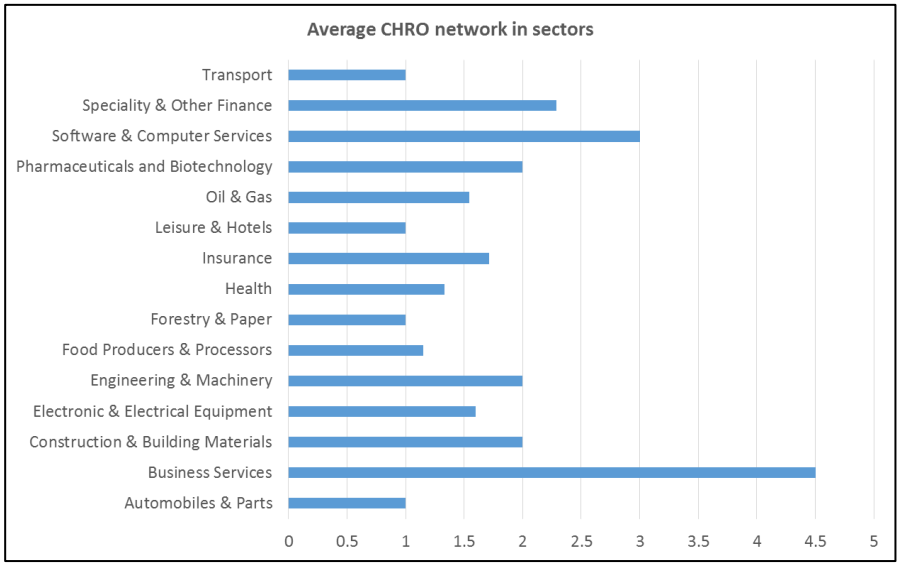
With more connections in a functional role, we might expect to see significant movement of CHRO's between firms. As shown in Figure 17, this is indeed the case as more than 60% of CHRO's are sourced from external sources. This is consistent with the role tenure and firm tenure figures as mentioned above. The mobility of the CHRO raises a number of questions on the effectiveness of functional specialization across firm and industry contexts.

Figure 15: CHRO Personal Connections



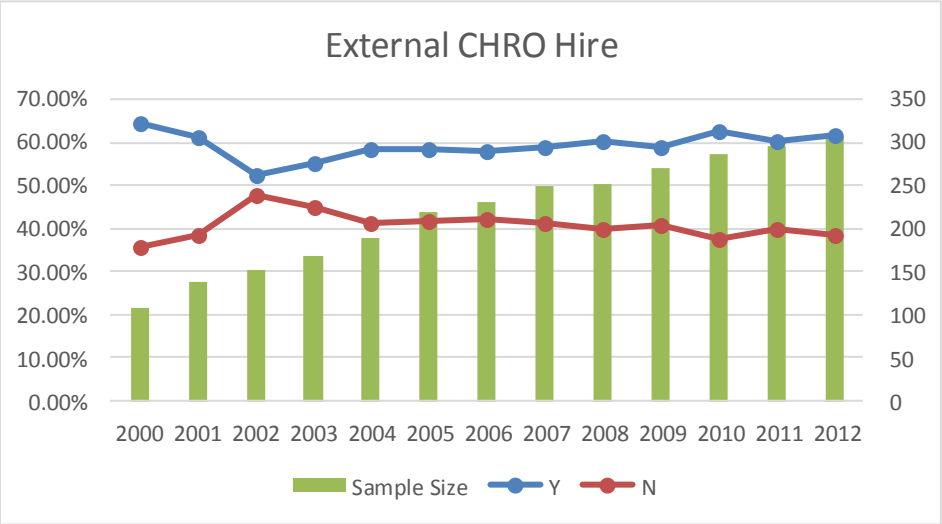
	2002	2006	2010	2014
Sample Size	151	231	287	290
1 to 500	74.17%	67.53%	66.55%	69.66%
501 to 1000	17.88%	17.75%	20.91%	18.28%
1001 to 1500	7.28%	10.82%	8.36%	6.90%
1501 to 2000	0.66%	1.73%	2.79%	3.79%
2001 to 2500	0.00%	1.73%	1.05%	1.03%
>2500	0.00%	0.43%	0.35%	0.34%

Figure 16: CHRO Connections by Industry



	1-500	501-1000	1001-1500	1501-2000	2001-2500
CHRO network normalized	1	2	3	4	5

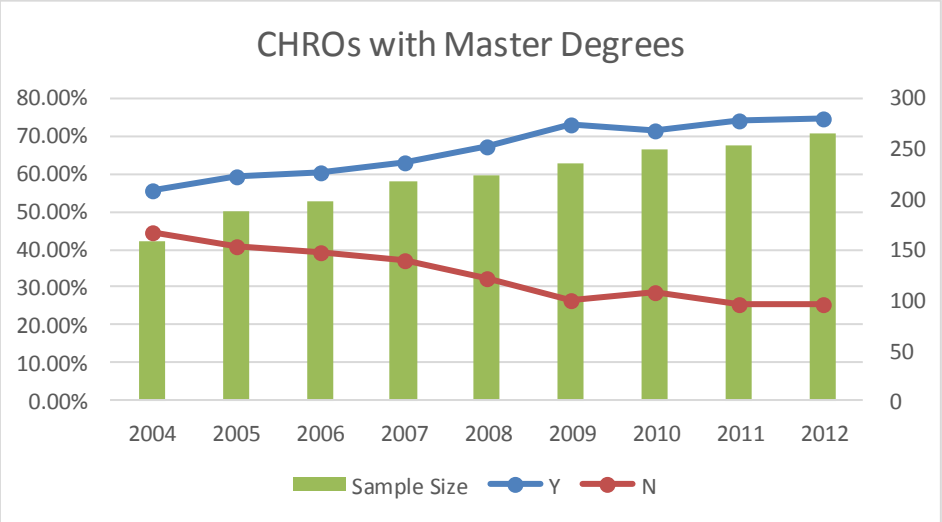
Figure 17: CHRO External Hires



Education of the CHRO

As functional roles rise to the level of the TMT, they become more involved in strategic business activities and decisions (Carpenter et al., 2004). Studies of other functional roles such as the CFO have shown that more than 75% of incumbents hold an MBA degree and another 17% hold other types of master's degrees (Datta & Iskandar-Datta, 2014). The CHRO data for education was not immediately available, but was obtained through specialized searches in the BoardEx system. A summary is shown in Figure 18. The percentage of CHROs with advanced education credentials has risen to more than 70%. This includes both MBA degrees and other types of master degrees, but may not account for terminal degrees such as a Ph.D. This rise in masters degrees may be indicative of the general increase in executives with MBA degrees and is worthy of further exploration.

Figure 18: CHRO Masters Education



Conclusion and Future Research Directions

This cursory review of the human capital of the CHRO helps to illuminate a number of trends related to this functional leadership role. First, I note a significant shift in the gender balance of CHRO's over the past decade to bring the number of female CHROs to 51%. This is unique for a TMT role since more than 90% of all roles are held by males. Gender diversity has been shown to improve decision making in some contexts (Erhardt, Werbel, & Shrader, 2003), but limited studies have been able to address the gender balance at the TMT level. Future research on the impact of the gender shift of this role and the potential link to the escalation of this role might help us understand the considerations in achieving greater gender diversity in top management teams.

Survey-based research might help uncover the dynamics and the underlying reasons for this rapid shift in the gender balance of the CHRO in the TMT.

Second, this analysis has shown a difference in the tenure of the CHRO relative to other TMT members. While functional leaders may have more transferable skills across industry groups, the implied level of turnover of CHROs raises a number of questions about the importance of firm-specific knowledge to be effective in the CHRO role. Firm-specific knowledge enables the creation of potential unique capabilities in the form of knowledge assets that allow a firm to obtain a competitive advantage (Wang et al., 2009). The idea of the CHRO being easily transferable across firms is at odds with the goal of building unique firm-specific knowledge and human capital. More analysis on the movement and careers of the CHRO would help shed light on not only the movement of executives, but also the reason for the moves. While the level of the CHRO has risen to the TMT, the tenure has not increased commensurate with this new strategic level. Additional research is needed to understand the impact of short tenure of TMT members.

Another perspective might consider that HR skills are not applicable to other areas of the business. In other words, careers are limited within a firm for HR professionals as the skill set is not transferable to the line business or other functional areas. While some functional roles (e.g., finance, legal, marketing) may be feeding jobs for CEO or other roles, this is generally not the case for HR functional leaders (Cappelli & Yang, 2010). Future exploration of the movement of people both in and out of the HR function of an organization might help to highlight the challenges as well as suggest alternative pathways for these

functional roles. Currently, it might appear that the CHRO is a dead-end job that leaves little opportunity for advancement within the firm.

Third, the personal connections of the CHRO and number of external roles may be perpetuating the career movement in the profession. This external orientation can be beneficial when oriented on the market (Chaganti & Sambharya, 1987), however this has not been explored for the CHRO. Future functional TMT research on the connections of the TMT members might help us understand how personal connections affect career movement, decision-making, and performance.

This analysis highlights several new insights related to the changing characteristics of the CHRO. While there is a clear rise of the level of the CHRO in the firm, the relatively short tenure and implied career movement of the incumbents raises questions about the impact of this role in the TMT. The rapid shift in the diversity balance of the role is striking and raises new opportunities for research on gender diversity. The role of the CHRO is still evolving and more work is needed to understand the nature of the role and the impact on the firm's ability to build human capital. The CHRO is charged with the stewardship of human capital of the firm and yet the role of the CHRO does not seem to be a firm-specific knowledge resource. This raises more questions about the strategic value of this role and the impact of the CHRO at a more strategic level.

Final Remarks

This project was envisioned not out of interest in the Chief Human Resource Officer, but rather in exploring how firms build strategic human capital as a competitive advantage. While considering this "Black Box" I found little information about the role of the HR professional linked to firm human capital and began to explore the role of the CHRO. Uncovering the rise in the CHRO level raised my level of curiosity, which was confirmed by TMT research scholars.

While there are many limitations with the data and insights from this work, it has not disappointed me in that it has allowed me to uncover potential ideas related to the escalation of the role and the impact in creating a Great Place to Work. Finding the link from a functional leader to firm level outcome is not an easy task and I have renewed appreciation for the challenge of this type of analysis. The collection of demographic data on the CHRO provides new insights for practitioner and new questions about careers and value in the human resource management profession.

This project has been a journey of learning for me in understanding the literature on the upper echelon theory, strategic human capital as a firm resource, human resource management, and many other areas of management. Even the painful lessons of data management, panel data analysis, matching firm data sample creation, firm level reviews, and statistical modeling have provided me with new insight on robust research projects.

While this project has come to a natural conclusion, I have not finished with this stream of research. I plan to revise my approach by using smaller samples that will allow more detailed analysis of the nature of this role and the impact on the outcomes of the firm.

Does the CHRO add real value to the firm? I have my doubts. Not based on the potential and nature of the role, rather based on the transient nature of the incumbents. It seems that the turnover of CHRO does not allow for long-term, firm-specific knowledge and insight. Perhaps this is an ironic prediction about the limitation of the role due to a human capital challenge. However, I will let the process of proper research be the judge as I continue to work on ways to provide a contribution to the TMT, HRM, and strategic human capital literature in the future.

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Appendix A: Excerpts from the Cornell University CHRO Survey Results

Figure A1: CHRO Allocation of Total Time to Activities

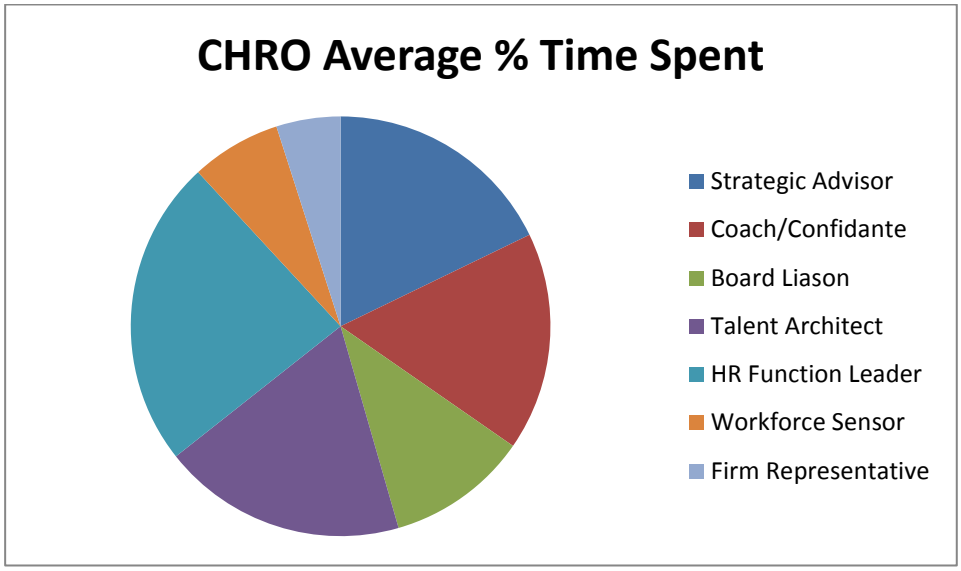
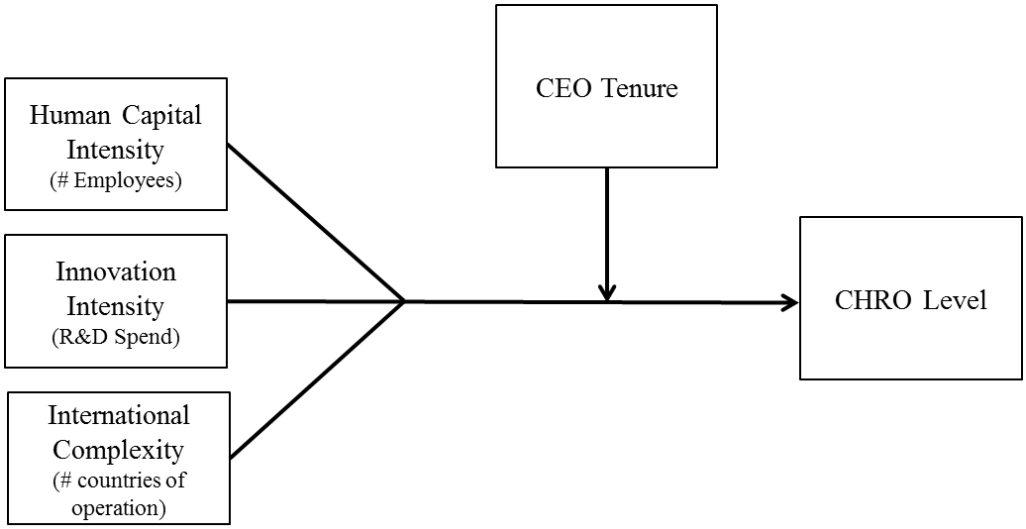


Table A2: Roles of the CHRO

Strategic Advisor to the TMT	Focus on the formulation and implementation of the firm strategy
Coach to the Executive Team	Counseling or coaching team members, or resolving interpersonal conflicts among TMT members
Liaison to the Board of Directors	Preparation for board meetings, calls with board members, attendance at board meetings
Talent Architect	Focus on building and identifying the human capital critical to the present and future of the firm
Leader of the HR Function	Working with HR team members on the development, design, and delivery of HR solutions
Workforce Sensor	Identifying and addressing workforce morale issues or concerns
Representative of the Firm	Activities with external stakeholders such as speaking to outside groups

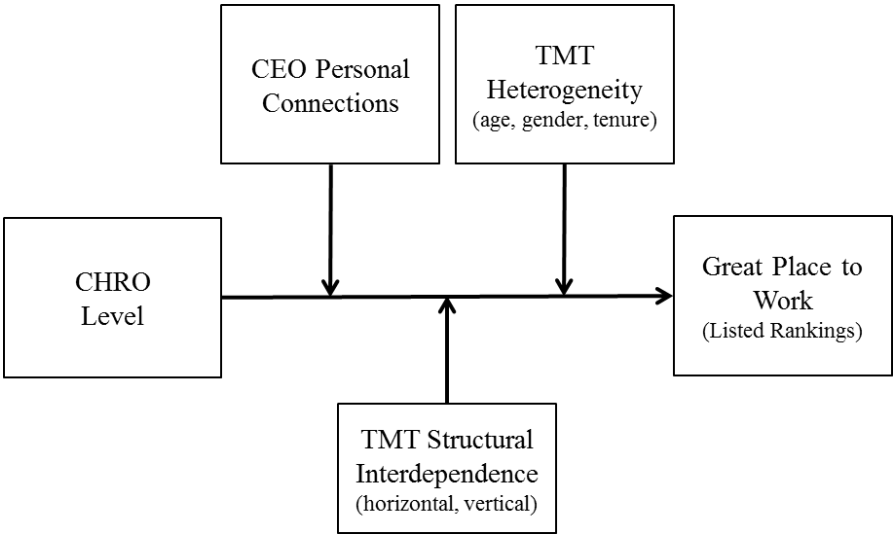
Appendix B: Summary of Research Approach, Variables, and Hypotheses

Figure B1: Part 1: Antecedents that Give Rise to the CHRO in the TMT



Dependent Variable	*CHRO Level* – hierarchical title or position level in the organization
Independent Variables	*Human Capital Intensity* – work effort associated with human resource management (number of employees)
	Innovation Intensity – emphasis on innovation for future success of the firm (R&D spend/sales)
	International Complexity – dependence on international operation success (% International Revenues)
	CEO Tenure – length of time that the chief executive officer in the role
Hypotheses	
H1	Firms with higher levels of human capital intensity are more likely to have a CHRO in a higher level in the organization than other firms
H2	Firms with higher levels of innovation intensity are more likely to have a CHRO in a higher level in the organization than other firms
H3	Firms with higher levels of international complexity are more likely to have a CHRO in a lower level in the organization than other firms
H4	The longer the CEO's tenure, the weaker the relationship between CHRO Level and the CHRO strategic drivers (human capital intensity, innovation intensity, and international complexity)

Figure B2: Part 2 Summary: The Impact of the CHRO Role



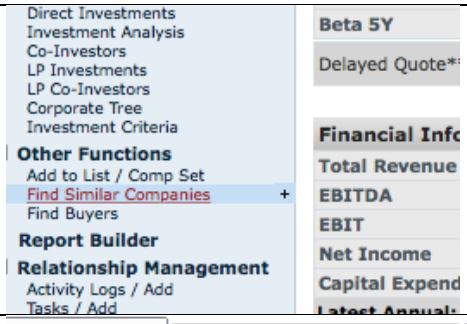
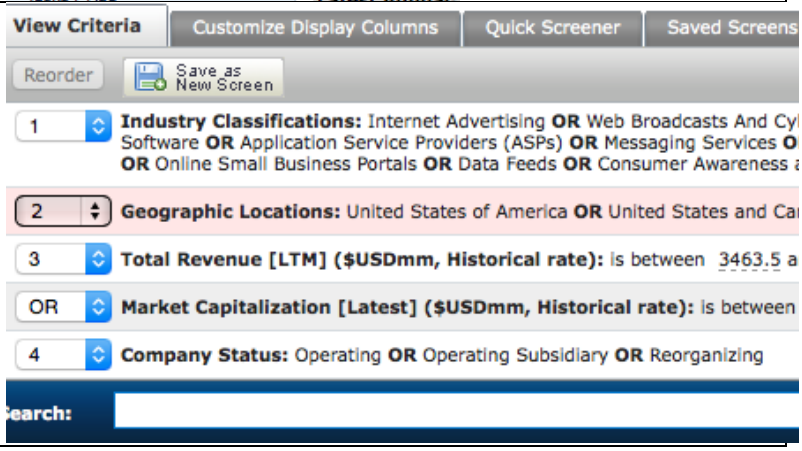
Dependent Variable	*GPTW* – ranking level as reported by great place to work initiative
Independent Variables	*CHRO Level* – hierarchical title or position level in the organization
	CEO Personal Connections – the number of connections to others from employment, boards, and social positions for the CEO
	TMT Heterogeneity – the standard deviation of demographic factors (age, gender, tenure)
	TMT Structural Interdependence – horizontal and vertical interdependence by title indicators (functional and gradation)
Hypotheses	
H5	The firm's level of GPTW ranking is positively related to the level of the CHRO in the TMT
H6	As the number CEO personal connections increases, it positively affects the relationship between GPTW Ranking and the CHRO Level, thus increasing the GPTW Ranking
H7	As TMT Heterogeneity increases, it positively affects the relationship between GPTW Ranking and CHRO Level, thus increasing the GPTW Ranking
H8	As the TMT structural interdependence increases, it positively affects the relationship between CHRO Level and the GPTW Ranking, thus increasing the GPTW Ranking

Appendix C: Matching Firm Steps and Results

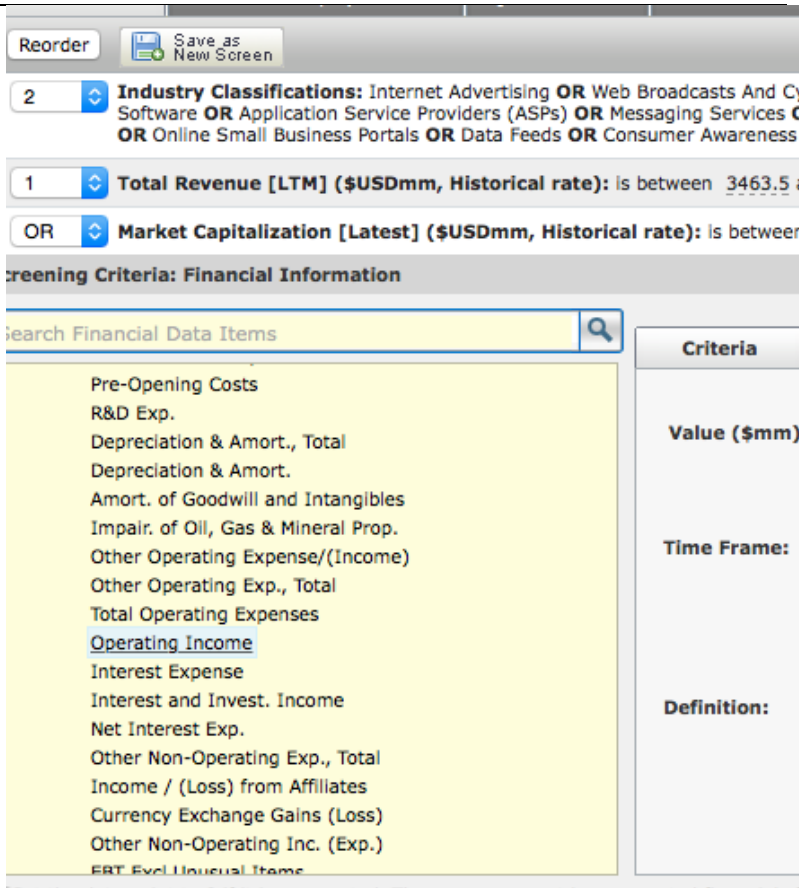
Procedure for Matching Process

Database Used: https://www.capitaliq.com

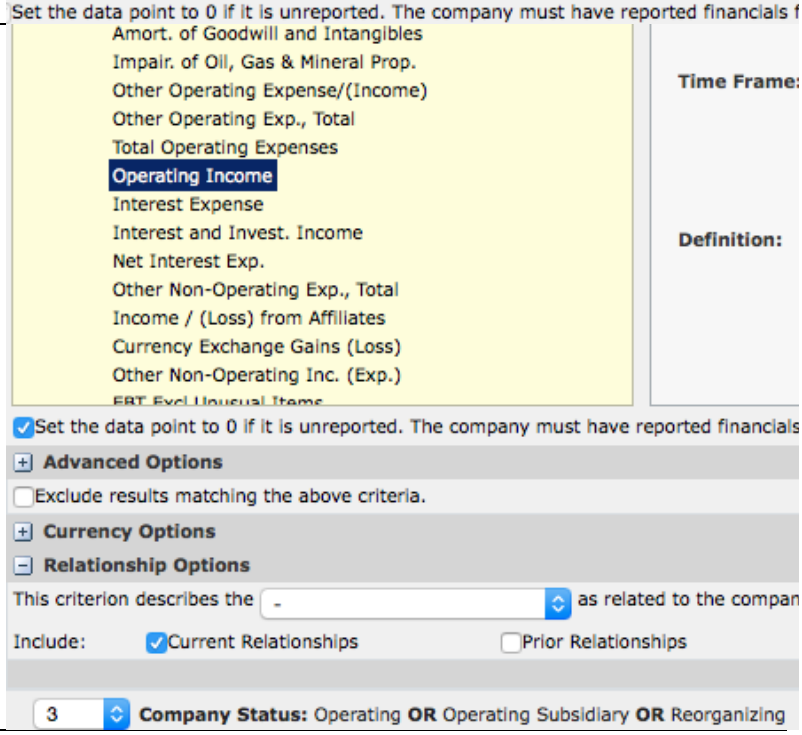
The following details the steps that were used for the matching process:

Step 1: Search for the company in the GPTW list (i.e. the company in which a matching company is to be found for) in the search function.	
Step 2: Scroll down the page and click on the "Find Similar Companies" link	
Step 3: It will bring you to this page. Herein, the fields and priority sequence are to be changed.	

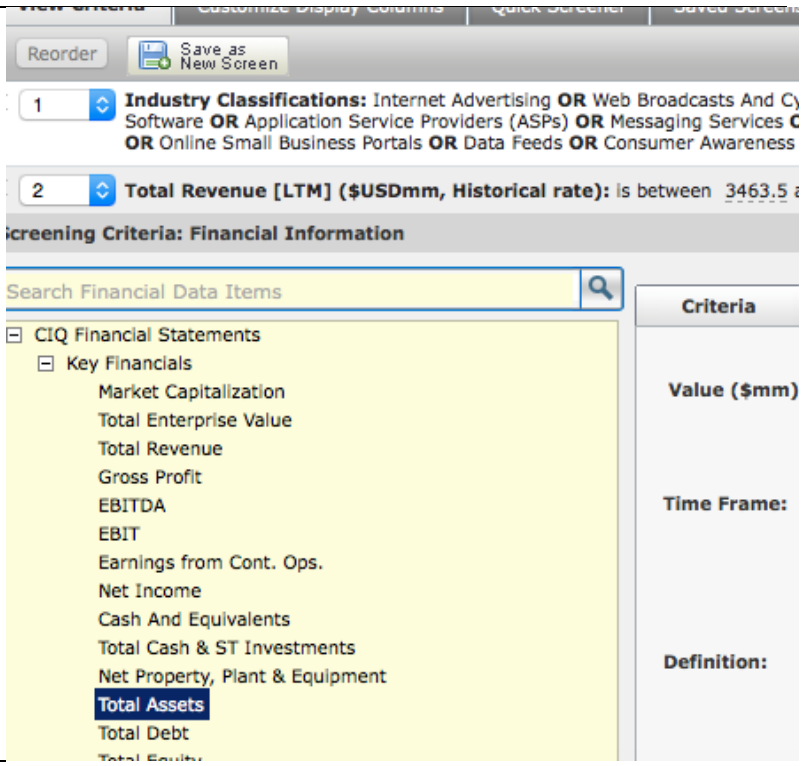
Step 4:
The first field that will be changed is from Market Capitalisation to **Operating Income**



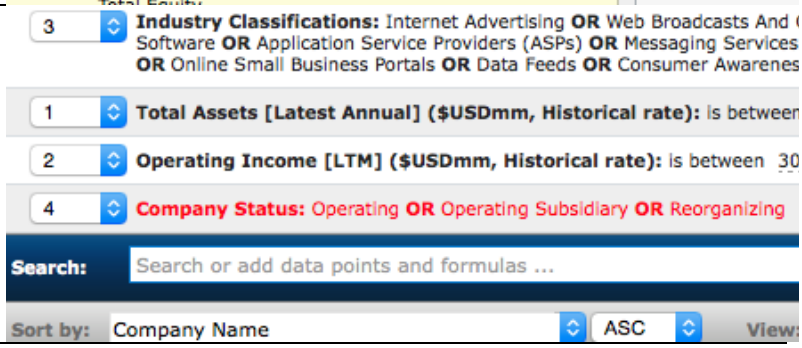
Step 5:
Subsequently, the values will be entered, that is ± 300 from the actual value of the company's financial records as of AY 2014. Click the "Update" button to update the change of field.



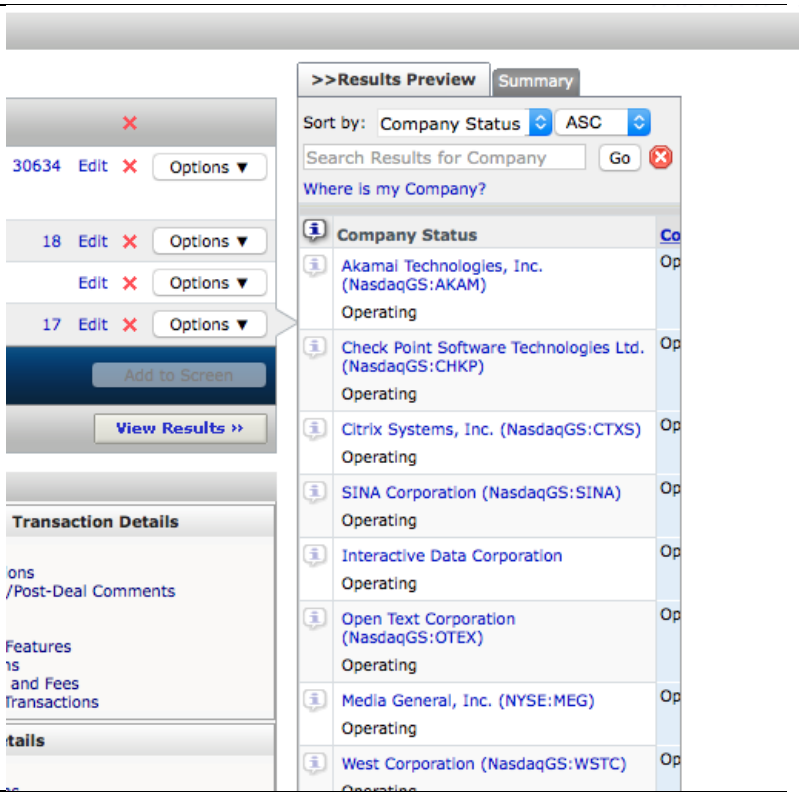
Step 6:
The second field that will be changed will be from Total Revenue to Total Assets.
In addition, Repeat Step 5 to indicate the range of values to be searched for, in terms of **Total Assets**.



Step 7:
Delete the field "Geographic Locations".
Finally, rearrange the Priority Order in the following sequence, such that:
Total Assets
Operating Income
Industry Classifications
Company Status



Step 8:
A list of similar companies will be suggested at the right-hand column.
Go through these companies one by one, to find one which is most similarly matched to the GPTW company.
The matching company must be one that is (1) based in the United States and that is preferably (2) in the same industry (3) have similar total assets and (4) have similar operating income.



Appendix D: Analysis of GPTW Companies

This appendix contains various tables, charts, and graphs completed in analyzing the GPTW companies in comparison to those in the matched sample.

Figure D1: Total Company Breakdown

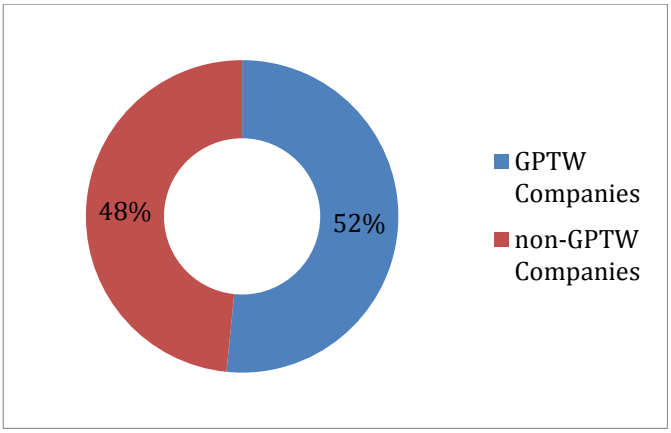


Table D1: Industry Classification Coding

2 = Industrial: Automobiles/ Chemicals/ Packaging/ A&D
3 = Financial Services: Banks/ Insurance/ Real Estate
4 = Business Services
5 = Energy: Electricity/ Utilities/ Renewable Energy
6 = Personal Products: Clothing/ Leisure/ Other
7 = Construction: Building Materials/ Construction
8 = Consumer Travel: Hotel/ Transportation
10 = Diversified Industrials/ Wholesale Trade
11 = Electronics and Electrical Equipment
12 = Engineering Machinery
13 = Food and Drug Retailers
14 = Food Producers/ Beverage/ Tobacco
15 = Household Products / Paper Products
16 = Health Services
17 = Information Technology Hardware
18 = Media/ Entertainment/ Publishing
19 = Resources: Oil & Gas/ Mining/ Steel
20 = Pharmaceuticals/ Biotech
21 = Private Equity/ Specialty Other Finance
22 = Software and Computer Services

Figure D2: GPTW Companies by Industry

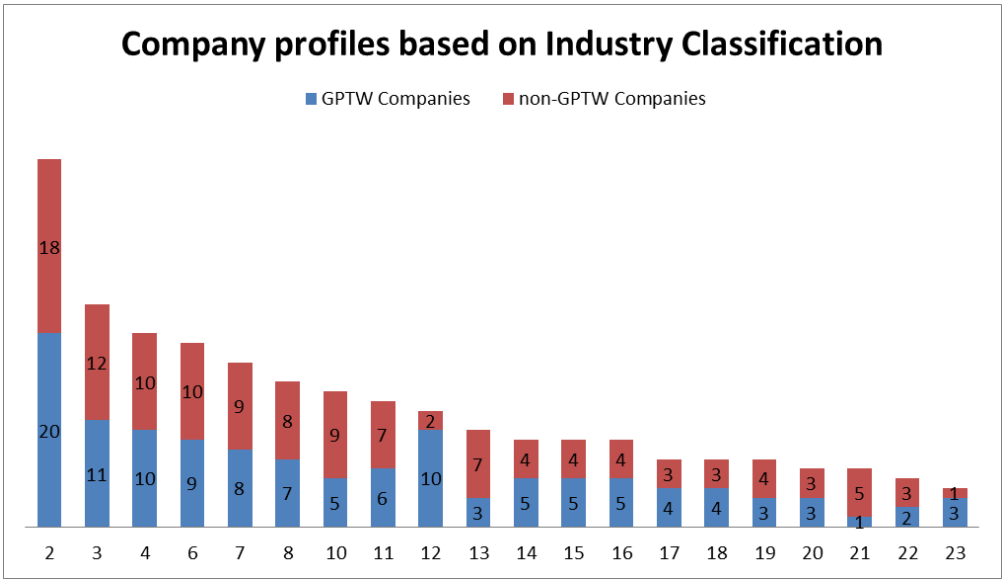


Figure D3: GPTW Score based on Industry

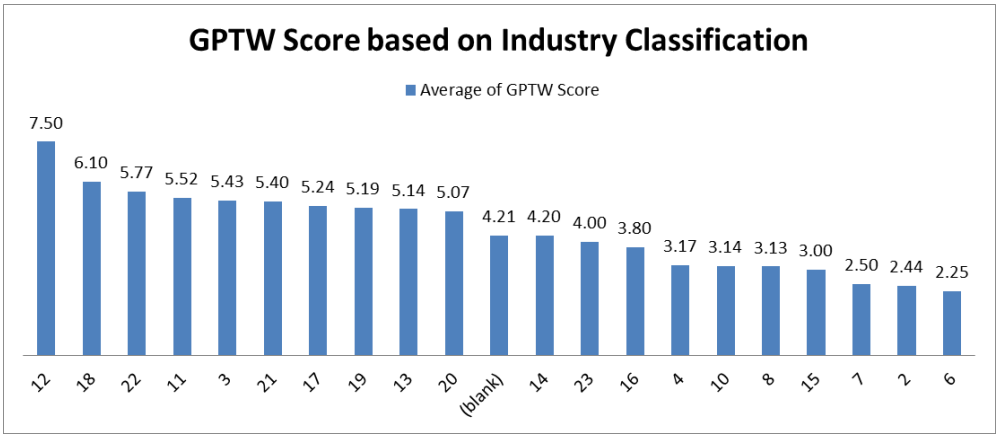


Figure D4: CEO Role Tenure Differences

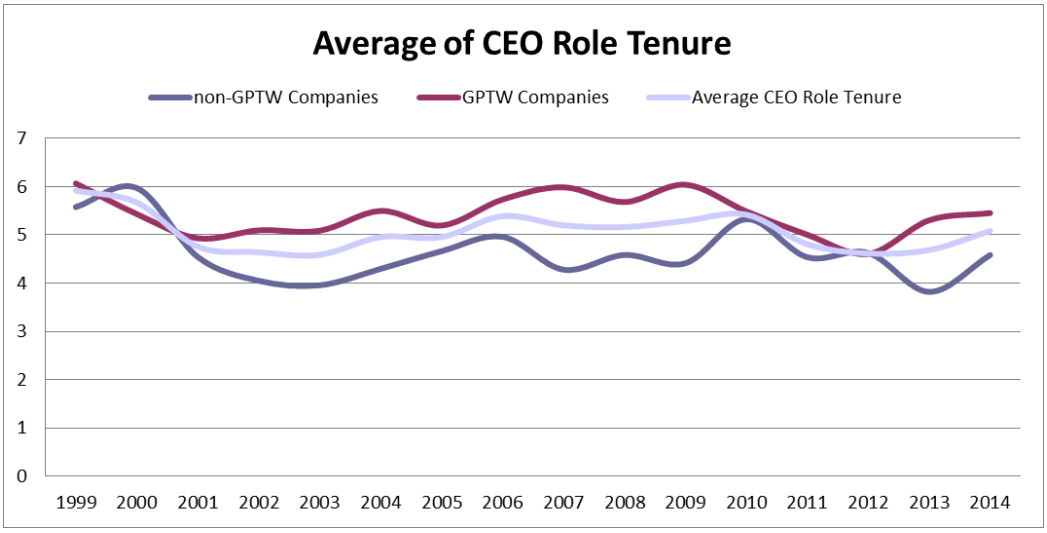


Figure D5: Average CEO Firm Tenure

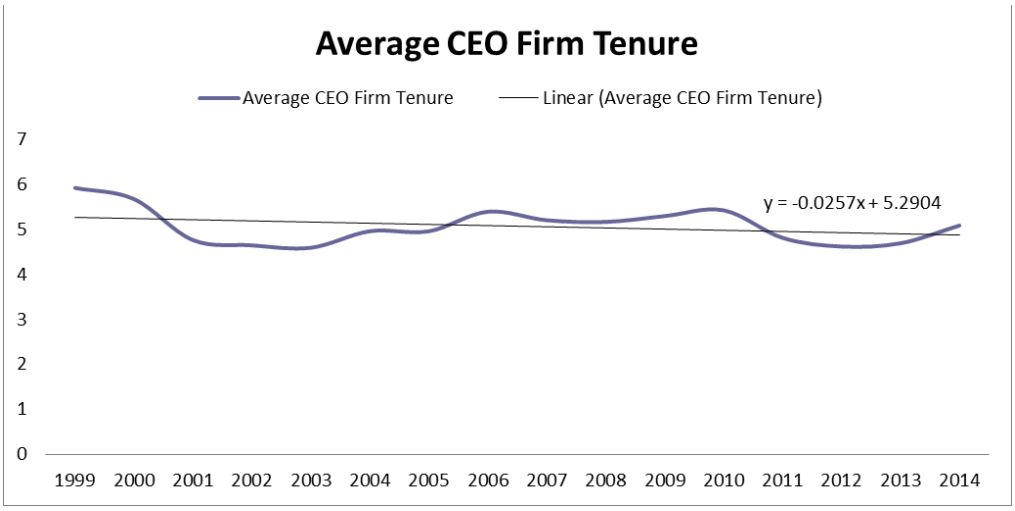
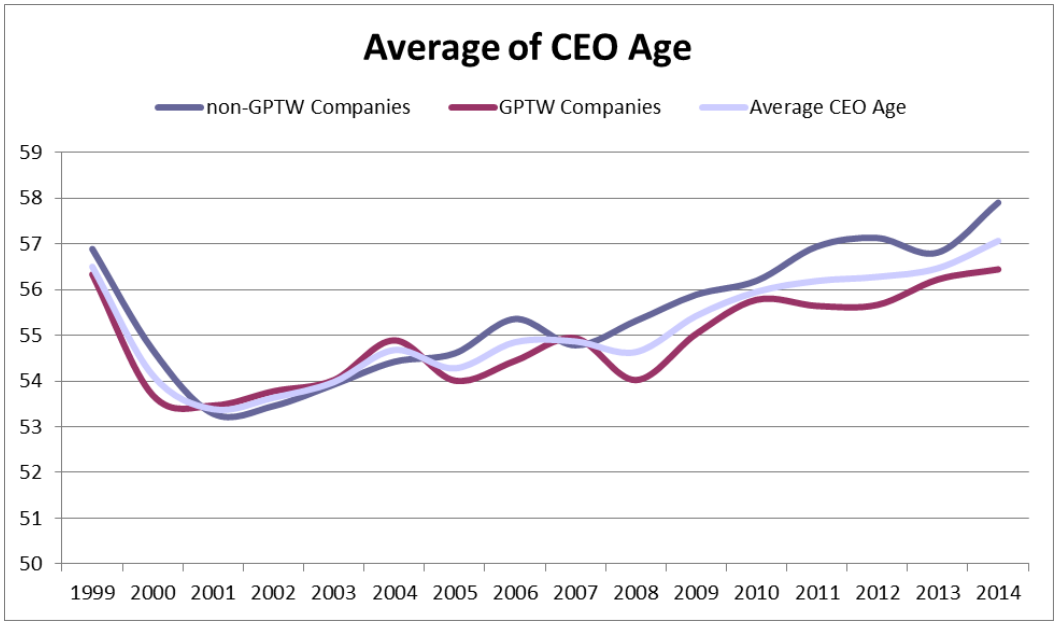
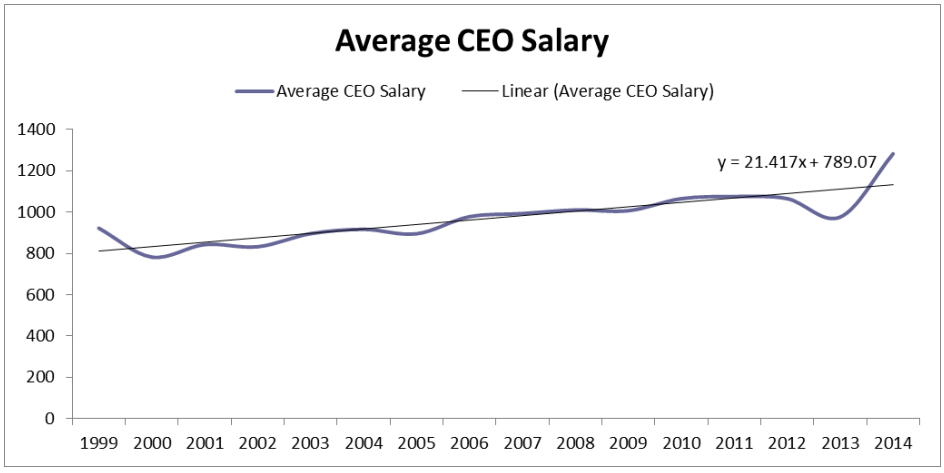


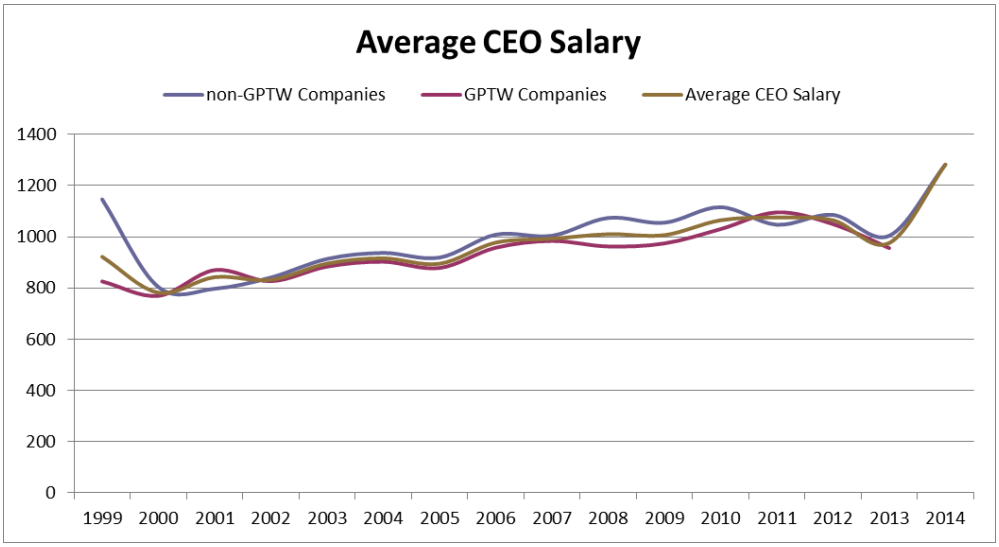
Figure D6: Average of CEO Age



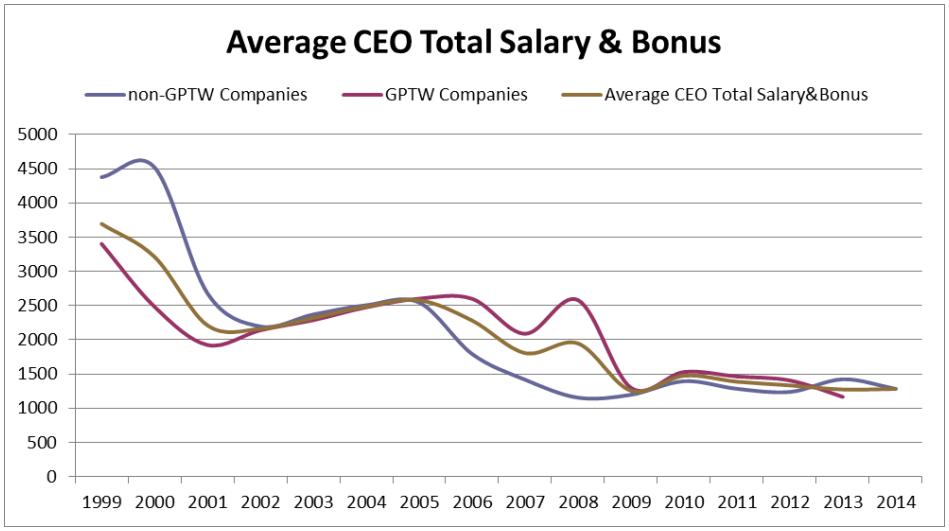
D7: Average CEO Salary



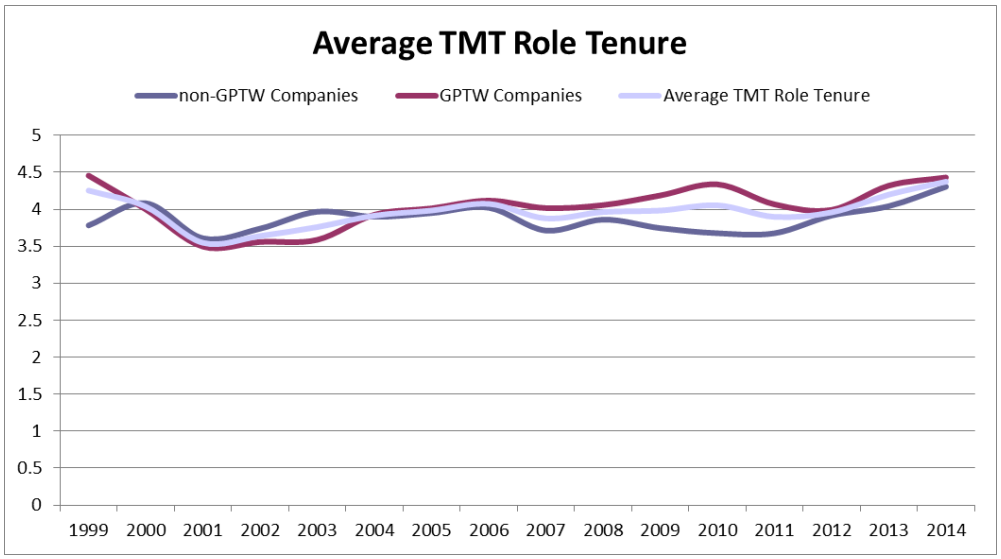
D8: Average CEO Salary Differences



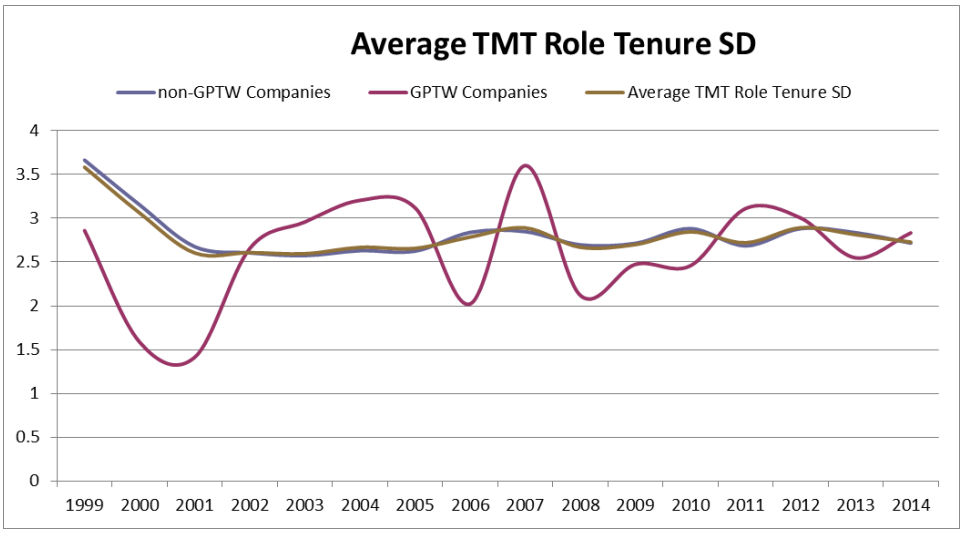
D8: Average CEO Compensation



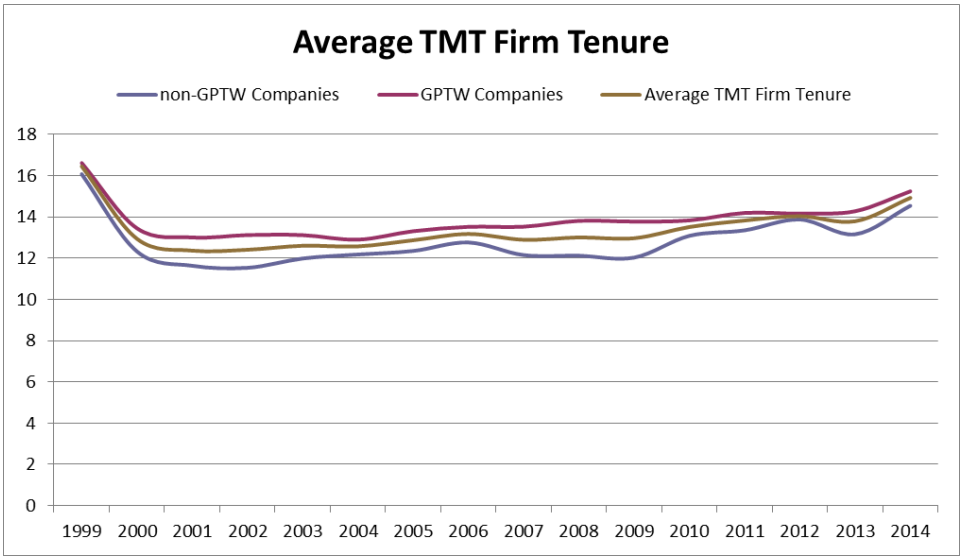
D9: Average TMT Role Tenure



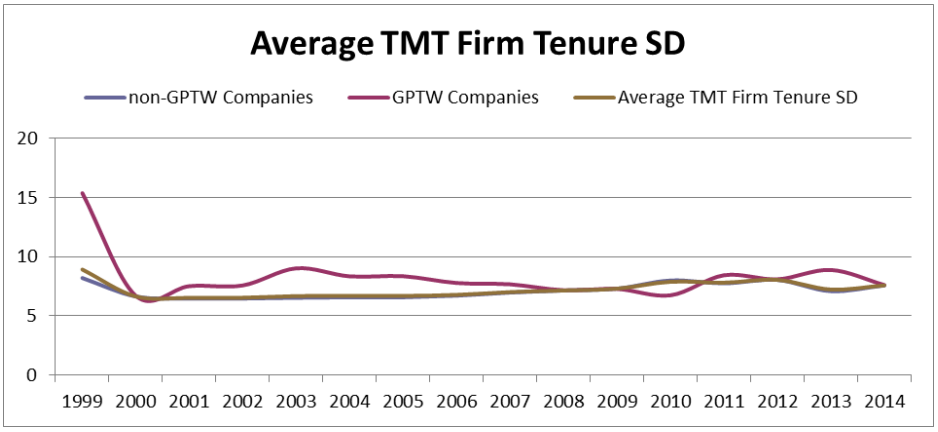
D10: TMT Role Tenure Heterogeneity



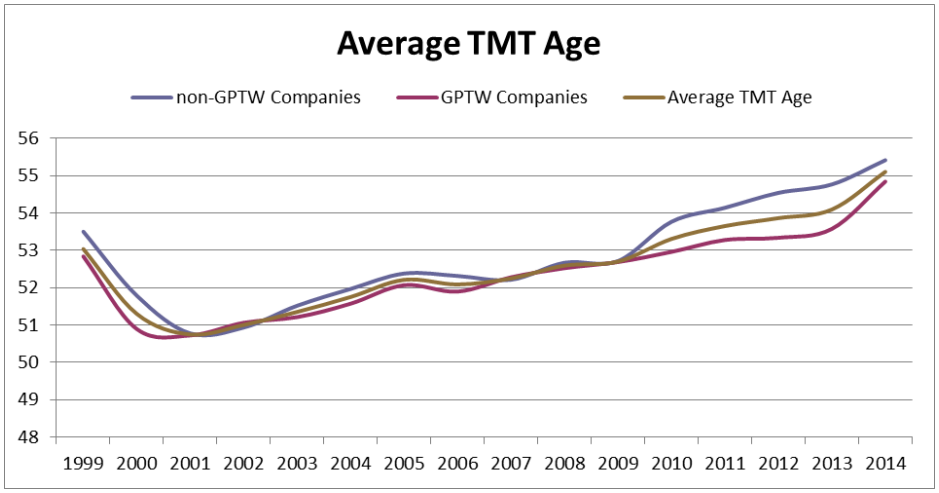
D11: TMT Average Firm Tenure



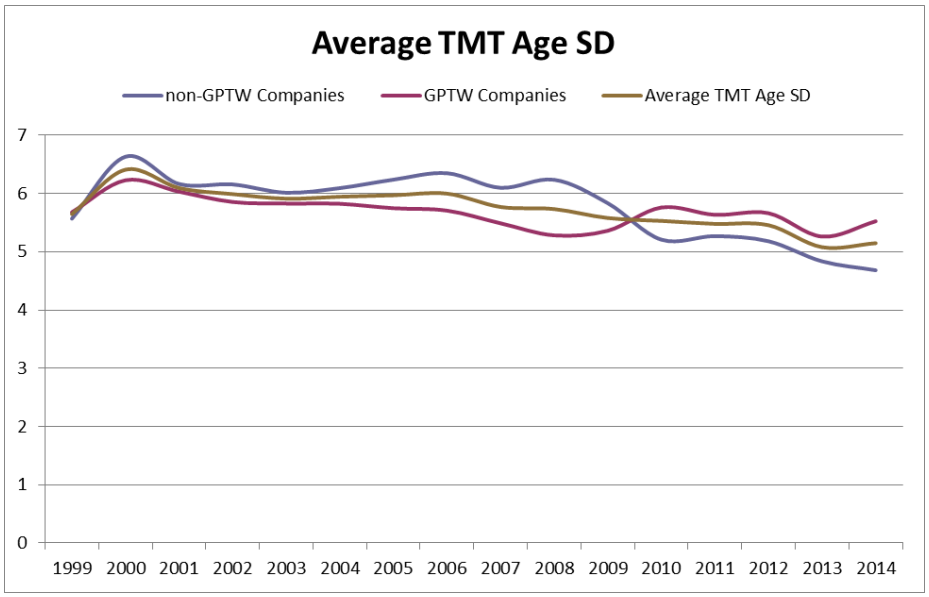
D12: TMT Firm Tenure Heterogeneity



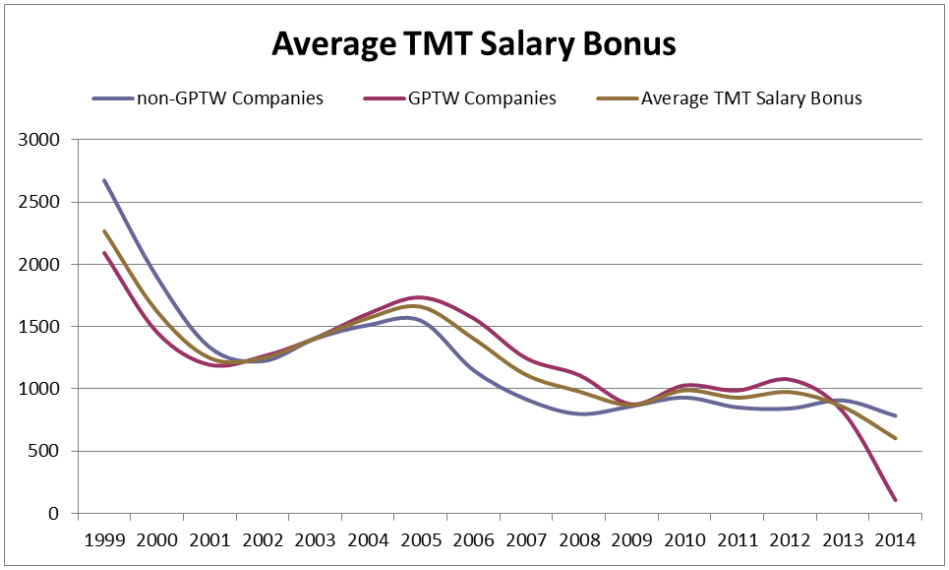
D13: TMT Average Age



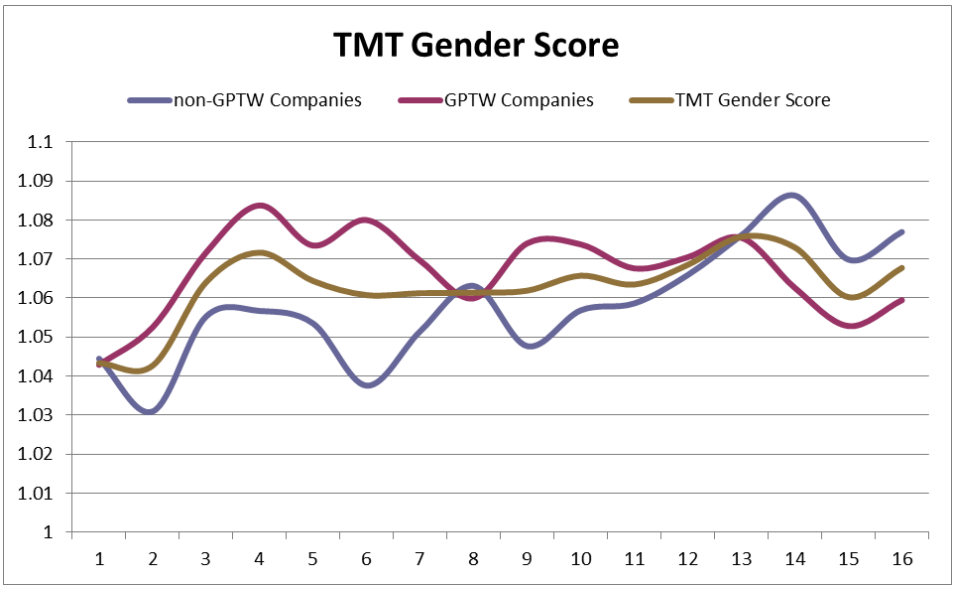
D14: TMT Age Heterogeneity



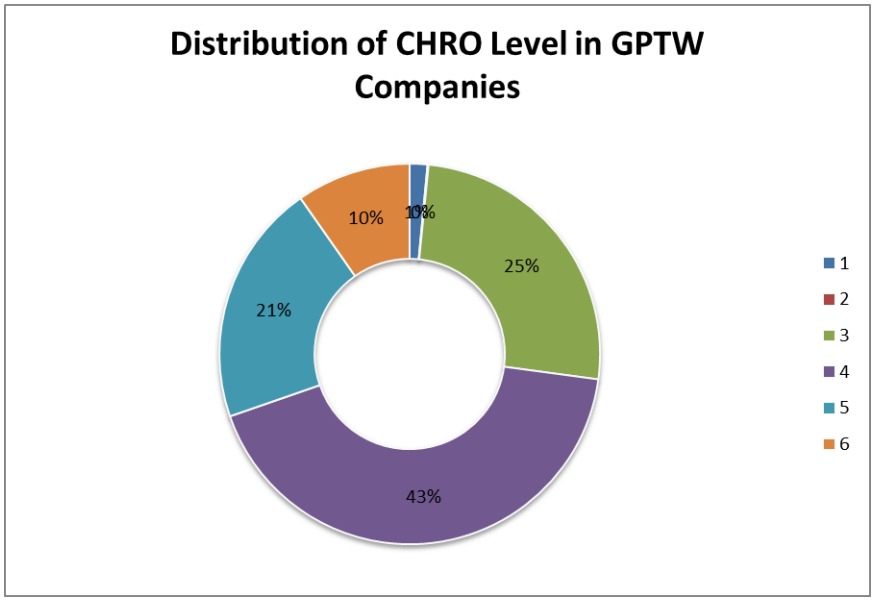
D15: TMT Compensation Average



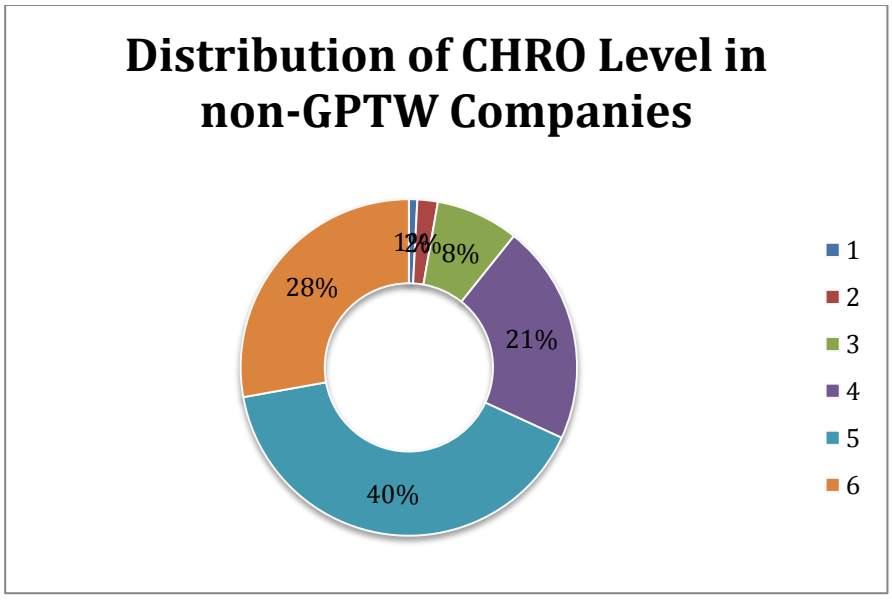
D15: TMT Gender Average (1=Male; 2=Female)



D16: CHRO Level in GPTW Firms



D17: CHRO Level in Non-GPTW Firms



Appendix E: GPTW Companies (scores/year)

Company	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
3M	1															
A. G. Edwards								1								
Accenture								10			1	2	1	1	1	1
Adobe													1		1	
Aeropostale													1		1	
AFLAC			4	7	5	5	4						5			5
Agilent Technologies			6	7	7											
American Express Company			3	2	7	7	7	7	3	4		3	6	4		4
Amgen	5	8	5			7	7	7	6							
Analog Devices Inc	3															
Applied Materials					2											
Arbitron Inc				5												
Arrow Electronics Inc	3															
Autodesk Inc					5			2						4	5	3
BMC Software	5	5														
Booz Allen Hamilton									4	2	5	5	2	2		
Bright Horizons Family Solutions Inc						4										
Brocade Communications Systems Inc												4	2			
Build-A-Bear Workshop										5	6	8	10	10		9
CA Technologies Inc	5															
Camden Property Trust										5	6	9	10	10		9
Capital One Financial Corporation										5	6	9	10	10		9
CarMax Inc							5	1	2	5						
CDW Corporation										1						
Cerner Corporation	5															
Chesapeake Energy Corporation											3	7	7	8		
Cisco Systems Inc		10	10						10	10	10					
Colgate-Palmolive					5							1				
Compuware Corporation	5															
Corning Inc	1															
Credit Acceptance Corp																5
Darden Restaurants Inc													1	1	4	3
Deere & Company	1															
Devon Energy											10	8	6	8		5
Discovery Communications Inc																2
DreamWorks Animation SKG Inc											5	10	10	9	9	
eBay Inc										4	3					
Electronic Arts					1											
EMC Corporation			1													
Emmis Communications Corp							4									
EOG Resources									2	4	6	4	4	3		1
FedEx Corporation		5	2	2	3	1	1	4		1	1	1			1	
First Horizon National Corporation								2	6							
General Mills		1				4	5	1		4	1	1	5	4		4
Genzyme								5	6							
Goldman Sachs	1															
Google (Class A)									10	10	10	10	10	10	10	10
Granite Construction						2										
H.B. Fuller Company	1															
Harley-Davidson			1	3	1	3	1									
Hasbro													5			
Healthways										2						
Hewlett-Packard					4											
Hot Topic						6	4									
Hyatt Hotels																1
Hyperion Solutions								2								
IBM					7	3										
Ingram Micro	5															
Intel	5	4	6	6	8	5									3	
Interface	1															
Intuit				6	4	3	4	6	7	6	5	1	7	9	9	10
J. M. Smucker							10	10	7	6		5	1			
J.P. Morgan & Company	1															
Janus	10	7														
John Wiley & Sons (Class A)							1	1								

Company	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Johnson & Johnson	3	4	4	1												
Jones Lang LaSalle									5							
Juniper Networks											2					
K2	1															
Kimberly-Clark				1	4											
Life Technologies	1															
Marriott International	5	3	1	3	2	2	4	3	1	3	3	2	3	4	4	5
Mattel										3	5	3	4	1	1	
McCormick & Company												3				
Medtronic	4		2	3	4	3	3		3							
Men's Wearhouse												4	2			
Merrill Lynch													1			
Microsoft				7	7			5	4	5	2	7	5	3		
Microstrategy					1											
Monsanto						5	2					5				
Moog Inc. (Class A)	1															
Morningstar													1	1		
Motorola	1															
National Instruments		3	2	3	5	4	6	3	2	3	4	2	3	7		4
NetApp											10	10	10	10	10	7
New York Times					10											
Nike								1		2						
Nordstrom	1	1	4	2	1	1	2	6	8	7	3	5	5	4	2	2
Nortel Networks		1														
NuStar Energy											5	8	7	9	6	7
Nvidia						4										
Paychex				6	2	1			3	5	4					
Pfizer				5			3									
Principal Financial Group						1	1	4	2	3	8	9				
Procter & Gamble				1	6	2	4	4	1							
Qualcomm			3	10	9	5	9	8	9	10	9	10	7	8	9	7
Rackspace Hosting												6	1	7	7	8
salesforce.com							4	6	5	7	8	9	10	8	9	10
SEI Investments			5	5	4	8	3									
Sherwin-Williams (2013)							1	4		1						
Silicon Graphics					7											
Southwest Airlines	8	10	10	10												
SRA International				7	7	6	6	4	1	1			1			
St. Jude Medical Inc. (NYSE:STJ)													2	7	5	7
Standard Pacific								3	4							
Starbucks	5	2	5	4	5	7	9	8	9	10	8	1	1	3	3	
Station Casinos							5	5	8		7					
Steelcase	1															
Stryker													4	3	4	6
Symantec							6									
Texas Instruments	1		2	1	1	1	2		2	1	4					
The Charles Schwab Corporation		10	6	1												
The Container Store Group Inc											7	7	8	8	9	8
Ultimate Software														7	10	8
Union Pacific Resources	2															
Valero				1		7		10	8	4	1					
Wal-Mart Stores	4		1	1												
Whole Foods Market	3	4	6	6	7	5	7	9	10	9	7	8	7	7	6	4
Worthington Industries	2			1				2								
Xilinx			9	10	10	10	10									
Yahoo!								3	6	2						

Appendix F: Matched Company Listing

Abbott Laboratories (NYSE:ABT)
AbbVie Inc.
Acxiom Corporation (NasdaqGS:ACXM)
Advance Auto Parts Inc. (NYSE:AAP)
AECOM (NYSE:ACM)
Alliance Holdings GP. L.P.
Altera Corp. (NasdaqGS:ALTR)
Amdocs Limited (NasdaqGS:DOX)
Ameriprise Financial Inc
Ansys, Inc. (NasdaqGS:ANSS)
Apache Corp.
Apple Inc. (NasdaqGS:AAPL)
Aramark
ARRIS Group, Inc. (NasdaqGS:ARRS)
Ascena Retail Group Inc. (NasdaqGS:ASNA)
Aspen Technology, Inc. (NasdaqGS:AZPN)
Atlas Pipeline Partners, L.P. (NYSE:APL)
B/E Aerospace Inc. (NasdaqGS:BEAV)
Baidu, Inc. (NasdaqGS:BIDU)
Becton Dickinson and Company
Best Buy Co., Inc. (NYSE:BBY)
Bob Evans Farms, Inc. (NasdaqGS:BOBE)
BorgWarner Inc. (NYSE:BWA)
Boston Scientific Corporation (NYSE:BSX)
Bristol-Myers Squibb Company (NYSE:BMY)
CACI International
Campbell Soup Company (NYSE:CPB)
Canadian Tire Group
CBOE Holdings, Inc. (NasdaqGS:CBOE)
CenturyLink Inc
Check Point Software Technologies Ltd. (NasdaqGS:CHKP)
Choice Hotels International Inc. (NYSE:CHH)
Citrix Systems, Inc. (NasdaqGS:CTXS)
CME Group Inc. (NasdaqGS:CME)
Cognizant Technology Solutions Corporation (NasdaqGS:CTSH)
Computer Sciences Corporation (NYSE:CSC)
Concur Technologies
Corning Inc. (NYSE:GLW)
Corus Entertainment Inc
Costco Wholesale Corporation (NasdaqGS:COST)
Danaher Corp. (NYSE:DHR)
Delta Air Lines, Inc. (NYSE:DAL)
Dillard's Inc. (NYSE:DDS)
Discover Financial Services (NYSE:DFS)
DST Systems Inc. (NYSE:DST)
E*TRADE Financial Corporation (NasdaqGS:ETFC)
EarthLink Holdings Corp. (NasdaqGS:ELNK)
Eaton Corporation plc
Ebix Inc. (NasdaqGS:EBIX)
Ecolab Inc
Eli Lilly and Company (NYSE:LLY)
Emerson Electric Co. (NYSE:EMR)
ePlus inc. (NasdaqGS:PLUS)
Erste Group Bank AG (WBAG:EBS)
Ethan Allen Interiors Inc. (NYSE:ETH)
First Citizens Bancshares Inc. (NasdaqGS:FCNC.A)

FleetCor Technologies, Inc. (NYSE:FLT)
Gannett Co., Inc. (NYSE:GCI)
Graham Holdings Company (NYSE:GHC)
GTECH S.p.A
Hess Corporation (NYSE:HES)
Hill-Rom Holdings, Inc. (NYSE:HRC)
HNI Corp. (NYSE:HNI)
Houghton Mifflin Harcourt Company
Hudson's Bay Company
Husky Energy Inc
Informatica Corporation (NasdaqGS:INFA)
Intact Financial Corporation
Isle of Capri Casinos, Inc. (NasdaqGS:ISLE)
Itron, Inc. (NasdaqGS:ITRI)
j2 Global, Inc. (NasdaqGS:JCOM)
Jabil Circuit Inc. (NYSE:JBL)
JAKKS Pacific, Inc. (NasdaqGS:JAKK)
Johnson Outdoors Inc. (NasdaqGS:JOUT)
KKR & Co. L.P. (NYSE:KKR)
Knoll, Inc. (NYSE:KNL)
Kraft Foods Group, Inc. (NasdaqGS:KRFT)
Lam Research Corporation (NasdaqGS:LRCX)
Lear Corp. (NYSE:LEA)
Leidos Holdings, Inc. (NYSE:LDOS)
Magna International Inc
Marathon Petroleum Corporation (NYSE:MPC)
Masco Corporation (NYSE:MAS)
McGraw Hill Financial, Inc. (NYSE:MHFI)
Mentor Graphics Corp. (NasdaqGS:MENT)
Mettler-Toledo International Inc. (NYSE:MTD)
Micron Technology, Inc. (NasdaqGS:MU)
Mohawk Industries Inc. (NYSE:MHK)
Morgan Stanley (NYSE:MS)
NCR Corporation (NYSE:NCR)
Nucor Corporation (NYSE:NUE)
Och-Ziff Capital Management Group LLC (NYSE:OZM)
Open Text Corporation
Oracle Corporation (NYSE:ORCL)
Pepsico, Inc. (NYSE:PEP)
Pier 1 Imports Inc
Pier 1 Imports, Inc. (NYSE:PIR)
Regions Financial Corporation (NYSE:RF)
Revlon, Inc. (NYSE:REV)
Ritchie Bros. Auctioneers Incorporated (NYSE:RBA)
Ryland Group Inc. (NYSE:RYL)
Salem Communications Corp
Schlumberger Limited (NYSE:SLB)
Seagate Technology Public Limited Company (NasdaqGS:STX)
Sequential Brands Group
Shaw Communications Inc
Silgan Holdings Inc. (NasdaqGS:SLGN)
SL Green Realty Corp. (NYSE:SLG)
Sonus Networks, Inc. (NasdaqGS:SONS)
Sotheby's
Sprouts Farmers Market, Inc. (NasdaqGS:SFM)
St. Jude Medical Inc. (NYSE:STJ)
SYNNEX Corp

Synopsys Inc. (NasdaqGS:SNPS)
T. Rowe Price Group, Inc
Telephone & Data Systems Inc. (NYSE:TDS)
The Bank of New York Mellon Corporation
The E. W. Scripps Company (NYSE:SSP)
The Estée Lauder Companies Inc. (NYSE:EL)
The Home Depot, Inc. (NYSE:HD)
The J. M. Smucker Company (NYSE:SJM)
The Mosaic Company (NYSE:MOS)
The TJX Companies, Inc. (NYSE:TJX)
Time Warner Cable Inc. (NYSE:TWC)
United Parcel Services Inc
V.F. Corporation (NYSE:VFC)
Vail Resorts Inc. (NYSE:MTN)
Verizon Communications Inc. (NYSE:VZ)
Voya Financial, Inc. (NYSE:VOYA)
Xerium Technologies Inc. (NYSE:XRM)
Yum! Brands, Inc. (NYSE:YUM)