TOP MANAGEMENT TEAM DIVERSITY IN FINANCIAL SERVICES: THE INFLUENCE OF FUNCTIONAL AND DEMOGRAPHIC DIVERSITY ON FIRM FINANCIAL PERFORMANCE

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ABSTRACT

There has been exhaustive discussion on whether diversity in the TMT (Top Management Team) has an impact on the firm's financial performance. This research will analyze data from 59 Fortune 500 Financial Services firms' TMTs referencing Hambrick and Mason's Upper Echelon theory and review the TMT members' demographic composition as well as functional experience background attributes. We controlled for industry effects by focusing on the financial services sector, within which companies related to the banking sector are systemically essential to society. Another rationale for the focus on financial services is the degree with which this industry has been digitized, which we argue creates a more complex management environment. This research will compare the type of diversity within the TMT (functional vs. demographic) and the related impact on the firm's financial performance in terms of P/E (Price / Earnings) Ratio, ROA (Return on Assets) and ROE (Return on Equity). This is in the context of a dynamic digital marketplace that we hypothesize now rewards functional diversity in the TMT as this attribute in the team composition is critical to organizing the firm's competitive repertoires and strategy. The findings from the research suggest that functional diversity (TMT specialties such as marketing, finance, operations, etc.) is more significant than demographic diversity (gender, ethnicity, nationality). This study indicates that functional diversity had a positive correlation with financial performance in terms of the P/E Ratio and ROA, while demographic diversity had slightly negative correlation, not having a significant impact on the firm's financial performance.

Keywords: Functional Diversity, Functional Experience Background, Demographic Diversity, Firm Financial Performance, TMT (Top Management Team), TMG (Top Management Group), Cognition, Cognitive Diversity

INTRODUCTION

The literature over the past 40 years analyzing the benefit of diversity in the TMT (Top Management Team) in terms of organizational outcomes (one of which is financial performance) discussed in the Upper Echelons Theory (Hambrick & Mason, 1984) and Dominant Coalition (Cyert & March, 1963) has historically had mixed reviews. (Certo, Lester, Dalton, & Dalton, 2006) Even though it is commonly accepted that diversity enhances the breadth of perspective, cognitive resources, and overall problem-solving capacity of the group (Hambrick, Cho, & Chen, 1996; Hunt, Layton, & Prince, 2015), there are still questions about the value and which category of benefit diversity brings to the TMT (Mannix & Neale, 2005).

There have been many studies which focused on several different attributes (gender, ethnicity, age (Tanikawa, Kim, & Jung, 2017), marital status, tenure, team size (Díaz-Fernández,

González-Rodríguez, & Pawlak, 2014), and educational background (Díaz-Fernández et al., 2014)) diversity. It is thought-provoking, however, that none of these previous studies have focused on whether TMT composition attributes characterized as demographic elements (Beckman & Burton, 2011) have a different impact on firm performance than functional experience background.

Extant research has argued that diversity (stated generically without specifying particular attributes) in the TMT is good for managing task complexity (Simsek, Veiga, Lubatkin, & Dino, 2005) and generating productive debate (Boone & Hendriks, 2009). It is also productive in enhancing creativity (Barsade, Ward, Turner, & Sonnenfeld, 2000), providing a healthy culture (Stahl, Maznevski, Voigt, & Jonsen, 2009), processing large amounts of information (Hambrick & Cannella, 2004), and more thoughtful decision making (Wiersema & Bantel, 1992). Conversely, heterogeneity in the TMT has also been found to be negative (Miller, Burke, & Glick, 1998; Wang, Ma, & Wang, 2015) in terms of team cohesion (Harrison & Klein, 2007; Knight et al., 1999; Love, 2018), social divisions (Mannix & Neale, 2005), executive environmental perception (Waller, Huber, & Glick, 1995), decision speed (Pelled, 1996), and when there are dominant CEO's (Haleblian & Finkelstein, 1993).

The evolution to a digitized business environment since the 1980s (Yoo, Boland, Lyytinen, & Majchrzak, 2012) and required complex competitive repertoires (Ferrier & Lyon, 2004) to survive in the current marketplace has seen an unprecedented degree of change. In fact, complexity is driving such an increase in need for information processing, that we are witnessing the development of new roles in the TMT (Certo et al., 2006), such as Chief Digital Officer, Chief Customer Officer, as well as some specific roles, such as Chief Revenue Officer (Fleischer, 2018; Menz, 2011). Diversity is also reported to enable the ability to process large amounts of complex information (Haleblian & Finkelstein, 1993; Henderson & Fredrickson, 1996; Thomas & McDaniel, 1990) needed to manage evolving TMT business challenges. The aforementioned forces driving business environment change include demographic diversity (Donnelly, 2017; Jones, 2017), the advent of the Internet, and the implications of digital technology.

The impact of digital technology has led to a proliferation in the customer channels for interactions with companies (Liao & Wong, 2008) as well as capabilities in terms of ubiquitous social and commerce platforms (Eisenmann, Parker, & Alstyne, 2011). These capabilities enable companies to provide services to and interact with customers in innovative ways. In addition, big data analytics (Chen, Chiang, & Storey, 2012) coupled with artificial intelligence are disrupting the foundation of many industries. Each of the previous forces is increasing the amount of pressure (Hambrick, Finkelstein, & Mooney, 2005) on the TMT for establishing a strategy (Lant, Milliken, & Batra, 1992) for the competitive repertoire (Ferrier, 2001). There is an impact on the TMT in terms of decision making (Smith et al., 1994), decision speed (Li & Jones, 2018), information analysis, synthesis and processing (Haleblian & Finkelstein, 1993; Henderson & Fredrickson, 1996), as well as utilization of new technology (Henderson & Fredrickson, 1996) to aid in executive management of the complex new business models. As a result, it is very important that members of the TMT have a diverse background in terms of functional experience to better manage the speed, technology change, and information processing complexity of the business environment today (Marcel, 2009).

There are two observations that this paper will explore. First, existing research has not confirmed a clear consensus (Handika & Wibowo, 2018; Knight et al., 1999) on whether diversity within the TMT is beneficial for firm financial performance (Mannix & Neale, 2005; Miller et al., 1998). Second, in the research studies where diversity is deemed beneficial, it is unclear which

type of diversity is the most influential as most papers only measure certain attributes of diversity, lacking a direct comparison between demographic diversity and functional experience background diversity (Certo et al., 2006).

Many of the studies are also from the 1980s and 1990s before the Internet (Yoo et al., 2012) really began its significant disruption of the business environment. The current state of the marketplace adds an extreme amount of operational complexity to the strategy and decisions (Hambrick et al., 2005) that the TMT must manage as part of their roles in the firm. Research has suggested that diversity in the TMT will help in being better prepared for the evolving environment (Hambrick & Mason, 1984). We propose that it is not sufficient to only establish demographic diversity in the TMT, the impact of which is inconclusive (Certo et al., 2006; Mannix & Neale, 2005). Rather, we suggest that attention should be focused on adding functional experience background to the TMT. This focus on functional diversity will magnify results in terms of enhanced financial performance for firms in the digital era (Downes & Nunes, 2013; Yoo et al., 2012).

The extant research contains a gap specific to addressing the question of which attributes of diversity within the TMT composition are the most influential on performance considering such measures such as productivity (Díaz-Fernández, González-Rodríguez, & Simonetti, 2016), team cohesion (Love, 2018; Michel & Hambrick, 1992), consensus (Priem, 1990), decision speed (Smith et al., 1994), and effectiveness (Stahl et al., 2009). This leads us to the analysis of the impact of functional vs. demographic diversity on the firm's financial performance as measured by the metrics of this P/E Ratio, ROA, and ROE. Previous studies have analyzed related measures such as profitability (Boone & Hendriks, 2009; Bunderson & Sutcliffe, 2002; Pegels, Song, & Yang, 2000), market share (Kilduff, Angelmar, & Mehra, 2000), ROI (Return on Investment) (Norburn & Birley, 1988), and ROA (Return on Assets) (Cannella, Park, & Lee, 2008; Carpenter, 2002; Menz, 2011)

The aim and contribution of this paper is to distinguish the impact of two different categorical types of diversity, demographic diversity (Beckman & Burton, 2011; Pelled, 1996; Smith et al., 1994; Wiersema & Bantel, 1992) and functional background experience diversity (Boone & Hendriks, 2009; Bunderson, 2003; Bunderson & Sutcliffe, 2002; Cannella et al., 2008; Menz, 2011; Waller et al., 1995).

We suggest that both demographic and functional diversity are proxies for cognitive diversity (different ways of thinking about problems, etc. based on prior experience). We argue that cognitively diverse TMTs will be better equipped to analyze information and make decisions in today's rapidly changing and complex business environment in the digital age (Yoo et al., 2012). We assume that these two sources of cognitive diversity are conceptually distinct – since they arise from different sources. It is beyond the scope of this study to test this assumption, which is an interesting research question for future research. Given the inconclusive findings in the literature thus far about the relationship between diversity and firm performance, it is worth exploring whether these two sources of diversity have different effects on firm performance, as measured in terms of P/E Ratio, ROA, and ROE.

LITERATURE REVIEW

There are several key terms that are used to describe TMT diversity or heterogeneity and the composition or characteristics of the TMT (Harrison & Klein, 2007; Mannix & Neale, 2005). Referencing back to some of the original research, this genre is the area of upper echelon theory (Hambrick & Mason, 1984), where Hambrick & Mason reference team heterogeneity as

managerial background characteristics. Another term from seminal research used to describe top leadership is the dominant coalition (Cyert & March, 1963). Each of these slightly different nuances on the definition and measurement of various types of diversity lead to many studies focused on various attributes (Stahl et al., 2009). In this category of research there are many references to the naming of demographic category such as TMT diversity (Díaz-Fernández et al., 2016), TMT demography (Smith et al., 1994; Wiersema & Bantel, 1992), demographic diversity (Pelled, 1996), demographic characteristics (Díaz-Fernández et al., 2014), or demographic heterogeneity (Haleblian & Finkelstein, 1993).

In addition, on the functional focus, some references are functional diversity (Bunderson & Sutcliffe, 2002), functional heterogeneity (Carpenter & Fredrickson, 2001), functional experience (Nath & Mahajan, 2008), or functional background (Boone & Hendriks, 2009; Bunderson, 2003; Krishnan, Miller, & Judge, 1997; Waller et al., 1995). Some papers have included educational diversity as well as functional diversity (in addition to the more commonly known attributes such as gender, age, ethnicity, nationality, tenure, team size) to the definition of demographic diversity (Bantel & Jackson, 1989). Interestingly, the seminal research on the topic combined various attributes of age, functional background, educational background, and tenure in the upper echelon theory (Hambrick & Mason, 1984), but left the discussion open about which attributes truly signify the largest impact. Interestingly, several studies include functional diversity within the demographic diversity category (Carpenter, 2002; Carpenter & Fredrickson, 2001; Smith et al., 1994; Stahl et al., 2009). In making a distinction between functional and demographic diversity, this paper will separate specific explanations of each below to clarify the terminology as well as measure the impact of each category of diversity.

Focus of studies on TMT diversity

Many papers have focused on various angles of TMT diversity (generically), and to provide some context on the breadth of the literature, we summarize the highlights of a few of them. With the key independent variable of some flavor of TMT diversity, in our research we found that there are many dependent variables described, as well as various data sets focused on different industries. A few of the studies focus on the impact of diverse teams on strategy, which are the impact on strategic change (Díaz-Fernández et al., 2016; Wiersema & Bantel, 1992), the impact on strategic consensus (Carpenter, 2002; Knight et al., 1999; Priem, 1990), as well as debate (Simons, Pelled, & Smith, 1999), and the impact on strategic posture (Carpenter & Fredrickson, 2001). There is a group of papers that focus on the operational impacts to the TMT due to diversity, which are impact on cognitive diversity (Kilduff et al., 2000), impact on decision-making (Bunderson, 2003), and impact on decision speed (Hambrick et al., 1996).

Some other studies reviewed the impact on information processing and sharing ability (Haleblian & Finkelstein, 1993; Wang et al., 2015), the impact on innovation (Bantel & Jackson, 1989), and impact on creativity (Harrison & Klein, 2007; Stahl et al., 2009). Another group then focused on the impact on post-merger or acquisition relations (Krishnan et al., 1997), and impact on culture (Barsade et al., 2000; Stahl et al., 2009). There is also a focus on impact on leadership behaviors such as CEO dominance (Haleblian & Finkelstein, 1993) and locus-of-control (Boone & Hendriks, 2009).

We found one specific example of management during turbulent times where strategic action needed managed, and the result was that more failed companies had a TMG where the CEO was dominant (Haleblian & Finkelstein, 1993). Another study on various attributes of diversity provided insight into the concepts of task and emotional conflict. Task conflict associated with

functional background is deemed positive in TMT, and emotional conflict associated with demographics comprised of gender, race, tenure is perceived negatively (Pelled, Eisenhardt, & Xin, 1999). Good working relationships between and within the TMT are important so that decisions can be made with speed and decisiveness. Positive affect (personalities collaborating in meetings / tasking) has been shown to break down in diverse TMT environments, and thus has a negative effect on decision making and firm performance (Barsade et al., 2000).

Demographic diversity

Within the diversity topic there are various attributes or characteristics that are discussed in the research including age (Tanikawa et al., 2017), gender, ethnicity, religion, nationality, tenure (Pelled et al., 1999), team size (Haleblian & Finkelstein, 1993; Simsek et al., 2005), educational background (Cannella et al., 2008; Wiersema & Bantel, 1992), and functional experience background (Bunderson, 2003; Bunderson & Sutcliffe, 2002; Menz, 2011). Some demographic attributes can be categorized in at least four different categories of variables: visible demographic attributes (such as gender, ethnicity); relational attributes (such as organizational tenure); status attributes (such as marital status); and personal attributes (such as religion, personal beliefs and perceptions) (Kilduff et al., 2000). Tenure is said to be a surrogate for the level of team cohesion (Hambrick et al., 1996), which affects performance (Pegels et al., 2000), as well as result in empowerment (Harrison & Klein, 2007).

There have also been suggestions that demographic data was not as influential and there should be a moratorium on studies focused on its impact on firm performance (Certo et al., 2006). As discussed above, for the purposes of this study, the categorization of demographic diversity (DD) is separated and limited to strictly inherent or visible/observable demographic attributes such as gender, ethnicity, nationality, age, which are more innate to a person. In the data set analyzed, we then only focused on gender, ethnicity, and nationality to create a demographic diversity score to compare in the regression analysis. We delve a bit deeper into functional diversity in the next section.

Functional diversity

Functional diversity (FD) is typically defined as representing the functional expertise of team members within the TMT (Norburn & Birley, 1988). This corresponds to a background in a functional area such as accounting, marketing, operations, strategy, technology, finance, etc. Even within the category of functional diversity there is a specific distinction of intrapersonal functional (within-member functional breadth) and dominant functional (focusing on a specific expertise) (Bunderson & Sutcliffe, 2002; Cannella et al., 2008). One study even made a distinction between types of functional expertise based on operational throughput (operations, process engineering) versus output functions (marketing, sales, product R&D) (Norburn & Birley, 1988). In another study, the inclusion of a CMO (Chief Marketing Officer) increased performance in terms of brand image, innovation, and creativity in the TMT (Nath & Mahajan, 2008). As alluded to above in the demographic diversity section, functional diversity as a specific attribute is often given equal weight in various other studies along with age, gender, ethnicity, tenure, educational background, however, we characterize it as a different category.

The difference with functional diversity from the other types of diversity is that it has an experience component that is not innate to a person's inherent natural identity (Menz, 2011). There is an argument to be made on whether a TMT member possessing multiple functional roles in their background may be best suited for the CEO role in the future (Waller et al., 1995). Those with

diverse functional experience are more apt to have more finely attuned cognitive and attitudinal perspective to contribute to the TMT (Bantel & Jackson, 1989). Due to the level of competitiveness in today's marketplace, managers must be specialized, but also be able to work effectively in cross-functional teams, which supports the importance of functional diversity in the TMT (Mannix & Neale, 2005). In terms of functional diversity, we focused on the roles and background of the executives within the TMT to code for FD to compare in the regression analysis.

Business environment in the digital age

Historically, in the 1900's a firm was run by the president or CEO (Chandler, 1992; Collis & Montgomery, 1991; Kaplan & Norton, 2006), who was typically a dominant CEO (Chatterjee & Hambrick, 2007; Haleblian & Finkelstein, 1993) with staff that provided various inputs and carried out operational tasking. As the environment became more complex with technology, competition, internationalization, and customer demands, the firm and CEO needed a TMT that could provide additional significant support to the CEO. Companies driven by this market dynamic began to add members to the TMT in terms of a CFO to manage the finance function and COO to run the operational aspects (Marcel, 2009). Then with increasing demands a CIO was added to manage technology and information as well as a CMO (Nath & Mahajan, 2008) to manage Marketing and Sales. This evolution lands us at the beginning of the current generation (1980-1990s), in which the Internet was born, and the digital age (Yoo et al., 2012) began. The digital era sped business and innovation cycles up and raised expectations of the customers creating a winner take all environment (Downes & Nunes, 2013). This phenomenon then forced companies to have more complex competitive repertoires (Ferrier, 2001), which in turn required even more functional expertise and support in the TMT.

The digital age through the Internet and related capabilities has created a more complex environment for the TMT to manage. In the prior generation, there were only two main channels of communication, which were phone and postal (snail) mail. The customer interaction channels at present have proliferated to a level of complexity that is much more extensive and intensive for the TMT (Liao & Wong, 2008). The business models have also evolved at an equally fast pace with nearly every industry significantly impacted by technology, social platforms, big data analytics, and artificial intelligence (Chen et al., 2012). All the above changes have continued to raise the level of pressure on the TMT and require a different level of support and expertise in order to not only survive but have positive firm financial performance.

TMT diversity impact on firm performance

Focusing strictly from a financial perspective on measuring outcomes from a diverse TMT, there are several studies that have researched this topic (Boone & Hendriks, 2009; Cannella et al., 2008; Carpenter, 2002; Certo et al., 2006; Díaz-Fernández et al., 2014; Díaz-Fernández et al., 2016; Goll, Sambharya, & Tucci, 2001; Haleblian & Finkelstein, 1993; Kilduff et al., 2000; Norburn & Birley, 1988; Pegels et al., 2000; Pelled et al., 1999; Priem, 1990; Tanikawa et al., 2017; Wang et al., 2015). There is again some nuance on exact microfocus, but we will summarize the literature and context.

The key performance indicators that are measured in some of the studies are profitability (Boone & Hendriks, 2009; Bunderson & Sutcliffe, 2002; Hambrick & Mason, 1984; Miller et al., 1998; Pegels et al., 2000; Priem, 1990; Simons et al., 1999; Wiersema & Bantel, 1992) and ROA (return on assets) (Boone & Hendriks, 2009; Cannella et al., 2008; Carpenter, 2002; Carpenter & Fredrickson, 2001; Menz, 2011; Nath & Mahajan, 2008).

The method of measurement is straight-forward; identify the firms from which the TMT is studied and then collect the associated financial measures for that time period. In the case of Boone & Hendricks, they substituted ROS (return on sales) as a proxy for ROA, but determined that they were nearly identical (Boone & Hendriks, 2009). Similarly, in the study that Cannella conducted, the ROA was again aligned with the year that the TMT diversity was measured and the correlation was assessed (Cannella et al., 2008). In another example, Carpenter (Carpenter, 2002) similarly leveraged ROA in the corresponding years to determine the financial performance (dependent variable) correlated with the diversity of the TMT. In this case, utilization of Blau's Index (Blau, 1977) was also present (Carpenter, 2002).

As the citations provide evidence for above, there is precedent to measure the financial performance of the firm as a dependent variable with a variety of TMT diversity attributes as independent variables. In this study, we will draw a distinction between functional and demographic diversity within the TMT and measure the strength of each as it relates to the financial performance of the firm in a similar manner to the ROA examples cited above, however, we will add ROE, and P/E Ratio as well.

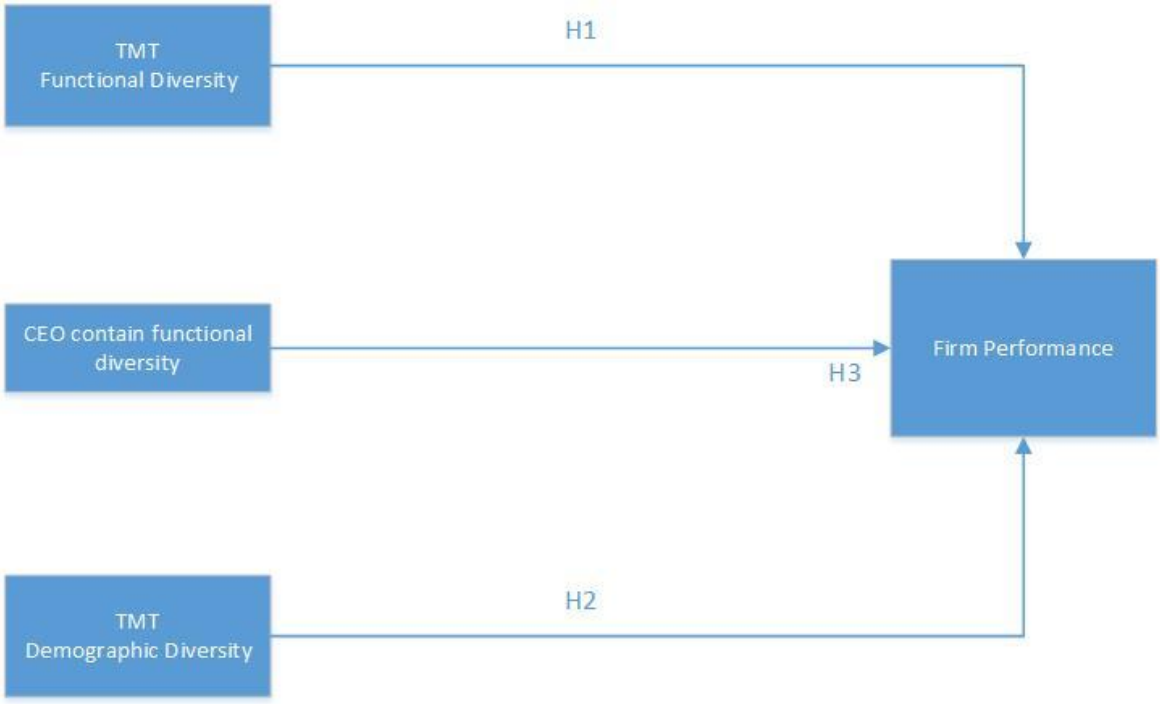
THEORETICAL FRAMEWORK

Research on the impact of diversity in the TMT has been inconclusive (Certo et al., 2006; Mannix & Neale, 2005) on confirming the benefit to firm financial performance. In fact, some research has suggested that TMTs containing heterogeneous characteristics may actually create emotional conflict (Pelled et al., 1999) and negatively affect team cohesion (Harrison & Klein, 2007). The hypothesis is that these analyses have largely focused on demographic diversity as well as dominant functional diversity (Boone & Hendriks, 2009; Bunderson & Sutcliffe, 2002; Cannella et al., 2008).

These studies seem to indicate that while there are some positive attributes, such as creativity (Barsade et al., 2000), overall they are largely negative for overall TMT effectiveness and firm financial performance (Certo et al., 2006; Mannix & Neale, 2005). We believe that these two aforementioned types of diversity are limited in terms of positive impact on financial firm performance. We, however, contend that intrapersonal functional diversity experience background (Bunderson & Sutcliffe, 2002; Cannella et al., 2008) will produce more positive interactions in the TMT due to the ability to manage increased and more complex information processing (Haleblian & Finkelstein, 1993; Marcel, 2009) and lead to superior firm financial performance in terms of financial metrics such as P/E Ratio, ROA, and ROE.

We propose to test a straightforward yet important question: Does TMT functional diversity have a more significant impact than TMT demographic diversity as a predictor of firm level financial performance? Our underlying argument is that diverse work-related experiences are crucial to the capacity of the TMT to manage a firm in today's complex, dynamic digital environment. We view functional diversity as a more direct measure of diverse work-related experience. This is not to say that the variance in perspectives derived from having a demographically diverse TMT is not important. There are numerous reasons why TMTs should be demographically diverse. However, we believe that it is important to disentangle the influence of demographic diversity from functional experience diversity. Our study is a first step in this direction, as we focus on a single industry and financial performance outcomes as our dependent variable of interest. Figure 1 shows the model we will be testing.

Figure 1



The hypotheses below focus on analyzing the impact of the type of diversity in the TMT on the financial performance of the firm and also compare the diversity types to distinguish which type of diversity is more important to include in the TMT. We argue that functional experience diversity, when measured separately from innate demographic diversity, will be positively related to firm financial performance. As articulated in the sections above, this is due to the need for diverse cognitive perspectives in the TMT in order to navigate today's complex and dynamic digital environment.

H1: Functional diversity in the TMT will have a positive impact on firm financial performance.

The extant research has found mixed results in whether generic innate diversity will impact the financial performance of a firm, and specifically if we tease out demographic diversity solely as innate attributes of a person, and not educational or functional background we believe that there will not be a significant positive relationship between demographic diversity and firm financial performance.

H2: Demographic diversity in the TMT will have no impact or a negative impact on firm financial performance.

There are several research studies that focus on the CEO as a special member of the TMT, often referred to as the TMG (Top Management Group) (Knight et al., 1999). Some studies consider the CEO a participant in the TMT, and some designate the CEO as the leader of the TMT (Haleblian & Finkelstein, 1993; Ling, Simsek, Lubatkin, & Veiga, 2008). This is important since we contend that as in H3, that the functional roles that a TMT member has experienced contribute to the positive impact on the TMT and firm financial performance.

With this positive contribution comes recognition and promotion, ultimately leading to a chance for this TMT member to become CEO (Hambrick & Cannella, 2004). This also creates a positive cycle in that when the CEO has significant diversity in terms of the functional experience background, it signifies that they have a common framework with the TMT members that they now effectively manage. This enables them to have more empathy and understanding in the ability to coach and motivate TMT members (Li & Jones, 2018), thus creating an environment for succession of that TMT member to become CEO in the future (Ou et al., 2014).

H3: Functionally diverse CEO's in the TMG will have a positive impact on firm financial performance.

METHOD

The data for this study was collected from 59 Financial Services Fortune 500 companies present in the F500 report in 2018. This data set focused on 59 of the 90 FI (financial institutions) in the F500. The 59 were largely banks, and the remaining firms in FI (31 not included) were mostly insurance companies. To strengthen the significance of these findings, it is important to highlight that these 59 companies are not just a data sample, but the entire population of banking related firms in the F500. The other 410 companies in the F500 represent other industry sectors and thus could be compared with the financial services sector in a subsequent analysis. The data analyzed was of two primary components, which was first the independent variables of demographic and functional diversity metric and secondly the dependent variables of the financial performance metrics (P/E, ROE, ROA).

The criteria for individuals on the TMT to be included in the study was that the executives analyzed must have been in role in the TMT for at least 2 years of the analysis period from 2015 to 2018, which was the same period that comprised the financial metrics averages. The study specifically split out functional diversity from the more generic innate diversity category, and then compared a category of attributes defined as demographic against a category of attributes defined as functional.

Our focus for the data capture for demographic attributes was on gender, ethnicity, and nationality. We acknowledge that there are several attributes that other studies have canvased, such as age (Díaz-Fernández et al., 2014), tenure (Harrison, Price, & Bell, 1998), education (Ferrier, 2001) that were intentionally excluded from our study. The functional diversity definition was based solely on the two previous role definitions, and intentionally did not include tenure, education, and/or other certifications. For example, if the executive was a COO, but had two other different CxO titles in their background, then they were coded for functional diversity. Lastly, we did not consider extra significance in the coding for those executives that had both a demographic diversity attribute as well as a functional diversity attribute, however, this could certainly be addressed in a future research study.

For each of the 59 companies, we captured 11 roles (See Table 1). The CEO, and 10 members of the TMT. Roles such as the Chief Customer Officer, or Chief Digital Officer that have been mentioned in this paper as well as are found in other studies (Menz, 2011; Yoo et al., 2012), and are present in some companies were not included, as these roles were not consistently present in the TMTs across the data sample. It is important to note that our study differs from others in that we found that within the financial services industry, the roles on the TMT tend to be similar across firms. Thus, we decided to have a fixed number of potential TMT roles (10), as listed below, and a separate measure for the CEO. Since the size of the TMT in our study was

fixed, as was the type of roles, it is not necessary to leverage the Blau's index formula that is a standard for measuring functional diversity (Blau, 1977). Rather, we use a straightforward proportion measure to indicate degree of diversity on the TMT, as described below.

Table 1: TMT Role Definitions

TMT (Top Management Team) Role
Chief Executive Officer (Not included in the TMT 10)
Chief Financial Officer (CFO)
Chief Operating Officer (COO)
Chief Marketing Officer (CMO)
Chief Information Officer (CIO)
General Counsel Office (GCO)
Chief Customer Social Responsibility (CCSR)
Chief Communications Officer (CCO)
Chief Human Resources Officer (CHRO)
Chief Risk Officer (CRO)
Primary Business Line Officer (PBLO)

Instrumentation - Diversity Measures

The first independent variable is the demographic diversity mix of the TMT (Top Management Team) as described by three attributes (gender, ethnicity, nationality). Effectively, the executive was coded for demographic diversity (DD) if the attribute was non-white male originating in the US or any demographic not originating in the US, which indicates the under-represented grouping. The process to collect this metric was to review each of the executive biographies and evaluate if they were a member of the three DD attributes. If the executive met the criteria, then they were coded for DD. Then for each of the companies, we calculated the average of DD / 10 (since there were 10 TMT roles), and gave a DD% metric, for example, if there were 4 members of the TMT that met the criteria for demographic diversity, then they would have a DD metric of 40%. For the second independent variable of functional diversity (FD), we followed a similar process to evaluate the functional expertise background, which was defined as having 2 different roles from the current role definition that the executive held. For example, if the CFO had a role as the CIO in the previous job, and led a business line prior to that role, then that executive would be deemed functionally diverse and was coded for FD.

It is important to distinguish the key difference between DD and FD, in that with DD, the attributes are innate, wherein with FD, the attributes are a function of the experience one has accumulated in their career. I used the same calculation as the DD metric, respectively, and as such developed an FD % for each company in the data set.

We ran analyses with two control variables in order to account for high variance in firm size. The largest companies had revenue of over $100B (billion), and the smaller companies, though still qualifying for the F500, were in the range of $5B (billion). In order to alleviate such a wide discrepancy, we took the mathematical log of the revenue as a control variable (LogRev). The second control variable we used is the Tobin's Q, which is based on the ratio of market value over assets. This is again a control variable to bring the firm's total size into more of a direct comparison with the other companies. Because Tobin's Q is highly correlated with ROA, it is difficult to interpret the regression results for ROA as dependent variable.

Instrumentation - Financial Performance Measures

The dependent variables are the pertinent financial measures averaged over the 3 collection years from 2015 to 2018 that are common in the extant research such as P/E Ratio (Price / Earnings Ratio), ROA (Return on Assets), ROE (Return on Equity).

ANALYSIS

We tested hypotheses using OLS regression. H1 predicted that functional diversity would positively impact firm performance, while H2 predicted that demographic diversity would not. In models 1-3 respectively, we regressed independent variables demographic diversity and functional diversity against the three performance metrics, P/E Ratio, ROA, and ROE as the dependent variables, with RevLog (Log of Revenue) as a control. In models 4-6, the same analysis was run but with Tobin's Q as the control variable.

We found support for H1 that functional diversity positively and significantly influenced P/E Ratio (Model 1) and ROA (Model 2). The effect was positive but non-significant for ROE (Model 3). We also found support for H2, which was that demographic diversity would not have a significant contribution to the financial performance metrics. H2 was supported for all three performance metrics (P/E Ratio, ROA, ROE) with both control variables.

Lastly for H3 (analysis in Table 4), we are unable to conduct an independent analysis of the effect of CEO functional diversity on financial performance, because nearly all the CEOs in our sample qualified as being functionally diverse. In lieu of an independent test, we added the CEO to the TMT of each firm to then comprise the Top Management Group (TMG). The results followed the result pattern for Hypothesis 1; TMG functional diversity is positively related to the financial metrics (P/E Ratio, ROA, ROE) that we measured in this study.

RESULTS

Table 2 presents the means, standard deviations, and correlations for all variables included in the models. Table 3 presents the regression results for models 1 thru 6. In model 1, the two diversity variables and the control variable accounted for a 12 percent ($p < .05$) of the variance of the PE Ratio. In model 2, the two diversity variables and the control variable accounted for 8 percent ($p < .10$) of the variance of the ROA. In the model 3, which focused on ROE, the two diversity variables and the control variable accounted for 2 percent ($p > .10$), and there is not a significant relationship between these variables.

The analyses are repeated in models 4-6, with Tobin's Q as the control variable. In model 4, with PE Ratio as dependent variable, the pattern of results is similar to model 1; functional diversity is positively related to performance, and demographic diversity is not. In models 5 and 6, Tobin's Q is very highly correlated with ROA and ROE, resulting in no significant relationship between the independent variables and these dependent variables. Table 4 shows the results of Models 7-12, in which the CEO is included in the Top Management Group (TMG). Since all CEOs in our sample had functional diversity, the results, as hypothesized, were very similar to models 1-6, in which the CEO was not included. The addition of the CEO to the TMT to comprise the TMG resulted in slightly stronger results (12.6 percent vs. 12.2 percent) when compared with the TMT analysis.

Table 2: Pearson's Correlation: Means, Standard Deviations, and Correlations[a]

Variable	Mean	SD	1	2	3	4	5	6
PE	24.96	17.84						
ROA	2.87	3.85	.309*					
ROE	11.93	15.39	0.156	.530**				
TobinQ	0.60	1.13	0.243	.926**	.607**			
RevLog	4.13	0.36	-0.240	-0.206	0.022	-0.142		
FirmDD	4.44	1.55	-0.072	0.101	-0.182	0.029	0.023	
FirmFD	4.66	1.35	.328*	.292*	0.166	.311*	-0.052	0.106

[a]n = 59.
* Correlation is significant at the .05 level (2-tailed).
** Correlation is significant at the .01 level (2-tailed).

Table 3: Results of regression analysis of the TMT (excluding the CEO) demographic and functional diversity variables, PE Ratio, ROA, and ROE[a] .

	Independent Variables	Model 1: PE	Model 2: ROA	Model 3: ROE
Controls				
	RevLog	-0.221 t	-0.193	0.036
Diversity Variables				
	Functional Diversity	0.328*	.274*	0.189
	Demographic Diversity	-0.102	0.077	-0.203
F		3.698*	2.676 t	1.364
R2		0.168	0.127	0.069
Adjusted R2		0.122	0.080	0.018
df		3,55	3,55	3,55

	Independent Variables	Model 4: PE	Model 5: ROA	Model 6: ROE
Controls				
	TobinQ	.156	.925**	.614**
Diversity Variables				
	Functional Diversity	0.291*	-0.004	-0.004
	Demographic Diversity	-0.108	0.075	-0.200 t
F		3.106*	115.333**	12.681**
R2		0.141	0.863	0.409
Adjusted R2		0.094	0.855	0.377
df		3,55	3,55	3,55

[a] n = 59, [t] p < .10, * p < .05, ** p < .01

Table 4: Results of regression analysis of the TMG (with CEO inclusion) demographic and functional diversity variables, PE Ratio, ROA, and ROE[a].

	Independent Variables	Model 7: PE	Model 8: ROA	Model 9: ROE
Controls				
	RevLog	-0.223 t	-0.192	0.032
Diversity Variables				
	Functional Diversity	0.331*	.264*	0.189
	Demographic Diversity	-0.119	0.149	-0.176
F		3.795*	3.067*	1.153
R2		0.171	0.143	0.059
Adjusted R2		0.126	0.097	0.008
df		3,55	3,55	3,55

	Independent Variables	Model 10: PE	Model 11: ROA	Model 12: ROE
Controls				
	TobinQ	.166	.918**	.632**
Diversity Variables				
	Functional Diversity	0.292*	-0.004	-0.004
	Demographic Diversity	-0.132	0.083	-0.220*
F		3.795*	116.556	13.112**
R2		0.147	0.864	0.417
Adjusted R2		0.100	0.857	0.385
df		3,55	3,55	3,55

[a] n = 59, [t] p < .10, * p < .05, ** p < .01

DISCUSSION AND LIMITATIONS

Our objective for this study was to examine the relative impact of two sources of cognitive diversity (functional and demographic) in the TMT on the firm financial performance (P/E Ratio, ROA, ROE). Due to the increased complexity in the marketplace with the digital age (Yoo et al., 2012) and impact of big data (Chen et al., 2012), we suggest that cognitively diverse top management teams will be better equipped to analyze information and make decisions in today's rapidly changing and complex business environment. We have argued that functional diversity will be a more robust source of knowledge that will help top management teams lead the strategic design and manage the execution of their firms' competitive repertoires (Ferrier, 2001; Hambrick et al., 1996) in terms of market orientation (Jaworski & Kohli, 1993).

Our hypotheses were tested with a study of 59 F500 Financial Services firms' TMT data comparing the functional diversity with the demographic diversity in terms of impact of the financial performance of P/E ratio, ROA, and ROE. Our analysis suggests that functional diversity

was positively associated with financial performance while demographic was not. Specifically, functional diversity was positively associated with firms' PE ratio for all the permutations of analysis (using the log of revenue and Tobin's Q as control variables and including and excluding the CEO as a member of the TMG).

Functional diversity (both with and without CEO) was positively related to ROA when log of revenue was used as the control variable, but not when Tobin's Q was used. This appears to be due the extremely high correlation between Tobin's Q and ROA. Functional diversity did not have a significant impact on ROE in any of the analyses. Demographic diversity did not have a positive impact on performance in any of the analyses.

The findings in this study enhance the body of knowledge regarding diversity in the TMT, as there has been a lack of comparison between the nuances of the diversity attributes in previous studies. Our research disaggregates some of the attributes from the seminal research that initially focused on TMT composition (Hambrick & Mason, 1984) and provides a deeper analysis with a current data set from the Fortune 500 firms. The implications of the study should not be misconstrued as a conclusion that demographic diversity is not important. This would be an error in the understanding of the purpose of the study.

As discussed in the literature review, there are several studies that measure and have suggested positive correlation with different dependent variables associated with team performance including at the Board level, the TMT/TMG level, as well as at the worker team level. A number of these variables focus on different, more preliminary and intermediate outcomes, such as team cohesion (Harrison & Klein, 2007; Love, 2018), healthy debate (Simons et al., 1999), creativity (Barsade et al., 2000), and team productivity (Díaz-Fernández et al., 2016). Demographic diversity can yield a number of such outcomes.

The focus of our study was to study the impact of diversity on certain financial outcomes. We have argued that in today's dynamic business environment, the breadth of cognitive knowledge resources produced by functional diversity will be more important to financial performance. Our findings support this argument.

Conclusions drawn from our study should consider the limitations of our data and analysis. TMT diversity does not explain a large proportion of variance in performance. Thus, one could conclude that there is no reason to include diversity in the TMT, or one could conclude exactly the opposite, which is that there is no reason not to. One could also argue that there are simply too many variables and other factors involved in between the composition of the TMT and the actual financial outcomes of the company. This could certainly be a viable argument due to the intricacies of the marketplace, however, the data set analyzed in this study suggests that the increased level of functional diversity in the TMT will lead to superior financial performance.

This study focused on the TMT and TMG (Knight et al., 1999; Smith et al., 1994), however, there may be different dynamics both at the board (Certo et al., 2006) (above the TMT/TMG) level as well as teams (Stahl et al., 2009) below the TMT. It is certainly possible that there would be different dynamics for different functions within the company as well. Similar to the point above on teams, it is possible to study different dependent variables to measure in terms of impact on diversity. While this study only focused on the financial performance in terms of P/E, ROA, ROE, there are many other measures of the effects of diversity on team and company performance.

We chose to focus on a single industry, financial services, in order to reduce industry effects. This limits the generalizability of our analysis. It is certainly possible that other industries may experience different phenomena regarding the dynamics that occur between demographic and functional diversity. Even within the FS (Financial Services) industry, one could compare banking

against capital markets and insurance. Our measures of diversity are based on coding the biographies of management team members, which has the potential for introducing errors in measurement. In addition, there is the possibility of collinearity among different measures of diversity (Menz, 2011).

For this study, we were able to separate out the two independent variables and measure them separately to control for this issue, and the correlation between our two measures is not significant. Bunderson and Sutcliffe (Bunderson & Sutcliffe, 2002), highlighted the importance of recognizing the intrapersonal sources of functional diversity, as well as the interpersonal diversity of the TMT.

Our data captured both intrapersonal as well as interpersonal diversity. For instance, the CMO will naturally have marketing expertise (Nath & Mahajan, 2008), however, may also have functional diversity due to prior roles that have experience with. We did not distinguish between levels of intrapersonal functional diversity. This could be an area to delve further into in order to clarify the effect of intrapersonal and interpersonal dominant diversity.

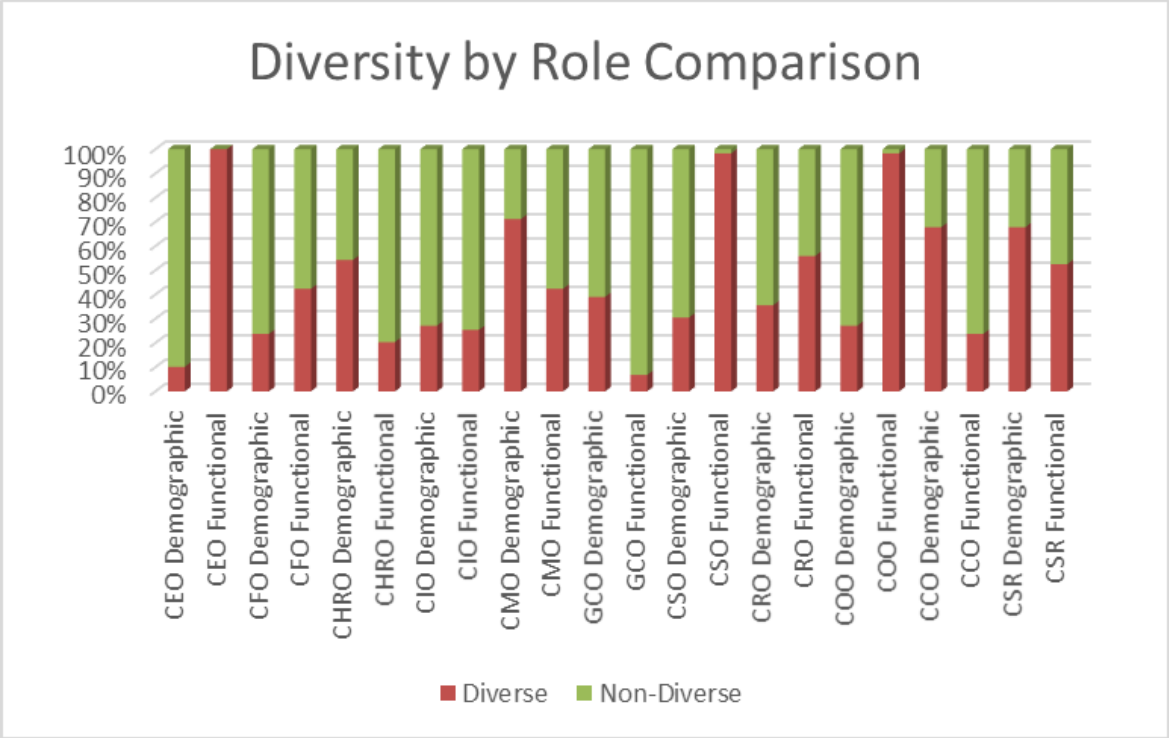
CONCLUSION AND FUTURE RESEARCH DIRECTIONS

In conclusion, we hope to contribute to the literature on top management team diversity by differentiating the effects of functional and demographic diversity on firm financial performance. Our findings support the idea that the cognitive diversity produced by having diverse functional experience is a benefit to firms in today's dynamic, digital business environment. We believe this finding has the potential to encourage several avenues for future research.

From an empirical perspective, while this study only focused on diversity effects on the financial performance in terms of P/E, ROA, ROE in financial services, there are many other approaches to examining the effects of diversity on team and company performance that are worth exploring. From a theoretical perspective, the assumption upon which our conceptual argument is based should be tested. Specifically, we have suggested that diverse cognitive resources help the top management team to guide their firm to success. We argued that diverse functional experience is a source of these cognitive resources. Both assumptions should be examined in future research.

Figure 2 - Diversity by role for the TMT Descriptive Statistics

The data shows high levels of Functional Diversity in the CEO, COO, CSO, and CMO roles.



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