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With the government ordered shutdowns and public health restrictions during the Pandemic, many businesses went through massive changes in an extremely short time to continue operations. These changes appear to have brought about a “new normal” in which the way organizations operate and leaders interact may have changed. Before the Pandemic, shared leadership was a leadership structure that had been consistently linked to positive outcomes such as increased satisfaction and team performance. However, in the “new normal,” with its post-Pandemic attitudes and increased ubiquity of virtual participation, the way teams share leadership responsibilities may not be the same. It is unknown if shared leadership is as popular and beneficial a leadership structure in the new business environment. This dissertation aims to assess the implications of the “new normal” for shared leadership by examining the phenomenon at multiple levels to learn how teams share leadership responsibilities in the post-Pandemic environment.

AN EXPLORATION OF SHARED LEADERSHIP AT MULTIPLE LEVELS: A TEAMS  
PERSPECTIVE IN THE NEW NORMAL

by

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## CHAPTER I: INTRODUCTION

“Why should anyone be afraid of change? What can take place without it? What can be more pleasing or more suitable to universal nature? Can you take your bath without the firewood undergoing a change? Can you eat without the food undergoing a change? And can anything useful be done without change? Don’t you see that for you to change is just the same, and equally necessary for universal nature?”

— Marcus Aurelius Antoninus, *The Meditations of the Emperor Marcus Aurelius Antoninus*

The Covid-19 pandemic brought about a world-wide shock that generated uncertainty in everything from sheltering in place, virtual learning, food establishments pivoting to provide food for consumption only at home, and a massive shift to virtual work in business sectors. The move to virtual work and the isolation from the country-level shutdowns, meant that the majority of people were forced to work with others in different ways and in different capacities than ever before. Organizational leaders were worried, not only about their workforce but the continued performance of their employees. At the individual and team level, leaders had to figure out how to allow teams to continue to work together at a functional level that still achieved organizational goals. At a higher level, Top Management Teams (TMTs) were concerned with keeping businesses operating at a level that would allow the continuance of operations.

When the outlook is bleak and uncertainty is high, the natural inclination is to protect yourself and your own – to circle the wagons to protect your resources. Before the global shock, there was already mistrust in certain aspects of continuing to expand globalization. For example, President Trump’s administration enacted Section 301 tariffs in 2018 which placed additional duties of up to 25 percent on annual imports of Chinese-origin goods. This decision was based

on findings from the Office of the U.S. Trade Representative's investigation that found that China's actions, policies, and practices inferred a plan to seize economic dominance in particular advanced technology sectors (Oleynik, 2018). This mistrust was exacerbated by the Covid-19 pandemic with the shortages of essential items like toilet paper, cleaning supplies, and then masks. With the high uncertainty and supply chain issues, individuals were looking for strong leadership to provide guidance and help to protect people. As extant research has found, during times of uncertainty and volatility, individuals tend to seek out authoritarian or autocratic leaders (Hogg, 2005, 2007b; Rast, Hogg, & Giessner, 2013).

We know that uncertainty influences leadership (Goleman, 2017; Jelača, Milićević, Bjekić, & Petrov, 2020). During uncertainty, the situations and factors that make one leadership style more beneficial than another may not have the same effect on individuals. Extant research has found that when people are feeling uncertain, individuals tend to identify more strongly with groups (e.g., Grieve & Hogg, 1999; Reid & Hogg, 2005; Hogg, 2007a). Group identification helps to reduce self-related uncertainty. In fact, individuals join and further identify with groups in order to protect themselves or to reduce uncertainty (Hogg, 2007a). A group provides structure and perceptions, beliefs, attitudes, and values to follow (Hogg, 2007a), leading to a de-individualization as following the group can reduce the need to make individual decisions or reduce the responsibilities of making decisions. In these types of situations, individuals seek out groups with strong leadership that provides directives as one would find from an authoritarian leader (Hogg, 2005, 2007b). For example, in a study of participants from the United Kingdom, highly uncertain individuals were more supportive of an autocratic leader while less uncertain individuals were more supportive of non-autocratic leaders (Rast et al., 2013). Times of great

uncertainty can permanently change the business environment, and the way followers perceive leaders and leadership may change permanently as well.

In order to understand why uncertainty and shocks to the system create lasting change, change can be viewed through Lewin's (1947) three stage model: unfreeze-change-refreeze. In the best circumstances, change is systematically planned, however, change may appear suddenly or occur randomly and emerge non-planned or unpredictably (Greenberg & Baron, 2014). The Covid-19 pandemic affected all industries and all countries worldwide. Governments were unsure what to do and did not know timelines for the lockdowns. Businesses were scrambling to figure out how to stay open in some capacity, even if fully online. The medical community was trying to keep their staff safe while giving guidance to the general public about how to stay safe. There was uncertainty in every aspect of life for almost two years. This was an unfreeze in all facets of daily life and the change was felt in all aspects of business. All businesses had to "unfreeze" their normal operations in order to pivot to continue operations during the world-wide shutdowns of 2020.

Now that the governmental regulations have lifted on social distancing and masking, policies and operations are refreezing and likely to reflect a "new normal." There are changes that have persisted from the lockdowns – more virtual meetings (even for collocated team members due to hybrid work schedules), hand sanitizer everywhere in public places, more restaurants delivering that were not before the pandemic, masks still required in medical facilities, etc. As businesses had to adapt in order to continue operations, these changes have persisted in the "new normal." Moreover, the way individuals communicate with each other is more reliant on technology than ever before. Not only are employees not wanting to go back into the office, even though organizations are trying to get employees back face-to-face, more than

half of employees stated that they had no repercussions or only a verbal warning for not returning to work in the office as many days as their employer wanted (McGregor, 2022); these employees are working virtually when not in the office. The same survey found that only “one in five employees actually want to work in the office full-time” (McGregor, 2022, par. 7). Even collocated teams are having virtual meetings in lieu of traditional face-to-face meetings due to hybrid work schedules – not everyone is in the office at the same time even if they live in the same location.

In the refreeze that the business world is in now, the new model of working virtually has likely changed the way leadership works. The way a leader is able to lead teams has new challenges based on the variations in virtuality. There may be less direct oversight since there are more people working virtually than before. These changes in business and how we communicate with our teams means that the previous leadership theories may no longer work the same way.

Prior to Covid-19, shared leadership consistently provided positive outcomes such as lower conflict (e.g., Sinha, Chiu, & Srinivas, 2021), higher satisfaction (e.g., Robert & You, 2018), and better performance (e.g., Carson, Tesluk, & Marrone, 2007; Drescher, Korsgaard, Welp, Picot, & Wigand, 2014; Karriker, Madden, & Katell, 2017). However, the “new normal” and the way that communication has changed, may affect how individuals not only work together, but how leadership is perceived. Further, not only are leaders facing new challenges, the way that shared leadership in teams and the positive outcomes that were found in the research may no longer be found in the post-uncertain business environment. While individuals often seek out groups during times of uncertainty (e.g., Grieve & Hogg, 1999; Hogg, 2007a; Reid & Hogg, 2005) to provide structure and beliefs, attitudes, and values to follow (Hogg, 2007a), this process of de-individualization can diminish the need to make individual decisions and reduce the

responsibilities of making decisions. As a result, shared leadership structures may no longer be applicable. For shared leadership to work, the team members need to take on decision-making and leadership responsibilities themselves. The uncertainty from Covid-19 lasted for such a long period of time, that the de-individualization and reduction of responsibilities from joining these types of groups may have become a habit that has lasted into this “new normal.”

Moreover, the demands and expectations of leaders has changed in the current business environment when compared to 2019. The reliance on technology, even in physically collocated teams, has had impacts in all aspects of business, specifically in how people communicate with each other. The Covid-19 pandemic shutdowns may have been the catalyst, but businesses are not only relying more on technology, they are developing new technologies following the virtual momentum in the “new normal.” Being able to have meetings in a 3D virtual reality space is coming (Langa, Montagud, Cernigliaro, & Rivera, 2022), but will the way leaders interacted with their subordinates have the same impacts and outcomes in this new business environment? The inability to read body language cues or tone inflection in virtual mediums makes communication more difficult. While video conferencing does do a better job of displaying these types of cues, the unnatural flow of speech, by having to mute and unmute and to wait until other people have finished talking, stifles natural human communication and patterns. The ability to influence others in the virtual mediums is likely much more difficult without a hierarchical setup.

This dissertation studied the effects of shared leadership on teams at multiple levels of the organization in the “new normal.” This two-paper model studied the effects of the new normal brought on by the COVID-19 pandemic and associated shutdowns. Paper 1 examines global virtual student teams to understand potential differences in how leadership structure affected conflict and satisfaction before and after the initial uncertainty shock and increase in virtuality.

Paper 2 examines the effects of shared leadership in Top Management Teams across different organizations before, during the Covid-19 Pandemic shutdowns, and in the “new normal.” The goal was to determine if the findings from the first study persisted at the TMT level in the “new normal” over a longer time period (2016 to 2022). Specifically, this dissertation was designed to understand shared leadership at multiple levels in the “new normal” of the business environment. While most shared leadership studies are rooted in a pre-pandemic context, the implications during a global pandemic—marked by its profound uncertainties in every facet of life—remain largely unexamined. With the extra stress of the uncertainty, the way that people communicate and work together changed. The outcomes of leadership previously found in research may not follow in the new and highly virtual way business is being conducted in the “new normal.” It follows that the behaviors of leaders or those sharing leadership responsibilities also need to change.

### **Contributions**

Prior to the Covid-19 pandemic governmental shutdowns, shared leadership was known to be a leadership structure with multiple positive outcomes. However, it is unknown whether the positive outcomes associated with shared leadership persist in the “new normal.” The theory needs to be updated for this new business environment. The timing for researching the “new normal” is now since the government regulations have lifted for the majority of industries. Papers 1 and 2 of this dissertation tested the model of shared leadership at multiple levels in order to assess the functioning of shared leadership in teams in the “new normal” in order to update the theory to include how shared leadership works in the new environment. Further, the student-level and the TMT-level were compared as extant research has found that the effects of shared leadership found in student samples were lower than the effects of shared leadership on



performance in a field setting (D’Innocenzo, Mathieu, & Kukenberger 2016). It is essential to understand how shared leadership works in this new environment as, in this new refreeze after the changes brought on by the Pandemic, there have been permanent changes to the way business is done and how teams communicate.

Further, shared leadership is just now beginning to be studied at the level of the Top Management Team. The majority of studies involving shared leadership at the TMT level collected data from either very few firms (e.g., 14 firms - Mihalache, Jansen, Van den Bosch, & Volberda, 2014) or from only one or two executives in a firm (e.g., Singh, Del Giudice, Tarba, & De Bernadi, 2019; Daspit, Ramachandra, & D’Souza, 2014). In Paper 2, I developed and assessed a simple archival method for measuring TMT shared leadership. I used the time-intensive method of Agarwal, Braguinsky, and Ohyama (2020) by using sources such as case studies and news sources to ascertain shared leadership within the TMT to validate my alternative measure, which is based on readily available Execucomp data. As such, Paper 2 of this dissertation contributes to shared leadership methodology by providing a simpler and more broadly useful measure of shared leadership.

The remaining portions of this dissertation start with a discussion of the background of shared leadership including the history, definition, measurement, and outcomes within the (pre-pandemic) literature. This is followed by an overview of the completed dissertation papers. Then both papers follow the overview. Lastly, a discussion of the findings of the two papers concludes the dissertation.

## **Background**

### **Nature of Shared Leadership**

Prior to the Covid-19 pandemic governmental shutdowns, shared leadership was known to be a leadership structure with multiple positive outcomes. However, it is unknown whether the positive outcomes associated with shared leadership persist in the “new normal.” The theory needs to be updated for this new business environment. The timing for researching the “new normal” is now since the government regulations have lifted for the majority of industries. Papers 1 and 2 of this dissertation tested the model of shared leadership at multiple levels in order to assess the functioning of shared leadership in teams in the “new normal” in order to update the theory to include how shared leadership works in the new environment. Further, the student-level and the TMT-level were compared as extant research has found that the effects of shared leadership found in student samples were lower than the effects of shared leadership on performance in a field setting (D’Innocenzo, Mathieu, & Kukenberger 2016). It is essential to understand how shared leadership works in this new environment as, in this new refreeze after the changes brought on by the Pandemic, there have been permanent changes to the way business is done and how teams communicate.

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### **Measurement**

Just like with the variations in definition, within the literature there are two methods for measuring shared leadership in teams (Nicolaidis et al., 2014; Wang, Waldman, & Zhang, 2014). The first approach is using a network density measure (Carson et al., 2007; Derue, Nahrgang, & Ashford, 2015; D’Innocenzo et al., 2016; Mathieu, Kukenberger, D’Innocenzo, & Reilly, 2015). Within a leadership network, the pattern of individuals who rely on each other for leadership within the team is the network. As reliance on one another increases, the density within the network increases (Carson et al., 2007). In this approach, each team member rates all the other members of the team on the amount in which the team relies on each member for leadership, where the higher scores denote that all team members demonstrated a significant amount of leadership influence (Zhu et al., 2018). When more team members engage in providing leadership to the others in the team, the density of the leadership network increases (Carson et al., 2007).

Under the aggregation approach, some use a scale, including the multifactor leadership questionnaire and changing the referent from supervisor, to measure the amount that team members take on leadership responsibilities and aggregating to the team level (Drescher et al., 2014; Hiller, Day, & Vance, 2006; Pearce & Sims, 2002; Wang et al., 2014). Under the aggregation approach, the team members give one score for the overall team shared leadership which are then aggregated to the team level. The key similarity between the two approaches is that they rely on extensive self-report data from all members of the team, which can create a barrier to measurement.

### **Outcomes**

As organizational problems and projects have become more complex, it is the team that collaborates, is interdependent, and has mutual influence that is essential to organization performance (Katzenbach & Smith, 1993), and shared leadership teams meet these criteria. Sharing the leadership responsibilities can generate trust and enhance cooperation and cohesion within a team (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000), which can improve satisfaction in teams with a shared leadership structure (Hoch & Dulebohn, 2013; Robert & You, 2018; Wood & Fields, 2007). The type of interactions and socialization that happens in a team with a shared leadership structure has been found to increase commitment and reduce relationship conflict within the team (Ensley, Pearson, & Pearce, 2003; O'Toole, Galbraith, & Lawler, 2002; Van Bunderen, Greer, & Van Knippenberg, 2018). Many studies have additionally examined the effects of shared leadership on team processes such as confidence (Nicolaidis et al., 2014), team cohesion (Mathieu et al., 2015), team trust (Drescher et al., 2014), and team collectivism (Hiller et al., 2014), which ultimately lead to team performance. Shared leadership teams have positive outcomes both within the team and for performance.

Undeniably, performance is the outcome of interest in the majority of shared leadership studies. In a meta-analysis, D’Innocenzo and colleagues (2016) used 50 effect sizes from 3,198 teams to perform a meta-analysis and found a positive relationship between shared leadership and team performance ( $k = 50$ ,  $n = 3,198$ ,  $r$  (*weighted*) = .21,  $SD$  (*weighted*) = .21,  $Z = 6.94$ ,  $p < .001$ ). Further, their results showed higher effect sizes for studies on shared leadership in the field than in student teams. In many cases, the student teams completed tasks in relatively short durations (approximately 3 hours) or simulations lasting up to 3 months. These results imply that simulations or classroom projects offer conservative settings for examining the effects of shared leadership on team performance (D’Innocenzo et al., 2016).

### **Dissertation Overview**

At this point in the “new normal,” it is essential to understand shared leadership in this new environment and if the same positive outcomes, like reduction in conflict, including performance, persist at the same levels as before. This dissertation was designed to understand shared leadership at multiple levels in the “new normal.” Shared leadership had many associated positive outcomes pre-pandemic and this dissertation aimed to uncover if a shared leadership structure is still as beneficial. Specifically, this dissertation allowed for the comparison of shared leadership in student teams in Paper 1 to shared leadership in TMTs in Paper 2.

## CHAPTER II: PAPER 1

### TEAM DYNAMICS AND PERFORMANCE IN VIRTUAL TEAMS DURING COVID-19: DOES LEADERSHIP STRUCTURE MATTER?<sup>1</sup>

The COVID-19 pandemic has changed how people interact with each other, especially in business settings such as a teamwork context. Based on data collected before and during the pandemic involving 1,224 self-managed global virtual teams (GVTs) consisting of 4,096 members, we found that compared to the pre-pandemic times, during the pandemic, GVT members experienced decreased team conflict, leading to increased team members' satisfaction and improved team performance. More importantly, we found support for the interaction effect between team leadership structure and pandemic condition, such that shared leadership was beneficial before but not during the pandemic. Implications for theories and practice and directions for future research are discussed.

#### **Introduction**

The COVID-19 outbreak, declared by the WHO a pandemic in March of 2020, is an ongoing global health crisis. A crisis is defined as an event or period of time when there are high uncertainty and urgency regarding important issues (Pearson & Clair, 1998). Not only did this pandemic pose a threat and create a sense of uncertainty and urgency, but it led to major changes in everyone's professional and personal lives. The anti-pandemic measures have drastically changed the workplace and daily routines. The disruptions to the supply chains and restrictions on interactions with customers and employees spelled economic doom to many organizations. The lockdowns deprived people of their usual social support groups. The result is an unprecedented spike in depression and anxiety (Salari et al., 2020).

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Additionally, organizational structures that work well in times of stability may not, and probably will not work well in times of crisis. For example, when a crisis strikes, power in groups, organizations, and societies tends to concentrate on the top of the hierarchy (Staw, Sandelands, & Dutton, 1981). Numerous studies have documented a shift towards a preference for more authoritarian power structures following the 9/11 attacks in the U.S. (e.g., Olivas-Luján, Harzing, McCoy, 2004).

In the business settings such as a workgroup context, in the face of the COVID-19 crisis, the big question is, how does the pandemic affect workgroup dynamics and performance? Does it change how coworkers interact with one another and organize their collaboration? Of particular importance are these questions in the context of self-managed global virtual teams (GVTs), teams comprised of geographically-dispersed coworkers who rely on electronic tools for communication and coordination. GVTs had been commonly used (Zaccaro, Rittman, & Marks, 2001), and increasingly so, even before the COVID-19 pandemic. A 2018 survey of employees in OECD countries revealed that 87 percent of white-collar workers at least occasionally completed projects in virtual teams, often with internally-dispersed team members (CultureWizard, 2018) – and the numbers had been growing for a while (Magpili & Pazos, 2018). In response to the widespread lockdowns and social distancing requirements, many companies resorted to telework. For example, between April and May of 2020, the number of people working from home more than doubled in the U.S. (Morgan & Hickman, 2020). The bans on international travel increased reliance on self-managed GVTs, making research on this type of organizational teams even more important.

GVTs offer numerous advantages, from reduced commute costs to the ability to engage with the project's most talented employees, regardless of the person's location (Bell &

Kozlowski, 2002; Cascio, 2000). However, the virtual communication context makes team leadership and coordination more difficult and reduces opportunities for direct supervision and shared physical experiences (Pinsonneault & Caya, 2005). Additionally, GVTs tend to be culturally and demographically diverse, with team members representing different functional areas of the organization and often having different preferences, as well as types and levels of training and skills. While such differences can be complementary, this diversity often hinders collaboration and hurts team dynamics (Stahl, Maznevski, Voigt, & Jonsen, 2010; Taras et al., 2020). When these virtual teams operate in a self-managed manner; that is, member roles are often not pre-assigned with respect to leadership hierarchy, it creates even bigger challenges. Calls for more research on this unique organizational context have been increasing in recent years (cf., Eseryel, Crowston & Heckman, 2020; Mathieu, Maynard, Rapp, & Gilson, 2008). The COVID-19 crisis added to the complexities of working in GVTs. The rapid increase in the number of people who have to work in virtual teams means that many of them come unprepared, further adding to the stress and anxiety, while interfering with the normal team dynamics. More importantly, leadership theories and practices derived from normal times may not apply during a crisis.

The goals of the present study are threefold. First, this study aims to understand the changes in GVT dynamics and performance before and during the COVID-19 crisis. Second, we intend to investigate the role of team leadership structure in influencing team dynamics and performance. Although meta-analytical results have generally shown that hierarchy within a team negatively impacts team effectiveness through a conflict-enabling process (Greer, de Jong, Schouten, & Dannals, 2018), implying that a formal leadership structure may cause conflict and may not be desired in general, empirical studies have shown mixed results. Up until this point,



extant literature has not reached a consensus on which specific leadership structure (i.e., a formal or a shared leadership structure) is better for a virtual team (Nemiro, 2004). Therefore, a unifying theory is needed (Antonakis, 2017). Finally, this study intends to understand how the pandemic changes the role of team leadership structure on team dynamics and performance. To achieve these goals, we harness the exogenous shock and increase the methodological rigor in testing our theoretical model. Using data collected before and during the pandemic involving a sample of 1,224 GVTs that completed a business consulting project in 2019 and 2020, we compared the frequency of team conflict, satisfaction, and changes in team leadership structures before and during the crisis. The longitudinal nature of the consulting project provided a natural experiment opportunity, allowing us for a more valid test of the effects of an exogenous shock (i.e., a crisis) on team dynamics and performance than what would be possible in lab simulations (Norris, Friedman, Watson, Byrne, Diaz, & Kaniasty, 2002).

## **Theory**

### **Team Conflict and Team Satisfaction During the Pandemic**

Team conflict is the real or perceived differences that cause tension between team members (Thomas, 1992; Wall & Callister, 1995). Conflict can be categorized into relationship, task, and process conflict (Jehn & Mannix, 2001). Relational conflict is related to interpersonal incompatibilities such as dislikes among group members, annoyance, irritation, and frustration (Jehn & Mannix, 2001). Task conflict does not have the negative interpersonal emotions associated with relational conflict but includes conflicts about ideas and differences of opinion about the tasks (Amason & Sapienza, 1997). Process conflict occurs when team members disagree on which team members are responsible for completing any or all of the needed tasks (Jehn & Mannix, 2001; Jehn, Northcraft, & Neale, 1999). Empirical evidence has shown that

team structural antecedents, such as diversity (Pelled, Eisenhardt, & Xin, 1999), team power (Greer, Caruso, & Jehn, 2011), and team relational antecedents, such as team climate and culture (Mooney, Holahan, & Amason, 2007), can predict team conflict. However, research concerning how external environmental factors, especially external stressors, impact the intrateam conflict is limited.

In fact, external stressors, of which a global pandemic would qualify, have shown to be an important predictor of group processes (Driskell & Salas, 1991). During the pandemic lockdowns, virtual team members have to deal with different work-life stressors that can impact team member interactions, task completions, and team processes (ten Brummelhuis & Bakker, 2012). Many people have increased concerns regarding the health and well-being of family and friends, helping children complete their schoolwork virtually while also trying to work during the day, and may experience some level of social isolation as they avoid contracting and transmitting the virus (Traylor, Tannenbaum, Thomas, & Salas, 2020). As the pandemic-caused lockdowns lead to social isolation, people naturally search for social connections and support, especially in times of trauma and stress (Kaniasty, 2012; Sarason, Sarason, Potter, & Antoni, 1985; Schaefer, Coyne, & Lazarus, 1981). Technology-enabled virtual communication can provide a substitute for face-to-face interactions that may enable people to cope with the current COVID-19 pandemic (Moore & March, 2020). Many people have turned to virtual communications and connections to fill the void left by the decreased number of allowed and safe human interactions (Gao & Sai, 2020). In the same fashion, people may look forward to and might even welcome the virtual meetings with teammates because they have had the majority of human interactions removed from daily life. Before the pandemic, these meetings may not have been met with such positive anticipation. Virtual meetings now provide a real-time human interaction that is not

currently possible with the shelter-in-place orders. The positive feelings regarding these meetings can manifest as favorable interactions between team members.

Additionally, the initial response within social relationships that manifest in teams during times of crisis is an outpouring of helping behaviors and solidarity (Kaniasty, 2020). These teams, in addition to providing an outside social connection, may also serve as social support in that all the members are experiencing the same crisis (Drury, 2018). The social support and sense of community that is present in teams experiencing a crisis inherently leads to fewer instances of conflict within the team. As a team is a support system for the members during the pandemic, the conflict within the team will be lower than the conflict in a team before the pandemic. As such, we propose that:

*Hypothesis 1: In self-managed virtual teams, team conflict during the pandemic will be significantly lower than that before the pandemic.*

Extant literature has been linking team conflict and team members' satisfaction since the 1970s (Dewar & Webel, 1979). In fact, the overwhelming majority of studies have found a negative correlation between team conflict and satisfaction (e.g., De Dreu & Weingart, 2003; Dewar & Werbel, 1979; Jehn et al., 1999). In particular, the relationship between relational conflict and satisfaction involves feelings of resentment and anger among team members (Behfar, Mannix, Peterson, & Trochim, 2011; Brykman & O'Neill, 2020), so it is unsurprising that relational conflict has been associated with decreased satisfaction in a team. Task conflicts can cause tension and unhappiness between group members due to disagreements, which naturally leads to dissatisfaction (Jehn, 1995; Ross, 1989). Additionally, process conflicts have been shown to negatively affect team morale (Jehn & Mannix, 2001; Jehn et al., 1999) and overall group effectiveness, which includes cohesion and team satisfaction (Jehn & Chatman,

2000). This means that as a conflict in a team increases, whether it is relational, task, or team process conflict (De Dreu & Weingart, 2003), team member satisfaction decreases, and vice versa. With the expectation that conflict will decrease in self-managed virtual teams during the pandemic, satisfaction will be higher in teams during the pandemic due to the decrease in conflict. That is, that conflict will mediate the relationship between the pandemic condition and team members' satisfaction.

*Hypothesis 2: In self-managed virtual teams, team conflict mediates the relationship between the pandemic condition and team members' satisfaction such that team members' satisfaction during the pandemic will be significantly higher due to decreased team conflict than that before the pandemic.*

### **The Role of Team Leadership Structure**

The team leadership structure is defined as the patterns of leadership relationships within a team (Carter, DeChurch, Braun, & Contractor, 2015); that is, leadership structure labels the ways in which "leadership can manifest itself within a team" (Morgeson, DeRue, & Karam, 2010, p. 6). There is a wide range of team leadership options, from having no team leader to having an informal team leader to having a formally-elected team leader, with permanent or rotating leadership roles (Nemiro, Beyerlein, Bradley, & Beyerlein, 2008).

Virtual teams have been shown to increase productivity, but they make it much more difficult for leaders to exert control (Pinsonneault & Caya, 2005). The preferred leadership structure in virtual teams tends to be different from those in collocated teams (Beyerlein, Nemiro & Beyerlein, 2008). One type of team leadership structure that a self-managed virtual team may follow is formal leadership, where one team member was either appointed by the project supervisor or voted by the team to be a team leader. A team with a formal leadership structure

can be viewed as having positional hierarchy within the team, meaning that there is a formal rank within the team such as a formal leader (Greer & van Kleef, 2010; Hambrick, Humphrey, & Gupta, 2015; Van Bunderen, Greer, & Van Kippenberg, 2018). The order that a hierarchy brings to a team can provide comfort for the members by facilitating and coordinating the interactions between them (Halevy, Chou, & Galinsky, 2011), which may be unconsciously preferred within teams (Tiedens & Fragale, 2003). This type of team hierarchy delivers a structure within the team that may provide reassurance and a sense of normalcy during times of uncertainty like the pandemic. Since followers look to their leaders to help make sense of the situation and how to react during periods of uncertainty or crisis (Madera & Smith, 2009; Olivas-Luján et al., 2004), it is likely that teams during the pandemic will thrive under a formal leadership structure with lower conflict and higher satisfaction.

Another leadership structure that a team may follow is a shared leadership structure in which the leadership influence and duties are distributed across the team members (Avolio, Kahai, Dumdum, & London, 2001; Carson, Tesluk, & Marrone, 2007; Pearce & Sims, 2000). These types of teams also have a flat hierarchical structure where each member has as much power and responsibilities as each other member in the team (Yammarino, Salas, Serban, Shirreffs, & Shuffler, 2012). These flat structures allow for each member to share in the leadership responsibilities of the team. Sharing the leadership responsibilities can generate trust and enhance cooperation and cohesion within a team (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000), which can improve satisfaction in teams with a shared leadership structure (Hoch & Dulebohn, 2013; Robert & You, 2018). The type of interactions and socialization that happens in addition to the higher level of commitment to the team in teams with a shared leadership structure minimizes relationship conflict within the team (Ensley,

Pearson, & Pearce, 2003; O'Toole, Galbraith, & Lawler, 2002) and increases team member satisfaction (Wood & Fields, 2007). Teams with a flat hierarchical structure tend to have fewer power struggles and, thus, fewer conflicts than teams with a hierarchical structure (Van Bunderen et al., 2018). While teams likely will find comfort in a more hierarchical structure like a formal leadership structure during times of uncertainty and unrest, teams with a flat structure will be preferred during times of stability. Therefore, before the pandemic, teams with a shared leadership structure will exhibit lower conflict and higher satisfaction than teams with alternative leadership structures.

*Hypothesis 3: Team leadership structure interacts with the pandemic condition to influence team conflict, and, subsequently, team members' satisfaction, such that (a) a formal leadership structure is more effective in reducing team conflict and increasing satisfaction during the pandemic, whereas (b) a shared leadership structure is more effective in reducing team conflict and increasing satisfaction before the pandemic.*

Previous research has found that leadership structure (e.g., Ensley, Hmieleski, & Pearce, 2006; Mehra, Smith, Dixon, & Robertson, 2006; Nicolaidis et al., 2014; Serban & Roberts, 2016) and satisfaction are positively related to overall team performance (Anik, Akin, Norton, Dunn, & Quoidbach, 2013; Kong, Konczak, & Bottom, 2015; Li, Li, & Wang, 2009; Nerkar, McGrath, & MacMillan, 1996). Thus, we expect that team members' satisfaction caused by reduced team conflict during the pandemic will translate to improved team performance.

Taken together, we propose that:

*Hypothesis 4: Team leadership structure interacts with the pandemic condition to influence team conflict, team members' satisfaction, and team performance in sequence such that (a) a formal leadership structure is more effective in reducing team conflict,*

*increasing satisfaction, and increasing team performance during the pandemic, whereas (b) a shared leadership structure is more effective in reducing team conflict, increasing satisfaction, and increasing team performance before the pandemic.*

## **Methodology**

### **Sample and Procedure**

The X-Culture project ([www.X-Culture.org](http://www.X-Culture.org)) was used as the research platform for the present study. X-Culture is an 8-week large-scale international experiential learning project that involves business undergraduate and graduate students from over 150 universities in 40 countries on six continents every semester. The students are placed in self-managed virtual teams and complete a business consulting project. About a dozen client companies present real-life business challenges and seek the students' help with developing solutions to these challenges, including market research, development of market expansion strategies, and adaptation of existing products for new markets. The research setting emulates those in which the corporate self-managed virtual teams operate. The teams are highly autonomous regarding how they could work together. The team members rely on the same communication tools that are used in the corporate world, such as email, Zoom, Dropbox, and Google Docs. The project accounts for 20-50% of the course grade, meaning that the outcomes will have significant implications for the subjects. Additionally, the best students are often offered internships or even jobs at their client organizations, providing additional incentives to work hard. The students were randomly assigned to teams and, similar to working in virtual teams in a large organization, did not know each other before the project. Each team had an average of 4.9 members. The participants completed weekly surveys containing a variety of self-assessment and peer evaluations.

The data used in this study were collected between October 2019 and May 2020. A total of 1,224 virtual teams consisting of 4,096 university students took part in the project. Of those, 759 teams participated in the October-December 2019 round and January-February 2020 round (pre-pandemic), and 465 teams participated in the March-May 2020 round, which coincided with the initial peak of the pandemic when the strictest lockdowns occurred. Therefore, we compare the cohorts that completed the project in pre-pandemic times to the cohort most affected by the pandemic.

### **Measures**

*Team conflict.* Team conflict was measured across weeks two through eight as a peer evaluation of conflict frequency regarding relational conflicts, task conflicts, and process conflicts within the team over the last week using a scale where 1 indicates no conflict, 2 indicates one conflict, to 11 indicating more than ten conflicts experienced in a given week. The survey indicated that relational conflicts included personal, emotional, and name-calling; that task conflicts included business decisions and answers to challenge questions; and that process conflicts included scheduling, workload distribution, and team member roles issues. The ICC<sub>1</sub> and ICC<sub>2</sub> were .14 and .42, respectively, and  $r_{wg} = .91$ , all levels justifying aggregation to the team level. This measure was averaged across the team members, and an average team conflict measure was computed for each team.

*Team members' satisfaction.* Team members' satisfaction was measured at the end of the project with a question referencing how satisfied each member was with their teams' overall performance using a Likert scale ranging from 1 (very unhappy) to 5 (very happy). ICC<sub>1</sub> and ICC<sub>2</sub> were .15 and .45, respectively, and  $r_{wg} = .71$ , all levels justifying aggregation to the team level. This measure was averaged across the team members for each team.



*Team leadership structure.* Team leadership structure was measured at the end of the project in order to capture the overall structure of the team at the conclusion of the project. The item asked if their team had a formal or informal leader or a person(s) performing the role of team coordinator using a Likert scale from 1 to 4, where 1 denoted a formal leader, 2 if there was one person that took on an informal leadership role, 3 if there were one or two members that occasionally took on informal leadership roles, and 4 if all team members worked together and in coordination (i.e., shared leadership). To test for appropriateness for aggregating to the team level, the ICC<sub>1</sub> and ICC<sub>2</sub> were .34 and .70 respectively, and  $r_{wg} = .73$ , all levels justifying aggregation. In order to capture team consensus, the mode of the item was used as the aggregated team measure of leader structure. The mode of the leadership structure indicates the type of structure the majority of the team members indicated their team took on during the project. In order to clarify the analyses, the leadership structure was recoded with informal leader structure as 1, which incorporated 2 and 3 from the original scale. The formal leader was recoded as 2. Shared leadership was recoded as 3. Additionally, to further compare the leadership structures, two dummy variables were also included. One variable was shared leadership, in which a 1 denoted a team with a shared leadership structure and a 0 for any other structure. There was also a variable for formal leadership in which teams with a formal leadership structure were coded as a 1, and all others were coded as 0.

*Team performance.* To capture task performance, we used the overall team report score. Each report was independently evaluated by 4 to 8 external experts, typically business professors whose students participate in the project and representatives of client companies. They rated the reports as per a standard set of rubrics, such as the proposal's economic viability, originality and novelty of the proposed solution, thoroughness of supporting arguments, formatting and

readability, and the quality of each report section. The evaluations were on a 7-point scale along each dimension, from 1 (poor) to 7 (excellent). The ratings were then averaged across all evaluation dimensions and appraisers to derive the overall average quality score for each team.

*Analytic strategy.* To test Hypothesis 1, ANOVA was performed in SPSS. To test the mediation (Hypothesis 2) and the moderated mediation hypotheses (Hypotheses 3 and 4), we employed the PROCESS macro for SPSS (Hayes, 2017), from which estimation of the indirect effect for mediation models and conditional indirect effects for moderated mediation models could be obtained (Hayes & Preacher, 2013).

## **Results**

Tables 1 and 2 present the descriptive statistics and bivariate correlations of the study variables. Pandemic condition (coded as 0 = before the pandemic and 1 = during the pandemic) was negatively related to team conflict ( $r = -.29, p < .01$ ) and positively related to team members' satisfaction ( $r = .15, p < .01$ ). Team conflict was negatively related to team members' satisfaction ( $r = -.42, p < .01$ ), and satisfaction was positively correlated with team performance ( $r = .24, p < .01$ ).

**Table 1. Descriptives**

		Team Performance			Team Members' Satisfaction		Team Conflict	
		N	M	SD	M	SD	M	SD
Pre-Pandemic	Informal Leadership	450	5.22	.86	3.95	.62	1.46	.33
	Formal Leadership	212	5.32	.92	4.03	.58	1.45	.35
	Shared Leadership	97	5.20	.89	4.15	.45	1.31	.20
Pandemic	Informal Leadership	269	5.21	.83	4.11	.56	1.26	.26
	Formal Leadership	149	5.29	.86	4.25	.48	1.24	.22
	Shared Leadership	47	5.20	.85	4.35	.45	1.24	.24

**Table 2. Means, Standard Deviations, and Correlations**

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Pandemic Condition	.38	.49					
2. Team Conflict	1.37	.31	-.29**				
3. Team Members' Satisfaction	4.06	.58	.15**	-.42**			
4. Shared Leadership	.12	.32	-.04	-.10**	.10**		
5. Formal Leadership	.29	.46	.04	-.01	.06*	-.24**	
6. Team Performance	5.24	.87	.00	-.05	.24**	-.02	.05

*Note.* N = 1,224, Pandemic condition is coded as 0 = before the pandemic and 1 = during the pandemic

\*  $p < .05$

\*\*  $p < .01$

Regarding Hypothesis 1, a one-way analysis of variance (ANOVA) indicated that team conflict was significantly lower ( $M = 1.25$ ,  $SD = .25$ ) during the pandemic than before the pandemic ( $M = 1.42$ ,  $SD = .32$ ),  $F(1, 1221) = 112.11$ ,  $p < .001$ , supporting Hypothesis 1. To test Hypothesis 2, we examined the indirect effect of the pandemic condition on team members' satisfaction via team conflict. This model, conducted with 5,000 bootstrapped resamples, yielded a mean bootstrap estimate of the indirect effect of .14, 95% CI = [.10, .18], suggesting that team members' satisfaction during the pandemic was significantly higher via decreased team conflict than that before the pandemic. Thus, Hypothesis 2 was supported.

To test Hypothesis 3, we examined a moderated mediation model where pandemic condition moderates the first stage in the mediation chain linking team leadership structure (treated as a multi-categorical variable), team conflict, and team members' satisfaction. As seen in Table 3, this model, conducted with 5,000 bootstrapped resamples, yielded a positive mean bootstrap estimate of the conditional indirect effect for teams with a shared leadership structure pre-pandemic (point estimate = .11, 95% CI = [.07, .16]) and a nonsignificant estimate of the conditional indirect effect for teams with a shared leadership structure during the pandemic (point estimate = .02, 95% CI = [-.04, .07]). Additionally, the 5,000 bootstrapped resamples yielded a nonsignificant estimate of the conditional indirect effect for teams with a formal leadership structure pre-pandemic (point estimate = .00, 95% CI = [-.04, .05]) and a nonsignificant estimate of the conditional indirect effect for teams with a formal leadership structure during the pandemic (point estimate = .02, 95% CI = [-.02, .05]). These results suggest that before the pandemic, teams with a shared leadership structure had a higher team satisfaction via a lowered conflict, whereas during the pandemic, leadership structure did not matter. That is, we found support for Hypothesis 3b but not 3a.

**Table 3. Conditional Indirect Effects of Leadership Structure on Team Satisfaction through Conflict under Different Pandemic Conditions**

		<i>R</i>	<i>R-sq</i>	<i>F</i>	<i>p</i>
Model Summary		.43	.18	90.38	.00
Conditional Indirect Effects		Effect	Boot SE	BootLLCI	BootULCI
Pre-Pandemic	Formal Leadership	.00	.02	-.04	.05
	Shared Leadership	.11	.02	.07	.16
Pandemic	Formal Leadership	.02	.02	-.02	.05
	Shared Leadership	.02	.03	-.04	.07

Finally, to test Hypothesis 4, we examined a moderated mediation model where pandemic condition moderates the first stage in the mediation chain linking leadership structure (treated as a multi-categorical variable), team conflict, team members' satisfaction, and team performance. As seen in Table 4, this model, conducted with 5,000 bootstrapped resamples, yielded a positive mean bootstrap estimate of the conditional indirect effect for teams with a shared leadership structure pre-pandemic (point estimate = .04, 95% CI = [.03, .07]) and a nonsignificant estimate of the conditional indirect effect for teams with a shared leadership structure in the pandemic condition (point estimate = .01, 95% CI = [-.02, .03]). Additionally, the 5,000 bootstrapped resamples yielded a nonsignificant estimate of the conditional indirect effect for teams with a formal leadership structure pre-pandemic (point estimate = .00, 95% CI = [-.02, .02]) and a nonsignificant estimate of the conditional indirect effect for teams with a formal leadership structure in the pandemic condition (point estimate = .01, 95% CI = [-.01, .02]). These results suggest that for teams with a shared leadership structure, team performance before the pandemic, compared with that of the pandemic, was significantly higher via decreased team conflict and increased team satisfaction. However, formal leadership structure did not affect team performance via team members' satisfaction and team conflict neither before nor during the pandemic. Thus, Hypothesis 4b, but not 4a, was supported.

**Table 4. Conditional Indirect Effects of Leadership Structure on Team Performance through Conflict and Team Satisfaction under Different Pandemic Conditions**

		<i>R</i>	<i>R-sq</i>	<i>F</i>	<i>p</i>
Model Summary		.25	.06	19.72	.00
Conditional Indirect Effects		Effect	Boot SE	BootLLCI	BootULCI
Pre-Pandemic	Formal Leadership	.00	.01	-.02	.02
	Shared Leadership	.04	.01	.03	.07
Pandemic	Formal Leadership	.01	.01	-.01	.02
	Shared Leadership	.01	.01	-.02	.03



## **Robustness Checks**

To test the robustness of our model, we compared the data from the two pre-pandemic semesters (i.e., one from October to December of 2019 and the other from January to March of 2020). We examined a moderated mediation model where pre-pandemic condition moderates the first stage in the mediation chain linking leadership structure (treated as a multi-categorical variable), team conflict, team members' satisfaction, and performance. The results presented in Table 5 suggest that the indirect effects of formal leadership on team performance under the two pre-pandemic conditions were both nonsignificant, whereas the indirect effects of shared leadership on team performance under the two pre-pandemic conditions were both positive. Taken together, these results suggest that our findings concerning the role of shared leadership structure in influencing team dynamics and performance are robust during normal times.

**Table 5. Conditional Indirect Effects of Leadership Structure on Team Performance through Conflict and Team Satisfaction under Two Pre-Pandemic Conditions**

		<i>R</i>	<i>R-sq</i>	<i>F</i>	<i>p</i>
Model Summary		.24	.06	11.91	.00
Conditional Indirect Effects		Effect	Boot SE	BootLLCI	BootULCI
October - December 2019	Formal Leadership	.00	.01	-.02	.02
	Shared Leadership	.05	.01	.02	.07
January - March 2020	Formal Leadership	.01	.02	-.02	.04
	Shared Leadership	.05	.02	.02	.09

## **Discussion**

Using self-managed virtual teams before and during the COVID-19 pandemic, this study examined how the pandemic causes changes in team dynamics (team conflict and team members' satisfaction of the team) and team performance, as well as the role of team leadership structure in this process. Based on the data from 1,224 global self-managed virtual teams, we found that during the initial peak of the pandemic, compared with the pre-pandemic period, self-managed virtual teams experienced fewer team conflicts, higher team satisfaction, and subsequently higher team performance. Moreover, shared leadership structure has been shown to be especially effective in reducing team conflict, increasing team satisfaction, and thus improving team performance during normal times (i.e., pre-pandemic). However, contrary to our expectation that a formal leadership structure would be preferred during the pandemic, leadership structure does not seem to matter in influencing team dynamics and performance, at least during the initial peak period of the pandemic. The pandemic itself is powerful enough to cause reduced team conflict and increased team satisfaction and performance, regardless of how roles are negotiated and how power is distributed in these self-managed virtual teams.

### **Theoretical Implications**

This study contributes to research on virtual teams during crises and team leadership structure literature in three important ways. First, this study represents one of the first that contributes to our understanding of how crises, like a global pandemic, impact team dynamics and effectiveness in self-managed global virtual teams. Although the pandemic has created many challenges to businesses, our findings present a silver lining of the crisis. That is, working in self-managed virtual teams could serve as a stress-relieving tool that helps team members better cope with the pandemic. Manifested by fewer team conflicts and increased team satisfaction

during the pandemic, virtual teams have shown their effectiveness in not only keeping businesses operating but also meeting employees' social needs.

Second, our study contributes to the team leadership structure literature by demonstrating the benefits of shared leadership in influencing team processes and team outcomes. Our findings based on a unique, large sample (1,224 teams) support Greer et al.'s (2018) conclusion that less hierarchy (i.e., a shared leadership structure) is indeed more beneficial for self-managed virtual teams, and the relational and performance benefits are indeed achieved through a conflict-reducing mechanism.

Third, this study contributes to our understanding of how the pandemic changes the role of team leadership structure on team dynamics and effectiveness. Although compared with teams with a hierarchical structure (i.e., formal leadership), teams with a flat hierarchical structure (i.e., shared leadership) have shown to have fewer power struggles and thus fewer conflicts, leading to higher team satisfaction and performance during normal times, the benefit of shared leadership structure disappears during a crisis like COVID-19. It should be noted that a formal leadership structure is also not superior. That said, the effect of team leadership structure is bounded by certain circumstances such that during an extreme context, leadership structure may lose its functionality in influencing team dynamics and outcomes. The context per se, instead, may substitute for the effect of team leadership structure.

### **Practical Implications**

Our findings in this research suggest some valuable implications for business practitioners. When the COVID-19 pandemic started to spread worldwide, many countries shut down (i.e., citizens were ordered to stay home, and nonessential businesses were not allowed to open and operate) and isolated people from each other. This isolation may have enabled virtual

team members to cherish the virtual interpersonal interactions with their team members more since they were isolated in their lives with less human interaction. These results are compiled from many countries and cultures which helps to shed light on how a world-wide problem affects leadership in diverse teams that managers in many different industries can benefit from (Antonakis et al., 2019). Additionally, people have had to spend more energy addressing more important issues in their personal lives associated with the virus and the lockdowns, which may have driven the negative situations at work and school to secondary issues. This effect is present in our results as decreased conflict and increased satisfaction. Managers should communicate such positive messages to their employees and engage in more virtual activities to help employees cope with the stress caused by the pandemic.

Our results also indicate that during normal times, teams should capitalize on a shared leadership structure to reduce team conflict and to increase satisfaction and performance. However, the functionality of a shared leadership structure has not been established, and its utilization in the workplace is still quite low. Even in self-managed teams where team members are given a choice to negotiate their roles, most teams end up having only one or two members in charge as an informal leader. Only about 10% of the sample consists of teams with a shared leadership structure. Thus, management should strongly advocate for the importance of shared leadership and reduce the hierarchy within the team in order to decrease team conflict and increase team satisfaction and team performance.

### **Limitations and Directions for Future Research**

The pandemic is not over. While our study compares the periods before and during the pandemic, the pandemic condition falls during the initial peak stage (March to May 2020) when the strictest lockdowns occurred. Future research should continue to examine the impact of

different stages of the pandemic on virtual teams, as well as the post-pandemic effects. Also, knowing that having a shared leadership structure in a self-managed team is vital for performance during normal times, future research should explore the antecedents that lead a self-managed team to fall into a shared leadership structure. This information would enable managers to understand which type of leadership structure the team is likely to follow and then take action that can help the team effectively work together, taking into account the external environment. For instance, if the external environment is calm, managers should form teams that are likely to fall into a shared leadership structure.

In conclusion, our research, drawing upon data from a large sample of global virtual teams, shows the magnitude of how the COVID-19 pandemic has affected team conflict, team satisfaction, and performance in self-managed global virtual teams in a positive way. We also establish how shared leadership structure exerts a positive effect on team dynamics and effectiveness during normal times.

## CHAPTER III: PAPER 2

### SHARED LEADERSHIP IN TOP MANAGEMENT TEAMS: BEFORE, DURING, AND AFTER COVID-19<sup>2</sup>

A shared leadership structure has been shown to be associated with positive team processes at lower levels of the firm and in student teams. However, this leadership structure has only begun to be studied at the Top Management Team (TMT) level. Further, during the Pandemic, with the associated government-ordered shutdowns and public health restrictions, TMTs had many more issues to contend with, as many businesses went through massive changes in an extremely short time in order to continue operations. These changes appear to have brought about a “new normal” in which the way organizations operate, and the way leaders lead may have changed. Pulling from upper echelons theory, this study examines shared leadership in manufacturing and technology TMTs before the pandemic, during the associated shutdowns, and in the “new normal” in order to explore the performance implications related to using a shared leadership structure in a TMT and if this type of structure has the same effects in the new business environment. Additionally, this study proposes and tests a new measure of shared leadership rooted in social comparison theory and equity theory. Using a sample of managers in multiple industries and a targeted sample of TMTs in the manufacturing and technology industries, the results indicate that similarity in pay is indicative of a shared leadership structure in a TMT. However, the results from the full analysis indicate that shared leadership is not significantly related to firm performance. A post hoc analysis revealed that shared leadership has a significant and negative relationship with firm stock prices. Within the US manufacturing and technology industries, stock prices suffer when there is more equal pay within the TMT.

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<sup>2</sup> Pilot Study 1 approved by ECU IRB; reference: UMCIRB 23-000017

## Introduction

Top Management Teams (TMTs) have a significant impact on shaping firm processes and organizational outcomes (e.g., Finkelstein, Hambrick, & Cannella, 1996; Hambrick & Mason, 1984; Vroom & Yetton, 1973). In fact, a fundamental principle of strategic research is that firms need to concurrently engage in opportunity-seeking and advantage-seeking activities in order to survive and prosper over time (e.g., Ireland, Hitt, & Sirmon, 2003; Ireland & Webb, 2007; Snow, 2007). The TMT and its members are crucial to the ambidexterity of an organization which is critical a firm's survival (Beckman, 2006; Carmeli & Halevi, 2009; Lubatkin, Simsek, Ying, & Veiga, 2006). Studies have found that the leadership style of senior executives impacts the effectiveness of TMT processes and the ability of organizations to pursue activities in dynamic situations (Jansen, George, Van Den Bosch, & Volberda, 2008; Mihalache, Jansen, Van den Bosch, & Volberda, 2014).

Shared leadership is a more recent leadership structure that has been recognized in the literature and has been associated with lower conflict in teams (e.g., Bergman, Rentsch, Small, Davenport, & Bergman, 2012; Hu, Chen, Gu, Huang, & Liu, 2017) and higher performance (Karriker, Madden, & Katell, 2017). Most research, however, has been focused on typical organizational teams or student teams. If shared leadership is so beneficial at lower levels of the firm, would this type of leadership structure be as beneficial to organizational performance if TMTs use shared leadership to run an entire organization?

Moreover, the COVID-19 pandemic disrupted all aspects of business in all industries, particularly during the government-mandated shutdowns and the changes in the post-pandemic environment. In the last five years, there have been many changes within the majority of business sectors. Prior to the pandemic, while there was already momentum to move to more



virtual work, the pandemic ushered in technological changes much faster and effecting more industries than would have happened without government mandated stay-at-home orders. Now that the restrictions have been lifted, the technological changes that allowed businesses to continue operations virtually, have not disappeared. For example, there are more people working from home at least a few days a week that were fully in-person prior to the pandemic. The hybrid working arrangements have necessitated changes in how organizations are run. TMTs went from what was normal operations to completely virtual operations during the pandemic, and finally to the more virtual and hybrid operations of the post-pandemic environment. Further, the effects of shared leadership in TMTs were not fully understood in the normal business environment prior to the pandemic, let alone during the shutdowns, or into the “new normal” of the business environment post-Pandemic.

Even before the pandemic, research had yet to come to a full understanding of the processes by which a TMT may better manage the complex responsibilities with which they are tasked (Carmeli & Halevi, 2009; Carmeli & Schaubroeck, 2006). With the uncertainty and complexities brought on by the pandemic and in the aftermath, having a team of people or the entire TMT to help make sense of the information and figure out the best course of action together may be helpful. It stands to reason that shared leadership may be an effective way to manage the complexities of leading, especially in the “new normal.” Alternatively, with the quick changes brought about by the shutdowns for organizations, there may have been more reliance on the CEO to give guidance and make decisions to continue operations during the shutdowns. In the “new normal,” a primary decision-maker, such as a CEO, might find it challenging to redistribute leadership responsibilities to TMT members if they held centralized

decision-making power during the pandemic. On the other hand, if a CEO previously relied heavily on their TMT during the crisis, they might now favor a more shared leadership approach.

This study examined not only the performance implications of shared leadership in TMTs, but also the timeline that allows for the comparison of shared leadership prior to the pandemic, during the pandemic shutdowns, and in the post-pandemic “new normal.” This allowed for the exploration of not only the effects of shared leadership in TMTs but also if there was a change in the effects in the current time period. Pulling from upper echelons theory, this study addressed the calls of the exploration of TMT processes (Carmeli & Halevi, 2009; Carmeli & Schaubroeck, 2006) and the sharing of leadership responsibilities by TMT members, subsequent effects on the firm from conflict, and firm performance prior to the pandemic, during the pandemic, and in the “new normal.”

By exploring shared leadership at the TMT-level and the subsequent effect on organizational performance, the results of this study extended and made contributions to both the shared leadership literature and upper echelons literature. At lower levels of the firm, extant research has found that shared leadership leads to higher performance (e.g., Karriker et al., 2017). At this point, there are few studies on the impacts of shared leadership in TMT teams of large organizations, let alone in the “new normal.” An exploration into the black box of TMT processes would be a development of upper echelons theory (Hambrick, 2007). Researchers have yet to have a full grasp on how a TMT and its processes, such as sharing leadership responsibilities, affect firm performance; the findings to this point are not consistent within the literature (e.g., Carpenter, 2002; Certo, Lester, Dalton, & Dalton, 2006). The majority of extant research takes the perspective that TMT processes are positively and significantly correlated with firm performance (Certo et al., 2006). This study aimed to understand how sharing leadership

responsibilities within a TMT, in different environmental contexts, affected firm performance through a reduction in conflict. In doing so, this study explored TMT shared leadership in the “new normal” and how it affected firm performance.

## **Theory**

### **Shared Leadership**

Even in ancient Rome, it was understood that it takes more than one person to adequately tackle many tasks, one of which was leadership. Marcus Aurelius is known to history as the last of the Five Good Emperors of Rome and he had a lasting impact on how governments and other entities are run. One major influence that Marcus Aurelius had on the Roman government was that he reenacted the republican principle of collegiality (Abbott, 1963). In the early Roman Republic, the primary leaders did not have sole control. The heads of state were elected as a partnership in that two consuls were elected together to serve a year term (Britannica, 2020). Not only does having two leaders keep one person from having too much power, but the leaders also had someone with the same power to discuss important decisions and someone with whom to share the leadership responsibilities of running an empire. The Romans understood the importance and benefits of sharing the leadership responsibilities.

While the practice of sharing leadership is ancient, the concept did not attract consistent attention within the management literature until the 2000s even though organizations and projects had begun relying on teams to solve issues for some time. There are various definitions of shared leadership, but most researchers agree that teams which share leadership have a set of characteristics in common. Scholars agree that shared leadership is an emergent team property (e.g., Avolio, Walumbwa, & Weber, 2009; Carson, Tesluk, & Marrone, 2007; D’Innocenzo, Mathieu, & Kukenberger, 2016; Drescher, Korsgaard, Welpe, Picot, & Wigand, 2014) that is

about lateral or collective influence among peers (e.g., Morgeson, DeRue, & Karam, 2010; Pearce & Conger, 2003; Pearce & Sims, 2002; Sivasubramaniam, Murry, Avolio, & Jung, 2002). Further, a shared leadership structure is one in which the leadership duties are distributed across the team members (Carson et al., 2007; Meuser, Gardner, Dinh, Hu, Liden, & Lord, 2016; Pearce & Sims, 2000; Zhu, Liao, Yam, & Johnson, 2018). Shared leadership teams have a flat hierarchical structure where each member has as much power and responsibilities as each other member in the team (Yammarino, Salas, Serban, Shirreffs, & Shuffler, 2012). These flat structures allow for each member to share in the leadership responsibilities. Shared leadership “occurs when group members actively and intentionally shift the role of leader to one another as necessitated by the environment or circumstances in which the group operates” (Pearce, Hoch, Jeppesen, & Wegge, 2010, p. 151).

### **Shared Leadership in Top Management Teams**

Top Management Team members have a significant impact on an organization’s performance through their decisions, actions, and behaviors (e.g., Certo et al., 2006; Finkelstein et al., 2009). TMT members are the dominant coalition of individuals who accept responsibility for the firm as a whole (Hambrick & Mason, 1984). TMTs formulate the strategic plan, devise the directives, and organize the structure of the firm, as well as motivate employees and disseminate information and organizational values (Gioia & Thomas, 1996).

Katzenbach (1997) argued that an effective TMT draws on each member’s abilities, knowledge, and experience at different times depending on the relevant issue at hand. In other words, instead of relying on one central individual of the TMT to make and direct all strategic decisions, an effective TMT shares the leadership responsibilities across all members, playing on their strengths, knowledge, and skills. As such, in a shared leadership structure, TMTs shift the

leadership role as necessary, depending on the current tasks and challenges. Achieving a balance and consensus on which activities are most important and should receive organizational resources, is essential for TMT process effectiveness in organizational outcomes (Umans, 2013).

TMT members, like most group members, are diverse regarding their backgrounds, abilities, and priorities, which results in a variation in the importance and weights given to organizational activities (Mihalache et al., 2014). TMT's need to rely on effective team processes to overcome any personal biases or conflicts in order to be an effective leadership team and to achieve the best possible outcomes (Smith & Tushman, 2005). The ability for top managers to share leadership responsibilities, such as strategic goal setting, has been proposed as a process that has positive organizational outcomes (Umans, Smith, Andersson, & Planken, 2020).

While shared leadership has been found to be valuable in teams at lower levels within an organization, it is unknown if the same results at a micro-level would have similar benefits at the macro-level of the firm. A shared leadership approach at the TMT level may also benefit organizational performance. Relatedly, as with team performance at lower levels, it is possible that TMT teams would also see increased performance when using a shared leadership structure but at the organizational level. With the sharing of information and expertise that the different TMT members can bring to the team in a shared leadership structure, the organization may be more effectively and efficiently run than it would be if the team is not working together.

While research has yet to extensively examine TMT shared leadership structure on firm performance, several findings suggest that TMT structure might influence firm performance. For example, extant research has found that the leadership processes of the TMT can allow for better organization of knowledge capabilities through dynamic resource shifts arranged by members of the TMT (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008). When tasks are complex

and require multiple types of knowledge that one individual is not likely to possess alone, a shared leadership configuration has been useful (Pearce & Manz, 2005) in lower-level organizational teams. In dynamic and high-velocity environments, organizations with TMTs that share the responsibilities of decision-making realized higher levels of performance than those firms with single, controlling managers (Eisenhardt & Bourgeois, 1988). As such, I anticipate that firms with TMTs utilizing shared leadership structures will achieve higher performance compared to similar firms that have a more hierarchical TMT leadership structure.

*Hypothesis 1: TMT shared leadership increases firm performance.*

### **Shared Leadership and Conflict**

Conflict within a team arises from either real or perceived differences between members, which causes tension between team members (Thomas, 1992; Wall & Callister, 1995). At the TMT level, cognitive conflict between members has been studied extensively (e.g., De Dreu, 2006; Mooney et al., 2007; Yi et al., 2022). Cognitive conflict occurs when TMT members disagree on task-related issues (De Dreu, 2006; Mooney et al., 2007). However, at lower levels, conflict between individuals has been categorized into process, relationship, and task conflict (Jehn & Mannix, 2001). Process conflict arises when members of a team do not agree on which team members are responsible for which tasks as required (Jehn & Mannix, 2001; Jehn, Northcraft, & Neale, 1999). Any conflicts related to interpersonal differences such as annoyances, frustrations, irritations, or general dislike for other team members would be categorized as relational conflict (Jehn & Mannix, 2001). Conflicts regarding differences of opinion or differences in ideas regarding tasks, without negative interpersonal emotions, are categorized as task conflicts (Amason & Sapienza, 1997). The cognitive conflict routinely studied at the TMT level seemingly encompasses both individual-level task and process

conflicts. Task conflict has been found to be beneficial to firm performance in extant research (De Wit, Greer, & Jehn, 2012). Alternatively, relationship conflict has been associated with decreased team performance (De Dreu & Weingart, 2003; De Wit, et al., 2012). However, the relational conflict between individuals at the TMT level has rarely been the focus of conflict at the TMT-level (for exceptions see Barkema & Shvyrkov, 2007; Barsade, Ward, Turner, & Sonnenfeld, 2000; Boone & Hendriks, 2009; Li & Hambrick, 2005). The research on relational (or emotional) conflict in TMTs has found that faultlines based on demographic differences that increase conflict may decrease over time (Barkema & Shvyrkov, 2009), but that differences based on locus-of-control (Boone & Hendriks, 2009) or from merger integration teams, bilateral task forces, or joint venture teams (Li & Hambrick, 2005) may experience more relational conflict than more homogeneous teams. Further, TMTs with a low mean trait positive affect tend to have less cooperation and more relational conflict than teams with higher mean trait positive affect (Barsade et al., 2000). Relational conflict in TMTs can be caused by multiple differences outside of demographic heterogeneity and has been shown to have an overall negative impact on firm performance. Any type of conflict that triggers relational conflict is potentially detrimental to team effectiveness and performance outcomes (Jehn & Mannix, 2001), at any organizational level. While the individuals in TMT positions have more power than those at lower levels of the organization, and thus their decisions have the potential to impact many more people and the organization as a whole, working with others who are peers in a team environment is essentially the same at any level of the organization. As TMTs are still teams of individuals working together and are peers in the TMT, it follows that conflict within the team would work similarly in TMTs as it does in lower-level teams.

However, a shared leadership structure has been shown to be beneficial to lower-level teams in reducing conflict. The sharing of leadership responsibilities across team members can improve cooperation and cohesion in addition to creating trust within the team (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). When there is a flatter hierarchical structure within a team, there are fewer instances of power struggles, leading to fewer conflicts within the team when compared to teams consisting of hierarchically different members (Van Bunderen, Greer, & Van Knippenberg, 2018). A shared leadership structure within a team encourages interactions and socialization of team members, leading to an increased level of commitment to the team leading to reduced relationship conflict within the team (Ensley, Pearson, & Pearce, 2003; O'Toole, Galbraith, & Lawler, 2002). As TMTs are only individuals with more power in an organization, it follows that, because they are teams consisting of individuals with the same types of conflicts as lower-level teams, a shared leadership structure in a TMT will also experience less relational conflict leading to higher performance as it does in lower-level teams.

*Hypothesis 2. TMT shared leadership is negatively related to relationship conflict, and conflict is negatively related to firm performance.*

### **Covid-19 Pandemic**

The Covid-19 pandemic brought about a world-wide shock that brought on uncertainty in everything from sheltering in place, virtual learning, food establishments pivoting to provide food for consumption only at home, and a massive shift to virtual work in business sectors. The move to virtual work and the isolation from the country-level shutdowns, meant that the majority of people were forced to work with others in different ways and in different capacities than ever before. Organizational leaders were worried, not only about their workforce but also about the continued performance of their employees. At the individual and team level, leaders had to figure



out how to allow teams to continue to work together at a functional level that still achieved organizational goals. At a higher level, TMTs were concerned with keeping businesses operating at a level that would allow the continuance of operations.

When the outlook is bleak, and uncertainty is high, the natural inclination is to protect yourself and your own – to circle the wagons to protect your resources. Before the global shock, there was already mistrust in certain aspects of continuing to expand globalization. For example, President Trump’s administration enacted Section 301 tariffs in 2018, which placed additional duties of up to 25 percent on annual imports of Chinese-origin goods. This decision was based on findings from the Office of the U.S. Trade Representative’s investigation that found that China’s actions, policies, and practices inferred a plan to seize economic dominance in particular advanced technology sectors (Oleynik, 2018). This mistrust was exacerbated by the Covid-19 pandemic with the shortages of essential items like toilet paper, cleaning supplies, and masks. As extant research has found, during times of uncertainty and volatility, individuals tend to seek out authoritarian or autocratic leaders (Hogg, 2005, 2007b; Rast, Hogg, & Giessner, 2013). With the high uncertainty and supply chain issues during the pandemic, individuals may have been looking for strong leadership to provide guidance and help to protect people. As such, extreme circumstances, like the pandemic, likely decrease the effectiveness of shared leadership on performance.

*Hypothesis 3: During high uncertainty periods, like the pandemic, the relationship between TMT shared leadership and performance will be weakened when compared to periods of less uncertainty.*

## **The “New Normal” and Shared Leadership**

Times of great uncertainty can permanently change the business environment, and the way followers perceive leaders and leadership may change permanently as well (Chandler, 2022). In order to understand why uncertainty and shocks to the system create lasting change, change can be viewed through Lewin’s (1947) three-stage model: unfreeze-change-refreeze. In the best circumstances, change is systematically planned. However, change may appear suddenly or occur randomly and emerge non-planned or unpredictably (Greenberg & Baron, 2014). The Covid-19 pandemic affected all industries and all countries worldwide. Governments were unsure of what to do and did not know the timelines for the lockdowns. Businesses were scrambling to figure out how to stay open in some capacity, even if fully online. The medical community was trying to keep their staff safe while giving guidance to the general public about how to stay safe. There was uncertainty in every aspect of life for almost two years. This was an unfreeze in all facets of daily life, and the change was felt in all aspects of business. All businesses had to “unfreeze” their normal operations in order to pivot to continue operations during the world-wide shutdowns of 2020.

Now that the governmental regulations have lifted on social distancing and masking, policies and operations are refreezing and likely to reflect a “new normal.” There are changes that have persisted from the lockdowns – more virtual meetings (even for collocated team members due to hybrid work schedules), hand sanitizer everywhere in public places, more restaurants delivering that were not before the pandemic, masks still required in medical facilities, etc. As businesses had to adapt in order to continue operations, these changes have persisted in the “new normal;” the way individuals communicate with each other is more reliant on technology than ever before. Not only are employees not wanting to go back into the office,

even though organizations are trying to get employees back face-to-face, more than half of employees stated that they had no repercussions or only a verbal warning for not returning to work in the office as many days as their employer wanted (McGregor, 2022); these employees are working virtually when not in the office. The same survey found that only “one in five employees actually want to work in the office full-time” (McGregor, 2022, par. 7). Even collocated teams are having virtual meetings in lieu of traditional face-to-face meetings due to hybrid work schedules – not everyone is in the office at the same time even if they live in the same location.

In the refreeze that the business world is in now, the new model of working virtually has likely changed the way leadership works. The way a leader can lead teams has new challenges based on the variations in virtuality. There may be less direct oversight since more people are working virtually than before. These changes in business and how we communicate with our teams mean that the previous leadership theories may no longer work the same way.

The “new normal” and the way that communication has changed may affect how individuals not only work together, but how leadership is perceived. Further, not only are leaders facing new challenges, the way that shared leadership in teams and the positive outcomes that were found in the research may no longer be found in the post-uncertain business environment. While individuals tend to seek out groups in times of uncertainty (e.g., Grieve & Hogg, 1999; Hogg, 2007b; Reid & Hogg, 2005) to provide structure and beliefs, attitudes, and values to follow (Hogg, 2007a), the de-individualization that can reduce the need to make individual decisions and reduce the responsibilities of making decisions means that shared leadership structures may no longer be applicable. For shared leadership to work, the team members need to take on decision-making and leadership responsibilities themselves. The uncertainty from Covid-

19 lasted for such a long period of time, that the de-individualization and reduction of responsibilities from joining these types of groups may have become a habit that has lasted into this “new normal”.

Most industries experienced changes during the pandemic. For instance, the technology industry experienced a boom during the government-mandated lockdowns. Many businesses that were primarily or fully face-to-face prior to the Pandemic were forced to become virtual. The increases in virtualization necessitated a reliance on technology at unprecedented levels. Industries like education suddenly were using Learning Management Systems and virtual conferencing platforms in order to continue education. As retail stores were forced to close their doors to customers, online shopping increased. This allowed for other businesses, like Amazon, to increase in market share in clothing, household goods, and even groceries. The way people communicate and shop changed during the pandemic and these changes have persisted into the “new normal”. The technology needed for these shifts grew quickly during the pandemic.

Moreover, the demands and expectations of leaders have changed in the current business environment compared to 2019. The reliance on technology, even in physically collocated teams, has had impacts in all aspects of business, specifically in how people communicate with each other. The Covid-19 Pandemic shutdowns may have been the catalyst, but businesses are not only relying more on technology but are developing new technologies following the virtual momentum in the “new normal.” Being able to have meetings in a 3D virtual reality space is coming (Langa, Montagud, Cernigliaro, & Rivera, 2022), but will the way leaders interact with their subordinates have the same impacts and outcomes in this new business environment? The inability to read body language cues or tone inflection in virtual mediums makes communication more difficult. While video conferencing does better display these types of cues, the unnatural

flow of speech, by having to mute and unmute and wait until other people have finished talking, stifles natural human communication and patterns. However, when shared leadership is being used in teams, all members are actively engaged in the decision-making conversations, even virtually. Team members in a shared leadership environment not only trust the other team members (Drescher et al., 2014), but the work is distributed in a way that enables all team members to be active and engaged in the work. The higher accountability and trust in shared leadership teams overcome many of the challenges that virtual communication can cause, including social loafing (Hertel, Geister, & Konradt, 2005).

While the pandemic restrictions have all but ended in most countries, many of the changes in business have persisted into the “new normal”. These changes have necessitated changes in leadership and the way that organizations are run. TMTs have had to shift strategies in addition to leadership strategies in order to keep up with the changes. As different members of TMTs have different expertise, knowledge, and backgrounds, it would make sense in this new environment to shift leadership responsibilities and decision-making to the member with the most expertise for each challenge organizations are facing. Dealing with the more virtual and hybrid working environment, increased online sales, more delivery services, and shifting the decision-making to those with the most experience for tackling each challenge in this “new normal” would be the most beneficial for firm performance. It follows that the “new normal” would strengthen the relationship between shared leadership and performance.

*Hypothesis 4: In the post-uncertain environment, the relationship between shared leadership and firm performance will be stronger than when compared to periods of less uncertainty.*

## Methodology

### Operationalizing Shared Leadership in TMTs

Shared leadership at lower levels is typically measured either using a network density measure (Carson et al., 2007; Derue, Nahrgang, & Ashford, 2015; D’Innocenzo et al., 2016; Mathieu, Kuenberger, D’Innocenzo, & Reilly, 2015) that measures the links between individuals within a team or an aggregation approach from survey data of individuals (Drescher et al., 2014; Hiller, Day, & Vance, 2006; Pearce & Sims, 2002; Wang, Waldman, & Zhang, 2014). Measuring shared leadership in TMTs is inherently difficult as getting access to TMT members either in person or through surveys of busy people can be difficult. Most TMT-shared leadership studies use surveys from 1 or 2 executives in a firm (e.g., Dasgupta, Ramachanda, D’Souza, 2014; Singh, Del Giudice, Tarba, De Bernardi, 2019). However, not only do we not know who is actually filling out the survey, but if everyone in the team is not surveyed, the full story may not be captured. For instance, if you do get direct feedback from the CEO, they may feel that their team is sharing leadership responsibilities but if you don’t survey the others that make up the top management team, you may not know that this is not the case. The other TMT members may feel like the CEO takes on most of the decision-making. One person’s opinion may not necessarily be accurate. Based on equity theory (Adams, 1965, 2005) and social comparison theory (Festinger, 1954; Gerber, Wheeler, & Suls, 2018), pay dispersion of TMT members may indicate the level of shared leadership within the TMT, which is much more readily available data. This study develops and tests a new measure of shared leadership based on the variation of annual pay of all TMT members.

Compensation has been a topic within research for the better part of a century (Gomez-Mejia & Balkin, 1992; Gerhart, & Rynes, 2003), and two competing theories on pay dispersion

have dominated the field. Tournament theory has argued that pay dispersion has positive effects through intra-team competition and an incentive in the form of higher pay for the individuals that have the highest performance (Eriksson, 1999; Fredrickson, Davis-Blake, & Sanders, 2010; Lazear & Rosen, 1981). Essentially, pay dispersion in a TMT promotes competition between the TMT members to out-perform the other members in order to receive higher pay. Alternatively, studies anchored in social-psychological arguments suggest that pay dispersion negatively affects teamwork and team decision-making. These studies have found relationships between pay dispersion and increased executive turnover and decreased firm performance (Bloom & Michel, 2002; Carpenter & Sanders, 2002; Hayward & Hambrick, 1997; Seigel & Hambrick, 2005). However, both theories agree that pay dispersion within TMTs can impact how the teams function and how the firm performs. Both theoretical perspectives agree that there are a number of factors that affect the direct relationship between pay dispersion and performance including sample characteristics, type of dispersion, control variables (Shaw, 2014), and industry dynamics (Seigel & Hambrick, 2005). However, when teamwork is essential to operations, from the Tournament perspective, individuals are not motivated to work together as a team since the higher pay will only go to select individuals based on their performance. This can lead behaviors ranging from withholding information from others in order to benefit from the information themselves up to sabotage of others in order to get “ahead” (Dye, 1984; Seigel & Hambrick, 2005). From the social-psychology perspective, in order to promote teamwork, pay disparities should be at a minimum. The social-psychology perspective is the one taken here, as teamwork is essential to shared leadership working in a team.

A social-psychological view provides the attributes that explain the “social” aspect of a TMT (Finkelstein & Hambrick, 1996), which is the stance that enables the explanation of

teamwork in TMTs. Two theories that are in the social psychological view are equity theory and social comparison theory. Equity theory attests that individuals make assessments of their inputs and outcomes in relation to other individuals, more specifically referent individuals (Adams, 1965, 2005). When an imbalance is perceived, individuals will take action in order to right the perceived imbalance. This may manifest as anything from decreased effort to ultimately leaving the organizations (Fredrickson et al., 2010). However, if the imbalance is perceived as warranted based on another's inputs and/or outcomes, the imbalance may be perceived as fair (Adams, 1965; Gomez-Mejia & Balkin, 1992).

Social comparison theory helps to explain how an individual perceives who is a referent individual to themselves. Social comparison theory implies that individuals compare themselves with referent others who are seen as comparable on attributes including ability or position (Festinger, 1954; Gerber et al., 2018). TMT members tend to be similar in these attributes, making them potential referents for each other (Finkelstein & Hambrick, 1996; Wade, O'Reilly, & Pollock, 2006). TMT members are likely to have similar backgrounds regarding work experiences, educational attainment, perceptions, and dispositions (Nielsen, 2009). Individuals who have achieved a TMT position are likely to be highly competitive making them more prone to pay comparisons (Fredrickson et al., 2010; Lazear, 1989). When there are large differences in pay, TMT members who have lower pay will likely have perceptions of inequity (Cowherd & Levine, 1992), harming firm performance (Fredrickson et al., 2010; Siegel & Hambrick, 2005). Feelings of inequity can cause TMT members to be less cohesive and collaborative (Fredrickson et al., 2010) in so far as to attempt to thwart the efforts of other TMT members (Lazear, 1989) leading to decreased performance. Alternatively, in a team atmosphere, when pay is equally



distributed, there is higher cooperation, trust, and cohesiveness among team members (Beersma, Hollenbeck, Humphrey, Moon, Conlon, & Ilgen, 2003).

The building blocks of a shared leadership team are teams that have high cooperation, cohesion, and trust. When TMT members perceive that they are being compensated equally, they are more likely to work together as a cohesive team, leading to a higher level of sharing of leadership responsibilities. This is critical to firm performance since the work of the TMT involves a significant amount of task interdependence, which requires cooperation among the team members (Main, O'Reilly, & Wade, 1993). When a team has high cohesiveness, trust, and cooperation, they are likely to use a shared leadership structure to complete tasks. Further, extant research has argued that firms use pay dispersion to reinforce differences in the power and authority of TMT members (Mahoney, 1979). Alternatively, smaller pay dispersions imply that TMT members have equal power, authority, and responsibility to the firm. At lower levels, shared leadership has been found to occur when there is a flat hierarchical structure, but at the TMT level, the titles indicate that there is an inherent hierarchy present. However, if there is equal compensation and equal power exists within the TMT, the TMT likely consists of similarly ranked executives (Fredrickson et al., 2010). A low pay dispersion TMT has equal power combined with cooperation, cohesion, and trust, leading to a shared leadership within the TMT.

As such, pay dispersion is an indication of the level of shared leadership in the TMT. Low variation in pay in TMTs indicates that there is more shared leadership than in TMTs with a wider variation in pay. Pay dispersion can create an atmosphere where shared leadership is possible. For this reason, TMT pay dispersion acts as a proxy for measuring shared leadership. Pilot 1 tested the proxy measure in a survey of managers in Prolific. Pilot 2 compared a method used by Agarwal and colleagues (2020) to the proxy measure in a sample of manufacturing and

technology firms. Study 3 tested the hypotheses using the proxy measure in a large sample of technology and manufacturing firms.

### **Pilot Study 1**

In order to validate the pay variability within TMT as a proxy measure of shared leadership, a sample of US-based managers were surveyed regarding shared leadership in their teams and pay equity. Upper-level managers have to ensure that their departments are performing adequately while working with other departments in order for the firm to achieve the desired levels of performance. Perceived differences in pay between managers and the team that they supervise, even at this lower level of the firm, can cause issues with collaboration (Siegel & Hambrick, 2005), which is necessary for shared leadership.

#### **Sample**

Respondents were surveyed in Prolific. Prolific is an online platform for subject recruitment that is catered to researchers (Palan & Schitter, 2018). The participants are explicitly told that they are going to be participating in research, and Prolific has been used by researchers in many disciplines, including business (Falchetti, Cattani, & Ferriani, 2022; Mount, Baer, & Lupoli, 2021; Palan & Schitter, 2018; Schweisfurth, Schöttl, Raasch, & Zaggl, 2023). Prolific also collects information on the respondents allowing researchers to filter the types of respondents they are targeting; the 13 industry roles that respondents can choose from include upper management, middle management, junior management, trained professional, and support staff. Qualifying individuals had to be employed in upper management positions in the US, and they completed an online survey. The survey was sent to 500 individuals. Incomplete surveys and those that did not correctly answer an item to detect random answering were excluded from the analysis leaving 457 responses to be included in the analysis. Participants came from a

variety of occupations including manufacturing, e-commerce, and health care. They were, on average, 42 years old, and 60.6% were male.

## **Measures**

*Shared Leadership.* Shared leadership was measured using eight items adapted from Mihalache and colleagues (2014). Sample items include “your team members are jointly responsible for setting strategic objectives” and “your team members call each other to make critical decisions.” Items were measured on a Likert scale from 1 of “strongly disagree” to 7 of “strongly agree.” Cronbach’s  $\alpha$  was 0.883.

*Pay Equity.* In a survey of one participant from the team, the participant may not have access to the most updated pay records of the other team members. As such, perceptions of pay equity in the team were used in lieu of pay dispersion. Pay equity was measured using a three-item scale adapted from Edwards, Cable, Williamson, Lambert, and Shipp (2006). Participants rated the extent to which they perceived their pay to be equitable to other managers in the organization on salary level, amount of pay, and the opportunity to become wealthy on a Likert scale from 1 of “not at all equitable” to 7 of “extremely equitable.” An additional item asked participants to rate their pay in comparison to the others in the team on a Likert scale from 1 of “low” to 3 of “high.” Cronbach’s  $\alpha$  was 0.820.

*Team Conflict.* A five-item scale was adapted from Jehn (1995) to assess relationship conflict between the members of the team. Sample items include “how much emotional conflict is there among the members of your team?” and “how much personal friction is there in the team during decisions?” Items were scored on a Likert scale from 1 of “none” to 7 of “a great deal.” Cronbach’s  $\alpha$  was 0.919.

*Controls.* Since a variety of factors can impact the processes of teamwork several controls were also assessed. These included items to measure gender, age, race (based on the US Census race categories), size of the team, tenure in the organization, tenure in any and all management positions (career total), organization industry, and educational background. To capture the educational background, following Cannella, Park, & Lee (2008), Carpenter and Fredrickson (2001), and Wiersema and Bantel (1992), an item asked the individual to select one out of five categories (arts, sciences, engineering, business and economics, and law) for their highest degree awarded. To ensure the reliability of responses, another item was included that asked for the highest degree and the major in addition to a question with the instructions to choose a specific number on the scale.

### **Analysis**

Forty-three responses were eliminated from the analysis based on incorrect or a mismatch of answers to items instructing the respondent to pick a specific answer or to the highest degree and major with educational background. A total of 457 responses were included in the analysis. Correlations, means, and standard deviations are reported in Table 6. A regression analysis was used to assess the hypothesized relationships between pay equity and shared leadership and conflict. The results of conflict regressed on pay equity are reported in Table 7 with the unstandardized regression coefficients, and the results with unstandardized regression coefficients of conflict regressed on pay equity and shared leadership are reported in Table 8.

**Table 6. Study 1 Means, Standard Deviations, and Correlations**

	Mean	S.D.	1	2	3	4	5	6	7	8	9
1 Shared Leadership	3.92	.86									
2 Pay Equity	9.31	1.96	.23**								
3 Conflict	1.81	.85	-.15**	-.13**							
4 Sex	.61	.49	-.03	.14**	-.08						
5 Age	42.44	11.70	.01	-.05	-.15**	-.04					
6 Race	4.66	.95	-.06	-.05	-.03	-.09	.12*				
7 Team Size	13.14	27.62	-.01	-.02	.07	-.03	-.05	.02			
8 Organization Years	9.66	7.51	.03	.01	-.05	-.06	.51**	.12*	-.05		
9 Management Years	12.64	9.24	.04	.01	-.13**	.06	.74**	.14**	-.03	.46**	
10 Educational Background	2.88	1.23	.05	-.04	.06	.14**	-.01	.00	.05	.00	.05

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

**Table 7. Regression of Conflict on Pay Equity**

	B	Std. Error
(Constant)	2.74***	.32
Pay Equity	-.05**	.02
Age	-.01*	.01
Race	-.01	.04
Team Size	.00*	.00
Organization Years	.00	.01
Management Years	.00	.01
Educational Background	.04	.03
Sex	-.12	.08

Note. N = 457

\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

**Table 8. Regression of Conflict on Pay Equity and Shared Leadership**

	B	Std. Error
(Constant)	3.23***	.35
Pay Equity	-.03	.02
Shared Leadership	-.16***	.05
Age	-.01*	.00
Race	-.02	.04
Team Size	.00*	.00
Organization Years	.00	.01
Management Years	.00	.01
Educational Background	.04	.03
Sex	-.13	.08

Note. N = 457

\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

## Results & Discussion

The overall model for conflict regressed on pay equity was significant,  $F(8, 425) = 3.79$ ,  $p < .001$ , and accounted for 7% (5% adjusted) of the variance in conflict. Pay equity had a negative and significant relationship with team conflict ( $b = -.05$ ,  $p = .01$ ). When shared leadership is included in the regression, the variance accounted for in conflict increased to 9% (7% adjusted). The impact of pay equity is smaller and no longer significant ( $b = -.03$ ,  $p = .11$ ), while shared leadership has a larger negative impact on conflict than pay equity alone ( $b = -.16$ ,  $p = .001$ ).

These results thus indicate that pay equity is associated with less conflict, but this association weakens and becomes statistically non-significant when controlling for shared leadership. As a result, it seems that the association between pay equity and conflict reflects shared leadership. While it is unlikely that pay equity captures all aspects of shared leadership, it does seem that effects associated with shared leadership explain the equity—conflict relationship. In other words, pay equity appears to be a partial proxy for shared leadership. It will be a conservative measure, since it does not capture all of effects of shared leadership, but it is a potentially viable proxy. These results are promising but the participants were not primarily top management team members. As such, the teams that the survey referenced were not the top management teams. In order to test these results at the top management team level, the relationship between pay dispersion, or pay equity, and shared leadership was further explored using TMT pay dispersion and reports of shared leadership in Pilot Study 2.

## **Pilot Study 2**

In order to further validate pay dispersion as a proxy of shared leadership, the proxy was compared to Agarwal and colleagues' (2020) method of using company histories and individual biographies to deduct TMT shared leadership in organizations.

### **Sample**

The data was collected from 32 publicly traded American technology (15 organizations) and manufacturing (15) organizations (and two organizations that span both the technology sector and the manufacturing sector) between 2016 and 2019 for the pay dispersion proxy measure and prior to 2020 using the Agarwal and colleagues' (2020) method. This time period ensured that the global pandemic in 2020 did not impact or cause any changes in pay or TMT structure or decision-making in the organizations. The organizations included in the sample were gathered from CompaniesMarketCap.com. The website ranks companies including the largest tech companies and largest manufacturing companies in the US. These companies are publicly traded, and these types of organizations had news coverage and case studies in which to gather archival data regarding their TMTs and decision-making structures. Data was gathered from major news sources, including the Associated Press, Wall Street Journal, and CNN, that discussed the decision-making of the TMT in the identified firms. In addition, case studies were collected from sources, including Harvard Business Review, that discussed TMT decision-making structures of the firms, company annual reports, company histories, and individual biographies. For the news sources and case studies, a search was conducted using the terms “decision-making” and “organizational structure” in order to identify sources for analyzing the leadership responsibilities of the TMT members and were screened by the author for



applicability. Additionally, TMT salary data was gathered from the Execucomp dataset from WRDS.

## **Measures**

*Pay equity shared leadership proxy.* The data for this measure was based on the reported salary for each TMT member collected by Execucomp, SEC filing of compensation, and total annual compensation that included the value of stocks and options at the date granted to the executives and was gathered from the Execucomp database within WRDS. For robustness, all three salary measures were analyzed and compared. Data was gathered from 2016 to 2019 so as not to introduce the changes brought on by the pandemic that may skew the results. Within team variance was calculated using the Gini coefficient following Harrison and Klein (2007) and then averaged across the four years. For ease of understanding, the Gini coefficients were transformed by subtracting from one, and called *Pay Equity*. The Gini coefficient is a standardized measure of dispersion (Harrison & Klein, 2007) and thus was used to measure pay dispersion.

*Archival shared leadership.* Shared leadership was assessed following the method outlined by Agarwal and colleagues (2020) using histories and biographies to deduct shared leadership in TMTs. They used various data sources on Japanese cotton spinning firms from 1883 to 1914, which enabled them to ascertain the roles and responsibilities of each member of the TMTs to determine whether there was shared leadership or not (Agarwal et al., 2020). In this study, the same types of archival data were not available for current organizations; however, the large public companies and their leadership structure and decision-making models that were used in this study have been the subjects of cases that have been used in business schools. Data was gathered prior to 2020 from news sources and other online informational sources including case studies that included information on the decision-making and/or TMT structure of the

organizations. These sources were found using a general search engine by searching for the name of the organization and terms including “strategic decision-making,” “decision-making structure,” and “top management team structure.” For example, a case from the IBS Center for Management Research (2010) states that “Cisco Systems, Inc, an Internet technology company, had an organizational structure comprising of various cross-functional teams. The key decisions in the company were taken by councils, boards and working groups” (Cisco’s Organizational Structure Case, 2010, pg. 1). As the decisions are made by groups, the leadership responsibilities are likely shared across the group. Cisco would be coded as a “1” for sharing leadership. The decision-making structures that leave one individual responsible for making leadership decisions will be coded as “0” for shared leadership. For example, during Covid, Amazon’s Jeff Bezos stepped back in to run the “here-and-now” problems Amazon faced during Covid. Prior to the Pandemic, Bezos had been working on long-term projects and left the day-to-day operations to his TMT (Weise, 2020). This means that Amazon was using a shared leadership approach prior to the Pandemic. Each organization in the sample was coded as either having shared leadership or not having shared leadership. There were no conflicting articles regarding the decision-making or leadership structure within the sample. The author and a research assistant coded the data regarding the decision-making structures separately in order to reduce coding bias. The inter-rater reliability was calculated at 95%. After discussing the different scores, a consensus on all coding was reached.

## **Results & Discussion**

Both the pay from the SEC filings and the Execucomp Total Compensation were used for comparison. The means, standard deviations, and correlations are displayed in Table 9. A

comparison of means was performed on shared leadership and the pay equity measure, as the correlation was positive and significant. The results are displayed in Table 10.

**Table 9. Pilot Study 2 Means, Standard Deviations, and Correlations**

	Mean	St. Dev.	1	2	3
1 Shared Leadership	.38	.50			
2 Salary Pay Equity	.17	.06	.048		
3 SEC Pay Equity	.30	.09	.358*	.396*	
4 Total Compensation Pay Equity	.35	.11	-.131	.323	.339

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 10. Comparison of Means**

Shared Leadership		SEC Salary - Gini Coefficient
0	Mean	.68
	N	20
	Std. Deviation	.09
1	Mean	.74
	N	12
	Std. Deviation	.07
Total	Mean	.70
	N	32
	Std. Deviation	.09

*Note.* N=32

The SEC-reported salary Gini coefficient was positive and significantly correlated with the archival shared leadership measure ( $corr. = .36, p \leq .05$ ). The other pay dispersion measures were not significant with the shared leadership measure or were negative. The comparison of means resulted in a lower SEC salary (transformed) Gini coefficient ( $m = .68, st.dev. = .10$ ) for no shared leadership and a higher ( $m = .74, st.dev. = .07$ ) when shared leadership was present.

While these results do not indicate a large difference in pay equity between TMTs with shared leadership and without, there is a difference and it is consistent with expectations. There is a positive correlation between pay equity and dispersion, and the mean pay equity was larger in the teams coded as having a shared leadership structure (compared to those that were not). Thus, consistent with Pilot 1, it seems that pay equity provides a partial measure of shared leadership. The agreement between the two pilots was judged sufficient to justify continuing on to the main study, which uses panel data from 74 organizations.

### **Study 3**

In order to test the hypotheses, using the proxy measure validated in Studies 1 and 2, a full sample of 74 identified US technology and manufacturing firms was used. Both of these industries were highly impacted during and after the pandemic. Technology has enabled businesses to continue to operate during shutdowns and is still being used extensively in the “new normal” (Vargo, Zhu, Benwell, Yan, 2021). Manufacturing not only saw a shift in what was needed during the pandemic but has been dealing with massive supply chain issues in the “new normal” (Okorie, Subramoniam, Charnley, Patsavellas, Widdifield, & Salonitis, 2020; Paul & Chowdhury, 2021). The effects of the pandemic were larger in these types of organizations, which implies that any differences in the data before, during, and after the Pandemic would be

more pronounced and more easily captured for analysis. The data spans from 2016 to 2022 in order to analyze the effects of the Pandemic on shared leadership in TMTs.

## **Sample**

The data was collected from publicly traded American technology and manufacturing organizations between 2016 and 2022. The organizations included in the sample were gathered from CompaniesMarketCap.com. The website ranks the companies as the largest tech companies and largest manufacturing companies in the US. These companies are publicly traded, and these types of organizations had news coverage and case studies in which to gather archival data regarding their TMTs and decision-making structures. Data was gathered from major news sources, including the Associated Press, Wall Street Journal, and CNN, that discuss the conflict issues of the TMT in the identified firms. Case studies were collected from sources including Harvard Business Review that discuss TMT conflict issues within the firms, company annual reports, company histories, and individual biographies. For the news sources and case studies, a search was conducted using the terms “fired” OR “quit” OR “left” OR “controversy” in order to identify applicable sources that were related to the executives who left the organization and were screened by the author. Additionally, TMT salary data was gathered from the Execucomp dataset from WRDS. Data was available from 2016 to 2022.

## **Measures**

*Proxy Measure of Shared Leadership.* Shared leadership was assessed as it was in Pilot 2 using the transformed Gini coefficient to reflect pay equity in the TMT. Data was gathered from 2016 to 2022, and the pay equity measure was calculated for each year.

*Conflict.* In order to account for any TMT conflict, TMT turnover was assessed from 2016 to 2022 following the method outlined by Agarwal and colleagues (2020) of using

company histories, individual biographies, and other archival news sources to identify conflict within the TMTs. If there are any cases of turnover in any of the organizations of interest, an internet search was performed with the member of the TMT's name and the terms "fired" OR "quit" OR "left" OR "controversy" with the organization name. Any hits were screened by the author for relevance. When any news articles, press releases, or social media posts from an organization explicitly stated that there was some type of conflict within the TMT or implied that there was discord within the TMT, that was considered conflict (Conflict =1). Otherwise, when there was nothing regarding conflict or discord, it was considered as no conflict (Conflict = 0). For example, Terry Myerson left Microsoft in 2018. While it was reported then that he left on "great terms", there are accusations of him aggressively berating employees in public forums (Yelenic, 2022). This was coded as a 1 for conflict for Microsoft in 2018. In 2020, Margaret L. Johnson left Microsoft to become the CEO of Magic Leap. There were no conflicts reported as to why she left Microsoft and this was coded as a 0 for conflict. The author and a research assistant coded the data separately in order to reduce coding bias. The inter-rater reliability was 100%.

*Performance.* Performance was assessed with Return on Assets (ROA) from 2017 to 2022. ROA is a better metric of financial performance than other metrics from income statements (Hagel, Brown, & Davison, 2010). ROA measures a firm's profitability in relation to its total assets. Other performance measures, such as return on equity or returns to shareholders, can be manipulated through debt leveraging. ROA is based on asset decisions that are more difficult to financially engineer in the short term (Hagel, Brown, Samoylova, & Lui, 2013), so ROA was lagged by one year. ROA was pulled from the organization annual financial reports and provided by Compustat. In order to reduce the skewness and kurtosis of the lagged ROA, a

transformation of a square root was performed to reduce skewness from 0.672 to 0.175 and kurtosis from 2.536 to 0.870.

*Uncertainty.* As the Pandemic serves as the uncertainty in this study, dummy variables were used to indicate whether the year that the data were collected was prior to the Pandemic, during the Pandemic, or after the Pandemic. More specifically, the dummy variables were Pre-Covid (2016 to 2019), Covid (2020), and Post-Covid (2021 and 2022).

*Control Variables.* A larger firm likely had more resources, and possible assistance from the government during the shutdowns than a smaller firm. To account for this, firm size was controlled. *Firm size* was measured as the number of full-time employees in the organization and then grouped into dummy variables with the smallest third of firms coded as Small Firms, the middle third of firms coded as Medium Sized Firms, and the largest third of firms coded as Large Firms. By the definition of small and medium firms, all the firms in the sample were considered to be large firms. To account for fluctuations in the market, *Stock Price* was controlled as an annual average from 2016 to 2022 and then transformed using a log function. This transformation decreased skewness from 5.744 to -0.345 and decreased kurtosis from 41.249 to 1.743. *TMT Size* was controlled for as sharing leadership responsibilities may be impacted by the number of people in the team. In order to determine size, the names of the TMTs were obtained from company websites or annual reports. *Firm Age* was measured as the age of the firm as more established firms may have been able to absorb the system shocks of the Covid-19 Pandemic shutdowns more easily than newer firms. Firms were then grouped into the youngest third of firms as Young Firms (15 to 29 years), the middle third of firms as Medium Aged Firms (30 to 88 years), and the oldest third of firms as Older Firms (93 to 186 years). *Headquarter Location* was controlled for in order to account for the differing state regulations during and after the

Pandemic, and dummy variables were used to categorize the firms into the regions West, Midwest, Northeast, and South. Further, *CEO duality*, which indicates the CEOs that are also board members, can affect the level of pay a CEO receives, which can then affect the pay that is available to the other TMT members (Sanders & Carpenter, 1998). Following Fredrickson and colleagues (2010), CEO duality was controlled for and coded as “1” when the CEO was the chair of the board of directors and “0” otherwise.

### **Analysis**

To test this model, panel linear modeling was used with staged group comparison prior to the Pandemic, during the Pandemic, and in the “new normal” (R. Core Team, 2021). Path analysis allows for the analysis of models that are more complex than what multiple regression can handle (Streiner, 2005) and relies on a system of structural equations using only the observed variables and describes the dependency among the set of variables. The path analysis allows for the input of time and organizations data. The fit of the model was assessed using *F*-statistics and *p*-values.

### **Results**

Table 6 displays the correlations, means, and standard deviations of the variables included in the study. Notably, the correlation between shared leadership and ROA was not significant ( $b = -.07, p = .16$ ), nor was the correlation between shared leadership and conflict ( $b = .12, p = .72$ ), which was unexpected. Additionally, the relationship between shared leadership and stock price was positive and significant for 2016 to 2022 ( $b = 0.09, p \leq .001$ ). Hypotheses 1, 2, 3, and 4 were tested using panel linear modeling in R (R. Core Team, 2021). The results are reported in Tables 12, 13, 14, and 15.



Table 11. Means, Standard Deviations, and Correlations

	1	2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
.12																				
-.07	.19																			
.18**	-.38	.08																		
.15**	.55	.02																		
-.01	.45	-.07	.11*																	
-.03	-.13	.01	.02	-.48**																
.03	-.38	.08	-.13**	-.73**	-.26**															
.02	.51	.04	-.14**	.00	.00	.00														
.11*	-.26	.15**	-.03	.00	.00	.00	.00	-.51**												
-.12**	-.27	-.19**	.17**	.00	.00	.00	.00	-.51**	-.48**											
.04	.02	-.15**	.00	.00	.00	.00	.01	.09	-.01	-.08										
-.03	.06	.17**	.00	.01	.00	-.01	.13**	-.04	-.10*	-.57**										
.00	-.14	-.05	-.01	.00	.00	.01	-.24**	.06	.19**	-.35**	-.57**									
.14**	.73**	.05	.45**	.00	.02	-.02	-.09*	-.01	.10*	-.08	.04	.04								
.10*	-.24	-.14**	.00	.00	.00	.00	.00	-.10*	.18**	-.08	-.03	-.20**	.25**	-.04						
.02	.c	-.05	-.04	.00	.00	.00	.00	-.07	-.11**	.18**	-.29**	-.05	.35**	.02	-.18**					
.08	-.14	-.08	.10*	.00	.00	.00	.00	-.16**	-.06	.22**	-.14**	-.02	.17**	-.04	-.19**	-.24**				
-.14**	.28	.19**	-.05	.00	.00	.00	.00	.25**	.02	-.27**	.36**	.19**	-.57**	.03	-.36**	-.47**	-.49**			
.00	-.39	-.10*	-.06	-.03	.00	.03	.03	-.19**	.05	.14**	-.21**	-.08	.30**	.02	.09*	.14**	.11*	-.26**		
-.02	.14	.05	.04	.01	.00	-.01	-.03	.11*	-.07	.26**	.29**	-.58**	-.06	-.06	-.57**	-.04	.51**	-.21**		
.04	.00	-.05	.10*	-.01	.00	.01	-.03	-.03	-.10*	.13**	-.24**	-.25**	.52**	.05	.11*	.51**	.06	-.53**	.18**	-.92**

\*. Correlation

\*\* . Correlation

	Mean	St.
1 Shared Leadership	.69	.10
2 Conflict	.02	.12
3 ROA	.15	.08
4 Stock Price	195.96	309.55
5 Turnover	.65	.95
6 Pre-Covid	.57	.49
7 Covid	.14	.35
8 Post-Covid	.28	.45
9 Small Sized Firm	.35	.48
10 Medium Sized Firm	.32	.47
11 Large Sized Firm	.32	.47
12 Young Firm	.26	.44
13 Medium Aged Firm	.48	.50
14 Old Firm	.26	.44
15 TMT Size	5.45	.87
16 Location - Northeast	.12	.33
17 Location - Midwest	.19	.39
18 Location - South	.20	.40
19 Location - West	.49	.50
20 CEO Dual	.47	.50
21 Technology Firms	.63	.48
22 Manufacturing Firms	.41	.49

**Table 12. Panel Regression of ROA on Shared Leadership**

	B	Std. Error
Shared Leadership	-.06	.05
Sex Diversity	.05*	.02
Location - Northeast	-.09***	.02
Location - Midwest	-.06**	.02
Location - South	-.05***	.01
TMT Size	.01	.01
Medium Sized Firm	.03*	.01
Large Firm	-.02*	.01
Stock Price	.04***	.01
Medium Aged Firm	.07***	.01
Old Aged Firm	.08***	.02
CEO Dual	-.02*	.01
Technology Firms	-.02	.01

Note. N = 74 firms, N = 429 observations

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 13. Panel Regression of Conflict on Shared Leadership**

	B	Std. Error
Shared Leadership	.21 **	.04
Sex Diversity	-.01	.02
Location - Northeast	-.02	.02
Location - Midwest	-.03	.02
Location - South	-.24	.01
TMT Size	.01 *	.01
Medium Sized Firm	-.01	.01
Large Firm	.01	.01
Stock Price	.00	.01
Medium Aged Firm	.00	.01
Old Aged Firm	.01	.02
CEO Dual	-.01	.01
Technology Firms	.01	.01

*Note.* N = 74 firms, N = 510 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 14. Panel Regression of ROA on Conflict and Shared Leadership**

	B	Std. Error
Conflict	.07	.05
Shared Leadership	-.07	.05
Sex Diversity	.05*	.02
Location - Northeast	-.09***	.02
Location - Midwest	-.06**	.02
Location - South	-.05***	.01
TMT Size	.01	.01
Medium Sized Firm	.03*	.01
Large Firm	-.03*	.01
Stock Price	.04***	.01
Medium Aged Firm	.07***	.01
Old Aged Firm	.08***	.02
CEO Dual	-.02*	.01
Technology Firms	-.02	.01

*Note.* N = 74 firms, N = 429 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 15. Panel Regression of ROA on Conflict and Shared Leadership Comparison of Covid to Pre-Covid**

	B	Std. Error
Conflict	.07	.06
Shared Leadership	-.05	.06
Sex Diversity	.06*	.03
Location - Northeast	-.08***	.02
Location - Midwest	-.05*	.02
Location - South	-.05**	.02
TMT Size	.01	.01
Medium Sized Firm	.02	.02
Large Firm	-.03*	.01
Stock Price	.04***	.01
Medium Aged Firm	.07***	.01
Old Aged Firm	.08***	.02
CEO Dual	-.02	.01
Technology Firms	-.02	.02
Shared Leadership * Covid Year	-.08	.13

*Note.* N = 74 firms, N = 358 observations

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 16. Panel Regression of ROA on Conflict and Shared Leadership Comparison of Covid to Pre-Covid**

	B	Std. Error
Conflict	-.01	.02
Shared Leadership	-.06	.06
Sex Diversity	.04	.03
Location - Northeast	-.08***	.02
Location - Midwest	-.05**	.02
Location - South	-.05**	.02
TMT Size	.01	.01
Medium Sized Firm	.03*	.01
Large Firm	-.03	.01
Stock Price	.05***	.01
Medium Aged Firm	.07***	.01
Old Aged Firm	.08***	.02
CEO Dual	-.03*	.01
Technology Firms	-.01	.02
Shared Leadership * Post-Covid	-.01	.12

*Note.* N = 74 firms, N = 356 observations

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

The first hypothesis tests a positive relationship between TMT-shared leadership and firm performance (*H1*), such that firm performance improves as the TMT shares more leadership responsibilities. *H1* is not supported; as Table 12 reports, the panel model regressing ROA on shared leadership found that TMT shared leadership was not significantly related to firm performance ( $b = -.06$   $p = .19$ ).

The second hypothesis proposes that the relationship between TMT shared leadership and TMT conflict and TMT conflict and firm performance. The results are reported in Tables 13 and 14. *H2* is not supported; from the previous analysis, shared leadership is not significantly related to firm performance ( $b = -.06$   $p = .19$ ). A panel model regressing conflict on shared leadership indicated that there is a significant positive relationship between shared leadership and conflict ( $b = .21$   $p = .008$ ). An additional panel linear model was run to assess ROA on conflict and shared leadership found that TMT conflict was not significantly related to firm performance ( $b = .07$   $p = .16$ ) and TMT shared leadership was not significantly related to firm performance ( $b = -.07$   $p = .14$ ). As such, there is evidence of a relationship between shared leadership and conflict but not between shared leadership and firm performance or conflict and firm performance.

The third hypothesis proposes that during high uncertainty, like the pandemic, the relationship between TMT shared leadership and performance will be weaker than during the pre-pandemic time period. In order to test this, the post-pandemic data was removed from the sample, and a multiplicative interaction term was computed using pay equity and the pandemic year dummy variable. The results are reported in Table 15. *H3* is not supported; the interaction between the pandemic year and TMT shared leadership with firm performance is not significant ( $b = -.08$ ;  $p = .63$ ).

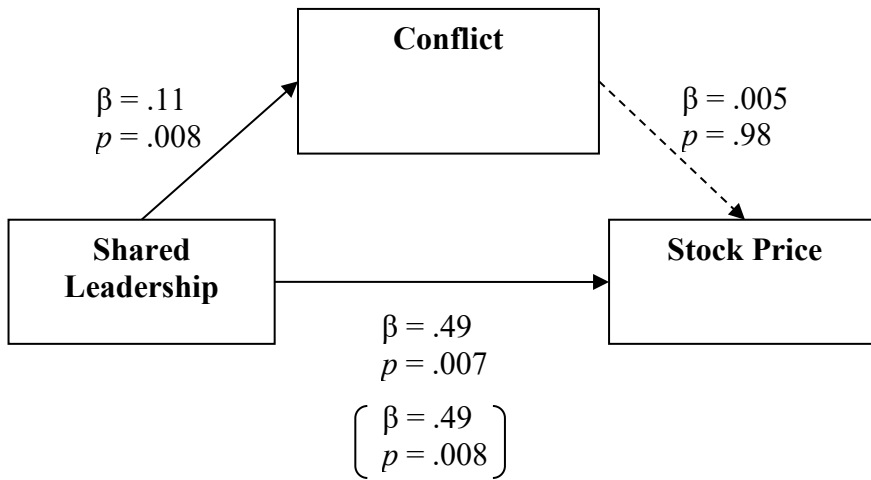
The fourth hypothesis proposes that the relationship between TMT shared leadership and firm performance will be stronger post-pandemic when compared to the pre-pandemic period. In order to test this, the pandemic data was removed from the sample, and a multiplicative interaction term was computed using pay equity and the post-Pandemic year dummy variable. The results are reported in Table 16. *H4* is not supported; the interaction between the post-pandemic year and TMT shared leadership with firm performance is not significant ( $b = 0.01$ ;  $p = 0.92$ ).

### **Post-Hoc Analysis**

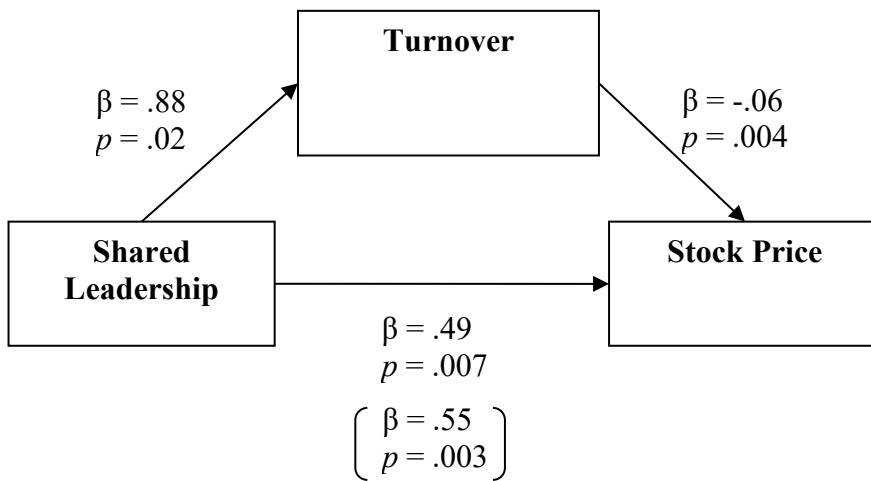
While the findings of this study are null to this point, with the exception of the unhypothesized negative relationship between shared leadership and conflict, there were significant correlations between TMT shared leadership and firm stock prices and TMT shared leadership and turnover. In order to explore these relationships further, panel linear modeling was conducted to examine the relationships in question. The results are displayed in Figures 1 and 2 and Tables 17, 18, 19, 20, 21, and 22.



**Figure 1. Summary of Results of Relationships Between Shared Leadership, Conflict, and Stock Price**



**Figure 2. Summary of Results of Relationships Between Shared Leadership, Turnover, and Stock Price**



**Table 17. Post Hoc Panel Regression of ROA on Turnover and Shared Leadership**

	B	Std. Error
Turnover	.01	.01
Shared Leadership	-.07	.05
Sex Diversity	.05*	.02
Location - Northeast	-.09***	.02
Location - Midwest	-.06***	.02
Location - South	-.05***	.01
TMT Size	.00	.01
Medium Sized Firm	.02*	.01
Large Firm	-.03*	.01
Stock Price	.05***	.01
Medium Aged Firm	.07***	.01
Old Aged Firm	.08***	.02
CEO Dual	-.02	.01
Technology Firms	-.02	.01

*Note.* N = 74 firms, N = 429 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 18. Post Hoc Panel Regression of Stock Price on Shared Leadership**

	B	Std. Error
Shared Leadership	.49**	.18
Sex Diversity	.11	.10
Location - Northeast	.21**	.06
Location - Midwest	.30***	.07
Location - South	.26***	.06
TMT Size	.00	.02
Medium Sized Firm	-.09*	.04
Large Firm	-.10*	.05
Medium Aged Firm	-.30***	.04
Old Aged Firm	-.24***	.07
CEO Dual	.04	.04
Technology Firms	.26***	.05

*Note.* N = 74 firms, N = 510 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 19. Post Hoc Panel Regression of Stock Price on Shared Leadership Comparison of Post-Covid to Pre-Covid**

	B	Std. Error
Shared Leadership	.49*	.24
Sex Diversity	.10	.10
Location - Northeast	.22**	.07
Location - Midwest	.31***	.07
Location - South	.26**	.06
TMT Size	.02	.02
Medium Sized Firm	-.09	.05
Large Firm	-.10	.05
Medium Aged Firm	-.29***	.05
Old Aged Firm	-.22**	.07
CEO Dual	.04	.04
Technology Firms	.25***	.06
Shared Leadership * Post-Covid	.07	.40

*Note.* N = 74 firms. N = 436 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 20. Post Hoc Panel Regression of Stock Price on Turnover and Shared Leadership**

	B	Std. Error
Turnover	-.06**	.02
Shared Leadership	.55**	.18
Sex Diversity	.10	.09
Location - Northeast	.22***	.06
Location - Midwest	.30***	.07
Location - South	.27***	.05
TMT Size	.03	.02
Medium Sized Firm	-.08	.04
Large Firm	-.08	.05
Medium Aged Firm	-.30***	.04
Old Aged Firm	-.25***	.07
CEO Dual	.03	.04
Technology Firms	.27***	.05

*Note.* N = 74 firms; N = 510 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 21. Post Hoc Panel Regression of Stock Price on Turnover and Shared Leadership  
Comparison of Covid to Pre-Covid**

	B	Std. Error
Turnover	-.07**	.03
Shared Leadership	.54*	.24
Sex Diversity	.17	.12
Location - Northeast	.26**	.08
Location - Midwest	.34***	.08
Location - South	.32***	.07
TMT Size	.07*	.03
Medium Sized Firm	-.07	.05
Large Firm	-.05	.06
Medium Aged Firm	-.30***	.05
Old Aged Firm	-.23**	.08
CEO Dual	.04	.05
Technology Firms	.29***	.06
Shared Leadership * Covid Year	-.32	.57

*Note.* N = 74 firms. N = 365 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

**Table 22. Panel Regression of Stock Price on Turnover and Shared Leadership  
Comparison of Post-Covid to Pre-Covid**

	B	Std. Error
Turnover	-.05*	.02
Shared Leadership	.55*	.23
Sex Diversity	.09	.10
Location - Northeast	.23**	.07
Location - Midwest	.31***	.07
Location - South	.27***	.06
TMT Size	.04	.03
Medium Sized Firm	-.08	.05
Large Firm	-.08	.05
Medium Aged Firm	-.29***	.05
Old Aged Firm	-.23**	.07
CEO Dual	.04	.04
Technology Firms	.26***	.06
Shared Leadership * Post-Covid	.06	.40

*Note.* N = 74 firms. N = 436 observations.

\* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

## Results

A post hoc panel linear model was run in order to examine the relationships between turnover, in lieu of conflict, with shared leadership and ROA, imitating Hypothesis 2. Turnover can be viewed as an indicator of underlying conflict within an organization. When people experience minimal conflict in the organization, they are less likely to seek employment elsewhere. Conversely, the presence of conflict, even if it is not externally evident, often prompts individuals to seek opportunities elsewhere, making turnover an alternative metric for assessing conflict. This post hoc analysis and the following analyses below, analyze the relationship between shared leadership and turnover in lieu of conflict. A panel linear regression was conducted, and the results, reported in Table 17, indicate that there is also not a significant relationship between turnover and ROA ( $b = .01; p = .15$ ) nor shared leadership and ROA ( $b = -.07; p = .15$ ).

A post hoc panel linear model was conducted to examine the relationship between shared leadership and stock price, replicating Hypothesis 1. Stock price is a performance variable that has been widely used in the extant literature (e.g., Jeong & Harrison, 2017; Walters, Kroll, & Wright, 2010). Stock price is considered to be more short-term than the long-term ROA performance measure (Jeong & Harrison, 2017). It is possible that certain TMT processes, like shared leadership, have more of an impact on short-term performance than long-term performance. The overall model was significant. ( $F(12, 491) = 8.00, p \leq .001$ ). The reported results in Table 18 indicate that there is a positive relationship between TMT shared leadership and stock price ( $b = .49; p = .007$ ).

An additional panel regression was performed to examine whether there was a difference between the “new normal” and prior to the Pandemic in the relationship between shared



leadership and performance. The results are displayed in Table 19 and indicate that the interaction between shared leadership and the post-Covid period, while holding the pre-covid time period constant, is not significant ( $b = .07; p = .86$ ), and thus there is not a significant difference in shared leadership in the “new normal” when compared to before the Pandemic.

Similarly, modeling Hypothesis 2, panel regression modeling was performed to examine the effect of shared leadership on conflict and the relationship between conflict and firm performance as measured by stock price. Figure 1 displays the summary of the results which indicate that there is a positive significant relationship between shared leadership and stock price ( $b = .49; p = .007$ ) and a significant positive relationship between shared leadership and conflict ( $b = .11; p = .008$ ). Conflict did not have a significant relationship with stock price ( $b = .005; p = .98$ ). However, when both shared leadership and conflict were entered into the model, the relation between shared leadership and stock price did not change ( $b = .49; p = .008$ ).

Further imitating hypothesis 2, panel linear modeling was performed to examine the relationship between shared leadership and turnover and the relationship between turnover and stock price. The summary of results is displayed in Figure 2 and indicates that there is a significant positive relationship between shared leadership and stock price ( $b = .49; p = .007$ ), a significant positive relationship between shared leadership and turnover ( $b = .88; p = .02$ ), and a significant negative relationship between turnover and stock price ( $b = -.06; p = .004$ ). When both shared leadership and turnover were entered into the model, the relation between shared leadership and stock price increased ( $b = .55; p = .003$ ). This indicated that turnover is related to both shared leadership and stock price. Table 20 reports the results of these direct relationships between stock price with turnover and shared leadership.

Modeling after hypothesis 3, a panel regression was run to analyze the effects of the pandemic and the years prior to the pandemic on the relationship between turnover and shared leadership on stock price. Table 21 displays the results. Both turnover ( $b = -.07$ ;  $p = .004$ ) and shared leadership ( $b = .54$ ;  $p = .03$ ) have significant relationships with stock price. However, the interaction term of the Pandemic year with shared leadership was not significant ( $b = -.32$ ;  $p = .57$ ), indicating that there was not a difference in shared leadership during the Pandemic and compared to prior to Covid.

Lastly, modeling after hypothesis 4, a panel regression was conducted to examine the effects that the “new normal” time period and the time period prior to the Pandemic had on the relationships between turnover and stock price and shared leadership and stock price. The results are displayed in Table 22 and indicate that there is a significant negative relationship between turnover and stock price ( $b = -.05$ ;  $p = .02$ ) and a significant positive relationship between shared leadership and stock price ( $b = .55$ ;  $p = .02$ ). However, the interaction between shared leadership and the “new normal” was not significant ( $b = .06$ ;  $p = .89$ ).

### **Discussion**

Shared leadership is only beginning to be studied at the TMT level, even though the positive effect that shared leadership has on lower-level teams has been documented for years (Zhu et al., 2018). This study examined the relationship between shared leadership and performance. Further, this study predicted that conflict would mediate the relationship between shared leadership and performance. As this study examined data from before the Pandemic, during the Pandemic, and in the “new normal,” the effects of uncertainty on the relationship between shared leadership and performance were also examined.

However, the main study did not find that conflict and shared leadership were significantly related to ROA. The post hoc analyses found that there are relationships between shared leadership, turnover, and stock prices. In fact, the addition of turnover to the model increased the relationship between shared leadership and stock price from  $b = .49$  to  $b = .55$ , even though shared leadership was found to have a positive relationship with turnover, and turnover had a negative relationship with stock price. This study aimed to shed light on the black box of TMT processes as a development to upper echelons theory (Hambrick, 2007), and while the main study did not have significant findings, the post hoc analyses did find that TMT processes in the form of sharing leadership responsibilities, did have significant relationships with TMT turnover and firm stock prices. Further, extant research has proposed that TMT processes are positively and significantly related to firm performance (Certo et al., 2006). The post hoc analyses support this assertion. The results of this study add to the literature on shared leadership and upper echelons theory. The following sections discuss the results in depth.

### **Pay Equity as a Proxy for Shared Leadership**

This study tested pay dispersion as a proxy for shared leadership in Top Management Teams. While the results of this study indicate that pay dispersion is not a perfect proxy for shared leadership in TMTs, the results from Pilot Study 1 and Pilot Study 2 do indicate that pay equity is a potentially promising proxy for shared leadership in TMTs. When pay equity is low in TMTs, extant research has found that there was decreased team cohesion (Hambrick, 1995), increased competition among members (Lazear, 1989; Rosen, 1986), and less cooperation among the TMT (Henderson & Fredrickson, 2001). Shared leadership necessitates cohesion and cooperation within the team (Mathieu et al., 2015) in order to share the leadership responsibilities. It is evident from the present study that pay equity is a proxy for shared

leadership in TMTs in large, US technology and manufacturing firms, as pay equity creates the atmosphere within the TMT where cohesion and cooperation within the team leads to shared leadership. As it is inherently difficult to survey TMT members, using pay equity as a proxy for shared leadership in TMTs will allow for the field to examine shared leadership in these types of teams more easily than having to gather surveys. Other researchers can use this measure to further the burgeoning research of shared leadership in TMTs.

### **Shared Leadership and Conflict**

However, shared leadership did not have any relationship with conflict via the results of this study. Extant research has found that relational conflict has detrimental effects on performance outcomes (Jehn & Mannix, 2001). Yet, gathering conflict data in a similar way as Agarwal and colleagues (2020) by examining archival sources for reports of turnover based on conflict within the TMT, did not yield the hypothesized results. Gathering conflict data in this manner may have worked better in TMTs from over 120 years ago but does not work as well in today's organizations included in this study. Very few of the turnover cases coincided with news reports of conflict within the TMT or the company. There were 12 identified cases of conflict out of 337 cases of turnover in the TMTs included within this study. While all the firms in this study were large and publicly traded, many of the firms were not in news headlines on a regular basis, let alone reporting conflict when turnover happened within the TMT. Collecting data on conflict solely from archival news sources may not have comprehensively captured all instances of conflict related to turnover within the organization included in this sample. This led to the adoption of post hoc testing, using turnover as the indicator of conflict. Nonetheless, despite the limited instances of conflict within the sample, the results revealed a significant positive relationship between shared leadership and conflict. Within the shared leadership literature, this

observed relationship between shared leadership and conflict deviates from the expected norm of a negative relationship between shared leadership and conflict. The shared leadership literature should be updated to reflect that while the negative relationship between shared leadership and conflict holds at lower levels of the firm, there is a positive relationship at the TMT level. There seems to be a moderating relationship between firm level and the relationship between shared leadership and conflict.

### **Shared Leadership and Turnover**

Interestingly, this study found a positive significant relationship between shared leadership and turnover. As shared leadership has been found to be positively related to satisfaction (e.g., Robert & You, 2018), and a negative relationship between satisfaction and turnover (e.g., Ali, 2008) at lower levels of the firm, it would be expected that shared leadership would have a negative relationship with turnover in TMTs. However, TMT members are commonly characterized by a proclivity towards achievement orientation, power-seeking tendencies, and a penchant for pursuing elevated social status (Finkelstein & Hambrick, 1996). Furthermore, many of these individuals exhibit a heightened sensitivity to the comparative aspect of their compensation in relation to their peers within the TMT (Frank, 1985). In accordance with the tenets of equity theory (Adams, 2005), individuals engage in subjective evaluations regarding the proportionality of their inputs (e.g., effort exerted) and outcomes (e.g., compensation) in comparison to their referent peers. The perception of inequality in this balance is posited to generate cognitive dissonance, potentially prompting individuals to respond through actions such as reducing their own efforts, seeking negotiations for increased compensation, or ultimately departing the organization (Fredrickson et al., 2010). If TMT members perceive an inadequate alignment between their efforts and corresponding compensation compared to the

others in the TMT, they may exit the organization. When pay is equitable across all members, those who feel that they are exerting more effort than some of the others in the TMT, will likely choose to leave the organization. As such, shared leadership may work differently in TMTs, as some of the TMT individuals are likely more competitive than those at lower levels of the firm, where shared leadership has a positive relationship with TMT turnover.

However, given the presence of shared leadership in a TMT, individuals who choose to exit may exhibit a greater inclination toward competitiveness. Such individuals are prone to have experienced challenges in thriving within a collaborative environment. The departure of these types of individuals, does indicate a loss of institutional knowledge, which can be costly, but TMT members who are more competitive exiting the team allows the remaining TMT members to continue in their collaborative leadership approach and reap the positive outcomes associated with shared leadership like enhanced performance. As such, within a TMT characterized by shared leadership, individuals who do not excel in such a collaborative setting may opt to depart. While this entails costs associated with the depletion of institutional knowledge and the search for a suitable replacement for the member, the net effect of shared leadership on performance remains positive. The results of this study indicated that shared leadership has a positive relationship with turnover and turnover has a positive relationship with performance, but turnover of those individuals who do not thrive in a shared leadership environment has a positive impact on performance.

### **Shared Leadership and Performance**

Shared leadership is not a process that significantly affects ROA based on the results of the main study. However, when stock price was used as the firm performance measure in the post hoc analyses, shared leadership had a significant relationship with firm performance. ROA

is a financial ratio that indicates the profitability of a company in relation to its total assets. ROA is based on asset decisions that are more difficult to financially engineer in the short term (Hagel et al., 2013), but it may not capture the TMT processes that happen in the short term. In the same way that ROA signals to investors and creditors that the company will be able to pay back its debts, stock price over the long term is also an indicator of a company's ability to meet debt requirements. While stock prices are more sensitive to external shocks than ROA in the short term, stock prices are more reactionary to company decisions in the short term. ROA is a long-term measure, but a one-year lag may not capture the TMT processes that impacted ROA for the next year. It may take longer for the impacts of shared leadership to affect long-term performance, like ROA. As such, the results of the primary study may have been null, but results may be different if a longer time frame had been used. As the post hoc analyses indicated, different measures of conflict or performance yielded significant results.

Further, in the post hoc analyses, shared leadership had a positive significant relationship with stock price, but the pandemic did not affect the relationship. While prior research has demonstrated a proclivity for individuals to seek out strong leadership in periods of uncertainty and volatility (Hogg, 2005, 2007b; Rast et al., 2013), the current study results indicate contrasting findings. The results of this study lead to the conclusion that the individuals who assume TMT positions are strong leaders. Further, the results suggest that TMT leaders do not actively seek out additional strong leaders during times of uncertainty. Instead, TMT members continue to fulfill their leadership roles for those who rely on them to provide guidance in navigating times of uncertainty.

## **Boundary Conditions and Future Research**

This study developed and examined pay equity as a proxy for shared leadership in TMTs. Future research should test this proxy in other industries and in other countries. The firms in this study are all located in the US, which is considered a capitalistic economy where the CEO is likely to make most of the strategic decisions for the organization. Alternatively, in socialist economies, the government plays a much larger part in business. Specifically, the government controls much of the economy's resources and uses these resources to shape the economy in such a way that different outcomes are obtained than what a noninterventionist market would produce (Naughton, 2017). The government in a socialist economy "redistributes" resources and wealth to citizens who are deemed to be less well off than others. This type of economic system's institutions and ideologies restrain actions and use resources to the benefit of the greater good (i.e., society instead of one individual). Specifically, socialist economic systems have a collectivistic culture in that all actions should be for the benefit of the group, even if it is at the detriment of the individual (Johnson, 2018). This type of economic system relies on a structure of sharing resources, responsibilities, and shared decision-making within leadership (Walker, 1985). In this type of system, organizations would adhere to the example that the government has set forth of sharing leadership responsibilities across the group of leaders rather than relying on one central decision-maker. Shared leadership is likely to have a stronger impact on outcomes of interest in these types of situations since the individuals in these countries have a culture of sharing decisions. As such, future research should examine the relationship between shared leadership and firm performance in firms based in other economies as the relationships could be stronger.



Shared leadership in teams has consistently found a negative relationship with turnover in the team (e.g., Aufegger, Alabi, Darzi, & Bicknell, 2020; Leclerc, Strenge-McNabb, Thibodeaux, Campis, & Kennedy, 2022; Lindsay, Sheehan, & De Cieri, 2020). However, shared leadership in TMTs was found to have an opposite effect on turnover than shared leadership does at lower levels of the firm in this study. In order to confirm that the relationship between shared leadership and turnover is not unique to this study, future research should be conducted to confirm that shared leadership and turnover at the TMT level do have a negative relationship as this could have substantial impacts on the shared leadership theory.

Other studies have found that shared leadership has a positive impact on team satisfaction (Robert & You, 2018), task cohesion, task satisfaction (Serban & Roberts, 2016), team adaptability (Zhu et al., 2018), and decreased conflict (e.g., Bergman et al., 2012; Hu et al., 2017). It is likely that, at the TMT level of the firm, this study may suffer from omitted variable bias. Many of the constructs that have been found to be impacted by shared leadership at lower levels of the firm may also be impacted by shared leadership in TMTs and the resulting firm performance. Future research should focus on other constructs, such as TMT team satisfaction and cooperation and TMT adaptability, that may be impacted by shared leadership in TMTs. It is expected that the same relationships between satisfaction and shared leadership and cooperation and shared leadership would have similar relationships at the TMT level. It is possible that these relationships at the TMT level may not have the same outcomes as the relationship found in this study between shared leadership and turnover.

## **Conclusion**

Shared leadership is only beginning to be studied at the TMT level. This study found that pay dispersion across the TMT can work as a proxy for the amount of shared leadership in the

TMT. Additionally, in this sample of large US manufacturing and technology firms, shared leadership does not have a significant impact on ROA but does have a significant impact on stock prices. Further, while external shocks of uncertainty, like the Covid-19 Pandemic, can have impacts on teams, their leadership structures, and associated outcomes (Grubb, Liu, & Varas, n.p.), TMTs seem to be more stable in their processes through such shocks. However, it is noteworthy that the association between shared leadership and turnover was negative in this study, contrary to the results observed in studies conducted at lower levels of the firm.

## CHAPTER IV: CONCLUSION

Using self-managed virtual teams before and during the COVID-19 pandemic, Paper 1 examined how the pandemic causes changes in team dynamics (team conflict and team members' satisfaction of the team) and team performance, as well as the role of team leadership structure in this process. Based on the data from 1,224 global self-managed virtual teams, we found that during the initial peak of the pandemic, compared with the pre-pandemic period, self-managed virtual teams experienced fewer team conflicts, higher team satisfaction, and subsequently higher team performance. Moreover, a shared leadership structure has been shown to be especially effective in reducing team conflict, increasing team satisfaction, and thus improving team performance during normal times (i.e., pre-pandemic). However, contrary to our expectation that a formal leadership structure would be preferred during the pandemic, leadership structure does not seem to matter in influencing team dynamics and performance, at least during the initial peak period of the pandemic. The pandemic itself is powerful enough to cause reduced team conflict and increased team satisfaction and performance, regardless of how roles are negotiated and how power is distributed in these self-managed virtual teams.

Paper 2 delved into shared leadership within Top Management Teams (TMT). While the positive effects of shared leadership on lower-level teams have been well-documented (Zhu et al., 2018), its study at the TMT level is only just emerging. The paper not only investigated the relationship between shared leadership and performance but also hypothesized that conflict would mediate this relationship. Given that the data spans the time before, during, and after the pandemic, Paper 2 also explored the influence of uncertainty on the shared leadership-performance connection.

In Paper 2's main study, I found no significant relationship between conflict, shared leadership, and ROA. However, the post hoc analyses revealed associations between shared leadership, turnover, and stock prices. In fact, the addition of turnover to the model increased the relationship between shared leadership and stock price. However, shared leadership was found to have a positive relationship with turnover and turnover had a negative relationship with stock price. Paper 2 aimed to shed light on the black box of TMT processes as a development to upper echelons theory (Hambrick, 2007), and while the main study did not have significant findings, the post hoc analyses did find that TMT processes in the form of sharing leadership responsibilities, did have significant relationships with TMT turnover and firm stock prices. Further, extant research has proposed that TMT processes are positively and significantly related to firm performance (Certo et al., 2006). The post hoc analyses support this assertion. The results of Paper 2 add to the literature on shared leadership and upper echelons theory.

The following sections will delve into the primary findings presented within the two papers of this dissertation. Specifically, the key findings discuss the influence of shared leadership in the context of conflict and shared leadership in relation to performance. The subsequent section explores the implications stemming from the findings of the two papers, including the proxy measure of shared leadership developed and tested as introduced and examined in Paper 2. Lastly, the final section discusses the potential avenues for future research in shared leadership spanning both levels of analysis explored in this dissertation.

### **Key Findings**

Paper 1 found that, before the Pandemic, shared leadership in global virtual teams (GVT) had a positive influence on team dynamics via a positive relationship with satisfaction and a negative relationship with conflict. Shared leadership also had a positive relationship with team

performance prior to the Pandemic. However, during the initial shock of the Pandemic in March of 2020, leadership structure in the GVTs did not significantly impact team conflict; team conflict was lower during the Pandemic when compared to the period before the Pandemic. Additionally, satisfaction was higher during the Pandemic than before, regardless of leadership structure, and subsequently, team performance was higher during the Pandemic than before, again regardless of leadership structure. Overall, these findings from Paper 1, indicate that a shared leadership structure has positive effects in self-managed, student teams during times of normalcy, but that during times of high uncertainty, the leadership structure of the team no longer has significant impacts on satisfaction, conflict, and performance. In times of high uncertainty, these types of student teams have fewer conflicts, higher satisfaction, and better performance.

Paper 2 found that the Pandemic did not impact the leadership structure of TMTs, as was found in the student teams of Paper 1. Regardless of the timing, TMTs with a shared leadership structure had a positive relationship with firm stock prices. The results from Paper 2 also indicated that there is a positive relationship between a shared leadership structure and turnover in TMTs, regardless of time or uncertainty. This finding is contrary to the results from Paper 1 regarding shared leadership and conflict. Overall, during stable times, shared leadership structured teams have lower conflict in lower level or student teams but shared leadership structured TMTs have higher turnover than teams with other leadership structures. With the exception of times of high uncertainty, like the Pandemic, teams with a shared leadership structure, at any level of the firm, have a positive relationship with performance. Based on the differing finding of these two papers, the times of high uncertainty effect team dynamics at lower levels but do not have the same effects at the highest level of the firm.

## **Shared Leadership and Conflict**

Paper 1 found that shared leadership had a negative relationship with conflict prior to the Pandemic. After the beginning of the Pandemic, however, conflict was found to be decreased regardless of leadership structure in the student teams. Paper 2 results indicated that shared leadership did not have any relationship with conflict. Alternatively, when turnover was used as a proxy for conflict within the TMTs, the results revealed a significant positive relationship between shared leadership and conflict. Within the shared leadership literature, this observed relationship between shared leadership and conflict deviates from the expected norm of a negative relationship between shared leadership and conflict. In fact, this is a different finding than the results indicated in Paper 1. The shared leadership literature should be updated to reflect that while the negative relationship between shared leadership and conflict holds at lower levels of the firm, there is a positive relationship at the TMT level. There seems to be a moderating relationship between firm level and the relationship between shared leadership and conflict.

TMT members are commonly characterized by a proclivity towards achievement orientation, power-seeking tendencies, and a penchant for pursuing elevated social status (Finkelstein & Hambrick, 1996) which is different than the descriptions of most students involved in Paper 1. Furthermore, many of the TMT individuals exhibit a heightened sensitivity to the comparative aspect of their compensation in relation to their peers within the TMT (Frank, 1985). In accordance with the tenets of equity theory (Adams, 2005), individuals engage in subjective evaluations regarding the proportionality of their inputs (e.g., effort exerted) and outcomes (e.g., compensation) in comparison to their referent peers. The perception of an inequality in this balance is posited to generate cognitive dissonance, potentially prompting individuals to respond through actions such as reducing their own efforts, seeking negotiations

for increased compensation, or ultimately departing the organization (Fredrickson et al., 2010). If TMT members perceive an inadequate alignment between their efforts and corresponding compensation compared to the others in the TMT, they may exit the organization. Alternatively, students are not necessarily able to leave their student teams; instead they may engage in decreased effort or social loafing. When pay is equitable across all members, those that feel that they are exerting more effort than some of the others in the TMT, will likely choose to leave the organization. Whereas students are concerned with their course grades and not motivated by monetary payment. As such, shared leadership may work differently in TMTs, as some of the TMT individuals are likely more competitive than those at lower levels of the firm, where shared leadership has a positive relationship with TMT turnover.

However, given the presence of shared leadership in a TMT, individuals that choose to exit may exhibit a greater inclination toward competitiveness. Alternatively, students likely do not have an option to exit teams even if they do not thrive in the team environment. Such individuals are prone to have experienced challenges in thriving within a collaborative environment. The results of both papers indicated that shared leadership has a positive relationship with performance, though there is a time component within the student teams.

### **Shared Leadership and Performance**

Shared leadership had a significant relationship with firm performance when stock price was used as the measure of performance in Paper 2. Similarly, the results of Paper 1 indicated a positive relationship between shared leadership and performance prior to the Pandemic.

However, during the Pandemic, the student teams in Paper 1 no longer had a significant increase in performance in shared leadership teams when compared to the other leadership structures. In the post hoc analyses of Paper 2, shared leadership had a positive significant relationship with

stock price, but the relationship was not affected by the Pandemic. While prior research has demonstrated a proclivity for individuals to seek out strong leadership in periods of uncertainty and volatility (Hogg, 2005, 2007b; Rast et al., 2013), both Papers' results indicate contrasting findings. In Paper 2, the results lead to the conclusion that the individuals who assume TMT positions are strong leaders. Further, the results suggest that TMT leaders do not actively seek out additional strong leaders during times of uncertainty. Instead, TMT members continue to fulfill their leadership roles for those who rely on them to provide guidance in navigating times of uncertainty. While the Paper 1 results lead to the conclusion that during times of uncertainty, there is less conflict, more satisfaction, and higher performance in student teams regardless of leadership structure.

### **Implications**

Paper 1 was one of the first studies to contribute to our understanding of how crises like a global pandemic impact team dynamics and effectiveness in self-managed global virtual teams. Although the pandemic has created many challenges to businesses, the Paper 1 findings present a silver lining of the crisis. That is, working in self-managed virtual teams could serve as a stress-relieving tool that helps team members better cope with the pandemic. Manifested by fewer team conflicts and increased team satisfaction during the pandemic, virtual teams have shown their effectiveness in not only keeping businesses operating but also meeting employees' social needs. Further, prior to the Pandemic, lower-level teams with a flat hierarchical structure (i.e., shared leadership) have shown to have fewer power struggles and thus fewer conflicts when compared to teams with a hierarchical structure, leading to higher team satisfaction and performance during normal times, the benefit of shared leadership structure disappears during a crisis like the Pandemic. It should be noted that a formal leadership structure is also not superior for lower-



level teams during times of high uncertainty. That said, the effect of team leadership structure is bounded by certain circumstances such that during an extreme context, leadership structure may lose its functionality in influencing team dynamics and outcomes. The context per se, instead, may substitute for the effect of team leadership structure.

### **Pay Equity as a Proxy for Shared Leadership**

Paper 1 used survey questions to assess shared leadership in student teams. Paper 2 tested pay dispersion as a proxy for shared leadership in Top Management Teams. The results from Pilot Study 1 and Pilot Study 2 in Paper 2, indicated that pay equity is a potentially promising proxy for shared leadership in TMTs. When pay equity is low in TMTs, extant research has found that there was decreased team cohesion (Hambrick, 1995), increased competition among members (Lazear, 1989; Rosen, 1986), and less cooperation among the TMT (Henderson & Fredrickson, 2001). Shared leadership necessitates cohesion and cooperation within the team (Mathieu et al, 2015) in order to share the leadership responsibilities. It is evident from the results from Paper 2 that pay equity is a proxy for shared leadership in TMTs in large, US technology and manufacturing firms, as pay equity creates the atmosphere within the TMT where cohesion and cooperation within the team leads to shared leadership. As it is inherently difficult to survey TMT members, using pay equity as a proxy for shared leadership in TMTs will allow for the field to examine shared leadership in these types of teams more easily than having to gather surveys. Other researchers can use this measure to further the burgeoning research of shared leadership in TMTs.

### **Future Directions**

While Paper 1 compares the periods before and during the pandemic, the pandemic condition falls during the initial peak stage (March to May 2020) when the strictest lockdowns

occurred. Future research should continue to examine the impact of different stages of the pandemic on virtual teams at lower-levels, as well as the post-pandemic effects. Also, knowing that having a shared leadership structure in a self-managed team is vital for performance during normal times, future research should explore the antecedents that lead a self-managed team to fall into a shared leadership structure. This information would enable managers to understand which type of leadership structure the team is likely to follow and then take action that can help the team effectively work together, taking into account the external environment. For instance, if the external environment is calm, managers should form teams that are likely to fall into a shared leadership structure.

Paper 2 developed and examined pay equity as a proxy for shared leadership in TMTs. Future research should test this proxy in other industries and in other countries. The firms in Paper 2 are all located in the US which is considered a capitalistic economy where the CEO is likely to make most of the strategic decisions for the organization. Alternatively, in socialist economies, the government plays a much larger part in business. Specifically, the government controls much of the economy's resources and use of these resources to shape the economy in such a way that different outcomes are obtained than what a noninterventionist market would produce (Naughton, 2017). The government in a socialist economy "redistributes" resources and wealth to citizens that are deemed to be less well off than others. This type of economic system's institutions and ideologies restrain actions and use resources to the benefit of the greater good (i.e., society instead of one individual). Specifically, socialist economic systems have a collectivistic culture in that all actions should be for the benefit of the group even if it is at the detriment of the individual (Johnson, 2018). This type of economic system relies on a structure of sharing resources, responsibilities, and shared decision-making within leadership (Walker,

1985). In this type of system, organizations would adhere to the example that the government has set forth of sharing leadership responsibilities across the group of leaders rather than relying on one central decision-maker. Shared leadership is likely to have a stronger impact on outcomes of interest in these types of situations since the individuals in these countries have a culture of sharing decisions. As such, future research should examine the relationship between shared leadership and firm performance in firms based in other economies as the relationships could be stronger.

Shared leadership in teams has consistently found a negative relationship with turnover in the team (e.g., Aufegger, Alabi, Darzi, & Bicknell, 2020; Leclerc, Strenge-McNabb, Thibodeaux, Campis, & Kennedy, 2022; Lindsay, Sheehan, & De Cieri, 2020). However, shared leadership in TMTs was found to have an opposite effect on turnover than shared leadership does at lower levels of the firm in this study. In order to confirm that the relationship between shared leadership and turnover is not unique to Paper 2, future research should be conducted to confirm that shared leadership and turnover at the TMT level do have a negative relationship as this could have substantial impacts to the shared leadership theory.

As other studies have found that shared leadership has a positive impact on team satisfaction (Robert & You, 2018), task cohesion, task satisfaction (Serban & Roberts, 2016), team adaptability (Zhu et al., 2018), and decreased conflict (e.g., Bergman et al., 2012; Hu et al., 2017). It is likely that, at the TMT level of the firm, this study may suffer from omitted variable bias. Many of the constructs that have been found to be impacted by shared leadership at lower levels of the firm, may also be impacted by shared leadership in TMTs and the resulting firm performance. Future research should focus on other constructs, such as TMT team satisfaction and cooperation, and TMT adaptability, that may be impacted by shared leadership in TMTs. It

is expected that the same relationships between satisfaction and shared leadership and cooperation and shared leadership would have similar relationships at the TMT level, it is possible that these relationships at the TMT level may not have the same outcomes, like the relationship found in this study between shared leadership and turnover.

### **Conclusion Summary**

This dissertation explored shared leadership in student teams in Paper 1 and in Top Management Teams (TMT) in Paper 2 in the context of a high uncertainty event as was brought on by the Covid-19 pandemic. Paper 1 results indicated that at the initial onset of the pandemic, when compared to the months prior to the pandemic, leadership structure was no longer significantly related to satisfaction, team conflict, or team performance. However, when compared to before the pandemic, satisfaction was higher, conflict was lower, and team performance was higher overall. Paper 2 developed and tested a proxy for shared leadership in TMTs via pay equity. The time period, including before, during, and after the pandemic, did not have significant impacts on the TMT shared leadership, TMT conflict, or firm performance. However, the results of Paper 2 indicated that there is a positive relationship between shared leadership and TMT conflict as measured by turnover which was unexpected based on results in extant research.

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