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TIE CONTENT IN PROFESSIONAL NETWORKS

PhD Series 31-2016

Olga Zarzecka

# TIE CONTENT IN PROFESSIONAL NETWORKS

The PhD School of Economics and Management

**CBS** COPENHAGEN BUSINESS SCHOOL  
HANDELSHØJSKOLEN

PhD Series 31.2016

# Tie Content in Professional Networks

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## PREFACE

This dissertation consists of five chapters, which together explore tie content in the professional networks of senior managers. In the introduction I outline the theoretical grounding, the overall research question as well as the methodological approach. Three empirical papers follow this introductory chapter. Though each paper investigates a specific research question, together they contribute to answering this dissertation's overall research question. In the final chapter, I discuss the findings across the three research papers, comment on limitations and suggest future research avenues. The first two research papers (chapter two and three) are co-authored, and the last paper is single-authored (chapter four). Below is a list with the title and authors of each paper:

- Zarzecka, O. & Mors, M.L. “Gendering social capital: Gender differences in resource sharing in professional networks.”
- Zarzecka, O. & Villesèche, F. “Does the captain abandon a sinking ship? The relationship among firm underperformance and corporate elite identification on senior managers’ network tie use.”
- Zarzecka, O. “When the whole is not the sum of its parts: The relationship between friendship and professional advice in multiplex ties of senior managers.”

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Olga Zarzecka  
Copenhagen, July 2016

## ABSTRACT

Professional networks of senior managers have indisputable value for them as well as for their organizations. In recent years, much attention has been given to the structure of these networks as it reflects senior managers' opportunity to access valuable resources. Surprisingly, the actual resources that senior managers acquire through their network ties, i.e. the tie content, remain heavily understudied. Hence, the purpose of this dissertation is to answer the following question: What resources flow through informal ties in senior managers' professional networks, and why?

The first chapter introduces the topic of this dissertation as well as the overall research question. The three next chapters are empirical studies of informal ties in professional networks of Danish senior managers, that together attempt to answer the overall research question. Chapter 2 looks into gender differences in resource exchanges and the effect of these differences on the number of, and extent to which, resources are provided by a network tie. Chapter 3 explores how firm underperformance and social identity with corporate elite alter types of resources a network tie provides. Chapter 4 focuses on a tie's internal dynamics and studies the effect of friendship on the extent and novelty of professional advice a tie provides. The fifth and final chapter of this dissertation summarizes the findings of the research papers in the light of the overall research question.

Essentially, this dissertation suggests that the strategic value of professional informal network ties is contingent on the actual combination of resources these ties provide. Furthermore, this combination depends on micro-level mechanisms that affect three dimensions of tie content: the number of resources, the type of resources and the extent to which these resources are provided by informal network ties.

## SAMMENFATNING

Det er af ubestrideligt høj værdi for topledere at indgå i professionelle netværk – såvel for dem selv som for deres organisationer. I de senere år har megen opmærksomhed været rettet mod strukturen i disse netværk, da den afspejler topledernes mulighed for at få adgang til værdifulde ressourcer. Derimod har overraskende lidt akademisk opmærksomhed været rettet mod de faktiske ressourcer, som topledere har adgang til gennem deres netværksforbindelser, dvs. selve ”forbindelsesindholdet”. Derfor er formålet med den foreliggende ph.d.-afhandling at besvare følgende spørgsmål: Hvilket flow af ressourcer løber mellem de uformelle forbindelser i topledernes professionelle netværk, og hvorfor?

Det første kapitel er en introduktion til afhandlingens emne og præsenterer det overordnede forskningsspørgsmål. De næste tre kapitler søger at besvare det overordnede forskningsspørgsmål igennem empiriske studier af de uformelle forbindelser i danske topledernes professionelle netværk. Kapitel 2 ser på kønsforskellene i måder at udveksle netværksressourcer, og hvordan disse forskelle påvirker antallet og omfanget af de ressourcer, en netværksforbindelse stiller til rådighed. Kapitel 3 undersøger, hvordan selskabers dårlige resultater og virksomhedselitens sociale identitet påvirker de ressourcer, en netværksforbindelse stiller til rådighed. Kapitel 4 fokuserer på forbindelernes interne dynamikker og studerer den effekt, venskaber har på omfanget og kvaliteten af den professionelle rådgivning, som netværksforbindelser giver. Det femte og sidste kapitel i denne afhandling opsummerer forskningsresultaterne i forhold til det overordnede forskningsspørgsmål.

Grundlæggende peger denne afhandling på, at den strategiske værdi af at indgå i professionelle uformelle netværksforbindelser afhænger af den faktiske ressourcekombination,

forbindelserne stiller til rådighed. Denne kombination afhænger desuden af mekanismer på mikroniveau, som påvirker tre dimensioner i forbindelsesindholdet: Antallet af ressourcer, ressourcetyper og i hvilket omfang disse ressourcer leveres af uformelle netværksforbindelser.

## **CONTENT**

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## CHAPTER 1. INTRODUCTION<sup>1</sup>

The question of what resources to acquire, where to acquire them and how to utilize them have always been at the heart of the strategy field (Barney, 1991). Network ties between senior managers are a valuable source of resources that provide strategic advantages. Informal ties between senior managers are ties that emerge and endure because of social interactions between the connected parties (Scott & Carrington, 2011; Wasserman & Faust, 1994; Zaheer & Soda, 2009). These ties develop in prior interactions, for example, when senior managers attend the same university or when they belong to the same social circle, or participate in similar social events (Carroll & Teo, 1996; Domhoff, 2009; Karabel & Useem, 1986; Reissman & Mills, 1956). An informal tie might precede or coexist with a formal work role (McEvily, Soda & Tortoriello, 2014) but this is not a prerequisite. For example, an informal tie can exist between two senior managers who have worked together in the past (Soda, Usai & Zaheer, 2004), who are in a mentoring relationship (Cotton, Shen & Livne-Tarandach, 2011; Kram & Isabella, 1985) or who are colleagues that also socialize (Oh, Chung & Labianca, 2004). Senior managers who are connected through an informal tie are likely to help each other (Gouldner, 1960; Hansen, 1999); by doing so, they can also proxy companies' access to valuable resources (Leana & Van Buren, 1999). Informal ties in senior managers' professional networks have been found to benefit companies in numerous ways. For example they can help lower the cost of capital (Uzzi, 1999), drive firm's innovativeness (Mors, 2010; Powell, Koput & Smith-Doerr, 1996; Rogan & Mors, 2014), improve firm strategy (M. L. McDonald, Khanna & Westphal, 2008; Michael L McDonald & Westphal, 2003), facilitate firm growth (Anderson, 2008) especially through acquisitions (Iyer & Miller, 2008) or through alliances and joint ventures (Beckman,

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<sup>1</sup> Please find corresponding reference on pp. 149

Schoonhoven, Rottner & Kim, 2014), as well as to enhance firm performance in general (Ingram & Roberts, 2000).

On top of having an effect on a firm performance, informal ties benefit senior managers as individuals (Adler & Kwon, 2002; R S Burt, 1997; Burt, 2000; Leana & Van Buren, 1999). Studies on networks outcomes show that ties in informal networks are associated with trust (Chua, Ingram & Morris, 2008), reputation (Wong & Boh, 2010), status and power (Podolny, 2001), social influence (Sparrowe & Liden, 2001), creativity (Perry-Smith & Shalley, 2003), promotion (Burt, 1992) , employment (Seibert, Kraimer & Liden, 2001), remuneration (Hwang & Kim, 2009), being liked (Klein, Saltz & Mayer, 2004) or disliked (Labianca & Brass, 2006) as well as emotional well-being (Brinberg & Castell, 1982).

### **Research Question**

Despite the significant importance of informal ties for senior managers as well as for their organizations, the majority of studies applying a social network perspective focus on senior managers' opportunity to acquire resources rather than on the actual resources these ties provide (Gulati, Kilduff, Li, Shipilov & Tsai, 2010). The opportunity to acquire resources through informal network ties is often studied through structural properties of networks in which these ties are embedded, for example network density (Borgatti, Mehra, Brass & Labianca, 2009), network range (Tortoriello, Reagans & McEvily, 2012) or structural holes (Burt, 2004). In order to study the network structure many scholars build on the assumption that ties which are structurally equivalent i.e. are embedded in networks that have identical structural characteristics, provide exactly the same resources (Burt, 1992; Lorrain & White, 1971; Mizruchi, 1993). Furthermore, many of studies applying social network perspective limit their

scope to senior managers' opportunity to acquire a specific and predefined type of resource (Shipilov, 2012).

Ties between senior managers, however, are more complex than researchers often tend to assume. A handful of empirical studies on informal ties and the resources these ties provide show that the opportunity to acquire a resource does not immediately translate into a senior manager acquiring the resource and that structurally equivalent ties can provide qualitatively different resources (Anderson, 2008; Haas & Park, 2010; Reinholt, Pedersen & Foss, 2011). Because of the assumptions guiding network structural studies described above relatively little is known about the actual resources that are provided by informal network ties in senior managers' professional networks, i.e. tie content (Tichy, Tushman & Fombrun, 1979). Moreover, the field still lacks well-developed theories explaining tie content antecedents, in particular underlying mechanisms and consequences for professional networks' strategic value. This dissertation aims to extend our understanding of tie content, specifically the conditions under which informal network ties provide senior managers with resources like social support, professional advice, career opportunities, exposure and visibility, new business opportunities and resources for implementation. The thesis therefore aims to address the following overarching research question:

*What resources flow through informal ties in senior managers' professional networks, and why?*

### **Semantics in Social Network Studies**

Although generally displaying strict methodological rigor, studies applying a social network perspective on occasions miss a comparable precision in distinguishing between theoretical concepts and/or using consistent terminology. For example, a relationship, a relation

or a tie are frequently used interchangeably. In order to describe tie content and its dimensions in a coherent manner, I first discuss semantics in social network studies.

Following Tichy et al. (1979) in this dissertation a relationship defines whether there is or there is not a tie between a pair of senior managers, and therefore a relationship and a tie are used as equivalent expressions. Senior managers who are connected by a tie are often referred to as network actors. The focal actor is called an ego and a manager to whom the focal actor has a tie to is called an alter (Scott & Carrington, 2011). The collected focal actor's ties constitute his/her ego network. There can be only one relationship (one tie) between the two actors. A relation is a more constricted term than the relationship as it is restricted to a type of resource it provides (Wasserman & Faust, 1994). As an illustration of differences between a relationship and a relation, consider the example of James and Mark. These two senior managers provide each other with two types of resources: social support and professional advice. James and Mark are connected and therefore it can be said that there is a tie between them. The relationship between Mark and James either exists or does not exist and therefore there cannot be more than one tie between them (Brass & Krackhardt, 1999). As mentioned, Mark and James provide each other with social support, thus the tie between them can be considered to comprise a relation of friendship (Gibbons & Olk, 2003). However, Mark and James are also advising each other; therefore, the tie between them comprises also an adviser-advisee relation. In sum, there can be just one tie (relationship) between two network actors, but these actors can be in multiple relations.

### **Tie Content and Flow of Resources**

Resources that flow through a network tie constitute tie content (Tichy et al., 1979). In his study Foa (1971) distinguishes among six types of resources that can flow between a pair of

connected actors: love, status, information, money, goods and services. These resources differ along two dimensions: particularism and concreteness (Foa & Foa, 1980). Particularism focuses on a resource's perceived value. The value of resource can be independent from or contingent on the qualities of providing actor and characteristics of the relationship between the providing and the provided actor. For example, perception of money and their value is mostly independent from the qualities of providing actor and characteristics of the relationship (Tetlock, 2003). A value of love, on the other hand, is heavily embedded in who a person providing the resource is and what is the relationship between the connected parties. The other conceptual dimension of social resources, concreteness, refers to the extent to which a resource is tangible. Foa's concreteness scale is a dichotomy with symbolic resources like status or information on one end and quantifiable resources like goods and services on the other end (Donnenwerth & Foa, 1974). Most of resource definitions that are applied in social network studies correspond to Foa's approach. For example Tichy, Tushman & Fombrun (1979) identify four types of resources that can flow through network ties namely affect, influence or power, information, as well as goods and services. Cook & Whitmeyer (1992) classify resources into material, informational or symbolic, whereas Haythornthwaite (1996) simply distinguishes between tangible and intangible resources. Complementary to Foa's resource classification is a distinction between instrumental and expressive resources (Fombrun, 1982; Ibarra, 1992). Here, the criterion is the resource function or the purpose for which it is acquired. Instrumental resources are resources that serve a certain goal; for example, exposure and visibility are instrumental resources that are acquired to advance actor's career (Bozionelos, 2008). Expressive resources, such as social support (Chua, Ingram & Morris, 2008; Klein, Saltz & Mayer, 2004; Morrison, 2002), are primarily acquired in response to a person's emotional needs.

Not all resources are equally important for individual and organizational performance. In particular, research has shown that access to information explains differences at the individual level, for example with regards to creativity (Burt, 2004), promotion (Sparrowe & Liden, 2001), job mobility (Burt, 1992; Ensel, Lin & Vaughn, 1981), and salary (Boxman, De Graaf & Flap, 1991). In management studies, information has been studied in variety of forms, for example as professional advice (Cross, Borgatti & Parker, 2001; Gargiulo & Benassi, 2000; Klein et al., 2004; Sparrowe & Liden, 2001), hints regarding job openings (Burt, 1992; Granovetter, 1973) or office gossip (Grosser, Lopez-Kidwell & Labianca, 2010; Kurland & Pelled, 2000; Podolny & Baron, 1997). Another resource that has been found to have a significant impact on senior managers' professional success is social support (Casciaro & Lobo, 2008). Furthermore, access to social support has a direct and positive effect on one's self-esteem and general well-being (Labianca & Brass, 2006; Verbrugge, 1979). Social support is most commonly exchanged through ties that comprise friendship. Friendships are affective relations that satisfy one's need for emotional support, exchange of warm attention and nurturing (Takahashi, 2005). Social support has been defined as information leading a person to believe that he or she is cared for and loved (i.e. emotional support), is esteemed and valued (i.e. esteem support), and belongs to a network of communication and mutual obligation (Cobb, 1976).

***Informal ties and flow of resources.*** In networks constituted by informal ties, resources can flow directly and indirectly (Molm, 2003). To start with, direct flow of resource(s) is limited to two connected actors and can be either asymmetric or symmetric (Wasserman & Faust, 1994). In an asymmetric flow, one of the connected actors provides a resource whereas the other actor receives it. In a symmetric flow, both actors provide and receive resources. Although I acknowledge that senior managers are not only provided with resources but also provide resources

themselves (Rogan & Mors, 2016), in this dissertation I narrow my focus on resources senior managers are provided with by their informal network ties and to the corresponding tie content. I here also build on the assumption that resources a network tie provides, although with some discrepancies, correspond to the resources a senior manager wishes to acquire (Emerson, 1976).

Second, some resources can flow even if the senior managers are not connected directly (Podolny, 2001). In larger network structures, e.g. a network of informal ties in a company, employees who are not connected can form opinion about each other based on people they know in common. For example, if an unknown actor is connected to a known and trustworthy manager, it will be assumed that the unknown actor is also trustworthy (Burt & Knez, 1995). Flow of trust between disconnected parties illustrates the indirect resource flow. Indirect flows have an important role in monitoring behavior of network agents: on the one hand, senior managers can benefit from the reputational spillovers; on the other hand, if they violate social norms their behavior will be detected and punished by the members of the group (Shah, 1998).

### **Dimensions of Tie Content**

A nascent body of research suggests that tie content can differ along three dimensions: the extent of resources, the number of resources, and the type of resources a network tie provides.

***Extent of resources provided.*** The few existing empirical studies on tie content suggest that informal ties, even when structurally equivalent, can still differ in terms of the extent to which they provide a resource. Steinel, Utz & Koning (2010) show that the extent to which ties provide information depends on perceived value of that information. In their three experiments, the authors find that ties provide information to a lower extent when the providing actors believe it to be valuable but not publicly available. Furthermore, ties provide information to a higher

extent when the providers consider information to be publicly available even if they continue to consider it as valuable. In another empirical study, Reinholt et al. (2011) find that information can flow to a high or a low extent depending on the motivation of the receiving and providing actors as well as their ability to share knowledge. Ties of managers who are autonomously motivated and have high ability to share knowledge provide information to a higher extent. In addition the characteristics of the resource(s) and the characteristics of the network actors, the extent to which a tie provides resources is also contingent on the normative context that nests the tie. In their work, Haas & Park (2010) show that a tie might provide a resource to a low extent or not at all when an actor providing the resource is embedded in a normative context that discourages resource sharing.

***Number of resources provided.*** The content of network ties can also differ in terms of number of relations, and corresponding types of resources, these ties comprise. On the one hand, ties comprising only one type of relation and providing only one type of resource are referred to as uniplex ties (Mitchell, 1969). Multiplex ties, on the other hand are defined as ties that comprise more than one type of relation and provide more than one type of resource (Gulati et al., 2010; Rogan, 2014; Wasserman & Faust, 1994). As an illustration of a multiplex tie, consider again the example of James and Mark. The tie between Mark and James is a multiplex tie in that it comprises a relation of friendship which is associated with the provision of social support and a relation of advisee-adviser which is associated with the provision of professional advice.

The limited availability of time and energy senior managers can dedicate to establish and maintain their ties is one of the potential explanations for ties' multiplexity. To reach higher return from their 'investment', senior managers can increase the efficiency of their ties by extracting multiple resources from a fixed amount of connections (Boorman & White, 1976;

Emerson, 1976). Another potential explanation for a ties' multiplexity is ties evolution. Over time, contacts initially connected through uniplex ties can develop additional relations and become multiplex ties (Altman & Taylor, 1973; Kuwabara, Luo & Sheldon, 2010). Although both theories are plausible, none of them fully explains why some ties remain uniplex as well as why some ties are more multiplex than others.

There is a handful of studies empirically investigating how frequently informal ties are uniplex ties. Verbrugge (1979) investigates how often a relationship between two adults comprises relations as kin and friend, neighbor and friend, and coworker and friend. In this study, he reports that relationships comprising only one type of relation represent between 27 and 32 percent of all relationships in one sample and between 20 and 25 percent in another sample. In his study on tie content Burt (1997) also analyses multiplex ties. He finds that 57 percent of relationships reported in the study comprise only one type of relation whereas the remaining 43 percent of listed relationships comprise two or more relations. In a more recent study Gibbons (2004) investigates relationships in a working environment and finds that there is between 40 and 59 percent chance of a relationship being uniplex.

The results of these studies clearly suggest that uniplex ties are not as dominant as it could be expected, and more importantly that roughly half of observed informal ties are in the heavily under-researched category of multiplex ties (Ferriani, Fonti & Corrado, 2013; Gulati et al., 2010; Kilduff & Brass, 2010; Methot, Lepine, Podsakoff & Christian, 2016). Considering ties as uniplex in studies applying a social network perspective thus not only limits our understanding of the actual resources network ties provide but also questions the results of some of these studies (Geletkanycz & Boyd, 2011; Shipilov, Gulati, Kilduff, Li & Tsai, 2014). For an illustration, let's once again consider the Mark and James example. The aim of an imaginary

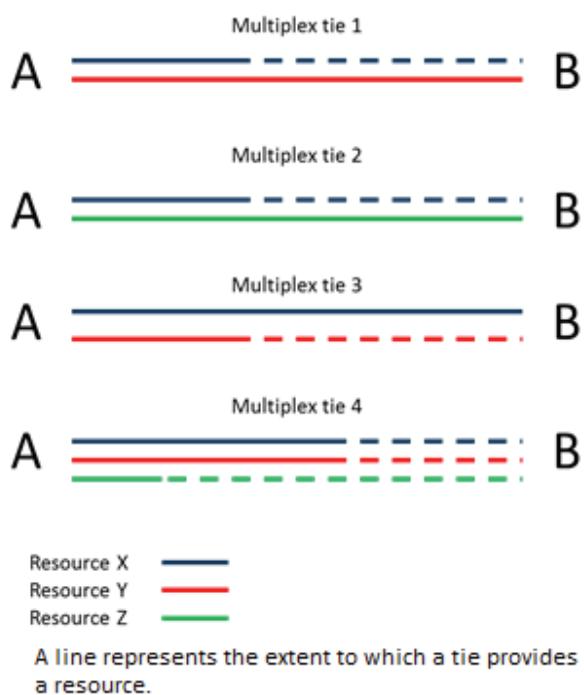
study is to explore how advice ties affect creativity. Mark identified James as his advice contact. Regardless of whether Mark and James are also friends, it will be implicitly assumed that the observed effect of a tie between Mark and James on creativity is driven by the advice relation that researchers were interested in studying. The potential effect of Mark and James friendship on Mark's creativity or the effect of friendship on the advice provided will be disregarded. Since informal ties between senior managers often comprise more than one relation, in such studies it thus remains unclear whether the observed effect is contingent on the arbitrary uniplexity or on the combination of relations (i.e. multiplexity) that is not accounted for.

***Type of resources provided.*** Since informal ties can provide more than one type of resource, the question of what mechanisms underlie a senior manager's choice among different types of resources arises. This is an important inquiry in relation to the strategic value of informal networks as not all types of resources benefit senior managers and their organizations to the same extent (Sorenson & Rogan, 2014). Certain types of resources, as for instance professional advice, benefit both the resource recipient senior manager and his/her organization when the advice can be used to improve organizational processes. In fact, studies on advice networks show that the advice senior managers receive through their informal ties has implications for firm strategy and overall performance (McDonald & Westphal, 2003). Informal ties, however, can also provide senior managers with access to resources that are neutral or in extreme cases even harmful for these senior managers' organizations (Leana & Van Buren, 1999). For example senior managers might use their network ties to secure higher remuneration or block unfavorable organizational changes (Davis, 1991; Wade, Reilly & Chandratat, 1990). Furthermore, on occasions when an informal network tie comprises more than one relation, it remains unclear whether the multiplex tie can simply be considered as the sum of its parts. Since

strategic value of informal ties in senior managers' networks is contingent on the resources these ties provide, it is important to investigate whether relations that coexist in a given network tie are 'mutually neutral' or rather have an effect of either reinforcing, weakening or canceling out each other's outcomes.

***Extent, number and type of resources provided.*** The three discussed dimensions of tie content are presented on Figure 1. A multiplex tie 1 and a multiplex tie 2 differ in terms of types of resources they provide e.g. multiplex tie 1 provides social support and access to business relevant information whereas multiplex tie 2 provides social support and access to information regarding job openings.

**FIGURE 1: DIMENSIONS OF TIE CONTENT**



The multiplex tie 1 and a multiplex tie 3 provide the same types of resources but to a different extent e.g. both provide a manager with access to social support and access to business relevant information; however the extent of social support differs. The difference in the extent to which resources are provided by a multiplex tie, might imply the primary function of the tie. The

multiplex tie 1 provides business relevant information to a higher extent than it provides social support. Therefore, it can be argued that the primary function of multiplex tie 1 is provision of business relevant information accompanied by provision of business relevant information. The multiplex tie 3 illustrates reversed case where the primary function of a tie is provision of social support accompanied with provision of business relevant information. The multiplex tie 1 and a multiplex tie 4 differ on all three dimensions, the number of resources provided, the type of resources provided and the extent to which these resources are provided.

Although a few empirical studies examine each dimension of tie content, they tend to investigate only one dimension at a time (for an exception see Aral & Van Alstyne, 2011). Though there is a dearth of empirical studies examining how senior managers differentiate between extent, number and types of resources, there are theoretical premises suggesting the existence of underlying micro-level mechanisms in the process of resource provision (Emerson, 1976).

First of all, because of time and energy constraints, the resources a senior manager acquires can be organized into a salience hierarchy. Those resources that a senior manager perceives as more rewarding and therefore more valuable are higher in his/her resource hierarchy (Cook & Whitmeyer, 1992). The value of a resource is contingent on the set of norms that a senior manager applies to govern the resource provision. Social exchange theory distinguishes between exchange and communal norms. On the one hand, in an exchange relationship each actor is motivated by his/her own interests, expected rewards or avoided punishments (Clark & Mils, 1993). The concern for the welfare of others, on the other hand, is the primary motivation for connected actors in communal relationship (Clark, 1984). As a result, instrumental resources are higher in a resource hierarchy when provision is governed by exchange norms whereas

expressive resources are higher in a resource hierarchy when provision is governed by communal norms. Studies on gender differences and networking behavior suggest that in contrast with men women tend to prefer communal norms over exchange norms (Brands & Kilduff, 2013; Ibarra, 1997; Suitor & Keeton, 1997). Thus, gender differences in terms of norms senior managers apply to govern their resource provision offer a potential explanation for a variance in the types of resources an informal network tie provides. Furthermore, since communal relationships reward the frequency of the resources provision more than the instrumental value of that provision, the differences between norms men and women apply to govern their resource provision could explain the number of and the extent to which an informal network tie provides resources.

Besides gender preferences towards specific norms of governance, the perceived value of a resource and its position in a senior manager's resource hierarchy may also be contingent on that senior manager's social identity (Hogg & Terry, 2000). Studies on social identity show that a senior manager's behavior in terms of how to think, act and feel is guided by his/her reference group (Hogg & Terry, 2014). The more a senior manager identifies with a reference group, the more he or she adopts the group norms and values and behaves according to them (Richter & West, 2006; Stets & Burke, 2000). For a senior manager, a group of social reference can be his/her organization (Ashforth & Mael, 1989) as well as the managerial community (McDonald & Westphal, 2010). Since informal ties in professional networks of senior managers often cross organizational boundaries (Korschun, 2015), in this PhD dissertation I focus on senior managers' social identification with the managerial community, and more specifically with the corporate elite (Reissman & Mills, 1956) which constitutes the inner circle of this community. The corporate elite, as any other social group, has implicit expectations regarding how one contributes to the group, acts within the group and obtains status within the group. It can thus be

expected that the number of, type of and the extent to which resources are provided by informal ties in senior managers' networks are contingent on these managers' social identification with the corporate elite.

Finally, it has also been discussed that senior managers adjust the content of their informal network ties in response to new needs appearing due to changes in their external environment (Uehara, 1990). Managers that must satisfy acute resource demand can adjust the content of their existing ties, establish new ones or do both (White, Boorman & Breiger, 1976). In this dissertation, I look into firm underperformance as an externality that moderates senior managers' behavior (Cyert & March, 1963; Greve, 2003; Wiseman & Gomez-Mejia, 1998) by influencing their demand for particular types of social resources.

### **The Data Collection Process**

For the purpose of this PhD project I collected information on egocentric networks via an online survey distributed through the Confederation of Danish Industry (DI). DI unites managers from approximately 10,000 private enterprises operating within the manufacturing, trade and service industries. All members of the confederation of Danish Industry must be employed by firms that are publicly registered in Denmark. In return for the annual membership fee, DI offers consulting services, access to their online network, as well as training in areas such as HR practices, innovation and outsourcing.

The questionnaire was sent out to 500 senior managers, each employed by a different company. The survey population included CEOs, top management team members, and other C-line managers. All respondents held decision-making responsibility at the time of answering the survey. The survey was piloted on a small group of MBA students and management scholars. This pilot led to the suggestion that our respondents might be more likely to reply if they also

received the survey in Danish. The survey was therefore distributed in both English and Danish and the respondents could choose what language they preferred. To avoid errors of literal translation, the questionnaire was translated from English to Danish and then back translated from Danish to English. In order to enhance the number of responses (Cycyota & Harrison, 2002), a senior representative of DI, responsible for managing and facilitating professional networking, sent e-mails with a personalized survey invitation. The e-mail contained a brief introductory note explaining the purpose of the study and how to navigate the survey, as well as the login information and link to the online survey. In order to incentivize participation in the study, I offered respondents to send them a report with the general findings of the study, as well as the opportunity to participate in a networking workshop. Furthermore, to increase the response rate, I sent out a follow up e-mail two weeks after the initial invite.

**Research Instrument.** As there is a lack of well-established methods to gather tie content data (Van Der Gaag & Snijders, 2005), for the purpose of this PhD I designed a three-step questionnaire. The first step consists in a name-generating question as is commonly found in social network studies (Marsden, 1990). In the majority of network studies, already in the name generating questions scholars limit tie content to a chosen type of relation, e.g. advice networks or friendship networks. Such an approach, although appropriate for studies about structural properties of networks, could be considered as a sampling on the dependent variable (Short, Ketchen & Palmer, 2002) for studies where the focus is on the tie content. In order not to indicate any specific type of resources, I asked respondents to list contacts (alters) they perceived as significant (Chua et al., 2008). The exact wording for external contacts was: *'A network of a manager might include senior managers employed outside her or his own company. In this set of questions we ask you about your external contacts. Please, list up to 15 senior managers in other*

*firms that you feel are a significant part of your professional network. List the first name of the person and the initial of last name'. For the significant alters who were internal to the respondents' organization, I asked a corresponding question: 'A network of a manager might include other contacts in your company. We have already asked about your external contacts, in this set of questions we ask you about your internal contacts. Please, list up to 15 contacts you have inside your organization that you feel are a significant part of your professional network. List the first name of the person and the initial of last name'.*

The second step of the questionnaire identified the types of resources and the extent to which they were provided by the contacts listed as significant. For that purpose I used a name interpreter question which is a survey item that asks more detailed information regarding the characteristics of the contacts listed in the name generator (Burt, 1997). In the name interpreter question I asked respondents to assign a value between 0 and 5 indicating the extent (where zero is not at all and five is to a high extent) to which each contact provided them with a specific type of resource. To limit the number of resources, I provided respondents with a list of five different types of resources; namely professional advice (e.g., Cross et al., 2001; Gargiulo & Benassi, 2000; Klein, Saltz & Mayer, 2004; Sparrowe & Liden, 2001), information about career opportunities (e.g. Burt, 1992; Granovetter, 1973; Lin & Dumin, 1986), exposure and visibility (e.g. Cotton et al., 2011; Kram & Isabella, 1985; Noe, 1988), new business opportunities (e.g., Mors, 2010) and social support (e.g., Gibbons, 2004; Ingram & Roberts, 2000; Podolny & Baron, 1997; Sosa, 2011). In the final part of the questionnaire I asked respondents about their relationship with each alter they had listed as well as some demographic questions. More information about the methods, including analysis, can be found in the three empirical chapters of this dissertation as described below.

## Dissertation Outline

*Chapter 2: “Gendering social capital: Gender differences in resource sharing in professional networks.”* looks into two dimensions of tie content, namely the number of and the extent to which informal ties provide social resources. In particular, this chapter explores how gender of focal senior managers and gender of their contacts affect norms applied to govern resource exchanges. In this chapter together with my co-author, we argue that the adjustment of governance norms is an unobserved mechanism through which gender has an effect on both dimensions of tie content.

*Chapter 3: “Does the captain abandon a sinking ship? The relationship among firm underperformance and corporate elite identification on senior managers’ network tie use.”* examines micro-level mechanisms that lead to differences in terms of types of resources network ties provide. Social exchange theory suggests that senior managers’ demand on particular types of resources corresponds to challenges they need to address (Emerson, 1976). This chapter focuses on firm underperformance as an external factor that alters senior manager’s resource demand, from primary demand on professional advice to primary demand on career opportunities. Furthermore, this chapter looks into senior managers’ ‘identification with the corporate elite as a moderating factor.

*Chapter 4: “When the whole is not the sum of its parts: The relationship between friendship and professional advice in multiplex ties of senior managers.”* complements the previous sections on antecedents of tie content by exploring the consequences of tie content from strategic value perspective. In this chapter, I focus on dynamics between different relations a tie comprises and consequences of such dynamics for the tie’s strategic value. Specifically, I examine the effect of friendship on professional advice in senior managers’ multiplex ties.

Although each research paper chapter included in this dissertation addresses a specific research question, together they aim to deepen our understanding of what resources and why network ties provide. The final chapter 5 concludes the findings in light of the overall research question.

## CHAPTER 2. GENDERING SOCIAL CAPITAL: GENDER DIFFERENCES IN RESOURCE SHARING IN PROFESSIONAL NETWORKS<sup>2</sup>

### ABSTRACT

Social capital has been associated with a variety of performance outcomes. Yet while extant work has linked performance to different types of tie characteristics and network structures, the resources that flow in a network tie are rarely observed. In this paper we address tie content in professional networks of senior managers. In particular, we theorize about gender differences in resource exchanges and the effect of these differences on the number of, and extent to which, resources are provided by a network tie. We test our hypotheses using unique data on 678 dyadic ties of 48 Danish senior executives collected through a network survey. In line with our theory, we find that network ties between men are more likely to give access to a higher number of resources, but these are provided to a lesser extent. On the contrary dyadic relationships between women are more likely to give access to fewer resources, but to a greater extent. This suggests that male and female executives have distinctive strategies for managing their social capital. Neither strategy, however, seems clearly superior as both represent exclusive benefits.

**Keywords:** *social capital, network content, professional networks, gender*

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<sup>2</sup> This chapter is co-authored with Mors, L.M.

## INTRODUCTION

Social capital, as defined by Nahapiet and Ghoshal, is “the sum of the actual and potential resources” that flow through network ties (1998: 243). Extant work has associated senior managers’ social capital (Adler & Kwon, 2002; Moran, 2005) with individual-level outcomes such as decision making (McDonald & Westphal, 2003), promotions (Burt, 1997; Gibbons, 2004; Seibert, Kraimer & Liden, 2001) or compensation level (Belliveau, O’Reilly & Wade, 1996; Geletkanycz, Boyd & Finkelstein, 2001; Hwang & Kim, 2009). Yet, while this link has been shown the work rarely considers the actual resources that flow in the ties. In this paper, we address a long standing call for studies on tie content, i.e., the actual resources that flow in network ties (Tichy, Tushman & Fombrun, 1979). In doing so, we also contribute to the discussion of what resources flow through senior managers’ network ties (Boorman & White, 1976; Ronald S. Burt, 1997; Cotton, Shen & Livne-Tarandach, 2011; Ferriani, Fonti & Corrado, 2013; Harary, 1959; Lin, 2001; Rogan & Mors, 2016, Shipilov, Gulati, Kilduff, Li & Tsai, 2014; Verbrugge, 1979).

Prior work on social capital has tended to focus on the potential resources exchanged in the network given the structural characteristic of the network (Gulati, Kilduff, Li, Shipilov & Tsai, 2010). This however, provides insight only into the opportunity to acquire valuable resources, and not into how that opportunity is realized. Moreover, rarely have the actual resources acquired been addressed (for an exception see citation). Furthermore, individual-level outcomes are often contingent on a structure of the entire network in which managers are embedded in (Reagans & McEvily, 2003). This includes ties in managers’ closest proximity, i.e., direct ties, as well as ties beyond their reach, i.e., indirect ties (Wasserman & Faust, 1994). Therefore, though managers can actively build social capital and shape the structure of their network by deciding with whom

to form and maintain network ties, their influence is heavily constrained if we consider their networks only from this structural perspective. The provision of resources through network ties is a form of a social exchange where both connected managers have power over what resources and to what extent these resources flow between them (Cook & Whitmeyer, 1992; Emerson, 1976; Rogan & Mors, 2016). Therefore the control over tie content i.e., resources that flow through managers' direct network ties should be greater than their control over the structure of networks in which they are embedded. Particularly as the formation and dissolution of indirect network ties will be beyond their control and reach (Rogan, 2014).

In studies of social capital, gender of the members of the network has consistently been found to have important implications for the potential and the actual resources provided by network ties (Brands & Kilduff, 2013; Brass, 1985; Ibarra, 1993; Kilduff, Brass & Mehra, 2001; McPherson, Smith-Lovin & Cook, 2001; Sutor & Keeton, 1997). For example, a preference for sparse networks with great range gives men a better opportunity to acquire non-redundant information. This is in contrast to women who tend to form more dense and cohesive structures (Moore, 1990). Furthermore, men and women do not benefit from the same network structures in the same way. Brokering a structural hole speeds up the career trajectories of male managers, but does not have the same effect on their female counterparts' careers (Burt, 1998). Instead, women benefit more from 'borrowing social capital' from others in their network, as well as a direct tie to a central, well-respected male manager. Differences in opportunities to acquire resources are usually consequential for the actual resources acquired through the network. In her study Ibarra (1992) finds that because men have more control over organizational resources than women; male homophilic ties are characterized by much richer content than female homophilic ties.

Though, there is a lack of systematic research on the actual resources exchanged in networks (Gulati et al., 2010), there is some empirical evidence suggesting that there are qualitative differences between the content of different network ties. For example, studies show that ties embedded in networks of similar structures vary regarding the extent to which they provide resources (e.g., Haas & Park, 2010; Reinholt, Pedersen & Foss, 2011; Steinel, Utz & Koning, 2010). Another dimension of tie content is the number of resources that a network tie provides. Social network scholars distinguish between ties that provide only one type of resource e.g., professional advice, and ties that provide more than one type of resource e.g., professional advice and friendship (Gulati et al., 2010; Mitchell, 1969; Rogan, 2014). We here build on existing research on social capital to study the effect of gender on both dimensions of tie content, i.e., the extent to which resources are provided and the number of resources provided by a network tie. In line with prior work, we argue that gender of the connected parties has an effect on the set of norms they apply to govern the provision of resources through network ties (Emerson, 1976). The adjustment of governance norms is the unobserved mechanism through which gender has an effect on both dimensions of tie content.

By applying a holistic approach to studying the resources that flow through ties in professional networks, we aim to contribute to the literature on social capital (Adler & Kwon, 2002), and particularly to a better understanding of tie content and multiplexity (Cotton et al., 2011; Cross, Borgatti & Parker, 2001; Gulati et al., 2010; Shipilov, 2012). Our findings should also be of interest to scholars studying the structural characteristics of networks. These studies often build on the assumption that there are no qualitative differences in tie content, and hence assume that access to resources through network ties is contingent on the structural characteristics of the network (Burt, 1992). In line with previous work that considers both

structural and content dimensions of networks, we suggest that a more nuanced understanding of professional networks and their outcomes can be achieved by incorporating factors that affect tie content into structural studies (Rodan & Galunic, 2004; Rogan & Mors, 2016).

Access to resources through networks has been shown to reinforce gender inequalities (Sheppard & Aquino, 2013). Therefore studying how gender differences affect tie content is of great importance as it may help managers overcome such inequalities. Most studies on gender differences in networking behavior focus on only one dimension of network content, typically, the amount or type of resources provided through network ties (e.g., Brands & Kilduff, 2013; Brems & Johnson, 1989; Burt, 1998; Moore, 1990). We aim to shed further light on gender differences in networking behavior by studying both the amount and the extent to which resources are provided through different ties. In line with Ibarra's work on personal networks of women in management (1993) our results suggest that homophilic ties between men provide them with a greater amount of different types of resources than homophilic ties between women. Yet, our results also reveal that while female executives receive fewer resources from other women, these are transferred to a greater extent. Male executives, on the other hand, pay the price of receiving a high number of resources, as these are transferred to a lower extent. These results suggest that men and women have distinctive strategies for sharing resources through their professional network ties. Neither strategy, however, seems clearly superior as both represent exclusive benefits.

## THEORY AND HYPOTHESES

### **Tie Content and Taxonomy of Resources**

In social network studies tie content refers to resources that are exchanged between managers connected by a network tie (Tichy et al., 1979). Everything that connected parties wish

to exchange (Emerson, 1976) and are able to share through a network tie (Brinberg & Castell, 1982) constitutes a resource. Extant work tends to distinguish between tangible and intangible resources (Haythornthwaite, 1996), and usually intangible resources are divided into the subcategories of informational and symbolic resources (Cook & Whitmeyer, 1992). Examples of symbolic resources include affect, influence or power (Tichy et al., 1979). Another common distinction is between instrumental and expressive resources (Fombrun, 1982; Ibarra, 1992). Instrumental resources are those that serve a certain tangible purpose, for example exposure and visibility are types of instrumental resources that can advance one's career (Bozionelos, 2008). The primary function of expressive resources, for example social support (Chua, Ingram & Morris, 2008; Klein, Saltz & Mayer, 2004; Morrison, 2002), is to satisfy a person's emotional needs.

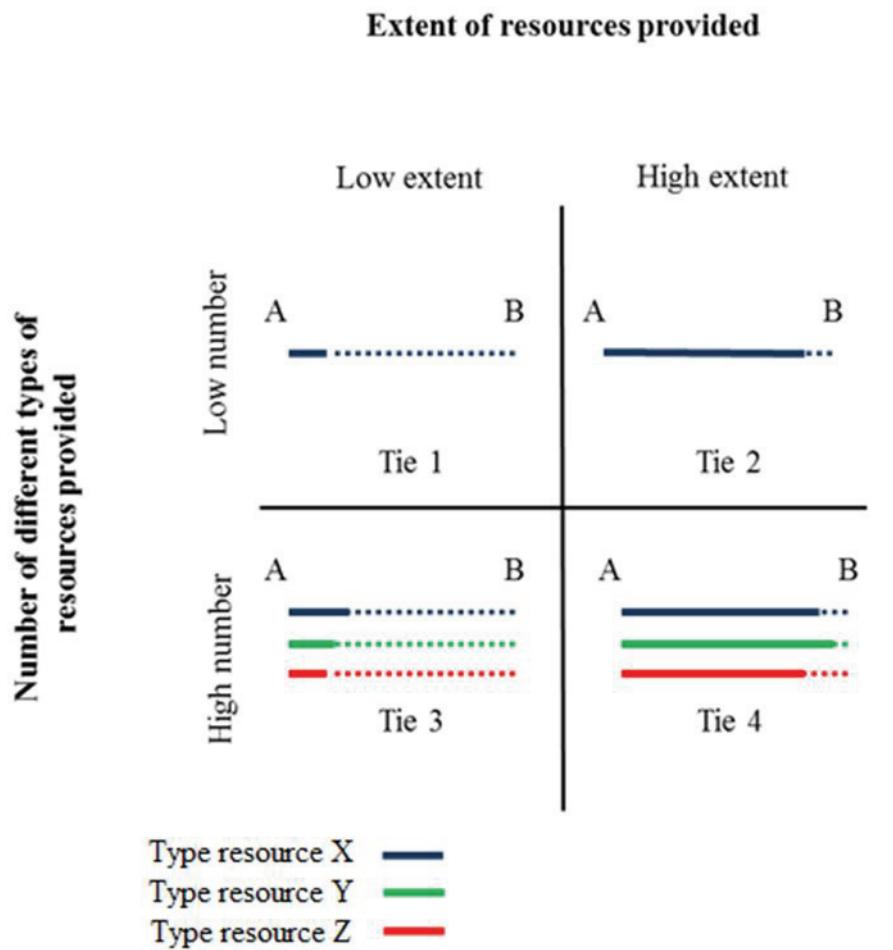
***Dimensions of tie content.*** Tie content can vary along two dimensions i.e., the number of different types of resources a tie provides and the extent to which these resources are provided. Ties that provide only one resource are often referred to as uniplex ties; whereas ties that provide more than one type of resource are known as multiplex ties (Mitchell, 1969). Most studies that apply a social network perspective remain agnostic regarding tie content and the actual resources provided by a specific tie (Shipilov, 2012). Instead these studies usually assume that ties are uniplex and that observed outcomes are contingent on the particular resource of interest. Yet, approximately half of all observed network ties are multiplex, i.e., ties that provide more than one resource (Burt, 1997; Gibbons, 2004; Verbrugge, 1979). As multiplex ties are generally under-researched, our understanding of multiplex ties is very limited (Gulati et al., 2010). Multiplexity is often associated with tie strength, measured by how long managers have known

each other (Kuwabara, Luo & Sheldon, 2010). This is because it is expected that over time actors in a relationship will increase the number of resources they exchange (Ferriani et al., 2013).

The other dimension of tie content is the extent to which a tie provides different resources. While there is lack of studies on the tendency of ties to provide multiple resources simultaneously, recent empirical studies show that a singular resource can be provided to low or high extent depending on the characteristics of the resource (Steinel et al., 2010); the characteristics of the managers that are connected (Reinholt et al., 2011) and/or the characteristics of the normative context in which the tie is nested (Haas & Park, 2010). The two dimensions of tie content are presented in Figure 1. To illustrate: ‘Tie 1’ presented in Figure 1 in the upper left-hand quadrant provides few different types of resources and these resources are provided to a low extent. ‘Tie 2’ in the upper right-hand quadrant provides the same number of resources as ‘Tie 1’, but to a higher extent. Finally, ‘Tie 3’ and ‘Tie 4’ provide many different types of resources. However, ‘Tie 3’ provides them to a lesser extent, whereas ‘Tie 4’ provides them to a higher extent.

***The norms governing resource provision.*** The provision of resources through network ties is a social process governed by implicit norms and rules (Blau, 1977; Emerson, 1976). Extant studies have distinguished between exchange relationships and communal relationships (Clark & Reis, 1988). In an exchange relationship the connected managers are allowed to behave opportunistically and their main motivation for interaction is the promise of gain (Cook & Whitmeyer, 1992). Because actors can follow their own interests, the norms governing exchange relationships should encourage the provision of instrumental resources. Accepting a resource in an exchange relationship creates a debt or obligation (Clark & Reis, 1988).

**FIGURE 1: DIMENSIONS OF TIE CONTENT**



Furthermore, managers that are connected keep track of who owes whom, and it is expected that repayment will take place promptly (Clark, 1984). In satisfactory exchange relationship each actor returns resources of comparable value to resources she or he received. However, not all managers are equally resourceful and those who cannot provide resources of adequate value face the risk of exclusion from the exchange (Croppanzano, 2005). Hence, disadvantaged actors who want to sustain the relationship tend to raise their 'bid' by increasing the amount of resources they provide to the other actor (Molm, 2003). Contrary to exchange relationships, opportunistic behavior is not accepted in communal relationships. In these relationships, the primary motivation for managers to provide resources is concern for the welfare of others (Clark, 1984). Hence, in communal relationships, receiving a resource does not create an obligation and there is no expectation of repayment. The resources are provided in a beneficial act and according to the needs of the connected actors (Clark & Mills, 1979). In communal relationships value is given to frequent reciprocation rather than the instrumental value of the reciprocated resource. In reaction to unsatisfying communal relationship, managers may limit how often or how many resources they provide. The norms governing communal relationships encourage the flow of expressive resources and discourage the flow of instrumental resources (Casciaro, Gino & Kouchaki, 2014; Clark & Mills, 1993; Ibarra, 1992).

Exchange and communal relationships are governed by opposing norms (Clark & Mills, 1993). Therefore, applying the norms of exchange relationships to communal relationship, for instance keeping track of favors or repaying a favor soon after receiving it, leads to deterioration of the relationship (Clark & Mills, 1979; Clark, 1984). Network ties that provide more than one type of resource are complex in that they might require the connected managers to combine the opposing norms of communal and exchange relationships (Casciaro et al., 2014).

## Tie Content and Gender Differences

In this paper we argue that adjustment of the norms that govern the exchange of resources through network ties is an unobserved mechanism that may explain gender differences in tie content. Specifically, the number of resources provided and the extent to which these resources are provided through a network tie. In network ties, the flow of resources can be bilateral (Mitchell, 1969; Scott & Carrington, 2011) and managers can both receive and provide resources simultaneously (Rogan & Mors, 2016). In this paper we limit our focus to resources that managers receive through a network tie. We will refer to the actor that receives resources as ego and to the actor that provides the resources as an alter.

***Male ego and tie content.*** Studies on gender and social capital suggest that men and women differ in their networking behavior (Burt, 1998; Ibarra, 1992). Gender traits are often suggested as explanations for the observed differences. Studies suggest that men have stronger agentic traits and tend to be more achievement oriented in comparison to women (Brands & Kilduff, 2013). Resources that are provided by a network tie represent a reward for the receiving actor and therefore can be perceived as a measure of self-achievement (Emerson, 1976). The expectation of reward is characteristic for exchange relationship and the provision of instrumental resources (Clark & Mills, 1993; Cook & Whitmeyer, 1992). Furthermore, men tend to focus more on the prospect of gain than the risk of loss in their relationships (Brems & Johnson, 1989; D'Zurilla, Maydeu-Olivares & Kant, 1998). It can be therefore expected that men are likely to exploit their existing network ties in order to increase number of resources these ties provide. Because men are motivated by the promise of reward and increased returns from their network ties, we expect them to primarily apply the norms of exchange relationships. Since the norms of exchange relationships encourage provision of multiple types of instrumental resources,

we argue that ties between men are associated with the provision of a higher number of resources. Furthermore, in professional settings women often have less control over valuable resources and we therefore expect that in order to avoid exclusion from a relationship that is governed by the norms of exchange relationships, female alters will correct for providing few types of resources by providing these to a high extent. In formal terms:

*H1a: A tie between a male ego and a male alter provides more different types of resources, than a tie between a male ego and a female alter.*

*H1b: A tie between a male ego and a male alter provides resources to a lower extent, than a tie between a male ego and a female alter.*

**Female ego and tie content.** Studies on gender differences and networking behavior show that women are more prone than men to form network ties that provide them with social support or friendship (van Emmerik, 2006). Flow of social support in a network tie is typical for communal relationships (Clark & Mils, 1993). Because women tend to have a preference for social support we expect them to primarily apply the norms of communal relationships. Communal relationships are governed by different norms than exchange relationships, and in contrast to the norms of exchange; communal norms discourage the flow of instrumental resources. As described above, in communal relationships resources are offered rather than traded and there is no expectation of repayment (Clark & Mills, 1979). Due to the opposing norms governing communal and exchange relationships utilizing the former for instrumental resources can evoke a moral discomfort (Casciaro et al., 2014). Since ties between women are likely to be communal relationships, women therefore might avoid economizing on these ties in order to avoid moral distress. Hence, we suggest:

*H2a: A tie between a female ego and a female alter provides fewer different types of resources, than a tie between a male ego and a male alter.*

Furthermore, because of risk of breakdown of the relationship, we also expect a difference in the extent to which resources are provided through female and male homophilic ties. Network ties besides offering benefits in the form of valuable resources also introduce a liability (Adler & Kwon, 2002). Managers who exchange resources through a network tie need to address potential conflicts of interest and differences in mutual expectations (Bridge & Baxter, 1992; Gouldner, 1960; Kuwabara et al., 2010; Verbrugge, 1979). Hence, ties that are too heavily exploited might eventually cease to exist (Sias, Heath, Perry, Silva & Fix, 2004). The norms governing communal relationship value frequency of provision of the resource more than the value of the provided resource (Clark, 1984). Furthermore, the norms of communal relationships discourage the exchange of instrumental resources. Given the gender differences in norm preferences, we expect women to avoid overloading their homophilic relationships by exchanging fewer resources, but to a higher extent. On the contrary, we expect that men govern their relationships according to norms that encourage the provision of instrumental resources i.e., exchange relationships norms. We therefore argue that men prevent breakdown of their homophilic relationships by exchanging many different types of resources but to a lower extent. Therefore:

*H2b: A tie between a female ego and a female alter provides resources to a higher extent, than a tie between a male ego and a male alter.*

Contacts who are of the same gender share preferences regarding the governing norms they apply to their relationships. For ties between female egos and male alters; we argue that the female ego may have a preference for communal relationship norms, whereas the male alter may prefer exchange relationship norms. When the communal norms that govern female relationships

are combined with the exchange norms introduced by a male alter; there is less constraint on opportunistic behavior. Since female alters are more likely to access instrumental resources from male alters than from female alters, ties between female egos and female alters should provide fewer different types of resources.

*H3a: A tie between a female ego and a female alter provides fewer different types of resources, than a tie between a female ego and a male alter.*

We expect that combining the norms of exchange relationships with the norms of communal relationship also affects the extent to which resources are provided. The provision of resources in homophilic female ties is governed by communal relationship norms that focus more on the frequency of resource provision than on the instrumental value of the resources provided. But introducing exchange norms to the communal relationship shifts the focus from frequency of provision to the instrumental value of the resources. We therefore expect that:

*H3b: A tie between a female ego and a female alter provides resources to a higher extent, than a tie between a female ego and a male alter.*

## METHODS

### **Sample and Data Collection**

To test our hypotheses about the flow of resources through network ties we collected information on egocentric networks via an online survey distributed through the Confederation of Danish Industry (DI). DI unites managers from approximately 10,000 private enterprises operating within the manufacturing, trade and service industries. All members of the confederation of Danish Industry must be employed by companies, which are publicly registered as a company in Denmark. In return for the annual membership fee, DI offers consulting

services, access to their online network, as well as training within HR practices, innovation and outsourcing.

The questionnaire was sent out to 500 senior managers, each employed by a different company. The survey population included CEOs, top management team members, and other C-line managers. All respondents held decision-making responsibility at the time of answering the survey. Studies on senior managers suffer from low response rates (Cycyota & Harrison, 2002); therefore we took a number of steps to optimize the number of responses. First, we piloted the online study with a small group of MBA students and management. This pilot led to a suggestion that our respondents might be more likely to reply if they received the survey in Danish. The survey was therefore distributed in both English and Danish and the respondents could choose what language they preferred. To avoid errors of literal translation, the questionnaire was translated from English to Danish and then back translated from Danish to English. A senior representative of DI, responsible for facilitating professional networking, sent a personalized email to invite affiliated senior managers to participate in the study. The e-mail contained a brief introductory note explaining the purpose of the study and how to navigate the survey, as well as the login and link to the online survey. In order to incentivize participation in the study, respondents were offered a report with the general findings of the study, as well as the opportunity to participate in a networking workshop. Furthermore, to increase the response rate, we sent out a follow up e-mail two weeks after the initial invite.

Of the targeted respondents 25% of started the survey and 15% finished it, leaving us with a total of 75 responses. Almost 70% of these respondents had been employed at the same firm for 10 years or more. The respondents represented the Manufacturing Industry (58%), Wholesale and Retail Trade (21%), Knowledge-Intense Industry (16%) and Electricity Supply (3%). More

than a half of the respondents in our final sample were employed by companies with more than 100 employees. Due to missing data on some variables<sup>3</sup>, the final sample in this paper includes 678 unique network ties belonging to 48 respondents. Of specific interest to our study are the homophilic and heterophilic ties. The final sample includes 34 ties between a female ego and a female alter (i.e., female homophilic ties), 81 ties between a female ego and a male alter (female heterophilic ties), 75 ties between a male ego and a female alter (male heterophilic ties) and 488 ties between a male ego and a male alter (male homophilic ties). Although, in our sample there are significantly fewer ties where at least one of the connected managers is a woman, we argue that this number captures the actual underrepresentation of women in executive positions (Daily, Certo & Dalton, 1999; Hillman, Shropshire & Cannella, 2007; Ibarra, 1993). To ensure robustness of our results, we tested for differences at the ego and the tie level. We found male and female respondents to differ significantly in terms of tenure at the company and current position. There were no significant differences between male and female respondents in terms of firm size, type of industry, education, network size and age.

**Research Instrument.** As there is a lack of well-established methods to gather tie content data (Van Der Gaag & Snijders, 2005), to test our predictions we designed a three-step questionnaire. The first step included a name generating question as is commonly used in social network studies (Marsden, 1990). In many network studies, it is common practice to predefine what flows in network ties and already in the name generating questions limit tie content by focusing on a chosen tie function, e.g. advice for advice networks or social support for friendship networks. Such an approach, although appropriate for studies on structural properties of networks, is a significant limitation for studies on tie content. As the focus of our study is the tie

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<sup>3</sup> We were missing information on the number and the extent to which a tie provides resources in case of 214 ties, and information about the contact's gender in case of 38 ties.

content, we did not specify the resource a specific tie provides and instead asked our respondents to list contacts (alters) they perceived as significant (Chua et al., 2008). The exact wording for external contacts was: '*A network of a manager might include senior managers employed outside her or his own company. In this set of questions we ask you about your external contacts. Please, list up to 15 senior managers in other firms that you feel are a significant part of your professional network. List the first name of the person and the initial of last name*'. For the significant alters who were internal to the respondents' organization, we asked the following question: '*A network of a manager might include other contacts in your company. We have already asked about your external contacts, in this set of questions we ask you about your internal contacts. Please, list up to 15 contacts you have inside your organization that you feel are a significant part of your professional network. List the first name of the person and the initial of last name*'.

The second step of the questionnaire identified the types of resources and the extent to which they were provided by the alters listed as significant. For that purpose we used a name interpreter question. This is a survey item that asks more detailed information regarding the characteristics of the contacts listed in the name generator (Burt, 1997). In the name interpreter question we asked respondents to assign a value between 0 and 5 indicating the extent (where zero is not at all and five is to a high extent) to which each contact provided them with a specific resource. To limit the number of resources, we provided respondents with a list of instrumental and expressive resources. Based on a managerial literature review we selected four types of instrumental resources and one expressive resource; namely professional advice (e.g., Cross et al., 2001; Gargiulo & Benassi, 2000; Klein, Saltz & Mayer, 2004; Sparrowe & Liden, 2001), information about career opportunities (e.g. Burt, 1992; Granovetter, 1973; Lin & Dumin, 1986),

exposure and visibility (e.g. Cotton et al., 2011; Kram & Isabella, 1985; Noe, 1988), new business opportunities (e.g., Mors, 2010) and social support (e.g., Gibbons, 2004; Ingram & Roberts, 2000; Podolny & Baron, 1997; Sosa, 2011). In the final part of the questionnaire we asked respondents about their relationship with each alter they had listed as well as some demographic questions.

## Measures

In this study we measured two qualitative characteristics of network tie content i.e., the number of different types of resources a tie provides and the extent to which these resources are provided.

***The number of different types of resources a tie provides.*** We measured the number of resources by summing all types of resources an ego specified as provided by an alter through a network tie. A resource was provided when a respondent indicated in the name interpreter that a contact provided the specific resource to an extent higher than zero. Since our study is limited to five different types of resources, the variable takes on a value between 1 and 5. We assigned the minimum value of 1 to uniplex ties that provide only one type of resource, regardless of the type of resource. The maximum value of 5 was assigned to multiplex ties providing all listed types of social resources. We used the following formula to compute the number of resources provided by a network tie:

$$\text{Number of different types of resources a tie provides} = \sum_{pa=0}^1 \text{professional advice} + \sum_{ss=0}^1 \text{social support} + \sum_{ev=0}^1 \text{exposure and visibility} + \sum_{co=0}^1 \text{career opportunities} + \sum_{nbo=0}^1 \text{new business opportunities}$$

***The extent to which a tie provides resources.*** We operationalized the second dependent variable as the average extent to which a network tie provides different resources. First, we added the values assigned to each alter in the name interpreter question and calculated the total

extent of resources provided for each tie. The total extent of resources ranged between 1 (for a tie that provided only one type of resource to the extent of 1) and 25 (for a tie that provided 5 types of resources, each to the extent of 5). To calculate the average of resources provided by a tie we divided the total extent to which a network tie provides resources, by the number of resources the tie provides. The formula was as follows:

$$\text{Extent to which a tie provides resources} =$$

$$\frac{\sum_{pa=1}^5 \text{professional advice} + \sum_{ss=1}^5 \text{social support} + \sum_{ev=1}^5 \text{exposure and visibility} + \sum_{co=1}^5 \text{career opportunities} + \sum_{nbo=1}^5 \text{new business opportunities}}{\text{Total number of resources}}$$

**Ego's gender.** We coded ego's gender as a dummy variable with a value of 1 for male egos and 0 for female egos.

**Gender match.** To measure whether an ego and an alter are of the same gender we generated a dummy variable. This variable takes on a value of 1 when the ego and the alter are of the same gender and 0 when the ego and the alter are different genders.

**Control variables.** We included a number of variables to control for ego's and alter's ability, opportunity, and motivation to exchange resources through a network tie (Argote, McEvily & Reagans, 2003). First, we accounted for each respondent's perception of the alters' control over organizational resources. Formal rank in the organizational hierarchy signals managers' control of resources (Connelly, Certo, Ireland & Reutzel, 2010). Managers in higher ranked positions tend control more resources than managers in lower ranked positions (Magee & Galinsky, 2008). Ego estimates resourcefulness of an alter by comparing his/her own organizational rank with an alter's organizational rank (Treviño, Chen & Hambrick, 2009). It is likely that the higher the position of an alter in the organizational hierarchy in comparison to the position of the ego; the more the ego will perceive an alter as resourceful. Women are often subject to stereotypes regarding their access to organizational resources (Ibarra, 1993).

Therefore, in order to exclude that the observed variance in the number and extent of resources provided by a network tie is exclusively driven by differences in the perception of male and female alter's resourcefulness, it is critical to include a measure of ego's perception of alter's access to organizational resources. To measure ego's perception regarding alter's access to organizational resources, we asked the respondents (egos) to compare their own and the contact's rank in the organizational hierarchy and to indicate whether the contact had a lower rank, a similar rank or a higher ranked position. The exact wording for the internal contacts was: '*In comparison to your position, the contact is on a lower level / a similar level/ a higher level?*'. Analogically, the wording for the external contacts was: '*In comparison to your position, within his/her organization the contact is on a lower level / a similar level/ a higher level?*'

To control for ego's opportunity to access resources we included a measure of network size. Network size was operationalized as a count of external and internal contacts a respondent listed (Wasserman & Faust, 1994). The effect of network size on tie content is not straightforward. On one hand, in larger networks a manager can spread his/her demand on resources over larger number of ties. Having access to many resource-providers could allow managers to specialize their ties in providing particular types of resources and discourage emergence of multiplex ties. Also, because of the resource demand divided among larger number of alters, it can be expected that each of them provides resources to a lower extent. On the other hand, a manager who has access to many alternative providers has higher bargaining power in the resource exchange (Markovsky, Willer & Patton, 1988). On such occasions alters might compete to remain in a relationship with the ego by providing higher number of different types of resource or/and by providing these resources to a high extent.

Furthermore, to control for the difference in ego's ability and motivation to access different types of resources we controlled for the respondents' education, tenure in a senior position and tenure in the company in which they worked at the time of the survey. We also included a control measure for ego's age, as executives who are close to retirement might be less inclined to access resources through their network ties (Hambrick & Cannella, 1993). At the tie level we included control variables for whether ties were external or internal to ego's organization. Crossing organizational boundary has been shown to facilitate or harm provision of different types of resources (Menon & Pfeffer, 2003; Santos & Eisenhardt, 2005). In order to avoid potential dependency on others, a reputational threat or because of status differences executives might show preferences towards ties and alters who are external to their organization (Bonaccio & Dalal, 2006; Lee & Tiedens, 2001; Schwenk, 1988). Also, as strong ties are more likely to be multiplex (Kuwabara et al., 2010), we controlled for the tie strength. Tie strength can be measured by the duration of the relationship, the frequency of interaction and the emotional closeness between the ego and an alter (Marsden & Campbell, 1984). We here asked respondents to indicate on a 4-point Likert scale how long they knew, how frequently they interacted and how close emotionally they were with the contacts they listed. Next, we calculated an average score based on these three measures. The higher the score, the stronger is the tie. Finally, to mitigate the problem of endogeneity; we included a measure of each respondent's firm performance (ROA) and the type of industry in which the firm operated.

## **Analysis**

Network ties are nested within ego networks. Hence, the hierarchical structure of network data advocates the use of multilevel models (Van Duijn, Van Busschbach & Snijders, 1999). To test the hypothesized effects of the number of resources a network tie provides and to account for

variance that occurs at the tie level and account for individual differences among respondents we therefore use a multilevel mixed-effects linear regression. To test the hypothesized effects of the extent of resources provided a tie provides and to account for variance at the tie and ego level we run a random-effects Tobit model, which is common for censored continuous dependent variables (Vermunt & Kalmijn, 2006). All models were run in STATA 14.

## RESULTS

Table 1 reports the summary statistics. Surprisingly there is no significant correlation between the number of different types of resources a tie provides and the extent to which the tie provides these resources. This may imply that a high number of different types of resources may not need to be provided at the expense of the extent to which these resources are provided by a specific network tie.

In order to test hypotheses H1a, H2a and H3a regarding the number of resources provided by a tie, we run a mixed-effects logistic model. The results of this analysis are shown in Table 2, model 1 in the column ‘Number of resources provided’. For the hypotheses regarding the extent to which a tie provides the resources, H1b, H2b and H3b, we run a random-effects Tobit model. The results of this analysis are shown in Table 2, model 2 in the column ‘Extent of resources provided.

***Male ego and tie content.*** The results shown in Table 2, model 1 reveal that hypothesis H1a is not supported. Although we find that the association between male homophilic ties (male ego and male alter) and the number of resources provided by the ties to be positive as expected, the effect is not significant. We find support for hypothesis H1b as shown in model 2. We here see that male homophilic ties provide resources to a lower extend, with a 0.506 difference in predicted value in comparison to male heterophilic ties (male ego and female alter).’

**Female ego and tie content.** Further the results shown in Table 2, model 1 show support for hypothesis H2a. We find female homophilic ties (female ego and female alter) provide a lower number of resources than male homophilic ties (male ego and male alter). Specifically, there is a 0.614 significant difference in predicted value of the number of resources provided by female homophilic ties in comparison with male homophilic ties. We also find support for H2b. The results show that female homophilic ties provide resources to a higher extent with a difference of 0.664 in predicted value in comparison with male homophilic ties. These results imply that as predicted, in case of homophilic ties, women get access to resources to a greater extent resources but to a fewer number of different resources. In contrast, male homophilic ties favor the number of resources provided over the extent of resources. The results shown in model 1 also show support for H3a. Female homophilic ties (female ego and female alter) provide a lower number of resources than female heterophilic ties (female age and male alter), with a significant difference of 0.497. Further comparison between female homophilic and heterophilic ties show support for H3b and show that female homophilic ties provide resources to a 0.320 higher extent than female heterophilic ties.

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATION MATRIX <sup>a,b</sup>

| Variables                       | Mean  | S.D.  | 1    | 2    | 3    | 4    | 5     | 6    | 7   | 8    | 9    |
|---------------------------------|-------|-------|------|------|------|------|-------|------|-----|------|------|
| 1. Number of resources provided | 3.78  | 1.38  |      |      |      |      |       |      |     |      |      |
| 2. Extent of resources provided | 3     | .85   | -.07 |      |      |      |       |      |     |      |      |
| 3. Ego gender                   | .85   | .36   | -.03 | 0    |      |      |       |      |     |      |      |
| 4. Gender homophily             | .74   | .42   | -.03 | -.01 | .51* |      |       |      |     |      |      |
| 5. External tie dummy           | .47   | .5    | -.08 | -.05 | .05  | .12  |       |      |     |      |      |
| 6. Tie strength                 | .08   | .74   | .12* | .31* | .00  | .00  | -.31* |      |     |      |      |
| 7. Network size                 | 14.41 | 6.53  | .18* | .01  | -.14 | -.07 | .13*  | -.04 |     |      |      |
| 8. Tenure at senior position    | 18.04 | 8.03  | -.03 | .02  | .36  | .19* | .09   | .10  | .29 |      |      |
| 9. Tenure at company            | 10.81 | 9.21  | .11  | -.10 | -.08 | .01  | -.04  | .13* | .01 | 1.00 |      |
| 10. ROA                         | 5.24  | 14.41 | -.11 | -.03 | .01  | -.07 | -.04  | .00  | .02 | -.08 | -.20 |

<sup>a</sup> N= 678 for Tie-level variables, N=48 for Ego-level variables;

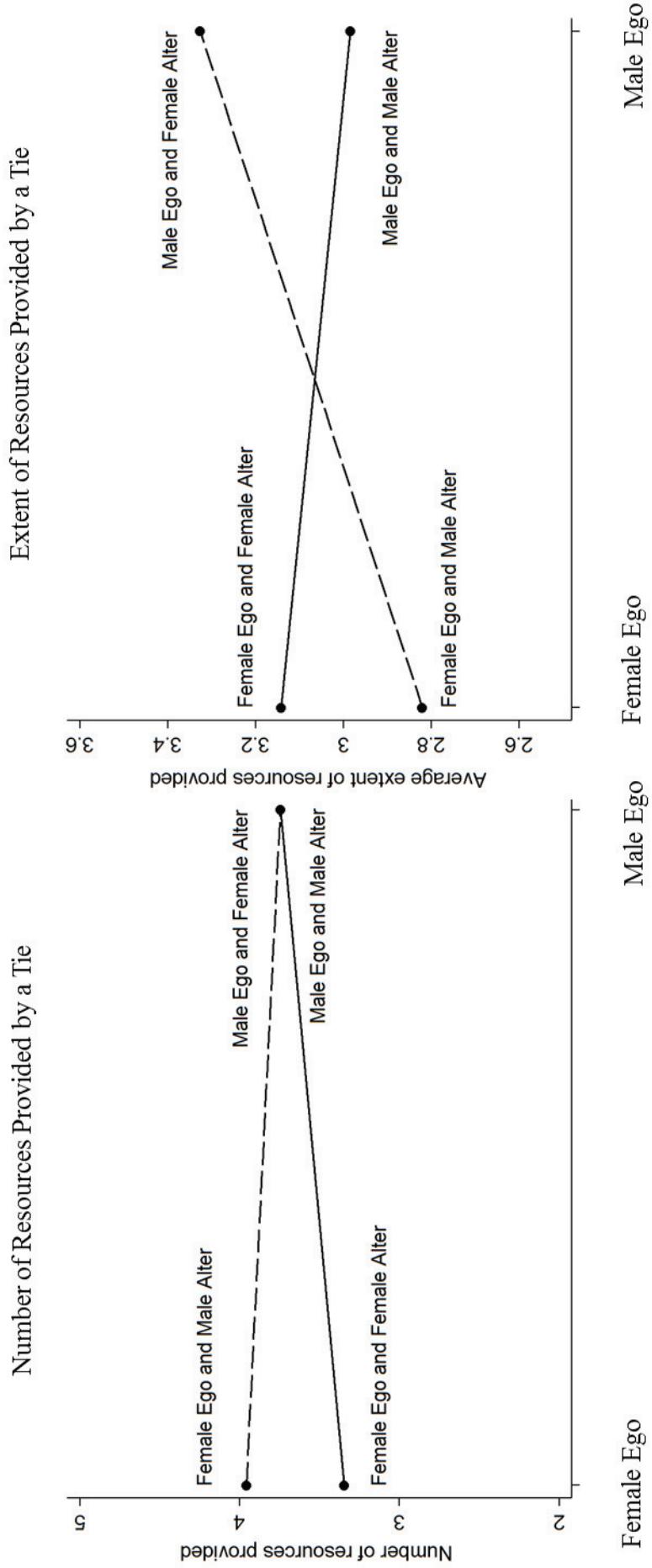
<sup>b</sup>Ego-level variables: Ego gender, Network size, Tenure at senior position, Tenure at company, ROA

**TABLE 2: RESULTS OF REGRESSION ANALYSES FOR NUMBER AND EXTENT OF RESOURCES PROVIDED BY A NETWORK TIE**

|   | <b>Number of resources provided</b> | <b>Extent to which resources are provided</b> |
|---|-------------------------------------|---|
| Tie between male ego and female alter vs. tie between male ego and male alter     | -0.213<br>(-0.37)                   | 0.506*<br>(2.14)                              |
| Tie between male ego and male alter vs. tie between female ego and female alter   | 0.614**<br>(3.05)                   | -0.664***<br>(-3.45)                          |
| Tie between female ego and female alter vs. tie between female ego and male alter | -0.497**<br>(-2.99)                 | 0.320*<br>(2.01)                              |
| Alter's relative rank   |                                     |   |
| Same ranked alter   | -0.333***<br>(-3.86)                | -0.225**<br>(-2.75)                           |
| Lower ranked alter  | -0.560***<br>(-5.71)                | -0.348***<br>(-3.73)                          |
| External tie dummy  | -0.364***<br>(-4.83)                | 0.0547<br>(0.77)                              |
| Tie strength  | 0.152**<br>(3.25)                   | 0.365***<br>(8.18)                            |
| Network size  | 0.0360<br>(1.21)                    | 0.00531<br>(0.47)                             |
| Tenure at senior position   | -0.0276<br>(-0.91)                  | -0.00746<br>(-0.63)                           |
| Tenure at company   | 0.0122<br>(0.66)                    | -0.0236***<br>(-3.42)                         |
| ROA   | -0.0110<br>(-0.92)                  | -0.000722<br>(-0.17)                          |
| Firm Size, Industry, respondent education and age; controls included              |                                     |   |
| Constant  | 5.847*<br>(2.43)                    | 3.658***<br>(3.88)                            |
| Observations  | 678                                 | 678   |

Standardized regression coefficients are presented, *t* statistics in parentheses <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

FIGURE 2: THE EFFECT OF GENDER DIFFERENCES ON TIE CONTENT



We conducted additional analyses to test whether female managers have a lower preference for acquiring instrumental resources than male managers. Because of the stereotypical presumption about women having less access to resources than men, both women and men prefer male contacts in instrumental ties (Ibarra, 1997). To restrict the effect of alter's gender on the number of instrumental resources provided by a tie, we compared female heterophilic ties (female ego and male alter) and male homophilic ties (male ego and male alter). If the assumption that women are less likely (or skilled) to acquire instrumental resources is true, there should be a significant difference in the number of resources male alters provide to male and female egos. Yet, we find no such difference. These results imply that when professionals network with male managers, there is no significant difference in the number of resources provided by a tie regardless of ego's gender.

We also tested the underlying assumption that women have a tendency to provide resources to a higher extent than men (Brands & Kilduff, 2013). This time, as we were interested in female managerial behavior as resource providers, we restricted the comparison to female homophilic ties (female ego and female alter) and male heterophilic ties (male ego and female alter). We found that female contacts provide resources to higher extent than male contacts regardless of ego's gender. The combined results of our analyses for the effect of gender on tie content, i.e. number of resources provided by a tie and the extent to which resources are provided show that there is less difference in how male and female managers receive resources, but interestingly there is a significant difference in how men and women provide resources through their professional networks.

Regarding the control variables we found that alter's perceived access to organizational resources had a significant effect on both the number and the extent of resources provided by a

tie. As expected the more a manager perceives a contact to have access to of resources, the higher the number of resources that particular tie provides and to a higher extent. Importantly the effect of gender on the dimensions of tie content remained significant even after we controlled for alters' perceived resourcefulness. We found a significant and negative effect of external ties on the number of resources provided by the tie, yet the extent to which the tie provides these resources was not significant. Tie strength had a positive and significant effect on both dependent variables. Surprisingly, we found the effect of network size on the number and extent of resources provided by a tie to be insignificant. Also, the tenure in a senior position and tenure at the company at which a manager worked had no significant effect on the dependent variables.

To exclude potential alternative explanations we deconstructed our measure of tie strength into three separate variables: duration of a tie, emotional closeness between ego and the alter and frequency of interaction. We found a positive and significant effect only for emotional closeness on the number and extent of the resources provided. The effects of duration and frequency were insignificant. Even after including all measures of tie strength our hypothesized associations for H1b, H2a, H2b and H3a remained robust. The results for H3b, while still positive, were insignificant. Furthermore, we also tested robustness of our results by including a measure of similarity between ego and alter; Blau's index (Blau, 1977). For external ties the index was calculated based on three categories: gender, employment in the same industry and position within the organizational hierarchy (same vs. other). For internal contacts the measure was calculated based on four categories: gender, function (e.g. sales, marketing), geographical location and position within the organizational hierarchy. We standardized the index for internal contacts with the index for external contacts. The results of the analysis showed an insignificant effect of Blau's index on the number of resources provided by a tie, but surprisingly there was a

negative effect on the extent to which a tie provides these resources. Also, after including a measure of similarity between ego and alter, our hypothesized associations for H1b, H2a, H2b and H3a remained robust. Again, the results for H3b while positive were not significant.

We also ran additional models to test the effects of gender differences on the provision of the selected resources i.e., professional advice, social support, exposure and visibility, career opportunities and new business opportunities. These are reported in Table 3. We found a significant relationship between gender and the provision of social support for female homophilic ties. This empirical result is consistent with prior work (Ibarra, 1993) and also supports our theoretical argument that women are more likely than men to build communal relationship with alters of the same gender. We found a significant and positive effect of alter's perceived control over resources on the provision of professional advice, exposure and visibility and career opportunities. New business opportunities are the only resources that are affected by both gender homophily and alter's perceived control of resources. Our results show that male homophilic ties provide new business opportunities to a higher extent than female homophilic ties. Similarly female heterophilic ties provide new business opportunities to a lesser extent than female homophilic ties. Not surprisingly alters who are perceived to have more control of resources are associated with providing new business opportunities to a higher extent. The dependent variables in Table 2, models 1 and 2 capture the potential multiplexity of a tie i.e., provision of more than one resource at the same time (Wasserman & Faust, 1994). In the models presented in Table 3, we ignore potential multiplexity and build on the common assumption in network studies that ties provide only the resource of interest. The significant results in Table 2 and the contrasting insignificant results in the models presented in Table 3 suggest the importance of taking a more holistic approach to studying network ties.

**TABLE 3: THE EFFECT OF GENDER DIFFERENCES ON UNIPLEX TIES**

|   | Professional advice   | Social support      | Exposure & visibility | Career opportunities | New business opportunities |
|---|-----------------------|---------------------|-----------------------|----------------------|----------------------------|
| Tie between male ego and female alter vs. tie between male ego and male alter     | -0.293<br>(-0.54)     | 0.925<br>(1.40)     | 1.438+<br>(1.66)      | 0.443<br>(0.42)      | -0.602<br>(-0.95)          |
| Tie between female ego and female alter vs. tie between female ego and male alter | -0.607<br>(-1.44)     | -1.140**<br>(-2.64) | 0.221<br>(0.46)       | 0.229<br>(0.37)      | 1.448*<br>(2.54)           |
| Tie between female ego and female alter vs. tie between female ego and male alter | 0.299<br>(0.86)       | 0.707*<br>(1.97)    | -0.525<br>(-1.31)     | -0.316<br>(-0.63)    | -1.217*<br>(-2.51)         |
| Alter's relative rank   |                       |                     |                       |                      |                            |
| Same ranked alter   | -0.424*<br>(-2.36)    | 0.231<br>(1.26)     | -0.880***<br>(-4.41)  | -1.617***<br>(-6.24) | -0.513*<br>(-2.19)         |
| Lower ranked alter  | -0.714***<br>(-3.49)  | 0.106<br>(0.50)     | -1.467***<br>(-6.30)  | -2.394***<br>(-7.89) | -1.007***<br>(-3.74)       |
| External tie dummy  | -0.544***<br>(-3.48)  | 0.784***<br>(4.87)  | -0.648***<br>(-3.60)  | 0.685**<br>(2.89)    | -0.867***<br>(-4.23)       |
| Tie strength  | 0.504***<br>(5.13)    | 1.370***<br>(13.18) | 0.121<br>(1.09)       | 0.133<br>(0.90)      | 0.250*<br>(1.97)           |
| Network Size  | 0.00235<br>(0.09)     | 0.0649*<br>(1.97)   | 0.0995*<br>(2.27)     | 0.156**<br>(2.85)    | -0.0241<br>(-0.81)         |
| Tenure at senior position   | 0.0689*<br>(2.53)     | -0.0858*<br>(-2.51) | -0.0883*<br>(-1.97)   | -0.0945+<br>(-1.73)  | 0.0377<br>(1.20)           |
| Tenure at company   | -0.0681***<br>(-4.23) | 0.0238<br>(1.17)    | 0.0210<br>(0.77)      | 0.0257<br>(0.77)     | -0.0554**<br>(-3.05)       |
| ROA   | -0.0148<br>(-1.46)    | 0.00338<br>(0.26)   | -0.00440<br>(-0.26)   | 0.00605<br>(0.29)    | -0.0235*<br>(-2.07)        |
| Firm Size, Industry, respondent education and age; controls included              |                       |                     |                       |                      |                            |
| Observations  | 678                   | 678                 | 678                   | 678                  | 678                        |

Standardized regression coefficients are presented, t statistics in parentheses <sup>+</sup>  $p < 0.1$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$

## DISCUSSION AND CONCLUDING COMMENTS

The analysis of structure has gained significant attention from management scholars (Adler & Kwon, 2002) and many studies indicate that network content might also have implications for performance outcomes (Ahuja, Soda & Zaheer, 2012; Aldrich & Herker, 1977; Burt, 1997, 2000; Cotton et al., 2011; Podolny & Baron, 1997; Rodan & Galunic, 2004). Yet despite acknowledging the importance of social capital; little is known about the actual resources that flow through network ties as well as the underlying mechanisms that determine whether they flow. One of the reasons why we know so little about tie content is because most social network studies focuses on the opportunity to access resources rather than on the actual resources accessed (Shipilov, 2012). In this paper we have aimed to advance the understanding of professional networks by moving beyond the structural opportunity. In doing so, we have answered a long standing call for studies on tie content (Gulati et al., 2010) and have addressed the question of how gender affects the number of different resources provided by a tie and the extent to which the tie provides these resources. We theorize that because male and female managers apply different norms to govern the provision of resources through their network ties, gender has an important effect on both dimensions of tie content.

With this study we contribute to studies on tie content and multiplexity. The analysis presented here shows that taking a more holistic approach to studying network ties reveals important information on professional ties that otherwise remain unobserved. We find that the combination of ego's and alter's gender has important implications for both the number of different resources a tie provides and the extent to which a tie provides these resources. In line with work on gender differences and social networks, our results confirm that men and women differ in their networking behavior (Ibarra, 1993). We show that in case of homophilic ties

between female managers, a low number of resources is leveraged by the high extent to which they are provided. In homophilic ties between male senior executives, the upside of the high number of resources provided is counterbalanced with the low extent to which they are provided. Our results suggest that though gender strategies differ, both represent benefits and therefore it is not straightforward which strategy is superior. This leads to the question of: What is the optimal networking strategy? Future research is needed to clarify whether organizations and individuals should strive for a one-fits-all networking strategy, or rather embrace the uniqueness of individual strengths. Furthermore, we believe that the effect of the different norms that men and women apply to govern resource provision through network ties might be of interest to researchers studying network dynamics (Ahuja et al., 2012). The female preference towards intensive provision of fewer resources, and the male preference towards provision of many resources, but to a lower extent might serve as a potential explanation for why we observe more strong ties and cohesive structures in women's networks and more weak ties and sparse structures in men's networks (Brass, 1985; Reagans & McEvily, 2003).

With this study, we also contribute to a general discussion on gender equality. Most studies on the structural characteristics of networks, find women to be disadvantaged in their opportunity to access social resources (Brands & Kilduff, 2013; Burt, 1998; Ibarra, 1993). Our results question whether this is true for the actual resources accessed. First, the female strategy has the advantage of the high extent to which resources are provided. Moreover, when we disentangle the role of resource provider and resource receiver we found that female managers tend to be less instrumental only when dealing with other women, but remain as instrumental as men in their interactions with male managers.

The ties we study are embedded in the professional networks of senior managers. The few respondents on the ego level could be a potential limitation of our study. However, our focus is at the tie level. A similar analytical approach can be found in well-established studies on international subsidiaries. In such studies, the authors focus on the multiple relations between subunits that are embedded within a few MNCs (see for example Bresman, Birkinshaw & Nobel, 1999; Gupta & Govindarajan, 1994). To address the hierarchical nature of network data, we run multilevel models that allow us to account for variance at the tie and ego level. The generalizability of our findings could be also limited by the national context of our study. Danish culture is characterized by low power distance (Hofstede, 1980), which could potentially affect how the surveyed senior managers perceive the power of the contacts in their networks. Furthermore, in Hofstede's study (1980) Danes score low on masculinity, meaning they favor equality and diversity, which potentially could weaken the effect of gender homophily. Yet, if this were the case our results can be considered a conservative test.

Although we acknowledge that network ties tend to provide more than one type of the resource, a potential weakness of our study is the number and types of resources included in the survey. It is an empirical question whether including different types of resources would affect the results of our study, particularly in terms of the number of resources an individual tie might provide. Though not severe, we recognize that particularism of social resources (Foa, 1971) could be a potential limitation of our study. Each manager's perception of resource value depends on the contact that provides the resource e.g., social support has higher value if it comes from a close friend than from an acquaintance (Foa & Foa, 1980). To aggregate tie content at the network level, one needs to make the assumption that all contacts provide resource of the same value. As our study is at the tie level, the focus is on each respondent's choice about which

resources to access from each contact, i.e., the choice is not between contacts. Therefore, in our study; each respondent's perception of the value that each contact in their network provides is fixed for every contact.

In this study we focus on two qualitative dimensions of network tie content i.e., the number of different resources provided and the extent to which these resources are provided. This is an important initial step towards a better understanding of what flows in network ties. Tie content is contingent on senior managers' needs for resource access. These needs however, are not always compatible. For instance, senior managers who are in charge of underperforming organizations can be conflicted whether to use their network ties to access advice that could improve the performance of organization or to access information about new career opportunities. Further research is needed on senior managers' choice regarding the type of resources they access through their social ties, as well as the individual and organizational consequences of such choices. Regardless, our study is a first step towards a deeper understanding of what flows in network ties and may therefore generate insight for senior management in how male and female senior executives differ in their networking strategies.

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**CHAPTER 3. DOES THE CAPTAIN ABANDON A SINKING SHIP? THE  
RELATIONSHIP AMONG FIRM UNDERPERFORMANCE AND CORPORATE ELITE  
IDENTIFICATION ON SENIOR MANAGERS' NETWORK TIE USE<sup>4</sup>**

**ABSTRACT**

In this paper we address the question of how senior managers use their network ties in the context of company underperformance. We contribute to answering this question via our study of a sample of Danish senior managers in which we investigate the economic and sociological conditions surrounding senior managers' use of their network ties. Our results show that the greater the underperformance, the more likely it is that senior managers will use their network ties to access resources that primarily benefit the individual rather than the organization. In addition, we demonstrate that this result is moderated by senior managers' social identity as members of the corporate elite, so that a strong identification to this social group actually plays out in the firm's favor.

**Keywords:** *network ties, tie content, multiplex ties, social identity, senior managers, firm performance*

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<sup>4</sup> This chapter is co-authored with Villesèche, F

## INTRODUCTION

What do senior managers use their network ties for when their companies underperform?

Ties in professional networks provide managers with access to a variety of resources (Tichy, Tushman & Fombrun, 1979). From a firm's perspective, it is expected that senior managers will activate their network ties to benefit the organization (Adler & Kwon, 2002), especially in a situation of underperformance. Managers can, for example, use their network ties to access information regarding new sources of growth (Anderson, 2008), innovation (Powell, Koput & Smith-Doerr, 1996), acquisition options (Iyer & Miller, 2008) or possible alliances and joint ventures (Beckman, Schoonhoven, Rottner & Kim, 2014). Importantly, ties between senior managers are also a key source of professional advice (Hambrick, 1981; Westphal, Boivie & Chng, 2006), which, in the face of organizational decline, can help to upturn company performance (McDonald & Westphal, 2003).

These same network ties that provide senior managers with access to firm-valuable resources can also give them access to resources that exclusively benefit the senior managers as individuals (Sorenson & Rogan, 2014), however. For example, studies on professional networks show how executives use their social connections to block strategic changes that threaten their favorable position (Davis, 1991) or to maintain a high level of remuneration (Hwang & Kim, 2009; Wade, Reilly & Chandratat, 1990). Moreover, in a situation of company underperformance, managers have an interest in using their network ties to scout for career opportunities, i.e., information regarding alternative options of employment (Cannella, Fraser & Lee, 1995; Semadeni, Cannella, Fraser & Lee, 2008). Indeed, senior managers are often dismissed in such a context as they are held personally responsible for company failure (Hambrick & D'Aveni, 1988; Wiesenfeld, Wurthmann & Hambrick, 2008).

This suggests that, in the event of underperformance, managers can use their professional network ties to access resources that benefit them and their organizations, or that benefit them as individuals exclusively (Leana & Van Buren, 1999; Sorenson & Rogan, 2014), or both (Galaskiewicz & Marsden, 1978). Yet mechanisms underlying senior managers' choices regarding the types of resource they acquire, i.e., tie content, remain largely unexplored (Gulati, Kilduff, Li, Shipilov & Tsai, 2010). In this article, we start by investigating how firm underperformance alters senior managers' use of ties.

We further suggest that since a senior manager's ties are likely to be to other managers who can be employed by the same or another commercial organization (Carroll & Teo, 1996; Westphal et al., 2006), how senior managers relate to these professional contacts will moderate the use of network ties in the context of firm underperformance. Indeed, managers as professionals form a social group with a distinct social identity (Hogg & Terry, 2000). The upper echelons of the firm, or corporate elite, constitute the inner circle of the managerial social group (Karabel & Useem, 1986; McDonald & Westphal, 2010; Ward & Feldman, 2008). Individuals who highly value the managerial in-group recognition, i.e., who have strong social identification with the corporate elite, are likely to comply with group norms and, conversely, avoid behavior that the group disapproves of (Ashforth & Mael, 1989). This suggests that the use of network ties for individual or organizational benefits may not only be guided by external triggers such as firm performance, but also be influenced by the extent to which an individual identifies with the corporate elite (D'Aveni & Kesner, 1993). In this article we thus look into a moderating effect of senior managers' identification with the corporate elite on the use of network ties in the context of firm underperformance.

With this study, we contribute to theory and research on inter-organizational relations (Oliver & Ebers, 1998), and more particularly to the managerial literature taking interest in the strategic value of managerial networks for firms (Carpenter & Westphal, 2001; Geletkanycz, Boyd & Finkelstein, 2001; Geletkanycz & Hambrick, 1997; Hambrick, 1981; McDonald & Westphal, 2003; Westphal et al., 2006). We show that the value of senior managers' networks for the company is contingent on firm performance; specifically, we show that the more a firm underperforms, the more senior manager's network ties will primarily benefit the individual rather than the organization. We also add to the literature on social identity in the workplace by looking beyond organizational identification as the only desirable social identity process that can benefit companies (Korschun, 2015). We show that the relationship between firm underperformance and use of network ties is moderated by senior managers' identification with the corporate elite, so that a stronger identification actually plays out in favor of the firm in the context of underperformance. Furthermore, individual and firm benefits tend to be addressed in distinct streams of the network-related literatures and are largely considered to be flowing from distinct ties. This means that few contributions to date examine how two types of resource can flow from the same tie, i.e., the potential multiplexity of ties (Gulati et al., 2010). An ancillary contribution of our study is thus to examine this multiplexity by looking at the relative extent to which senior managers' ties are used to access resources that benefit solely the individual and/or that also benefit the organization.

## **THEORY DEVELOPMENT AND HYPOTHESES**

### **Use of Network Ties**

Hereinafter we refer to informal network ties that are used primarily to access resources that benefit managers exclusively as individual-centric ties, and also to informal network ties that

are used primarily to access resources that benefit both the manager and his/her organization as organization-centric ties.

Regarding organization-centric ties, in this study we focus our attention on a specific resource: professional advice. Professional advice provided by informal ties in professional networks represents one of the most valuable types of information (Hambrick, 1981). It is tacit knowledge provided by highly skilled individuals that can be applied to solving complex and non-routine strategic problems (Szulanski, 1996). Studies on managers' access to business-relevant information show that accessing professional advice through network ties and applying it to organizational processes has a positive effect on creativity (Perry-Smith & Shalley, 2003), innovation (Levina & Vaast, 2005; Perrone, Zaheer & McEvily, 2012), strategy formulation (Mason & Hambrick, 1984; McDonald & Westphal, 2003), and firm performance in general (Geletkanycz et al., 2001; Ingram & Roberts, 2000). Besides benefiting senior managers' organizations, accessing professional advice and applying it have a positive impact on senior managers' individual careers (Burt, 1997; Sparrowe & Liden, 2001).

Regarding the individual-centric ties, we narrow our attention to informal network ties that are primarily used by senior managers to access information regarding career opportunities (Cheramie, Sturman & Walsh, 2007; Seibert, Kraimer & Liden, 2001). This could potentially signal organizational crisis to the firm's external environment and thus clearly does not benefit their organizations (Sutton & Callahan, 1987). Indeed, studies on organizational failure show that when partnering companies become aware of an organizational crisis they are likely to limit a failing company's access to their resources or even to withdraw from the cooperation (Audia & Greve, 2006; Hambrick & D'Aveni, 1988, 1992). Uninterrupted access to these resources is critical for companies experiencing a decline in performance (Audia & Greve, 2006). While

there is insufficient evidence from empirical studies to go as far as claiming that, when their company underperforms, senior managers who seek out alternative career opportunity information harm their organizations, we can here argue that this particular type of resource benefits individual senior managers but does not benefit their organizations.

### **Firm Underperformance and Use of Network Ties**

An individual-centric use or organization-centric use of a tie corresponds to a senior manager's demand for particular types of resource (White, 1992). Studies on social exchange show that this demand is contingent on challenges and uncertainties senior managers need to address in their professional lives (Mitchell, 1969). We theorize that firm underperformance is an externality that alters the use of senior managers' informal network ties from accessing professional advice to accessing career opportunities - a shift in tie function from primarily organization-centric to primary individual-centric. We acknowledge that informal network ties can provide multiple types of resources and therefore have multiple functions (Ferriani, Fonti & Corrado, 2013). However, as we remain agnostic whether provision professional advice is jeopardized by provision of career opportunities, we argue that in case of ties providing both types of resources the primary function of a tie is defined by the dominant type of resource a network tie provides.

***Demand for professional advice.*** Literature on firm performance identifies numerous external and internal factors that can explain organizational failures. Regardless of the actual cause, poor firm performance constitutes a strategic challenge that is expected to be addressed by firm's senior management (Beck & Wiersema, 2013; Mason & Hambrick, 1984). Because remedying firm performance is a non-routine task, expert knowledge and previous experience in tackling problems of a similar nature is critical for generating a reasonable pool of solutions

(Eisenhardt & Zbaracki, 1992; Rajagopalan, Rasheed & Datta, 1993). Trusted contacts in professional networks with such knowledge can provide senior managers with professional advice and by that aid them in the problem-solving process. Rational decision makers (Dean & Sharfman, 1993) would thus be expected to use their network in order to access such professional advice.

However, senior managers, just like other organizational participants, are bounded by cognitive biases (Schwenk, 1988; Simon, 1979) and therefore their choice to use their network ties for organization-centric vs. individual-centric benefits is not straightforward. Rather, senior managers will access professional advice through their network ties only if they are motivated to do so (Anderson, 2008; Cross & Sproull, 2004). A sense of responsibility for firm underperformance could serve for motivation to access professional advice (Reinholt, Pedersen & Foss, 2011). However, because of the attribution bias senior managers might lack the motivation to access professional advice through their informal network ties.

All employees experience firm underperformance as a fear-arousing and stressful event (Sutton & Callahan, 1987). The magnitude of this negative event, however, is much greater for senior managers who shoulder responsibility for their firms' condition: firm underperformance embodies personal failure and therefore introduces a direct threat to their feeling of self-worth (Taylor, 1991). In order to protect their self-esteem, senior managers avoid attributing firm failure to their own actions (Clapham & Schwenk, 1991) and instead attribute it to a turbulent environment and unforeseeable events (D'Aveni & MacMillan, 1990). Furthermore, senior managers neglect information that could imply their responsibility and avoid professional advice that could challenge their positively biased self-perception (Yaniv & Kleinberger, 2000). This

suggests that in a context of firm underperformance, senior managers will lower their demand for professional advice.

**Demand for career opportunities.** In instances of firm underperformance, senior managers not only experience cognitive biases, but are also exposed to fear of job loss. This fear is quite justified, as the more a company underperforms the more likely it is that senior managers will lose their jobs (Daily & Johnson, 1997; Gilson, 1989; Sutton & Callahan, 1987). Underperformance can have dire consequences on both employment (risk of losing one's position) and future employability (Daily & Johnson, 1997; Fama, 1980), and senior managers leaving in a context of corporate crisis are stigmatized in the labor market for executives and board members (Ward & Feldman, 2008). Network ties to other senior managers serve as an important source of information regarding employment opportunities (Seibert et al., 2001; Semadeni et al., 2008). We thus expect that in underperforming companies, senior managers are highly motivated to search for or monitor their exit options. It follows that senior managers will have a higher demand for career opportunities.

Overall, this section about the relationship between resource demand and firm underperformance suggests that senior managers have a lower demand for professional advice and a higher demand for information about career opportunities. Accordingly, we formulate the following hypothesis:

*Hypothesis 1: The more a senior manager's company underperforms, the more his/her network tie is used for individual-centric rather than organization-centric benefits.*

### **Corporate Elite Identity, Firm Underperformance and Use of Network Ties**

A senior manager's network is heavily populated with ties to other managers (Carroll & Teo, 1996; Westphal et al., 2006). This means that peers both inside and outside their senior

managers' firm constitute a group of people they are regularly interacting with and exchanging resources, and with whom they are thus likely to be sharing a social identity. Indeed, individuals identify with social categories to enhance self-esteem (Tajfel, 1978), and such self-categorization occurs depending on categories available in one's environment, i.e. categories characterized by chronic and situational accessibility (Hogg & Terry, 2000). More specifically, a social group senior managers are thus likely to identify with is the corporate elite (Karabel & Useem, 1986; McDonald & Westphal, 2010; Ward & Feldman, 2008). The corporate elite is a homogeneous social group comprising the highest-ranking staff of major corporations; a group that is deemed to have supplanted nobility and upper-class circles in terms of power and status (Karabel & Useem, 1986; Useem, 1982). Members of the corporate elite signal their importance to others both within and outside the firm, and becoming part of this elite is considered a source of power (Daily & Johnson, 1997). As a small and closely knit group of people (Mills, 1956), the corporate power elite corresponds to what network theory refers to as a "cohesive group" (Mizruchi, 1993; Reagans & McEvily, 2003).

Social groups, such as the corporate elite, are governed by norms that will influence the behavior of their members (Hogg, Hinkle, Otten & Abrams, 2004) and those who aspire to emulate the related prototypical behavior (Serino, 1998). Accordingly, we hereafter extend our theoretical framework with the argument that how strongly a senior manager identifies with the corporate elite moderates how he or she uses network ties to managerial contacts in the context of firm underperformance.

### **The Corporate Elite Social Identity: Norms, Prototypes, and Consequences**

Social groups are governed by norms (Hogg, Hinkle, Otten & Abrams, 2004). The norms governing this social group develop through interactions; for example, in the corporate elite, this

can happen through common board membership or top management meetings within and across firms. Indeed, such events provide corporate leaders with an opportunity to identify shared interests and develop a group identity (Davis & Thompson, 1994; Palmer & Barber, 2001; Useem, 1982; Westphal & Khanna, 2003). Relatedly, in a social group, members share a prototype of what the group features are. A prototype is “a subjective representation of the defining attributes (e.g., beliefs, attitudes, behaviors) of a social category” (Hogg, Terry & White, 1995: 261). Group prototypes are neither formalized nor explicit; instead, they are embodied by exemplary members who are perceived as ideal group representatives (Hogg & Terry, 2000). For managers, the prototypical members of the group are the most prominent and successful top-level executives (Karabel & Useem, 1986; Mason & Hambrick, 1984).

In particular, as the notion of “elite” itself suggests, characteristics include the notion of superiority. This superiority plays out in terms of status (including hierarchical level), and also of reputation, which are two distinct constructs: “reputation is determined by the value or quality of one’s previous actions, while status is determined according to a socially constructed ordering or ranking” (Stern, Dukerich & Zajac, 2014: 5). In addition, one of the norms governing membership of the corporate elite is to be a senior manager not just in any firm, but in a successful firm (Karabel & Useem, 1986; Useem, 1982).

Members of the corporate elite are expected not to be associated with failure. This means that their actions and their consequences cannot reflect such failure, as is the case in firm underperformance. This is in line with the fact that executives tend to be held accountable for downturns (Hambrick & D’Aveni, 1988; Wiesenfeld et al., 2008). Also, as suggested earlier, there is a higher turnover at the managerial level in the event of underperformance (Daily & Johnson, 1997; Gilson, 1989; Sutton & Callahan, 1987). Losing their job—and thus their

hierarchical position—threatens the status component of superiority and thus their membership of the corporate elite.

In sum, the consequence of norms and prototypes tied to a specific social identity means that on the one hand, the resulting social group favors members whose behavior is close to the prototype by granting them recognition and higher in-group status. The group, on the other hand, penalizes members who deviate from the prototypical behavior by separating or even excluding them from the community (Westphal & Khanna, 2003; Wiesenfeld et al., 2008).

The risk of exclusion or ostracism is quite likely in such a small, cohesive group, where information can rapidly be mobilized in order to monitor members' behavior (Westphal & Khanna, 2003). As discussed earlier, underperformance can have consequences on employment (Daily & Johnson, 1997; Fama, 1980), such as stigmatization in the labor market for executives and board members (Ward & Feldman, 2008). However, depending on the strength of identification with the corporate elite, a manager may be reluctant to use network ties for individual-centric benefits in a situation of underperformance. Indeed, looking for exit options risks signaling underperformance, and thus to endanger membership of the corporate elite. In line with the expectation of superiority and success, one of the consequences of underperformance can thus be to risk becoming an out-group member.

This takes the form of a largely informal exclusion from the corporate elite that is marked through social distancing (Westphal & Khanna, 2003), where social distancing is a type of social ostracism that occurs in response to social deviance by members of a group or society (Goffman, 1963). Social distancing is deemed to be stronger in groups that are socially cohesive because of demographic homogeneity and/or network ties among members such as the corporate elite (Westphal & Khanna, 2003). In addition, as group acceptance provides managers with a positive

enforcement of their social identity, being deprived membership would have negative personal consequences.

In sum, this means that if a senior manager cares about being a recognized member of the corporate elite, looking for career information through network ties can be a threatening option. In line with this, it has been previously established that in order to avoid such stigmatization—and eventually ostracism—senior managers may choose not to be candidates for new positions (Wiesenfeld et al., 2008). This suggests that senior managers who more strongly identify with the corporate elite should be reluctant to use their network ties to peers (i.e., members of the corporate elite) to get career advice at this inopportune time. Such behavior constitutes a “covering” strategy to avoid ostracism (Goffman, 1963). Accordingly, we formulate the following hypothesis:

*Hypothesis 2: The stronger a senior manager’s identification with the corporate elite, the less a network tie is used for individual-centric rather than organization-centric benefits in a context of firm underperformance.*

## METHODS

### **Sample and Data Collection**

To test the developed hypotheses about senior managers’ use of network ties, we distributed an online survey through the Confederation of Danish Industry (DI). DI unites approximately 10,000 private enterprises operating within the manufacturing, trade, or service industries. Being an employee of an organization registered in Denmark, as well as paying the membership fee, are prerequisites for joining the Confederation. In return, DI offers consulting services as well as training within HR practices, innovation, and outsourcing.

The surveyed population consists of 500 senior managers (CEOs, top management team members, C-line managers; one per firm), individuals who can be considered part of Denmark's corporate elite (Karabel & Useem, 1986; McDonald & Westphal, 2010; Ward & Feldman, 2008). Senior managers have been identified as one of the most difficult populations to access, as they are often insensitive to incentives and survey reminders (Baruch & Holtom, 2008). In order to optimize the response rate, we thus followed techniques recommended for studies targeting senior managers (Cycyota & Harrison, 2002). In particular, prior to the online study, a questionnaire was piloted on a small group of local MBA students and management scholars who were asked to evaluate each of the survey items and the survey instructions. For example, we received feedback that senior managers may be more likely to reply if they received the survey in Danish. The survey was therefore distributed in both English and Danish and the respondents could choose themselves which language they preferred. To avoid any errors arising from literal translation, omission, and/or mistranslation, both questionnaires were cross-translated between English and Danish. The respondents received a personalized invitation to the survey from the senior representative of DI responsible for facilitating professional networking. The e-mail contained an introductory note briefly explaining the purpose of the study, the navigation of the survey, as well as the login and link to the online survey. In order to incentivize participation in the study, respondents were offered a report with general findings of the study, as well as the opportunity to participate in a networking workshop. In addition, to increase the response rate, we sent out an e-mail follow-up two weeks after the initial invite.

Our response rate of 15 percent, which is considered a satisfactory rate for studies on top management (Cycyota & Harrison, 2002), gave us access to information on 924 unique network ties. However, because of missing variables, our final sample consisted of 530 unique ties that

we extracted from the professional networks of 43 senior managers. We tested<sup>5</sup> for differences between kept and dropped observations on the tie and the senior manager level and found no significant differences. Internal and external ties are, respectively, ties to contacts that are, and that are not, employed by the same organization as the focal senior manager. There were 283 internal ties and 247 external ties in our sample. Regarding the type of resources these ties provided, there were 239 ties that provided only professional advice; 178 that provided more professional advice than career opportunities; 64 ties that provided professional advice to the same extent as they provided career opportunities; and, finally, 49 ties that provided more career opportunities than professional advice. In our sample there were no ties that provided career opportunities without providing professional advice as well.

The majority of senior managers who provided us with information regarding their use of network ties were men (85 percent) aged 35–54 years old. Approximately, 25 percent worked as production chiefs; 15 percent were members of top management teams; and 60 percent held a CEO position. Almost 40 percent of them had been employed at the same firm for 10 years or more, and 50 percent had occupied a senior position for more than 15 years. Over 60 percent of senior managers were employed by companies with more than 100 employees, operating in the manufacturing industry (60 percent), wholesale and retail trade (19 percent), knowledge-intensive firms (19 percent), and electricity supply (2 percent).

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<sup>5</sup>For each continuous variable we performed a test for normality that combines a test on skewness and on kurtosis. Next, we used Levene's test to check homogeneity of variance between the two groups of respondents for normally distributed variables. To test for significant differences between the two groups of respondents we used an independent t-test for normally distributed variables with equal variance, and a t-test with Satterthwaite approximation on the data for normally distributed variables without equal variance. Variables that were not normally distributed but were ordinal were also tested for the homogeneity of variance with Levene's test. The differences between the two groups of respondents for ordinal variables and equal variance were tested with the Wilcoxon-Mann-Whitney test. To test differences between the two groups of respondents for categorical variables, we used a chi-square test of independence, and Fisher's exact test for frequencies of five or less.

**Research instrument.** In this study we focus on senior managers' use of their informal network ties. We designed our questionnaire based on the assumption that resources provided by network ties match a senior manager's demand and his/her use of these ties. We acknowledge that senior managers receive but also provide resources through their network ties (Rogan & Mors, 2016); this study, however, is limited to the respondents being considered as receivers only. In addition, as there is still a lack of well-established methodology for gathering data on tie content (Van Der Gaag & Snijders, 2005), i.e., the resources a network tie provides (Tichy et al., 1979), we designed our three-step questionnaire based on existing methods of social network analysis (Wasserman & Faust, 1994).

Social network studies distinguish between "egos" and "alters" (Scott & Carrington, 2011). In our study, egos are the senior managers who provided us with information regarding their informal ties to other managers, who we call the alters. In the first part of the questionnaire, we collected data about alters via a name-generating question (Marsden, 1990). We asked egos to name the most significant contacts in their professional networks, both internal and external. It has been argued that five contacts identified through a name generator create statistically valid network measures (Merluzzi & Burt, 2013). However, to exhaust the possibility of respondents having other significant contacts in their professional network, we asked them to list up to 15 contacts inside and up to 15 contacts outside of their organization. Since we were interested in resources that network ties provide, in line with Chua, Ingram & Morris (2008), we did not specify the criteria for a contact's significance. Senior managers who face the challenge of firm underperformance can be expected to mobilize their ties to access the resources they need most (Cook & Whitmeyer, 1992). Accordingly, we expected egos to list as significant those contacts that, from their perspective, provided them with the most valuable resources. To identify

resources that were the most valuable for our respondents, in the second part of the questionnaire we asked them to indicate on a 5-point Likert scale (where 0 = not at all; 5 = to a high extent) the extent to which each of their contacts provided them with listed types of resources. In the last part of the questionnaire, we asked further questions regarding the alters' characteristics, e.g., position in organizational hierarchy, and the characteristics of ties, e.g., duration of the relationship. We closed the questionnaire with general demographic questions.

## Measures

To mitigate common methods bias, we derived independent and dependent variables from different sources (Podsakoff & Organ, 1986). The dependent variable—senior managers' use of ties—was based on their survey responses. The information regarding firm performance, the accounting measure, was collected through a Danish database, Navne & Numre Erhverv. The database includes detailed information on firm size, industry branch, and a number of performance measures.

***Use of network tie.*** The dependent variable was measured by the difference between the extent to which a tie provides individual-centric resources and organization-centric resources. To proxy the individual-centric resources, we asked about provision of career opportunities. The respondents indicated on a 5-point Likert scale to what extent each contact listed as significant provided them with “Access to promotion and job offers,” where 0 represents the resource not being provided by the tie and 5 represents the resource being provided to a great extent. Although interest in promotion and job offers could also be interpreted as a sign of a senior manager's commitment to his/her current organization, in the context of firm underperformance we assumed that a firm is unlikely to offer such opportunities since such a situation is known to

lead to executive turnover (Cannella et al., 1995). It follows, therefore, that “promotion and job offers” are considered here to refer to information regarding alternative employment.

To proxy for organization-centric resources we sought to measure a provision of professional advice. We adapted Sosa’s (2011) measure for professional advice and asked respondents to indicate to what extent each contact provided them with “Advice or help with a managerial question or organizational issue,” where 0 represents professional advice not being provided by the tie and 5 represents professional advice being provided to a high great extent.

Use of network tie is a continuous variable with a maximum value of 5 and a minimum value of -5. The higher the value of the dependent variable, the more the tie is used for individual-centric benefits; the lower the value of the dependent variable, the more the tie is used for organization-centric benefits. A value of 5 indicates that a tie provides only career opportunities and does not provide professional advice, and is thus only used for individual-centric benefits. A value of -5 indicates that a tie provides only professional advice and does not provide career opportunities, i.e., it is only used for organization-centric benefits. Values between 4 and -4 indicate that a tie provides both types of resources. A tie that has a primarily individual-centric function ranges between 4 and 1, and a primarily organization-centric tie ranges between -1 and -4. A value of 0 indicates that a tie provides both types of resource to the same extent.

***Firm relative performance.*** To capture firm relative performance, we followed studies on firm performance aspiration level (Greve, 1998). These studies show that comparison of a firm’s aspired and actual performance provides a much better explanation for senior managers’ behavior than the actual performance alone (Hu, Blettner & Bettis, 2011). First, by taking an exponentially weighted average of ROA over a four-year period, we generated a historical

aspiration level of ROA for each organization for the year preceding the data collection (Greve, 2003). We used the same formula as in Audia & Greve (2006) and Greve (1996, 1998, 2003)

$$A_t = a * A_{t-1} + (1-a) P_{t-1}$$

where  $A$  is firm aspiration level;  $P$  is firm performance;  $t$  is the time period; and  $a$  is the weight given to the most recent aspiration level. In order to minimize the squared prediction error, the weight was chosen separately for each company. The impact of firm relative underperformance is relative to the aspiration level, e.g., a difference of 2 percentage points between aspiration and performance has a different impact on organizations that aim at 4 percent ROA and 10 percent ROA respectively. Therefore, we expressed the dependent variable as a fraction of difference between aspiration level and the actual performance in the numerator and the aspiration level in the denominator, following the formula

$$\text{Firm relative performance} = \frac{A_t - P_t}{A_t}$$

A value of firm relative performance less than 0 implies that a company underperforms, and a value greater than 0 implies that a company overperforms, relative to aspiration level. Since we are specifically interested in underperformance in this article, we then created a new variable called *Firm relative underperformance*, the values of which were equal to absolute values of firm relative performance and were generated only for companies that underperformed. We generated a corresponding variable, *Firm relative overperformance*, for companies that overperformed.

**Corporate elite social identity.** Though all respondents were considered to be part of the corporate elite, we expected them to vary in terms of strength of identification. To measure the strength of identification of senior managers with their peers we adopted the widely used identification scale developed by Mael and Ashforth (1995) and later adapted by Boivie,

McDonald and Westphal (2011). The scale is a seven-item, seven-scale construct. We asked the respondents to indicate to what extent they agree with statements such as: “When someone criticizes another corporate leader, it feels like a personal insult, even if I do not know the person,” and “Being a member of the corporate elite is a major part of who I am.” The internal consistency of the scale was measured by Cronbach’s alpha (0.77 for the sample of 530 network ties).

### **Control Variables**

We included the following variables to control for a senior manager and contact’s ability, opportunity, and motivation (Argote, McEvily & Reagans, 2003) to access different types of resource through a network tie:

***Blau index.*** Studies on advice taking indicate that in time of firm underperformance senior managers favor advice from alters with whom they share similarities (McDonald & Westphal, 2003). To control for senior managers’ preference towards specific alters, we included Blau’s heterogeneity index (Blau, 1977). For external contacts, the index was calculated based on three categories: gender (same vs. other); organizational rank (same vs. other); and employment in the same industry (same vs. other). For internal contacts, the measure is calculated based on four categories: gender (same vs other); organizational rank (same vs other); function, e.g., marketing or sales (same vs. other); and geographical location (same vs. other). The index for internal contacts was standardized with the index for external contacts.

***Firm size.*** We controlled for the size of the company employing the senior manager. The size of an organization might affect a senior manager’s perception of the extent to which a firm’s performance is a success or a failure. Smaller companies have limited access to resources in comparison to large organizations; therefore they are less likely to survive periods of low

performance. As a result, the same level of performance below aspiration level might be interpreted as more threatening by senior managers in small organizations than by senior managers in large organizations (Audia & Greve, 2006). Firm size, along with tenure in senior positions, might also have an effect on egos' access to resources provided via social exchange; managers employed in larger organizations and in senior positions enjoy higher status within the corporate elite and therefore other members of the community might be more willing to connect with them and provide them with valuable resources (D'Aveni, 1990; D'Aveni & Kesner, 1993; Ward, Sonnenfeld & Kimberly, 1995; Wiesenfeld et al., 2008).

**Average ROA.** As we could not exclude that the performance perception also varies for senior managers whose firm shows growth (positive values of ROA), yet below aspiration level, and decline (negative values of ROA) yet below aspiration level, we controlled for the average ROA over the period of four years.

**Industry.** We expected that industry-level trends might affect both firm performance and use of senior managers' ties. Therefore, to mitigate endogeneity, we controlled for the type of industry by including a categorical variable. Categories correspond to official Danish industry classification. Including the variable also allowed us to control for shared cognitive schema among senior managers employed in the same industry (Sutton & Callahan, 1987).

**Network size.** We also included a control for network size. Larger ego networks provide senior managers with more opportunities to acquire valuable resources. In larger networks, however, an ego has to divide his/her time and effort over a higher number of ties than in smaller networks. As senior managers can invest less in each tie in large networks, ties in large networks might provide resources to a lower extent than ties in small networks.

**Age.** Age of a respondent might affect both the ability and motivation to access resources provided by a network tie. First, older senior managers are less likely to seek new career opportunities due to their advanced career stage, mandatory retirement, or illness (Hambrick & Cannella, 1993). Second, dealing with performance below aspiration level requires problem-solving skills, especially information searching; prior research on social problem-solving ability shows that this ability increases from young adulthood to middle age and then decreases in older age (D'Zurilla, Maydeu-Olivares & Kant, 1998).

**Gender.** Men and women tend to differ in how they perceive and approach problems, which in turn can affect the type and extent of resources provided by their social ties. Studies suggest that men are more likely to perceive problems as challenges, believe in their own capabilities to solve problems, and expect positive outcomes; women, on the other hand, are more likely to perceive problems as threats, doubt their own solving skills, and exhibit avoidance behavior (Brems & Johnson, 1989; D'Zurilla et al., 1998). Men are also less willing to ask for help (Addis & Mahalik, 2003). Moreover, prior evidence suggests women are less able to use ties for finding instrumental resources to advance their career (Moore, 1990). The content of ties might also differ due to informal barriers limiting women's access to ties and resources that could help advance their careers (Tortoriello & Krackhardt, 2010). In addition, we controlled for egos' contacts' gender. Indeed, women tend to be subject to negative stereotypes and attributes concerning their expertise and competences (Ibarra, 1997), and are therefore less likely to be chosen as providers of valuable resources.

**Tie strength.** We controlled for tie strength with three different variables: emotional closeness between ego and alter; duration of relationship; and frequency of interaction (Marsden & Campbell 1984). Asking for help often requires exposing one's own limitations and increases

dependency (Bonaccio & Dalal, 2006, 2010). Previous studies on tie strength showed that emotional closeness facilitates egos' motivation for seeking help and alters' willingness to provide it (Anderson & Williams, 1996; Levin & Cross, 2004).

***External vs. internal ties.*** Finally, we also controlled for ties external to a respondent's organization. Fearing a loss of status, decision makers in senior positions tend to prefer external over internal contacts as sources of help (Lee, 1997).

## Analysis

Variables describing egocentric network data can be attributes of the ego, the alter, or the tie. Variables that capture attributes of the entire egocentric network, such as network size, are considered to be attributes of ego. For models where independent and dependent variable(s) are on the ego level, linear models are applicable. In our study, the independent and moderating variables are on the ego level and the independent variable is an attribute of a tie. Since each ego lists his/her ties, these ties should not be treated as independent observations (Van Duijn, Van Busschbach & Snijders, 1999). To retain the two levels of analysis, we examined the egocentric network data as ties nested within egos. Nested models are of use if interclass correlation (IC) is greater than 0 and less than 1. Ignoring IC can lead to underestimated coefficients and invalid significance tests. Values of IC in our models justified testing our hypotheses with random-effects Tobit models in STATA® 14. A random-effects Tobit model can account for the variance on both the ego and the tie level, and is applicable for censored continuous variables (Vermunt & Kalmijn, 2006).

Finally, the inclusion of an interaction term could contribute to multicollinearity and thus artificially inflate the size of regression coefficients for our theoretical variables; we therefore

used a mean-centering approach (Jaccard, Wan & Turrisi, 1990) in constructing the interaction terms in all statistical models.

## RESULTS

Table 1 summary statistics. We found no significant correlation between a tie's provision of career opportunities and a tie's provision of professional advice. Lack of such correlation implies that, in our data, provision of professional advice and provision of career opportunities are independent. Furthermore, there is no significant correlation between firm relative performance and firm performance that is measured by average ROA. This conveys the important message that firm relative underperformance is not exclusive to firms that show financial decline; companies that show positive and negative financial performance can under- or overperform relative to their point of reference (aspirational level).

Table 2 features the results of the random-effects Tobit models. Model 1, Model 2, and Model 3 show results for first-order association. In Model 1, we tested the relationship between firm relative performances on tie use on the full sample of 530 ties, and found it to be non-significant. In that analysis, firm relative performance is a continuous variable where values less than 0 represent firm relative underperformance, and values greater than 0 represent firm relative overperformance. For such a constructed independent variable, firm relative underperformance and firm relative overperformance represent a continuum. However, studies on cognitive and emotional reaction to positive and negative events report that the impacts of negative stimuli on behavior and affect are much stronger than the impacts of positive stimuli of the same intensity (Lewicka, Czapinski & Guido, 1992).

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATION MATRIX <sup>a,b</sup>

| Variables                      | Mean  | S.D.  | 1     | 2      | 3     | 4     | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12 | 13 | 14 |
|--------------------------------|-------|-------|-------|--------|-------|-------|------|------|------|------|------|------|------|----|----|----|
| 1. Use of Network Tie          | -2.16 | 2.02  |       |        |       |       |      |      |      |      |      |      |      |    |    |    |
| 2. Professional advice         | 3.51  | 1.28  | -     |        |       |       |      |      |      |      |      |      |      |    |    |    |
| 3. Career opportunities        | 1.36  | 1.55  | 0.77* | -0.01  |       |       |      |      |      |      |      |      |      |    |    |    |
| 4. Firm relative performance   | -0.8  | 4.59  | -0.1  | -0.04  | -     |       |      |      |      |      |      |      |      |    |    |    |
| 5. Average ROA                 | 5.13  | 12.72 | -0.00 | -0.08  | -     |       |      |      |      |      |      |      |      |    |    |    |
| 6. Managerial identification   | 4.23  | 0.95  | -0.03 | 0.09   | 0.04  | -     |      |      |      |      |      |      |      |    |    |    |
| 7. Network size                | 17.21 | 5.43  | -0.08 | 0.09   | -0.03 | -     |      |      |      |      |      |      |      |    |    |    |
| 8. Tenure on a senior position | 18.35 | 7.45  | -0.10 | 0.05   | -0.08 | 0.13  | -    |      |      |      |      |      |      |    |    |    |
| 9. Ego gender (male)           | 0.82  | 0.39  | 0.01  | -0.04  | -0.02 | -0.02 | -    |      |      |      |      |      |      |    |    |    |
| 10. Closeness                  | 3.08  | 1.29  | -0.08 | 0.19*  | 0.04  | -0.05 | 0.00 | -    |      |      |      |      |      |    |    |    |
| 11. Duration                   | 3.43  | 0.82  | 0.20* | -0.06  | 0.21* | -0.07 | 0.02 | 0.05 | -    |      |      |      |      |    |    |    |
| 12. Frequency                  | 2.6   | 1.11  | -     | 0.23*  | -0.12 | -0.02 | -    | -    | -    |      |      |      |      |    |    |    |
| 13. Blau index                 | 0.41  | 0.26  | -0.08 | 0.05   | -0.06 | -0.06 | 0.01 | 0.03 | 0.04 | -    |      |      |      |    |    |    |
| 14. External tie dummy         | 0.47  | 0.5   | 0.14* | -0.15* | 0.06  | 0.14* | -    | 0.01 | 0.05 | 0.10 | 0.09 | 0.04 | -    |    |    |    |
| 15. Tie gender                 | 0.87  | 0.34  | 0.15* | -0.13  | 0.08  | -0.03 | -    | 0.01 | -    | 0.12 | 0.20 | 0.03 | 0.13 | -  |    |    |

<sup>a</sup> N = 530 for tie-level variables. N = 43 for ego-level variables. Correlations that include tie-level variables are based on N = 530

<sup>b</sup> Variables on ego-level: Firm relative performance, Average ROA, Managerial identification, Network size, Tenure on senior position, Ego gender (male)

**TABLE 2: USE OF NETWORK TIE**

|  | First-order associations       |                      |                                | Second-order associations |                                |                                |
|--|--------------------------------|----------------------|--------------------------------|---------------------------|--------------------------------|--------------------------------|
|  | Model 1                        | Model 2              | Model 3                        | Model 4                   | Model 5                        | Model 6                        |
| Firm relative performance                                  | −0.103 <sup>+</sup><br>(−1.78) |                      |                                | −0.0354<br>(−0.40)        |                                |                                |
| Firm relative underperformance                             |                                | 0.161***<br>(4.13)   |                                |                           | 1.220**<br>(3.10)              |                                |
| Firm relative overperformance                              |                                |                      | 0.914*<br>(2.18)               |                           |                                | −0.547<br>(−1.02)              |
| Managerial identification                                  | −0.250<br>(−0.90)              | −0.0619<br>(−0.21)   | −1.067**<br>(−2.81)            | −0.0950<br>(−0.30)        | −2.207**<br>(−2.61)            | −2.383***<br>(−4.74)           |
| Firm relative performance # Managerial identification      |                                |                      |                                | −0.0958<br>(−1.00)        |                                |                                |
| Firm relative underperformance # Managerial Identification |                                |                      |                                |                           | −0.780**<br>(−2.71)            |                                |
| Firm relative overperformance # Managerial Identification  |                                |                      |                                |                           |                                | −3.198***<br>(−3.46)           |
| Blau index   | −0.593<br>(−1.53)              | −0.779<br>(−1.56)    | −0.650<br>(−1.13)              | −0.592<br>(−1.53)         | −0.948 <sup>+</sup><br>(−1.91) | −0.687<br>(−1.21)              |
| Average ROA  | −0.0172<br>(−0.83)             | −0.0834**<br>(−2.92) | 0.138*<br>(2.05)               | −0.00151<br>(−0.06)       | −0.115***<br>(−3.78)           | 0.0871<br>(1.57)               |
| Network size   | −0.0434<br>(−1.02)             | −0.123***<br>(−3.82) | 0.0988<br>(1.25)               | −0.0320<br>(−0.74)        | −0.174***<br>(−4.71)           | 0.0360<br>(0.55)               |
| Tie closeness  | −0.340***<br>(−3.53)           | −0.262*<br>(−2.08)   | −0.368**<br>(−2.65)            | −0.339***<br>(−3.53)      | −0.247*<br>(−2.00)             | −0.353*<br>(−2.57)             |
| Tie frequency  | −0.200<br>(−1.52)              | −0.0979<br>(−0.56)   | −0.367 <sup>+</sup><br>(−1.95) | −0.199<br>(−1.52)         | −0.0565<br>(−0.33)             | −0.343 <sup>+</sup><br>(−1.85) |
| Tie duration   | 0.494***<br>(3.77)             | 0.774***<br>(4.50)   | 0.365*<br>(1.98)               | 0.491***<br>(3.75)        | 0.743***<br>(4.38)             | 0.356 <sup>+</sup><br>(1.95)   |
| Tenure on a senior position                                | 0.0175<br>(0.36)               | −0.0556<br>(−1.12)   | −0.0483<br>(−0.55)             | −0.0117<br>(−0.21)        | −0.0813<br>(−1.63)             | −0.0355<br>(−0.51)             |
| Ego gender (male)  | −0.877<br>(−0.99)              | −1.580*<br>(−2.13)   | 4.683**<br>(3.17)              | −0.372<br>(−0.37)         | −3.129***<br>(−3.37)           | 4.489***<br>(3.72)             |
| Alter gender (male)  | 0.675*<br>(2.53)               | −0.854*<br>(−2.28)   | 1.346***<br>(3.64)             | 0.670*<br>(2.50)          | −0.863*<br>(−2.34)             | 1.397***<br>(3.81)             |
| External tie dummy   | 0.571*<br>(2.08)               | 0.0972<br>(0.25)     | 0.890*<br>(2.36)               | 0.569*<br>(2.08)          | 0.111<br>(0.29)                | 0.883*<br>(2.36)               |

Controls for ego's age, ego's firm size and type of industry included

|              |                   |                   |                   |                   |                                 |                   |
|--------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|-------------------|
| Constant     | -1.592<br>(-0.86) | -2.392<br>(-1.49) | -1.704<br>(-0.80) | -2.418<br>(-1.20) | -19.35 <sup>**</sup><br>(-2.99) | -2.084<br>(-1.20) |
| Observations | 530               | 227               | 303               | 530               | 227                             | 303               |

*Standardized regression coefficients are presented, t statistics in parentheses <sup>+</sup>  $p < 0.1$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$*

Furthermore, there are systematic differences in how individuals search for and interpret information in the context of a positive or negative event. Therefore, positive and negative events should not be considered as a continuum, but must rather be conceived of as distinct phenomena (Taylor, 1991). While performance above aspiration level is interpreted as a positive event, senior managers perceive firm performance below aspiration level as a negative event (Sutton & Callahan, 1987). We therefore followed the studies on positive–negative stimuli asymmetry and conducted separate analyses for ties in networks of senior managers whose organizations relatively underperform (Model 2 and Model 5) and for ties that were embedded in networks of senior managers whose organizations relatively overperform (Model 3 and Model 6).

In Model 2 and Model 5, the greater the value of firm relative underperformance, the further a company is from meeting its historical aspirational level. The results of Model 2 (see Table 2) confirm Hypothesis 1. More specifically, the model shows that for every increase of 1 in firm relative underperformance, there is a corresponding increase of 0.161 in the predicted value of the dependent variable ( $p<0.001$ ). As illustrated in Figure 1, the results of Model 2 imply that informal ties of senior managers are most organization-centric when the firm relative underperformance values are smallest. The ties become more individual-centric and less organization-centric with increases in firm relative underperformance.

The results of Model 5 support Hypothesis 2 regarding the moderating effect of a senior manager's social identification with the corporate elite. As illustrated in Figure 2, the stronger the senior manager's identification, the less a tie is likely to be individual-centric and the more it is likely to be organization-centric. These results imply that, in a context of falling performance, organizations benefit more from the ties of senior managers who identify strongly with the corporate elite.

FIGURE 1: EFFECT OF FIRM RELATIVE UNDERPERFORMANCE ON USE OF NETWORK TIE

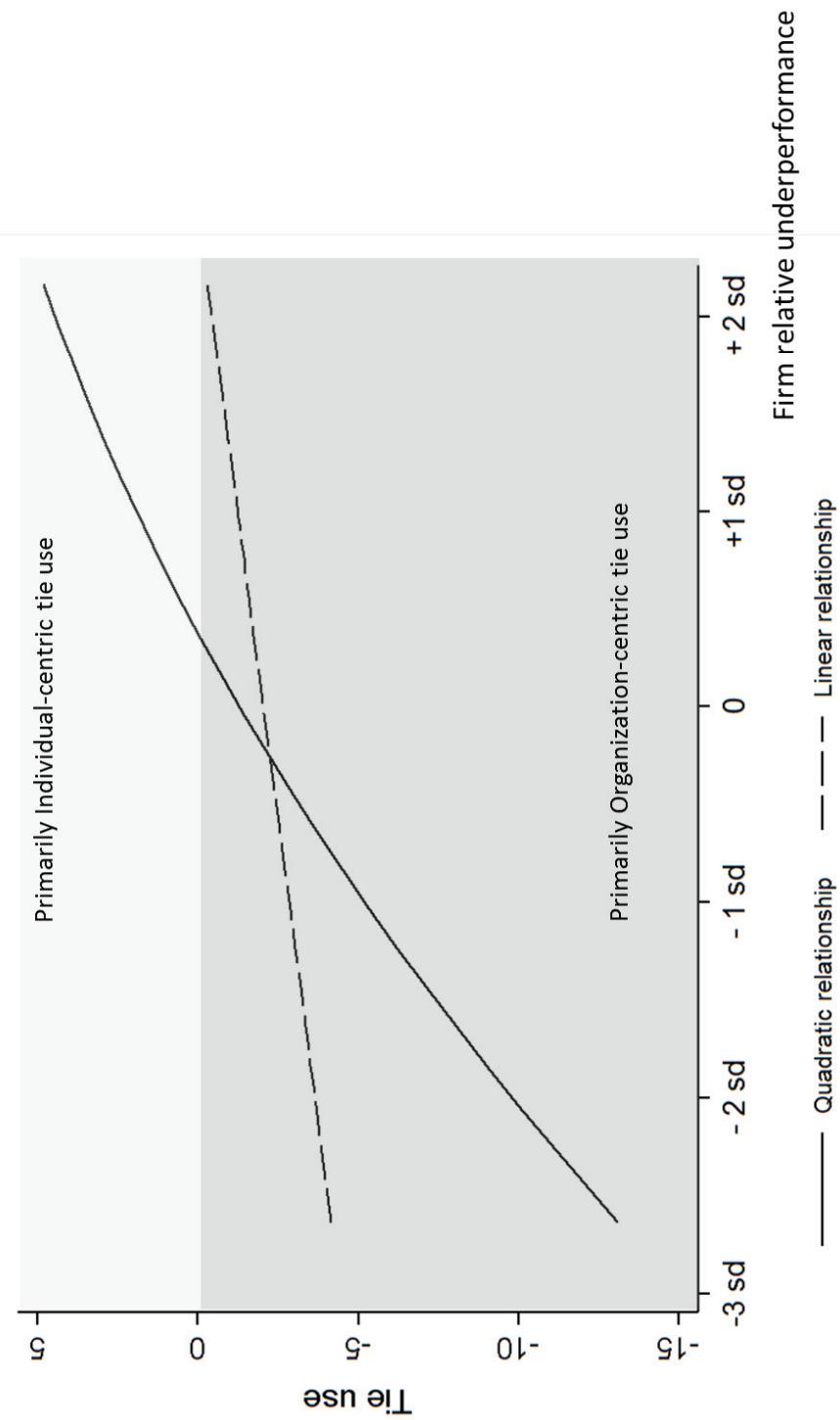
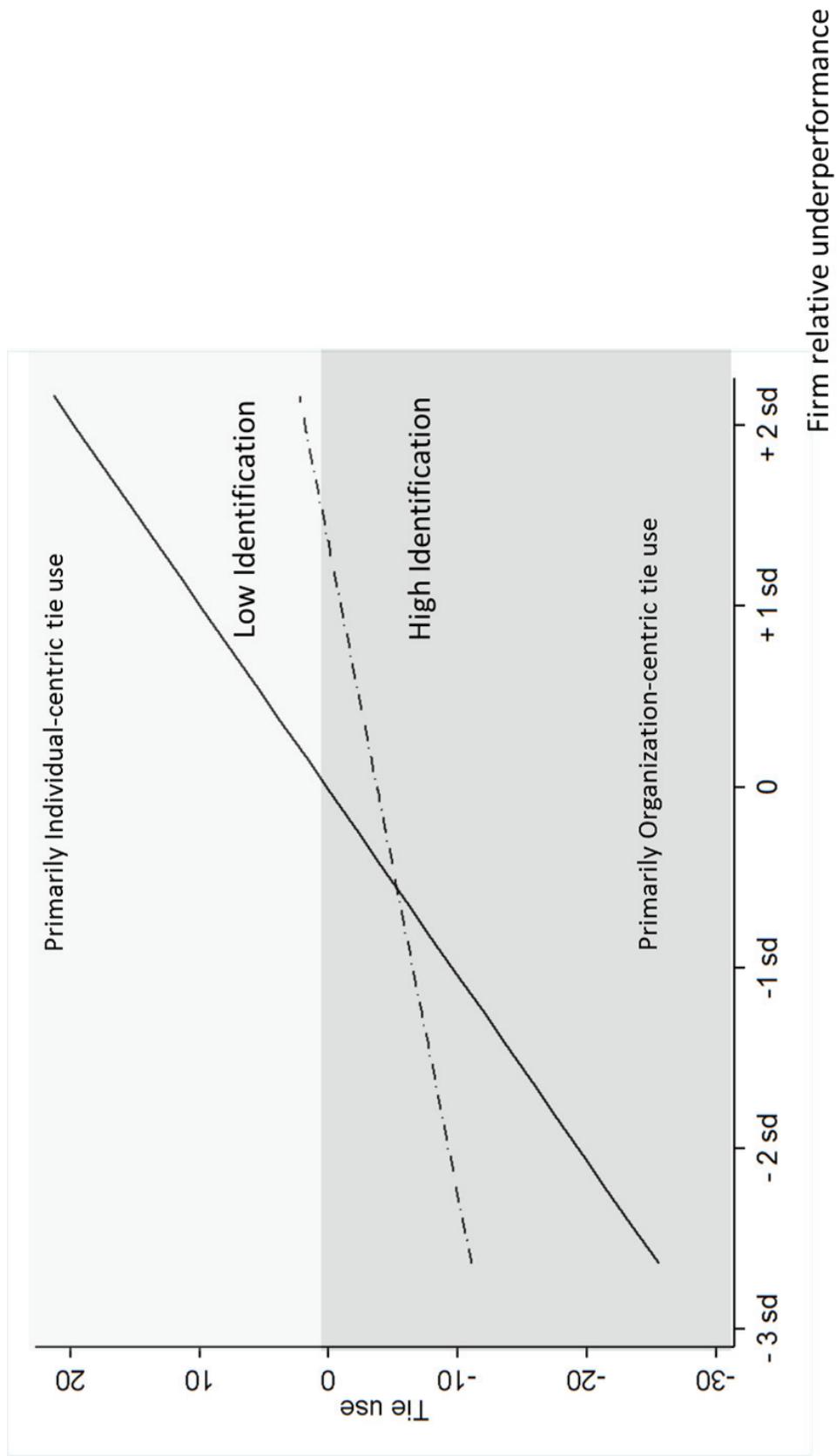


FIGURE 2: EFFECT OF INTERACTION BETWEEN FIRM RELATIVE UNDERPERFORMANCE AND SENIOR MANAGER SOCIAL IDENTIFICATION WITH CORPORATE ELITE ON USE OF NETWORK TIE



Examining control variables, we found that larger networks have a significant and negative relationship with ties being used for individual-centric benefits. For every increase of 1 in network size there is a corresponding decrease in the dependent variable of 0.123, suggesting that ties in large networks are more likely to serve corporate interests than ties in small networks. Finally, controlling for average ROA over a four-year period shows that, regardless of average growth, it is the firm relative performance that matters for the use of a senior manager's ties.

To ensure the robustness of our results we conducted several additional analyses. First, because of the nested structure of our data and the continuous nature of our dependent variable, we compared the results of the random-effects Tobit models with the results of multilevel mixed-effects linear models and found our results to be robust. Next, since external ties could be expected to be a primary source of career opportunities in the context of organizational failure, we wanted to test for the difference in use between external and internal ties. Due to the sample size we could not run separate analyses for internal and external ties. Instead, we ran two-way (firm relative underperformance and external tie dummy) and three-way (firm relative underperformance, corporate elite social identity, and external tie dummy) interaction models and found no significant difference between the effect of internal and external ties.

Furthermore, as our dependent variable was measured by the difference between the extent to which a tie provides career opportunities and the extent to which a tie provides professional advice, we could speculate that the sum of these two resources would represent an alternative explanation for the observed variance in the dependent variable. Although we found a significant effect of the sum of resources a tie provides on the use of ties, our hypothesized relationships remained robust. Our analyses show that the greater the sum of resources provided by a tie, the less the tie is used for individual-centric resources; a decrease of 0.209 in the predicted value of

the dependent variable for every increase of 1 in the sum of resources provided by a tie. To explore further the effect of firm relative underperformance and corporate elite on ties' resource provision, we conducted a separate analysis for ties' provision of career opportunities and for provision of professional advice. Following the argumentation in the hypothesis development section, we would expect firm relative underperformance to have a negative effect on ties' provision of professional advice, and to have a positive effect on ties' provision of career opportunities. Although we found the association between firm relative underperformance and ties' provision of professional advice to be negative, as expected, the effect is not significant. On a tie's provision of career opportunities, however, the effect is positive and significant. For the second-order associations, we found a significant and positive moderating effect of corporate elite social identity on ties' provision of professional advice, and a negative but non-significant moderating effect of corporate elite social identity on ties' provision of career opportunities.

Although we hypothesized a linear relationship between firm relative underperformance and a use of network tie, we also tested for non-linear relationships between the two variables and found a significant and negative quadratic relationship between firm relative underperformance and tie use. A potential explanation for the observed result is that the magnitude of the effect increases with the size of firm relative underperformance. First, the more the company's performance falls below aspiration levels, the more managers might be disconnecting themselves from the problems they are supposed to be solving. Second, looking for alternative career opportunities increases at the same time where losing a job becomes more probable in heavily underperforming companies. However, the magnitude of the effect is very low; a coefficient of  $-0.0138$ , and there is no significant increase in the model fit once we include the squared term. The linear and non-linear relationships between firm relative underperformance and use of ties

are illustrated in Figure 2. Unfortunately, the size and nature of our data set did not allow us to test for the second-order association for the non-linear relationship.

In this study, we focused on the use of senior managers' network ties in the context of firm relative underperformance. However, our analysis also revealed interesting findings regarding the use of senior managers' ties in the context of firm relative overperformance. In particular, the more a company overperforms, the more network ties are used for individual-centric benefits. We also found corporate elite social identity to have a significant and negative effect on individual-centric use of senior managers' ties in overperforming organizations.

## DISCUSSION

In this paper we investigated a relationship among firms relative underperformance and senior managers' use of network ties for organization-centric or individual-centric benefit. We further examined the moderating effect of identification with the corporate elite on that relationship. These hypotheses were tested with rarely available data about the informal professional networks of senior managers. The empirical results we described above provide support for our theoretical framework.

To start with, in line with our expectations, our first set of results shows that the greater the relative underperformance, the more likely it is that senior managers will use their network ties to access resources that primarily benefit the individual rather than the organization. We believe that these findings make a notable contribution to the literature about the strategic value of managerial networks for firms (Carpenter & Westphal, 2001; Geletkanycz et al., 2001; Geletkanycz & Hambrick, 1997; Hambrick, 1981; McDonald & Westphal, 2003; Westphal et al., 2006). Although the link between firm performance and behavior of senior managers has already been established in management literature (Greve, 2003; Wiesenfeld et al., 2008), the way firm

performance affects the use of senior managers' informal network ties had not previously been investigated. Our study therefore adds to extant scholarship in this area by showing that the greater the firm relative underperformance, the more managers will access resources for individual-centric rather than organization-centric benefit. From the firm's point of view, this can be highly problematic. Indeed, it means that when the firm really needs its senior managers to fulfill their role as brokers for resources that can help turn around performance (McDonald & Westphal, 2003), managers will instead tend to access resources primarily for their own benefit over their firm's interests. A potential remedy could be senior manager dismissal (Cannella et al., 1995), however this sends a signal that the company might be in distress and runs the risk of business partners taking advantage of the situation (Hambrick & D'Aveni, 1992). Moreover, such dismissals effectively cut the firm off from resources it might need to survive and that could have been accessed through the senior managers' network ties. The board of the underperforming company therefore finds itself between a rock and a hard place.

However, our second prediction, that senior managers' social identity as members of the corporate elite lessens the likelihood that they will use network ties for their own benefit, was also supported. Our findings thus suggest that strong identification with the corporate elite can actually benefit organizations. Stronger identification leads to alignment of a senior manager with his/her organization's interests in the sense that neither has any interest in signaling failure: in this configuration, demand for alternative career opportunities diminishes since managers want to avoid signaling non-conformance with the expectations of superiority and professional success, which in turn lowers the risk of signaling underperformance to the wider environment.

Through this finding we also add to the literature on social identity in the workplace by showing that it is fruitful to look beyond organizational identification as the only desirable social

identity process that can benefit companies (Korschun, 2015). Indeed, previous literature has focused on organizational identification under the rationale that strong identification to one's firm should favor organization-centric behavior (Hillman, Nicholson & Shropshire, 2008; Van Dick et al., 2004). It is highly interesting that a component of senior managers' social identity that extends beyond an organization's boundaries—here, identification with the corporate elite—can play out in the firm's favor under difficult circumstances. Our additional analysis shows that there is an increase in use of ties for organization-centric benefits in case of higher identification. This suggests that, even in the case of underperformance, asking for advice is not seen as endangering membership in the corporate elite. This further questions the assumption that interpersonal attraction, with regards to social identity, is detrimental to the organization (Hogg and Terry, 2000) and suggests that firms should encourage their senior managers to develop ties to the corporate elite rather than only focusing on increasing organizational identification.

Finally, our study contributes to expanding the network literature about multiplex ties (Gulati et al., 2010), and about contingency of tie function on senior managers' most prioritized needs (Cook & Whitmeyer, 1992; Mitchell, 1969). We provide an empirical illustration where two types of resource flow from the same tie. Indeed, by considering a case where a tie can provide several types of resource—here, professional advice and new career opportunities—we are better able to understand how a senior manager's use of ties is contingent on nesting context.

## **CONCLUSIONS**

Beyond its noteworthy contributions, our study is not without limitations. In particular, the limited number of respondents could question the potential for generalization. However, the focus of our study is on the mechanisms present at the tie level. A similar analytical approach can be found in widely cited studies on subsidiaries in multinational corporations (e.g., Gibson &

Birkinshaw, 2004; Gupta & Govindarajan, 1994). In such studies, authors collect data on a limited number of enterprises and focus on the relationships between subsidiaries that exist within these multinationals. Apart from that, we address the hierarchical structure of our data by testing our hypotheses with multilevel models that also account for random effects.

Although self-reported data could be a potential limitation of our study, we consider that this type of data ensures the best fit between hypothesized relationships and observed outcomes. We did not attempt to triangulate self-reported data for two major reasons. First, egos do not always have a precise idea of what their network looks like, and their behavior is driven by their perception of their network rather than the actual network (Casciaro, Carley & Krackhardt, 1999; Feld & Carter, 2002). Second, the type and extent of resources provided has a relative and significant value (Foa & Foa, 1980; Foa, 1971): the perception of ego and alter might differ regarding the extent and type of resources exchanged (Shulman, 1976)—even if these perceptions differ, they remain independent.

In addition, our study is based on the assumption that what is provided by a tie reflects what a manager needs or wants to receive from it; in reality, there is undoubtedly discrepancy between what one wants and what one gets. Besides, we assumed that all ties are governed according to a single norm—either an exchange or communal relationship (Clark & Mils, 1993). Hence, studying norms governing multiplex relationships, or conflict between communal and exchange norms within a multiplex relation, is a possible avenue for supplementary research.

Further, our data is cross-sectional rather than longitudinal, which has a number of implications. In particular, adaption of tie function to changing situations (Cook & Whitmeyer, 1992) is not a reflex mechanism, which means that a preferred tie function can be in place before, or in spite of, contextual changes such as declining performance in the form of a gap

between aspiration level and firm performance. A longitudinal study on tie content could provide important insights regarding changes in tie content over time. Still time-related, to help companies make the difficult choice of keeping or firing executives in the event of underperformance, we need to understand more about how firms can dismiss senior managers without breaking strategic ties in the short term and losing some of the firms' standing in the longer term. Accordingly, future research could look into the timing of dismissal of underperforming senior managers: either as quickly as possible to lessen any negative impact on the company and to have a chance of hiring a replacement who will improve the situation or, alternatively, once major structural gaps have been bridged (Burt, 1992; Ibarra, Kilduff & Tsai, 2005; Wiersema, 2002) so as not to break ties between organizations (Dirks, Lewicki & Zaheer, 2009). Our additional analysis also showed that larger networks favor the use of ties for organization-centric benefits. Hence, it would be of interest to know more about efficient strategies to develop larger networks despite resource constraints, such as time.

Our results also demonstrate that, regardless of average growth, it is the extent of relative underperformance that matters for the use of a senior manager's ties. In addition, as senior managers' identification with the corporate elite appears to benefit firms in the context of underperformance, we need to know more about ways to develop and strengthen it. We encourage future research into the degree of saliency of corporate elite identification and organizational identification to better understand the social identity processes at play in senior managers' use of network ties. In particular, it would be important to know more about how different extents of underperformance matter, i.e., to consider a quadratic relationship.

Finally, future research is needed into overperformance, social identity, and the use of ties in order to have a fuller picture of the relationship between performance and senior managers' use of network ties.

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**CHAPTER 4. WHEN THE WHOLE IS NOT THE SUM OF ITS PARTS:  
THE RELATIONSHIP BETWEEN FRIENDSHIP AND PROFESSIONAL ADVICE IN  
MULTIPLEX TIES OF SENIOR MANAGERS**

**ABSTRACT**

Advice that senior managers access through informal ties in their professional networks constitutes an important strategic resource for their organizations. Since senior managers show preference toward advisers who are also their friends, in this paper I investigate the association between friendship and professional advice that is provided by multiplex ties in senior managers' professional networks. I test hypotheses using unique data on 710 dyadic ties of 54 Danish senior managers. The results of the study show that multiplex ties comprising both adviser and friend roles, at lower values of friendship, provide a benefit via additional advice at the marginal cost of that advice's lower novelty. However, at higher levels of friendship, the benefit of additional advice diminishes whereas the loss of advice novelty becomes severe. The implication is that multiplex ties are not simply a sum of their parts, and that the strategic value of senior managers' informal network ties is contingent on the roles the ties comprise.

**Keywords:** *advice, friendship, multiplexity, professional network, senior managers.*

## INTRODUCTION

The professional advice that senior managers access through their network ties has been found to be profoundly beneficial for their organizations (Carpenter & Westphal, 2001; Geletkanycz & Hambrick, 1997; McDonald, Khanna& Westphal, 2008). Professional advice guides senior managers through a process of strategic decision making and helps them to solve non-routine and complex problems (Eisenhardt & Zbaracki, 1992; Rajagopalan, Rasheed& Datta, 1993). It is not easy for organizations to access professional advice since it is uncodified, tacit knowledge that is shared directly between the two connected managers (Szulanski, 1996). Furthermore, organizational access to professional advice is constrained by the limited number of people who have strategically relevant information and who can therefore serve as advisers of senior managers (Lee & Tiedens, 2001). Professional advice is a rare and valuable resource which is difficult to imitate and substitute; therefore it is an important component of a firm's bank of strategic resources (Barney, 1991; Grant, 1996).

Although accessing professional advice produces benefits at an organizational level, it also attracts costs at an individual level (Adler & Kwon, 2002). Because of their position within the organizational hierarchy, senior managers are often perceived by the rest of the employees as having the most expertise and as being the most suited to lead the organization (Bonaccio & Dalal, 2006). While such perceptions legitimize top management and their decisions, it also informs their advice-seeking behavior (Deelstra et al., 2003; Lee, 1997). Asking for advice can undermine senior managers' professional reputation and challenge their organizational power (Lee & Tiedens, 2001). Therefore, for senior managers, trust is a pre-requisite for any enduring connection between advisee and adviser (Chua, Ingram& Morris, 2008; Nebus, 2006). The existence of trust is characteristic for relations that are classified as friendships (Chua et al., 2008). Not surprisingly, studies of professional networks show that advisers of senior managers

tend also to be their friends (Bridge & Baxter, 1992; Burt, 1997; Gibbons, 2004; Westphal, Boivie & Chng, 2006).

In social network literature, a relationship that comprises two or more different relations is referred to as a multiplex tie (Gulati, Kilduff, Li, Shipilov & Tsai, 2010; Kilduff & Tsai, 2003; Rogan, 2014; Verbrugge, 1979; Wasserman & Faust, 1994). Clearly, senior managers benefit from having advisers who can provide them with professional advice (Cross & Cummings, 2004), but they also benefit from having friends who satisfy their need for emotional support, warm affection, and nurturing (Cobb, 1976; Ingram & Zou, 2008). Surprisingly, a handful of studies on multiplex ties suggest that having advisers who are also friends has a negative effect on senior managers' performance because it modifies their behavior in terms of seeking, accessing, and using the advice (Casciaro & Lobo, 2008; McDonald & Westphal, 2003). However, there is still a lack of information about what happens to the strategically valuable resource—the professional advice itself—once it is provided by advisers who also happen to be the advisee's friend. As it is not clear whether a relationship comprising the roles of adviser and friend represents the same benefits for the senior manager as the sum of these two, in this article I address the question of what is the relationship between friendship and professional advice provided by multiplex ties in the professional networks of senior managers.

With this study I aim to contribute to research on the strategic value of senior managers' professional networks (Carpenter & Westphal, 2001; Geletkanycz & Hambrick, 1997; McDonald & Westphal, 2003; Rogan & Mors, 2014; Westphal et al., 2006). I show that the novelty of professional advice is contingent upon the different relations a network tie comprises, and specifically upon the combination of adviser and friend roles. Furthermore, by studying multiple

functions of informal network ties, I provide unique insights on tie multiplexity at the individual level of analysis (Cotton, Shen & Livne-Tarandach, 2011; Gulati et al., 2010; Rogan, 2014).

Although the majority of studies applying a social network perspective acknowledge that ties are likely to be multiplex, findings in this research are based on an assumption that network ties have just one function (Shipilov, 2012). I show here that relations that together make up a network tie are not independent from each other; the coexistence of an adviser and a friend role can increase the extent to which advice is provided but decrease the novelty thereof. When more than one relation exists within a single tie, they affect each other—they can intensify, hinder, or modify the other's outcomes. I argue that multiplex ties should not be studied as uniplex ties because their overall effect is a resultant of their component relations, rather than simply their sum. Finally, friendship in a professional setting is a very common (Burt, 1997; Gibbons, 2004; Ingram & Zou, 2008) but not yet managed phenomena in organizations. With this study, I aim to provide some insight into the trade-offs these complex relationships introduce to senior managers' professional lives.

## **THEORY DEVELOPMENT**

### **Multiplex Ties**

Existing research on tie multiplexity suggests that rather than being born as multiplex, uniplex ties evolve over time and, by accruing additional roles, develop into a multiplex form (Aral & Van Alystyne, 2011; Ferriani, Fonti & Corrado, 2013). Multiplex ties emerge when friends assume the role of adviser, or when advisers assume the role of friend. Given the lack of studies showing which path is more likely to occur, I remain agnostic about which role is the principal and instead attribute the same significance to both in the multiplex ties of senior managers.

## **Extent of Advice Provided and Multiplex Ties**

The motivation of both the senior manager who is given advice and the contact that provided it has been found to be an important antecedent of the flow of resources through network ties (Hansen, 1999; Szulanski, 2000). I argue that the coexistence of an adviser and a friend role within a single tie has a positive effect on the motivation of both parties and is therefore associated with greater provision of professional advice.

Motivation to seek professional advice is a function of the personal cost to the senior manager arising out of their advice-seeking behavior (Nebus, 2006). Managers who hold higher rank positions are expected to be more experienced than those lower in the hierarchy (Magee & Galinsky, 2008). Behavior of senior managers is often monitored by members of their organizations, who might interpret advice-seeking behavior as a signal of incompetence (Lee, 1997). Therefore, senior managers who access professional advice attract a personal cost in the form of reputational threat. Furthermore, it is not only other employees who doubt in the expertise of advice-seeking managers but also the senior managers themselves (Nebus, 2006). Asking for advice forces senior managers to question their own competence and introduces another potential personal cost to their self-worth (Deelstra et al., 2003).

Choosing to ask a friend for professional advice can reduce the senior manager's personal costs. First, approaching trusted contacts allows senior managers to remain discreet in their search for advice and therefore mitigates the risk of reputational threat. Second, exposing a personal weakness to a friend is less self-threatening than it is to a non-friend (Chua et al., 2008). Finally, because advisers who are also friends provide emotional support they also help senior managers regain their weakened professional self-confidence (Goldsmith & Fitch, 1997).

Allied to any personal costs, motivation to seek advice is also contingent on how likely senior managers think the approached contact is to answer their request for help (Nebus, 2006). Due to the highly complex and non-routine nature of senior managers' responsibilities, the advice they seek often requires a number of adaptations before it can actually be applied in the organization (McDonald & Westphal, 2003; Szulanski, 2000). Furthermore, senior managers prefer advice in the form of tacit knowledge, which is difficult to transfer (Menon & Blount, 2003). Providing senior managers with professional advice is both time and energy consuming, so acting as a senior manager's adviser requires commitment. In relationships based on friendship, therefore, connected managers are likely to provide each other with help voluntarily once it is requested (Clark & Mils, 1993). Moreover, norms of reciprocity have been found to be especially strong among friends (Verbeke & Wuyts, 2007). Consequently, senior managers can expect that the likelihood of receiving advice is higher from advisers who are also their friends compared to advisers who are not their friends.

The norms governing friendship, and its associated rules of reciprocity, not only lead senior managers to expect advice from their friends, but strengthen the adviser's motivation to provide it. By being a friend, senior managers' contacts implicitly accept a moral obligation to provide them with help when requested (Clark & Mils, 1993). Therefore, I anticipate that senior managers' advisers who are also their friends are more likely to engage in the time- and energy-intensive process which is the provision of professional advice. Based on the above, I propose the following hypothesis:

*Hypothesis 1 (H1): Friendship between a senior manager and his/her adviser is positively associated with the extent of professional advice the tie between them provides.*

## **Novelty of Advice Provided and Multiplex Ties**

Although comprising an adviser and a friend role within one tie can have a positive effect on the extent to which that tie provides professional advice, it can also have a reverse effect on the novelty of professional advice provided.

The value of professional advice is highest when it supports senior managers in strategic decision making (Bonaccio & Dalal, 2006; Schwenk, 1988). According to normative decision theory, best decisions are made when senior managers evaluate a substantial pool of alternatives and the probability of their outcomes (Nutt, 1976). As senior managers are limited in the number of scenarios they can generate themselves (Baer, Dirks & Nickerson, 2013; Simon, 1979), the quality of their decision making can be improved by incorporating novel information they receive from advisers (Dean & Sharfman, 1993). Since novel professional advice supports senior managers in generating new solutions that contribute to the decision-making process, it is more useful and valuable from a strategic decision-making perspective.

Industry, functional background, tenure, rank, and even gender are all contributing factors in determining advisers' expertise and professional experience (Harrison & Klein, 2007; Pelled, Eisenhardt & Xin, 1999). Differences between a senior manager and his/her adviser increase the novelty of the advice and lead to new scenarios the senior manager might include in the process of strategic decision making (Priem, 1999). However, senior managers and advisers who are also friends are unlikely to significantly differ from each other. According to the theory of homophily, people have a tendency to build close relationships with similar others (McPherson, Smith-Lovin & Cook, 2001). The more similarities between a senior manager and the adviser, the more likely they are to be attracted and consequently form a friendship (Sias & Cahill, 1998; Verbrugge, 1979). *Similarities* include basic demographic characteristics such as race, sex, and

age, as well as education, occupation, or tenure (Harrison & Klein, 2007). Senior managers are prone to form friendships not only with advisers with whom they share demographic characteristics but also with advisers with whom they share values, attitudes, and beliefs (McPherson et al., 2001). Because fewer differences exist between senior managers and advisers who are also their friends, than between senior managers and advisers who are not their friends, the information provided by the former source is likely to be of less use in strategic decision-making. This is because it is less likely to catalyze senior managers into generating new solutions that can facilitate the decision-making process. Therefore, I argue that ties comprising the roles of adviser and friend provide less novel professional advice. In formal terms:

*Hypothesis 2 (H2): Friendship between a senior manager and his/her adviser is negatively associated with the novelty of professional advice the tie between them provides.*

## METHODS

### **Sample and Data Collection**

To test the hypotheses regarding the relationship between friendship and professional advice, I collected data about informal network ties in the professional networks of senior managers. Together with the Confederation of Danish Industry (DI), we invited 500 Danish senior managers to participate in an online study. DI unites approximately 10,000 private enterprises operating within the manufacturing, trade, or service industries. Being an employee of an organization registered in Denmark, as well as paying the membership fee, are prerequisites for joining the Confederation. In return, the DI offers consulting services as well as training within HR practices, innovation, and outsourcing practices. Furthermore, members of DI have access to exclusive online platforms for professional networking.

In management studies, the executives and the top management team members are considered to be among populations that are the hardest to reach (Baruch & Holtom, 2008). To

encourage participation, I followed a number of practices recommended when studying C-line managers (Cycyota & Harrison, 2002). Prior to the online survey, I tested a questionnaire on a small group of MBA students and management scholars. Also, since the majority of participants were expected to be Danish, to increase the response rate the questionnaire was offered in Danish and English. To avoid any errors arising from literal translation, omission, and/or mistranslation, the questionnaire was cross-translated between English and Danish. A senior representative of DI, who was at the time in charge of the online networking platforms, invited affiliated senior managers to participate in the study via personalized e-mail. The e-mail contained a brief introductory note explaining the purpose of the study, the navigation of the survey, as well as the login and link to the online survey. In order to incentivize participation in the study, together with DI we offered the respondents a report with the general findings of the study, as well as the opportunity to participate in a networking workshop. Furthermore, to increase the response rate, we sent out an e-mail follow-up two weeks after the initial invite.

A response rate of 15 percent, which can be considered a satisfactory rate when studying executives and top management team members (Cycyota & Harrison, 2002), gave me an access to information on 924 unique network ties. However, because of missing variables, the final sample consisted of 710 unique ties that were embedded in the professional networks of 54 senior managers. The missing information was primarily about ties' provision of professional advice. I tested<sup>6</sup> for differences between dropped and kept ties and for differences between senior

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<sup>6</sup>For each continuous variable we performed a test for normality that combines a test on skewness and on kurtosis. Next, we used Levene's test to check homogeneity of variance between the two groups of respondents for normally distributed variables. To test for significant differences between the two groups of respondents we used an independent T test for normally distributed variables with equal variance, and a T test with Satterthwaite approximation on the data for normally distributed variables without equal variance. Variables that were not normally distributed but were ordinal were also tested for the homogeneity of variance with Levene's test. The differences between the two groups of respondents for ordinal variables and equal variance were tested with the Wilcoxon-Mann-Whitney test. To test differences between the two groups of respondents for categorical variables we used a chi-square test of independence, and Fischer's exact test for frequencies of five or less.

managers whose ties were dropped and senior managers whose ties were all included in the analysis. I found no significant differences on the tie level. On the senior manager level, however, I found a significant difference regarding network size.

In the final sample of 710 informal ties, there were 53 ties that did not provide professional advice. The majority of senior managers whose ties constituted the final sample were men (80 percent) aged 35–54 years old. The low proportion of female respondents corresponds with the real-life underrepresentation of women in senior management positions (Hillman, Shropshire& Cannella, 2007). More than half of senior managers in the study had networks with more than 15 contacts. Furthermore, half of the respondents had been employed in their current company for more than 15 years, and the same proportion had been employed in a senior position for more than 18 years. In addition, half of the respondents had a higher degree. Approximately, 56 percent had a CEO position; 31 percent were members of top management teams; and 13 percent were in charge of production. More than 60 percent of senior managers were employed by companies with more than 100 employees, operating mostly in the manufacturing industry (52 percent), knowledge-intensive industries (26 percent), and the wholesale and retail trade (17 percent).

**Research instrument.** One of the most common practices for collecting network data is to use name generators (Campbell & Lee, 1991). A name generator is questions used to identify who the contacts are that constitute a respondent's network (Wasserman & Faust, 1994). In many studies applying a social network perspective, scholars define in a name generator the type of contacts they want respondents to list (Shipilov, 2012). For example, scholars who are interested in advice networks in a name generator ask respondents to list contacts to whom they turn for advice (Burt, 1984; Marsden, 1990). Although such an approach to data collection is logical

when scholars are interested in the effect of particular types of tie on an observed outcome, e.g., the effect of advice ties on senior managers' promotion, in this particular study it would be sampling on the dependent variable. Because sampling on the dependent variable constrains its variance, it risks the observed relationship between an independent and the dependent variable being unreliable (Short, Ketchen & Palmer, 2002; Winship & Mare, 1992).

To avoid sampling on the dependent variable, in line with Chua, Ingram & Morris (2008), I asked respondents to list contacts they considered as significant members of their professional network, without providing any specific description of what constitutes a contact's significance. Although it has been argued already that just five contacts listed in a name generator constitute a statistically valid network measure (Merluzzi & Burt, 2013), to mitigate the risk that respondents omitted important contacts I asked them to list up to 15 names. Also, since ties in professional networks of senior managers are likely to cross organizational boundaries (Aldrich & Herker, 1977) I devised two separate name generators for external and internal contacts. The exact wording for external and internal networks was, respectively: '*A network of a manager might include senior managers employed outside her or his own company. In this set of questions we ask you about your external contacts. Please, list up to 15 senior managers in other firms that you feel are a significant part of your professional network. List the first name of the person and the initial of their last name.*' and '*A network of a manager might include other contacts in your company. We have already asked about your external contacts; in this set of questions we ask you about your internal contacts. Please, list up to 15 contacts you have inside your organization that you feel are a significant part of your professional network. List the first name of the person and the initial of their last name.*'. To measure the full variance of network size, senior managers who listed all 15 names were asked whether they have any more contacts in this category and, if

so, how many. In the final part of the questionnaire I used several name interpreters to collect more detailed information regarding the provision of professional advice, friendship, and other characteristics of the contacts listed by respondents in the name generators (Burt, 1997).

## Measures

***Extent of professional advice.*** To measure the extent to which each tie provides professional advice, I followed existing studies on information and advice networks (Rodan & Galunic, 2004; Sosa, 2011; Wong & Boh, 2010). I asked respondents to indicate on a 5-point Likert scale (where 0 = not at all; 5 = to a high extent) to what extent each contact they listed as significant provides them with professional advice. Professional advice was defined as “Advice or help to a managerial question or organizational issue at work” (Ingram & Roberts, 2000; McDonald & Westphal, 2003).

***Novelty of professional advice.*** As I argue in the theory section, advisers who share characteristics with those they are advising have a low propensity to provide them with high-quality information that supports the process of strategic decision making. On the other hand, advisers who do not share characteristics with the managers they are advising are more likely to provide original and “non-redundant” information that is highly valuable to strategic decision making.

To measure how many similarities there are between senior managers and their external contacts, I generated three dummy variables for external contacts (gender; position in the organizational hierarchy; and industry of employment), and four dummy variables for internal contacts (gender; position in the organizational hierarchy; function in the organization; and geographical location). For each dummy variable, I assigned a value of 1 if a senior manager and his/her contact shared the characteristic, and a value of 0 if they did not.

Next, to represent the novelty of professional advice a tie provides, I calculated Blau's heterogeneity index (Blau, 1977). First, by summing the values of dummy variables I counted how many characteristics a senior manager and his/her contact had in common. Next, I divided that calculation by the total number of dummy variables, respectively 3 and 4 for external and internal ties. Hence:

Novelty of professional advice provided by external tie =

$$1 - \frac{\sum_0^1 \text{gender} + \sum_0^1 \text{position in the organizational hierarchy} + \sum_0^1 \text{industry of employment}}{3}$$

and:

Novelty of professional advice provided by internal tie =

$$1 - \frac{\sum_0^1 \text{gender} + \sum_0^1 \text{position in the organizational hierarchy} + \sum_0^1 \text{function} + \sum_0^1 \text{location}}{4}$$

To account for any difference in the number of dummy variables, I standardized the index for external contacts with the index for internal contacts. The quality of professional advice is lowest when the index value = 1 and highest when the index value = 0.

**Friendship.** In this study, friendship is defined as an affective relationship that satisfies our “need for emotional support, exchanging warm attention, and giving nurture” (Takahashi, 2005: 54). Friendship is a person-specific relation, as it emerges because of the liked person’s unique qualities (Badhwar, 2008; Foa, 1971). Furthermore, friendship, even in a professional setup, is a voluntary act and it cannot be forced by formal obligations or duty (Sias & Cahill, 1998). Friendship between a senior manager and an adviser is an example of business friendships, defined by Ingram & Zou (2008: 170) as:

[F]riendships that coincide with a business relationship, which we recognize as either competitors, buyers or suppliers in a market, co-workers within an

organization, or actors that occupy similar positions in different organizations or markets and may therefore provide each other with useful business information.

As people tend to differ significantly in terms of which relations satisfy their emotional needs, prior studies defined the concept through correlation of the friendship activities and personal characteristics of people who were indicated as friends. In his exploratory study, Fischer (1982) found that friends, in case of non-kin ties, correlated with people who were emotionally close to the respondents. Also, studies on strength of network ties imply that emotional closeness, and not the duration of the relation or the frequency of interaction, is a stable trait characterizing the relationship of friendship (Marsden, 1990). Therefore, to measure friendship between senior managers and their advisers in this study, I asked respondents to indicate on a 5-point Likert scale how close they are to each contact they listed (where 1 = not close at all; 5 = very close).

**Control variables.** To rule out potential alternative explanations, I included a number of control variables. First, I controlled for the duration of the relationship between senior managers and their contacts, as well as for the frequency of their interaction. Studies on the strength of ties indicate that people who know each other longer and/or interact more frequently are more willing to provide each other with information (Hansen, 1999; Marsden, 1990).

I also controlled for the senior managers' gender. Men and women differ significantly in how they approach problems and ask for help (Brems & Johnson, 1989). In comparison to men, women are more likely to perceive problems as threats, doubt their own solving skills, and are therefore also more likely to search and ask for advice (Addis & Mahalik, 2003; D'Zurilla, Maydeu-Olivares & Kant, 1998). Because of these differences, I presume that the ties of female senior managers provide them with a greater extent of professional advice than the ties of male senior managers.

Likewise, I included a control for contact gender; female managers are often stereotyped as less resourceful than their male counterparts (Ibarra, 1997). Consequently, I expect that respondents report a lesser extent of professional advice provided by female contacts in comparison to male contacts.

Senior managers might also show preferences toward contacts that are higher in the organizational hierarchy (Magee & Galinsky, 2008). Organizational rank signals contacts' expertise and control over organization resources (Treviño, Chen & Hambrick, 2009). I expect that, in comparison to the senior manager, the higher the position of a contact in their organizational hierarchy, the more a senior manager perceives the contact as competent and the more professional advice the tie provides.

I also included a control variable for the senior manager's age, education, tenure at the company, and in the senior position. I expect that all these variables decrease senior managers' motivation or ability to access professional advice. First, cognitive skills, especially information searching, decline with age (D'Zurilla et al., 1998). Therefore, I expect that older managers are less likely to access diverse and complex information through their network ties. Furthermore, older senior managers with longer tenure and higher education might be more confident regarding their own competence and therefore less likely to ask for advice from their informal contacts (McDonald & Westphal, 2003).

Additionally, I control for the size of senior managers' networks. The effect of network size on a tie's provision of professional advice can be twofold. On one hand, in larger networks senior managers have access to many contacts that can provide them with professional advice. Thus, it can be expected that ties in larger networks provide professional advice to a lesser extent. On the other hand, a senior manager who has access to many alternative contacts that can

provide professional advice has also a higher bargaining power in the resource exchange (Markovsky, Willer & Patton, 1988). On such occasions senior managers' contacts might compete to remain in a relationship by providing professional advice to a greater extent.

Also, because ties are parts of larger structures, i.e., senior managers' ego networks, a tie's provision of professional advice might not be independent from qualities of other ties that are embedded in the same network (Morrison & Vancouver, 2000). For example, if there is just one tie to a highly skilled contact in a senior manager's professional network, this tie might provide professional advice to a greater extent because of the senior manager's limited choice among available contacts. To account for senior managers' opportunity to access professional advice through their ego networks I therefore included a dummy variable for each respondent.

Finally, to mitigate the problem of endogeneity, I also accounted for senior managers' firms' performance (ROA) as well as for the type of industry.

## **Analysis**

Variables describing egocentric network data can be attributes of *ego*, attributes of *alter*, or attributes of *tie* (Wasserman & Faust, 1994). In this study, egos are the senior managers who answered the survey, alters are the contacts they listed as significant, and ties are the connections between senior managers and their contacts. In the analysis, I include variables on all three levels of analysis, e.g., contact's age is a control variable on the ego level; gender is a control variable on the alter level; and frequency is a variable on the tie level. However, since the independent and dependent variables are on the same level of analysis, the tie level, I disregard the hierarchical nature of network data and test hypothesized relationships with Ordinary Least Squares models in STATA® 14.

## RESULTS

Descriptive statistics are presented in Table 1. To test H1, regarding the relationship between friendship and the extent of professional advice provided by a tie, I first run a linear model. The results reveal a positive and a significant relationship. However, since friendship does not develop in a linear manner (Sias & Cahill, 1998), I also test for a non-linear relationship between the independent and the dependent variable. The results in model 1, Table 2, indicate an inverted U relationship between friendship and the extent of professional advice a multiplex tie provides.

I confirmed the presence of an inverted U (Lind & Mehlum, 2010), by testing the hypothesis that the relationship is decreasing at the start of the interval and increasing at the end, or vice versa. For that purpose I run a user-written U-test command in STATA® 14. The subsequent analysis of average marginal effects, illustrated in Figure 1, shows that the relationship between friendship and the extent of professional advice provided by a tie increases exponentially until friendship reaches its critical point, almost at the mean, and then flattens out.

Likewise, to test the relationship between friendship and the novelty of professional advice provided by a tie, I initially run a linear model. The results reveal a significant and a negative relationship. Next, to test the non-linear relationship between friendship and the novelty of professional advice, I introduced a quadratic term into the model specification. The results in model 2, Table 2, indicate an inverted U relationship between friendship and the novelty of professional advice provided by a multiplex tie. The results of the U test confirmed an exponential relationship between the two variables. Average marginal effects are illustrated in Figure 1. Here, I find that there is a significant and negative relationship between friendship on

the quality of professional advice a tie provides. The average marginal effects, however, are insignificant for friendship values less than the mean.

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATION MATRIX <sup>a</sup>

| Variables                         | Mean  | S.D. | 1      | 2      | 3     | 4     | 5     | 6     | 7     | 8     | 9    |
|-----------------------------------|-------|------|--------|--------|-------|-------|-------|-------|-------|-------|------|
| 1. Extent of professional advice  | 3.36  | 1.47 |        |        |       |       |       |       |       |       |      |
| 2. Novelty of professional advice | 0.42  | 0.26 | 0.04   |        |       |       |       |       |       |       |      |
| 3. Friendship                     | 3.10  | 1.26 | 0.17*  | -0.07  |       |       |       |       |       |       |      |
| 4. Duration                       | 3.41  | 0.82 | -0.04  | -0.14* | 0.40* |       |       |       |       |       |      |
| 5. Frequency                      | 2.53  | 1.10 | 0.20*  | 0.06   | 0.43* | 0.08  |       |       |       |       |      |
| 6. Alter's gender (male = 1)      | 0.84  | 0.36 | -0.12* | -0.13* | -0.02 | 0.11  | -0.04 |       |       |       |      |
| 7. Ego's gender (male = 1)        | 0.80  | 0.40 | -0.06  | -0.27* | -0.00 | 0.15* | 0.09  | 0.27* |       |       |      |
| 8. Network size                   | 14.67 | 6.74 | 0.05   | 0.02   | 0.05  | 0.02  | -0.06 | -0.01 | -0.14 |       |      |
| 9. Tenure at the company          | 10.78 | 8.92 | -0.15* | 0.07   | 0.09  | 0.16* | -0.02 | 0.07  | -0.15 | -0.15 |      |
| 10. Tenure on a senior position   | 17.83 | 8.10 | 0.01   | -0.18* | 0.09  | 0.17* | 0.02  | 0.14* | 0.34  | 0.18  | 0.22 |

<sup>a</sup> N = 710 for tie-level variables. N = 54 for ego-level variables, i.e., ego's gender, network size, tenure at the company, and tenure on a senior position. Correlations that include tie-level variables are based on N=710.

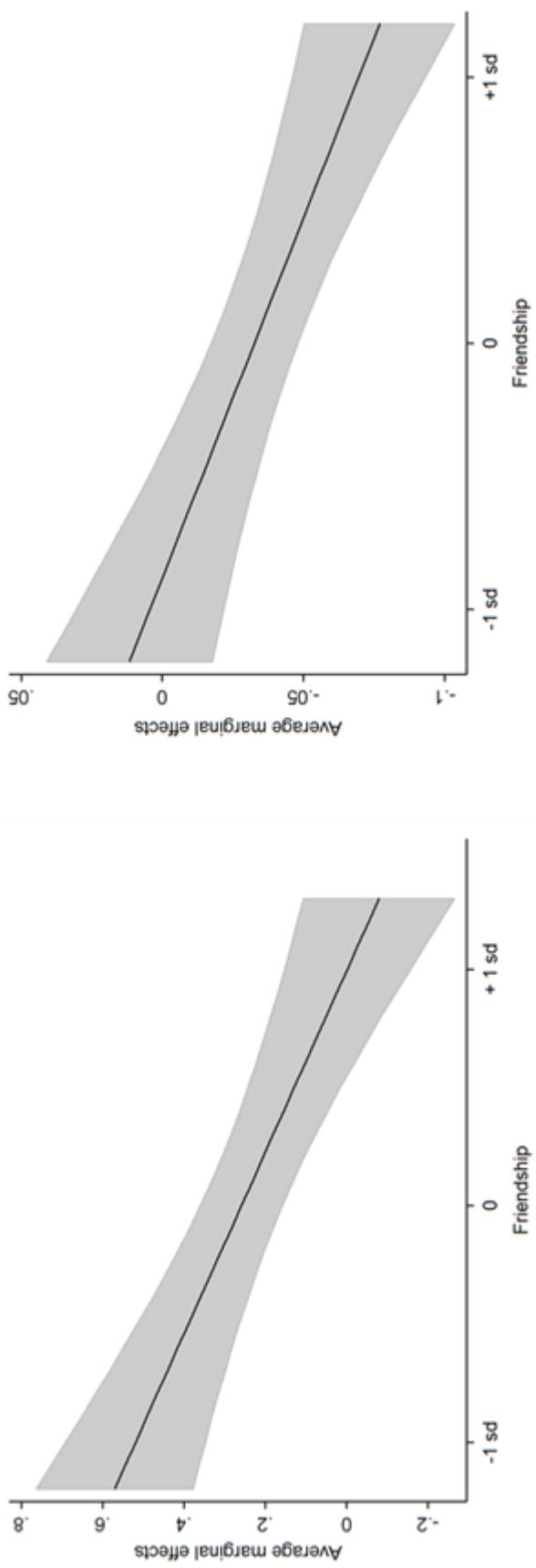
**TABLE 2: RESULTS OF ANALYSIS FOR THE RELATIONSHIP BETWEEN FRIENDSHIP AND PROFESSIONAL ADVICE PROVIDED BY A TIE**

|   | Model 1                        | Model 2                         |
|---|--------------------------------|---------------------------------|
| Friendship  | 0.259***<br>(5.06)             | -0.0326***<br>(-4.18)           |
| Friendship # Friendship   | -0.130***<br>(-3.98)           | -0.0185***<br>(-3.72)           |
| Duration of a relationship  | -0.146*<br>(-2.01)             | -0.0189 <sup>+</sup><br>(-1.72) |
| Frequency of interaction  | 0.194***<br>(3.47)             | 0.0749***<br>(8.81)             |
| Contact's position in hierarchy                                       |                                |                                 |
| Higher than ego's   | 0.312*<br>(2.39)               | -0.293***<br>(-14.78)           |
| Lower than ego's  | -0.178<br>(-1.47)              | -0.307***<br>(-16.67)           |
| Alter's gender (male)   | -0.291*<br>(-2.13)             | -0.0374 <sup>+</sup><br>(-1.80) |
| Ego's gender (male)   | -5.758 <sup>+</sup><br>(-1.91) | -0.411<br>(-0.89)               |
| Network size  | -0.129<br>(-0.99)              | -0.0132<br>(-0.67)              |
| Tenure at company   | 0.782<br>(0.88)                | 0.159<br>(1.18)                 |
| Tenure in senior position   | 0.373<br>(1.29)                | 0.0425<br>(0.97)                |
| Ego dummy (age, education, firm size, and industry) controls included |                                |                                 |
| Constant  | 11.59<br>(0.99)                | 2.885<br>(1.62)                 |
| Observations  | 710                            | 710                             |

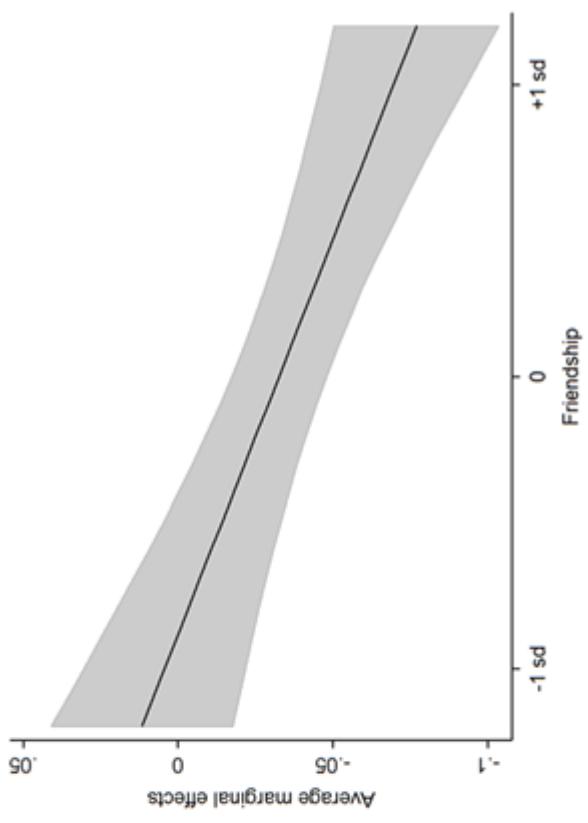
Standardized coefficients, *t* statistics in parentheses <sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

FIGURE 1: THE RELATIONSHIP BETWEEN FRIENDSHIP AND ADVICE  
EXTENT AND NOVELTY

Extent of professional advice



Novelty of professional advice



For friendship values greater than the mean, the magnitude of the negative relationship increases exponentially. This result suggests that although friendship has a persistent negative effect on the quality of advice provided, the magnitude of the effect increases once advisers become meaningfully close.

In order to compare the friendship effect on the extent of advice provided with the friendship effect on the novelty of advice provided by a tie, I ran a seemingly unrelated regression model (Zellner, 1962). Next, I tested friendship coefficients from both regressions against 0, and against each other. T tests confirmed that the coefficients are statistically different from 0 and from each other. The comparison of the relationship between friendship and the extent of advice provided with the relationship between friendship and the novelty of advice provided, suggests that senior managers might benefit more from friendly relations than from close friendships. Multiplex ties comprising both adviser and friend roles, at lower values of friendship; provide great benefit via additional advice at the marginal cost of that advice's lower novelty. At higher levels of friendship, on the other hand, the benefit of additional advice diminishes whereas the loss of advice novelty becomes severe.

Regarding the control variables, the duration of the relationship has a significant and negative effect on the extent of advice provided by a tie. Frequency of interaction, on the other hand, has a significant and positive effect on the extent and novelty of professional advice provided by a tie. Next, I found that contacts higher in the organizational hierarchy than the focal senior manager provided them with a significantly greater extent of professional advice than contacts on the same or a lower level. Surprisingly, both types of contacts—those who are higher and those who are lower in the organizational hierarchy than the focal senior manager—provide advice of significantly lower novelty than contacts on a similar level to the focal senior manager.

As expected, contacts who are females are associated with a lower extent of professional advice provided by a tie. Gender of the focal senior manager, as well as network size and tenure, are non-significant.

To ensure the robustness of observed results, I performed two additional analyses. First, I ran both models with an alternative measure of friendship. In many studies on managerial networks, provision of social support is an indicator of a friendship relation (Crowell, 2004; Gibbons & Olk, 2003; Ingram & Roberts, 2000). The results of both linear models confirmed the hypothesized relationship between friendship and professional advice. The quadratic relationships, however, were not significant. In the second analysis, I included a firm performance measure: average ROA. Senior managers' demand on particular types of resource is contingent on the challenges they need to resolve (Emerson, 1976). Ties can provide a greater extent of professional advice, once senior managers need to address firm underperformance. I found hypothesized relationships—linear and non-linear—to also remain robust in the second alternative model.

## **DISCUSSION AND CONCLUDING COMMENTS**

The theory and findings of this study contribute to the broad literature on the strategic value of senior managers' professional networks (Carpenter & Westphal, 2001; Dollinger, 2012; Geletkanycz, Boyd & Finkelstein, 2001; Hambrick, 1981; Hambrick & Quigley, 2014; Westphal, Seidel & Stewart, 2001). Among the many benefits these networks provide, the informal ties of senior managers give them access to strategically relevant professional advice (Adler & Kwon, 2002; Burt, 2003; Geletkanycz & Boyd, 2011; Inkpen & Tsang, 2005; McDonald & Westphal, 2010; Tsai & Ghoshal, 1998). By showing that the strategic value of professional advice is contingent upon the presence of friendship between the focal senior manager and his/her adviser,

I contribute to solving the puzzle of how professional ties between senior managers can have both positive (Ingram & Roberts, 2000) and negative effects on performance (McDonald & Westphal, 2003). The results of this study reveal that, although friendship between an advisee and adviser facilitates the extent of professional advice a network tie provides, it happens at the expense of that advice's lower novelty. Surprisingly, the trade-off between the provision of additional advice and the novelty of that advice is most beneficial when the friendship between a senior manager and the adviser is not too close. This implies that, from the perspective of professional advice, friendly relations between senior managers have a higher strategic value than their close friendships.

The findings of this study evoke further questions regarding the strategic value of friendship in the professional setup. This research shows that friendship has a dual effect on professional advice provided by a network tie. However, the link between the advice friends provide and the actual quality of senior managers' decision making has not yet been fully explored. For example, it would be noteworthy to study whether easier access to less novel advice facilitates or hinders the solving of acute strategic problems. Also, since informal network ties provide access to multiple strategically valuable resources (Westphal et al., 2006) it would be insightful to explore whether the effect of friendship on the extent to which a resource is provided extrapolates to other types of instrumental resources—especially if the quality of these resources is not affected by the similarities between the connected managers. Although the focus of this study is professional advice, friendship in professional settings is becoming an increasingly important topic in management literature (Bridge & Baxter, 1992; Casciaro, Gino & Kouchaki, 2014; Casciaro & Lobo, 2008; Ingram & Zou, 2008). Therefore, exploring the reverse

effects of ties' provision of instrumental resources on friendship could provide valuable insights as to why some ties last longer than others.

By looking into the resources that flow through informal network ties, I also contribute to studies on tie content (Adler & Kwon, 2002; Borgatti & Halgin, 2010; Tichy, Tushman & Fombrun, 1979) especially within the area of tie multiplexity (Beckman, Schoonhoven, Rottner & Kim, 2014; Cotton et al., 2011; Gulati et al., 2010; Rose, Rose, Norman & Mazza, 2014). The majority of studies applying a social network perspective work under the assumption that network ties have just one role, and that the observed outcomes are contingent on the role a researcher assigned (Shipilov, 2012). In these studies, qualitative differences in what flows through network ties are often dismissed (Burt, 1992). I demonstrate here that there are important qualitative differences in network tie content and that these differences are associated with the multiple roles these ties comprise. Specifically, I show that the characteristics of professional advice provided by a network tie, i.e., extent and novelty, change according to the closeness of friendship between the connected managers. Therefore, multiplex ties that comprise the role of an adviser and that of a friend are not just a sum of the two. Different relations coexisting within one network tie affect each other by intensifying, hindering, or modifying the other's outcomes. Disassembling multiplex ties and studying them as uniplex ties can undermine the validity of observed results. Therefore, complementing structural studies with results from network content studies could greatly advance our understanding of how and when network ties benefit senior managers and their organizations. For example, a future study could address the important question of how network structure moderates the effect of friendship on professional advice that is provided by a multiplex tie.

Incorporating network measures could also help to overcome some of the limitations of this research. I theorize here that the quality of advice is related to its applicability in a strategic decision-making process. Therefore, in this study, originality and non-redundancy define professional advice of high quality. Network structure, along with the similarities between the connected senior managers, has important implications for the level of redundancy of the information provided by a network tie. Dense and cohesive structures are more likely to nest ties that provide senior managers with redundant information (Moran, 2005; Podolny & Baron, 1997; Reagans & McEvily, 2003). Moreover, network structure corresponds to senior managers' opportunity to acquire valuable resources (Adler & Kwon, 2002). In this study I control for individual differences among senior managers, however, introducing measures that capture the accessibility of advisers in these senior managers' networks could further advance our understanding of the nature of the relationship between friendship and professional advice provided by a network tie.

Another potential limitation of this research could be the number of respondents and the generalizability of the results. However, in this study the number of respondents does not correspond with the sample size. I focus here on the relationship between friendship and professional advice and, since both variables are on the tie level, I test them on a sample consisting of 710 unique network ties. Furthermore, for the purpose of this study I collected network data on ties in professional networks of senior managers. Network surveys are very time consuming and often require respondents to provide detailed and sensitive information (Burt, 1984; Campbell & Lee, 1991; Merluzzi & Burt, 2013). In addition, senior managers and executives are notoriously unwilling to respond to survey invitations (Cycyota & Harrison,

2002). Therefore, despite a relatively small number of respondents, this study does provide unique insights into the informal ties within the professional networks of senior managers.

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## CHAPTER 5. CONCLUDING REMARKS

Professional networks have been found to have a significant importance for senior managers' individual careers (Granovetter, 1973; Hwang & Kim, 2009; Seibert et al., 2001) as well as for performance of their organizations (Ingram & Roberts, 2000; Mors, 2010; Tortoriello & Krackhardt, 2010). Most studies applying social network perspective focuses on structural properties of networks and the corresponding opportunity to acquire social resources (Shipilov, 2012). The opportunity however, does not always equal the actual resources that are provided by informal ties in professional networks of senior managers. As empirical evidence suggests, ties embedded in equivalent network structures can still significantly differ in terms of resources they provide (Anderson, 2008; Haas & Park, 2010). Despite networks' implications for an individual and a firm level performance, the actual tie content, its antecedents as well as consequences, remains heavily understudied. In this dissertation, I go beyond structural properties of networks, and address a question of: *What resources flow through informal ties in senior managers' professional networks, and why?*

This dissertation contributes to literature on strategic value of professional networks (Carpenter & Westphal, 2001; Geletkanycz & Hambrick, 1997; Westphal et al., 2006). The strategic value of informal ties in senior managers' networks refers to their content, specifically to the extent to which, the number of and the types of resources a tie provides. I here show that two of the content dimensions, i.e. the extent to which and the number of resources provided by a tie, are contingent on norms that network actors apply to govern their resource exchanges (Clark & Mils, 1993). Furthermore, a specific set of norms is associated with a combination of ego's and alter's gender, which is a tie-level characteristic.

In addition to gender differences, I find tie content to be contingent on external factors (White et al., 1976), namely on senior managers firms' underperformance. Senior managers in reaction to their firms' underperformance can use their ties to access professional advice (Bonaccio & Dalal, 2006; Cross et al., 2001; McDonald & Westphal, 2003), a resource that benefits them and their organizations, to access information regarding alternative employment (Cannella, Fraser & Lee, 1995; Semadeni, Cannella, Fraser & Lee, 2008; Wiesenfeld, Wurthmann & Hambrick, 2008), a resource that benefits them exclusively, or to do both. I here find that the more company underperforms, the more senior managers use their network ties to access career relevant information in comparison to professional advice. This finding should be of interest to strategy scholars applying social network perspective, as it implies that strategic value of network ties changes with the extent of firm underperformance and that ties that could potentially provide strategically valuable professional advice under certain circumstances do not. Besides firm underperformance, I find senior managers' social identification with the corporate elite (Domhoff, 2009; Reissman & Mills, 1956; Useem, 1982) to be an important factor altering types of resources a network tie provides (McDonald & Westphal, 2010; Westphal & Khanna, 2003). Interestingly, this dissertation's results imply that the stronger senior managers' identification with the corporate elite, the less they are inclined to access information regarding career opportunities. Accessing information regarding alternative employment in a context of firm underperformance could potentially signal senior manager's personal failure and lead to exclusion from, by definition successful, corporate elite. In this dissertation, I focus on firms' underperformance however; future research could address an interesting question of how senior managers use their network ties in a context of firms' overperformance. A firm's success, similar to a firm's failure, could alter senior managers' demand on particular types of resources. On one hand, senior managers in overperforming

companies might be more inclined to use their network ties to access advice regarding further sources of growth (Garg, Walters & Priem, 2003). On the other hand, senior managers who are attributed firms success have higher bargaining power on a labor market and therefore can be inclined to use their network ties to reach a more prominent position. Also, this dissertation studies the effect of social identification with corporate elite on ties' use. Since senior managers can develop multiple identities (Foreman & Whetten, 2002; Stryker & Burke, 2000), it would be fruitful to explore how social identification with corporate elite coexists with senior managers' social identification with their organization (Ashforth & Mael, 1989) and how an interplay between those two affects the use of network ties.

In this dissertation, I also contribute to research on strategic value of professional networks by showing that what flows in network ties is not only contingent on external factors, but also on tie's internal dynamics. Relations that coexist within a multiplex tie are not mutually neutral, and instead they can intensify, weaken or cancel each other out. Specifically, I here find that strategic value of professional advice changes along the closeness of friendship between connected network actors. Though, I show in this dissertation how tie content matters for its strategic value, the full link between tie content and individual- and firm-level performance is yet to be fully explored.

Moreover, this dissertation's findings contribute to theory of networks (Borgatti & Halgin, 2010), especially to studies on tie content and tie multiplexity (Ronald S. Burt, 1997; Gulati et al., 2010; Ibarra, 1992; Rogan, 2014). First of all, I here relax the assumption of tie content homogeneity and study it along three dimensions, namely the extent, the number and the type of resources a network tie provides. Next, by looking at more than one dimension at a time I provide valuable insights into how dimensions of tie content relate. For example, the effect of gender differences on the number of and the extent to which a network tie provides resources

implies that network tie can either provide many different types of resource but to a low extent or only few resources but to a high extent. In addition, I find that male and female senior managers have reverse tie content strategies and while men favor number of resources over the extent to which they are provided, women prefer the opposite. Since, both males and females in this study are highly successful managers it evokes a question whether there is one optimal networking strategy or rather a successful networking strategy embraces individual differences. In addition, as ties provide either a high number of different resources to low extent or few to a high extent, a potential future research could look into network ties' capacity to provide resources. Especially a question of when and how ties break because of overload is noteworthy of further exploration. Finally, incorporating tie content measures into studies on networks' structural properties would be of great value for studies on an individual and firm level performance.

This dissertation should be viewed in light of its limitations. First, a number of respondents could question generalizability of the results. Undoubtedly, this study would benefit from a larger group of respondents. However, in this dissertation the number of managers who answered the survey does not correspond with the sample size. I here study micro-level mechanisms that lead to differences on a tie-level. Thus, all analyses are run on a sample of at least 500 unique network ties. Also, to address that these ties are nested in ego networks, I run multilevel models that account for hierarchical nature of network data (Van Duijn, Van Busschbach & Snijders, 1999). Another potential limitation of this study is self-reported data and the associated bias (Podsakoff & Organ, 1986). Despite survey data limitations, I argue that this method of data collection represents a good fit with this dissertation overall research question. Studying tie content along its three dimensions represents a significant empirical challenge. Taking into account characteristics of resources, identifying different types that are

provided by a network tie, though difficult, might still be less problematic than comparing the extent to which these resources are provided by a tie. Most of strategically valuable resources that informal ties can provide have symbolic nature (Cook & Whitmeyer, 1992). Symbolic resources are characterized by low concreteness and high particularism (Donnenwerth & Foa, 1974). Thus, the extent to which a tie provides a symbolic resource is highly subjective. In context of this study however, it is not necessary a limitation. Studies on network perception show that in most cases there is a discrepancy between managers' perception of their networks and their real networks (Casciaro, Carley & Krackhardt, 1999; Kilduff, Brass & Mehra, 2001). Furthermore, it is the perceived and not the real network that underlines their behavior (Berger & Luckmann, 1966).

Though difficult, studying tie content is a promise of valuable contributions. Regardless of the discussed limitations, this dissertation as an initial attempt to deepen our understanding of what and why flows through informal ties in professional networks of senior managers provides unique and valuable insights.

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