This paper extends the research on information sharing by exploring two antecedents and one moderator with an attempt to explore what contributes to information sharing. Drawing on resource-based view, and the dynamic capabilities perspective, this study builds an argument that IT infrastructure and IT governance are two important determining factors for information sharing in the supply chain management context. Further, this study relies on the modularity systems theory and the information security policy literature to articulate the point that information security policy moderates the relationships between IT infrastructure and governance, and information sharing. Hypotheses are proposed based on these two arguments.

KEYWORDS: IT infrastructure, IT governance, Information security policy, Information sharing, Supply chain management

INTRODUCTION

The bullwhip effect is a perplexing issue for supply chain management (SCM) (Lee, Padmanabhan, & Whang, 1997). An effective strategy for addressing this issue is information sharing between supply chain partners (Sahin & Robin, 2002). Besides reducing the bullwhip effect, information sharing can generate many other benefits including supplier performance improvement (Galt & Dale, 1991; Newman & Rhee, 1990), buyer performance improvement (Germain & Droge, 1998; Krause, Handfield, & Tyler, 2007; Tan, Kannan, & Handfield, 1998; Vickery, Jayaram, Droge, & Calantone, 2003), supply chain practice improvement (Zhou & Benton, 2007), and buyer-supplier relationship enhancement (Ellram & Edis, 1996; Landeros & Monczka, 1989; Moore, 1998; Ogden, Petersen, Carter, & Monczka, 2005; Pilling & Zhang, 1992). To date, information sharing has been mostly examined as an independent variable contributing to achieving those benefits. However, information sharing is not something given. There must be some drivers as well as inhibitors. Prior research rarely made any attempt to investigate those drivers and inhibitors of information sharing. Understanding those drivers and
inhibitors is of critical importance to SCM, as knowledge of them can aid organizations to promote those drivers and effectively address the inhibitors.

As information sharing is mostly done through technology, information technology (IT) easily surfaces as an important driver. Yet, even if a single piece of IT may serve as a main conduit for information flow, it is mostly integrated into the overall technology system of an organization, i.e., its IT infrastructure. It is usually the IT infrastructure not a single piece of IT that enables and executes information sharing, as the IT infrastructure provides IT capabilities for collecting, storing, securing, accessing, and managing information (Lu & Ramamurthy, 2011). In information systems (IS) research, the term IT infrastructure flexibility has been developed to refer to the overall capabilities of IT infrastructure (Duncan, 1996; Byrd & Turner, 2000). Yet, in prior research, the construct of IT infrastructure has rarely been examined with respect to information sharing.

While IT infrastructure provides technical capabilities for an organization to execute information sharing, information sharing may require other capabilities from the organization. How IT infrastructure should work is up to management. Managerial decision making with respect to IT infrastructure can be another factor influencing information sharing by an organization. Indeed, decision making regarding IT issues falls into the domain of IT governance (Sambamurthy & Zmud, 1999). As a priority for most organizations (ITGI, 2011), IT governance refers to decision making on how to maximize benefits stemming from IT use and minimize risks involved in releasing and receiving information (Heroux & Fortin, 2013). Past research has explored the role of IT governance in e-business (Patel, 2002), and more specifically, IT governance’s enhancement of website credibility and usability that ultimately resulted in improved customer responsiveness (Brown, Rahman, & Hacker, 2006). Recently, Heroux and Fortin (2013) examined the role of IT governance in information control on websites. But IT governance’s effect on information sharing remains unexplored.

The purpose of this study is to investigate the effects of IT infrastructure and governance on information sharing. Further, as information sharing involves risks as well as generates security concerns, an important managerial approach to addressing information security, information security policy, will be examined together with IT infrastructure and governance in this study. This study will contribute to the literature in three ways. First, it will show that there are some conditions and factors that serve as antecedents to information sharing. This will extend our understanding of information sharing in that information sharing not just generates some benefits but also is facilitated or constrained by those conditions and factors. Second, this study is an initial exploration of what factors influence information sharing in the supply chain context, a new area in SCM research. Understanding the influence of such factors will help organizations to prepare their readiness for information sharing by promoting or addressing those factors. Findings from this study will provide insight into the dynamics of IT infrastructure and governance with respect to information sharing. Third, this study will illuminate how information security policy moderates IT infrastructure and governance’s impact on information sharing. Findings from this study will inform managers that information security policy provides extra insurance for organizations to share information with their supply chain partners.

The remainder of the paper is organized as follows. We will start to review the resource-based view and its extension, the dynamic capabilities perspective, to construct a theoretical foundation for our examination of the factors impacting information sharing. Then we will review the literatures on IT infrastructure, governance, and information security policy with an attempt to show how these factors relate to information sharing. Based on these literature reviews, we
will propose some hypotheses regarding the relationships between these factors and information sharing. What follows is the methods section where detailed descriptions will be offered about data collection and analysis. The results section will present the results of analysis. Finally, the results will be discussed with respect to theory and practice in the discussion section.

LITERATURE REVIEW AND THEORY

In this section, we draw on the resource-based view and the dynamic capabilities perspective to articulate the argument that IT infrastructure and IT governance are required for information sharing with external partners. We also rely on the modularity systems theory to show that modularity as one attribute of IT infrastructure helps to ease security concerns involved in information sharing, which otherwise would drag firms from using its IT infrastructure to share information. We will further show that information security policy would serve as extra insurance in reducing security concerns, which would facilitate IT infrastructure and governance’s contribution to information sharing. The conceptual model is shown in Figure 1. Before we discuss the roles of the two antecedents and one moderator, we review the literature on information sharing so as to argue that studying antecedents to information sharing is lacking but important.

Figure 1:

**Conceptual Model**

![Conceptual Model](image)

**Information Sharing**

A quick survey of the business related literatures shows that supply chain management researchers have directed far more attention to information sharing than scholars from any other business research area. Information sharing has been treated as the most important contributor to successful SCM (Kwon & Suh, 2004). This is mainly due to the view that information sharing can cure most supply chain related problems (Sahin & Robinson, 2002). According to Terpend, Tyler, Krause, and Handfield (2008), information sharing emerged as a topic of supply chain
management in the late 1980s, captured an increased amount of attention in the 1990s, and dominated the research agenda in the 2000s. There is no sign showing that this scholarly interest is abating, as recent studies have continued to examine information sharing to some sustained extent. Information sharing has been predicted to be a SCM strategy that will be highly used in the future (Ogden et al., 2005). Information sharing in the context of SCM refers to exchanging business-related information with supply chain partners. Table 1 presents a summary of major representative findings about information sharing. Supply chain partners usually share some of the following types of information: demand forecast (Ebrahim-Khanjari, Hopp, & Iravani, 2012; Gaur, Giloni, & Seshadri, 2005), inventory status (Croson & Donohue, 2006), capacities (Sahin & Robinson, 2002), production status and costs (Kocabasoglu & Suresh, 2006), sales (e.g., point of sales data) (Croson & Donohue, 2003; Li, 2002; Raghunathan, 2001; Watson & Zheng, 2005), ordering (Ketzenberg & Ferguson, 2008; Kong, Rajagopalan, Zhang, 2013), transportation availability (Sahin & Robinson, 2002), lead time (Chen & Yu, 2005), quantity discounts (Sahin & Robinson, 2002), and planned promotional strategies (Iyer & Ye, 2000), etc.

Early research explored benefits of information sharing to the supply chain. For example, information sharing helps to reduce the bullwhip effect (Chen, Ryan, & Simchi-Levi, 1996; Croson & Donohue, 2003, 2006). Other benefits include, but are not limited to, cycle time reduction (Hult, Ketchen, & Nichols, 2002), cost reduction (Sahin & Robinson, 2005), delivery performance (Zhou & Benton, 2007), reduction of transaction costs (Noordewier, John, & Nevin, 1990; Rindfleisch & Heide, 1997), information asymmetry reduction (Chu & Wang, 2012), behavioral uncertainty (Kwon & Suh, 2004), effective strategic sourcing (Kocabasoglu & Suresh, 2006), improved forecast (Hyndman, Kraiselburd, & Watson, 2013), and reduction of inefficiencies resulting from information deficits (Inderfurth, Sadrieh, & Voigt, 2013). Some benefits of information sharing are party specific. For example, information sharing brings to the buyer the following benefits: enhancement of its competitive position (Tan, 2002), financial performance improvement (Vickery, Jayaram, Droge, & Calantone, 2003), increasing supplier’s commitment (Kwon & Suh, 2004), effective supplier development (Krause, 1999), supply base reduction, and JIT purchasing (Handfield, 1993). On the supplier side, information sharing helps to lower transaction costs (Saeed, Malhotra, & Grover, 2005), reduce inventory levels (Cheung, Myers, & Mentzer, 2011), and improve performance (Newman & Rhee, 1990; Galt & Dale, 1991). As it benefits both sides, information sharing should be a mutual process, i.e., sharing both downstream and upstream information along the chain (Chen & Yu, 2005; Choi, Blocher, & Garirneni, 2008; Jain & Moinzadeh, 2005). Additionally, benefits of information sharing are also situation specific, and contingent on product type, demand patterns, decision-making (centralization or decentralization) (Ketzenberg & Ferguson, 2008), and relationship quality, among other things (Kocabasoglu & Suresh, 2006).

Besides performance benefits, information sharing contributes to relationship building between supply chain partners. While trust facilitates information sharing, information sharing also helps to develop and enhance trust between supply chain partners (Cai, Jun, & Yang, 2010; Ebrahim-Khanjari, Hopp, & Iravani, 2012; Kwon & Suh, 2004; Ozer, Zheng, & Chen, 2011). Information sharing, to a large extent, is a means of relational learning, and thereof enhances relationship performance by supply chain partners (Cheung, Myers, & Mentzer, 2011). Similarly, it enhances relationship quality (Chu & Wang, 2012). Likewise, information sharing leads to trust and commitment, which then, in turn, lead to improved satisfaction with the supply chain partner and performance (Nyaga, Whipple, & Lynch, 2010). Finally, information sharing promotes collaboration (Prahinski & Benton, 2004). Apparently, prior research mainly focused on consequences of information sharing but ignored its antecedents.
Information Technology Infrastructure

The above documented benefits of information sharing constitute a powerful motivating force driving firms to exchange information with their supply chain partners. Yet, their actual practice of information sharing is contingent on their internal readiness for doing so. Exchanging information with supply chain partners is mostly accomplished through interorganizational systems (Malhotra, Gosain, & El Sawy, 2005). Before hooking up to the interorganizational systems, firms must develop their internal IT capabilities that help to store, access, and manage information (Lu & Ramamurthy, 2011), and connect their internal databases to the interorganizational systems (Duncan, 1996). These IT capabilities are components of their IT infrastructures (Broadben & Weil, 1997; Byrd & Turner, 2000; Duncan, 1996; Henderson & Venkatraman, 1994). Besides the technical readiness, firms must address security concerns associated with sharing information with supply chain partners (Xue, Zhang, Ling, & Zhao, 2013).

According to the resource-based view, different firms develop across time and then possess resources that are unique to themselves, which account for their competitive advantages (Barney, 1991). Resources that generate sustained competitive advantage have four basic attributes: value, rareness, inimitability, and irreplaceability (Barney, 1991; Conner, 1991; Schulze, 1992). Value means that a resource can generate some benefit to the firm. The other three attributes are interrelated. A rare resource is usually hard to copy, and difficult to substitute with. It is these four attributes of an organizational resource that creates sustained competitive advantage that best explain a firm’s readiness and confidence for sharing information with supply chain partners. In the context of SCM, information sharing relies on information systems such as EDI and standard electronic business interfaces (Malhotra et al., 2005). However, information systems alone do not provide a sense of assurance for the firm to share information with its partners, as they are common and imitable (Duncan, 1996). Only when information systems are fully integrated into a firm’s IT infrastructure, assurance is provided, as the latter constitutes a unique resource of the firm (Duncan, 1996; Ray, Muhanna, & Barney, 2005; Zhu, 2004). As IT infrastructure as an organizational resource is unique to the firm, inimitable and irreplaceable, it gives the firm some safety feeling which promotes its willingness to share information.

**IT infrastructure** refers to a set of tangible IT resources that provide a foundation for a firm to perform its business activities (Duncan, 1996). It includes hardware and operating systems, software, networking and telecommunication technologies, key data, core data-processing applications, and security technologies such as firewalls (Duncan, 1996; Kumar, 2004; Roberts & Grover, 2012). IT infrastructure has strong reliability, adaptability, and scalability (Kumar, 2004). While reliability minimizes downtime, adaptability enables the IT infrastructure to cope adeptly with changes in business requirements, and similarly, scalability enables components of IT infrastructure to be easily upgraded and downgraded in order to meet changing business needs (Kumar, 2004). IT infrastructure enables firms to assimilate information technologies in their business strategies and value-chain activities (Armstrong & Sambamurthy, 1999).

Quality of IT infrastructure has been mostly encapsulated in and indexed by the construct of IT infrastructure flexibility (Byrd & Turner, 2000; Duncan, 1996; Tallon & Pinsonneault, 2011). Although IT infrastructure flexibility covers both a technical IT infrastructure and a human IT infrastructure in some conceptualizations (see Byrd & Turner, 2000; Duncan, 1996), this study follows the tradition of most empirical studies on IT infrastructure flexibility to limit it to the
technical IT infrastructure. Thus, *IT infrastructure flexibility* is defined as the extent to which IT resources can be managed to serve different purposes. More specifically, it refers to the extent to which organizational deployment of hardware, software, and networking and communication technologies can be flexible enough so as to scale as demand changes, and can adapt to changes in data formats, operating requirements, and information needs (Byrd & Turner, 2000; Duncan, 1996; Roberts & Grover, 2012; Tallon & Pinsonneault, 2011).

IT infrastructure flexibility represents a firm’s core competency (Davenport & Linder, 1994), which enables it to connect to and control over the outside environment (Byrd & Turner, 2000; De Leeuw & Volberda, 1996). Thus, from the resource-based perspective, IT infrastructure flexibility serves as a technical foundation for the firm to exchange information with external partners.

In Duncan’s (1996) conceptualization, IT infrastructure flexibility has three dimensions: compatibility, connectivity, and modularity. Compatibility means that components of the IT architecture in an organization are compatible with each other, the platform technology, as well as interorganizational systems that connect supply chain partners. This compatibility dimension of IT infrastructure flexibility provides a fulfillment of a basic requirement from information sharing. Compatibility of a firm’s IT infrastructure with an interorganizational system makes information sharing with its supply chain partners technically possible. Connectivity is closely related to compatibility in the sense that compatibility is a prerequisite for connectivity. Connectivity is more of an attribute of the networking and telecommunication technologies. It refers to the ability and the extent to which a firm’s information systems within its IT infrastructure can connect with each other as well as external information systems. Both compatibility and connectivity ensure a firm a technical readiness to exchange information with its supply chain partners. Modularity is an attribute of key data and applications within the IT infrastructure.

The concept of modularity means that a firm’s IT infrastructure is capable of isolating and standardizing as many of its business and systems processes as possible (Duncan, 1996). Drawing on the modular systems theory (Sanchez & Mahoney, 1996; Schilling, 2000), Xue, Zhang, Ling, and Zhao (2013) showed that modularity helps to mitigate risks with its principles of loose coupling, information hiding (e.g., encapsulation), and interface standardization reflected in IT infrastructure design. With its function of risk mitigation, this modularity dimension helps to reduce security concerns for a firm to exchange information with its supply chain partners. Apart from modularity, the security technologies inherent in IT infrastructure further help to reduce security concerns firms may have in informational exchange with external partners.

Prior research on IT infrastructure flexibility points to a possible positive relationship between IT infrastructure flexibility and information sharing. For example, Weil (1993) found that a flexible IT infrastructure is able to handle increased customer demands but without increasing costs. Customer demand can be informational. If a firm’s IT infrastructure can respond to increased information demand from customers, it should be able to facilitate information sharing with its supply chain partners. Likewise, IT infrastructure flexibility interacts with e-commerce capability to generate positive effect on firms’ performance ranging from operations to sales (Zhu, 2004). Put in another way, such performance improvement benefits greatly from IT infrastructure flexibility, which enables and supports information exchange and processing activities involved in e-commerce. Similarly, IT infrastructure flexibility is found to have a significant positive main effect as well as interaction effect (with IT alignment with business strategy) on a firm’s agility.
Agility is a firm’s capability of responding to and addressing environmental volatility (Tallon & Pinsonneault, 2011), including customer-based opportunities (Roberts & Grover, 2012), and market capitalizing agility and operational adjustment agility (Lu & Ramamurthy, 2011), hence a strong indicator of information exchange and processing capability (Gosain, Malhotra, & El Sawy, 2004).

Structured data connectivity, an inherent element of IT infrastructure flexibility, positively influences a firm’s offering flexibility and partnering flexibility in e-business supply chain relationships, both involving high volumes of information sharing (Gosain et al., 2004). The critical role of IT infrastructure in information sharing was further suggested in Mithas, Ramasubbu, and Sambamurthy’s (2011) recent research. They used the construct of information management capability to capture all the information sharing and processing functions of IT infrastructure and demonstrated the role of information management capability in enhancing organizational customer management, process management, and performance management capabilities, which then contribute to performance improvement. The discussion of IT infrastructure from the resource-based perspective and prior research on IT infrastructure strongly suggests a possible relationship between IT infrastructure and information sharing. Thus, the following hypothesis can be proposed here:

**H1:** IT infrastructure flexibility is positively related to information sharing with supply chain partners.

**IT Governance**

The dynamic capabilities perspective suggests that managerial strategies are called for when a firm’s unique resources are marshalled to create sustained competitive advantage for the firm. When managerial strategies are combined with the firm’s unique resources, dynamic capabilities are expected to develop in the firm (Teece, Pisano, & Shuen, 1997). While IT infrastructure as a unique resource provides technical readiness for the firm to share information with supply chain partners, decisions for what information to be shared, when and how to share information with supply chain partners are up to the firm’s management. Such decision making calls for dynamic capabilities of the firm, which refers to the firm’s quick and timely actions of integrating internal and external resources, skills, and competencies to respond to changes in the business environment (Teece et al., 1997).

In the area of IT management, IT governance represents the attainment of dynamic capabilities. **IT governance** is defined as a firm’s decision making for IT-related activities ranging from strategic IT planning, IT infrastructure management, IT use management, project management, application development, to IT investment (Sambamurthy & Zmud, 1999; Weil & Ross, 2005; Xue, Ray, & Gu, 2011). IT governance, thus, represents a firm’s IT-related authority patterns (Sambamurthy & Zmud, 1999). Usually there are three IT governance arrangements: corporate IS, divisional IS, and line management as the authority for decision making for all IT-related activities. While corporate IS represents a centralized governance mode, both divisional IS and line management are decentralized governance modes (Sambamurthy & Zmud, 1999). Between the centralized and decentralized governance modes, there is a mixed governance mode known as federal governance mode (Sambamurthy & Zmud, 1999). IT governance can simply be conceptualized as authority in decision making in all IT-related activities ranging from centralization to decentralization.
IT governance is critical to information sharing. Prior research examined IT governance in some specific contexts that involve information sharing. For example, Kim, Lee, Koo, and Nam (2013) investigated IT governance in IT outsourcing. Similarly, Hexour and Fortin (2013) examined IT governance in the context of website content control. Both are cases of information sharing. As Heroux and Fortin (2013) demonstrated, IT governance relates to information sharing in three important ways. First, IT governance stimulates what individuals and groups make decisions for information sharing. Second, IT governance processes are aligned with information sharing processes. More specifically, IT governance processes of setting objectives, deciding on strategies, implementing those strategies, and assuring reliability are matched with information sharing processes of goal setting, information management, surveillance, and risk management. Third, communication and coordination between and among individuals and groups participating in IT governance are related to control over information sharing.

The past IT governance literature seems to support a view that decentralized IT governance facilitates information sharing. According to Jensen and Meckling (1992), decision making authority is related to location of pertinent knowledge, meaning that individuals or departments that have the highest pertinent knowledge should have the decision making authority. As specific information resides mostly in business units, a decentralized IT governance mode would allow the business units quickly pass that information to a supply chain partner upon request. On the contrary, a centralized IT governance mode would require top corporate management to request for specific information from a business unit before it is able to pass that information to a supply chain partner. This takes more time than the business unit directly passing the information to the partner. Besides, the business unit has more professional expertise and better skills than top management to interpret information needs from supply chain partners. If decision making authority and knowledge are not collocated, either the decision makers should gain pertinent knowledge or the decision making authority would be moved to the individual or group that have the pertinent knowledge (Tiwana, 2009).

A decentralized IT governance mode facilitates business units’ sensemaking about external information requests. Prior empirical research supports such a relationship. For example, Xue, Ray, and Gu (2011) showed that when environmental uncertainty is relatively low or optimally high, decentralized IT governance mode is often used. Sharing information with supply chain partners usually happens in an environment with such levels of uncertainty. Thus, decentralized IT governance mode should promote information sharing. The relationship between decentralized IT governance and information sharing was further supported by the results of a recent qualitative study on IT governance and web site content control (Heroux & Fortin, 2013). For a lot of firms, their corporate websites are vehicles of information release and information sharing. Heroux and Fortin (2013) found that business unit IT personnel exercise more control over web content than IT department and top management such as the board of directors, suggesting that decentralization is positively related to information sharing. Further, in their investigation of IT governance in IT investment decision processes in Chinese hospitals, Xue, Liang, and Boulton (2008) found that while top management dominated initiation and approval stages of IT investment processes as the IT governance authority, IT department and business units governed the development stage of those processes. This suggests that IT professionals and business units make decisions for cases that mostly involve technicality either in the sense of IT or business. In other words, when information sharing becomes a routine, it is mostly in the domain of IT professionals and business units as far as IT governance is concerned. Drawing on the dynamic capabilities perspective and prior research on IT governance, we propose the following hypothesis:

H2: Decentralized IT governance is positively related to information sharing.
Moderating Role of Information Security Policy

Information sharing involves risks. For example, firms are worried that once information especially sensitive information is shared with suppliers, they may leak it to the firms’ competitors (Kong, Rajagopalan, & Zhang, 2013). Another risk associated with information sharing is information distortion. Retailers and manufacturers may provide false information to other firms (Mishra, Raghunathan, & Yue, 2007). Further risks associated with information sharing may stem from information sharing support technologies, as any technology-related incidents may cause disruptions in information sharing (Wang, Kannan, & Ulmer, 2013). These risks translate into security concerns on the firms’ side. Obviously, security concerns always accompany incentives for organizations to share information. In other words, when firms use their IT resources for information sharing, security concerns may pull them back from doing so. In order for organizations to share information with their supply chain partners, these security concerns must be addressed.

Although IT infrastructure does have technical mechanisms that specifically help to safeguard information systems and data, these technical mechanisms are ultimately controlled and operated by human workers. Usually specific details regarding operation, maintenance, and management of such technical mechanisms are systematically documented in organizations. They constitute organizational information security policies (ISPs), which are defined in this study as organizational documents that specify the roles and responsibilities of employees in protecting their organizations’ information and technology resources and describe rules for safeguarding such resources (Bulgurcu, Cavusoglu, & Benbasat, 2010). Organizational ISPs also provide guidelines for employees for how to ensure information security (Whitman, Townsend, & Aalberts, 2001). Employees’ compliance with these ISPs helps to reduce organizations’ security concerns over information sharing. Thus, ISPs’ role in reducing security concerns should facilitate the process in which IT infrastructure contributes to information sharing.

Similarly for IT governance, Heroux and Fortin (2013) found that when websites are used for business transactions, security concerns increase, and top management becomes more involved in IT governance. Their finding at least suggests that security concerns contribute to centralized IT governance. But if employees’ compliance with ISPs helps to reduce security concerns, the likelihood of implementing or relying on centralized IT governance would decrease. The relationship between IT governance and information sharing depends on addressing security concerns such that when security concerns are more effectively addressed, the greater the positive relationship between decentralized IT governance and information sharing would be. Further, as security concerns increase, more of IT unit’s participation in IT governance is called for (Xue et al., 2013). Thus with security concerns well addressed, decentralized IT governance would be more and more related to information sharing. The following two hypotheses summarize this short literature review on organizational information security policies:

H3: ISPs moderates the relationship between IT infrastructure and information sharing such that when ISPs are better abided by, the greater the positive relationship between IT infrastructure and information sharing would be.

H4: ISPs moderate the relationship between IT governance and information sharing such that when ISPs are better abided by, the greater the positive relationship between IT governance and information sharing would be.
METHODOLOGY

This study will use a survey to collect data. As measurements are available in the literature, adapted scales will be used to measure IT infrastructure, IT governance, and information sharing. A new scale will be developed to measure information security policy, which will cover the following aspects: availability of an information security policy, completeness of the information security policy, and information security policy compliance. The sampling frame for this survey will be a complete list of firms that are members of a professional organization. Then a random sample will be created from the sampling frame. The complete survey will be posted on a university website and a predrafted email will be sent to contact persons of the firms in the random sample to invite them to complete the survey on the listed website. After data collection, common method bias will be addressed. An CFA will be conducted to test reliability and validity of the constructs. Structural equation modeling will be used to test the relationships proposed in the study.

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