



Bullwhip effect reduction and improved business performance through guanxi: An empirical study



Qing Cao ^{a,*}, Jeff Baker ^b, Dara Schniederjans ^c

^a Rawls College of Business, Texas Tech University, Lubbock, TX 79409, USA

^b School of Business and Management, American University of Sharjah, United Arab Emirates

^c College of Business Administration, University of Rhode Island, USA

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ABSTRACT

Many operations managers have realized the potential of guanxi to facilitate business transactions. Likewise, operations management researchers have looked at the negative impact caused by the bullwhip effect on excess inventory and the impact of the bullwhip effect on business performance. To date, however, no empirical research has integrated these research streams. Therefore, we draw on both operations strategy literature as well as marketing strategy literature to propose a conceptual model that links guanxi, the bullwhip effect, and business performance in an empirical study. Analysis of our survey data ($N=205$) using structural equation modeling (SEM) indicates that guanxi has a positive impact on business performance and also reduces the bullwhip effect. We also show how a moderating factor, competition, affects the usefulness of guanxi. Specifically, we provide evidence that the link between guanxi and business performance is weakened by a highly competitive environment.

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1. Introduction

In modern global supply chains, the bullwhip effect continues to be a challenging problem. Researchers and practitioners are working to understand this issue and develop ways to mitigate it. During the past two decades, Eastern firms have increasingly taken up positions of importance in global supply chains, thus opening up a new arena to investigate the bullwhip effect. Government, business, and academic leaders are increasingly seeking to understand Eastern business practices to understand general differences in conducting business, as well as more specific issues like how Eastern firms address the bullwhip effect.

One concept that has come to the attention of many researchers, and one that is relevant in the discussion of the bullwhip effect, is the Chinese concept of *guanxi*. Guanxi connotes interpersonal and inter-organizational relationships with the implication of continued exchanges of favors over time (Cheng et al., 2012). When one organization provides a valuable favor to another, this builds the essential elements of guanxi by creating mutual obligations. In light of these benefits, and in light of the growing importance of Eastern firms in global commerce, there is

a need for a robust understanding of guanxi in order to comprehend its potential value in addressing problems such as the bullwhip effect. While some studies have assessed the social capital benefits associated with guanxi, there is still much to be learned about the Eastern business context as well as about how guanxi and similar concepts can improve business performance and reduce the bullwhip effect.

The specific focus of this paper is how guanxi affects supply-chain efficiency by reducing the bullwhip effect. Because guanxi has been defined as having three main components – trust, information sharing, and control (Adler and Kwon, 2002) – and because these components have been elsewhere linked to supply-chain efficiency (Johnston et al., 2004; Klein et al., 2007; Lee et al., 1997b; Yang, 1994), we suggest here that guanxi itself has a beneficial effect on supply chain performance through reduction of the bullwhip effect by facilitating the exchange of information. Furthermore, we suggest that guanxi improves business performance by facilitating the development of trust-based long-term relationships and enabling firms to exert control over supply chain partners.

This manuscript contributes to literature on supply chain management and business performance in two ways. First, we provide empirical evidence of a link between guanxi and supply-chain efficiency. Little operations research has been conducted on guanxi and we seek to address this gap in the literature. Our empirical results demonstrate that the benefits of guanxi include

* Corresponding author. Tel.: +1 806 742 3919.

E-mail addresses: Qing.cao@ttu.edu (Q. Cao), jbaker@aus.edu (J. Baker), Schniederjans@mail.uri.edu (D. Schniederjans).

reducing the bullwhip effect, improving financial metrics, and increasing market share. To our knowledge, this paper presents the first empirical evidence linking guanxi to supply-chain efficiency. Second, while anecdotal and even some empirical evidence exists of the positive effect of guanxi on business performance, our review of the literature indicates that this research has yet to coalesce into a theoretical explanation. The findings of this study extend previous work on the link between trust and business performance (Zaheer et al., 1998) by providing a theoretical explanation for how guanxi benefits firms.

In addition, insights are provided for practitioners explaining how guanxi can be used to improve supply chain efficiency. Understanding the inter-organizational use of social capital like guanxi is a key skill for managers in an increasingly globalized marketplace. The effect of guanxi on bullwhip effect reduction has potentially far-reaching managerial and organizational benefits, including improving performance. We explain why this effect exists and why it will be most noticeable in less-competitive industries, but less noticeable in highly-competitive industries.

The manuscript will proceed as follows. First, we review relevant literature, beginning with research that investigates guanxi. In the description of guanxi, we explain how guanxi can be compared to and contrasted with the related concept of social capital. The literature review section also includes discussion of foregoing research on the bullwhip effect and business performance. Next, we develop our hypotheses, providing conceptual and theoretical support for the idea that guanxi has a number of beneficial effects. Specifically, we propose that guanxi is associated with business performance in two ways. Its positive impact on business performance could be direct, or it could be indirect, through bullwhip effect reduction. Our manuscript goes on to explain that the competitive intensity of the market moderates the relationship between guanxi and business performance. Then, we describe our survey methodology, our multi-sector sample ($N=205$), and our data analysis using structural equation modeling (SEM). We present our results, which indicate support for each of our five hypotheses. Finally, we discuss the theoretical and managerial implications of our findings for both researchers and practitioners. Finally, the paper concludes with the limitations of our study and suggests areas for potentially fruitful future research in this area.

2. Theoretical background and literature review

2.1. Social capital and guanxi

Social capital has been defined as the “norms and networks facilitating collective actions for mutual benefit” (Woolcock, 1998). It is context-dependent, being built upon a network of communications and interactions (Fukuyama, 1995, 1999; Lin, 1999; Putnam, 1993), and takes many different forms, including obligations within a group, trust, norms, and sanctions (Bourdieu, 1983). Social capital exists when there is an expectation that kindness and services will be returned. Social capital theory explains that the connections of an individual or organization can be valuable and helpful (Cross and Cummings, 2004). Relationships are established purposefully to generate both tangible and intangible benefits, which may be psychological and emotional for individuals, and economic for organizations (Lin, 1999, 2000).

This manuscript defines guanxi as a form of social capital, one that is an important cultural and social element of Chinese society (Cai and Yang, 2014), and one that has been identified as having an important influence on behavior (Lee and Humphreys, 2007). Guanxi is grounded in Confucian ideals and is composed of the Chinese concepts of *renqing*, the moral obligation to maintain a

relationship, *ganqing*, the depth of an interpersonal relationship, and *mianzi* (“face”), meaning reputation, social status, or prestige (Park and Luo, 2001). Guanxi, more specifically, has been defined as the relationship networks that carry obligations to facilitate the exchange of favors among individuals (Park and Luo, 2001; Xin and Pearce, 1996). The term guanxi includes the ideas of relationship, reciprocity, and ongoing long-term commitment grounded in trust, mutual obligations, and shared experiences (von Weltzien Hoivik, 2007). It has the potential to provide benefits to partners whose relationship is governed by it. At an interpersonal level, guanxi implies that people can draw on their connections to secure favors in their business relationships (Luo, 1997). Interpersonal guanxi networks are so extensive that they form an institution of both formal rules and informal norms to structure human interactions in an inter-organizational context (North, 1990). Guanxi thus affects inter-organizational relationships by influencing individual behaviors in personal relationships (Cai and Yang, 2014).

In China, the business environment overlaps with widespread personal guanxi networks governing the exchange of favors through three rules: (1) obligation, such that people must offer favors to others according to the level of their relationships (Wang, 2007); (2) reciprocity, such that a recipient must return a favor when asked (Fan, 2002); and (3) empathy, requiring a sense of goodwill between individuals (Wang, 2007). The concept of guanxi is similar to “social exchange” proposed by Blau (1964) but involves the actual exchange of favors.

There are three key differences between social exchanges in the West and guanxi-governed social exchanges in China. First, in China a person may return a personal favor by offering a business favor, thus expanding the avenues for potential inter-organizational relationships and for the building of social capital. For example, a supply chain manager might provide speedier service to a friend’s firm because that friend helped the manager’s child get into a prestigious school (Dunfee and Warren, 2001). In return, this friend might offer better and timelier information on customer demand. In contrast, in Western cultures people tend to separate social and business relationships (Lin and Si, 2010) offering fewer avenues for reciprocity. Second, guanxi is transferable to different parties in China (Park and Luo, 2001). This is especially useful in complex supply chain networks. For example, consider three individuals: A, B and C. In China, Person A’s guanxi with person B is able to be transferred to person C, when A introduces C to B. Person B can then offer a favor to Person C to return a favor from Person A (Cai and Yang, 2014). Whereas, in Western cultures, the initial recipient of a favor is generally the one that must return the favor. Third and finally, reciprocity in the West suggests exchanges of equal benefits to both parties, whereas in guanxi, a weaker or less powerful organization may call for a special favor without incurring an equal level of reciprocal obligation (Park and Luo, 2001). For example, large Chinese multi-national organizations conducting business with small organizations which may include only a few individuals do not necessarily expect equal levels of reciprocation.

Guanxi is not contractual trust, based on a paper (or electronic) contract, but rather is implied through an enduring relationship and the culture in which that relationship exists. In Chinese culture, when one person in a partnership receives a favor or is provided for by the partner, it is expected that the former will reciprocate; otherwise, guanxi cannot be maintained (Quian et al., 2007). This leads to predictable actions from partnerships, and predictable actions lead to a deeper sense of trust and greater commitment to maintaining the relationship in the future (Svensson, 2001). Thus, guanxi is a long-term, relational form of trust, and implies a long-term agreement between partners. It is established and built by following through on promises, treating

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