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## Competitive forces and the importance of management control systems in emerging-economy firms: The moderating effect of international market orientation

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### A B S T R A C T

Using survey and archival data from exchange-listed Chinese firms, we investigate the relationship between competitive forces (i.e., the threat of foreign entrants and buyers' bargaining power) and the importance that the firms place on their management control systems (MCS), and whether the firms' international market orientation moderates this relationship. We examine five MCS practices—formal procedures, strategic planning, budget targets, approval procedures, and participative budgeting—both as a package and separately. We predict and find a positive association between the threat of foreign entrants and the importance that the firms place on their MCS, but this association is larger for firms competing predominantly in the domestic market than for those competing predominantly in international markets. Further, we predict and find that the association between buyers' bargaining power and the importance that the firms place on their MCS is larger for firms competing predominantly in international markets than for those competing in domestic markets. We probe deeper into our empirical findings using qualitative data collected from *post hoc* interviews with managers of Chinese firms and those of international firms operating in China. We discuss the implications of our findings and provide some directions for future research.

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### Introduction

Accounting scholars have examined how emerging-economy state-owned enterprises have modernized their management control systems (MCS), owing in part to increasing market competition triggered by the opening

of their domestic markets to global players.<sup>1,2</sup> Despite considerable interest in MCS adoption by emerging-economy firms (Firth, 1996; Lin & Yu, 2002; O'Connor, Chow, & Wu, 2004), the literature has devoted little attention to

<sup>1</sup> An emerging economy is "a country that satisfies two criteria: a rapid pace of economic development, and government policies favoring economic liberalization and the use of a free-market system" (Hoskisson, Eden, Lau, & Wright, 2000, p. 249). Currently, there are approximately twenty-eight emerging economies in the world, and China and India are by far the two largest. Other countries meeting this definition include Brazil, Chile, Colombia, Mexico, Poland, Russia, South Africa, and South Korea, among others.

<sup>2</sup> For a review in the context of China see Chow, Duh, and Xiao (2007). For studies in other emerging economies, see Anderson and Lanen (1999) for India, Luther and Longden (2001) for South Africa, Szychta (2002) for Poland, and Haldma and Laats (2002) for Estonia.

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emerging-economy firm strategy, particularly in relation to how firms configure their MCS in relation to their competitive forces (Porter, 1987, 1991, 1998) and international market orientation (Dawar & Frost, 1999; Luo & Tung, 2007). Thus, with one notable exception (Anderson & Lanen, 1999), extant research does not distinguish between firms that compete predominantly in the domestic market and those that compete in both the domestic and foreign markets. Anderson and Lanen's (1999) small-sample study using 14 Indian firms provides preliminary evidence of an association between firms' initial experience with and exposure to international markets and changes in their management accounting practices following the liberalization of the Indian economy.

This study extends the empirical accounting literature by investigating the relationship between two competitive forces—the threat of foreign entrants and buyers' bargaining power (Porter, 1991)—and the importance that firms place on their MCS, and whether the relationship is moderated by the firms' international market orientation. The focus on MCS in emerging-economy firms is important for several reasons. First, in contrast to developed-nation firms, emerging-economy firms—particularly those from China (Hong & Sun, 2006)—have relied heavily on foreign direct investment (FDI) to accelerate their modernization, which is characterized by the adoption of Western management accounting practices (Firth, 1996; O'Connor et al., 2004). Second, business transactions involving emerging-economy firms are such that social, political, and economic factors are likely to impact the importance placed on MCS (Warner, 2003, p. 4). Third, more emerging-economy firms are seeking global expansion in ways different from the approach taken by their developed-nation counterparts, which can provide new insights into how firms use their MCS to manage such expansion. For example, emerging-economy firms are using international mergers and acquisitions to leapfrog the technology innovation gap between developed-nation and emerging-economy firms (Luo & Tung, 2007).<sup>3</sup>

As the largest emerging market, China provides an ideal setting for this study for two important reasons. First, China's entry into the World Trade Organization (WTO) in late 2001 opened the country to foreign investors (China Business Review, 2000), and provided impetus towards the global expansion of its firms. Second, the wide ranging and complex institutional changes accompanying China's transition from a centrally planned to a market-driven economy have intensified domestic and foreign competition (e.g., for customers and distribution channels) for Chinese firms (Li, Poppo, & Zhou, 2008).

We collected archival data from the annual reports of a sample of 154 Chinese firms drawn from the population of firms listed in the Shanghai and Shenzhen Stock Exchanges. In this study we assess the importance that firms place on their MCS based on a survey of senior-level managers from our sample firms (i.e., profit- and cost-center

managers in various divisions, branches, and units) (Merchant & Otle, 2006). We examine five MCS practices—formal procedures, strategic planning, budget targets, approval procedures, and participative budgeting—both as a package (Chow, Kato, & Shields, 1994) and separately. To probe deeper into our empirical results, we also consider the results of *ex-post* interviews with the managers of thirteen exchange-listed Chinese manufacturing firms and eight international firms doing business in China.

We predict and find that the importance emerging-economy firms place on their MCS is positively associated with the threat of foreign entrants. This association is larger for firms competing predominantly in the domestic market than for those competing predominantly in international markets. The former firms typically have fewer alternative markets and learning opportunities abroad, which limits their ability to sell products at higher margins. We also predict and find that the association between buyers' bargaining power and the importance that emerging-economy firms place on their MCS is larger for firms competing predominantly in international markets than for those competing in the domestic market. Large international customers (e.g., manufacturers and retailers) are more likely than large domestic customers to impose contracting, monitoring, and cost demands on their emerging-economy suppliers (Kelly & Gosman, 2000; Noll, 2005).

The remainder of the study is organized as follows. The next section develops our hypotheses, after which we describe our data collection methods, the empirical model used to test our hypotheses, and the results. The final section summarizes our findings and their implications, discusses the study's limitations, and provides directions for future research.

## Theory and hypotheses

### Management control systems

Management theory has maintained that the successful implementation of a firm's strategy requires an appropriately designed MCS (Govindarajan & Gupta, 1985; Simons, 1987). Such an MCS entails formal (written and standardized) information-based procedures, protocols, and routines used by most large firms to align the behaviors and decisions of their employees with the organization's strategic goals (Merchant & Van der Stede, 2007, chap. 1, p. 5). This alignment helps employees make decisions or fulfill their responsibilities, and avoids the loss of control due to a lack of monitoring (Simons, 1987, 1994).

Consistent with the literature on MCS used by emerging-economy firms (e.g., Anderson & Lanen, 1999; Chow et al., 2007; O'Connor et al., 2004), and more recent research (e.g., Abernethy, Bouwens, & van Lent, 2009), we focus on formal planning (formal internal rules, policies, and procedures and strategic planning) and budget controls (budget targets, approval procedures, and participative budgeting) (Merchant & Van der Stede, 2007, chap. 1). Formal policies and procedures and strategic planning help enhance managerial decision making, contribute to reducing decision errors, and help coordinate resources

<sup>3</sup> These trends are highlighted by: (1) the recent merger of China's TCL International Holdings (one of the country's leading manufacturers of multimedia consumer electronics) with France's Thomson SA, owner of the RCA brand; and (2) Lenovo's acquisition of IBM's personal computer division.

and capacity utilization (O'Connor et al., 2004). Budget controls help managers to seek and monitor organizational efficiency targets, promote cost control, assign and delegate responsibilities, and motivate personnel (Dyson & Foster, 1982).<sup>4</sup>

O'Connor et al. (2004) find a significant association between the adoption of Western MCS practices (i.e., formal, approval, and quality control procedures, and budget and performance targets) by China's state-owned enterprises and the firms' joint venture experience and stock market listing. Further, a recent study on management practices in China reports that the most widely adopted MCS practices by privatized Chinese firms are strategic planning and budgeting systems (Chow et al., 2007). However, the use of formal planning and budget controls by Chinese firms is still in its infancy. Handfield and McCormack (2005) study the supply chain maturity of Chinese suppliers and find that planning is one of their biggest challenges. Less than 10% of the suppliers in a sample of 55 firms reported using formal master budgets based on sales forecasts and operations planning (p. 30). Moreover, there was a marked lack of coordination in planning functions such as marketing and purchasing when compared to world-class planning norms. The discussion that follows and Fig. 1 lay out the constructs examined in the current study.

#### *International market orientation*

International market orientation refers to the extent to which a firm depends on foreign markets for customers and factors of production, and to the geographical dispersion of such dependence (Hamel & Prahalad, 1994; Sullivan, 1994; Weick & Van Orden, 1990). Scholars suggest that firms seeking an internationalization strategy (e.g., through exports) stand to benefit from the opportunity to learn new product designs and global marketing strategies (Francis & Collins-Dodd, 2000), develop alliances with foreign businesses, and achieve economies of scale (Kogut, 1985). Thus, firms that have an international market orientation are better positioned to seek growth opportunities aggressively through market development and innovation. Research suggests that export experience is an important determinant of export sales performance (e.g., see Singh (2009), for a review). In contrast, domestically oriented firms tend to be more risk averse, less able to adapt and take advantage of growth opportunities, and typically have narrowly defined market domains.

#### *Competitive forces*

Porter (1991, 1998) proposes an industry analysis model comprising five competitive forces that determine the long-run profit potential of any industry and its participants: the threat of new entrants (including foreign entrants), the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products,

and the intensity of rivalry among the core competitors. One of the most significant sources of competition for emerging-economy firms is the entry of foreign firms (Fleming, Chow, & Chen, 2009; Stonehouse & Snowdon, 2007), which creates environmental uncertainty, such as demand shifts and production-cost changes (Sakakibara & Porter, 2001). In turn, environmental uncertainty creates the need for managers to make strategic and operating decisions with incomplete information (Krishnan, Martin, & Noorderhaven, 2006) and to develop information-processing mechanisms to help them gather, process, and share relevant strategic information (Tushman & Nadler, 1978; Vera-Muñoz, Ho, & Chow, 2006).<sup>5</sup>

The next two competitive forces involve the buyer-supplier relationship. We focus on the buyer side because the economic development of many emerging economies has been driven primarily by business from powerful buyers from developed nations (e.g., Wal-Mart, Phillips, Intel, Apple), who have well established brand names and distribution channels and more sophisticated production strategies (Baack & Boggs, 2008; Luo & Tung, 2007; Taylor, 2003).<sup>6</sup> The negotiation power of these buyers allows them to control critical distribution channels and financial resources and impose contracting, monitoring, and cost demands on suppliers (Noll, 2005; Williamson, 1979, 1983).<sup>7</sup>

#### *Threat of foreign entrants*

Foreign entrants enjoy several strategic competitive advantages, including substantial financial resources, advanced information technologies in selling and marketing, superior products, brand leadership, seasoned marketing and management skills, and scientific management (Dawar & Frost, 1999; Taylor, 2003).<sup>8</sup> The threat of foreign entrants creates a number of pressures (e.g., cost, marketing, and human resources) on emerging-economy firms that are typically accustomed to dominating their markets (Hu & Jefferson, 2002). The threat of foreign entrants is typically felt at both the retail and manufacturing levels. The constant squeezing of margins has forced retailers to push such cost pressures down to manufacturers (Wang, Li, & Lu, 2006).

As foreign manufacturing firms seldom enjoy technology based monopolies, domestic competitors respond to

<sup>5</sup> For an in-depth review of environmental uncertainty, see Chenhall (2003).

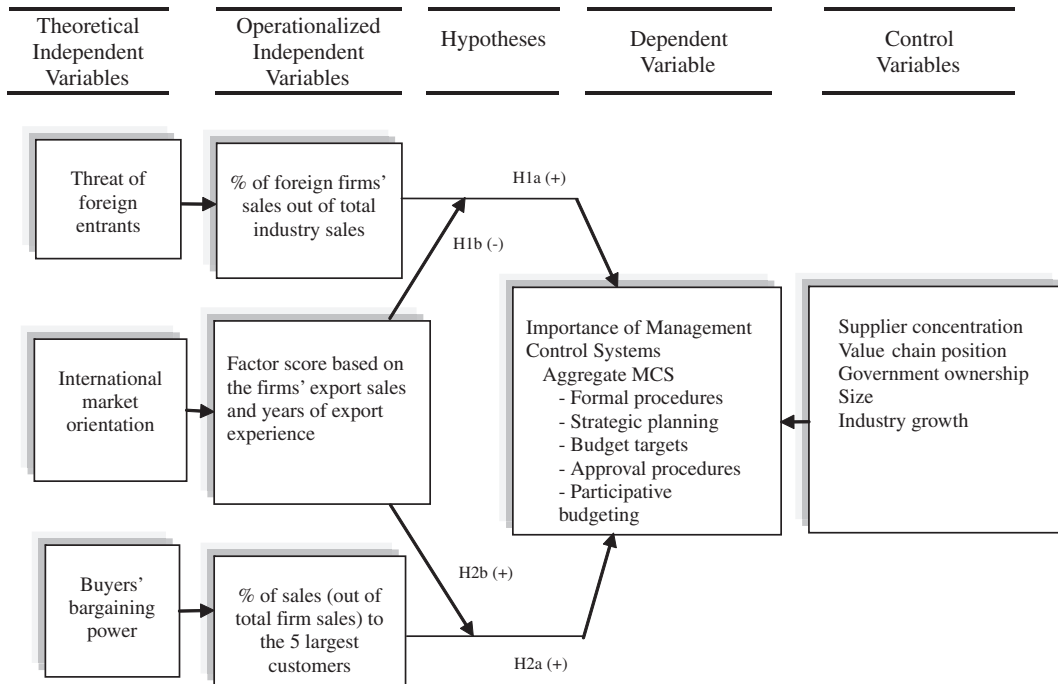
<sup>6</sup> We include a proxy in our regression model for the suppliers' bargaining power to control for its potential effect on our dependent variable (discussed in the next section).

<sup>7</sup> Recent anecdotal evidence suggests an increasing tendency of Chinese consumers to behave like their counterparts in developed nations in that they are substituting higher-cost, higher-quality foreign products (which typically generate higher margins) for low-cost, low-quality domestic products (which typically generate lower margins) (Atsmon, Dixit, Magni, & St-Maurice, 2010). The difficulty of incorporating proxies for this competitive force in the model is discussed in the last section of this paper.

<sup>8</sup> At the same time, however, the threat of foreign entrants to emerging-economy firms depends on the extent to which there are barriers to entry. These barriers include, among others, economies of scale, high initial investments and fixed costs, cost advantages of existing players due to learning curve effects, brand loyalty of customers, protected intellectual property (e.g., patents, licenses), scarcity of critical resources, and raw materials and distribution channels controlled by existing players.

<sup>4</sup> The foregoing discussion suggests that the benefits of MCS practices should be higher when they are combined as a package (Chow et al., 1994). Examination of whether those practices are complements or substitutes for one another (e.g., see Widener, 2007) is beyond the scope of this study.

## Independent, dependent, and control variables and hypotheses



*H1a.* The importance that emerging-economy firms place on their MCS is positively associated with the threat of foreign entrants.

*H1b.* The importance that emerging-economy firms place on their MCS due to the threat of foreign entrants is larger for domestically oriented firms than for their internationally oriented counterparts.

*H2a.* The importance that emerging-economy firms place on their MCS is positively associated with buyers' bargaining power.

*H2b.* The importance that emerging-economy firms place on their MCS due to buyers' bargaining power is larger for internationally oriented firms than for their domestically oriented counterparts.

Fig. 1. Independent, dependent, and control variables and hypotheses.

the threat of foreign entrants by attempting to acquire or imitate their technology at a lower cost, by restructuring their value chains, or both. The technology imitation/acquisition strategy to make similar products at a lower cost often works in emerging markets because customers are willing to trade off quality for price (Liu & Roos, 2006, p. 440). For example, the BOE Technology Group, a large LCD display maker listed on the Shenzhen stock exchange, wanted to upgrade its value chain but lacked the core competencies and proprietary technologies to do so. However, with its acquisition of three production lines for thin-film-transistor liquid crystal displays (TFT-LCD) from HYDIS in 2003, a Chinese enterprise now holds a core technology for the first time (Deng, 2009).

Domestic competitors may also choose a process innovation strategy to both improve efficiency and cut production costs. This allows firms to manufacture products that

may offer additional features at a cost much lower than those of rival products produced by foreign original equipment and original design manufacturers (OEM and ODM, respectively).<sup>9</sup> In addition, emerging-economy firms are likely to turn most of their fixed design and manufacturing costs to variable costs by outsourcing these activities. This discussion suggests that as the threat of foreign entrants increases, emerging-economy firms will have greater pressure

<sup>9</sup> Investment in product innovation (e.g., research and development) undertaken by Chinese firms is low by developed-nation standards. Only a limited number of large-scale Chinese firms have the human and capital resources and "know-how" to engage in deep innovation and compete successfully with multinational firms. A notable example is TCL International Holdings, which has the financial strength to buy foreign software and core technologies, invest its profits in research and development, and match the advertising expenditure of foreign competitors (Liu & Roos, 2006, p. 441).

to manage costs and engage in other activities, such as technology imitation, process innovation, and value-chain restructuring. An MCS affords emerging-economy firms the information that they need to manage such activities (Dess & Beard, 1984, p. 56).

Strategic planning helps firms to manage the acquisition of new technologies, and formal and approval procedures help them to coordinate the outsourcing of selected parts of the value chain. Pressure to increase sales and decrease costs often forces managers to formalize the use of management teams to make decisions in the areas of production quality, cost monitoring, sales, and financial management (O'Connor et al., 2004, p. 358). We thus propose the following alternative-form hypothesis:

**H1a.** The importance that emerging-economy firms place on their MCS is positively associated with the threat of foreign entrants.

*Threat of foreign entrants and the international market orientation*

The threat of foreign entrants will be likely to affect the importance that domestically oriented firms place on their MCS more than it will for their internationally oriented counterparts. This will occur because the threat has a direct effect on most (if not all) of these firms' market opportunities. More specifically, domestically oriented firms will need to use a low-cost strategy to defend their "turf" against foreign entrants. That, in turn, will require the use of formal planning and budget controls to help firms manage costs and engage in complex activities. In contrast, internationally oriented firms have access to international markets and market intelligence, which enables them to avoid direct competition with foreign entrants at home (Porter, 1986). For example, these firms can configure and coordinate their value chains across national boundaries, which allows them access to technology and market information (e.g., the latest product designs), and the ability to compete directly with foreign entrants in differentiated, higher margin segments in domestic markets. The foregoing discussion suggests that the association between the threat of foreign entrants and the importance that emerging-economy firms place on their MCS is likely to be stronger for domestically oriented firms than for their internationally oriented counterparts. Therefore, we propose the following interaction hypothesis:

**H1b.** The importance that emerging-economy firms place on their MCS due to the threat of foreign entrants is larger for domestically oriented firms than for their internationally oriented counterparts.

*Buyers' bargaining power*

In general, a relationship between a separately owned buyer and supplier is subject to incentive conflicts between the contracting parties (Klein, Crawford, & Alchian, 1978; Roberts & Sufi, 2009; Williamson, 1979, 1983). Large buyers have the power to require suppliers to conform with

various contracting, monitoring, and cost demands. At the contracting stage, large buyers can mandate that a supplier achieve certification (e.g., ISO quality accreditation) or invest in new processes and technologies before a contract will be accepted (Grant, 2002). They may also impose an MCS on suppliers to enhance their monitoring of quality and delivery standards, and can also dictate suppliers' operational budget allocations (Mudambi & Navarra, 2004). At the post-contracting stage, large buyers have the power and resources to actively monitor contractual restrictions on outsourcing and the procurement of lower cost/lower quality materials (Davila, Foster, & Li, 2009). Monitoring creates pressures for manufacturing firms to maintain a certain level of trust and commitment with their key customers through effective communication, planning, and mutual performance reviews (Puan, 1997). Monitoring can spur the need for more formal, strategic planning and budget procedures that can enhance information exchange within the firm and help managers to coordinate the decision making processes (Davila & Foster, 2005, p. 1044).

Finally, large buyers often have an information advantage over their smaller counterparts, such as in the ability to source a larger range of alternative suppliers, do away with the middleman, and place greater cost pressure on the manufacturer. These combined pressures—contracting, monitoring, and cost—are likely to drive the importance that emerging-economy firms place on their MCS. More specifically, formal procedures and strategic planning can support efforts to coordinate and manage on-time delivery, while budget targets, approval procedures, and participative budgeting mechanisms can support efforts to increase cost efficiency and manage investments. Therefore, we propose the following alternative-form hypothesis:

**H2a.** The importance that emerging-economy firms place on their MCS is positively associated with buyers' bargaining power.

*Buyers' bargaining power and international market orientation*

Buyers' bargaining power is a major force shaping the international expansion of emerging-economy firms, and it is primarily driven by customers' size and location in the value chain. For instance, Wal-Mart alone imports more than half of its non-food products and accounts for more than 15% of total US imports from China (Basker & Van, 2008). We argue that buyers' bargaining power will affect the importance internationally oriented firms place on their MCS more than their domestically oriented counterparts for two reasons. First, large international customers demand more formal contracting and monitoring of the emerging-economy firms' operations. In addition, Chinese firms that conduct business with international customers attach greater importance to formal contracts (Cooke, 2008). International customers are also more likely to directly monitor manufacturers' operations through the use of system integration and frequent visits by customers' purchasing managers. For instance, the international

customer and its manufacturing supplier may use the same enterprise resource planning system to track and manage the transfer of components and sub-assemblies between the two firms. The pressure to systematize the management of production and supply increases the need for formal policies and procedures and strategic planning to assist firms in managing their capacity, production scheduling, and the scheduling of deliveries to key customers (Li, 1997).

In contrast, exchanges between large domestic customers and domestic emerging-economy firms rely more on social connections or managerial ties (Gu, Hung, & Tse, 2008, p. 12; Li et al., 2008). A recent study of managers from manufacturing firms located in Beijing, Guangzhou, and Shanghai shows that increasing levels of uncertainty lead them to rely more on person-based relational ties (i.e., *guanxi*) and to craft more customized contracts as safeguards from the uncoordinated and opportunistic actions of suppliers (Zhou, Poppo, & Yang, 2008).<sup>10</sup>

Second, large international customers typically use their bargaining power to squeeze their emerging-economy suppliers on price because they are aware that the suppliers' survival and market share hinge on their ability to compete with a cost-leadership strategy (Baack & Boggs, 2008; Chittoor & Ray, 2007; Kelly & Gosman, 2000; Noll, 2005; Porter, 1998). In turn, these cost pressures increase the importance of MCS practices such as budget targets and approval procedures, which can support pricing decisions and help to control costs. In contrast, domestically oriented emerging-economy firms face lower cost pressures from their large domestic customers because transportation and distribution costs are lower. Domestic customers also impose fewer penalties on firms that fail to meet contract stipulations (e.g., lower warranty risk) than do their international counterparts.

In summary, the foregoing discussion suggests that the contractual, monitoring, and cost pressures that would otherwise drive the importance placed on MCS are lower for domestically oriented firms than for their internationally oriented counterparts. Accordingly, we propose the following interaction hypothesis:

**H2b.** The importance that emerging-economy firms place on their MCS due to buyers' bargaining power is larger for internationally oriented firms than for their domestically oriented counterparts.

## Research method

We collected data from three sources: (1) archival, including the annual reports of the exchange-listed Chinese firms, and the financial and market data compiled from the China Stock Market and Accounting Research

(CSMAR) database and the China Statistical Yearbook; (2) a comprehensive survey of senior- and middle-level managers of the Chinese firms; and (3) *ex-post* face-to-face and phone interviews with managers of Chinese manufacturing firms and of international firms operating in China.

### Design of survey instrument

Table 1 summarizes the survey questions and factor analysis for the MCS practices examined. The survey instrument comprised several categorical and descriptive questions, in addition to questions that elicited managers' responses using 7-point Likert scales. The approach to eliciting managers' perceptions of the importance their firms place on their MCS closely resembles that of Widener (2007), who examines whether strategic uncertainties and strategic risk drive the importance and role of MCS.<sup>11</sup> Prior research in management (e.g., Govindarajan, 1988; Labroukos, Lioukas, & Chambers, 1995; Pascale, 1985) and management accounting (e.g., Chow, Kato, & Merchant, 1996; Chow, Shields, & Wu, 1999; Merchant, 1989; Moores & Yuen, 2001) guided our survey design and measure construction. Consistent with the total design method (Dillman, 1999), we designed preliminary drafts of the instruments in English and then revised them several times. We hired a professional translator to translate the instruments from English into Chinese. Next, one of the co-authors and another Chinese accounting professor, both of whom are bilingual, performed back-translation from Chinese to English to ensure that the original meaning had been preserved.

We pilot-tested the Chinese-versions of the instruments with several objectives in mind: (1) to ensure that they were clear and could be easily understood by the respondents; (2) to identify and rectify any problems with the questions; and (3) to ensure that the questions conveyed the same meaning as did the English version. We used a two-stage process for these pilot tests. In the first stage we contacted two firms and interviewees through the China Accounting and Finance Research (CAFR) Center, which is headquartered in mainland China. We used the managers' inputs from these interviews to fine-tune the survey instruments. In the second stage, we asked two doctoral students who worked at the CAFR Center for their comments and suggestions, and fine-tuned the instruments once again.

### Construct validity

We took several steps to assess construct validity. First, we specified an appropriate domain of observables (e.g., rules, policies, procedures, and strategic plans) underlying MCS practices and used previously validated measures where appropriate (discussed below). Second, we conducted personal interviews with senior- and middle-level

<sup>10</sup> *Guanxi* is the Chinese term for the reliance on trust, partnership, and social connections within a web of relationships to achieve certain advantages and exchange favors for organizational purposes (Gu, et al., 2008, p. 12; Handfield & McCormack, 2005, p. 35). Relational ties comprise the norms of proprietary information sharing, joint planning and operations, and commitment to work closely and collaboratively (Jap & Ganesan, 2000; Zaheer & Venkatraman, 1995).

<sup>11</sup> For instance, the question used by Widener (2007) to elicit managers' assessments of the importance of the diagnostic control system is "Please rate the extent to which your top management team currently relies on performance measures or performance measurement systems" (e.g., to track progress toward goals, to compare outcomes to expectations, to review key measures). The response anchors are 1 = to a small extent, 7 = to a large extent.

**Table 1**  
Confirmatory factor analysis of management control systems ( $N = 154$ ).

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Aggregate management control system (25 items), ( $\text{Alpha} = 0.93$ )					
Formal procedures (4 items), ( $\text{Alpha} = 0.89$ )					
To what extent does your company have rules, policies, and procedures that govern how the following types of activities are to be performed?					
Response anchors: 1 = not used at all; 4 = used moderately; 7 = used very extensively					
Making strategic decisions regarding acquisitions, diversification, major new product introductions, long-term goals, etc.?	0.87				
Making decisions relating to the day-to-day operations of the business, including equipment replacement, production planning, adjusting prices of goods, inventory purchases, hiring of lower level personnel, etc.	0.86				
Carrying out strategic decisions regarding acquisitions, diversification, major new product introductions, long-term goals, etc.	0.67				
Carrying out decision relations to the day-to-day operations of the business, including equipment replacement, production planning, adjusting prices of goods, inventory purchases, hiring of lower level personnel, etc.	0.65				
Strategic planning (4 items), ( $\text{Alpha} = 0.77$ )					
Response anchors: 1 = not at all extensive; 7 = extremely extensive					
How extensive are your company's strategic plans relating to acquisitions, diversification, major new product introductions, long-term goals, etc.?		0.81			
How extensive are your company's plans relating to day-to-day business operations, including equipment replacement, production planning, adjusting prices of goods, inventory purchases, hiring of lower level personnel, etc.?		0.83			
Response anchors: 1 = not at all detailed; 7 = extremely detailed					
How detailed are your company's strategic plans relating to acquisitions, diversification, major new product introductions, long-term goals, etc.?		0.34			
How detailed are your company's plans relating to day-to-day business operations, including equipment replacement, production planning, adjusting prices of goods, inventory purchases, hiring of lower level personnel, etc.?		0.61			
Budget targets (6 items), ( $\text{Alpha} = 0.88$ )					
Please rate the extent to which your company uses each of these control devices:					
Response anchors: 1 = not used at all; 4 = used moderately; 7 = used very extensively					
Net income targets:					
(a) Annual			0.63		
(b) Quarterly			0.89		
(c) Monthly			0.82		
Discretionary program targets:					
(a) Total program expenditures			0.62		
(b) Individual program expenditures			0.66		
(c) Formal reviews of responsibility center performance			0.43		
Approval procedures (4 items), ( $\text{Alpha} = 0.85$ )					
Please rate the extent to which your company uses each of these control devices:					
Response anchors: 1 = Not used at all; 4 = Used moderately; 7 = Used very extensively					
Please rate the extent to which approvals are required for each of the following:					
(a) Hiring new employees				0.80	
(b) Spending discretionary program money already in the budget				0.65	
(c) Spending discretionary program money in excess of budgeted levels				0.84	
(d) Making capital expenditures				0.85	
Participative budgeting (7 items), ( $\text{Alpha} = 0.93$ )					
Response anchors: 1 = Extremely low; 4 = Moderate; 7 = Extremely high					
How much importance do superiors typically place on subordinates' explanations for their actual performance relative to the budget? (PPE)					0.80
How much overall influence do subordinates typically have in the determination of their budgets? (PB)					0.82
To what extent do superiors typically seek subordinates' input in the budget preparation process? (PB)					0.83
How much importance do superiors typically place on not finalizing subordinates' budgets until the latter fully agree with them? (PB)					0.81
How much importance do superior typically place on subordinates' level of agreement with the evaluation of their actual performance relative to the budget before concluding the evaluation process? (PPE)					0.73
How much importance do superiors typically place on subordinates' suggestions concerning how to revise the latter's budget? (PB)					0.86
To what extent do superiors typically seek subordinates' opinions when evaluating the latter's actual performance relative to the budget? (PPE)					0.82
Eigenvalues	1.51	1.28	2.78	2.55	9.52

**Table 2**

Sample selection and tests of respondent versus non-respondent firms.

Panel A. Sample selection					
Firms listed on the Shanghai Stock Exchange as of 12/31/03					759
Firms listed on the Shenzhen Stock Exchange as of 12/31/03					<u>500</u>
Total number of exchange-listed firms					1259
Less:					
Firms first listed in 2003					(134)
Firms first listed in 2002					(69)
Non-manufacturing firms					<u>(376)</u>
Total Firms surveyed					680
Less: Non-response firms					<u>(497)</u>
Survey response firms					183
Less:					
Firms that returned incomplete questionnaires					(14)
Government protected firms, conglomerates					<u>(15)</u>
Final sample size					<u>154</u>
Panel B. Differences between respondent and non-respondent firms					
Variable	Means		Difference in means	t-test (Pr > t)	Wilcoxon test (Pr > z)
	Respondent firms	Non-respondent firms			
SALES (million)	180.76	176.61	0.42	0.34	0.64
Net income (million)	176.74	181.35	(0.46)	0.33	0.44
SIZE (# of employees)	4122.00	4765.00	(643.00)	0.63	0.70
AGE (in # years)	9.57	9.69	0.12	0.40	0.05

managers, who reviewed our questions for face validity. Third, we elicited responses from two senior managers from each firm. The mean responses between each pair of senior managers were not significantly different ( $p < 0.01$ ); thus, we used the average firm response for each variable for hypotheses tests.<sup>12</sup> Fourth, we conducted factor analysis using Varimax rotation and found multiple question loadings in excess of 0.30 in support of convergent validity (see Table 1). Our factor analysis yielded five distinct management control practices: formal planning, strategic planning, budget targets, approval procedures, and participative budgeting. Fifth, we conducted empirical tests suggested by Nunnally and Bernstein (1994) (i.e., reviewed range of responses, calculated Cronbach's Alpha (1951)) to help establish both content and construct validity. All of the MCS variables had acceptable reliability. The Cronbach alpha (1951) for our aggregate MCS measure (Chow et al., 1994) was 0.93.<sup>13</sup>

#### Survey administration and respondents

The sample of firms was drawn from the population of 1259 firms listed on the Shanghai and Shenzhen stock exchanges as of December 31st, 2003. To qualify for our sample the firms had to be listed in either exchange in

2001, 2002, and 2003. As shown in panel A of Table 2, as of December 31st, 2003, there were 759 firms listed in the Shanghai Stock Exchange and 500 firms listed in the Shenzhen Stock Exchange, for a total of 1259 firms. Out of this total, we excluded 134 firms that were first listed in 2003, and another 69 that were first listed in 2002. We also excluded 376 non-manufacturing firms. Thus, the survey sample contains 680 firms.

Consistent with Dillman (1999), the chief executive officers (CEOs) of these firms were first contacted by phone and invited to participate in the study. They were informed that to increase the internal validity of the findings the study required four respondents from each company—two senior-level managers and two middle-level managers—because a single individual often cannot reasonably reflect the beliefs of an entire organization (Young, 1996).<sup>14</sup> We mailed a set of survey booklets to each of the 680 firms in the target population, and three weeks later mailed a second round of surveys to non-respondents, followed by phone calls to all second-round recipients.

As shown in panel A of Table 2, we received surveys from 183 firms, for a response rate of 26.9%. We discarded responses from 14 firms that either returned incomplete survey sets or did not follow the instructions properly. To reduce potential noise in the data, we excluded 15 additional firms that were either government-protected or which operated in closely controlled industries.<sup>15</sup> Thus, the sample used for hypotheses testing includes 154 firms, with surveys returned by 308 senior-level managers.

<sup>12</sup> The t-tests of differences in the mean responses between each pair of senior managers are as follows: formal procedures ( $t = 0.44$ ;  $p = 0.66$ ), strategic planning ( $t = 0.04$ ;  $p = 0.97$ ), budget targets ( $t = 0.60$ ;  $p = 0.55$ ), approval procedures ( $t = 0.15$ ;  $p = 0.88$ ), and participative budgeting ( $t = 0.25$ ;  $p = 0.80$ ). The results of our hypotheses tests are qualitatively similar regardless of whether we use the average of the two responses or the disaggregated responses. In addition to the test of response consistency of each pair of senior managers' responses to the questionnaire, we tested the validity of the participative budgeting measure by eliciting responses from the middle-level managers to the same questions that we asked the senior-level managers. The correlation in the responses between the two managerial ranks is 0.35 ( $p < 0.01$ ).

<sup>13</sup> The results are qualitatively similar when factor-based scores are used for each MCS practice.

<sup>14</sup> The CEO selected the two senior-level managers and two middle-level managers. This may have introduced sampling bias with the surveys channeled only to managers with favorable views. However, the empirical tests show no evidence of systematic biases associated with the variables in the models. A survey with a different set of measures not used in this study (except for participative budgeting) was given to the middle-level managers.

<sup>15</sup> These include firms in the steel making, telecommunications, and mining industries.



We tested for non-response bias in two ways. First, we assessed industry representation in the 154 responding firms. Our sample, which represents seventeen industries, is not significantly different from the target population of firms listed on the Shanghai and Shenzhen Stock Exchanges (Chi-square = 29.06;  $p = 0.18$ ).<sup>16</sup> The industries are also similarly represented with respect to domestically versus internationally oriented firms (discussed later). Second, as shown in panel B of Table 2, tests of differences in means (medians) for sales, net income, number of employees, and age show no significant differences between respondents and non-respondents at conventional levels. Finally, we find no significant differences in sales, net income, age, and size between early and late respondents.

The senior manager respondents represent a wide range of managerial functions, with more than half reporting involvement in accounting/finance and administration. The managers had an average age of 45 years and an average length of employment with the company of 11.61 years ( $s.d. = 8.11$ ). More importantly, taken together, these means suggest that the respondents had adequate knowledge of their firms to answer the survey questions. The majority of respondents reported having a college degree or some college education, and of these, 35% of senior managers reported having a postgraduate degree.

## Empirical model

We estimate the following OLS regression model to test our hypotheses:

$$\begin{aligned} MCS_i = & \beta_0 + \beta_1 FGN\_COMP_{it} + \beta_2 CUSTOMER_{it} \\ & + \beta_3 INT\_ORIENT_{it} + \beta_4 (INT\_ORIENT_{it} * FGN\_COMP_{it}) \\ & + \beta_5 (INT\_ORIENT_{it} * CUSTOMER_{it}) + \beta_6 SUPPLIER_{it} \\ & + \beta_7 VALUE_{it} + \beta_8 STATE_{it} + \beta_9 SIZE_{it} + \beta_{10} GROWTH_{it} \\ & + \varepsilon_{it}, \end{aligned}$$

where  $MCS_i$  is an aggregate measure of MCS, and  $FGN\_COMP$ ,  $CUSTOMER$ , and  $INT\_ORIENT$  are the operational constructs for the threat of foreign entrants (H1a), the buyers' bargaining power (H2a), and international market orientation, respectively. The interaction terms in our model test for the moderating effect of the firms' international market orientation on the threat of foreign entrants (H1b) and on the buyers' bargaining power (H2b). The remaining five variables in the OLS regression are proxies for our control variables.

<sup>16</sup> The 2-digit CSMAR codes and frequencies (in parentheses) are: 26-Raw chemical, including petroleum processing ( $n = 27$ ), 34-metal products ( $n = 16$ ), 41-electrical machines, electronic and telecom equipment ( $n = 14$ ), 37-transport equipment ( $n = 13$ ), 36-special equipment ( $n = 13$ ), 27-medical and pharmaceutical products ( $n = 10$ ), 16-tobacco processing ( $n = 8$ ), 30-plastic ( $n = 7$ ), 31-Nonmetal products ( $n = 6$ ), 17-Textile ( $n = 6$ ), 22-papermaking and printing ( $n = 6$ ), 13-food processing ( $n = 6$ ), 28-chemical fiber ( $n = 5$ ), 14-food manufacturing ( $n = 5$ ), 42-instruments, cultural, and clerical ( $n = 4$ ), 35-ordinary machinery ( $n = 4$ ), 15-beverage ( $n = 4$ ).

## Dependent variable

Consistent with prior research (Widener, 2007), our dependent variable measures managers' perceptions of the importance that their firms place on their MCS. The five MCS practices are as follows (see Table 1).

(1) *Formal procedures*. This variable, patterned after Labroukos et al. (1995), is constructed from four questions that elicited senior-level managers' assessments of the extent to which the firm has rules, policies, and procedures that govern various strategic and operational decisions (anchored at 1 = not used at all; 7 = used very extensively). Cronbach's alpha for this variable is 0.89.

(2) *Strategic planning*. This variable, patterned after Bruns and Waterhouse (1975), is constructed from four questions that elicited senior-managers' assessments of the extent (anchored at 1 = not at all extensive; 7 = extremely extensive) and detail (1 = not at all detailed; 7 = extremely detailed) of their firms' strategic and operational planning. Cronbach's alpha for this variable is 0.77.

(3) *Budget targets and (4) approval procedures*. We construct the budget targets measure from six questions that elicited senior managers' assessments of the extent to which controls are used for net income targets (annual, quarterly, and monthly) and discretionary program targets (program expenditures and formal reviews of responsibility center performance). Cronbach's alpha for this variable is 0.88. We construct the approval procedures measure from four questions that elicit senior managers' assessments of the extent to which controls are used for hiring, discretionary spending, and capital expenditures (Chow et al., 1996; Merchant, 1985). The response anchors for both MCS variables are 1 = not used at all; 7 = used very extensively. Cronbach's alpha for this variable is 0.85.

(4) *Participative budgeting*. This variable comprises seven questions that elicited from senior managers their perceptions of the importance of subordinates' participation in budget setting (four questions) and the evaluation of budgeted performance (three questions) from Chow et al. (1999). The response anchors are 1 = extremely low; 7 = extremely high. Cronbach's alpha for this variable is 0.93.

## Independent variables

Table 3 shows descriptive statistics of our independent variables.

### Threat of foreign entrants

This variable (denoted  $FGN\_COMP$ ) is constructed from the industry data provided by the China Statistical Bureau in the China Statistical Yearbook (available at [www.china-dataonline.com](http://www.china-dataonline.com)). We use the ratio of foreign firms' sales to total sales in 2003 in each of the domestic industries represented in our sample using the two-digit CSMAR code.<sup>17</sup> Previous studies on the effects of the threat of foreign en-

<sup>17</sup> Researchers have used other proxies, such as indicator variables for special economic zones or the market development index (Fan & Wang, 2004), but such proxies are one step removed from the foreign entrant competition construct employed herein.

**Table 3**

Descriptive statistics: Dependent (MCS), independent, and control variables (N = 154).

	Mean	Std. dev.	Theoretical range	Min.	Max.
<i>Management control system<sup>a</sup></i>					
Aggregate MCS	128.13	15.26	25–175	79.50	162.00
Formal procedures	20.27	3.55	4–28	7.00	28.00
Strategic planning	19.37	2.81	4–28	7.50	27.00
Budget targets	33.62	5.30	6–42	16.00	42.00
Approval procedures	21.98	3.44	4–28	12.50	28.00
Participative budgeting	32.90	5.70	7–49	15.50	46.00
<i>Independent variables</i>					
Threat of foreign entrants (%) [foreign firms' sales/total industry sales in 2003]	19.01	18.29	0–100	0.00	67.28
Buyers' bargaining power (%) [Percentage of total firm sales made to 5 largest customers in 2003]	28.98	19.28	0–100	4.00	94.00
<i>International market orientation<sup>b</sup></i>					
[Average annual export sales % (2003–2005)]	11.89	18.69	0–1	0.00	87.54
[Years of export experience up to 2005]	1.84	1.87		0.00	6.00
<i>Control variables</i>					
Supplier [Percentage of total firm purchases made from 5 largest suppliers in 2003]	36.29	19.17	0–100	4.02	92.24
Value chain position [0 = if the firm sells to manufacturers; 1 = if the firm sells to retailers]	0.49	0.50	0–1	0.00	1.00
Government ownership [average % of State shareholding at the end of 2003]	38.60	25.30	0–100	0.00	85.00
Size [average total assets in CNY million at the end of 2002 and 2003]	3340.00	6670.00		293.00	64,300.00
Industry sales growth % [average annual industry sales growth between 2002 and 2003]	114.12	87.87		–77.00	275.16
<i>Management control system</i>					
Aggregate MCS	Aggregate measure that combines all the managers' responses to the 25 items that comprise the MCS (see Table 1)				
Formal procedures	Aggregate measure of managers' assessments of the extent to which the company has rules, policies, and procedures that govern strategic and operational decisions				
Strategic planning	Aggregate measure of managers' assessments of the extent of their firms' strategic and operational planning				
Budget targets	Aggregate measure of managers' assessments of the extent of use of controls for net income targets and discretionary program targets				
Approval procedures	Aggregate measure of managers' assessments of the extent of use of controls for hiring, discretionary spending, and capital expenditures				
Participative budgeting	Aggregate measure of managers' assessments of the importance of subordinates' participation in budget setting and evaluation of budgeted performance				
<i>Independent variables</i>					
FGN_COMP	Threat of foreign entrants. The ratio of foreign firms' sales to total sales in 2003 in each of the domestic industries in our sample, using the two-digit CSMAR code (source: China Statistical Yearbook)				
CUSTOMER	Buyers' bargaining power. The percentage of sales, out of total firm sales in 2003, made to the five largest customers of each firm in our sample (we use the log transformation in the regression models). The higher the index, the higher is the level of customer buying power (source: CSMAR database)				
INT_ORIENT	International market orientation. Continuous measure based on a factor score derived from factor analysis of the average annual export sales percentage for 2003 to 2005 and the number of years since the firm began exporting up to 2005 (source: CSMAR database). This variable is used for modeling the interaction terms in our OLS regression equation				
<i>Control variables</i>					
SUPPLIER	Supplier concentration. The percentage of purchases, out of total firm purchases, made to the five largest suppliers of each firm in 2003 (we use the log transformation in the regression models). The higher the index the higher the supplier concentration (source: CSMAR database)				
VALUE	Value chain position. Firms' main customers (manufacturers or retailers) – coded 0 if the firm sells to manufacturers and 1 if the firm sells to retailers (source: Annual reports)				
STATE	Government ownership. Average percentage of State shareholding at the end of 2003 (source: CSMAR database)				
SIZE	Size. Average total assets at the end of 2002 and 2003 (log used in the regression models) (source: CSMAR database)				
GROWTH	Industry growth. Based on the average annual industry sales growth between 2002 and 2003 (source: China Statistical Yearbook)				

<sup>a</sup> The MCS measures are constructed from responses to questions elicited from profit- and cost-center senior-level managers (see Table 1).

<sup>b</sup> The correlation between export sales % and years of export experience is 0.71 ( $p < 0.01$ ).

trants on domestic firms have used the same proxy (Hu & Jefferson, 2002; O'Connor et al., 2006).

#### Buyers' bargaining power

This variable (denoted *CUSTOMER*) is constructed using the percentage of sales, out of total firm sales in 2003, made to the five largest customers of each firm in our sample. Higher levels of this index indicate higher levels

of customer buying power. A log transformation is used to reduce skewness in the distribution of *CUSTOMER*. We collected the data from the firms' annual report disclosures mandated by the Chinese accounting standards.<sup>18</sup>

<sup>18</sup> This is similar to the customer concentration data mandated by SFAS No. 14 and used by Balakrishnan, Linsmeier, and Venkatachalam (1996). The only difference is that SFAS No. 14 requires this disclosure of customers only when they account for more than ten percent of a firm's annual sales.

### International market orientation

We rely upon the international economics literature (Kuivalainen, Sundqvist, & Servais, 2007; Sullivan, 1994; Welch & Luostarinen, 1988) to construct a continuous measure (denoted *INT\_ORIENT*) to proxy for the firms' international market orientation. We derive a factor score from a factor analysis of two criteria: (1) the firm's average annual export sales as a percentage of total sales from 2003 to 2005; and (2) the firm's export experience, measured using the number of years since the firm began exporting up to 2005 (source: CSMAR database).<sup>19</sup> We measure export sales and export experience up to one year after the time of the survey (i.e., 2004) as firms are likely to place higher importance on their MCS in anticipation of, and preparation for, future export growth opportunities. For example, to win export contracts with new customers, the firms might have to install new information systems (e.g., ERP), or they could use their MCS to support the planning of bids for new contracts to supply products.

### Control variables

We control for several firm and industry specific variables that may affect the importance that the emerging-economy firms place on their MCS (shown in Table 3). First, we control for one of Porter's five forces, supplier concentration (*SUPPLIER*), due to research evidence suggesting that it is associated with price competition and buyer profitability in the supply of goods (e.g., Hu, Ye, Chi, & Flynn, 2010) and audit services (e.g., Pearson & Trompeter, 1994). We use the percentage of purchases, out of total firm purchases in 2003, made to the five largest suppliers of each firm in our sample (the log transformation in our regression models). The higher the index, the higher the supplier concentration (source: CSMAR database). Second, we control for the firm's position in the value chain (i.e., whether the firm sells primarily to manufacturers or retailers) because the international business literature provides evidence that this factor is associated with the amount of bargaining power a firm may have over the terms of a transaction (Gereffi & Kaplinsky, 2001). Based on the product description information acquired from annual reports, we use an indicator variable (denoted *VALUE*), coded 1 if the firm sells primarily to retailers, and 0 if the firm sells primarily to other manufacturers.

Third, research has provided evidence of government interference, such as senior management appointments by the government, preferential commercial treatment of inter-organizational relationships, as well as provision of special benefits such as soft budget constraints (e.g., financial bailouts) and low-interest rate loans for internationally oriented firms (Tian & Estrin, 2007). Thus, we control for

government interference using a proxy (denoted *STATE*) that measures the average percentage of state shareholding as of December 2003.<sup>20</sup> Fourth, we control for size because larger firms are more likely to benefit from the use of MCS than are smaller firms (Chow et al., 2007). At the same time, larger firms carry greater political costs through employment responsibility, which may limit any such benefits (e.g., cost reduction through downsizing) (Lin, Cai, & Li, 1998). The proxy for firm size (denoted *SIZE*) is the natural logarithm of the average total assets at the calendar year end of 2002 and 2003. Finally, at the industry level, we control for industry growth using a proxy (denoted *GROWTH*) constructed from the average annual growth in industry sales for 2002–2003 (Dess & Beard, 1984).<sup>21</sup>

Table 4 shows pair-wise Pearson correlation statistics for our dependent, independent, and control variables (all *p*-values are two-tailed). Threat of foreign entrants (*FGN\_COMP*) is positively correlated with formal procedures, strategic planning, and approval procedures ( $p < 0.05$  or better). International orientation (*INT\_ORIENT*) is positively correlated with participative budgeting ( $p < 0.05$ ). Several of the control variables have significant correlations with the independent or dependent variables. Most notably, *SIZE* is positively correlated with aggregate MCS ( $p < 0.01$ ) and with all but one of the MCS practices ( $p < 0.10$ , or better). Furthermore, *SUPPLIER* is positively and significantly correlated with buyers' bargaining power (*CUSTOMER*) ( $p < 0.01$ ). This suggests that, on average, firms with higher percentages of purchases from their five largest suppliers also have higher percentages of sales to their five largest customers. *CUSTOMER* is positively and significantly correlated with value chain position (*VALUE*) ( $p < 0.01$ ), and with the average percentage of state shareholding (*STATE*) ( $p < 0.05$ ). This indicates that, on average, firms selling downstream (i.e., to retailers) have a higher percentage of sales to their five largest customers and have more of their shares owned by the state. None of the pair-wise correlations among the independent variables are high enough to suggest the existence of a multicollinearity problem.

## Results

### Hypotheses tests

Table 5 reports the regression results for the aggregate MCS. Column 1 shows the OLS regression model to test for H1a (*FGN\_COMP*) and H2a (*CUSTOMER*), and column 2 shows the OLS regression model that includes the main effects and interaction terms to test for H1b (*INT\_ORIENT* \* *FGN\_COMP*) and H2b (*INT\_ORIENT* \* *CUSTOMER*). As shown in Table 5, the higher *F*-statistic and adjusted *R*<sup>2</sup> for the regression model including the interaction terms suggest that the model is better specified than the model

<sup>19</sup> Anderson and Lanen (1999, p. 385) use seven survey questions to assess their sample firms' experience with and exposure to international markets. Their questions cover "the average percent sales in domestic markets," "the average share of domestic market for product that generates most profit," and "the average share of domestic market of primary international competitor for product that generates most profits," among others.

<sup>20</sup> With regard to the shareholding structure of the listed firms, other types of shareholdings, including legal-person shares, A-shares, and B-shares, have the ability to influence firm structure and operations. The results are qualitatively similar when these shareholding types are included.

<sup>21</sup> We source the data from the China Statistical Yearbook.

**Table 4**  
Pairwise Pearson correlation statistics of the dependent (MCS), independent, and control variables (N = 154).<sup>a,b</sup>

Correlations	Management control system variables						Independent variables			Control variables				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Aggregate management control system														
2. Formal procedures	0.70 <sup>‡</sup>													
3. Strategic planning	0.70 <sup>‡</sup>	0.60 <sup>‡</sup>												
4. Budget targets	0.82 <sup>‡</sup>	0.48 <sup>‡</sup>	0.45 <sup>‡</sup>											
5. Approval procedures	0.64 <sup>‡</sup>	0.25 <sup>‡</sup>	0.27 <sup>‡</sup>	0.54 <sup>‡</sup>										
6. Participative budgeting	0.75 <sup>‡</sup>	0.36 <sup>‡</sup>	0.42 <sup>‡</sup>	0.43 <sup>‡</sup>	0.30 <sup>‡</sup>									
7. FGN_COMP	0.21 <sup>†</sup>	0.22 <sup>‡</sup>	0.23 <sup>‡</sup>	0.08	0.20 <sup>†</sup>	0.11								
8. CUSTOMER	-0.02	-0.02	-0.12	0.03	0.03	-0.01	0.07							
9. INT_ORIENT	0.12	-0.01	0.06	0.05	0.12	0.17 <sup>†</sup>	0.03	-0.01						
10. SUPPLIER	0.05	0.06	0.04	0.10	-0.04	0.01	-0.06	0.28 <sup>‡</sup>	-0.11					
11. VALUE	0.00	0.07	0.09	-0.06	-0.08	-0.02	-0.01	0.36 <sup>‡</sup>	-0.01	0.19 <sup>†</sup>				
12. STATE	0.09	0.11	0.10	0.05	-0.01	0.08	0.03	0.20 <sup>†</sup>	-0.03	0.10	0.05			
13. SIZE	0.27 <sup>‡</sup>	0.21 <sup>‡</sup>	0.23 <sup>‡</sup>	0.15 <sup>*</sup>	0.10	0.26 <sup>‡</sup>	-0.10	-0.12	0.07	-0.04	0.08	0.15 <sup>*</sup>		
14. GROWTH	0.09	0.10	0.10	0.01	0.01	0.11	0.01	0.02	-0.01	-0.04	-0.07	0.20 <sup>†</sup>	0.34 <sup>‡</sup>	

<sup>a</sup> Significance levels: <sup>‡</sup>p < 0.01, <sup>†</sup>p < 0.05, <sup>\*</sup>p < 0.10 (two-tailed).

<sup>b</sup> See Table 3 for variable definitions.

**Table 5**  
Ordinary least squares (OLS) regressions (N = 154).<sup>a,b</sup>

$$MCS_i = \beta_0 + \beta_1 FGN\_COMP_{it} + \beta_2 CUSTOMER_{it} + \beta_3 INT\_ORIENT_{it} + \beta_4 (INT\_ORIENT_{it} * FGN\_COMP_{it}) + \beta_5 (INT\_ORIENT_{it} * CUSTOMER_{it}) + \beta_6 SUPPLIER_{it} + \beta_7 VALUE_{it} + \beta_8 STATE_{it} + \beta_9 SIZE_{it} + \beta_{10} GROWTH_{it} + \epsilon_{it}$$

		(1) Aggregate MCS		(2) Aggregate MCS	
		Coeff.	t-statistic	Coeff.	t-statistic
FGN_COMP	H1a (+)	0.20 <sup>†</sup>	2.51	0.20 <sup>‡</sup>	3.43
CUSTOMER	H2a (+)	-0.47	-0.28	-0.40	-0.32
INT_ORIENT		1.65	1.54	-7.71	-1.45
INT_ORIENT * FGN_COMP	H1b (-)			-0.13 <sup>†</sup>	-2.60
INT_ORIENT * CUSTOMER	H2b (+)			3.57 <sup>†</sup>	2.20
SUPPLIER		2.53	0.97	1.71	0.62
VALUE		-1.09	-0.51	-1.22	-0.59
STATE		0.02	0.37	0.03	0.50
SIZE		4.72 <sup>‡</sup>	3.17	4.83 <sup>‡</sup>	3.05
GROWTH		0.00	-0.22	0.00	-0.32
INTERCEPT		16.27	0.45	16.45	0.43
Model F-statistic		1.96 <sup>†</sup>		3.38 <sup>‡</sup>	
R <sup>2</sup>		0.14		0.20	
Adjusted R <sup>2</sup>		0.10		0.14	

<sup>a</sup> Significance levels: <sup>‡</sup>p < 0.01, <sup>†</sup>p < 0.05, <sup>\*</sup>p < 0.10 (two-tailed). Significance tests are conducted using Huber–White robust standard errors that are adjusted for heteroskedasticity as well as industry-specific clustering. The variance inflation factors (VIF) range from 1.02 to 5.35. The condition indexes range from 33.96 to 35.60.

not including the interaction terms. The adjusted R<sup>2</sup> for the model with the interaction terms (0.14; p < 0.01) is significantly higher (p < 0.05) than the adjusted R<sup>2</sup> for the model without the interaction terms (0.10; p < 0.05).<sup>22</sup> Multicollinearity is not a problem, as evidenced by the largest variance inflation factor (VIF) of 5.35 and the largest condition index value of 35.60, which are within the accepted limits (Belsley, 1991). The residuals of the models are normally distributed.

H1a predicts that the importance that emerging-economy firms place on their MCS is positively associated

with the threat of foreign entrants. As shown in Table 5, FGN\_COMP is positive and significant in both regression models, without the interaction terms (t = 2.51; p < 0.05) and with them (t = 3.43; p < 0.01). This result provides support for H1a. H1b predicts that the importance that emerging-economy firms place on their MCS due to the threat of foreign entrants is larger for domestically oriented firms than for their internationally oriented counterparts. As shown in Table 5, the interaction (INT\_ORIENT<sub>it</sub> \* FGN\_COMP<sub>it</sub>) is negative and significant (t = -2.60; p < 0.05). This result supports H1b.

H2a predicts that the importance that emerging-economy firms place on their MCS is positively associated with buyers' bargaining power. As shown in Table 5, CUSTOMER is not significant for either OLS regression model at

<sup>22</sup> All probability values are reported at the two-tailed level of significance.

$p < 0.10$ . Therefore, the results do not support H2a. H2b predicts that the importance emerging-economy firms place on their MCS due to buyers' bargaining power is larger for internationally oriented firms than for their domestically oriented counterparts. As shown in Table 5, the interaction ( $INT\_ORIENT_{it} * CUSTOMER_{it}$ ) is positive and significant ( $t = 2.20$ ;  $p < 0.05$ ). This result supports H2b.

#### Supplementary analyses and robustness tests

As reported earlier, the factor analysis identified five MCS practices (shown in Table 1). It is possible, however, that the aggregate results could obscure significant relationships that only hold for a specific MCS practice. To explore this possibility, we construct measures for each of the five MCS practices and use them as alternative dependent variables in our OLS regression model. Table 6 shows the ten regression models (i.e., main-effect and interaction models for each MCS practice).

Regarding H1a, Table 6 shows, for the regression models that include the interaction terms, a positive and significant association between  $FGN\_COMP$  and the five MCS practices (at  $p < 0.10$  or better). These results are consistent with our results using the aggregate MCS discussed above, and thus support H1a. Regarding H1b, Table 6 shows a negative and significant interaction ( $INT\_ORIENT_{it} * FGN\_COMP_{it}$ ) for formal procedures ( $p < 0.05$ ), strategic planning ( $p < 0.10$ ), and participative budgeting ( $p < 0.05$ ). These results are generally consistent with our results using the aggregate MCS discussed above, and thus provide support for H1b.

Regarding H2a, Table 6 shows that with the exception of strategic planning ( $p < 0.05$ , two-tailed),  $CUSTOMER$  is not significant for any of the MCS practices (at  $p < 0.10$ ). These results are consistent with our results for H2a using aggregate MCS. Finally, regarding H2b, Table 6 shows a positive and significant ( $p < 0.10$ ) interaction ( $INT\_ORIENT_{it} * CUSTOMER_{it}$ ) for strategic planning, budget targets, and participative budgeting. These results provide support for H2b based on the separate MCS practices. In summary, our results regarding the MCS practices examined separately are generally consistent with the results that examine the aggregate MCS, as discussed above.

Second, according to Krishnan, Luft, and Shields (2002), the effect of competitive forces may depend upon whether the threat of foreign entrants ( $FGN\_COMP$ ) is increasing or decreasing over time. Therefore, to assess the robustness of our results, we augmented our OLS regression model by including a control variable that is coded 1 if the change from 2002 to 2003 in the ratio of foreign firms' sales to total industry sales in each domestic industry in our sample (using the two-digit CSMAR code) is positive; 0 otherwise. Our results (not tabulated), using the aggregate MCS as the dependent variable, show that the control variable is negative and significant ( $p < 0.05$ ), thus indicating that the importance emerging-economy firms place on their MCS is negatively associated with positive changes in the ratio of foreign firms' sales relative to industry sales. More importantly, after controlling for the change in the threat

of foreign entrants over time, the results are qualitatively similar to our main results reported above.

Finally, the rivalry among core competitors in China is fierce due to the dominance of low-cost strategies employed by the key players (Adams, Gangnes, & Shachmurove, 2006). Thus, it is possible that the intensity of competition (Porter, 1986, 1987) may be associated, directly or indirectly, with the importance that emerging-economy firms place on their MCS. To explore this possibility, we augmented our OLS regression to control for the intensity of competition. Accordingly, we constructed a proxy for the intensity of competition using the Herfindahl index, measured by the sum of the squares of the market shares (in terms of sales) of the ten largest firms within each of the industries included in our sample (using the two-digit CSMAR code). Higher levels of the Herfindahl index indicate higher industry concentration, and thus, lower levels of competition. Lower levels of this index indicate a competitive industry with few or no dominant players. We find that the Herfindahl index ranges from a low of 0.0006 for the nonmetal products industry, to a high of 0.0151 for the raw chemical products industry. Our results (not tabulated) using the aggregate MCS as dependent variable show that the control variable for industry concentration is not significant ( $p > 0.10$ ). More importantly, after controlling for the intensity of competition, the results are qualitatively similar to our main results.<sup>23</sup>

#### Post hoc interviews

We conducted *post hoc* interviews to probe deeper into our empirical findings and to gather additional insights from managers regarding factors beyond the empirical constructs discussed above that may be associated with the importance their firms place on their MCS. The interview protocol consisted of five open-ended questions (see Appendix A). The interviews were digitally recorded and transcribed, and were conducted in English by one of the co-authors. The interviewees were middle-level managers from thirteen exchange-listed Chinese manufacturing firms, and senior- and middle-level managers from eight international firms operating in China (see Table 7). None of these firms were included in our original survey sample. As shown in Table 7, the firms were drawn from a wide range of industry sectors. Six interviews were face-to-face (with an average duration of one hour) and fifteen were over the phone (with an average duration of thirty minutes).

Next, we content-analyzed the interview transcripts (see Table 8). To limit any potential biases in the content analysis, the authors independently read the transcripts to extract factors that managers identified as affecting MCS use in their firms and/or industries. The authors then

<sup>23</sup> We are grateful to an anonymous reviewer for his/her insight regarding the intensity of competition. Our analysis, however, is limited by the fact that we could only capture the intensity of competition in the domestic industries represented in our sample of Chinese firms. Measurement difficulties prevent us from expanding our analysis to capture the intensity of competition on the international markets, as this would introduce noise to our Herfindahl index. We discuss this further in the conclusion.

**Table 6**  
Ordinary least squares (OLS) regressions (N = 154).<sup>a,b</sup>

$$MCS_i = \beta_0 + \beta_1 FGN\_COMP_{it} + \beta_2 CUSTOMER_{it} + \beta_3 INT\_ORIENT_{it} + \beta_4 (INT\_ORIENT_{it} * FGN\_COMP_{it}) + \beta_5 (INT\_ORIENT_{it} * CUSTOMER_{it}) + \beta_6 SUPPLIER_{it} + \beta_7 VALUE_{it} + \beta_8 STATE_{it} + \beta_9 SIZE_{it} + \beta_{10} GROWTH_{it} + \varepsilon_{it}$$

		Formal procedures	Strategic planning	Budget targets	Approval procedures	Particip. budgeting	Formal procedures	Strategic planning	Budget targets	Approval procedures	Particip. budgeting
<i>FGN_COMP</i>	H1a (+)	0.05 <sup>‡</sup> (3.12)	0.04 <sup>‡</sup> (3.51)	0.03 (1.53)	0.04 <sup>†</sup> (2.32)	0.04 (1.35)	0.05 <sup>‡</sup> (3.57)	0.04 <sup>‡</sup> (4.05)	0.03* (1.91)	0.04 <sup>†</sup> (2.68)	0.04* (1.80)
<i>CUSTOMER</i>	H2a (+)	-0.35 (-0.79)	-0.79 <sup>†</sup> (-2.62)	0.16 (0.28)	0.41 (0.83)	0.10 (0.14)	-0.35 (-0.80)	-0.77 <sup>†</sup> (-2.46)	0.23 (0.50)	0.44 (0.95)	-0.06 (-0.10)
<i>INT_ORIENT</i>		-0.01 (-0.02)	0.14 (0.82)	0.25 (0.64)	0.35 (1.20)	0.91 <sup>†</sup> (2.08)	-1.03 (-1.14)	-0.96 (-1.28)	-3.54 (-1.68)	-1.26 (-0.84)	-0.92 (-0.57)
<i>INT_ORIENT * FGN_COMP</i>	H1b (-)						-0.02 <sup>†</sup> (-2.39)	-0.13* (-1.76)	-0.02 (-0.82)	-0.01 (-0.85)	-0.07 <sup>†</sup> (-2.86)
<i>INT_ORIENT * CUSTOMER</i>	H2b (+)						0.44 (1.59)	0.41* (1.95)	1.24* (2.05)	0.55 (1.20)	0.94* (1.82)
<i>SUPPLIER</i>		0.54 (1.39)	0.46 (1.50)	1.18 (1.28)	-0.01 (-0.02)	0.37 (0.41)	0.44 (1.03)	0.37 (1.09)	0.92 (0.94)	-0.13 (-0.17)	0.12 (0.14)
<i>VALUE</i>		0.42 (0.79)	0.71 <sup>†</sup> (2.21)	-1.14 (-1.26)	-0.86 (-1.43)	-0.22 (-0.44)	0.40 (0.76)	0.69 <sup>†</sup> (2.30)	-1.14 (-1.28)	-0.86 (-1.43)	-0.29 (-0.50)
<i>STATE</i>		0.01 (0.69)	0.01 (0.71)	0.00 (0.17)	0.00 (-0.40)	0.00 (0.41)	0.01 (0.79)	0.01 (0.75)	0.00 (0.16)	0.00 (-0.39)	0.01 (0.76)
<i>SIZE</i>		0.80 <sup>‡</sup> (3.21)	0.62 (1.51)	1.13 <sup>†</sup> (2.65)	0.56 (1.77)	1.60 <sup>‡</sup> (2.91)	0.80 <sup>‡</sup> (3.35)	0.64 (1.52)	1.24 <sup>†</sup> (2.52)	0.60 (1.72)	1.56 <sup>†</sup> (2.86)
<i>GROWTH</i>		0.00 (0.40)	0.00 (0.47)	0.00 (-0.89)	0.00 (-0.60)	0.00 (0.32)	0.00 (0.33)	0.00 (0.37)	0.00 (-0.89)	0.00 (-0.67)	0.00 (0.23)
<i>INTERCEPT</i>		0.73 (0.13)	5.43 (0.58)	5.16 (0.51)	8.89 (1.16)	-3.94 (-0.30)	1.12 (0.20)	5.35 (0.56)	3.68 (0.31)	8.44 (1.04)	-2.15 (-0.17)
Model F-statistic		6.23 <sup>‡</sup>	4.28 <sup>‡</sup>	1.59	2.48*	2.98 <sup>†</sup>	4.54 <sup>‡</sup>	5.56 <sup>‡</sup>	2.11*	2.80 <sup>†</sup>	24.36 <sup>‡</sup>
R <sup>2</sup>		0.12	0.16	0.06	0.08	0.11	0.14	0.18	0.09	0.10	0.18
Adjusted R <sup>2</sup>		0.07	0.12	0.01	0.03	0.07	0.08	0.12	0.03	0.03	0.12

<sup>a</sup> Significance levels: <sup>†</sup>p < 0.01, <sup>‡</sup>p < 0.05, \*p < 0.10 (two-tailed). The t-statistics are shown in parentheses. Significance tests are conducted using Huber–White robust standard errors that are adjusted for heteroskedasticity as well as industry-specific clustering. The variance inflation factors (VIF) range from 1.01 to 5.37. The condition indexes range from 25.95 to 30.92.

<sup>b</sup> See Table 3 for variable definitions.

**Table 7**

Post hoc interviews: Interviewees' positions and firm descriptions.

	Interviewees' position	Firm description
A	Trade development manager	Apparel (domestic manufacturer)
B	Chief executive officer	Electronics (international firm)
C	Trade development manager	Toys (manufacturer with domestic and international sales)
D	Regional financial manager	Automotive (manufacturer with domestic and international sales)
E	Accountant	Industrial (domestic firm)
F	Regional quality manager	Electronics (international firm)
G	Associate brand manager.	High end apparel (international firm)
H	Accountant	Industrial (international firm)
I	Project manager	Building design and construction (with domestic and international sales)
J	Technology department manager	Foreign sourcing firm – low end apparel (international firm)
K	Sales admin manager	Logistics (international firm)
L	Research and development manager	Electronics (international firm)
M	Senior consultant	Electronics (manufacturer with domestic and international sales)
N	Chief financial officer	Electronics (manufacturer with domestic and international sales)
O	Sourcing manager.	Diversified industrial (international firm)
P	Global account manager	Electronics (manufacturer with domestic and international sales)
Q	Manager of marketing department	Building and construction (manufacturer with domestic and international sales)
R	System support engineer	Chemical (Manufacturer with domestic and international sales)
S	Product planning manager	Automotive (manufacturer with domestic and international sales)
T	Sales manager	Diversified/heavy industrial (manufacturer with domestic and international sales)
U	Sales manager	Diversified/heavy industrial (manufacturer with domestic and international sales)

**Table 8**Content analysis of post hoc interviews.<sup>a</sup>

	Total (21)	Chinese firms (13)	Int'l firms (8)
<i>Panel A. Summary of factors related to the threat of foreign entrants</i>			
<i>Cost pressure:</i> As the threat of foreign entrants increases, opportunities to compete based on low cost decrease. Instead, firms compete based more on product differentiation (e.g., in terms of quality and features). As the threat of foreign entrants decreases, opportunities to use lower-cost labor and materials increase	12	8	4
<i>Budgeting/imitation of foreign entrants:</i> As the threat of foreign entrants increases (decreases), firms tend to rely more (less) on budgets to remain competitive. Firms imitate the management and marketing practices of foreign entrants	8	4	4
<i>Hiring terms and conditions:</i> As the threat of foreign entrants increases, the firms' pressure to match the hiring terms and conditions of foreign competitors' increases (e.g., better salaries and benefits to hire and retain skilled workers)	4	2	2
<i>Brand image pressure:</i> As the threat of foreign entrants increases, the pressure to allocate more resources to marketing increases	2	1	1
<i>Panel B. Summary of factors related to the buyers' bargaining power</i>			
<i>Formal contractual demands:</i> Relative to domestic customers, international customers impose more safety/quality/environmental standards and capital investments; require certifications (e.g., ISO 9000), on-time delivery & scheduling (e.g., ERP); warranty claims and product recalls	13	7	6
<i>Profit margin pressure:</i> International customers have access to many global suppliers; thus, they have more bargaining power than domestic customers to negotiate lower costs	12	7	5
<i>Formal monitoring:</i> International customers impose more monitoring and restrictions on outsourcing of direct costs (materials and labor) than domestic customers	10	6	4
<i>Warranty risk:</i> International customers seek to recover full costs of warranty claims, which places greater burden on the Chinese supplier to have systems in place to manage these risks	4	2	2
<i>Exporting costs:</i> Additional exporting costs associated with international customers include transportation, insurance, supply chain coordination and the need to have systems in place for customs duty and tax reporting	3	1	2

<sup>a</sup> The content analysis is based on post hoc interviews of managers in thirteen exchange-listed Chinese firms and eight international firms operating in China from the sectors listed in Table 7. The numbers in the cells represent the frequencies of factor citations, out of the 21 interviewees. Only factors cited by at least two interviewees are shown. All the interviews were digitally recorded and transcribed. The transcripts are available upon request from the first two authors.

discussed their coding and reconciled any differences. Panels A and B of Table 8 provide a summary of the factors extracted from the content analysis related to the threat of foreign entrants and the buyers' bargaining power, respectively. The content analysis yielded four factors associated with the threat of foreign entrants: cost pressure, budgeting/imitation of foreign entrants, hiring terms and conditions, and brand image pressure. Further, the content analysis yielded five factors associated with the buyers' bargaining power: formal contractual demands, profit

margin pressure, formal monitoring, warranty risk, and exporting costs.

The most widely noted factor related to the threat of foreign entrants and importance of MCS use was cost pressure (cited by twelve of the 21 interviewees—see panel A of Table 8). The comments from interviewee N were especially insightful:

The factory design, machines, and labor must be at the same level as those of the foreign competitors.

Otherwise we will lose the market because we produce the same products, so price competition is not a good way to survive. Except, you need to do some under-the-table deals...for example...perform fewer quality control tests...pay less to the workers in order to maintain low costs; if we are in the same level we need to do good planning.

The second most widely cited factor regarding the threat of foreign entrants was the imitation of management practices of the foreign entrants (cited by eight of the 21 interviewees—see panel A of Table 8). This imitation appears to be strategic, as suggested by interviewee K:

In China, at first they [the domestic firms] did not have the practice of budget control. But now, because more foreign competitors are involved in this market, they [the domestic firms] may learn something from them [the foreign competitors]. That is why they [the domestic firms] will use the same practices as the foreign players.

The most widely noted factor related to buyers' bargaining power was formal contractual demands (cited by thirteen of our 21 interviewees—see panel B of Table 8). For instance, the interviewees agreed that relative to domestic customers, international customers tend to impose more safety/quality/environmental standards and require more capital investment. They also require certification (e.g., ISO 9000), on-time delivery and scheduling, and warranty claims and product recalls. Interviewee I provided the following comments:

We have to match the buyers' taste with the procurement procedures. For the procurement procedures with Wal-Mart we need to recognize what Wal-Mart needs or likes and we need to create internal procedures to match their taste. For example, Wal-Mart forces the manufacturing companies to drop their prices, so we have to control our costs a lot more than before. Indirectly we have to establish some management system to control many things, for example: cost, contract management, logistics management, and pay more attention to the terms and conditions in the contract. Systematically, we have to improve internally.

The second most widely cited factor related to buyers' bargaining power was the profit margin pressure from international customers (cited by 12 of the 21 interviewees—see panel B of Table 8). For example, Interviewee N commented:

Every year we do cost control and we review everything, for example, product design, material cost, we cut the cost from our suppliers. Let us say last year I buy from you for \$100, this year I cut the cost by 5 percent, we pass the pressure from the customers onto our suppliers. Therefore, you need budget planning systems to help us do that.

The third most widely cited factor related to buyers' bargaining power was the formal monitoring imposed by larger international customers (cited by 10 of the 21 interviewees—see panel B of Table 8). Furthermore, several of

the interviewees mentioned warranty claims and product recalls, additional costs associated with exporting and tax management pressures, and the need for transparent transactions as factors that affect their MCS use. The following is an illustrative excerpt from interviewee N:

Let's say our product doesn't fulfil their requirements; if so, then they [the international customers] have the right to recall all the products back to China. The cost of the recall may be double or even triple and the factory may have to close down...[so the risk is very high]. When we deal with the international customers we take care of everything they need.

Regarding buyers' bargaining power and firms' international market orientation, some interviewees mentioned that the domestically oriented firms often enjoy the advantage of *guanxi*. For example, interviewee A commented:

It is impossible for a foreign brand to enter the China market without developing interpersonal relationships. Your products can't get on the shelves of the department stores unless you bribe the managers of the department stores to develop a relationship with them. In addition, although they can find a local company in China to cooperate with them, they cannot be sure that the product will sell well because the China market is unique in terms of the size, colors, and the design customers want. This is the challenge of foreign brands.

As shown in Appendix A, we also elicited our interviewees' views on how their MCS might be used more extensively to respond to the threat of foreign entrants and to buyers' bargaining power. In general, the interviewees acknowledged the differences in the use of formal planning and budget controls between Chinese and foreign firms. The reactions from interviewees D and E illustrate this point:

For example, for the international companies, budgeting is a very important activity and the management teams will deliver the budget at the beginning of the year. But for the domestic companies, budgeting is a more informal activity; it does not have the same role as they do in the international companies. The actual results are different from the budgets that managers presented at the beginning of the year. There is not a strong relationship between the budgets and the actual operating results. That is, the incentives and compensation of the management team are not strongly related to how the actual numbers are different from the budgets presented at the beginning of the year. (Interviewee D)

We have the balanced scorecard. But some companies use the balanced scorecard as a strict control. For us, it is just a tool, but it is not used to strictly control all of the activities. Every month we will update the balanced scorecards, but we may not use it to make decisions. (Interviewee D)

Most of the managers in domestic companies care too much about the "numbers game" and not so much about the improvement of business processes and optimization. Since I specialize in ERP and other management software, I know they don't pay too much



attention to what they can do to improve their management. (Interviewee E)

#### *Other factors associated with the importance of MCS*

The interviewees' responses to our open-ended questions also provided additional insights into other factors that may be associated with the importance the firms place on their MCS.

#### *Chinese way of doing things ("under the table affairs")*

According to several interviewees, many Chinese firms conduct business "under the table" to shield themselves against competition from foreign entrants. The following is an illustrative excerpt from interviewee N:

Yes, we care about foreign entrant competition. . .let's say the factory design, machine, labor. Otherwise we will lose the market to the foreign entrants. Because we produce the same products, price competition is not a good way to survive. . .you need to rely on some under-the-table affairs. . .let's say. . . cash transactions with related parties, pay less payroll taxes, in order to maintain low cost. So you will find that most of the Chinese companies that rely on under-the-table affairs are medium level or small level. Otherwise, for the larger Chinese firms that have to compete directly with the foreign entrants, we need to do good planning to keep the cost level low and the labor cost low.

#### *MCS viewed as a passive activity*

Several international customers we interviewed stated that some MCS practices were not being used as management tools.

The factories in China usually follow their production plans passively. As an international customer dealing with Chinese manufacturers, you always have to push them and tell them what they need to do. We always check their processes very closely. (Interviewee C)

Often the domestic companies do not actually put their MCS into practice; they just think the MCS practices are the kind of normal activities that they must conduct, like every month you will do the monthly closing of the accounts and reporting of results. They do not care about results. (Interviewee D)

#### *Senior management leadership*

Many Chinese firms are either family-owned or are spinoffs of large state-owned enterprises. This has implications for their managerial leadership (i.e., former state-owned enterprise managers versus entrepreneurs) and the importance that senior managers place on their MCS. These are illustrative excerpts from two interviewees:

If the CEO thinks the budget is very important, then the firm will use budget controls. If the CEO is from the

finance department, then the firm will be especially sensitive to budget controls. (Interviewee K)

Our CEO takes an American approach. All the numbers are entered into the computer and then there's a system to provide results (e.g., turnover rate, trends). Every figure is produced automatically by the computer so that managers can know each factory's performance in real time. (Interviewee N)

#### *Risks associated with high-power customers*

One interviewee noted that while all manufacturers have some form of formal planning, it was difficult to foresee and prepare for the risks associated with losing big orders from high-power customers.

I think most of the companies in China do planning quite well at this moment. Even small companies, domestic or foreign, do their planning quite systematically and very well. . .They plan well but they cannot forecast with accuracy because a very large customer may have placed a long-term purchase order and suddenly the customer cancels the order. (Interviewee B)

I think size is the issue. Because the companies are big enough, they can attract foreign companies. Multinational companies pay their suppliers when they need them to meet certain criteria, including quality, safety, and some working conditions. . . They need these companies to have clear planning in their factory, but only large manufacturers can afford to apply for [industry specific] certificates. (Interviewee C)

## **Discussion and conclusions**

Using survey and archival data from exchange-listed Chinese firms, we investigate the relationship between two of Porter's (1991, 1998) competitive forces—the threat of foreign entrants and buyers' bargaining power—and the importance that firms place on their MCS, and whether this relationship is moderated by the firms' international market orientation. We predict and find a positive association between the threat of foreign entrants and the importance that firms place on their MCS, and this association is larger for firms that compete predominantly in the domestic market than for those competing predominantly in international markets. Further, we predict and find that the firms' international market orientation moderates the association between the buyers' bargaining power and the importance the firms place on their MCS. Specifically, we find that the impact of the buyers' bargaining power is larger for firms competing predominantly in international markets than for those competing in domestic markets. When we examine the MCS practices separately, the results are qualitatively similar to the results concerning the aggregate MCS. From a practical standpoint, our results point to the need for emerging-economy firms to focus on MCS practices that support their goals of accessing and exploiting global market opportunities and resources more rapidly and efficiently.

Analyses of *post hoc* interviews with managers of Chinese firms show that several other factors are also likely to play a role in the importance that firms place on their MCS, such as the “Chinese” way of doing business, passive compliance with MCS practices instead of using them as management tools, senior management leadership, and the risks associated with high-power customers. The insights gleaned from the *post hoc* interviews suggest that the inclusion of these additional factors can sharpen the findings, in part by capturing their role in the importance that firms place on their MCS.

As mentioned earlier, this study followed best practices, both in the development and pre-test of the survey instruments, as well as in the process used to invite potential survey participants. For example, we elicited responses from two senior managers per firm to reduce common method bias, and found that the mean responses between each pair of managers are not significantly different. Nevertheless, this study is subject to the typical limitations of survey-based research, including the validity and reliability of items and tests. In particular, the findings on the focal variable (the importance of MCS or MCS practices) are primarily based on survey questions that elicit managers' perceptions of the “extent” of use (e.g., Widener, 2007)—as opposed to the “importance” of use—of the MCS practices in the firms. This divergence between the theoretical construct and the operational measure weakens the operationalization of our dependent variable, and thus, represents an internal validity threat to this study.

Other limitations of this study point to several directions for future research. First, the measure that uses the percentage of a firm's sales to its top five customers as a proxy for buyers' bargaining power may not fully capture buyers' bargaining power, which can partly depend on the range of alternatives available to buyers. Similarly, we relied on the international economics literature to construct a continuous measure to proxy for the firms' international market orientation. Future research should endeavor to build on this and previous studies to construct a more nuanced measure of international market orientation that includes other factors, such as overseas subsidiaries and assets. Second, we focus on traditional MCS practices used by emerging-economy firms. Future research should examine other management accounting practices, such as strategic performance measurement systems and activity-based costing (e.g., see Chow et al., 2007).

Third, this study focuses only on exchange-listed firms, which presumably have advanced further in their transition to a market-driven economy than their non-listed counterparts. Future research could examine whether non-listed emerging-economy firms take a different path towards internationalization. For example, international business studies show that some firms begin their lives with a high degree of born-globalness (Filatotchev, Liu, Buck, & Wright, 2009; Kuivalainen et al., 2007; Sapienza, Autio, George, & Zahra, 2006). As such, these firms create sustainable competitive advantages based on unique technologies and innovation, which they leverage worldwide (Filatotchev et al., 2009). Future research could build on the international business research and the results of this

study to provide further insights into the internationalization of emerging-economy firms and its role in the importance that the firms place on their MCS.

Fourth, this study focuses on two of Porter's (1991, 1998) five competitive forces. As discussed earlier, we control for the suppliers' bargaining power and our regression results show no evidence of an association between this variable and our dependent variable. Furthermore, we report preliminary results of robustness tests that control for the intensity of competition (using the Herfindahl index) and our regression results show no evidence of an association between this variable and our dependent variable. However, our analysis is limited by the fact that we could only capture intensity of competition in the domestic industries represented in our sample. This is because of the inherent measurement challenges of capturing the intensity of competition on the international markets.

Expanding the investigation to include other forces in Porter's industry analysis could provide further insights into the multi-dimensional nature of these forces and their potential relationship to the importance that firms place on their MCS. In addressing these research questions, accounting scholars stand to benefit from insights provided by the emerging body of studies on buyer-supplier relationships (e.g., Cai & Yang, 2008; Parmigiani & Mitchell, 2010), the threat of substitute products (Atsmon et al., 2010), and the intensity of rivalry among core competitors (Adams et al., 2006).

A final theme for future research points to the role of other external factors, such as the role of government ownership as either facilitator or inhibitor of the modernization process in emerging economies (e.g., Erdener & Shapiro, 2005). Little is known about which of these two roles government would play if it were a dominant shareholder of newly listed firms. In analyses that examine the moderating effect of international market orientation on the association between government ownership and the importance that the firms place on their MCS, we find preliminary evidence (not reported here) that government ownership plays the role of a “soft budget constraint” for internationally oriented firms, while it plays the role of facilitator for domestically oriented firms. Thus, more research is needed to examine how the different roles of government ownership may affect the importance that emerging-economy firms place on their MCS.

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### Appendix A. Post hoc interviews protocol

We conducted 21 *post hoc* interviews that included middle-level managers from thirteen exchange-listed Chinese manufacturing firms, and senior- and middle-level managers from eight international firms operating in China. Six interviews were face-to-face and fifteen interviews were over the phone. All the interviews were conducted in English by one of the co-authors. We sent the questions to the managers ahead of the interviews. We shared our main findings with the interviewees:

- A. We find that internationally oriented Chinese firms respond to buyers' bargaining power by using more formal strategic planning, budget targets, and approval procedures, relative to domestically oriented firms.
- B. We find that internationally oriented Chinese firms respond to the threat of foreign entrants by using more formal procedures, strategic planning, budget targets, and participative budgeting, relative to domestically oriented firms.

#### Open-ended questions:

1. Has your firm (or firms in your industry) responded to the competitive forces in the way described above? In other words, has your firm (or firms in your industry) used formal planning and/or formal budgeting more extensively because of increased (a) foreign entrants' competition; or (b) buyers' bargaining power?
2. Can you provide examples of the types of pressures that foreign firms place on your firm (or firms in your industry)?
3. Can you comment on the differences between the pressures from the foreign firms and the pressures from the domestic firms?
4. Can you provide examples of the types of pressure that large customers place on your firm (or firms in your industry)?
5. Could you comment on whether MCS might be used more extensively because of increased (a) foreign entrants' competition; or (b) buyers' bargaining power? And if MCS is used more extensively, then could you provide specific examples of the MCS?

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