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Industry strategic variety and performance

The role of market and institutional forces in the Chinese industrial enterprises

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Abstract

Purpose – Market-based theories assume that firms' different strategic commitments to businesses lead to different strategic positions within the industry. While the institutional perspective from organization theory emphasizes the institutional pressures which lead to legitimacy and firm isomorphism, it is not clear yet how intra-industry organizations behave during institutional transitions. The purpose of this paper is to combine the insights of these theories by examining the role of market and institutional forces in affecting industry strategic variety and its impact on average industry performance in transitional China, based on the strategic view of neoinstitutional theory.

Design/methodology/approach – Empirical tests are carried out using industrial enterprise data of China from 2000 to 2006.

Findings – Empirical results using industrial enterprise data of China from 2000 to 2006 suggest that: industry competitiveness has a strong positive influence on strategic variety; the weakening relationship between government and market leads to increased strategic variety; and indicators of strategic variety have complicated effects on industry performance.

Originality/value – The strategic view of neoinstitutional theory was used to gain a better understanding of intra-industry strategic variety during the institutional transition of China. Thus this paper combines seemingly contradictory theories in our understanding of how intra-industry organizations behave in response to institutional change.

Keywords China, Organizational change, Market forces, Newly industrialized economies, Institutional transition, Strategic variety, Industry performance

Paper type Research paper

Market-based theories assume that firms' differential strategic commitments to businesses lead to differential strategic positions within the industry. While the institutional perspective from organization theory emphasizes the institutional pressures which lead to legitimacy and firm isomorphism. Yet, it is not clear how intra-industry organizations behave during institutional transitions. This paper combines the insights of these theories by examining the role of market and institutional forces in affecting industry strategic variety and its impact on average industry performance in transitional China based on the strategic view of neoinstitutional theory. Empirical results using industrial enterprise data from 2000 to 2006 suggest that: industry competitiveness has a positive influence on strategic variety; the weakening relationship between government and market leads to increased strategic variety. And indicators of strategic variety have complicate effects on industry performance.

Should strategies of firms in the same industry be homogeneous or heterogeneous? This question has attracted the attention of scholars of sociological, organizational and

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strategic fields for a long time. It is generally acknowledged that an organization's strategy is inseparable from the environments it operates in and an organization commonly operates in environments that impose on it both market (i.e. technical) and institutional pressures (Powell, 1991; Scott, 1992; Tolbert, 1985; Zucker, 1987). Scott (1992) provided a matrix using the dimensions of market and institutional environments, resulting four cells – strong institutional/weak market, strong institutional/strong market, weak institutional/weak market, weak institutional/strong market. Strategic theories make different assumptions about firm behavior from institutional theory. Strategic theories, which emphasize the market environment, assume that firms' differential strategic commitments to businesses bring about differential strategic positions, both product-market and resources positions, which finally increase variation in intra-industry strategic variety. Studies of strategic theories are mainly carried out in strong market cells, i.e. manufacturing industries. While institutional theory, which emphasizes the institutional environment, assumes that firms are motivated to comply with external social pressures, thus reducing variation in strategies of firms within the same field, such as within the same industry. Much of the institutional literature has emerged from observations of organizations in strong institutional cells such as hospitals, banks, educational and governmental sectors. The strategic view of neoinstitutional theory, however, explains the competitive advantage gained by firms through interpreting and responding to the institutional environment. Neoinstitutional theory explains an organization's actions within an institutional and strategic vision as a response to institutional pressures. Thus both market-based and institutional views contribute to better understanding of the process of creating competitive advantages.

Existing research has mainly undertaken in developed economies. One strand of the research carried out on firm level mainly chooses one or two industries to examine how a firm's designated strategy conforms to industry average through various mechanisms and the impact of strategic conformity on firm performance (Heugens and Lander, 2009). The overall institutional framework of a greater field remains largely unchanged in most of these studies of developed economies (Peng, 2003). The other strand carried out on industry level investigates a number of industries and examines the relationship between industry variety and average industry performance (Miles *et al.*, 1993; Dooley *et al.*, 1996). This strand of research adopts a strategic management perspective, with the role of institutional environment neglected. Therefore, little is known about how organizations make strategic choices when confronting the massive institutional transitions taking place in many emerging economies such as China. Scholars have pointed out that, "rules of the game" (i.e. institutions, North, 1990) are well established in developed economies, while new institutional realities are not well defined and under constant change in transitional economies, and institutional theory seems to be a most insightful approach to investigate the relationship between institutional environment of transitional economies and strategic differences (Peng, 2005; Zhou and Li, 2007).

This paper takes on an industry-level perspective. We first review the literature on strategic variety and institutional theory. Then the insights of these theories are combined to examine the role of industry market and institutional factors plays in affecting intra-industry strategic variety in transitional China. Specifically, the influences of industry competitiveness and two dimensions of institutional factors – political and legal institutions – are examined. Empirical results using industrial enterprise data of China from 2000 to 2006 suggest that industry competitiveness and the weakening political institutions have positive effects on intra-industry strategic variety. And indicators of strategic variety have complicate effects on industry performance.

Literature review

Scott and Meyer (1983, pp. 140, 149) described market environments as "those within which a product or service is exchanged in a market such that organizations are rewarded for effective and efficient control of the work process", and institutional environments as "characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy". Key components in an organization's market environment consist of those who control the critical factors of economic production which are essential to the organization's core work activities (Jacobs, 1974) while institutional components refer to government agencies, laws, rules, regulations, etc.

After more than 30 years of market-oriented reform, China's economy has largely shifted from a planned economy to a market economy. The rapid and widespread adoption of market-based policies has raised many important issues regarding the strategies of firms in emerging economies (Hoskisson *et al.*, 2000). Under the reform, enormous institutional change has taken place (Child, 1994), with institutions supporting planned economy gradually replaced by institutions supporting market mechanism. The reform of institutions not only affects the institutional environment of China, but also the market environment (Chung and Beamish, 2005). Besides, an important characteristic of the institutional reform of China is that it is decentralized. The relevant departments of the State draw up basic principles of the reform and then the principles are refined aiming at different industries or regions as the case may be. Thus, a lot of relevant policies refer only to specific industries or regions. Therefore, the role of market and institutional factors of the industry is elaborated below.

Market-based theories: heterogeneity

Market-based theories emphasize the technical interdependence between the organization and the environment plus the scarcity of resources in the environment. Organizations under the pressure of competition need to make effective arrangements and handle exchange and interdependency-related problems to access and control critical inputs. When applying research of national competitive advantage to the firm, Porter argued that the real source of competitive advantage may be its local market in which the firm operates in and the most critical factor is the industry (Porter, 1991). Porter used the diamond framework to illustrate the four attributes in the local environment: context for firm strategy and rivalry, factor (input) conditions, local demand conditions as well as related and supported industries. These attributes shape the information available to firms to perceive opportunities and the pressures on firms to act, goals of the firms, as well as the pool of inputs, skills and knowledge they can utilize. In the analysis, Porter naturally regarded the firm as a unity and examined its external market and industry conditions. In this sense, the competitive positioning theory is market oriented. But the theory treats the firm as a "black box" without considering firms' internal resources and holds that firms in the same industry are homogeneous. The resource-based theory makes up for it to some extent. Resource-based theory (Barney, 1991) assumes that the valuable resources or competences that a firm possesses are the origin of competitive advantage. Firms are viewed as idiosyncratic and heterogeneous bundles of assets and resources. Each firm's possession of a unique set of scarce, valuable, and difficult-to-imitate tangible or intangible resources can be transformed to unique capabilities and ultimately leads to intra-industry heterogeneity (Barney, 1991). Resource-based view uses the uniqueness of the resources and the imperfections of factor market to explain firm's sustainable

advantage and firm variance. Combining these two views, firms in the same industry make different strategic commitments to businesses relative to their competitors which lead to different strategic positions and finally bring about intra-industry firm behavior and performance heterogeneity (Noda and David, 2001). Firm heterogeneity in acquiring and deploying resources and capabilities accounts for the generation of economic rents. And differences among firms in the same line of business are assumed to reflect differences in the market environments that they face.

Institutional theory: homogeneity

According to institutional perspective, organizations operate within a social framework of norms, values, and taken-for-granted assumptions about what constitute appropriate or acceptable economic behaviors. Unlike market-based framework, which stresses the extent to which organizational behavior is rational and economically justified, institutional theorists highlight the importance of institutional environment and emphasize the extent to which organizational behavior is deemed legal and accepted by the public and the society. They argue that organizations conform to formal (i.e. laws, regulations, etc) and informal (i.e. ethics, conventions, etc) institutions in the environment and benefit from doing this (Baum and Oliver, 1991; Carroll and Hannan, 1989; DiMaggio and Powell, 1983; Oliver, 1991). As Scott (1987, p. 498) wrote, "organizations [...] conform because they are rewarded for doing so through increased legitimacy, resources, and survival capabilities". Organizations are pressured to conform through isomorphism coercive, mimetic, and normative mechanisms (DiMaggio and Powell, 1983; North, 1990; Scott, 1995). Therefore, institutional theory argues that organizations' conformity tendencies lead to homogeneity among organizations in their behaviors, and that successful organizations are those that gain legitimacy and other benefits by conforming to the institutions.

The basic premise that homogeneity brings about legitimacy and other benefits has been applied not only in symbolic isomorphism but also in the studies of organizational structure, management practice and organizational strategy (Haveman, 1993; Greve, 1995, 1996; Deephouse, 1996). However, in contradiction to "iron cage" hypothesis (DiMaggio and Powell, 1983), increased intra-industry variety has been found in some institutional studies. Hambrick *et al.*'s (2005) analysis of US 19 industries found that increased heterogeneity occurred over the last two decades of the twentieth century. They attributed it to reduced macro-social isomorphic pressures during the two decades. Karhunen (2008) examined the hotel sector in St. Petersburg, Russia. Results showed that industry-level isomorphic forces were not at work during economic transition. Combined with market imperfections, intra-industry strategic diversity was resulted. Yet, in both of these studies, the weak institutional environment was mentioned implicitly or theoretically to explain observed intra-industry heterogeneity as background condition without empirical tests.

However, institutions are much more than background conditions especially in transitional economies because "institutions directly determine what arrows a firm has in its quiver as it struggles to formulate and implement strategy, and to create competitive advantage" (Ingram and Silverman, 2002, p. 20). The institution-based view of strategy focuses on the dynamic interaction between institutions and organizations and regards strategic choices as the outcome of such an interaction (Peng, 2002). An organization can acquire competitive advantages through aligning itself with the institutional context (Oliver, 1997). The ability to accurately interpret, and to adapt well to, institutional pressures becomes a source of competitive advantage.

Market and institutional change in China

Child and Tse (2001) proposed that there are three institutional spheres affecting the operations of firms in China: government, the structure of industries and firms, and business-relevant intermediate institutions. Goals of institutional reform include establishing a market economy with open and competitive industry structures to make Chinese firms strong and globally competitive, attaining economies of scale and scope and favored development of pillar industries, as well as providing professional and efficient business support services for firms. As pointed out, during the institutional transitional period, China's economy is characterized by trends towards marketization and privatization but still heavily regulated by the government (Hoskisson *et al.*, 2000). Two similar dimensions of institutional factors-political and legal institutions were identified by Delios and Singh (2005, p. 88), with political and legal dimensions corresponding to government and business-relevant intermediate institutions, respectively. In the next three paragraphs, we develop arguments on how the abovementioned three institutional spheres influence intra-industry strategic variety. Following Peng's (2005) suggestion, the political and legal institutions are treated as independent variables rather than background conditions in the paper.

Industry competitiveness strengthened

With decentralization and privatization progressing, a broad range of industries and sectors has been opened to the private sector which brings about dramatically intensified market competition. Specifically, on the one hand means of implementation include open door policy, development of a competitive domestic market and reform of state-owned enterprises (SOEs), withdrawal of government from direct business through decentralization and privatization were adopted for the competitive goal (Child and Tse, 2001). On the other hand, economies of scale and scope as well as favored development of pillar industries were achieved through a series of merger and acquisition. Thus, we can picture that firms in more competitive industries will make more efforts to acquire and maintain valuable idiosyncratic resources to achieve sustainable competitive advantage, finally leading to greater variety among firms. Therefore:

H1. The higher the degree of the competitiveness of the industry, the greater the intra-industry variety.

The role of government weakened

Peng and Zhou (2005) illustrated three underlying mechanisms of political institutions: the level of scarce resources that governments control; the level of government intervention in business decisions and operations; and the level of regulatory policy uncertainty. Chinese government authorities retain an important role in the mobilization and allocation of substantial economic resources (Child and Lu, 1996). Both central and local governments continue to interfere in pillar industries and fields which have a vital bearing on the lifeline of the national economy and state security, such as petroleum and petrochemical, electricity, important energy developing and equipment manufacturing, etc. Meanwhile, marketization and privatization has considerably decreased the function of political institutions in general competitive industries. The weakening relationship between government and business firms give firms more autonomy of business decision making (Child and Tse, 2001; Hellman and Schankerman, 2000), which leads to greater strategic variety. Therefore:

H2a. The weaker the political institutions, the greater the intra-industry variety.

Intermediate institutions built up

Transitions from central planning to market economy engage wide-ranging legislative processes to lay down the framework of formal legal and regulatory frameworks supporting the operations of firms (Peng and Zhou, 2005). Meanwhile, the institutional change introduces considerable chaos as new institutions emerge to replace old ones (Oliver, 1992) especially at the early stage of transition. The built up of intermediate institutions could be very complex, conflicting, and often go through constant changes, resulting uncertainty for long-term business planning (Doh and Pearce, 2004; Gupta and Wang, 2004). According to the mimetic mechanism of DiMaggio and Powell (1983), when the environment is uncertain, organizations may model themselves on others. Therefore, mimicry-based strategic choices of organizations shall be wide-spreading during the early, chaotic phase of transitions. With the gradual setting up of intermediate institutions, uncertainty is decreased, for the most basic role of intermediate institutions is "to reduce uncertainty by establishing a stable (but not necessarily efficient) structure to human interaction" (North, 1990, pp. 5-6) by stipulating the ruling norms of behaviors and defining the boundaries of what is legitimate. With effective legal environment and market intermediaries gradually stabilized, pressures to optimize and build competitive market-based capabilities increased (Peng, 2003). Therefore, intra-industry variety is promoted by the decrease of uncertainty:

H2b. The more certain of the legal institutions, the greater intra-industry variety.

Industry strategic variety and performance

Market-based theories focus on the impact of market environment and competitive advantage brought by unique market environments, resources and capabilities, while institutional theory focuses on the impact of the institutional environment and the benefits brought by institutional legitimacy. Then, how will an industry's strategic variety affect average its performance? Institutional studies were mainly done on the firm level in one or two industries and results are usually that the more a firm conform to the industry's average strategy the higher its performance (Heugens and Lander, 2009). Geletkanycz and Hambrick (1997) used a sample of firms in the branded foods and computer industries and showed that strategic conformity in more uncertain computer industry benefits. Other studies take into account both the market environment and the institutional environment in their theorizing. Oliver (1997) studied Canadian construction industry which was characterized by both intense institutional regulation and strong market competition. Results suggest the needs to consider both market and institutional environment effects on organizational performance and success. Deephouse (1999) synthesized the differentiation and conformity perspectives and favored intermediate levels of strategic variety, suggesting firm to balance the pressures of competition and legitimation. Empirical support was found in his analysis of commercial banks. As regards to industry level research, Miles *et al.* (1993) adopted a beneficial intra-industry competition perspective in their study. Their empirical results of 12 industries indicated that intra-industry variety and performance are positively related, suggesting that inter-firm benefits are most feasible in industries characterized by diversity among firms' competitive strategies. Dooley *et al.*'s (1996) analysis of 61 industries found that the relationship between intra-industry variety and industry profitability is curvilinear controlling for industry concentration ration and industry

sales growth. But it is worth pointing out that these two studies were conducted from a strategic management perspective without considering the institutional factors, and only the manufacturing sector was involved, in which market pressures are much greater than institutional pressures.

As aforementioned, the institutional transitions from central planning to market orientation in China witness the strengthening of market competitiveness, the weakening of political institutions as well as the development of legal institutions. Thus, the increased competitiveness and reduced isomorphic pressures engendered greater intra-industry variety. Lack of variety means not only that more head-to-head competition will exist in the industry but also that there will be less opportunity for competing firms to learn directly or indirectly from the diverse experiences of other firms (Miles *et al.*, 1993). By maintaining variety, the industry as a whole is more likely to be aware of the increasing competitiveness and weakening institutional constraints and to have appropriate response available. Therefore:

H3. Intra-industry strategic variety has positive effect on industry average performance during institutional transitions.

Method

Sample

The Chinese industrial enterprises data set comprises all of the large and medium-sized enterprises with sales equals or exceeds 5 million RMB in Mainland China. A list of three-digit SIC code industries was drawn from the data set from 2000 to 2006, leaving a total of 190 industries over seven years. As mentioned, studies of strategic theories are mainly carried out in manufacturing industries, while institutional theory has focused on highly institutionalized industries. Since the institutional transitions of China impact both market and institutional environment, all mining, manufacturing, electricity, gas and water production and supply sectors were covered, with the manufacturing sector accounts for about 95 per cent of the industries.

Measures

Strategic variety. In the summary and comment of prior empirical studies, Hambrick *et al.* (2005) pointed out that previous studies had focused on a certain specific, often narrow, organizational practice such as market entry, divisional structure, and matrix structure without measuring the overall similarity or the similarity of a series of important dimensions of organizations within the same industry. Yet, the isomorphism DiMaggio and Powell (1983) elaborated is exactly the overall similarity of organizations. Therefore, drawing on prior studies of strategy, Hambrick *et al.* (Finkelstein and Hambrick, 1990; Geletkanycz and Hambrick, 1997; Hambrick *et al.*, 2005) used several financial indicators to capture the aggregate effects of organizational practices and policies with each indicator focuses on one important and specific aspect of organizational strategic planning. Following Hambrick *et al.* (Finkelstein and Hambrick, 1990; Geletkanycz and Hambrick, 1997; Hambrick *et al.*, 2005) and considering the data used in this paper, five strategic indicators were used: capital intensity, nonproduction overhead, financial leverage, inventory levels, and working capital. Capital intensity reflects the allocation and management of organizational resources; nonproduction overhead captures the expense structure of the organization; financial leverage is a measure of the organization's approach to capital management; the turnover speed of working capital together with the increase

and decrease of inventories reflect the production cycle and the management of working capital. The standard deviation of the values of these indicators of the firms within the same industry was calculated (DiMaggio and Powell, 1983). To control for the possibility that changes in standard deviations may be due in part to changed scale of the indicators themselves, standard deviations divided by means of each indicator were used as dependent variables.

Industry performance. Industry performance was measured as average return on assets (ROA) and average return on sales (ROS) in each industry.

Industry competitiveness. It was measured by concentration ratio, i.e. sales of the top eight firms relative to all of the firms within the same industry.

Political and legal institutional indexes were obtained from the National Economic Research Institute (NERI) Index of Marketization of China's provinces from 2000 to 2006 to measure the quality of market-supporting institutions. The NERI Index project was sponsored by the NERI and the China Reform Foundation and conducted by Fan and Wang (2006). The NERI indexes capture the progress of the institutional transition in China's 30 provinces (excluding Tibet, due to lack of data). Specifically, political institutions was measured by the relationship between government and market (the weaker the relationship between government and market, the higher the index), including the role of the market in allocating resources, the level of taxes of rural residents, the role of the government in business, the level of non-tax levies on enterprises, and the size of the government; legal institutions was measured by the development of market intermediaries and legal environment, including the ratio of the number of lawyers and registered accountants to population, protection of the legal rights of producers, protection of property rights, and protection of consumers. Industry averages were calculated.

Industry sales growth: It was measured by changes in industry average sales.

Analysis

Statistical software Stata was used in regressions. To test the first two hypotheses, selected strategic variety variables were regressed on industry concentration ratio and political and legal institutions. The number of firms in each industry was controlled to avoid the risk that any observed increase in industry might be as a result of a larger number of firms. Also the standard deviation of firm sales was included to control for the possibility that changes in the standard deviations of the strategic indicator could be owe in part to changes in the variance of firm sizes. 259 observations were dropped due to missing variables, leaving 1,071 observations in this regression. Given the macro (beyond industry) transition and institutional change in China, between effects model was used to control for omitted variables (i.e. macro institutional environment) that change over time but are constant between cases.

Then ROA and ROS were regressed on strategic variety indicators respectively, with industry sales growth rate controlled (Capon *et al.*, 1990). All the independent and control variables were lagged for one year. Another 215 observations were dropped due to missing and lagged variables, leaving 856 observations. Both the results of fixed effect regressions and random effect regressions were reported.

Results

Table I presents the descriptive statistics and correlation coefficients. Table II presents the results of the first two hypotheses. As we can see, industry concentration ratio has significant negative influences, which means industry competitiveness has significant

Table I.
Descriptive statistics and correlation coefficients

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
Capital intensity	1.50	0.66												
Non-production overhead	1.42	1.69	0.0714*											
Financial leverage	4.37	81.34	0.0406*	−0.0410*										
Inventory levels	1.87	1.88	0.2017*	0.5770*	−0.0092									
Working capital	1.80	2.03	0.1939*	0.7506*	−0.0147	0.7830*								
Industry Num of firms	190.44	221.92	0.2767*	0.1385*	0.0403*	0.3194*	0.2798*							
Industry SD of sales	109575.7	100960.1	0.1094*	0.1257*	0.0130	0.0827*	0.1172*	0.0275*						
Industry sales growth	0.21	0.90	−0.0086	−0.0284*	0.0261*	−0.0307*	−0.0339*	−0.0522*	0.1462*					
Industry concentration ratio	0.43	0.27	−0.2906*	−0.1983*	−0.0425*	−0.2604*	−0.2650*	−0.6629*	0.0142	0.1210*				
Political institutions	8.05	1.13	0.0154	0.1683*	−0.0414*	0.1060	0.1433*	0.0586*	0.2626*	−0.0655*	−0.1131*			
Legal institutions	6.14	1.89	0.0480*	0.1806*	−0.0531*	0.1121*	0.1464*	0.0751*	0.2023*	−0.0992*	−0.1720*	0.8727*		
ROA	0.04	0.04	−0.0086	−0.0164	0.0478*	−0.0366*	−0.0284*	−0.0391*	0.0209*	0.1041*	0.0306*	0.0709*	0.0407*	
ROS	−0.18	4.04	0.0125	−0.2403*	0.0007	−0.2042*	−0.1913*	0.0137	−0.0477*	0.0052	−0.0206*	−0.0486*	−0.0421*	−0.0250*

Notes: *$p < 0.1$; **$p < 0.05$; ***$p < 0.001$

Independent variables	Capital intensity	Non-production overhead	Financial leverage	Inventory levels	Working capital
Industry Num of firms	0.000304*	0.000566	0.00357	0.00234***	0.00190***
	(0.000171)	(−0.000504)	(−0.0152)	(−0.000456)	(−0.000524)
Industry SD of Sales	7.42e-07**	1.25E-06	−3.25E-05	6.97E-08	1.29E-06
	(−3.06E-07)	(−9.02E-07)	(−2.73E-05)	(−8.16E-07)	(−9.37E-07)
Industry concentration ratio	−0.468***	−0.907**	−19.06	−0.476	−0.935**
	(−0.141)	(−0.417)	(−12.6)	(−0.377)	(−0.433)
Relationship between government and market	−0.0278	0.663***	−4.066	0.489**	0.567**
	(−0.0852)	(−0.251)	(−7.585)	(−0.227)	(−0.261)
Market intermediaries and legal environment	0.0306	−0.133	−3.487	−0.151	−0.128
	(−0.0457)	(−0.135)	(−4.073)	(−0.122)	(−0.14)
Constant	1.561***	−2.795**	66.55	−1.333	−1.983
	(−0.455)	(−1.342)	(−40.54)	(−1.214)	(−1.394)
F	11.33***	9.74***	2.61**	16.32***	15.76***
Observations	1071	1071	1071	1071	1071
R-squared	0.208	0.184	0.057	0.274	0.267

Notes: Standard errors in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.001$

Table II.
Results of between effects regressions

positive effects on the variety of capital intensity, nonproduction overhead and working capital. The relationship between government and market has a positive impact on the variety of nonproduction overhead, inventory levels and working capital. *H1* and *H2a* were partly supported. Results of *H3* are reported in Table III. Results turns out to be complicated than proposed. The variety of nonproduction overhead and

	Fixed effects		Random effects	
Independent variables	ROA	ROS	ROA	ROS
Industry sales growth rate	−0.00451***	0.245	−0.00301*	0.0641
	(−0.00172)	(−0.285)	(−0.00165)	(−0.238)
Capital intensity	5.09E-06	−0.00124	−5.53E-07	−0.000791
	(−1.22E-05)	(−0.00202)	(−1.00E-05)	(−0.000937)
Nonproduction overhead	7.18E-05	0.610***	9.17E-05	0.432***
	(−0.000613)	(−0.102)	(−0.0006)	(−0.0907)
Financial leverage	8.73E-07	0.000125	5.43E-07	0.000185
	(−3.07E-06)	(−0.000509)	(−2.99E-06)	(−0.000432)
Inventory levels	−8.36E-05	0.242***	−8.54E-05	0.206***
	(−8.90E-05)	(−0.0148)	(−8.47E-05)	(−0.0111)
Working capital	6.20E-05	−0.284***	5.87E-05	−0.236***
	(−0.000139)	(−0.0231)	(−0.000135)	(−0.0196)
Constant	0.0377***	0.279	0.0383***	0.228
	(−0.00201)	(−0.334)	(−0.00289)	(−0.2)
Observations	856	856	856	856
R-squared	0.013	0.31		
F	1.41	46.96***		
Wald chi2			5.29	442.44***

Notes: Standard errors in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.001$

Table III.
Results of fixed and random effects regressions

inventory leaves has positive effects on ROS. However, the more various the working capital, the lower the ROS.

Discussion

Summary and contributions to scholarship

Concerning intra-industry strategic variety and its impact on industry average performance, scholars of strategic management field recognize that variety must exist. And empirical studies often choose sub-industries in the manufacturing sector without considering the influence of the institutional environment of the sub-industries. The strategic view of neoinstitutional theory was used to gain a better understanding of intra-industry strategic variety during the institutional transition of China. Industry level market and institutional factors have been examined in this paper. Thus this paper combines seemingly contradictory theories in our understanding of how intra-industry organizations behave in response to institutional change.

Results shows that the higher the degree of industry competitiveness, the more heterogeneous of intra-industry strategy. The weakening of political institutions leads to greater strategic variety, while legal institutions have no influence. As pointed out by Peng and Zhou (2005), institutions have multiple dimensions such as political, legal, and economic factors. Different dimensions of institutions may manifest diverse patterns at different patterns and speeds. Our results indicate that political institutions play a more important role in the strategic choice of firms than legal institutions during the institutional change in China. Karhunen (2008) suggested in his study of Russian hotel industry, industry-level isomorphic forces are not at work due to economic transition and market imperfections. During the transition, legal institutions such as laws and intermediaries are not well established yet (Peng and Heath, 1996) and are under frequent changes. Therefore, different from the steadily weakening relationship between government and market, the upheaval of the legal institutions themselves weakens their effect on firm behavior. Differentiated expense structure and production cycle benefits industry performance, while similar management practice of working capital leads to greater industry performance. Working capital reveals more about the financial condition of a business than almost any other calculation because it is a indicator of whether a firm is able to continue its operations and it has sufficient funds to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash. However, some companies can have multiple types of inventory, i.e. manufacturing and production companies can have raw materials, work in process (partially finished) goods and finished goods inventory. For financial accounting purposes, only finished goods are reported on the financial statement. Differentiation of inventory levels only indicate that different operational or accounting techniques are employed by firms in the same industry, while extreme working capital may influence investors' estimation of the company's underlying operational efficiency.

Applied implications

Because of the complex relationship between industry variety and performance, there is no uniform industrial "policy" concerning whether the creation and maintenance of a variety of competitive strategies should be encouraged referring to specific policy and practice of firm or not. Different firm policy and practice may be dealt with different considerations.

Further, given the business entry barrier in China, entrepreneurs may make better decisions by incorporating the concept of industry variety into their analyses.

Appraising the level of variety in an industry should provide some indication of the market and institutional pressures of the industry.

At the business level, findings have applied implications for managers to formulate organizational strategic planning. An understanding of the market and institutional factors of the industry a firm operates in may lead to better choices of organizational practices and policies. For example, firms operate in more competitive industries should pursue a strategy that deviant from the most common tendencies in the industry while firms operate in industries where the relationship between government and market is stronger should pursue a more conforming strategy. Also, with the isomorphic forces reducing greatly in some industries, firms must be cautious about pursuing "me-too" strategies.

Limitations and future research directions

Reverse causality between industry competitiveness and strategic variety cannot be denied. That is, intra-industry variety may reflect different strategic groups within the industry, whose member firms may compete along different dimensions, which can increase the intensity of competition, or industry competitiveness. Or alternatively, more intra-industry variety may reflect more different types of firms in the industry, which can coincide with lower concentration or more competitiveness. Due to the limitation of second-hand data, only mining, manufacturing and electricity gas and water production and supply sectors were involved. Therefore, generalization to other sectors should be cautious. As to measurement, according to Hambrick *et al.*, "use of financial ratios as indicators of company policies and practices, and even for specifically testing ideas of interorganizational similarity, has a long tradition in the organizational sciences" (Hambrick *et al.*, 2005, p. 329). However, the general problem of operationalizing and measuring strategy continues to be a topic of great concern and discussion (Thomas and Venkatraman, 1988). Further, better performance measures combining the financial and nonfinancial indicators may provide higher validity. Differences in internal resources should be considered at the same time as regards to firm profitability in future study. Moreover, market and institutional pressures may change at different periods of the transition. If long enough data can be accessed, future study can divide the transition process into several stages and compare the differences of the intra-industry variety of each stage to get a dynamic evolution mechanism of variety.

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