

Chinese Enterprise Competitiveness in an Age of Global Integration

Edward S. Steinfeld
Department of Political Science
Massachusetts Institute of Technology
77 Massachusetts Ave, Building E53-455
Cambridge, MA 02139
Tel: 617-253-4130
Email: edstein@mit.edu

I. Introduction

China over the past two decades has achieved extraordinary growth and impressive integration into the global economy.¹ In one sense, China has been undergoing a systemic transformation from plan to market, one that has included the freeing up of markets for goods and services, the liberalization of prices, and ultimately a dramatic burgeoning of private enterprise. In a second sense, as it attempts to foster domestic change through further integration with the global economy, China is being forced to adapt to a global system that is itself in great flux. China, in effect, is undergoing a domestic transition to the market at the very same time it is participating in a transformation in the way global markets as a whole function.

Globally, new technologies and worldwide patterns of deregulation have induced major changes in the way production is organized internationally. At the very least, innovative technologies and new regulatory standards offer opportunities to structure transactions between firms in novel ways. Concomitantly, the relative costs of various forms of organization, both new and old, have shifted. To the extent that they can attain global competitiveness or even maintain existing positions in their home market, Chinese firms – and by extension the nation as a whole – must develop responses to these changing global circumstances.

¹ China between 1979 and 1999 absorbed \$306 billion in foreign direct investment, 10 percent of worldwide FDI, and 30 percent of global FDI directed toward developing countries. Yasheng Huang, “Why More is Actually Less: New Interpretations of China’s Labor Intensive FDI,” paper presented at the Conference on Financial Sector Reform in China, September 2001. By the late 1990s, China enjoyed a trade surplus of \$43.6 billion (World Bank, *China: Weathering the Storm and Learning the Lessons*, Washington, DC, 1999, p. 22.

The argument of this paper on one level is that China has proven far more successful in negotiating the first type of transition than the second. That Chinese industrial enterprises today can be understood as commercial (instead of administrative) actors operating in the context of market (rather than planned) coordination signifies the achievement of far-reaching and intensely complex institutional transformation.

That said, these firms have been somewhat slow to adapt to changing patterns of global commerce. In terms of their organizational structure, capabilities, and scope of activities, Chinese firms diverge substantially from what is increasingly coming to be understood as best practice internationally. Chinese companies today tend to be significantly smaller, more diversified, more vertically integrated, more localized, and less in command of proprietary processes and products than their international counterparts. While hardly preventing Chinese firms from engaging in international business, these characteristics relegate them to primarily low value, low margin activities, activities for which the firm has little option but to compete on the basis of cost. Under such conditions, the firm faces intense competitive pressure and continual risk of being supplanted by lower cost entrants. Moreover, as WTO accession nears and governmental protection recedes, Chinese firms – to the extent they prove unable to move beyond their current organizational characteristics – risk losing their home market to foreign players. The overall point is that while the Chinese economy as a whole has moved significantly down the road toward market transition, Chinese firms have lagged substantially in their ability to adapt to changes in the organization of commerce globally.

The somewhat deeper argument of this paper is that the two processes of transition are closely linked in causal terms. The very success of market transition in

China has led to dramatically increased demands upon the state for public goods provision, particularly the complex public goods associated with market regulation and governance. Now that a market system has been created, it must be effectively governed and stabilized. Effective governance, however, entails meeting intensely complicated institutional challenges, challenges that include the establishment and regulation of a commercially sound financial system, the building of a reliable social safety net, and the fostering of a fair and effective system of contract enforcement. While policy makers have proven effective in meeting many of these challenges, in others they have fallen short, in no small part because the demands of market governance have far outstripped the administrative capacity of the state.

While the costs of such failures have not fully manifested themselves in China's growth data, they have already impacted upon the organizational characteristics and competitiveness of Chinese enterprises. This, in effect, is where issues stemming from the first notion of transition intersect with those of the second. Chinese firms have adapted themselves quite effectively to a home environment marked by great uncertainty, high transaction costs, and inadequate governance. In so doing, however, they have increasingly diverged from international best practice, and have thus been hobbled in their efforts to integrate with the global economy on favorable terms.

It would be a mistake to assume that international competition itself can resolve the organizational problems of Chinese enterprises. Chinese firms will not miraculously rise to the challenge of foreign competition tomorrow if they are forced to adapt to an idiosyncratic, and idiosyncratically governed, home market today. Undoubtedly, governance change can come only at great political, economic, and social cost – at least

over the near term. Yet, in drawing the linkage between domestic institutional factors and the competitive posture of Chinese firms globally, this paper aims to underscore the even greater long term costs of deferred institutional change and protracted poor governance.

II. Globalization, Best Practice, and Chinese Corporate Structure

Given China's impressive export performance and high levels of FDI, one would be hard pressed to argue that the particularities of Chinese corporate organization have somehow precluded Chinese participation in the global economy. It is valid to consider, however, the extent to which Chinese corporate structure limits the *manner* by which Chinese firms internationalize. Chinese manufacturing firms occupy positions in a host of international supply chains, but the question is whether these firms, because of adaptation to domestic circumstances, are limited in the degree to which they can enter higher value activities in global production networks and ultimately exert greater control. As noted earlier, the question becomes particularly pertinent given changes that appear to be taking place in the organization and nature of global production, changes that for better or worse fall under the rubric of "globalization."²

The shifts themselves can be understood across two dimensions: the regulatory and the technological. With respect to the first dimension, the late 20th century was marked by substantial reductions in trade barriers, capital flow restrictions, and governmental protection of "national" industries. Taken together, these changes –

² For a more comprehensive discussion, see: Lowell Bryan et al., *Race for the World* (Boston: Harvard Business School Press, 1999); Gary Gereffi and Miguel Korzeniewicz, eds., *Commodity Chains and Global Capitalism* (Wesport, CT: Praeger, 1994); Robert Gilpin, *The*

generally encouraged by the world's leading economic powers – constitute new rules of the game for global commerce while they at the same time blur traditional distinctions between international and domestic business. By reducing the cost of cross-border business transactions, trade liberalization has undermined corporate strategies based on privileged access to specific national markets. The liberalization of international capital flows, in turn, has substantially increased the funding available for new ventures in emerging markets, but at the same time undercut corporate strategies – particularly in the developing world – based on privileged access to capital. Finally on the regulatory front, sweeping patterns of privatization have transformed traditionally “national” industries like telecommunications, power generation, and automobile production, exposing them to new forms of global competition, while at the same time unleashing them to engage in a host of new cross-border transactions and business structures.

Transformations on the technological front have been even more profound. On the surface, due to a variety of managerial and technical innovations, transportation and communications costs have all declined, an outcome that facilitates greater geographical expansion of business and greater geographical spread for specific supply chains. On a deeper level, through the advent of digitization and the information technology revolution, the very nature of communications has changed.

Digitization allows vast amounts of information to be transmitted at low cost, almost anywhere on the globe, virtually instantaneously. It thus permits not just the electronic delivery of goods and services, but also intense communication and information transfer across great distances within a single production chain. Activities

such as design and manufacturing that once had to be co-located can now be separated both geographically and managerially.

Digitization also permits the codification of extremely complex processes and standards, thus allowing for modularization of even the most technologically-sophisticated forms of manufacturing.³ Modularization, then, affords unprecedented opportunities for networked production across firms, as well as for innovation at numerous, discrete points along the supply chain. New products proliferate, and product cycles shorten dramatically.

While the implications for corporate best practice are uncertain, these developments when taken together offer unprecedented opportunities to reshape the manner by which goods and services are produced. First, and perhaps most obvious, geography itself becomes a less binding constraint. Given declining communication costs and enhanced information transfer capabilities, value chains can be extended over great geographical expanses, while specific activities can migrate to the most favorable factor cost environments.

Second, whereas value chains in the past had for the most part been coordinated internally within the vertically-integrated firm, opportunities now exist to coordinate chains externally across the boundaries of multiple firms. At least in some sectors, leading firms that occupy key parts of the value chain – whether design, branding, or manufacturing – can effectively organize the rest of the chain without owning it. High risk, low return activities can be passed off to third parties, while the firm can specialize according to its own sources of competitive advantage. Meanwhile, it can continue to exert deep influence through control over proprietary products, processes, and designs.

³ Carliss Baldwin and Kim B. Clark, *Design Rules* (Cambridge: MIT, 2000).

In essence, new rules and new technologies allow for forms of networked production in which supply chains become extended geographically and open to far more players than in the past. From the perspective of the individual firm, the returns to vertical integration are arguably declining, while those to specialization and concentration appear to be increasing. At the same time, given the increasing specialization of modern goods and the increasingly complex processes associated with the production of such goods, interactions across the supply chain have grown more dense. More and more firms may be entering and communicating along the chain, yet they are doing so in a manner different from what we normally associate with pure market interactions.⁴ Indeed, their interactions resemble patterns more traditionally associated with behavior within the single firm.⁵ Networked production virtually by definition suggests a certain blurring of firm-level boundaries.

The implications for corporate structure, while still not wholly clear, are potentially profound. First, given the ease with which non-specialized tasks can migrate to regions with favorable factor endowments, firms face increasing incentives to specialize and expand non-transferable intangible assets, whether defined in terms of proprietary manufacturing capabilities, design expertise, specialized services, or privileged access to market information. While globalization has provided entry points for a range of new players, particularly low end manufacturing firms in developing markets, globalization also raises the likelihood that non-specialized tasks will be

⁴ I would like to thank Michael Piore of MIT for observations on this front.

⁵ For example, the rise of pure-play silicon chip foundries like Taiwan's TSMC has allowed the design of integrated circuits to be separated across firm boundaries from the production of the physical goods. At the same time, however, engineers from "fabless" design houses may work hand in hand, over extended periods of time, with foundry engineers, sharing knowledge, expertise, and unique capabilities through direct interactions on the shop floor and virtual interactions over the internet. See: Charles Bickers, "Technology: Fab Innovator," *The Far Eastern Economic Review*, Oct. 14, 1999.

transferred at short notice to the next group of low bidders. Basically, the risk to the individual enterprise of competing purely on the basis of cost has become exceedingly high.

Second, given the degree of competition that now surrounds virtually all segments of the value chain, firms face incentives to expand as much as possible within their specialized focus. Because of the complexities associated with the production of high end goods today, downstream producers will likely aim to reduce the number of firms with whom they interact at any particular point in the upstream process. To some extent, these pressures partly explain the pattern of massive mergers and acquisition coupled with tremendous outsourcing in major global industries. Firms consolidate at particular segments of the value chain for which they have specialized capabilities, and shed activities for which they have no particular competitive advantage.

Returning to China, however, the problem seems to be that Chinese firms on the whole embody the very organizational characteristics that globalization seems to be driving into obsolescence.

1) Chinese firms tend on average to be far smaller (along virtually all parameters, save for employment) than their international counterparts. For example, the major Chinese state petroleum firm Sinopec had revenues of \$34 billion in 1998, compared with \$182.3 for Exxon/Mobile in 1997.⁶ Capital Iron and Steel had revenues of \$2.16 billion

⁶ Peter Nolan, *China and the Global Economy* (New York: Palgrave, 2001) p. 166.

in 1998, compared with Nippon Steel's \$21.6 billion. The tendency toward smallness is even more pronounced in the private sector.⁷

Several factors account for this outcome. In the private sector in particular, capital constraints and the inability to access either bank or non-bank channels of intermediation have forced firms to rely almost exclusively on internally-generated funds for growth. Moreover, regulatory restrictions consign most private firms to a sole proprietorship ownership structure, one that impedes internal corporate governance as the firm expands.

Other barriers to growth for both state and private firms stem from local governmental efforts to block rational mergers and acquisitions. Officials in the local jurisdiction of an acquisition target will frequently block the merger if they believe that layoffs and downsizing will follow. Oddly enough, local regulators of an acquiring enterprise will occasionally block the merger if they feel the firm will grow beyond local control. The point is that administrative interventions frequently stand in the way of what would normally be considered market-based organic growth.

More important on the administrative front is the problem of local protectionism.⁸ While the overt inter-provincial tariff barriers and embargoes of the late 1980s and early nineties have receded, localities still engage in indirect forms of protection. As a Chinese study in the late 1990s pointed out with respect to the beer and chemical fertilizer industries, local governments at the time were fending off competition from outsider

⁷ International Finance Corporation, "China's Emerging Private Enterprises: Prospects for the New Century," 2000, pp. 20-22.

⁸ For alternative perspectives on the problem, see: Barry Naughton, "How Much Can Regional Integration Do to Unify China's Markets?" Paper presented for Conference on Policy Reform in China, Stanford University, November, 1999; Alwyn Young, "The Razor's Edge: Distortions and Incremental Reform in the People's Republic of China," *The Quarterly Journal of Economics*, Vol. CXV, No. 4 (November 2000)

firms through a variety of mechanisms: selective enforcement of product standards, more rigorous registration and licensing requirements for outsiders, and more stringent application of health codes to outsiders, just to name a few.⁹ Similarly, considerable anecdotal evidence exists that across a variety of sectors, local officials have levied fines on commercial establishments for selling non-local goods, imposed legal restrictions on price differentials between local and non-local goods, and enforced “local content” quotas on local producers.¹⁰ Regardless of which particular tactic is employed, all of these methods encourage market fragmentation and erode potential returns to enterprise expansion.

Finally, whereas rational mergers and acquisitions are frequently blocked through various administrative interventions – whether by the center or locality – commercially *irrational* mergers are often imposed by administrative fiat. Particularly in the state sector, financially-sound firms have frequently been forced, often under considerable duress, to assume ownership of insolvent organizations simply to stave off bankruptcies.¹¹ That the acquiring firm is sometimes accorded preferential policies as a sort of quid pro quo for the forced merger only further distorts budget constraints and incentives for productive growth.¹²

⁹ Institute of Industrial Economics, *Zhongguo gongye fazhan baogao* (Beijing: Jingji Guanli Chubanshe, 1998), p. 294. Cited also in Naughton (1999), pp. 20-21.

¹⁰ Young (2000), p. 1102.

¹¹ A prime example involves the forced merger between the Chongqing Iron and Steel Group and the deeply troubled Chongqing Special Steel Company. Author’s interviews, Chongqing, 2000. See also: John Pomfret, “Legacy of Socialism Keeps China’s State Firms in Red,” *The Washington Post*, June 20, 2001.

¹² For example, Shanghai’s Baoshan Iron and Steel Group, after being forced to take on a financially - insolvent local producer as a subsidiary, was subsequently able to have the subsidiary’s debts forgiven through a debt-equity swap with state lenders. Author’s interviews, Beijing, 1999 and 2000.

2) Chinese firms, though relatively small, tend to be highly diversified, often to a far greater degree than their non-Chinese counterparts. Again, the reasons are numerous, often cutting across both the private and state sectors.

First, Chinese firms operate in environments characterized by considerable economic and regulatory uncertainty, uncertainty that does not always apply equally across sectors.¹³ Diversification across unrelated industries, therefore, provides an important hedging mechanism.

Second, private firms in particular, but also many state firms, face severe liquidity constraints. By diversifying across a number of sectors, firms hope to ensure steady cash flow even in the face of highly volatile markets and high incidences of non-payment on the part of customers.

Third, diversification is often employed by enterprise insiders to dodge monitoring and enforcement by owners and state regulators. In other words, diversification, to the extent that it increases the complexity of corporate structure and the opacity of property rights obligations, increases the ability of insiders to evade taxes and arbitrary fees, not to mention dividend payments, debts, and other financial obligations.

Fourth, diversification, particularly for state firms, often becomes a key method of employment generation for workers and other dependents. State firms frequently enter completely unrelated business lines, often at the behest of local government, simply to maximize employment and avert social stability.

Fifth, diversification for state and private firms alike becomes a rational response given uncertainties regarding third-party relationships. Large state manufacturers will frequently internalize a series of functions (i.e., construction, transport, etc.) simply

¹³ IFC, p. 27.

because the uncertainties associated with managing those relationships on an arms-length basis are intolerable. That situation again relates to issues of non-payment, unclear rules, overburdened courts, and poor contract enforcement.

3) Chinese firms, for some of the same reasons driving diversification, tend to be far more vertically integrated and geographically concentrated than their international counterparts. Again, the main driver pertains to the uncertainty and lack of trust surrounding arms-length transactions. Given the inability to enforce obligations upon suppliers and customers alike, firms often seek to integrate both upstream and down, thus internalizing control over financial and material transactions.

Because supply chain relationships tend to be fraught with low levels of trust, Chinese firms – whether they choose to integrate operations internally or externally – tend to keep their sourcing networks as local as possible. Geographical proximity facilitates trust (at least to the extent it alleviates information asymmetries), makes monitoring through direct ownership easier, and increases the likelihood of enforcement in the event disputes end up in the legal system. Moreover, the various forms of local protectionism cited earlier increase the relative returns to geographic concentration.

Finally, in an environment of tight liquidity constraints, Chinese managers, particularly in the private sector, frequently choose to forgo deals entirely rather than press ahead and risk non-payment. That tendency on the one hand reinforces the desire to internally control the supply chain (and thus reduce the non-payment issue), but on the other retards expansion of the firm. At the same time, incentives for diversification deepen simply as a means of ensuring cash flow. The broader point is that impeded

growth, excessive diversification, vertical integration, and geographical concentration stem from the same institutional drivers of market fragmentation, and tend to be mutually reinforcing.

III. Trends in China's Institutional Reforms During the 1990s

The previous section outlined a series of institutional drivers of market fragmentation in China, but how should such institutional factors be interpreted? What is their relationship to the overall process of market transition, and what does their existence portend for the future of Chinese development?

While at any given time China's reform process has been marked by uncertainty, confusion, and hesitancy, the overall trajectory of change has been strikingly clear. By the 1990s, there was no question any longer of China's structural change – the economy had effectively been transformed from a traditional planned economy into a developing market system.¹⁴ Macro stability had been effectively achieved, inputs and outputs were made widely available on the market, prices had been freed up to reflect relative scarcities, anti-competitive barriers to entry had for the most part been lifted, and institutional remedies were emerging to address issues of soft-budgets and governance in industrial producers.¹⁵

The results have been both clear and impressive on the macro front. Through two decades of reform, China has maintained average annual GDP growth of well over 8 percent. In terms of industrial structure, an economy dominated by state-owned

¹⁴ Edward S. Steinfeld, "Moving Beyond Transition in China," *Comparative Politics*, forthcoming, 2002.

¹⁵ Dwight Perkins, "Completing China's Move to the Market," *Journal of Economic Perspectives*, Vol. 8, No. 2 (Spring 1994), pp. 23-46.

producers in the early 1980s is now characterized by a variety of ownership forms, the fastest growing of which is the private sector. While the state sector still accounts for approximately 37 percent of China's GDP today, the private sector – utterly absent at the start of reform – now accounts for 33 percent.¹⁶ On the one hand, these figures mark the emergence of a whole new class of firms, firms born in a market environment and thus untainted by the economic and behavioral legacies of command planning. On the other hand, the figures imply that state firms themselves are being forced to operate in a far more competitive environment, one in which financial resources, human capital inflows, physical inputs, and product markets are far less assured than they had been in the past.

Finally, in the broadest behavioral sense, we have witnessed in China the traditional problems of command planning – soft budgets, chronic shortage economies, and overemployment on the job – yield to the more familiar problems of market systems: buyers' markets, fluctuations in the business cycle, bouts of overcapacity and oversupply, and chronic unemployment.¹⁷ In this sense, the problems that Chinese policy makers have been coping with since the late 1990s stem naturally from the successes achieved in the preceding two decades of structural transition. In China today, the transition from socialist command planning has effectively been achieved. A basic market system has emerged. The great challenge of the present involves consolidating, coordinating, and effectively *governing* that market system so as to inhibit value-destroying behavior and promote growth.

For Chinese policy makers, the Asian financial crisis simply reinforced the need to meet this governance challenge. As a result, certain institutional changes that had been

¹⁶ IFC (2000).

¹⁷ Janos Kornai, "What the Change of System from Socialism to Capitalism Does and Does Not Mean," *Journal of Economic Perspectives*, Vol. 14, No. 1 (Winter 2000), pp. 27-41.

proceeding since the early 1990s have in many cases been accelerated and formalized. Other measures that had been thoroughly deferred throughout the reform process – whether for reasons of complexity, social stability, or political expediency – suddenly appeared on the reform agenda. The most important changes have revolved around three interrelated areas: the formalization and encouragement of the private sector, the building of a modern governance system in the corporate sector, and the untangling of the financial relationship between state banks and state firms.

The Emergence and Formalization of the Private Sector

During the 1990s, the private sector emerged indisputably as the most dynamic element of the Chinese economy. While state firms and collectives stagnated, the output of private domestic firms increased on average over 70 percent annually; employment in such firms grew over 40 percent annually.¹⁸ Today, the private sector has come to be viewed not just as an adjunct of the state economy, but rather as a key linchpin for systemic reform. The sector, as the one employment-generating portion of the economy, has become crucial for absorbing surplus labor from SOEs, thus facilitating necessary downsizing and restructuring in China's traditional industrial core. The private sector is also envisioned as an important breeding ground for the kind of firms that will prove competitive both domestically and internationally once China enters the WTO.

Renewed Attention to Governance and Rule of Law

¹⁸ IFC (2000), p. 1.

Beginning in the early to mid 1990s, Chinese policy makers began to recognize that profit incentives alone could not ensure asset expanding behavior among complex industrial producers. In other words, the resolution of agency and monitoring problems in large firms – in this case, large SOEs – began to climb to the top of the policy agenda. As a result, a number of related institutional changes were promoted throughout the 1990s.

In 1993, the Chinese government at the 3^d plenum of the 14th Party Congress proclaimed the goal of creating for large and medium-sized SOEs a “modern enterprise system” (*xiandai qiye zhidu*). The resolution effectively suggested that property rights within the firm would be clarified, joint-stock ownership would be encouraged, and relationships between owners and managerial insiders would be regulated by law.

Accordingly, China’s 1994 Company Law established the enterprise as an independent legal person, set out rights for minority and majority owners, and mandated the creation of internal governance mechanisms (i.e., corporate boards, financial reporting requirements, etc.) so as to permit owners to exercise control. It should be noted, however, that the Company Law was aimed primarily at SOEs and the ability of majority owners within the state to maintain supervisory control.

Even so, the Company Law and subsequent expansion of China’s capital markets have encouraged an important degree of ownership diversification in Chinese industry. By 2001, over 1100 firms were publicly traded on the Shanghai and Shenzhen stock exchanges. Perhaps more important, by the end of the 1990s approximately 80 percent of

all state firms supervised at the county level or below were restructured into joint-stock or wholly private enterprises.¹⁹

Without doubt, implementation of the Company Law has proven both difficult and at times disappointing. The degree to which firms today truly are independent legal entities with enforceable rights and responsibilities is subject to considerable dispute. Reporting requirements are observed as much in the breach as anything else, and the ability of majority shareholders, let alone minority shareholders, to exert real control rights is shaky at best. Insider control and managerial malfeasance have become major problems in the Chinese industrial sector. Nevertheless, the simple fact that so much ownership restructuring has proceeded, even in the absence of enforceable legal rights and regulations, itself constitutes a degree of institutional progress.

In the past, it was quite easy in China to distinguish state firms, collective firms, and – to a far lesser extent – private firms. Because those distinctions were easy to make, preferential policies could be extended to favor one ownership category over another, usually tilting the playing field toward state owned entities. Today in China, it has become exceedingly difficult to distinguish truly state-owned firms from “publicly owned” firms, joint-stock firms, firms “owned by the people” (*minying qiye*), collective firms, and wholly private enterprises. This blurring of traditional ownership categories, while not a solution in itself, represents an important “enabling” change, one that opens up greater possibilities for rules that apply equally to all firms and a general leveling of the playing field across the Chinese enterprise population.

The Effort to Untangle the State Bank-SOE Nexus

¹⁹ IFC (2000), p. 14. See also: Peter Nolan, *China and the Global Economy* (London: Palgrave, 2001).

The institutional changes described above have been accelerated by a very real policy mandate, one induced by the Asian financial crisis. By late 1997, Chinese officials began formally to acknowledge a pattern of capital misallocation that had been allowed to proceed unabated since the inception of reform. For two decades, Chinese state banks – enjoying an ever-increasing flow of household deposits – had been pumping the vast bulk of their resources into SOEs, despite the fact that state firms in growth terms had been thoroughly eclipsed by private and collective enterprises.²⁰ In the late 1990s, state firms were accounting for less than half of net asset growth in Chinese industry and less than 30 percent of the nation's industrial output by value. State firms, however, were still consuming 70-80 percent of the credits issued by the state banking system.²¹ Moreover, the state banking system itself remained by far the largest channel for intermediation in China, accounting for approximately 80 percent of total intermediated assets in the system. Operating as a quasi-fiscal system, state banks were effectively removing funds from the household sector and channeling them, at ever-decreasing returns, to public sector enterprises.

The obvious consequence was that levels of non-performing loans in the banking system surged upward. The governor of China's central bank publicly stated in 1997 that 24 percent of outstanding loans in the state banking system were non-performing, of which 5-6 percent – a decidedly low estimate – were termed unrecoverable.²² China's

²⁰ For a more comprehensive discussion, see: Nicholas Lardy, *China's Unfinished Economic Revolution* (Washington: Brookings, 1998); Edward S. Steinfield, *Forging Reform in China* (New York: Cambridge Univ. Press, 1998).

²¹ Beijing University CCER Macroeconomics Group, *Hongguan zhengci tiaozheng yu jianchi shichang quxiang* (Beijing: Beijing University Press, 1999), p. 256.

²² *Guoji jinrong xiaoxi bao* (International Financial News), Jan. 9, 1998.

state banking system was, at least in a technical sense, recognized as insolvent.²³ In reality, however, it appears that neither insiders nor outsiders have a clear sense of the magnitude of the problem.

In 1999, the Chinese government established four asset management companies (AMCs) to take on and recover NPLs from the four main state banks. Since the inception of this debt-equity swap program, distressed assets equivalent to some 20 percent of the value of the banking system's entire loan portfolio have been transferred to AMCs. Even after those massive write-offs, though, state banks have still been reporting high levels of NPLs. Officials of the China Construction Bank reported that as of the end of 1999, the NPL ratio was still at least 30 percent.²⁴ In 2001, the president of the Bank of China reported NPL levels at 26 percent of outstanding loans, and this was again after some 20 percent of the banks total loan portfolio had been transferred to an asset management company. The sense in China today is not only that the stock of NPLs is large, but also that the flow is still increasing.

While the efficacy of governmental financial restructuring is in question, there is no doubt that the government's recent recognition of deep financial problems has stimulated significant institutional reform within the enterprise sector. Essentially, decision makers through the 1990s concluded that the economy could no longer financially support the state sector as it was then configured. Downsizing became inevitable.

²³ The significance of technical insolvency in a state-owned system is highly debatable. China's major state banks are insolvent, but highly liquid given persisting high levels of household savings. See: Barclays Capital, "China's Misunderstood Banking Sector," *Barclays Asian Monthly*, May 1999.

²⁴ Xinghai Fang, "Reconstruction of the Micro-Foundation of China's Financial Sector," paper presented at the Conference on Financial Sector Reform in China, September 2001.

As noted earlier, downsizing was made somewhat easier, and indeed catalyzed by, the rapid expansion of the private economy. By 1995, the government's increasing willingness to contemplate state sector downsizing – and potential unemployment – was formalized via the policy of “grasping the large and releasing the small” (*zhua da fang xiao*). As the term implied, the central government would ostensibly continue to supervise and support upwards of 1000 large SOEs, while the remaining thousands of smaller SOEs would be reorganized, restructured, privatized, or wholly liquidated, generally under the authority of local governments. The central state was effectively removing its guarantee from the bulk of the state sector, and instead passing responsibility for restructuring and employment issues downward through subordinate levels of government.²⁵ For all its faults, the 1995 policy at least opened the way for widespread privatization – and perhaps even more significant – widespread market exit for smaller SOEs.

In a deeper sense, by fostering layoffs, the policy set in motion a cascade of societal outcomes demanding urgent governmental action. Since enterprises had formerly provided the bulk of urban social welfare services, their shutdown necessitated moves at both the national and local level to build pension, health insurance, unemployment insurance, worker retraining, and housing schemes. In effect, the state has been forced to go beyond merely allowing markets to flourish, and instead to build the social welfare underpinnings of a modern industrialized economy. Currently, the state, facing such a wide array of urgent policy needs, has at all levels been put in the position of scrambling to “put out fires.” A certain lack of coherence in its policy efforts

²⁵ Certainly at the time, the widespread belief was that loss-making in the state sector was confined primarily to smaller, inefficient enterprises.

is, therefore, somewhat understandable. That said, that the government has initiated these changes and is experimenting with a variety of solutions represents a move in the right direction.

Along similar lines, the government has moved forward at the enterprise level with its policy of “changing ownership structure” (*gaizhi*). The state sector in absolute terms has been scaled back, and thousands of smaller SOEs have been privatized, converted into joint-stock companies, or dissolved. In part, this simply represents an effort on the part of the center to pass responsibility for welfare provision and restructuring downward to lower levels of government. In part, however, the policy carries significant symbolic import -- the government is scaling back its implicit guarantee of an entire category of industrial firms. That curtailment represents an important step forward in addressing the soft budget behavior that has affected so many firms in the Chinese environment.

Finally, the government has since the Asian financial crisis significantly accelerated its efforts to restructure and commercialize the nation’s financial sector. A series of concrete measures have been taken, several of which have presumably come at significant political cost for the center. First, the center has forced localities to relinquish control over large banks, insurance companies, and stock exchanges. Previously, through their control over personnel appointments, localities could intervene in lending decisions and other financial transactions.²⁶ Now that control over appointments has been recentralized under the headquarters of the major banks, insurance companies, and stock exchanges, politicization of lending and listing will presumably be reduced.

²⁶ Lou Jiwei, et. al., *Zhongguo guoyou zhuan ye yinhang shangyehua gaige* (Beijing: China Financial Publishing House, 1998), p. 46.

Second, the government abolished the national system of credit quotas that once served as a key instrument for state intervention in financial flows. Because the abandonment of the system has coincided with an overall economic slowdown, the impact and sustainability of the change is still uncertain.²⁷ Nonetheless, removal of the credit quota system and its replacement with other forms of governmental supervision (in this case, asset-liability ratio and profit monitoring) is generally understood as a precondition for bank commercialization.

Third, the government has at the very least recognized the severity of the banking system's NPL problem, and has taken some measures to address it. As noted earlier, AMCs were created in 1999 to remove distressed assets from bank balance sheets and begin the debt resolution process. Moreover, the banking system in the preceding year was exposed to a RMB 270 billion recapitalization effort by the Ministry of Finance.²⁸ At the same time, recapitalization was coupled with rules making individual loan officers responsible for problem loans. Again, the stated intention of such measures has been to curtail the buildup of NPLs and to foster the national banking system's transition to a fully commercial footing.

The results have been at best mixed. In the broadest sense, the NPL buildup does not appear to have abated. Bank balance sheets are still awash in red ink, and banks still queue to lend to select state enterprises.²⁹ Furthermore, rules that tie responsibility for specific lending decisions to specific loan officers create an illusory objective of "no risk" lending. In very real terms, they discourage bankers from treating lending as the

²⁷ Fang (2001).

²⁸ For a more comprehensive discussion, see: Nicholas Lardy, "When Will China's Financial System Meet China's Needs?" paper presented to Conference on Policy Reform in China, November 1999.

²⁹ Edward S. Steinfeld, "Market Visions: The Interplay of Ideas and Institutions in Chinese Financial Restructuring," unpublished working paper, 2001.

management of a portfolio of risk, one of the most basic practices of modern commercial banking. More generally, the Chinese banking system today still awkwardly straddles the dual roles of commercial intermediary and cashier for the state. That said, there is at least awareness in the system today of the systemic risks involved when ostensibly commercial banking institutions are used to carry out decidedly non-commercial tasks of subsidization. An intellectual shift has occurred. What remains to be seen is whether true behavioral change will follow.

Issues of Governmental Capacity

The somewhat disappointing outcomes of financial restructuring illuminate a broader set of issues in contemporary Chinese reform. Significant institutional change has occurred, and a number of progressive policy measures have been launched. One major inhibiting factor, however, still pertains to the capacity of the government to effectively implement many of the policies it is enacting. The capacity problem manifests itself in at least two respects: the ability of the center adequately to coordinate policy across the government's administrative hierarchy, and the ability of the government as a whole effectively to regulate commercial activity in the civil sphere.

Governmental Coordination, Market Fragmentation, and Local Protectionism

It is from this first category of capacity problems that the various forms of local protectionism discussed earlier stem. Undoubtedly, local protectionism in its myriad

manifestations has impacted upon Chinese corporate structure. The argument, however, is not that local governments on the whole are necessarily impediments to growth. Rather, the point is that in a period of massive institutional change, localities have been charged with a series of conflicting responsibilities and objectives, including the stimulation of local development, the minimization of unemployment, the creation and funding of de novo pension and healthcare schemes, the building and staffing of judicial bodies capable of accommodating an ever-growing number of cases, and finally, the enforcement of a vast array of new commercial regulations. Meanwhile, many of these objectives have showered down upon localities in the form of unfunded mandates from the center.

Given such conditions, it should not be surprising that localities frequently resort to heavy-handed intervention in their treatment of local enterprises, whether privately-owned or public. Nor should it be surprising that localities seek to amass revenue by assessing informal fees and ad hoc levies upon local producers, practices that encourage both official corruption and rampant tax evasion. Finally, it can be expected that local governments will pursue with entrepreneurial zeal efforts to protect local producers from outside competition.³⁰

In analytical terms, however, there is a danger of overstating both the magnitude of China's market fragmentation problem and its relationship to the purported rise of local political fiefdoms.³¹ There is undoubtedly evidence in China today of industrial

³⁰ Interestingly, foreign invested firms, both because they have been the beneficiaries of preferential treatment by the center and because they hold out to localities the potential for knowledge transfer and technological upgrading, have proven less vulnerable to local protectionism than purely domestic firms. In other words, local protection has a disproportionately high impact on Chinese "outsider" firms than on foreign "outsider" firms.

³¹ Young (2000).

structure convergence and price divergence across provinces.³² Yet, as Barry Naughton argues, convergence of regional industrial structures has also occurred at various times, including the present, in such ostensibly integrated and fully-marketized economies as the United States.³³ The point is that we lack not only good measures of fragmentation, but also a solid understanding of its relationship to the overall developmental process.

Under such circumstances, it becomes particularly problematic to draw absolute causal linkages between market fragmentation and governmental malfeasance. Fragmentation occurs and corporate structure gets distorted not just because local government intervenes, but also – and conversely – because government at all levels proves unable to ensure basic contract enforcement within civil society. In other words, to the extent that “rule of law” fails to bind interactions between civil actors in China, the commercial environment remains characterized by high levels of uncertainty and elevated transaction costs. Even in the utter absence of protectionism, firms under such conditions will face incentives to integrate vertically, stay local, pursue diversification, and remain small.

Regulatory Capacity, Legal Development, and Market Fragmentation

As occurs in any developing market economy, the Chinese system has witnessed a dramatic increase in the complexity and density of interactions between economic actors, many of whom are no longer under the direct administrative control of the state. Across the board – whether in terms of financial relationships, contracts, issues of

³² Young (2000)

³³ Naughton (1999), p. 5.

corporate control, or intellectual property rights – demand within the civil sphere has increased for both objective rules and reliable enforcement. Understandably, given the extreme rapidity of Chinese economic growth, the demand for market governance has outpaced the ability of the state to provide such public goods. Courts are overwhelmed with cases, judges are often inadequately trained, and enforcement mechanisms are generally weak at best.

Virtually everyone in China today recognizes that “rule of law” is essential for sustained growth, but the question is how rule of law can ultimately be achieved. Meanwhile, the absence of rule of law encourages rent-seeking behavior that further undermines trust in commercial affairs and society more broadly. In the area of financial affairs, for example, we have witnessed the emergence of what some Chinese observers describe as a “non-payment” economy.³⁴ Commercial buyers make purchases, and then refuse to pay. Borrowers take out loans, and then default. Banks accept deposits, and then squander the loan assets. In each case, the victim is left with little recourse. As the current saying in China goes, “You sue, but the court won’t accept your case; the court accepts your case, but won’t begin the trial; the court begins the trial, but won’t issue a judgment; the court issues a judgment, but then doesn’t enforce it” (*qi gao bu shou li, shou li bu kai ting, kai ting bu xuan pan, xuan pan bu zhi xing*).³⁵

What results is neither utter lawlessness nor an absence of growth. Instead, what emerges is a subtle pattern of unclear rules, low levels of trust, and frequent efforts to skirt the boundaries of legal strictures, conditions that all impact on the organizational structure and global competitiveness of Chinese firms.

³⁴ Zhou Xiaochuan, ed., *Chongjian yu zaisheng* (Beijing: China Financial Press, 1999), p. 6.

³⁵ Zhou (1999), p. 6.

Unfortunately, these governance-related issues undercut, inhibit, or otherwise impede many of the progressive institutional changes fostered by policy makers throughout the 1990s. In the absence of effective market governance, the state frequently resorts to the most heavy-handed instruments of administrative control, measures that while perhaps well intended, forestall value-enhancing commercial behavior. For example, in the area of banking reform and debt resolution, the government proved quite capable of curtailing financial flows to myriad small SOEs, but by employing measures that intimidate individual bankers, impeded progress toward the development of truly commercialized banking. Banks in China today now lend to the safest firms, namely the largest firms favored by state industrial policy, or otherwise invest their funds in government bonds or the stock market. The banks, therefore, may no longer quite serve their former function as cashiers of the state, but they also cannot in any real sense be considered commercial intermediaries.

Similarly, with the recent program of debt-equity swaps between state firms, state banks, and state asset management companies, the government created a viable regulatory structure for resolving distressed assets and dismantling commercially non-viable borrowers. However, fearful of abuses in the system and reluctant to undermine large industrial concerns, the state stepped in and intervened not just in the selection of candidates for debt-equity conversion, but also in the setting of the price at which AMCs would purchase distressed assets.³⁶ In so doing, the state ensured that debt resolution would degenerate into debt amnesty, thus further undermining commercial incentives and faith in rules for corporate actors.

³⁶ Edward S. Steinfeld, "Free Lunch or Last Supper? China's Debt-Equity Swaps in Context," *The China Business Review*, July/August 2000.

More broadly, the state itself -- in its desire to retain control (often for the ostensible reason of insuring social stability) -- frequently undercuts the very rule of law that it espouses.³⁷ That then encourages a commercial culture based less trust, transparency, and long term gain than on opacity, rent seeking, and short term advantage.

Issues of Industrial Policy

Lurking behind the aforementioned capacity issues, of course, is the issue of ultimate governmental aims. China throughout the 1990s has pursued institutional reforms that encouraged market deepening and a leveling of the playing field among all participants in the economy. In an overall sense, it is the vast array of smaller state firms that have probably suffered the most from these changes. Nonetheless, it would be incorrect to suggest that the Chinese government has abandoned either the notion of state ownership or the ambition of building key state firms into world-class commercial conglomerates. For all the lessons of the Asian financial crisis, China's policy makers in the late 1990s remained enamored of Japanese and South Korean-style industrial policy. At century's end, the ambition of saving the state sector writ large may have receded, but the goal of building a smaller set of state-owned "national firms" -- the "national team" -- was alive and well.³⁸ This, after all, is the "grasping the large" side of the *zhua da fang xiao* policy.

³⁷ William Alford, "The More Law, the More . . .? Measuring Legal Reform in the People's Republic of China, Center for Research on Economic Development and Policy Reform, Working Paper no. 59, Stanford University, August 2000.

³⁸ Nolan (2001), p. 16.

Particularly as China's entry into the WTO now looms, Chinese leaders seem intent on building the very kind of national conglomerates that they believe girded American, Japanese, and South Korean power in global markets.³⁹ Ironically, it is WTO entry in particular, and globalization trends more generally, that undercut the feasibility of this very ambition. First, the organizational attributes of Japanese or South Korean-style "national champions" – massive scope, high levels of diversification, extreme vertical integration -- are precisely those that globalization trends discriminate against. Even if China could create a South Korean or Japanese-style industrial conglomerate, the competitiveness of such organizations in the contemporary global environment is subject to considerable doubt. Second, the creation of such firms in the past was predicated on a high degree of governmental protection, protection that was been tolerated by the world's most advanced economies in previous decades, but is no longer tolerated today. Indeed, China by its own aggressive WTO accession strategy is submitting itself to a degree of market opening that would have been unimaginable to Japanese or Korean industrial planners of yore. What that means, in effect, is that Chinese industrial policy – to the extent that the nation actually has a unified industrial policy or the capacity to implement one⁴⁰ -- is being pursued just as key instruments of governmental control are being removed from the table.

For all those contradictions, however, the goal of building traditional "national industries" has crept into a wide variety of institutional reform measures, including ownership restructuring and stock listing, financial reform, mergers and acquisitions policy, and tariff measures. The Chinese government has repeatedly used privileged

³⁹ Nolan (2001), p. 17.

⁴⁰ See: Dwight Perkins, "Industrial and Financial Policy in China and Vietnam," paper prepared for the World Bank volume *Rethinking the East Asian Miracle*, April 2000.

access to stock market listings and bank financing to support a small number of favored state enterprises. Fittingly, those firms constituted the bulk of the enterprises permitted to undergo debt-equity swaps, effectively debt amnesty, since 1999. Moreover, while China's tariff levels have for the most part fallen during the 1990s, they have remained high (80-100 percent) in key areas like automobile imports.⁴¹ Protection has been coupled with non-tariff measures that force foreign firms to partner with, and transfer technology to, select Chinese state-owned firms.

In a general sense, there is still a clear ambition on the part of China's central government not only to sustain a core group of industrial firms, but also to expand them via a model of massive vertical integration and diversification. Logically, the ambition remains consistent with the government's WTO strategy only to the extent that policy makers believe that the resulting "national champions" will *ipso facto* prove globally competitive. Such assumptions require a degree of faith, or perhaps a quality of information, rarely shared by outside observers.

IV. Data from the 2001 World Bank Survey of Chinese "Higher Tech" Firms

Given the mixed bag of both positive and negative developments described above, it is worth examining the extent to which at least in China's most technologically-advanced and internationally-integrated sectors, firms are situating themselves effectively for global competition. Are they specializing? Are they working to develop proprietary, knowledge-based assets and capabilities? Are they proving capable of moving up the

⁴¹ Nolan (2001), p. 18.

ladder of technological sophistication? How do patterns of corporate organization and networked production vary across China's complex landscape?

Answers to a number of these questions begin to emerge from the World Bank's 2001 survey of 1500 Chinese firms divided evenly across five cities: Beijing, Shanghai, Tianjin, Guangzhou, and Chengdu. The enterprises were chosen from within China's higher technology and more advanced manufacturing and service sectors: accounting and related services, advertising and marketing, apparel and leather goods, business logistics services, communication services, consumer product manufacturing, electronic components, electronic equipment, information technology services, and vehicles and vehicle parts. A general description of the sample sectors and localities can be found in Table 1.

[Insert Table 1]

Neither the cities nor sectors chosen represent a full cross section of the Chinese industrial environment. Nonetheless, the purpose of the study has been to examine the more technologically advanced sectors – namely those in which firms can feasibly focus on building proprietary intangible assets – and the more internationally integrated cities, precisely the types of actors and environments most likely to adapt to the demands of global competition.

Ownership Structure, Age, and Size of Sample Firms

As indicated by Table 2, the sample tends to be composed of well-established firms, enterprises that have been operating on average for at least 10 to 15 years. Not

surprisingly, the youngest firms tend to be concentrated in newer sectors like information technology, advertising, and accounting services. It is also a reflection of the nature of change in China that very few firms in the sample predate the reform era. China's most traditional enterprises, generally large state operations with massive workforces, have for the most part proved unable to branch out into high technology manufacturing or services.

[Insert Table 2]

Also noteworthy is the difficulty of pinpointing ownership in the surveyed firms. Rather than a problem of the survey per se, the situation is thoroughly emblematic of the state of Chinese reform more generally. To China's traditional categories of ownership (state, collective, individual) have been added the newer, and frequently overlapping, categories of "listed company," "non-publicly traded shareholding company," and private enterprise. What is at least clear from the sample is that state owned companies still represent a fairly large proportion of the surveyed firms (21.5 percent), though some of these may also be joint-stock companies or partners of multinationals. Private non-listed companies make up 16.2 percent of the sample, while collectives make up 15.9 percent. Just under three percent of the firms are direct subsidiaries of multinationals, while 18.3 percent are involved in multinational joint ventures. Just over 11 percent of the firms describe themselves as non-publicly traded shareholding companies, though as noted previously, that characterization can cut across traditional "state owned", "collective," and "private" designations.

Noteworthy is the fact that nearly one third of the respondents (467 firms) reported that they had been restructured into shareholding companies in recent years. This is consistent with the sweeping program of *gaizhi* that has been in operation since

the mid-1990s. As Table 3 indicates, ownership restructuring is clearly associated with a rise in privately held shares and a decline in state shares. It is also interesting to note that these private shares are generally held by individuals rather than institutional investors or other enterprises.

[Insert Table 3]

Looking across the localities, we can see that Beijing and Chengdu, cities known for significant private sector development, have experienced the highest levels of ownership transfer to private individuals, while Shanghai and Tianjin have lagged somewhat. Particularly in the case of Shanghai, these data are consistent with the city's reputation for favoring large firms -- namely SOEs and multinationals -- over smaller private concerns. Shanghai has also been somewhat less aggressive in terms of promoting *gaizhi*. Regardless of the regional variation, however, the data all point to sweeping changes in ownership structure across virtually the entire expanse of Chinese industry in recent years.

The final point worth noting is that the firms in the sample generally tend to be small to medium sized, and most have undergone fairly significant downsizing since 1995 (Table 4). Again, these developments are consistent with the widespread process of *gaizhi*.

[Insert Table 4]

Participation in International Production Networks

As indicated by Table 5, within the sample of 995 manufacturing firms, on average 41 percent produce to specifications set by foreign firms. Given Guangzhou's long history of export-focused manufacturing, and given Shanghai's more recent growth as a center for multinational and joint venture operations, it is to be expected that the percentages of firms producing to foreign specification in those areas should be somewhat elevated. Similarly, it is to be expected that Chengdu, located farther inland, would lag somewhat.

[Insert Table 5]

Comparable outcomes are found for firms that directly produce parts or final products for foreign firms. The average across the sample was 21 percent and 25 percent, respectively, for the two categories, with somewhat greater numbers in Shanghai and Guangzhou. Thirty-seven percent of the firms in the sample report using parts supplied by foreign firms, though again, figures were higher in the manufacturing centers of Shanghai and Guangzhou.

That far more firms in the sample produce to international specifications than actually sell to foreign firms suggests that while Chinese enterprises deal extensively with the international economy – either directly or indirectly – their actual penetration into, and control over, international production networks is limited. Direct interactions with foreign suppliers and purchasers appear relatively infrequent, particularly outside of Shanghai and Guangzhou, and there is a sense that local firms are not really leveraging intangible assets in these relationships. On this score, the relatively low figures for manufacturers that have actually designed parts, engaged in R&D, or provided services for a foreign firm are telling. Only 15 percent of the manufacturing firms reported

designing parts for foreign purchasers, while only 7 percent reported the provision of R&D or services. Again, it is important to recall that the sample covers higher-tech sectors, the very ones in which we should expect a high degree of leveraging of firm-specific intangible assets. What we observe, however, is that the level of international interaction is high, but the level of deep integration into production networks and successful leveraging of knowledge-based or proprietary assets seems relatively low.

Among the total sample of 1500 firms, just over 25 percent report that they have a foreign partner, approximately the same proportion of firms that actually produce for foreign customers (see Table 6). It is interesting to note that among the 381 firms that reported having foreign partnerships, the average foreign ownership share was 58 percent. The figures themselves may be distorted given the confusion surrounding ownership distinctions in China, but they can be taken as indicative of a general phenomenon in China. When foreigners engage Chinese firms in production relationships, they appear to do so more frequently through direct investment and direct ownership than contracting.⁴²

[Insert Table 6]

The reasons for the high degree of foreign ownership are numerous. First, preferential policies on the part of the government toward foreign-invested firms – policies expressly intended to encourage FDI – encourage domestic firms to enter the foreign-invested sector (arguably by selling their tangible and intangible assets at a significant discount to foreign firms) simply to share in the benefits of a distorted playing field. The point here is that as the playing field levels, particularly with pending WTO accession, domestic firms will arguably face less of an incentive to put assets under

⁴² For a more comprehensive discussion, see: Yasheng Huang, *Selling China* (New York: Cambridge University Press, forthcoming).

foreign ownership, and instead deal with foreign firms on a more nearly arms-length, networked basis.

There is, however, a second and perhaps more important reason why we witness high levels of foreign ownership in China's most internationally integrated sectors. Indeed, it is the same reason why we witness Chinese firms themselves opting for more vertically-integrated operations than their counterparts overseas. The Chinese business environment -- given the degree of policy and economic volatility, not to mention difficulties surrounding contract enforcement and dispute resolution -- is marked by high transaction and information costs. Firms, whether Chinese or foreign, frequently attempt to internalize these costs, and thus minimize them, through direct ownership. For a foreign investor even in the most developed cities like Shanghai, the costs of directly managing and owning a Chinese partner may be far less than the costs of dealing with that partner on an arms-length basis, even in the absence of governmental policies favoring the foreign-invested sector. This then gets back to the general point about the degree to which lack of trust, and the related absence of rule of law, shapes the Chinese business environment, and impedes the ability of Chinese firms to capture the full benefits of globalized production.

With regard to the question of which factors inhibit exports, respondents focused on the difficulties of meeting foreign product standards, the high costs of meeting such standards, and the intense cost competition they face -- from not only other domestic firms, but also foreign firms -- when attempting to enter export markets (Table 7). Respondents reported preferences for producing for export markets, and few claimed that supplying the domestic market offers better financial opportunities. Yet, domestic

managers perceive their firms as lacking the essential capabilities needed to meet foreign standards in a cost effective manner. At the same time, they find themselves in an intensely competitive environment, with price pressures bearing down from domestic and foreign competitors alike.

Again, these responses underscore the degree to which Chinese firms face difficulties in developing and leveraging the kind of intangible assets that would allow them to build a solid foothold in international production networks and compete on the basis of something other than low cost. The sampled firms engage in considerable international activity, yet they do so on the basis of little else but price, a rather uncomfortable position from the managerial perspective.

[Insert Table 7]

Scope of Supplier and Client Networks

In terms of both upstream and downstream relationships, firms in the sample tend to participate in relatively small, and geographically concentrated networks. With regard to suppliers, respondents reported that on average over 50 percent of the firms in their upstream network are located within the respondents' own city. Approximately 75 percent of the suppliers were located within China. Guangzhou proved to be somewhat of an exception in this case, with respondents reporting higher levels of overseas suppliers (20.6 percent) and lower levels of supplier network concentration within the city limits (44 percent). The higher number of overseas suppliers in Guangzhou most likely pertains to Guangdong Province's two-decade-long history as a center for export

processing. Moreover, Guangdong has a number of manufacturing and export processing centers in close proximity to Guangzhou (such as Dongguan), thus allowing for somewhat more extended supplier networks.

Whether in Guangzhou or any of the other four cities in the sample, firms tend to purchase directly from suppliers (72 percent of the manufacturing firms surveyed purchase directly), and the main means of delivery is still surface transportation (77 percent of purchases). The preferred mode of communication with suppliers is still either phone and fax (58 percent of all communications) or in person (29 percent of all communications). Internet communications account for 5 percent of the total, just slightly ahead of regular communication through letters. Those patterns generally proved consistent across all the research sites, including even Shanghai with its more advanced infrastructure.

The data for the most part suggest that in China, supplier networks still operate along fairly traditional lines. They are concentrated within single municipal regions, goods move primarily by surface, and communication takes place either over the phone or in person. Of course, one reason for such concentration is the relatively underdeveloped state of China's transport infrastructure. Nonetheless, the reasons go beyond physical infrastructure, extending into issues of local protectionism, problematic contract enforcement, and significant information problems.

Geographically concentrated supplier networks suit the Chinese environment, but they have distinct disadvantages from the global competitiveness perspective. First, the geographical constraint limits the range of choice when a firm is picking suppliers. Firms end up working with suppliers for reasons of proximity rather than quality or cost. They

thus frequently fail to access world-class suppliers, and they themselves fail to become world-class suppliers. Second, locally-focused firms generally fail to grow and achieve the benefits of scale enjoyed by many of their overseas competitors. Deprived of the benefits of scale, firms avoid specializing, and instead diversify into new business lines – local lines, for the most part – simply to insure cash flow. The concern for the future is that to the extent such firms fail to achieve the benefits of both scale and specialization, they will find it increasingly difficult to compete even on a cost basis for the provision of higher end goods and services to overseas clients. Yet, if they fail to build relationships with such clients, they are even less likely to develop the capabilities associated with international competitiveness.

With regard to legal issues, it is interesting to note that while the bulk of respondents report that they contract formally with suppliers (82 percent), they also report that the bulk of disputes (85 percent) are resolved through negotiation rather than the courts (12.2 percent). The levels of resolution through the courts were appreciably higher in Shanghai (22 percent), while the levels of contracting were appreciably lower in Tianjin (69.5 percent). Several interpretations could be attached to these results, though this author's sense based on field interviews is that managers generally seek formal legal protection through contracts, yet look with great skepticism on the possibility of actually enforcing those contracts in the court system. That outlook, in a sense, is not appreciably different from that of managers in even the most developed economies, given the generally high costs of litigation. Nonetheless, China's relatively underdeveloped and overstretched court system probably goes a long way in explaining the low levels of reliance on formal arbitration or court proceedings for dispute resolution.

The downstream relationships with customers share similar characteristics with the upstream networks. Firms in Shanghai report the largest number of clients in the network (35,100 on average), while firms in Tianjin report the fewest (802). That said, regardless of their size, the customer networks also tend to be relatively geographically concentrated. On average, firms reported that 50 percent of their clients are based in the respondents' own municipality. The only major exception again was Guangzhou, with only 38 percent of clients located within the city, and some 29 percent located overseas. Over the entire sample, firms on average reported that 15 percent of their customer base was overseas. Again, as with supplier relations, we witness the bulk of deliveries moving through surface channels (66.6 percent), and the bulk of communications through phone, fax, or face-to-face interaction (84 percent in total).

On average, 90 percent of the respondent firms engage customers through formal contracts, and 21 percent of dispute resolution takes place through the courts. Firms are apparently far more willing to take their clients to court than they are to do so with their suppliers. That suggests the returns on maintaining a stable long-term relationship are higher in the upstream than the downstream network. In other words, finding another customer may prove easier than finding another supplier. An alternative explanation is that most court cases involve issues of non-payment. Hence, firms are most likely report higher levels of litigation in the downstream direction than in the upstream direction.

One of the more interesting findings is that while firms overwhelmingly report direct dealing with suppliers, they equally overwhelmingly resort to trading companies to handle downstream deliveries and logistics (69 percent of respondents report doing so). On the one hand, this may simply indicate appropriate outsourcing of non-core activity.

On the other hand, it suggests that Chinese firms tend to be rather removed from their customers. This distance, in turn, may inhibit the responsiveness of firms, not to mention their ability to leverage firm-specific skills in the area of service or specifically-tailored products. If one of the lessons of globalization is that high returns are to be enjoyed by firms that can externally integrate the supply chain, the prevalence of trading company intermediaries in Chinese networks suggests that manufacturers are failing to capture such returns.

At least in part, this failure may pertain to regulatory legacies. Until quite recently in China, distribution channels remained the exclusive preserve of state trading firms. As a result, manufacturers today often have little experience dealing directly with customers, and they have equally limited experience in handling distribution and logistics. This is all the more true with regard to overseas transactions. Direct export rights are still not enjoyed by most firms in China. Unfortunately, such restrictions have forced Chinese firms to play catch-up as they try to develop customer responsiveness skills at the very same time they face intense domestic and international competition.

Governmental Relations

China's extraordinary transformation from plan to market is captured by the data on firm-level interactions with the government. In the late 1980s and early 1990s, managers in China frequently complained that the bulk of their time was spent dealing with governmental officials and governmental policy. After all, economic transactions at that point were still fairly hierarchical, and almost inevitably involved state organizations

of one kind or another. Today, the situation could not be more different. Transactions move horizontally in typical market fashion, and managers themselves report spending the bulk of their time on commercial rather than political concerns. As the survey data suggest, managers on average report spending 7.8 percent of their time dealing with licenses, permits, and regulatory requirements (Table 8). As could be expected, managers in Tianjin -- a fairly conservative city with a more traditional, state-based economy -- report more time spent on administrative affairs than do managers in Guangzhou, a city with a reputation for light-handed public governance. The stereotypes, in this sense, hold. It is also gratifying to note that across all five cities, the percent of firms reporting the use of facilitators or agents to deal with governmental affairs was extremely low (between 1.2 and 1.4 percent across all cities). The implication is that rules have become increasingly transparent, therefore mitigating the need to hire “fixers” or employ connections.

[Insert Table 8]

On the slightly more negative side, while the “grabbing hand” of government appears to be in retreat, the “helping hand” has not stepped in to fill the void.⁴³ Only about 2 percent of the respondents report receiving help from government agencies in identifying or securing foreign investors, foreign technology for license, foreign suppliers, or foreign clients. In reality, however, given the number of urgent policy issues surrounding structural transition currently facing governments at all levels, it is perhaps too much to expect public officials to play an active, supporting role for business.

⁴³ Andrei Shleifer and Robert Vishny, *The Grabbing Hand: Government Pathologies and Their Cures* (Cambridge: Harvard Univ. Press, 1999).

Rather than relying on public agencies for market information, Chinese firms instead seem to turn to business associations, again a healthy sign in terms of market development. Civic associations are emerging to replace what was once an exclusively governmental role. More than half of the firms in the sample report membership in a business association, with the levels considerably higher in Shanghai and considerably lower in Tianjin (Table 9). More than 30 percent of the firms report membership in associations that include their suppliers and customers. Financial institutions appear not to participate in such associations, but that can be expected given the degree to which the financial sector is dominated by four large state-owned banks. Moreover, the bulk of lending from that sector is devoted to a relatively small number of large state firms. As will be discussed below, for most of the firms in the sample, channels of external financing are extremely limited. It is worth highlighting, however, that 48 percent of the firms report that membership in a business association helps them get access to credit, and 46 percent report that it facilitates the transmission of their views and interests to the government. Those numbers may point to a relatively straightforward issue – business associations help firms access a broad array of market information. Indeed, 81 percent of the respondents identified this as the main function performed by the business association. The association gives them voice, but equally or more important, it gives them access to general market information, whether that information pertains to policy, credit, or commercial conditions.

[Insert Table 9]

External R&D Relationships

In terms of seeking external channels for R&D, firms in Chengdu appeared to be the most aggressive by every measure. In 2000, 17.3 percent of respondents from Chengdu had research relationships with local universities, up from 7.7 percent in 1998. Eleven percent of firms in Chengdu had relationships with governmental research institutes in 2000, as compared with 7.3 percent in 1998. Finally, 5 percent of the respondents from Chengdu reported a research relationship with a private research institute in 2000, up from 2.7 percent in 1998. Among all firms, research relationships with local universities appeared most popular (11.2 percent of respondents reported such relationships), while those with governmental and private research institutes lagged considerably behind (5.6 percent and 1.8 percent respectively). Interestingly, Tianjin lagged on all fronts, with only 2.7 percent of firms reporting relationships with local universities, 3 percent reporting ties to governmental institutes, and 1 percent reporting ties to private institutes. As will be discussed below, this does seem to correlate with the relatively weak innovative capacity exhibited by Tianjin-based firms.

The general point is that while external R&D relationships are not overwhelmingly common, they are growing rapidly over time. Their increase rate just in the past three years has been considerable in all cities surveyed save for Tianjin. Firms especially in Chengdu, a city known for a vibrantly emerging private sector, seem to understand that R&D benefits can be maximized through networked interactions. To the extent they can extract benefits and improve their own innovative capacity through such interactions, Chinese firms will improve their competitive position within globalized value chains.

Innovative Capacity

Respondents across all cities reported a high degree of what they at least themselves perceived as innovative activity (Table 10). As should be expected among later developers, most of the innovative activity was centered around improvements of shop floor production processes and the introduction of new managerial techniques. Nearly half of all firms reported innovations in the former, while 45 percent reported innovations in the latter. Another 36 percent of respondents reported new products within existing lines, and 21 percent reported entrance into new business lines. Interestingly, the city of Tianjin lagged significantly behind the average in all forms of innovative activity. That perhaps can be related to the low levels of external R&D networks and low levels of participation in business associations reported by firms in that city. Overall, it appears that Tianjin lacks the dense pattern of informal inter-firm communication that seems so crucial for successful enterprise development in high-tech sectors today.

[Insert Table 10]

Nonetheless, at least from the perspective of managers, much of the innovation that they engage in is developed in-house or is related to arms-length purchases from outsiders. For those firms that reported the introduction of new products, 69 percent suggested that those were developed in-house, while 26 percent reported development in cooperation with clients. The data is somewhat inconclusive, since respondents frequently, and understandably, report that new product development stemmed from both

in-house and external interactions. Similarly, among those firms claiming to have introduced new process improvements, 59 percent claimed to have developed the processes in-house, 40 percent pointed to the purchase of new technology and machinery as a source, while 29 percent report implementing a new idea after taking a study tour.

Clearly, the data suggest both a high degree of self-described innovative activity, and a variety of internal and external channels by which that activity is catalyzed. Without exception across the five cities studied, respondents tended to focus on three factors driving the adoption of new products and processes: in-house development, purchase of new technology or machinery, and participation in study tours. The appearance of the last factor is particularly interesting, suggesting that managers perceive significant positive returns from even brief interactions with leading edge firms.

Financing

In a pattern consistent with that of virtually all firms in China save for larger SOEs, the firms in the sample rely primarily on retained earnings as their main source of financing (Table 11). Firms in the sample consistently reported that upwards of 50 percent of all financing came from retained earnings. Bank loans amounted to 19 percent of total financing on average, though the figures were somewhat lower in Tianjin (15 percent) and somewhat higher in Chengdu (24.8 percent). Equity financing, not surprisingly given governmental quota restrictions on stock market listings, was low across the board (averaging 0.6 percent across the sample). Personal loans from family

and friends constituted an important source of financing, averaging 8.6 of total financing for firms in the sample.

[Insert Table 11]

These outcomes are consistent with a number of recent studies, including the IFC's survey of the Chinese private sector in 2000. That Chinese firms must resort to self-financing and other channels of informal financing is indicative of the underdeveloped state of the nation's financial sector. This should come as no surprise to frequent observers of the Chinese system, nor should the fact that financial reform since the Asian crisis has risen to the top of the reform policy agenda. Nevertheless, progress on the financial front continually runs up against governmental desires to retain control, insure social stability, and continue funding the chosen targets of industrial policy. Taken together, those objectives are not wholly reconcilable, a factor that in itself repeatedly stalls the financial reform process.

In the meantime, the underdevelopment of the financial sector has important implications for firm structure and behavior. On the plus side, that many firms are forced to rely on self-financing ensures hard budgets and increases incentives for efficiency. Beyond that, however, reliance on self-financing becomes increasingly burdensome as the firm expands. Deprived of the outside monitoring that comes from debt or equity financing, expanding firms frequently run into internal governance problems. Moreover, such firms frequently face tight liquidity constraints. Taken together, those factors push the firm toward excessive diversification, low levels of specialization, and stalled growth.

One positive note that emerges from the sample is that 71.4 percent of the firms report having externally-audited annual financial statements. The numbers are

particularly high in Shanghai (90.3 percent) and Guangzhou (79.7 percent). This suggests that at least in the higher tech sectors and more developed cities, firms are realizing the value of moving toward more transparent financial structures. This perhaps stems from their greater involvement in international business, but also likely reflects a belief on the part of managers that the rule-based behavior will enjoy increasing returns as the Chinese system continues to evolve. Firms at least in the higher tech sectors seem to be moving to standardize, formalize, and legitimize their operations, thus putting them in a better position from the bottom up to exert pressure for accelerated institutional change.

V. Conclusions and Policy Recommendations

This paper has argued that while many of China's industrial firms have proven quite capable of entering global production networks, they have not yet been able to carve out positions that are competitively sustainable over the long run. In large part, this stems from the fact that Chinese corporate structure has responded to domestic conditions that remain at odds with transformations occurring in the global marketplace. There are, however, measures – both active and passive – that the government can take to address this problem.

The first recommendation on the macro front involves the role and function of industrial policy. In China today, the central government appears committed to the preservation of a core group of national industries. That is an acceptable choice from the public policy perspective, but it should not be mistaken as a *commercially* viable option.

In other words, particularly given the conditions surrounding globalization, it is an illusion to think that highly vertically-integrated national giants will ultimately prove competitive on the global scene. Indeed, in the world's developed economies, national industries are generally on the retreat. Whether in automotives, aerospace, petroleum, or power, the trend is toward specialization on specific high-value portions of the production process. China can choose to create vertically-integrated national champions, yet it should not do so under the assumption such firms will prove competitive in the international marketplace. That the Japanese, South Koreans, or Americans for that matter proved capable of building such firms in the latter half of the 20th century is immaterial. Conditions have changed, and so too have those former industrial giants. They are either undergoing radical transformation or withering. Should China choose to build such giants – whether for reasons of national security, autonomy, or pride – it must be prepared for the financial burden they will exact, all the more true once China actually enters the WTO and exposes itself fully to those global giants that actually have restructured and specialized.

In recognizing the costs of building national industries, the Chinese government must also recognize the unintended costs that bear down on those firms not targeted by industrial policy. To the extent that policy makers believe that the subjects of industrial policy will ultimately prove competitive, they will continue either directly or indirectly to use the national banking system to fund those firms. Yet, to the degree that the financial sector continues to lag in its commercialization efforts, China's smaller firms – its vibrant exporters, dynamic private enterprises, and reforming small to medium SOEs – will continue to be deprived of debt financing, and will continue to suffer the disadvantages of

insufficient scale and insufficient specialization. Ironically, they will lose their competitiveness for the very same organizational reasons that will undermine the “national industry” targets of industrial policy. Whether induced by design or default, extreme vertical integration and geographic concentration are recipes for weak competitiveness in the globalized world.

Similarly, to the extent that the government maintains stock market listings as the exclusive preserve of favored national firms, smaller -- yet arguably more dynamic -- enterprises will be deprived of the opportunity to engage in equity financing. Not only will their organic growth be forestalled, but they will also be deprived of important mechanisms of corporate governance. Should the central government persist in its desire to build national firms, it should do so in a fashion that insulates those firms from the institutional underpinnings of the market, namely the nation’s financial sector. National firms should be funded directly from the national budget.

Without a doubt, greater efforts must be made to lift the more subtle barriers to growth that inhibit China’s higher technology firms. Aggressive efforts must be made to curtail local protectionism in all its forms. Mergers and acquisitions, while certainly under the legitimate regulatory scope of the government, should not be subject to the approval of local officials. Nor should mergers and acquisitions be used as an instrument of the state to impel financial healthy firms to bail out failing concerns. Similarly, the central government must assiduously counter efforts by localities to apply “local content” rules that ultimately curtail the scope of sourcing networks. All of these factors inhibit enterprise growth, specialization, and capability upgrading. To the extent that a firm cannot source from the best producers, its own quality and cost competitiveness will be

threatened. Moreover, its competitiveness will be threatened at the very same time that foreign firms are being allowed to enter the market on an essentially unrestricted basis.

Nonetheless, policy makers should not lose sight of the fact that market fragmentation is as much a result of inadequate legal development as it is of local malfeasance. Difficulties surrounding the enforceability of contracts have a clear, and clearly deleterious impact, on Chinese corporate structure. To the extent that the government can continue its efforts to build a functional and reliable legal system, the returns on the economic front are likely to be vast.

Even as legal development proceeds, though, it is reasonable to assume that the government will remain deeply involved in operation of Chinese markets and market players. The question is not whether involvement will continue, but rather what form that involvement will take. Ideally, the government across its administrative levels will seek to exchange traditional instruments of direct control for more commercially conducive mechanisms of regulatory influence. While localities should not apply local content rules, it is certainly within their right to promote local business development by creating an environment that attracts leading domestic and international firms. As suggested by the 2001 survey, managers perceive important benefits from communities that are rich in business associations and institutions of higher learning. The former provide important market information, while the latter provide important sources for innovation. Localities should strive to promote and support civic organizations, while at the same time investing substantially in technology education. University-enterprise partnerships should be encouraged and financed.

As was made clear by the 2001 survey, firms find it difficult to meet foreign production standards, and they find it difficult to develop truly firm-specific, non-substitutable processes or services. In other words, they have few intangible assets to leverage in their international economic activities. The government at both the central and local levels can serve an important function in this respect as an incubator for process-based innovation. The model on this front would be entities like the Hsinchu Science Park in Taiwan. Essentially, government organizations finance as public goods the absorption of foreign technologies and processes. Those technologies and processes are then disseminated to domestic firms, at which point they can be further developed in a commercial environment. Problems occur, however, when after funding the initial technology transfers, the government continues to exert either direct or indirect control over the firms that employ the relevant technologies. Such control usually results in the very same outcomes that inhibited competition in the first place: constraints on geographic expansion and pressures to maximize employment.

For all the capability problems that Chinese domestic firms describe, however, the nation has an extraordinarily valuable asset that has only just barely begun to be tapped: the growing reserve of highly-skilled and highly-trained Chinese citizens currently residing abroad. Those citizens, many of whom have been trained at the best technological institutes and have pursued careers in the world's most advanced firms, embody an extraordinary pool of human capital. From a public policy perspective, the returns on bringing this pool of talent back to China outmatch those of any other policy objective. Already the flow has begun in small ways. In the late 1990s, a number of Western-educated Chinese MBAs and PhDs began moving back to the PRC to launch

high-tech start-ups. Even in the more traditional state sector, we now can observe SOEs bringing into senior management positions individuals who spent the bulk of their careers in leading multinationals.

The point is that no single policy measure is going to transform China's enterprises into powerful members of global protection networks. Instead, the government must pursue basic enabling mechanisms, mechanisms that level the playing field and ensure that firms can pursue organic growth. Even that, however, cannot miraculously transform firms, particularly firms that virtually by definition as late developers, face immense challenges in unseating global incumbents. Rather, the key is ultimately going to come down to human capital – raw talent and creativity. China is fortunate now to have a sizable pool of citizens who have spent entire careers abroad and thoroughly understand the dimensions of global competitiveness. The teaming of those individuals with the extraordinary entrepreneurial talent already residing in Chinese firms is the surest – and perhaps only – way to develop truly competitive production organizations.

Table 1. Sectoral Distribution of Firms in the Sample

	Beijing	Chendu	Guangzhou	Shanghai	Tianjin	Total by sectors
accounting and related services	23	20	18	20	23	104
advertising and marketing	20	19	11	20	19	89
apparel and leather goods	49	45	46	40	42	222
business logistics services	23	20	29	20	18	110
communication services	11	17	12	20	11	71
consumer products	21	36	33	40	35	165
electronic components	43	40	39	40	41	203
electronic equipment	41	35	40	40	36	192
information technology services	25	24	30	20	29	128
vehicles and vehicle parts	44	44	42	40	46	216
Total by regions	300	300	300	300	300	1500

Table 2. Age of the Firm in Years

By City	Observations	Means	Std. Dev.
Beijing	300	15.3	16.3
Chendu	300	14.9	15.5
Guangzhou	300	10.7	13.1
Shanghai	300	10.8	15.5
Tianjin	299	10.9	13.8
Total	997	14.3	15.9

By Industry Sector	Observations	Means	Std. Dev.
accounting and related services	104	6.4	5.3
advertising and marketing	89	8.0	8.4
apparel and leather goods	222	18	20
business logistics services	110	17.6	19
communication services	71	7.2	12.4
consumer products	165	11.4	12.1
electronic components	203	12.9	13.2
electronic equipment	192	11.4	13.4
information technology services	128	5.4	7.6
vehicles and vehicle parts	215	16.6	16.9

Table 3. Percent Change of Ownership Among Restructured Firms

Percent Change of ownership structure after the restructuring	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chendu
Ownership owned by private sector	9%	13%	8%	3%	10%	17%
Ownership privately held in private sector	9%	18%	1%	12%	7%	18%
Domestic top manager or family	0%	0%	0%	0%	0%	1%
Other domestic individuals	6%	15%	1%	5%	2%	14%
Domestic firms	0%	0%	-3%	2%	0%	0%
Foreign individuals	-1%	0%	0%	0%	-3%	1%
Foreign institutional investors	0%	-1%	0%	0%	-2%	0%
Foreign firms	0%	2%	-3%	1%	1%	0%
Ownership publicly held in private sector	-1%	-2%	2%	-4%	-3%	-3%
Domestic institutional investors	0%	0%	-1%	1%	-2%	3%
Domestic firms	-3%	2%	-2%	-9%	-1%	-7%
Foreign institutional investors	0%	0%	0%	0%	-1%	0%
Ownership owned by government	-9%	-13%	-8%	-3%	-10%	-3%
National government	-1%	0%	-4%	0%	-1%	-1%
State/provincial government	-3%	-11%	-6%	0%	0%	0%
Local/municipal government	-4%	0%	-1%	-4%	-5%	-11%
Other government, including cooperatives and collective enterprises	-6%	-2%	-9%	-1%	-10%	-8%

Table 4. Size of Firm in Terms of Employment Levels

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chendu
average number of employees in 2000	1500	611.9 (2536.8)	872 (4981.88)	798 (2142.54)	352 (845.57)	539 (1138.12)	499 (809.29)
average number of employees in 1999	1424	635 (2614.96)	931 (5106.37)	819 (2259.49)	339 (759.09)	552 (1185.79)	532 (892.01)
average number of employees in 1998	1312	686 (2938.34)	985 (5330.04)	956 (3280.71)	353 (787.40)	568 (1303.40)	572 (966.84)
average number of employees in 1995	1057	798 (3359.86)	1152 (5963.46)	1203 (3912.63)	382 (794.90)	582 (1342.66)	681 (1163.78)

Table 5. Participation in International Production Networks

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chendu
Percent of firms who produce parts for the foreign firms	995	21%	14%	27%	21%	25%	17%
Percent of firms who produce final products for foreign firms	995	25%	20%	34%	21%	35%	16%
Percent of firms producing to the specification of foreign firms	995	41%	32%	56%	32%	59%	28%
Percent of firms who have designed parts for the foreign firms	995	15%	11%	17%	11%	21%	18%
Percent of firms providing design services or R&D for foreign firms	995	7%	6%	10%	4%	11%	4%
Percent of firms who have parts supplied by the foreign firm	995	37%	35%	48%	29%	47%	25%

Table 6. Partnerships with Foreign Firms

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chengdu
Percent of firms that have foreign partners	1500	25.5%	25.0%	40.7%	23.0%	28.0%	10.7%
Ownership share of the foreign partner	381	58.2% (26.54)	58.1% (25.66)	58.2% (22.04)	62.4% (30.48)	64.5% (27.90)	32.9% (16.25)
Duration of the relationship (in years)	381	6.3 (3.56)	6.6 (4.10)	6.4 (3.73)	6.8 (3.10)	6.1 (3.42)	4.7 (2.22)
Nationality of the foreign partner	399	399	78	123	72	91	35
Hongkong	110	28%	31%	22%	19%	45%	14%
Japan	95	24%	24%	29%	25%	13%	29%
USA	63	16%	15%	15%	18%	8%	34%
Taiwan	29	7%	5%	7%	4%	13%	6%
Germany	19	5%	6%	10%	1%	0%	3%

Table 7. Main Inhibitors of Export Growth

	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chendu
Shipping and transport costs	9%	6%	8%	7%	15%	8%
Cost of meeting foreign legal and product standards	15%	13%	11%	13%	18%	16%
Inability to produce to clients' standards, specifications, and schedule	15%	15%	12%	13%	19%	13%
Inability to match prices of domestic competitors who export	11%	13%	10%	14%	8%	9%
Inability to match prices of foreign competitors	12%	11%	17%	11%	4%	9%
Inability to meet demands by foreign clients for product upgrades and changes in specifications	6%	4%	7%	9%	7%	5%
Difficulty of recovering payments from abroad	3%	4%	2%	5%	4%	2%
Supplying the domestic market is relatively more profitable	7%	7%	8%	6%	4%	8%
Costs of establishing a foreign distribution network too high	17%	16%	18%	12%	13%	22%
Domestic content requirements	4%	11%	7%	9%	8%	8%

Table 8. Governmental Relations

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chengdu
Percent of managers' time spent dealing with licenses, permits and regulatory requirements	1456	7.8%	7.9%	8.1%	10.2%	5.7%	7.4%
	(10.79)	(9.67)	(11.90)	(14.56)	(4.59)	(10.27)	
Percent of firms using facilitators, consultants, or specially-designated employees to deal with permits or licenses	1499	1.3%	1.3%	1.2%	1.4%	1.2%	1.4%
	(0.45)	(0.45)	(0.43)	(0.49)	(0.39)	(0.48)	
Percent of firms receiving governmental help in identifying foreign investors	1499	2.1%	2.0%	2.2%	2.2%	2.2%	2.0%
	(0.52)	(0.42)	(0.50)	(0.51)	(0.56)	(0.53)	
Percent of firms receiving governmental help in locating foreign technology to license	1499	2.2%	2.1%	2.2%	2.2%	2.3%	2.1%
	(0.45)	(0.34)	(0.48)	(0.47)	(0.50)	(0.42)	
Percent of firms receiving governmental help in identifying potential foreign clients	1499	2.1%	2.0%	2.1%	2.2%	2.2%	2.0%
	(0.50)	(0.40)	(0.51)	(0.49)	(0.54)	(0.49)	
Percent of firms receiving governmental help in identifying potential foreign suppliers	1499	2.2%	2.1%	2.2%	2.2%	2.3%	2.1%
	(0.46)	(0.35)	(0.48)	(0.48)	(0.50)	(0.44)	

Table 9. Participation in Business Associations

	observations	all firms	Beijing	Shanghai	Tianjin	Guangzhou	Chengdu
Percent of firms who are members of a business association	1500	55%	60%	71%	36%	53%	52%
Percent of the firms who attend an association that also includes their suppliers	820	32%	31%	27%	29%	28%	45%
Percent of firms who attend an association that also includes their customers	820	32%	31%	28%	29%	24%	47%
Percent of firms who attend an association that also includes their financial institutions	822	4%	1%	1%	6%	5%	11%
Reasons for not belonging to any business association							
No association of relevance in you line of business	291	43%	48%	44%	44%	41%	38%
Membership fee is too expensive	52	8%	10%	8%	9%	2%	9%
Other reasons	339	50%	42%	48%	47%	57%	53%
The most important benefits of membership in a business association							
Access to market information	817	81%	78%	86%	73%	80%	85%
Access to important inputs	816	19%	13%	15%	22%	21%	29%
Access to credit	816	48%	42%	45%	46%	49%	61%
Defines standards and/or monitors quality and performance	816	42%	41%	39%	40%	44%	44%
Accredits members to suppliers or customers	816	32%	31%	22%	32%	28%	49%
Helps resolve disputes	816	19%	16%	18%	17%	19%	25%
Represents and transmits members' views to govt.	816	46%	45%	46%	36%	48%	53%
Technical assistance	816	18%	19%	9%	12%	19%	34%
Helps stabilize competitive conditions in domestic markets	816	29%	27%	30%	22%	26%	37%

Table 10. Innovative Activity

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chengdu
Percent of firms engaging in various forms of innovation							
introduction of new products within an existing business line	1498	36%	35%	51%	21%	30%	41%
entrance into a new business line	1498	21%	21%	23%	11%	20%	26%
new process improvements	1498	30%	28%	35%	17%	30%	38%
new management techniques	1499	48%	46%	49%	34%	55%	53%
new quality controls in the production process	1499	45%	45%	47%	31%	52%	51%

Table 11. Sources of Financing

	Observations	All firms	Beijing	Shanghai	Tianjin	Guangzhou	Chengdu
Channels of Financing By Percentage							
capital from retained earnings/internal funds	1486	51.5% (39.84)	51.7% (40.09)	51.2% (40.68)	49.2% (42.92)	50.1% (39.60)	55.1% (35.57)
capital from letter of credit	1486	0.8% (5.50)	1.1% (9.2)	0.6% (3.91)	0.7% (5.21)	0.4% (2.55)	1.0% (4.12)
capital from supplier credit	1486	3.3% (11.21)	3.1% (10.71)	4.2% (13.20)	3.0% (11.04)	4.0% (12.62)	2.8% (7.70)
capital from bank loans	1486	18.9% (27.94)	17.0% (25.98)	19.3% (28.21)	14.9% (27.77)	18.7% (28.73)	24.8% (28.14)
capital from other financial institutions	1486	1.6% (8.34)	1.2% (7.40)	2.0% (10.62)	1.1% (6.98)	0.7% (4.75)	3.1% (10.33)
capital from a parent or partner company	1486	8.4% (24.63)	7.6% (24.16)	11.9% (28.96)	8.6% (25.73)	8.9% (25.74)	5.1% (16.61)
capital from equity finance	1486	0.6% (5.89)	0.1% (0.65)	1.1% (8.53)	1.0% (9.41)	0.1% (1.17)	0.6% (3.17)
capital from personal, family and friends	1486	8.6% (24.94)	7.8% (23.89)	3.2% (15.45)	17.2% (35.08)	8.6% (24.88)	6.2% (18.44)
capital from other sources	1486	6.3% (21.45)	10.3% (26.38)	6.6% (21.53)	4.4% (19.07)	8.5% (25.22)	1.9% (10.33)
Percent of firms that issue externally-audited annual financial statements	1500	71.4%	65.7%	90.3%	67.0%	79.7%	54.3%
The number of years that the firm has used the current auditor	1080	5.04 (3.78)	5.06 (3.31)	4.93 (3.20)	4.80 (3.51)	5.18 (4.3)	5.31 (4.64)