

International Competitiveness of Asian Firms: An Analytical Framework

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Foreword

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Contents

	<i>Page</i>
Abstract	<i>vii</i>
I. Introduction	1
II. Theoretical Consideration and Conceptual Framework	3
III. Sources of Competitiveness	5
A. Technology as a Source of Competitiveness	5
1. Innovation and Technology Strategy	6
2. Information and Communications Technology	8
B. Importance of Human Resources	10
1. Human Resources Orientation	10
2. Education, Training, and Development	11
C. Organizational Structure	12
1. Team Work and Clusters	13
2. Organizational Learning and Interfirm Relationship	14
D. Role of the Government and Competitiveness	15
1. Industrial Policy	15
2. Provision of Public Goods	16
3. Export Market Assistance	17
E. Importance of Capital and the Financial Sector	18
1. Financial Sector Stability	19
IV. Generalization of the Model and Data	20
V. Conclusion	21
References	22

Abstract

Following the Asian financial crisis of 1997-1998, recovery in the export sector of crisis-affected countries has been slow, thereby raising important questions on the international competitiveness of firms in this region. In order for policymakers to restore the dynamism of Asian firms and ensure sustained export growth in the long term, it is instructive to, first, identify the sources of competitiveness of enterprises in this region. This paper, which provides the theoretical framework to RETA 5875, develops a conceptual model to explain the determinants of international competitiveness of Asian firms and offers research propositions. The model posits that international competitiveness is affected by the firm's human resource orientation, extent of technological innovation, organizational structure, government industrial policy, access to capital, as well as state of the financial market.

I. Introduction

The international competitiveness of Asian firms has attracted renewed world attention following the Asian financial crisis of 1997-1998. For over a decade prior to the crisis, western firms looked toward their Asian counterparts to learn the secrets of their success in export markets. For example, the first-tier and second-tier newly industrialized economies (NIEs), East and Southeast Asia, experienced annual double-digit growth in merchandise exports for more than a decade up to 1996.¹ The so-called East Asian miracle has usually been linked to the unique Asian model of industrial development consisting of the trilateral relationship among firms, banks, and the government (Stiglitz 1996, Wade 1998). Yet, today many of these “once successful” firms have either disappeared or are struggling to survive. During the financial crisis, many of the crisis-affected economies experienced declining exports and severe slowdown in overall economic growth (see Table 1). Thus, the apparent loss of competitiveness of the Asian corporate sector raises several interesting questions regarding the competitive strength of the East and Southeast Asian model. Were the export success of so many firms based on superficial foundations? What were the sources of competitiveness of these firms that made them so successful in international markets?

Table 1. **Average Annual GDP and Merchandise Export Growth Rates in Selected Asian Countries**

Economy	Growth in Pre-crisis Period (1995-1996)		Growth in Crisis Period (1997-1998)		Growth in Postcrisis Period (1999-2000)	
	GDP (%)	Export (%)	GDP (%)	Export (%)	GDP (%)	Export (%)
Korea	7.8	17.8	-0.85	1.0	9.8	15.5
Singapore	7.8	13.7	4.8	-6.2	7.9	12.4
Taipei,China	6.2	11.8	5.6	-2.0	5.7	16.1
Thailand	7.6	11.4	-6.1	-1.5	4.2	13.5
Philippines	5.2	23.6	2.4	19.8	3.6	13.8
Indonesia	8.0	11.9	-4.2	0.8	2.8	15.0
India	7.4	13.0	5.8	0.3	6.2	14.3
PRC	10.0	21.4	8.3	10.7	7.6	17.0

Source: Computed from *Asian Development Outlook 2001* (ADB 2001).

¹ The NIEs are Hong Kong, China; Republic of Korea (henceforth Korea); Singapore; and Taipei,China. The Southeast Asian economies are Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam.

The financial crisis has also highlighted the importance of firms to adapt to the rapidly changing domestic and global environment in which they operate in order to compete. It has become evident that both the internal and external conditions in which Asian firms operate have changed rapidly not only as a result of the structural changes and reforms being undertaken in most of the Asian economies in response to the crisis, but also to changes in global conditions. Domestically, there is increasing pressure in many crisis-affected economies to change the government's role, making it more transparent and less interventionist. This is because previous collusion among firms, banks, and governments may have led to the misallocation of investment that contributed to excess capacity, real estate bubbles, or both. Globally, the renewal cycle of product and process technologies is shortening, and the impact of information technologies on industries is becoming more pronounced. Together, these changes require an appropriate response from Asian firms and governments if they are to restore their dynamism and provide the basis for sustaining the competitiveness of Asian enterprises. Government policies will have to be reviewed to ensure that these complement the firms' efforts to restore their international competitiveness.

In light of the strategic significance of the export sector in most Asian economies, and in the context of sheer growth in exports from Asia over much of the last two decades, one would expect a large volume of literature on the export competitiveness of Asian firms. Surprisingly, the subject remains one of the most understudied areas of international business. There are several plausible explanations for this neglect. First, cross-country, firm-level data that can be readily compared is difficult and expensive to obtain. Second, because international competitiveness is a distributed field of knowledge requiring cross-functional integration of expertise, it has not become the domain of any academic discipline. Third, the resulting lack of intellectual focus has hampered the development of competitiveness theories suitable for fostering research, although recent integration of theories from economics and business has broadened the understanding of the dynamics of the subject. Most existing theories of competitiveness relate to the experience of firms in advanced developing countries. Theories that relate specifically to small and technologically undeveloped firms in developing economies, such as in Asia, remain undeveloped. Hence, to fill this gap in the literature, the paper draws on existing work from economics and business to develop an integrated model reflective of the dynamics at work between the internal and external environment of Asian firms and their competitiveness.

This paper adds to the existing theoretical and methodological literature on competitiveness by addressing two main issues related to small underdeveloped Asian enterprises competing in global markets. The paper provides the methodological framework to the research being undertaken under RETA 5875: International Competitiveness of Asian Economies: A Cross Country Study. First, the paper identifies the main determinants of international competitiveness. Second, research propositions are developed to offer insights for researchers interested in further exploring the conceptualization and measurement of competitiveness. Five factors are identified as the most critical for the international competitiveness of enterprises, namely, (i) technology, (ii) human resources, (iii) organizational structure, (iv) government, and (v) role of capital and finance. Although the effects of each of these factors on the international competitiveness of firms have been

investigated individually before, no attempt has been made to develop a comprehensive model that considers these factors together. Technology and human resource alone, for example, may have little effect on a firm's competitiveness but can play a much more important role when embedded in an organization structure effectively coordinated both internally and externally. Thus, there is a strong case for competitiveness researchers to distinguish between the complete systemic view of international competitiveness and the mere adoption of traditional approaches of a partial framework.

II. Theoretical Consideration and Conceptual Framework

The concept of international competitiveness, although controversial,² continues to attract plenty of attention from policymakers worldwide. This is perhaps the result of lack of a better indicator for countries to benchmark their performance. Most measures of competitiveness so far have been at the national level (see for example *The World Competitiveness Report*, IMD 1999), and generally refer to the ability of a country to produce goods and services that meet the test of international markets, while simultaneously maintaining and expanding the real income of its citizens (Commission on Industrial Competitiveness 1985). Because competitiveness ultimately depends upon the firms in the country competing successfully in domestic and international markets, attention has recently shifted toward competitiveness at the firm level. At the firm level, competitiveness is generally understood to refer to "...the ability of the firm to retain and, better still, expand its global market share, increase its profits and expand" (OECD 1993, Clark and Guy 1998). According to traditional economic theory, a firm can gain competitive advantage through comparative cost of production by, for example, reducing labor cost. However, recent research from the management field suggest that nonprice factors are equally important determinants of competitiveness. The range of nonprice factors is diverse and include human resource endowment, such as skills; technical factors such as research and development capabilities and the ability to innovate; and managerial and organizational factors, both internal to the firm and externally organized through relationships with other bodies, customers, suppliers, public and private research institutes, and other firms (Clark and Guy 1998). Together, these factors determine the ability of the firm to compete successfully in international markets in the face of changing technological, economic, and social environments. Export profitability and the ability of the firm to maintain its market share remain the ultimate indicators of international competitiveness.

According to Porter (1990), four conditions that incorporate both internal and external factors need to be present to allow firms compete successfully. These include (i) factor conditions, such as the availability of skilled labor and infrastructure; (ii) demand conditions for the products

² Krugman (1994) argues that national competitiveness is a meaningless concept and the obsession with the concept is both wrong and dangerous. Porter (1990) also comes close to the position that the term competitiveness of a nation makes no sense and argues that a country cannot be "competitive in all industries".

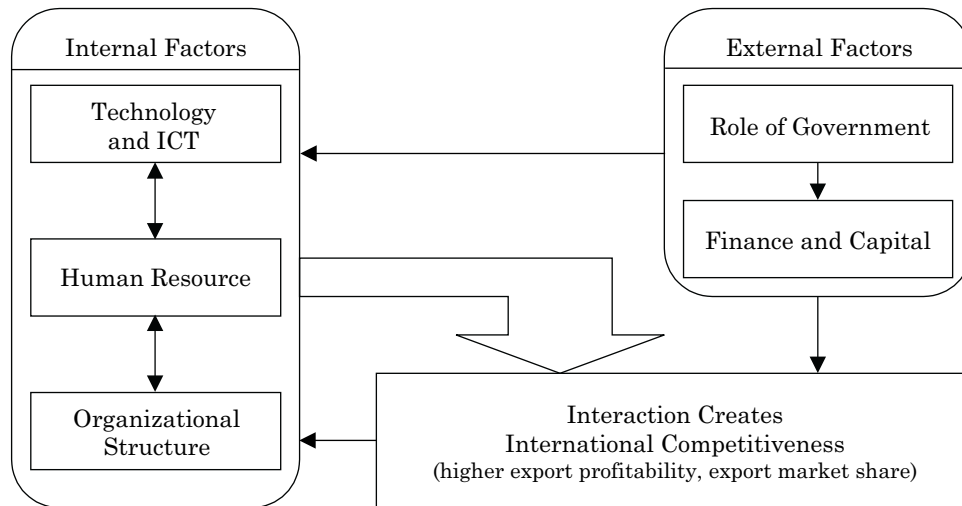
of the industry; (iii) related and supporting industries including competitive suppliers; and (4) firm strategy, structure, and rivalry. Together, these four factors create the context in which firms are born and compete (Porter 1990). In addition, recent research also emphasizes path dependency, which relates to history and the development of features specific to a particular nation, as also being an essential determinant of competitiveness. There is a well-developed literature that ascribes a strong role to national capabilities, characteristics, and policies in conferring technological and competitive advantage to firms, particularly in developing countries. A central aspect of this view involves networks and interactions among firms, universities, research centers, and government organizations comprising a national system of innovation or NSI (Bartholomew 1997) that enhance their ability to grow (Kaounides 1999). Within this framework, government policies aimed at strengthening a country's NSI generally contribute to the competitive advantage of firms in that country (Aoki et al. 1997). Furthermore, the resource-based perspective of the firm (Barney 1991) emphasizes the ability to create entry barriers in order to discourage competitors from imitating and duplicating their successes. Accordingly, a firm can gain and sustain its competitiveness in international markets by its ability to leverage on organizational resources and skills that are *valuable* and *rare* (Coyne 1985); *nonimitable* (Lippman and Rumelt 1982, Barney 1986); and *nonsubstitutable* (Barney 1991). Thus, while micro factors are important determinants of competitiveness, the nature of the external environment in which firms operate and the relationship firms develop with outside organizations are increasingly being recognized as integral elements of competitiveness at the firm level.

The different theoretical explanations of competitiveness above explain the competitiveness of mostly large corporate firms in advanced developing countries and therefore are not entirely appropriate for firms in Asian developing countries. For example, the resource-based view approach (Barney 1991) suggests that firms derive their competitiveness by producing unique products and by creating entry barriers to prevent others from imitating their activities. This is not entirely relevant for firms from underdeveloped countries in Asia, which are characterized as being generally small, technologically underdeveloped with unskilled workers, and operate within an underdeveloped financial sector. To explain how these firms can enhance their competitiveness, we borrow elements of the different theoretical perspectives above in developing a conceptual model reflective of the experience of Asian firms. In particular, our model postulates that firms can enhance their competitiveness by (i) being flexible and working cooperatively with outside organizations, (ii) being innovative, and (iii) being human resource-oriented. To the extent that the external factors facing firms are also important, we further argue that ultimately the competitiveness of firms also depends on the role the government plays in supporting business and industrial development. A major constraint facing Asian firms in the postcrisis period has been access to adequate financial resources. We incorporate this element in our model and argue that access to capital in a well-developed and stable financial sector is crucial for firms to grow.

The model in Figure 1 shows the linkages between the internal and external factors discussed above. The internal factors include technology, human resource, and organizational structure. The second component of the model includes external factors consisting mainly of the

role of the government and the nature of the financial sector. Although finance constitutes an internal resource to any enterprise, the present paper considers macro financial issues and as such includes it as an external factor. Discussion of these variables and of their effect on international competitiveness is the central purpose of this section.

Figure 1.
An Integrated Model of International Competitiveness of Enterprises in Asia



III. Sources of Competitiveness

A. Technology as a Source of Competitiveness

Technology is commonly defined as know-how (Capon and Glazer, 1987) and usually refers to product and process technology. Product technology refers to a set of knowledge or innovations embodied in a product, while process technology refers to technology embedded in production processes. Besides product and process technologies, the business literature also highlights the importance of management technology that takes the form of knowledge or skills with organizational, social, and human aspects. More recently, rapid development of electronics technology has also brought attention to the impact of information and communications technology (ICT) on the competitiveness of firms. For the purposes of this study we focus on how technology can contribute to the competitive advantage to Asian firms. In particular, we focus on two aspects of technology as sources of competitiveness to Asian firms, namely: (i) innovation and technology strategy and (ii) the role of ICT.

1. Innovation and Technology Strategy

Innovation is an interactive and dynamic process and refers to the process of learning and knowledge creation through complex interdependencies among technological, organizational, and external settings, collectively known as the national system of innovation (Nelson 1993). Innovation has been found to be critical in creating and sustaining competitive advantage in the global markets.³ For example, it has been estimated that approximately two thirds of the productivity growth of the United States (US) since the 1930s Depression can be directly or indirectly attributed to innovation. Today technology-based sectors generate more than 50 percent of US gross national product (GNP), about twice the level just a generation ago (Amin and Hagen 1998). Similarly, in industrialized economies, more than 50 percent of long-term economic growth stems from technological innovations through improved productivity or new products, processes, or industries (Grossman 1991). It is therefore not surprising that industrialized countries, which account for two thirds of global manufacturing, spend an enormously large amount of resources on research and development (R&D) to promote innovation activities. Japan, US, and Western Europe alone account for about two thirds of worldwide R&D expenditure (Freeman and Hagedoorn 1994).

The dominance of a few western industrialized countries in world distribution of technological capabilities implies that most developing countries for instance, remain highly dependent on technology transfer and interfirm technology cooperation (Freeman and Hagedoorn 1994). It should be recognized, however, that in recent years some Asian countries (the NIEs and People's Republic of China [PRC]) have experienced rapid increases in R&D activities, and have developed indigenous technological capabilities. Nevertheless, the reality is that only few Asian firms have state-of-the-art R&D facilities similar to those found in western industrialized countries. Thus, the majority of Asian firms continue to be highly dependent on western advanced industrialized countries for their technology and have been described as "latecomers and quick followers" (Hobday 1995), whose strategies continually involve "catching up and keeping up" (Mytelka 1999; see Table 1). Latecomer firms enter and acquire process technology at early stages and then gradually gain control over process technology through incremental process change to improve firm productivity and product quality. At the next stage, the quick-follower firms are in full command of production skills, engage in process innovation, and start to acquire product design capability. Firms at the following front runner stage begin R&D activities for process and product and develop product innovation capabilities. At the fully mature stage, firms with competitive and leading R&D capability are able to undertake advanced product and process innovation. Thus, a latecomer firm travels backward along the conventional concept of the product life cycle.

³ This is mostly based on literature of economics of innovation and economics of R&D with Neo-Schumpeterian perspective. See Dosi et al. (1988), Best (1990), Lundvall (1995), and Foray and Freeman (1993).

Hobday's (1995) notion of a "hard slogging" rather than a "leapfrogging" technological latecomer has important implications for understanding the innovation mechanism and competitiveness of firms in Asia. First, the sources of innovation and the implications of a firm being innovative vary according to its stage of technological development. Mytelka (1999) argues that different strategies have different objectives and requirements in terms of capabilities, critical knowledge, and sources of knowledge (see Table 1). Second, competitive firms can exist even farther inside the technological frontier as long as the firm is constantly innovative. This concept has obvious measurement difficulties in field studies because it is difficult to quantitatively capture the innovative activities of latecomer firms at the early stages of their evolution. Since such activities are closely related to quality/productivity improvements (e.g., decrease in defect, machine downtime, and unit cost of production), changes in such indicators may be used as proxies to the degree of innovation at the early stage, rather than the traditional proxies like volume of R&D expenditures, number of patents registered, etc. In this study, we will propose to use both sets of proxies to try and capture firm's technological dynamism.

Table 1. Innovation Strategies and their Characteristics

Innovation Strategy	Catch-up (Latecomer)	Keep-up (Quick Follower)	Get-ahead (Front Runner)
Capabilities	Problem solving innovation –attention to "know-why" –learning to learn Improvements in productivity and machinery maintenance Imitation Adaptation	Introduction of variety Improvement in quality Reduction in costs Incremental change	New combination of generic technologies Pushing back the frontiers of knowledge
Critical Knowledge Inputs	Engineering and management capabilities: feedback from production process, product scanning and adaptation capabilities	Engineering, testing, design and marketing: linking design and production within the firm	Scientific research and scaling up of laboratory models. Linking of R&D and marketing within the firm
Policy Objectives	Technology transfer, diffusion, demonstration, training	Technology development, R&D networking	In-house research, technology development; R&D networking
Useful Partnership Linkages	Apprenticeship programs, productivity centers, clients, equipment suppliers, and intermediaries	University engineering faculties, consultancy firms, design centers, technology institutes, users	Windowing through a broad array of long-term R&D collaborative projects with research institutions, users and material suppliers

Note: The shift from one strategy to another is not linear. Some elements of one strategy may overlap with others. For example, cost reduction and quality improvement are most sought after capabilities of latecomers too.
Source: Mytelka (1999).

A recent study by the OECD, for example, argues for close user (buyer)–producer relation, an obligational network mode rather than hierarchy, and cooperation based on trust and honesty within and between organizations to foster innovation. Most Asian firms, for example, would greatly benefit from interfirm technology partnering to upgrade their technological capabilities, although evidence suggest that firms from developing countries are virtually locked out from interfirm partnerships that concentrate on joint R&D and/or new core technologies such as ICT. However, some Asian firms (in PRC; Korea; Singapore; and Taipei,China) have been successful in acquiring new technology through strategic licensing agreements, technology sharing agreements with a licensing contract, or equity joint ventures in which technology transfer is a major objective. In the PRC, for example, the promotion of foreign direct investment policies with focus on technology transfer through joint venture agreements has been very successful in enhancing the flow of technology from the West (Chadee and Qiu 2000). Thus, firms involved in strategic technology partnering with outside organizations, particularly in the West, can speed up the process of technology transfer through faster adoption and diffusion of new technologies. Privileged access to valuable new technology is likely to lead to enhanced international competitiveness.

Our discussion thus far is summarized in the following propositions:

P1: Firms that are more innovative (higher R&D expenditure, more patents, more new products, etc.) are generally more competitive in international markets.

P2: Firms that are more actively involved in technology partnering (through R&D alliances, joint venture agreement, licensing, contractual agreements) are more likely to adopt new technology and therefore be more competitive than firms less involved in interfirm partnering.

P3: Firms that are at an advanced stage of technological development (quick-follower) are more competitive than firms that are less technologically developed (latecomer).

2. Information and Communications Technology

Information and communications technology refers to the collective means of assembling and electronically storing, transmitting, processing, and retrieving words, numbers, images, and sounds. Although the use of ICT has become more widespread in recent years, empirical investigation of how it actually impacts on the international competitiveness of firms is lacking. Although it is widely accepted that ICT can enhance a firm's overall competitiveness, the fact that it can also erode it is not overlooked. ICT can constitute a threat to a firm's competitiveness by making information and its flows cheaper, easier, and faster, thereby shortening the product life cycle and lowering information-related barriers that consequently erode local market advantages.

The importance of ICT as a source of competitiveness for firms stems from its potential to permeate the entire organization. Its successful application in various parts of the firm's value chain can result in increased labor and capital efficiency, flexibility, responsiveness, and enhanced product quality. The coordination of sourcing, production, and logistics coupled with interfirm and intrafirm cooperation engendered in a supply chain perspective shifts channel arrangements from loosely linked business groups to coordinated enterprises focused on efficiency improvement and increased competitiveness through lead time reduction (Stank et al. 1999). The use of ICT also allows the firm to respond rapidly to market and consumers (*flexibility*) by eliminating redundant activities and achieving a seamless flow of information, supply, and finished goods (Mata et al. 1995).

ICT can also be a source of competitiveness for an enterprise through its potential to deal directly with end users and respond quickly to market shifts (*responsiveness*). The database of clients, competitors, and suppliers, among others, are an important information source and may be a source of significant competitive advantages. Such databases are not simply a set of unclassified data but rather consist of an internal structure of relations, which enables full advantage to be taken of the information contained within. These databases can be mined to help plan future product lines and individual product offerings. Thus, ICT makes it possible for firms to shift from a product-focused to a market-driven orientation where firms focus on market signals by relying on a sophisticated ICT network.⁴ The outputs from these processes are enhanced productivity, more competitive price, and improved quality.

Thus, ICT can be a powerful source of competitiveness for firms in international markets. The extent to which Asian firms can use ICT to enhance their competitiveness depends on the following five factors:

- (i) access to capital for investing ICT and for continuous upgrade of the stock of information technology (Freeman 1990, 1994);
- (ii) extent to which ICT is applied to traditional forms of technology (product, process, and management) to enhance their productivity, efficiency, flexibility, and cost structure (Stank et al. 1999);
- (iii) presence of a clearly defined ICT strategy (Floyd 1997, Abetti 1994, Kashlak and Joshi 1994);
- (iv) availability of employees with technical skills in ICT; and
- (v) extent to which managerial ICT skills are developed.

⁴ For example, the application of e-commerce enables firms to find ways to be more responsive to changing market trends and to conduct business activities more efficiently and more cost-effectively. Similarly, in the textile industry, the application of computer-aided design technology with automated linkages to embroidery and screen printing production equipment is routinely used to lower the cost of custom products.

The capital needed to develop and apply ICT can sometimes be large and becomes an important constraint for small and medium-size enterprises (SMEs) in particular. In addition, investment in ICT is generally risky and therefore borrowing capital to support ICT development within the enterprise can be costly. SMEs are also generally faced with lack of in-house skills necessary to master new technology at both technical and managerial levels due to the SMEs' weakness in competing with larger firms in recruiting and retaining IT staff. The following propositions are made:

P4: Firms in which ICT strategy is an integral part of corporate strategy and which are committed to the effective use of ICT are likely to be more competitive than firms without a clear ICT strategy.

P5: Firms in which ICT is used widely in the various functional activities (marketing, human resources, planning, communication, etc.) are more competitive than firms where ICT is not used widely.

B. Importance of Human Resources

The importance of human resource in enhancing the performance of organizations has been widely studied. There is little disagreement on the fact that human resources constitute the most important element of the "bundle" of resources that a firm owns, particularly with the increasing importance of innovation and technology as critical sources of competitiveness. Thus, human resource management (HRM) is valued not only for its role in implementing a given competitive scenario, but also for its role in generating strategic capability (Barney 1991). HRM has the potential to create firms that are more intelligent and flexible than their competitors in the long run and that exhibit superior levels of coordination and cooperation (Grant 1991). By bringing in and developing talented staff and synergizing their contributions within the resource bundle of the firm, HRM can lay the basis for sustained competitive advantage (Olian et al. 1998, Poole and Jenkins 1996). Given the crucial importance of human resources, one would expect all organizations to highly value their human resources. How then can HR constitute a source of international competitiveness to an enterprise? In order to address this question, we focus on two aspects of HRM in creating competitive advantage: human resource orientation and how it leads to specific human capital advantage, and importance of education, training, and development.

1. Human Resources Orientation

For the purposes of this paper, the HR orientation of a firm is defined as its systematic effort to attract, retain, and develop competent and committed human resources (Lam and White 1998, Wright and Snell 1991, Wright and McMahan 1992). Generally, firms with a greater HR

orientation are likely to have more competent workers (Pfeffer 1994). Consequently they are more skilled and are more likely to contribute positively toward the firm's performance. The advantage that a firm derives from having superior HR orientation is known as human resource advantage and can manifest itself in a variety of forms at all levels of the value chain. For example, HR-oriented firms enjoy substantial cost savings by reducing employee absenteeism and turnover rates (Lam and White 1998) as well as benefiting from higher productivity and quality, and reductions in defects and turnaround time. Employee turnover is particularly costly in the sense that for each termination there are additional costs of hiring and training new workers (Cascio 1995), which reduces the price/cost competitiveness of firms. HR advantage consists of generic and specific advantages. Generic advantage, by their nature, are easily transferable and appropriated by competing organizations and as such do not last long and therefore do not constitute a source of sustained competitiveness. Specific human advantage, on the other hand, is less transferable and not easily appropriated by competitors. These include advantages that the firm derives from employees who have acquired knowledge and skills specific to one organization in particular and for a specific activity, including personal contacts, relations, as well as other individual qualities such as reputation, experience, judgment, intelligence, or loyalty. Specific human capital advantage constitutes the most important source of competitiveness to firms because of their tacit nature. Hence the following proposition:

P6: Firms with comprehensive human resource orientation (effective recruitment, retention, and development) are more competitive than firms without them.

2. Education, Training, and Development

The importance of various forms of education, training, and development to the performance of firms has been extensively investigated. The question that usually arises with respect to training and development revolves around the issue of the extent to which the enterprise should provide training and development to its employees. It is well-established that an educated workforce facilitates the adoption and diffusion of technology, contributes to a more developed national system of innovation, and contributes to the technological capability necessary for R&D. Although management attitudes and capabilities are crucial determinants for the introduction of new technologies and processes, it has been argued that even unskilled workers in a modern factory normally need the literacy, numeracy, and discipline required in primary and lower secondary schools (Wood 1994, Owens and Wood 1995). Thus, in order to be successful and to be able to access and exploit new technology, firms need an educated and skilled workforce and appropriate management capabilities. The question that arises is whether the education system in many Asian economies are meeting the needs of businesses in terms of developing an entrepreneurial culture and providing new labor force entrants with the necessary managerial and technical skills. Generally, the higher the level of education of the workforce, the higher the overall productivity of capital (Lucas 1988). Generally, the state provides only basic primary and secondary education

that develops generic skills of a public good nature. However, competitive advantage is not derived on the basis of generic skills but rather from having employees with specific skills that are rare and unique. Thus, there is a strong argument for firms to provide in-house training when the development of specific skills is involved. Hence:

P7: Firms with human resource programs that focus on the development of specific human capital are likely to be more competitive than those with less focus on the development of specific human capital.

C. Organizational Structure

The debate about organizational structure has evolved around the choice of an appropriate design for firms, which allows them to derive competitive advantage. The old organizational model can be described as one with extended hierarchy, narrowly segmented job design, rule-bound procedures, and lack of employee autonomy and responsibility. In most Asian countries, this was further complicated by the presence of tight family control at the top that led to a high degree of centralization in decision making and a premium on loyalty. This model worked well in an environment characterized by stability and certainty (Peters 1988) and where employees performed routine tasks. Extensive hierarchy characterized by a centralized decision making system is believed to hamper effective management and stifle innovation. It has been referred to as being static, rigid, and unable to adapt readily to change, much less anticipate it (Tiernan 1993).

There has been a general tendency for firms to adopt “flatter” and more open and participative organization structures with fewer layers. The literature suggests that flat organizations allow for more efficient information flows, faster communication, greater flexibility, greater adaptability, and reduced costs, and encourage innovative ideas to flourish (Tiernan 1993). Thus, flat organizational design appears to have all the dynamic elements that will survive the turbulent business environment. As a result, a widely accepted view has emerged that flat organizations are “good” and hierarchical organizations are “bad.” However, it has also been suggested that flat organizational design may simply be reflecting a Western bias (Overholt 1997). First, there is hardly any empirical evidence that proves that flat organizations outperform well-run hierarchies. Second, the underlying assumptions of flat structures about relationships, authority, and creativity, including characteristics such as fairness and equality are appealing to western cultures. But whether they fit the cultural contexts of Asian societies remains to be tested (Carroll et al. 1990). Third, a flat organization may be better suited for certain types of economic activity (e.g., knowledge-intensive firms) but not perhaps for all industries specially mature industries and those involving routine jobs such as in manufacturing.

Regardless of the organizational design issue, researchers appear to agree that flexible and adaptable organizations are the most successful. Flexible organizations are, by their very design, organic. They are made up of people who understand the need to constantly change and

adapt to the changing environment in order to maintain the firm's competitiveness. They continually develop new strategies and adapt to new market realities, and then shift all aspects of the organization so that they are congruent with new strategies. Operational flexibility, which permits firms to move labor and other resources across national boundaries or business domains, allows them to exploit profits opportunities generated by varying country or market environments (Tang and Tikoo 1999, Kogut 1985). Although operational flexibility entails significant agency and transaction costs, it has been found to be positively related to overall firms performance (Allen and Pantzalis 1996, Tang and Tikoo 1999). Hence, the following proposition:

P8: Firms with organizational designs that create greater flexibility and adaptability are likely to be more competitive than firms without such a structure.

In order to be flexible and adaptable, organizations need to be less formal and less centralized (Chan and Heide 1992). Whether flexibility and adaptability can coexist with a high degree of centralized decision making, as appears to be the case in some Asian economies, are examined in this study. The study also examines the extent to which firms in Asia are adopting the western models of organizational structures while retaining some traditional essential components. Therefore,

P9: Firms with less centralized and less formal structures are likely to be more competitive than those with more formal and centralized structures.

1. Team Work and Clusters

Another organizational trend has been to move away from segmented and isolated structures with little communication and interaction between areas and different levels, to a structure where interaction and integration are seen as being essential operational practices (Tiernan 1993). This is achieved through team-based operations (Kanter 1983) and networks (Charan 1991) spanning across functional areas and hierarchies and networks. Another integrative and flexible organizational model is one operating on the basis of clusters (Mills 1992, Drucker 1992) consisting of collections of workers undifferentiated by rank or job title who operate together on a semipermanent basis with no direct reporting relationships and only a residual hierarchy (Tiernan 1993, Mills 1992, Drucker 1992). By its very nature, cluster-like structures have been found to benefit the organization mainly through increased flexibility (in manufacturing enterprises) and increased creativity (in knowledge-based enterprises) because individuals are freer to be more innovative, and therefore, ideas are less likely to be blocked by overloaded managers. Clusters also facilitate both vertical and horizontal information flows and lead to faster and more informed decision making.

P10: Firms with organizational structures (such as team-based and clusters) that promote greater communication among employees at all levels of the organization are likely to be more competitive than those less oriented toward the creation and exchange of information.

2. Organizational Learning and Interfirm Relationship

In the technologically dynamic environment, knowledge often plays a more important role than a firm's tangible capital. While knowledge about products, production techniques, customers, and suppliers are important, the knowledge and skills required to integrate the different parts in the value chain have been found to be a highly inimitable skill. Within such knowledge development system, a distinction is often made between tacit or unarticulated knowledge and explicit or codified knowledge. Tacit knowledge is not easily visible and hard to formalize, making it difficult to communicate and share with others (Inkpen 1998), and as such can constitute a major source of competitiveness. Given the importance of knowledge and learning, firms are increasingly forming alliances with other organizations (such as suppliers and R&D institutions such as universities) and participate in networks in order to benefit from innovations derived from tacit knowledge. Thus, interorganizational relationship is becoming an increasingly viable option for the creation of a sustained cooperative advantage (Ring 1996, Eisenhardt and Schoonhoven 1996, Lorenzoni and Liparini 1999) through idiosyncratic yet complementary resources combination between partnering firms (Kogut 1991). The distinctive competencies of external players, such as buyers and suppliers, are the main drivers in interfirm relationships (Teece and Pisano 1994; Teece, Pisano, and Shuen 1997). Research shows that superior performance is achieved by firms that rely on tiers of external suppliers and mobilize them to reduce development risk, distribution time, defect rate, and inventory while at the same time enhancing their ability for innovation and flexibility (Helper 1991, Womack et al. 1990, Nishiguchi 1994). Thus, interfirm networks and strategic alliances can provide an effective way to organize knowledge transfer and access scattered, specialized knowledge (Lorenzoni and Liparini 1999, Dyer 1996, Inkpen 1998).

P11: The more connections an enterprise has (with suppliers, R&D institutions, designers, etc.) and the more involved it is in networks, the greater the possibilities to learn from other organizations and benefit from ideas that contribute to its competitive advantage.

Although it is generally recognized that interfirm relationship promotes learning through the sharing of ideas, not all firms have the managerial capability to identify and successfully exploit interfirm relational opportunities. Thus, one of the strategic capabilities of the firm is its ability to integrate knowledge (Grant 1996) from different sources and to transform dispersed, tacit, and explicit competencies into a wide body of organizational knowledge (Nonaka 1994).

An important factor in determining the extent of learning taking place in networks and alliances is the amount of trust between partners (Inkpen 1998). Generally, relationships characterized by arms-length transactions, informal contracts, and a lack of codified and structured contracts indicate a high level of trust, a feature commonly found in Asian business networks.

P12: The higher the amount of trust an enterprise has with its network partners (suppliers, subcontractors, etc), the greater the possibilities to learn, and therefore the more competitive the firm is likely to be.

D. Role of the Government and Competitiveness

Until the Asian financial crisis, the rapid growth and success of firms in the Asian miracle economies in international markets had been attributed largely to the proactive role of their governments. The governments in most high-performing Asian economies are known to have actively supported their export sectors through policies aimed at creating environments conducive to growth and development of the export sector. However, East Asian governments have traditionally intervened to supplement and stimulate the market (Aoki et al. 1997) by coordinating economic activities when there is market failure or when markets do not exist at all, rather than replacing it. This selective approach to industrial development has been successful because of the trilateral coalition between government, institutions, and firms and has been identified as a major factor in the rapid development of Korea (Amsden 1989) and Taipei, China (Wade 1990). However, the Asian financial crisis has cast doubts on the traditional role of the government in Asian countries. It has been suggested that collusion among the government, banks, and firms may have even led to the crisis through the misallocation of investment, which contributed to excess capacity and real estate bubbles. Thus, the controversial nature of the role of the government in Asia raises several important questions with regard to the nature, form, and effects of the role that the government can assume in restoring the competitiveness of Asian firms in the future. In order to address this issue, we draw from an extensive literature (Porter 1990, Dunning 1999, Aoki et al. 1997, Wade 1990) on the role of the government as it relates to the competitiveness of Asian firms. In the following subsections we focus on three main areas where the government can play a constructive and critical role in promoting the international competitiveness of Asian firms. Second, we discuss the government's role as a provider of public goods. Following the market-enhancing view, the role of government in improving market coordination is also discussed.

1. Industrial Policy

Industrial policy is the most direct measure to influence a firm's performance. The government can directly influence the competitiveness of firms within an industry by financially supporting various activities of the firm. However, because financial assistance to enterprises can be viewed as subsidies, care should be taken not to subject the firm's exports to countervailing

and antidumping duties. Thus, direct grants and tax breaks are two trade-neutral forms of assistance which Asian governments have used to enhance the development of specific technologies that would otherwise not be realized because of certain market failures. For example, direct grants in the form of public funding and tax breaks have been targeted toward R&D for the development, adoption, and diffusion of electronics, information, and communications technology in Korea (Amsden 1989) and Taipei, China (Wade 1990). The provision of direct grants to support specific activities involves the difficulties of deciding which sector to support and the danger of creating near monopolies in the process. In this respect, tax breaks, which involve less interference in the marketplace, constitute a more attractive alternative means of support. Nevertheless, the experience of several East Asian economies with selective policies suggest that by and large, governments in these economies have been successful in avoiding the dangers associated with the selective nature of direct grants by ensuring that the policies were flexible in adapting to changing market conditions and did not permit rent seeking. Thus, by providing direct grants, the government can assist firms overcome market failures and upgrade their technological capabilities thereby enhancing their competitiveness.

P13: The provision of government grants and tax incentives to stimulate the development of specific industries is likely to enhance the overall competitiveness of firms within the industry.

2. Provision of Public Goods

National systems of innovations and states continue to have an important role to play in a global economy (Cantwell 1999). Evidence suggest that firms from countries with well-developed NSIs are usually more innovative and competitive. These countries usually spend a larger proportion of their GNP on both physical and social infrastructure through government investments in roads, bridges, port facilities, transportation networks, education, training, R&D, and health facilities. The creation of advanced infrastructure is an important element of competitiveness and has been linked, for example, to the rapid growth rates of selected regions in the PRC. Conversely, poor infrastructure acts as a deterrent for investments as it generally is associated with higher levels of inefficiency and higher costs structures. Hence, government investment in public infrastructure helps create an efficient and low cost transportation and distribution network that in turn contributes positively to the competitive advantage of firms. The provision of basic education (primary and secondary) and of adequate health care contributes toward a healthy and educated labor force; an important element of competitiveness. Hence, if the NSI is to be included, then industrial policy should come under it. It might be useful to include good infrastructure (public goods) and political stability as variables within that.

P14: The greater the commitment of the government in developing the NSI (through expenditure on physical and social infrastructure), the more competitive firms are likely to be.

Other types of public activities where the government can be involved to enhance the competitiveness of firms include the promotion of innovation-related networks such as regional systems of innovation, university–industry cooperation, and science parks. The benefits to university–industry cooperation include a stimulus to innovation by the exposure of university research to industry, the encouragement of more industrially oriented research by universities, and the encouragement of more industrially relevant training of young scientists and engineers (Clark and Guy 1998). Science parks at national or local levels comprise various firms and institutions in close proximity for the encouragement of innovation-related networks (Clark and Guy 1998). They provide a mechanism allowing knowledge bases (public research organizations, universities, private R&D organizations) to be exploited by firms through interactions. The benefits of science parks arise mainly from agglomeration (many firms, customers, and suppliers in close proximity); synergy (different firms interacting with each other); and firm expansion (growth of individual members of the cluster). Science parks also provide a conducive environment where high technology firms can benefit from interactions with nontechnical firms (i. e., marketing and management firms). Interfirm collaboration in R&D can also reduce cost, reduce duplication of effort, and provide economies of scale (Mowery and Rosenberg 1989). Such collaboration is particularly beneficial to SMEs when R&D projects are large and expensive.

P15: Government intervention aimed at promoting interfirm collaboration generally, leads to enhanced competitiveness.

3. Export Market Assistance

The role of government in facilitating export marketing activities is becoming an increasingly important determinant of competitiveness for small and medium-size firms competing in the global market place. The types of activities that the government may support include international market research, international market intelligence of a strategic nature, improvement of the national image through brand recognition particularly when consumers have strong negative prior beliefs about the products of a particular country, and providing assistance with market access issues. Generally, small and medium-size firms do not have adequate resources, skills, and capabilities to undertake such activities. In addition, small and medium-size firms selling in the global market place often face competition from well-organized multinationals with far greater resources to devote to advertising and marketing and to secure preferential access to markets. Because firms are usually reluctant to undertake market research of a public good type, government assistance in developing new and existing export markets is generally beneficial, not only to export firms but also to input suppliers associated with exporters. Thus, there is a strong case for public provision of export assistance such as those provided in Singapore and Taipei, China where the governments are actively involved in developing foreign markets for their small and medium-size enterprises.

P16: The provision of marketing assistance (such as market intelligence, market research, trade promotion, brand development etc.) aimed at developing export markets enhances the competitiveness of firms.

E. Importance of Capital and the Financial Sector

The financial resources of an enterprise constitute one of the most important determinants of competitiveness. The continued growth of firms depends on their ability to finance their operations adequately as well as on the stability of the financial sector from which capital is sourced. Thus, firms' access to capital from a well-developed and stable financial sector comprising banking and nonbanking institutions is a prerequisite for their success in international markets. It is well-known that most crisis-affected Asian countries do not have well-developed financial and capital markets. The banking sector in most of these countries is highly regulated and the nonbanking sector, such as stock markets or venture capital markets, either did not exist or were poorly developed (Stiglitz 2000, Stiglitz and Uy 1996). Despite this, these economies were successful in financing rapid growth and diversification of their industrial and corporate sectors during the three decades prior to the crisis by relying almost exclusively either on self-generated funds or borrowing from commercial banks with which they have developed special relationships over the years. Malaysia and Singapore also benefited from strong foreign direct investment flows. In the context of the underdeveloped nature of the financial sector, the close relationships between the firms and the banks, mediated by the government, effectively addressed market failure issues. The result was not only lower costs credit (Kumar and Debroy 1999) to firms but also socializing the implicit cost of risks rather than firms or banks bearing these. Thus, government intervention that implicitly encouraged banks to take a longer-term view of the firms' prospects assumed the role of a de facto venture capital provider thereby providing both access to capital and ensuring the stability of the financial sector.

However, despite the success of this model, government intervention in the financial and capital market also created problems of moral hazard and adverse selection (Alm and Buckley 1998). As a result, the region's government has been under increasing pressure for some time well before the crisis to adopt more hands-off and nondiscriminatory policies toward the corporate sector. The crisis, which saw the near collapse of many banks, reinforced the need to implement structural change toward a more "western" approach to financing business development. As a result, in the postcrisis period, firms in crisis-affected countries experienced not only a shortage of capital, but also the reluctance of banks to lend capital without government support to business.

Experience from western countries suggests that unimpeded access to a well-developed financial sector consisting of both banking and nonbanking institutions is generally conducive to growth. For example, the growth of venture capital markets has been cited as a particularly effective mechanism for encouraging the start-up of new technology-intensive firms in the US. Well-organized venture capital markets are generally absent in Asia. The role of government agencies like development banks, specialized sector-specific financing companies, and large

corporations in financing the start-up of SMEs have also been cited as important sources of capital, particularly in the context of SMEs operating in environments characterized by market failure. Stock markets are also emerging as significant mechanisms for firms to mobilize financial resources needed for expansion and diversification. In most developing Asian economies, stock markets are relatively underdeveloped and have only recently benefited from active policy support. But stock markets are by their very nature more suited for mobilization of resources by large and well-established firms. Small firms find it either too costly or cumbersome to raise the relatively smaller amounts of resources needed by them through the stock markets. Changes in regulation and information disclosure policies could make these stock markets a more friendly mechanism for SMEs without compromising on investors' security. Operational efficiency of stock markets and making them more friendly to SMEs and exporting firms could contribute to making them internationally competitive.

P17: Increased access to a well-developed and stable financial sector comprising banks and specialized financial institutions (such as long-term credit and development banks, venture capital and stock markets) contributes positively to their overall competitiveness.

1. Financial Sector Stability

A sound financial sector that ensures that capital is allocated efficiently to enterprises is a key determinant of firm competitiveness. Although some Asian countries have attempted to liberalize and deregulate their financial sectors since the early 1990s, their banking sectors are still weak and fragile (ADB 1998). This fragility is an important impediment to the competitiveness of firms because banks constitute a major source of financing to business in the absence of well-developed alternatives. Moreover, the banking sector in many Asian countries is heavily concentrated and dominated by a few local banks. It has been argued that restrictions on the number of banks are important to ensure economies of scale and to avoid unnecessary competition that may be harmful to consumers. However, the counterargument is that by restricting entry (of foreign banks), the banking sector is highly oligopolistic and behaves in ways that are not necessarily in the best interest of businesses, particularly SMEs. A lack of competition generally denies businesses access to capital at internationally competitive rates. Hence, the perception is that there is an urgent need for structural institutional reform that improves prudential regulation, competition, supervision, and the overall governance of banks in order to enhance the overall efficiency and stability of this sector.

P18: Increased competition among banks together with strict prudential regulation ensures a stable banking system and contributes positively toward the competitiveness of firms.

IV. Generalization of the Model and Data

From the discussion above, we specify the following econometric model to explain the competitiveness of firms:

$$COMP_i = f (TEC_i, HR_i, ORG_i, GOV_i, CAP_i) \quad (1)$$

Where COMP is a measure of competitiveness of the *ith* firm and TEC, HR, ORG, GOV, and CAP refer to the five determinants (technology, human resource, organizational structure, government role, and capital market). The dependent variable COMP can be measured by either growth in firm market share or by growth in export profits and or earnings. Similarly, all explanatory variables can be measured at the firm level. Thus, equation (1) can be expanded and estimated using firm level data to test propositions 1-18 above.

Most difficulties in researching international competitiveness at the enterprise level stem from difficulties in developing satisfactory data. Most investigations of international competitiveness so far have focused at either the country level or the industry level in advanced developed nations. This is because country and sector-level data are more readily available, particularly in these countries. Firm-level data is not readily available and primary data are often costly and time-consuming to assemble as it involves methods such as interviews and mail surveys. For this reason, scholars often find it difficult to assemble comparable cross-country and cross-sector data. Even where resources are available, the concepts under investigation are often difficult to measure through mail surveys. For example, concepts like innovation and trust are difficult to conceptualize and measure.

The project RETA 5875: International Competitiveness of Asian Economies: A Cross Country Study involves investigating the competitiveness of firms in three industrial sectors (textile, automotive, and electronics) in eight Asian countries (PRC; India; Indonesia; Korea; Philippines; Singapore; Taipei,China; and Thailand). In order to ensure high-quality data for analysis, mail surveys and face to face interviews will be used. It is envisaged that analysis of cross-section data from different sectors and countries will provide rich insights into regional competitive nature of firms both within and among sectors and countries.

The model developed in this paper is limited to the exploration of competitiveness of export-oriented manufacturing enterprises from less developed countries of Asia. This simplification was necessary to identify salient issues facing firms in Asia, namely their developmental stage, the state of technological sophistication, and the macro environment within which they operate. It is well-known, for instance, that Asian governments have traditionally played a crucial coordination role in business and industrial development, and that the stock and venture capital markets in this region are generally underdeveloped. In addition, firms tend to be smaller by western standards and do not have access to adequate capital. The workforce is generally less skilled while firms have traditionally been hierarchical in structure. Given these characteristics, it is important to depart from traditional approaches in economics and management literature

in building a model that explains the international competitiveness of firms under consideration. The model developed in this paper should be applicable in other countries and regions (e.g., in South America) that fit the description above. Furthermore, the focus on SMEs also adds to the literature in deepening our understanding of the international activities of these firms.

V. Conclusion

The main objective of this paper was to identify the main determinants of competitiveness of Asian firms in order to construct a comprehensive analytical framework to empirically assess the extent to which different factors contribute to firm competitiveness. The project RETA 5875: International Competitiveness of Asian Economies: A Cross Country Study will present the findings from eight Asian countries (PRC; India; Indonesia; Korea; Philippines; Singapore; Taipei, China; and Thailand). The paper departs from the notion that the globalization of markets and products together with the liberalization of domestic markets have created both opportunities and threats to enterprises in Asia. On one hand, competitive pressure in international markets continues to increase while on the other hand, foreign firms are increasingly challenging the once protected domestic markets of firms. Not only is the environment within which firms operate volatile but the pace of change is also accelerating with rapid advances in technology, particularly in ICT. ICT can facilitate innovation but can also erode it by making information and its flows cheaper, easier, and faster.

In this highly competitive and fast changing environment, only firms that are efficient, flexible, innovative, and responsive to changes can survive. The paper identifies several key internal and external factors that impact on the ability of enterprises to compete successfully in international markets. These include the role of human resource development, the organizational structure, as well as the technological capability of firms. We argue that generally the pursuit of dynamic upgrading that allows firms to maintain their competitiveness may be captured by the notion of learning. We suggest the need to pay more attention to certain qualitative aspects of firm activities such as relations with outside agents and institutional settings in which they operate. Thus, besides the micro determinants of competitiveness, we also put forward the importance of the role of the government in stimulating markets and in building a strong national system of innovation. The role of the government in promoting competitiveness, in particular, is emphasized because of the general misconception of the role of government in Asian countries. We take the view that the role of the government in Asian economies is path-dependent. This is particularly relevant when considering the effects of the Asian financial crisis on the competitiveness of firms.

A wide collection of empirical studies on East Asian economic development informs us of diverse developmental paths. In the wake of the Asian financial crisis, we observe a general trend among Asian countries to undertake western style reforms including market liberalization and institutional reforms similar to those under way in western industrialized countries. Although the extent and pace of such reforms differ among Asian countries, several important questions

arise with respect to these reforms. Are they generally appropriate and do they enhance the competitiveness of firms, taking into account the context within which Asian firms traditionally operate and compete? The proposed framework has the potential to produce important findings that can be valuable in the development of policies aimed at restoring the international competitiveness of enterprises in postcrisis Asian economies.

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