

# POST-CRISIS MANAGEMENT: A STUDY OF CORPORATE RESTRUCTURING IN ASIA

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## ABSTRACT

*In this article, the literature was reviewed on the sources of Asian corporate crises and the major approaches for corporate recovery and turnaround. Second, we elaborate the role of lack of prior frameworks appropriate to the East Asian culture in the corporate crises and the modalities of turnaround, based on the case of China Huajing Electronics Group Corporation - a leading Chinese enterprise. We conclude with a framework for transformative turnaround that highlights directions for meeting the managerial challenges arising out of the uniqueness of East Asian culture. The term "transformative turnaround" is used to connote a formative transformation in the knowledge generation and value capture model of a firm.*

## 1. INTRODUCTION

A number of East Asian corporations, saddled with debt, nearly collapsed during the financial crisis of 1997. The sources of East Asian corporate crises have been hotly debated and widely researched (Drysdale, 2000; Mako, 2001). A dominant theme is that the East Asian culture is unique, and therefore there exist a lack of prior guiding experiences that can be used for liberalization by the government and adaptation to liberalization and pursuit of globalization initiatives by the organizations.

The first aspect of East Asian uniqueness is its traditional reliance on savings-driven growth (Hofstede, 2001). Since the mid-1980s, there was a great interest in moving beyond incremental savings, which had been the primary source for fueling investments and growth in East Asian economies, to exploit the newly emergent quantum growth opportunities (Gupta, 1998). The liberalization initiatives in East Asia sought to mobilize funds and upgrade the infrastructure in order to become more attractive for Japanese and Newly Industrializing Countries - Taiwan, Singapore, South Korea (NIC) firms relocating their older manufacturing and development units, and for American and European firms seeking to develop competitive Asian positions. Domestic firms in East Asia, too, found the liberalization attractive for upgrading their technologies and for securing second-hand equipment relocated from the more advanced economies (Gupta, 1998).

The second aspect of East Asian uniqueness is its heavy reliance on debt capital, supported by a higher level of trust and personal relationships among the organizations. As a result, several East Asian firms expanded into diverse low-margin or loss-making businesses and markets using borrowed funds (Mako, 2001). While the technology transfer deals often included technical training, and allowed the local firms to develop strong manufacturing skills with high quality levels, most recipient firms had limited in-house skills for continuous process and product development and for market expansion. The local firms had to compete not only with other domestic firms who also moved into similar businesses, but also with other firms in the region. The supply of prior generation technologies and know-how grew rapidly, as the equipment makers, Japanese firms (the regional leaders in new technologies) and the NIC competitors and partners of Japanese firms, all offered their older products and intellectual properties to the East Asian firms (Yoshida, 2001). However, demand for the products made from these technologies grew slowly, or sometimes even declined, as the recipient firms lacked the capability for developing new product uses and as the newer Western technologies drove the next-generation products. When the Asian firms rapidly expanded their prior generation capabilities, often as an intermediate step striving to gain organizational learning for advanced capabilities and technologies, their margins fell and losses escalated. The debts used to finance the imports of technology, equipment, and training became unsustainable, undermining, in turn, the health of the lending financial institutions (Mako, 2001). Monitoring of the loans in both cases was left to the banking sector, where personal relationships, corruption, government pressures and guarantees, and inadequate information guided decision-making (Mako, 2001). Even as the expected fiscal revenue targets failed to materialize, governments sought to bail out the failing institutions and to enhance social service expenditures, by taking additional domestic

and international debts. These elements reached crisis proportions by 1997, destroying the confidence of global investors, hindering national credit ratings, and raising risk-adjusted cost of capital (Haley, 2000; Mako, 2001).

### **1.1 Corporate Turnaround in East Asia**

While respecting the uniqueness of their culture, the East Asian governments have introduced various structural reforms, focusing specifically on the health of the financial sector. They have set up public asset management companies for acquiring the non-performing assets and rehabilitating or liquidating the indebted corporations (Mako, 2001). They have recapitalized the weak banks, and have set new regulations for greater transparency and disclosure on loans and foreign exchange exposure (Haley, 2000). Foreign auditors have played an important role, with Price Waterhouse Coopers gaining the dominant position (Crispin, 1999).

More liberal policies towards mergers, foreign ownership, and bankruptcy; fiscal incentives for asset transfer; and revised accounting standards to ease asset valuations have attracted greater cross-border ownership and equity alliances to benefit from the stock and currency devaluation (Mako, 2001). The infusion of foreign capital, technical know-how, and relational networks has been a major foundation of survival in many Asian companies. For example, the US investment firm Newbridge Capital took Korea First Bank, after acquisition, from its traditional focus on chaebols to consumer banking and small business lending, and retraining the old workers and hiring new ones to meet the demands of the new markets (Wiseman, 2000).

The turnaround strategies have involved at least some restructuring of the unsustainable debt (Haley, 2000). Firms have sold off non-core businesses and assets to retire high interest debt; restructured less profitable or loss-incurring businesses; and cut down on capital, research or labor costs to enhance their earnings and debt-service capacity. Many have negotiated deals to convert fixed-interest debt into variable-returns equity, to extend the terms of debt repayment, or to cut the interest rate below the risk-adjusted cost of capital. These deals have relied on variants of the "London approach" designed by the Bank of England to deal with the UK recession of the mid-1970s (Mako, 2001). The approach seeks to avoid liquidation of viable debtors by providing them with continuing financial support and thereby to minimize losses to the creditors (Mako, 2001).

In addition to financial restructuring, a renewed vision recognizing the significance of technology and innovation for continued success in a global knowledge-based economy has emerged (Yoshida, 2001). Information technology, especially as it relates to electronic commerce, is being seen as critical for rationalizing manufacturing processes and boosting revenues. Large Asian companies are investing more heavily in technology start-ups, and the governments are also stimulating venture capital to support a diversified technology base including information technology and life sciences (Yoshida, 2001). Enterprises and governments are also joining ranks to develop public and private educational programs and specialized institutes, to fill the shortage of qualified personnel, to promote IT literacy, and to reduce the digital divide and are wooing foreign-trained home nationals back from overseas for the leadership role.

### **1.2 Summary**

To recapitulate, the corporate crises and the turnaround strategies in Asia have involved a joint role of government and market forces. Lack of prior experience and difficulties in learning from the international experiences on account of the unique elements of the East Asian culture contributed to the crises, which the firms and the governments have sought to resolve through better organizational and technological development. While the literature offers us a general awareness of the crises and the turnaround options, there is an additional need to identify the specific sources of managerial concerns and modalities of the turnaround. Further, a general impression is that the crisis was confined primarily to the South East Asian nations, such as Thailand, the Philippines, Malaysia and South Korea. Therefore, the effects of the crisis on firms in other East Asian nations, particularly China, have not been actively debated.

In the following sections, we look at how, despite an absence of the experience-based guiding frameworks, the joint interaction of the government policy and organizational strategies helped avoid

crisis situations in China, based on the case of China Huajing Electronics Group Corporation (hereafter referred to as "Huajing") - one of the leading semiconductor groups in China. Thereafter, we develop general insights about the challenges facing Chinese enterprises on account of their cultural uniqueness. We conclude with a model for transformative turnaround that highlights directions for meeting the managerial challenges arising out of the cultural uniqueness. The term "transformative turnaround" is used to connote a formative transformation in the knowledge generation and value capture model of a firm.

## **2. CRISIS IN CORPORATE CHINA: GOVERNMENT POLICY**

### **2.1. History of Huajing Group**

Huajing is a leading state-owned microelectronics group in China, with about 3 billion yuan (approx. US\$360 million) worth of assets. Of its 5,000-odd employees, 40% are engineers and technicians, and the rest are in production and accounting (Huajing, 2000). From the outset, Huajing put top priority on quality parameters based on "strict, scientific, and systematic quality management" and gained ISO9001 certification in 1993. (Wang, 2000b)

In the interim, the Chinese government launched an updated \$1.2 billion Project 909 under the 9<sup>th</sup> Five-Year Plan in 1999 (Lai, 2002). A joint venture between state-owned Huahong and Japan-based NEC, Project 909 or Huahong NEC (HHNEC), produced 0.35-micron output for export to NEC Japan. After gaining approval from the US and Japan on high technology exports, it also shifted some lines to 0.25-micron (Lai, 2001). NEC also offered five months of training in Japan for some 450 Chinese personnel involved in Project 909 (Wilson, 1999). In its first year, HHNEC made profits from its DRAM production for NEC. It suffered losses in the poor global conditions in 2001, and targeted to market 20-50% of the output domestically by taking up foundry production for the domestic fabless design firms (Lai, 2002).

Huajing, with older and costlier technology, was in growing trouble. First, Huajing had long been a vertically integrated enterprise. It specialized in the development, manufacturing, and marketing of two major lines of semiconductors: Discrete Devices (low, medium, and high power transistors) and Integrated Circuits (bipolar analog ICs and MOS ICs). Its products were used in a broad array of markets: household appliances, electronic watches and clocks, toys, lighting, communications, and industry automation (Zhao, 2000). Huajing's operations included three semiconductor wafer fabrication and assembly lines, a photo mask shop, a tooling and stamping center, a silicon material preparation plant, and a utilities supply system. It also had an R & D center with a state-of-the-art pilot line (Zhao, 2000). However, the broad operational and market scope made it difficult to keep up with the growing investment requirements, particularly after the Asian financial crisis.

Second, Huajing had a complex organizational structure, which made it difficult to respond effectively to the market situations. Under the government's control, Huajing had become a sort of "small society" with a variety of social operations, including day care, kindergartens, elementary and middle schools, a hospital, and community committees (Wang, 2000b).

Third, Huajing had more than 2,000 customers in China, including some of the top ranked and most profitable of China's electronics enterprises such as TCL, Konka, Changhong, Great Wall Computer, HiSense, and Panda (Zhao, 2000b). In addition, it served several customers in Asia-Pacific (Hong Kong, Taiwan, Japan, Singapore, Indonesia, and India) and in South America (Zhao, 2000b). Still these contacts had not resulted in sufficient profits.

Fourth, Huajing had an outstanding capability for the development of science and technology. Huajing had received several national and provincial level prizes for advancement in science and technology. In 1986, it entered China's first 64K DRAM, which marked the beginning of VLSI stage of IC technology in China (Zhao, 2000b). In 1993, it invested in China's first 256 DRAM line (Zhao, 2000b). However, its investments in the research centers had failed to yield any commercially viable new product.

Fifth, many of the government's decisions for investment projects of Huajing were based on political considerations, without due analysis of the products, equipment, and market needs. The government

sanctioned more than 760 million yuan of bank loans between 1986 and 1995 for setting up Huajing's 2 billion yuan MOS ICs production system and for importing state-of-the-art equipment (Wang, 2000b). However, a rapid pace of change in semiconductor technology, with only 3-4 years of MOS development lifecycle, meant that these investments had become obsolete much before Huajing could begin production almost ten years later (Xu, 2000a). The state-owned banks alone took five years to evaluate and accept the 5" and 6" wafer MOS ICs production lines project and to disburse full loans for the 100 million yuan Project 75 (Wang, 2000b).

Sixth, all technical staff of Huajing had received training from internationally renowned firms, including Toshiba of Japan and Siemens of Germany as part of technology transfer deals. However, employees lacked motivation; in 1997 funds were insufficient to cover even wages.

In sum, Huajing found it very difficult to repay the bank loan and interest totaling more than 1 billion yuan on the two projects as of 1997. The government hoped that decentralization and privatization would allow Huajing access to much needed capital and know-how.

### **3. CRISIS IN CORPORATE CHINA: MARKET DYNAMICS**

#### **3.1 Market Size**

The Chinese semiconductors market was growing but had a volatile and skewed structure. In 1998, the Ministry of Information Industry (MII) projected a total IC market in Mainland China at \$20 billion for 2000, with 43% used in consumer electronic products, 30% in personal computers, and 20% in telecom products. The actual IC demand in Mainland China in 2000 was only \$11.79 billion, with domestic output reaching just \$2.25 billion. As much as 65% of the ICs went into consumer electronic products, and only 12% were used in telecom products, with 10% absorbed by the personal computers (Zhao, 2000b).

In June 2000, the government formulated Document No. 18 delineating "Policies for Encouraging the Development of Software and Integrated Circuit Industries" and reduced value-added tax from 17% to 3% (Lai, 2002). The growing communications, consumer and automotive electronics markets in China were deemed to offer numerous opportunities for semiconductor vendors. The trade deficit was another key motivator. China imported US\$13.8 billion worth of semiconductors in 2000, almost 100 percent of the total market. During the same period, it exported only \$3.0 billion worth of semiconductors, and produced less than 1% of the \$205 billion world market (Lai, 2002).

#### **3.2 Design**

The first semiconductor design enterprise in China was launched in 1975. By the end of 2001, more than 200 semiconductor design houses were operating in China, employing some 4000 designers, and accounting for 15% of the Chinese semiconductor output; 60% of these were established after the release of Document No. 18 in June 2000 (Hwang, 2001).

In 2000, 61% of the Chinese chips had circuits of 2-5 micron, 24% had 0.8-1.2 micron, and 10% had 0.5-0.8 micron, and were oriented primarily towards low-end consumer product applications (SMIC, 2001). China's state-of-the-art chips had circuits of 0.25-0.35 micron, accounting for 5% of the IC capacity (SMIC, 2001). In 2001, China upgraded to 0.18-0.25 micron circuit technology as Taiwanese firms upgraded their fabrication equipment to make chips with circuits as narrow as 0.13 micron.

The Chinese government was seeking to promote a fast learning cycle in adopting advanced technology based on the experiences of other regional firms (particularly the Taiwanese), so that it could leapfrog to the advanced product markets such as mobile phones, personal computers, and digital video recorders. The government hoped that the Chinese enterprises would quickly begin capturing a share of the high-margin logic manufacturing for domestic consumer, telecommunications, and computers markets and would eventually turn China into a global center for semiconductor design and manufacturing. For this, as Chang Zhong Yuan, Deputy General Manager of Shanghai Belling, China's leading foundry, noted, the government felt that any chip industry "breakthrough will come in design instead of manufacturing" (Wilson, 1999).

### 3.3 Summary

In essence, the Chinese market for semiconductors had a lot of potential. While the market was growing, both on demand as well as supply sides, the growth was uneven. Also, the enterprises participating in the market had mixed fortunes. Domestic-owned enterprises had older technologies, but lacked proper research resources for developing the low-end market beyond the outdated, matured products. Foreign-invested enterprises and joint ventures had newer technologies, but had poor links with domestic users and were targeting primarily overseas markets where substitute technologies and intense competition limited the demand. As a result, there was an overwhelming reliance on new enterprises and debt-financed investments for growth, and many of the existing enterprises were struggling to survive.

## 4. MODALITIES OF TURNAROUND AT HUAJING

At the start of 1998, Huajing needed a fundamental turnaround for surviving the emerging competition, and for realizing its vision of technological and market leadership in China's semiconductor industry. As an immediate priority, it decided to simulate operations on the marketplace for each of its plants and subsidiaries, using what was termed an "upward transforming approach" (Wang, 2000b). Huajing established rather independent accounting systems for sales, expenses and profits attributable to each operating unit. To gain acceptance, each operating unit was evaluated as a cost center and would be eventually transformed into a profit center. Although Huajing's overall group debt grew to 1.73 billion yuan by the end of 1998, the operating losses had been checked as the team focused more on the less sophisticated discrete devices (Huajing, 2000). After three years, in 2000, the transformation process was extended from the operating units to the enterprise group in order to create better control of the corporate functional departments (Wang, 2000b).

No private bidder was interested in investing in the loss-making and deeply debt-ridden Huajing, whose assets were deemed over-valued and obsolete. Therefore, the top Huajing management team negotiated with the central government and creditor banks to convert the debt into stock. It further convinced the local Wuxi municipality to set up the Microelectronics Hi-Tech Park for a favorable operational and fiscal environment to gain freedom from the controls of Central Electronics Ministry. The Wuxi government also agreed to take up Huajing's social units such as Huajing Elementary School, hospital, kindergarten, community committees and Estate Company, and thus saved Huajing an estimated 3.4 million *yuan* per year (Wang, 2000b).

In January 2000, Huajing asked the central government to allow its restructuring into "China Huajing Electronics Group Ltd." The power and responsibility of the stockholders, board of directors, supervision committee and management were clearly specified according to the state Corporate Law and Firm Regulation. The government, though not in-charge of organizational decision-making, took representation on the Board. The Wuxi Municipality State Asset Committee took the controlling 59% equity share. Xinda, Great Wall, and Huarong Asset Management Corporations, representing creditor banks, were given a 36.4%, 2.7% and 1.9% share respectively (Xu, 2000a).

### 4.1 Results of the Turnaround

As a result of the progressive restructuring that began after the crisis of 1997, Huajing has freed itself from direct and operational interference by the government and opened up to the market mechanism. The new compensation and pay system has aligned the interests of the firm and its employees. Beginning in 1998, Huajing enjoyed a 35% average growth rate, with revenue growing from 4.3 billion yuan in 1998 to 6.1 billion yuan in 1999 and 8.2 billion yuan in 2000 (Wang, 2000a). Further, Huajing's goal for SEMICO was achieved earlier than expected, in early 2002, thus brightening the prospects of privatization. In February 2002, conglomerate China Resources (Holding) Co. decided to acquire 55% equity in SEMICO for 28.6 million yuan (US\$3.45 million) through its Hong Kong flagship China Resources Logic Ltd (Reuters, 2002). The CR group hoped the deal would help its semiconductor business to achieve further technical enhancement, vertical integration, and penetration of the Mainland China market and articulated its intention to seek a controlling stake in Huajing also (Reuters, 2002).

## 5. DISCUSSION

The experiences of Huajing shed much light on the roots of the 1997 crisis and the challenges faced by the managers after the crisis.

### 5.1 Roots of the Crisis

Partly constrained by international restrictions on the export of new technology, the Chinese government had emphasized the purchase of second-hand imported equipment to launch and develop the domestic semiconductor industry. The state-owned banks provided substantial loans to set up manufacturing operations using this used equipment. The overseas sellers were reputed firms with long experience in manufacturing with that same equipment. These sellers offered comprehensive training to the technicians and engineers of the Chinese enterprises buying their equipment. Still, in addition to the cost of equipment, which was discounted only 40-50% compared to the value of comparable first-hand equipment, the firms had to bear high costs of repairs and maintenance. Also, they produced mainly matured products with well-known designs to which the equipment was already specifically optimized.

The government expected the beneficiaries to be able to develop their own indigenous designs for the products made using the used equipment and required the companies to invest part of the funds into diverse research centers. But spreading the developmental budget into multiple research centers generated few firm-specific benefits. Though these research centers often hired qualified Chinese designers and had extensive contacts with overseas Chinese designers, their funds were limited, and the designs developed by them had little fit with the specific conditions of the prior-generation used equipment in the factories. The designers also had no incentive to customize their designs to the specific needs of the factories and instead could gain more prestige by focusing on designs for new technologies used internationally. In reality, these fabless design centers faced considerable competition from more sophisticated designing capabilities of other firms in the region and were constrained by the reluctance of the fab firms in those regions to share information on their latest technologies with China. Consequently, the revenues of Chinese firms from these design operations were also rather limited.

With obsolete technologies and matured product designs, the Chinese firms had to compete in price-sensitive low-end markets. The razor-thin margins were not sufficient to cover the high costs of interest, let alone the payment of growing principal as the Chinese firms went after the successive generation of technologies. The unexpected pace of technology change in the semiconductor industry during the 1990s caused the Japanese and Taiwanese firms to seek to offload their older equipment more aggressively, so that they could fund their move into the next generation technologies to compete with Western firms. Although recognizing the lack of their financial and technical capability, several Chinese firms purchased the discounted equipment in a bid to jump on the bandwagon and were supported actively by a variety of incentives and financial loans from the Chinese government. They hoped that an entry using older equipment and simpler know-how would enable organizational learning and in-house development of capability. They could then upgrade quickly to the next generation technology and soon compete effectively with the Japanese and Taiwanese firms on the basis of lower infrastructure and labor costs to become worldwide designers, manufacturers, and suppliers.

### 5.2 Managerial Challenges

The challenges faced by the managers of the distressed corporations, particularly in China, were multifaceted. In addition to the financial restructuring issues already discussed in the literature review, the following areas of concerns should be highlighted:

**Workforce:** The Chinese firms had a qualified workforce that had experience working in several different types of enterprises and that had been trained in the specifics of operating the equipment by leading international companies. However, there was a need to redesign the compensation system and offer incentives for innovation, market development, and customer servicing, something not feasible before the crisis due to the political and welfare considerations.

**Value Chain:** The global market was moving towards a horizontal value chain in technology-intensive products, with specialist firms for product design, pure-play fabrication, and testing and packaging. But

the Chinese firms had formed vertical linkages, equity-based as well as guanxi-based, and faced problems because of the mismatch in the capabilities of different partners. While most Chinese partners had capabilities most suitable for the lower-end, less complex, products, they faced political pressures to differentiate themselves and to move up the technology chain. The lower-end market itself was quite diverse, with a variety of product applications, and few firms had access to requisite design, technical, and marketing know-how to cater to these diverse demands. Therefore, there was a need for defining a clear strategic thrust, and for forging relevant alliances for servicing the lower-end markets - where the firms could be confident of positive cash flows for internally funded growth.

**Corporate Governance:** The central and provincial governments played a dominant role in the strategic decision making for investments and product market scope. Even for the privately owned firms, the government controlled the strategies through its decisions on foreign exchange for equipment imports and through the loans given by the state-owned banks. The government policies were continuously changing, and frequently put the latecomers at an advantage over the early movers, as new, lower tax rates and faster loan delivery policies were instituted. The firms needed to take a progressive approach focused on fast payback, so that they could benefit from the continuing liberalization.

**Organization:** The Chinese firms were engaged in all kind of activities without any concern about the external costs and true benefits of those activities. There was a need to focus limited financial and managerial resources on the core activities and to break these into smaller modules so that market-focused and cost-effective capabilities might be built.

**Market Volatility:** The market itself was highly volatile, with short technology life cycles and rapid shifts in the cost-effectiveness of different national and regional producers. As American, European and Japanese firms were developing new technologies, the specifications and standards for the components of the end products were rapidly changing. Using the older specifications and standards built-into the prior generation equipment, it was difficult for the Chinese firms to bag a large share of any product market. The Chinese firms needed to develop flexible innovation skills for adapting their equipment to these new specifications and for developing new customized products. Only then could they insure themselves against the competition based on the heavily discounted older designs, as well as from the quick availability of the newer designs even before the quality based on the older designs had been perfected.

## 6. CONCLUSIONS

In this article, we reviewed the literature on the roots of the East Asian corporate crisis, and the strategies used by the firms and the governments to deal primarily with the financial restructuring issues. Thereafter, we studied the case of the Huajing group in China and highlighted additional strategic risks faced by the Chinese firms and the resulting managerial challenges. In conclusion, we would like to suggest a framework for addressing these challenges and mitigating the risks of crises in future. The framework is termed as "Transformative Turnaround," because it seeks to forge a formative transformation in the operational routines, culture, and direction of the firm's strategic and investment initiatives. It also clarifies the critical formative inputs that could help firms avoid the crises and sustain their growth.

Firms in the emerging markets, such as China, face challenging conditions. They have to deal not only with issues of concern to the leading firms in international markets, but also with the constraints and adjustment pressures faced in their national and regional markets. To meet these challenges, they must give due recognition to the world-class turnaround models, which are rooted in the recognition, development, and exploitation of unique resources, core competencies, focused capabilities, and unassailable positions. They must also constantly invest in and fully exploit their physical capital, human capital, relational capital, and social capital and make up for the inadequacies in their financial capital, technological know-how, and infrastructure resources. However, they should also be appreciative of local and regional servicing and marketing opportunities.

Several domestic firms in the emerging markets have acquired resources and know-how based on internal research as well as overseas purchases of equipment, product design, and technical packages. These firms tend to have very loose linkages with one another. They frequently have mutual distrust because each believes that it could do better than the others, provided it also had additional funds or relevant *guanxi* with the national authorities or the international vendors. Indeed, while most firms have acquired the necessary hardware (including the traded portion of the software), they have limited capability for customizing the acquired hardware for the specific national and regional needs.

A required formative input for sustainable turnaround is to forge strategic alliances with other domestic firms who have required resources and regional infrastructure for providing complementary services. Instead of seeking contacts only for marketing, the firms should also seek complementary inputs from the other domestic firms, and for new revenue opportunities for providing their own group services for helping those firms meet their specific requirements. For instance, if a pure-play fabrication firm seeks design services from a fabless enterprise, it may help the fabless enterprise improve its capability for delivering a quality design by marketing knowledge about the fabrication technology and the products that can be made using this fabrication technology. With such an approach, more productive initiatives would occur, and the time spent for waiting to see the market trends would be reduced.

Now, suppose the fab makes an offer to pay \$5 million after working out a counter-offer of technical services to the fabless enterprise to help the latter gain client-critical knowledge and capabilities, and it receives \$1 million as compensation. The expected value creation from the relationship now increases to \$5.5 million, which makes the purchase of design a profitable venture. With this new counter-off, the capability of the fabless firm is improved, the fab develops equipment training services business, and it also makes a profit on the new product development project. The value of exercising the strategic option of getting into "equipment training services" is \$1 million, which acts to switch the balance of the "new product entry" decision from not go (unprofitable) to go (profitable). Note that the strategic option of getting into the equipment training services may exist only for the domestic market and not for the international market, since the acquired equipment may be obsolete in the global market.

To conclude, a focus on export-oriented growth in East Asian economies did help their firms gain exposure to international markets, but also displaced priorities from the development of local markets. A transformative turnaround may be realized through recognition of the value of the strategic option with respect to the development of technical services business oriented specifically towards the local and regional vendors. However, a focus on servicing the under-met needs of the local customers at costs lower than the world-class levels, would be essential to actualize the upside value of this option.

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