New relationships between Japanese and Taiwanese electronics firms

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Abstract. This paper examines the cultural dimensions of production networks between Japanese and Taiwanese firms. Conceptually, we argue that, due to historical and cultural ties between the two countries, as well as long-standing associations with Taiwanese suppliers, Japanese lead firms have deepened their relationships as Taiwan has entered a more technologically based stage of development. Taiwan has also been pivotal in Japan–Taiwan–China relations because of its cultural as well as geographic proximity to the two economic giants. Empirically, the analysis draws on interviews with sixteen Japanese electronics companies in Taipei and Hsinchu Science City, as well as secondary data concerning Japanese trade and investment in Taiwan. We contend that Japanese lead firms have moved to a position of insiders and partners with their Taiwanese suppliers in the information, technology, and communications sector. In addition, Japanese electronics firms now see Taiwan as a viable bridge to production and markets in China, while corporate relations are moving towards heterarchical or matrix arrangements, away from the hierarchical flying geese model. The study notes that there are challenges and limits to these new forms of relations.

Keywords: Taiwan, Greater China, Japan, electronics industry, cultural ties

Introduction
Over the past forty years Japanese multinational companies (MNCs) have been major players in the development of the key electronics sector throughout East Asia (Hatch, 2010). However, as the Japanese economy has faltered (Callen and Ostrey, 2003), Japanese MNCs have faced intensifying competition from US and European firms, especially in information and communications technology (ICT) in which modular components have replaced analogue components (Fujimoto, 2006). Simultaneously, corporate supply systems have become more open and global, rather than localized and closed in the manner of Japanese keiretsu arrangements (Miyata and Russell, 1994), while in Taiwan and other leading Asian newly industrializing economies, the skills of local firms and labor pools have improved significantly along the lines of the reverse product cycle model (Hayter and Edgington, 2004; Lee et al, 2010; Poon and MacPherson, 2005). Regarding these developments, recent literature has highlighted the links between US and Taiwanese firms and supply systems (Dedrick and Kraemer, 1998; Ernst, 1998), and between Taiwan’s Hsinchu Science Park and Silicon Valley (Saxenian and Hsu, 2001), together with a number of Chinese extensions of this network located in Shanghai and Guangdong (Yang and Coe, 2009). Such narratives, however, gloss over the resilience of Japan–Taiwan connections, and the new relations that are being forged.

In this paper we reflect on the new relationships between Japanese electronics MNCs and Taiwanese supply firms, and their implications for an evolving division of labour in East Asia. Taiwan is a key site in this evolution because of its close historical
and cultural ties, with both Japan and China, as well as because of its economic advantages. We argue that for cultural and political, as well as economic and geographic, factors, relations between Taiwan and Japan have become increasingly heterarchical or matrix like, and more sophisticated than anticipated by the ‘flying geese’ model of Japanese direct foreign investment (DFI). The flying geese model assumed that, as Taiwan developed, the location of mature products would move to cheaper locations across Asia, with some (albeit limited) contribution to technological capability in Taiwan (Kojima, 2000). In practice, Japanese firms have become ‘insiders’ in Taiwan, and ‘partners’ with Taiwanese firms, creating an increasingly complex spatial division of labour in Greater China (comprising China, Hong Kong, and Taiwan) in which their Taiwanese-based operations have proactive roles.

Conceptually, our paper contributes to evolutionary models of the internationalizing firm which argue for the need to incorporate cultural dimensions in explanations of location behaviour. Thus, in the theory of the international firm originating with Hymer (1960) and Caves (1971), firms need to overcome ‘spatial entry barriers’ that are rooted in distinctive cultures, political and legal systems. Similarly, for Johanson and Vahlne (1977), firms prefer to export to countries that minimize ‘psychological distance’—a term closely related to spatial entry barriers. However, these cultural concerns have not been incorporated into explanations of MNCs’ postentry behaviour in host countries. In this regard, Coe et al (2008) argue that cultural considerations should be considered further as MNCs develop overseas suppliers and other links as part of global production networks (GPNs). In effect, cultural and related variations increase the transaction costs of internationalizing firms and the requirement to learn about local conditions. Admittedly, firms can ‘cut against the grain’ by accepting the higher transaction and learning costs of entering culturally different environments (Hayter and Edgington, 1997). In general, however, firms that internationalize to particular locations where spatial entry barriers are lower are in a position to strengthen ties with local suppliers, consumers, and even rivals as they build local networks. The deepening embeddedness of Japanese firms in Taiwan can be understood in these terms. Taiwan was a Japanese colony before 1945, and commercial relations between the two countries have intensified since then.

Empirically, our analysis draws on interviews conducted with sixteen Japanese electronics companies in Taipei and Hsinchu Science City, and secondary data concerning Japanese trade and investment in Taiwan, to investigate two dimensions of the new relationship. The first dimension concerns the greater willingness by Japanese corporations to share ICT technology with Taiwanese firms, especially as production has become more sophisticated. The second dimension involved our examining the degree to which Japanese firms have used their position in Taiwan as a bridgehead into the mainland as part of a ‘Greater China Strategy’.

The paper is in three main parts. First, we review recent theoretical work dealing with cultural diversity and affinity in international trade, overseas investments, and GPNs. In the next section we briefly examine aspects of the new relationship between Japanese and Taiwanese electronics firms. Third, we scrutinize the notion of ‘partnerships’ in the ICT sector and the way in which Japanese firms have used Taiwanese companies to access markets and production centres in China, while highlighting tensions that exist in these new relationships.

**Culture and production networks in East Asia**

National differences in business culture matter with respect to business structure and behaviour (Hall and Soskice, 2001). Coe et al (2008) contend that, beyond specifying types of interfirm relations, research into GPNs should recognize the
social, cultural, and political environment within which these networks are built. In
the economic sociology approach, economic behaviour and institutions are embedded
by three sets of social forces. First, political interventions of state governments,
nonmarket institutions, and power elites shape economic activity. Second, firms and
other economic actors are located in personalized networks of contacts (Granovetter,
1985). Third, cultural effects are reflected in how shared collective understandings
and meanings attached to economic action shape strategies and goals (Bandelj,
2002).

Following Hofstede’s (1980) study of management differences across nationalities,
various instruments or proxies have been used in trade and business studies for the
cultural concepts of beliefs and values, including common language, history, religion,
etnicity, or genetic traits (Guiso et al, 2006). Thus Borrus et al (2000, page 2) raised
the question of culture when studying GPNs and noted that they “come in many
international flavors”, many of which can be traced to characteristics of particular
lead firms (eg, Japanese, European, or American) that are rooted in national systems
of production and innovation. Other scholars have explored how cultural proximity
between DFI source countries and host countries has shaped GPNs, especially the
locational choices of MNCs, based on degrees of difference in culture between home
and host countries (Rauch, 2001). Cultural proximity may be broadly defined as
affinity, sympathy, or even solidarity between two countries, often driven by the feeling
of sharing a common identity and belonging to the same group (Rauch, 2001). Cultural
proximity ‘plays an important role in affecting the postentry adaptability of MNCs to
local institutions in a host country. MNCs from countries and areas that are culturally
close to host countries find it easier to learn to adapt to the different institutions in the
host country. Conversely, sociocultural distance creates enormous information needs
and high information costs for MNCs to gain knowledge of the local market and
business practices. Rauch (2001) points out that foreign firms from home countries
with cultural values associated with high levels of ‘uncertainty avoidance’ are more
attracted to investment destinations where they have higher levels of trust, due typically
to relations built up over long periods of time. Uncertainty avoidance, according to
Hofstede (2001, page 16), is “the extent to which members of a culture feel threatened
by uncertainty or unknown situations.” Following Fukuyama’s (1995, page 26) expla-
nation, we define trust as the expectation of “regular, honest cooperative behaviour”
within a society.

Borrus et al (2000) argue that issues associated with embeddedness and trust in
host countries have increased over time as access to technologies has become a key
motive for MNCs to build relationships with overseas firms. This process of learning
foreign technology can be thought of as taking place within GPNs, an especially
effective means for tapping into locally developed technological capabilities (Saxenian
and Hsu, 2001). Thus, cultural proximity can alleviate the negative impact and high
transaction costs of institutional differences, not only on initial DFI entry, but also on
postentry learning behaviour. GPNs are not motivated only by cheap labour costs or
market access, but may evolve into postinvestment technological learning situations
through joint research and other connections into local technology capability clusters.
These emerge both through local social ties as well as policy-induced linkages among
local firms, universities, government agencies, research institutions, and so on (Boschma
and Kloosterman, 2005).

A number of mitigating factors reduce cultural distances between home and
host countries. Rauch and Trindade (2002) emphasize the importance of coethnic
networks across countries or economic regions—broadly defined as communities
of individuals or businesses that share demographic attributes such as ethnicity or
religion— for the flow of information and, hence, bilateral trade, DFI, and other forms of economic linkages. In a related vein, Rauch (2001) underscores the important role of ‘network intermediaries’ who can connect MNCs to domestic networks in host countries, and who are distinguished by their ‘deep knowledge’ of the capabilities and preferences of sellers or buyers in their networks. Typically, this takes the form of engaging specialized trading companies or through MNCs forming joint ventures with local firms and turning management partially over to local partners in host countries, who can generally outperform new foreign entrants.

Putting these arguments together, initial entry and postentry learning behaviour in GPNs are influenced by home-country and host-country characteristics, and cultural affinity/distance, together with the degree of trust in overseas environments, and these can be mediated by coethnic networks and network intermediaries (figure 1). In East Asia, Japanese keiretsu-led GPNs (based on enterprise groups of companies) have evolved alongside a variety of Chinese business networks (Hatch, 2010; So and Walker, 2006) to create distinctive patterns of production networks both on the mainland and overseas (Ahlstrom et al, 2007; Edgington and Hayter, 2000; Sasuga, 2004). According to Hofstede (1980), Japanese institutions exhibit higher levels of collectivism and uncertainty avoidance compared with other cultures, especially American. Japanese companies tend to be risk averse but are often ‘herd driven’ when making multinational investment decisions—choosing similar locations overseas in any particular time period (Yamawaki, 2007). Japanese electronics MNCs have a greater propensity to establish GPNs characterized typically by low levels of localization of management and sourcing of components, overseas R&D, and with limited subsidiary development (Ernst and Ravenhill, 2000). Nonetheless, personal computer (PC)-related imports from East Asia have grown rapidly and have been sourced from a variety of different international production networks and new responsibilities have been given to their subsidiaries in the region—which required new relationships with East Asian countries (Ernst and Ravenhill, 2000).

Figure 1. Framework for understanding culture and production networks.
Conversely, Chinese business networks have strength in terms of guanxi (social connections) and family lineage which allows them to make links with other companies. Through the so-called ‘bamboo network’, this ethnic group has achieved many successes despite its minority status in many countries (Tan and Yeung, 2000; Weidenbaum and Hughes, 1996; Yeung and Olds, 2000). However, in the ICT and electronics sectors, Chinese business plays a secondary role in East Asian GPNs as a result of conservatism and low technological know-how. Traditional Chinese businesses often depended upon the entrepreneurial spirit of the family head and his (or her) monopoly of market knowledge for ‘knowledge arbitrage’—the use of market knowledge and a general lack of governance in management (Kao, 1993). Consequently, among dominant ethnic Chinese economies only Taiwan (and, to a certain extent, Singapore and Hong Kong) and certain clusters in China (eg, Shenzhen/Guangdong and Shanghai) are key players in East Asian electronics production. Nonetheless, in contrast to true ‘foreigners’, overseas Chinese investors have cultural advantages in language, cultural traits, and ethnic links to the Chinese market and production centres, and their GPN evolution is arguably more easily carried out, with less reliance on local firms for local management and market information (Zhou, 2006). For instance, MNCs from Hong Kong and Taiwan (and to a lesser degree Singapore) encounter a completely different institutional environment when they enter the Chinese mainland. The sharing of the similar languages and cultural heritage enable these MNCs to learn quickly how to build up connections with Chinese bureaucrats and local firms (Hsing, 1998).

With respect to relations between Japanese and Taiwanese companies, the literature emphasizes the differences between their two business styles and form, rather than similarities (McMillan, 1996; Mathews and Cho, 2000). In particular, Japanese firms are ‘giants’ which have shown a capability to develop vertically integrated forms of governance in their GPNs. Traditionally, manufactured products were made within keiretsu groups of industrial corporations in Japan, including unique mechanical parts associated with the analogue era of technology, so that manufacturing expertise rarely leaked outside the group (Fruin, 1998). In Taiwan, large firms are important but they have not been the engines of its transformation from a developing to a developed economy (Lee et al, 2010). By and large, it was independent, small and medium-size enterprises (SMEs) who were at the vanguard of change and who grasped the opportunity to be subcontractors using OEM (original equipment manufacturing) arrangements in the expanding PC sector of the electronics industry with US manufacturers during the early 1980s (Sturgeon and Lee, 2005). Subsequently, original design and manufacturing (ODM) arrangements with Taiwanese firms enabled US companies to cease manufacturing PCs and to concentrate their efforts on new product definition, the setting of standards, system integration, software value-added, distribution, branding, and so on (Fuller, 2005). Although the US companies all operated purchasing operations in Taiwan, they placed no large-scale manufacturing capabilities there, opting instead for ‘one-shop shopping’ from Taiwan for a range of fully assembled ICT sector electronics. Based on horizontal integration and cooperation, rather than vertical integration, the Taiwanese electronics industry has maintained its international competitiveness in the face of severe challenges from large conglomerates in South Korea. By contrast, Taiwanese firms have been less successful in branding for global markets (other than the large companies Acer, BenQ, and Honhai), and have been traditionally weak in the export of consumer electronic products (Gee and Kuo, 1998).

Despite these differences, there are long-standing historical and cultural ties between Japanese and Taiwanese electronics firms. Thus, after the Sino-Japanese War
Imperial Japan seized Taiwan from the Qing dynasty in China and ruled there until Japan’s defeat in World War II in 1945 (Liao and Wang, 2006). Although Japanese jurisdiction was harsh, Taiwan grew from an agricultural-based economy to a partly industrialized nation during the Japanese colonial period. The Japanese colonial administration built roads, bridges, railways, and other infrastructure (Myers and Peattie, 1984). Although this work was intended to advance Japanese interests in the region, it also helped to establish the foundations of Taiwan’s industrial and economic developments in the 1950s and 1960s, laying the groundwork for its current prosperity. Almost alone in Asia, the Taiwanese hold little resentment towards the Japanese. Many are convinced that Japan’s colonial rule contributed to the island’s current economic prosperity through the universities, roads, and other infrastructure the Japanese left behind. Gale (2011) reports a recent survey which revealed that 52% of Taiwanese respondents regarded Japan as their favourite country, with the US and China a distant second and third, respectively. As with most other countries, Japan today officially recognizes China rather than Taiwan; nonetheless, Japan and Taiwan have maintained friendly relations despite the period of colonization (Peng-Er, 2004). Commenting on the colonial legacy, Addison (2001) notes that former Taiwanese President, Lee Teng-hui, was quoted as saying “if not for Japan’s 50 years rule, Taiwan would be as undeveloped as Hainan Island [part of mainland China]” (page 27). Many Taiwanese over the age of 70 today can speak Japanese, since learning the language was mandatory in schools during the occupation. This education, in turn, had implications for understanding Japanese culture and the Japanese business way of life. On the other side, many Japanese businesses have had considerable experience of operating within the Taiwanese economy, despite the interlude of the war (Yoshihara, 1978).

A comparison with Korea—Japan’s other major colony in Asia apart from Manchuria in China—is revealing. At the end of World War II, South Korea banned Japanese cultural imports, such as music, film, video games, manga (Japanese comics), and literature. These bans were only lifted finally in 2004 (Ducke, 2004). In the past fifty years or so, despite close trade and investment ties between Japan and South Korea, Korean nationalism has continued to display a strong anti-Japanese sentiment, which has often soured relations. Thus the fact that Japan has been a dominant investor in South Korea has reminded the Koreans of their country’s past as a Japanese colony, and the trade deficit which South Korea has with Japan reminds Koreans of their technologically subordinate status (Sato, 2011).

Ozawa (1979) claims that it is natural that Japanese companies feel more comfortable doing business in Taiwan than in China or other parts of Asia, where they are still remembered as World War II aggressors. He reports a Tokyo-based Japanese manager who said that “In my mind Taiwan is no different from Kyushu or Shikoku [Japan’s major southern islands]”, and he asserts that “this statement epitomizes the general attitude of most Japanese businessmen towards Taiwan. By and large they feel psychologically much closer to Taiwan than to Hong Kong, Singapore or any other country in Asia” (page 83). He further notes that “Japanese specifications for technically complicated products, such as electronics devices, can usually be handed over to Taiwanese engineers without translation. In most cases technical oral instructions can be conveyed in Japanese. This ease of communications constitutes a substantial saving of time and energy for the Japanese, who in general are notoriously poor linguists” (page 83). The special business links between Japan and Taiwan are elaborated below with respect to new relationships in the electronics sector.
Recent trends in Japanese electronics firms’ production systems in Taiwan

The participation of Japanese electronics firms in Taiwan since the 1950s is well documented and need not be repeated here (Amsden and Chu, 2003); it can be summarized as having occurred in four stages (table 1). In the first stage (1955—65—flying geese take-off), Japanese firms were attracted to invest in Taiwan due to its policy of supporting import-substitution production, especially in consumer electronics (eg, washing machines, rice cookers, toasters, and televisions) (Wiegersma and Medley, 2000). The second stage (1966—85—flying geese in full flight) began after the opening of the Kaohsiung Export Processing Zone in southern Taiwan during 1966. As the Japanese export economy began to experience a shortage of factory workers in the late 1960s, Taiwan was the logical place in which to secure labour. Even SMEs, such as Mitsumi Electric, TDK, and Alps, established their first overseas affiliates in Kaosiung. At that time, these firms were inexperienced in DFI, yet they found it comfortable to invest and operate in Taiwan because of the sociocultural affinities mentioned above (Ernst, 1998). Sasuga (2004) notes that Matsushita Electric Industries


<table>
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<tr>
<th>Type of Japanese investment/other activities</th>
<th>Role of Taiwanese firms</th>
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<tr>
<td>Stage 1 (1955–65)—flying geese take-off</td>
<td>Investment in consumer goods; predominately local market oriented; some joint production ventures.</td>
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<td>Sales agents, production under licence from Japan; joint venture partners (large firms only).</td>
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<tr>
<td>Stage 2 (1966–85)—flying geese in full flight</td>
<td>Investment in consumer goods for export, especially colour televisions; also investment by electronic parts makers.</td>
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<td>Increasing role in Japanese subcontractor networks, often under ‘captive’ arrangements; production of cathode ray tubes; videocassette recorder magnetic drums; purchases of parts from Japanese companies; technology licensing from Japanese firms; captive supply firms of Japanese assembly subsidiaries.</td>
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<tr>
<td>Stage 3 (1986–95)—flying geese migrate</td>
<td>A slow-down in direct foreign investment (DFI), and some withdrawal of production from Taiwan; USA replaced Japan as the leading source of DFI in Taiwanese electronics.</td>
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<td>Diversification into computer monitors and terminals; original equipment manufacturing/original design and manufacturing relations with US firms; continued purchases of key Japanese parts (eg, liquid crystal display screens); commencement of DFI in China.</td>
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<tr>
<td>Stage 4 (1995–2007)—emergent matrix relations</td>
<td>Increased purchase of personal computers (PCs), motherboards, terminals, and a variety of PC-related products from Taiwan; continued sales of components and technology transfer to Taiwanese firms in information and communications technology fields; commencement of local testing laboratories.</td>
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<tr>
<td></td>
<td>Production of desktop and notebook PCs; semiconductor foundry fabrication; local thin film transistor—liquid crystal display flat screen panel production in conjunction with Japanese companies; increasingly important source of components and finished products for Japanese firms.</td>
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developed its own local keiretsu group in Taiwan of around 300 Taiwanese supply firms in the production of colour televisions (CTVs) and other consumer products. In this early period, there was almost no local Taiwanese product design or process engineering (figure 2).

Stage three (1985–95—flying geese migrate) saw a watershed associated with the Japanese yen’s appreciation in 1985 and rising labour costs and shortages in Taiwan. Japanese electronics firms ceased expanding in Taiwan, and some even left for cheaper labour markets in Southeast Asia (Sato, 1997). Taiwanese firms also began to invest overseas (Chen and Acquino, 1998; Sasuga, 2004), and Taiwan grew to become the world’s second-largest supplier of notebook PCs after Japan—based partly on highly innovative local development consortia of SMEs as well as ODM/OEM relations with major PC companies in the US (Mathews, 2002; 2007). Japanese firms experienced greater competition with US-based PC makers and South Korean consumer products and semiconductor firms, and were obliged to reconsider their traditional approach to the formation of regional production networks (Ernst, 2006). Moreover, the lead Japanese firms could not respond quickly enough to the evolving demands of the ICT market; and the decisive change of electronics technology from analogue to digital further highlighted several disadvantages of conventional Japanese intrafirm and interfirm relations in this sector (Nezu, 2005). A key issue constraining Japanese attempts to move to a more open-network governance structure to improve responsiveness and flexibility has been a lack of trust concerning nonkeiretsu suppliers (Nakagawa and Konno, 2005). However, since the mid 1990s, Japanese firms have broken their strict resolve to produce in-house and to keep technology at home.

The current, fourth, stage (since 1995) witnessed the emergence of new matrix relations between Japan and Taiwan (figure 3). Thus, compared with earlier stages of interaction, it is clear that Taiwanese OEM suppliers were no longer captive to Japanese lead assembly firms given that they shipped similar PC goods on an OEM basis to US-branded firms as well as clones of IBM located all over the world. For example, Japan’s NEC obtained monitors and motherboards from Tatung and Elite (both major Taiwanese firms), who also supplied similar models to Apple, Packard Bell,
Dell, and IBM (Ernst, 1998). Japanese electronics MNCs were also more willing to subcontract the production and design of silicon chips to Taiwanese contract foundries (Lee et al, 2010). To assist in the logistics of purchasing computer parts and to obtain more information on their Taiwanese component suppliers NEC, Toshiba, and Fujitsu established local international procurement organizations (IPOs) in Taiwan (Poon, 2002).

Apart from purchases of parts, Japanese exports of equipment and components into Taiwan also increased. Indeed, Taiwanese firms have been dependent upon added-value Japanese parts, such as hard disc drives, cell phone camera scanners, and similar high-technology products. During 2005 NEC ranked number six in ICT sales into Taiwan, behind Intel (US), Samsung (South Korea), and Texas Instruments who sold mainly advanced level semiconductors (Taiwan Investment Biweekly 2005a). All the well-known Japanese computer companies and specialized parts suppliers maintained sales companies in Taiwan in order to facilitate the trade of sophisticated products from Japan to Taiwanese firms and the government (interview with Mr Ted C H Huang, Secretary General, The Japanese Chamber of Commerce and Industry, Taipei, July 2007).

The willingness of Japanese firms to transfer technologies which they would previously have retained at home is another significant shift. Thus, Oki and Toshiba assigned important new semiconductor technology to Taiwanese firms, including Winbond and Nanya, who had no previous experience in the DRAM (dynamic random access memory) semiconductor field, yet wanted to enter the market (Liao, 1998). Apart from earning license and royalty income, the motivation on the Japanese side was often to engage in so-called ‘second-sourcing agreements’ linked to more flexible outsourcing of ICT production. By trading their in-house technology for factory space in Taiwan, Japanese DRAM producers such as Oki and Mitsubishi Electric Corporation were able to sustain a broader mix of semiconductor products—ones which distinguished them from their South Korean rivals, such as Samsung (Ernst, 2000).

Figure 3. Major relations between Japanese and Taiwanese electronics firms, 1990s–2007 (source: fieldwork).
By the time of the authors’ research interviews in 2007, Japanese firms had substantially embraced strategic outsourcing along the lines of ‘value-chain modularity’ (Gereffi et al, 2005), and had chosen Taiwanese contract manufacturers over other East Asian rivals, such as South Korea or ASEAN countries (Sturgeon and Lee, 2005). For instance, Japan’s overall rate of outsourcing of notebook computers to Taiwan grew from 50.6% in 2002 to 63.7% in 2005 (Kramer, 2005). Sony did not commence sourcing from Taiwanese ODM firms until 2002 (as opposed to its earlier, low-cost, OEM purchases for consumer products), yet it quickly became the third-largest purchaser of ICT hardware from Taiwanese firms and in 2004 ranked behind US companies Hewlett-Packard (previously Compaq) and Dell, and in front of Apple and IBM (*Taiwan Investment Biweekly* 2004a).

In light of all these trends, Japanese firms expanded the scope of their operations beyond sales operations, local production, and IPO facilities, and became more embedded in Taiwan through R&D activities, often supported by the Taiwanese government (Fuller, 2005). For instance, Sony opened its first offshore testing laboratory in Taiwan during 2004 in order to facilitate procurement of ICT products such as removable flash memory cards (also known as ‘memory sticks’) licensed to local firms Acer, BenQ, and Asustek. In the same year NEC also set up a local laboratory to design and test-produce notebook computers with its Taiwanese ODM partners. In 2005, Fujitsu opened an R&D centre to facilitate technology transfer for handheld devices, biometrics, e-commerce, and multimedia products to Taiwanese suppliers, and to strengthen joint cooperation in the development of ICT products (*Taiwan Investment Biweekly* 2004b; 2004c; 2005b).

Patterns of Japan–Taiwan trade relations in electronics in 2005 were characterized by a substantial deficit with Japan incurred by Taiwan (US$ 4.1 billion); but Taiwan more than compensated for this by trading with China, reaping a huge US$22.8 billion surplus. Moreover, as Hong Kong has also been used for China–Taiwan trade, it is perhaps unsurprising that Taiwan’s trade surplus against Hong Kong has been high, accounting for a vast US$48.5 billion (data compiled from University of Toronto, 2008). Overall, Japan was Taiwan’s largest source of imports and its third-largest destination for exports behind the US and China (Government Information Office, 2007). Other sources indicated the strength of Taiwan’s electronics industry sales to Japan. For example, Addison (2001) reported that Japan edged out the US to become the largest single export destination for products from the Hsinchu Science Park, where many of Taiwan’s technology products are fabricated. In 2000, just under a quarter of the park’s exports went to Japan, compared with about one fifth to the US.

With respect to DFI in Taiwan, Japan’s accumulated share between 1952 and 2008 accounted for 16.0% of the total, while that from the US amounted to 20.4%. Central American island countries (eg, Bermuda and other Caribbean islands) were used as reinvestment bases and have been the largest sources of investment. Together with South America, they amounted to 20.2% of accumulated investment (data compiled from Investment Commission, 2009). Because of this, Sasuga (2004, page 13) speculated that the shares of Japan and the US in total inward DFI have likely been much larger than the statistics suggested. In terms of industrial sectors, the share of electronics investment accounted for 27.4% of total inward DFI in Taiwan between 1952 and 2008 (Investment Commission, 2009). Whereas DFI from Japan has been statistically second to that from the USA, Simon (1996) noted that, in terms of technology cooperation agreements, in the 1990s Japanese firms had more than twice as many cases compared with the US. Indeed, while Taiwanese firms have drawn on the expertise and connections of MNCs from the US, we contend that Japanese MNCs have unusually strong cultural and historical, as well as geographical, connections with
Taiwan which reduce the transaction costs of interfirm relations. In fact, a long history of shareholding relations between Japanese and Taiwanese electronics firms was indicated from an analysis of data contained in Toyo Keizai Shinposha Shahen (2007). For instance, Taiwan's Tatung company has been a major partner in Taiwan Telecommunications Industry, a subsidiary of NEC; and the Shengbao company (a leading Taiwanese electronics goods firm) has been a major partner of Sharp's subsidiary in Taiwan. These and other joint ventures in the electronics sector derive from longstanding cooperative relations between Japanese MNCs and Taiwanese companies (Toyo Keizai Shinposha Shahen, 2007).

The central characteristics of these new relations can now be elaborated, drawing on our interviews conducted in 2007 with senior management of sixteen major subsidiaries of Japanese electronics firms operating in Taiwan. These companies comprised general electronics firms (Hitachi, Toshiba, and Mitsubishi Electric); consumer electronics (Matsushita Electric Industries, Sanyo, Sony, Matsushita Electrics works, Pioneer, JVC, Sharp, and Casio); high-technology firms (NEC, Fujitsu, Fuji Electric); and parts suppliers (Alps and Omron). A Taiwanese company, Shilin Electric and Engineering, and the Japanese Chamber of Commerce in Taipei were also interviewed. Discussion focused on the changing role of local subsidiaries and the ways in which Japanese firms viewed their Taiwanese operations—both in light of their own competitive strengths, and also in light of the dramatic changes that had occurred in Taiwan during the past fifty years or so. The questions we asked addressed the nature of local production and sales, and their relationships with Taiwanese firms in terms of supplies of goods and technology, licensing, and joint-venture arrangements, as well as collaboration in relation to China.

Long-term partnerships and high-tech tensions
Mitsubishi Electric Corporation (MEC) is an example of a Japanese MNC that has established long-term relationships with Taiwanese firms. Its logo in Taiwan is Your Best Partner for the Future!—meaning that MEC’s unique technologies can assist local firms to sell products both in the domestic and in the export markets. As far back as 1955 it commenced a joint venture with local firm Shilin Electric, a Taiwanese entrepreneurial family-based firm operating in many sectors, combining MEC’s technology with Shilin’s production operations to fabricate machinery for the Taiwan Power Company, and electronic components for the local automobile industry. A company executive from Shilin Corporation explained the relationship and the changing attitude of MEC towards its joint-venture operation:

“We set up this particular electrical engineering company in 1955—and in 1966 received 20% equity from Mitsubishi Electric. The purpose was to use Mitsubishi Electric’s technology to sell power transformers, electrical switchgear, and automobile components. So Shilin is really an OEM/ODM partner for Mitsubishi Electric in Taiwan, where Mitsubishi Electric is the technology ‘parent’. In the 1970s, the government’s joint-venture requirement to operate in Taiwan was often seen as an impediment by Japanese firms. But now it is viewed as more favourable as they do not need to invest so much money to manufacturing here” (comments by Kenn Watnick, Marketing Vice-President, Shilin Electric Engineering Corporation, Taipei, July 2007).

The same executive noted that Shilin had oriented its production initially to the Taiwanese market, but due to Japanese technology transfer this Taiwanese firm was able to export to other Asian markets such as China and Vietnam. MEC has made similar joint ventures and technology-transfer arrangements with other Taiwanese firms, including with: Taiwan’s China Ryoden Co. Ltd, for elevator and escalator manufacturing and services; China Electric Manufacturing, for fluorescent lamps
and solar panels; Setsuyo Enterprises, for factory automation products; Shin Wu Machinery Trading, for laser-cutting and drilling tools for printed circuit boards; and Ryoden Logistics Corporation, for factory automation and other machinery (interview with Akira Yamashita, Mitsubishi Electronics Taiwan, July 2007).

While these examples from MEC illustrate long-standing relationships, newer forms of technology transfer have reflected the quickening pace of product-cycle development in the ICT sector. For instance, in the high-technology thin film transistor–liquid crystal display (TFT–LCD) sector, Japanese firms have chosen to cooperate with Taiwanese firms by granting them technology licences and OEM orders rather than by investing in joint-venture operations. This initiative has required engineers from Japan to work closely with Taiwanese R&D engineers to solve many technical issues and to provide testing equipment for built-to-order components and products. By 2007 nine Japanese component-supply firms had set up branch factories in Taiwan’s Southern Science Park (at Tainan) in order to facilitate technology transfer to companies such as Chi Mei Optoelectronics and the Hannstar Display Corporation. The Japanese firms who came to the Tainan Science Park included second-tier component companies, such as Finex Corporation, International Display Technology (a subsidiary of Sony) and SC-IK Technology (a Sumitomo Chemical affiliate). In the semiconductor sector Elpida of Japan joined with a number of Taiwanese companies to build four factories aimed at increasing integrated circuit wafer production under joint-venture conditions. As reported by Wang (2006), the recent Japanese tie-ups in areas such as TFT–LCD and DRAM silicon chip production have been made to check aggressive gains in ICT markets by South Korean firms, mainly Hyundai and Samsung. These firms overtook Japanese firms in DRAM production during the 1990s and then made a similar challenge in LCD (liquid crystal display) production. Overall, South Korean producers were seen as fierce competitors by Japanese firms, yet Taiwanese electronics companies were considered long-term manufacturing partners (Chang, 2008). Nonetheless, there are important limits to Japanese firms’ enthusiasm for the transfer of parts orders and technology to Taiwan.

Problems with Taiwanese ICT suppliers

Clearly there has been an implicit trust between Japanese and Taiwanese firms based on enduring relations between the two countries. However, local Japanese managers in Taiwan reported certain ‘learning issues’ in the newer ICT sectors. The first concerned the quite different expectations between Japanese lead firms and their Taiwanese supply companies involved in ODM relations. Thus, Japanese managers noted that, over issues of quality control, Taiwanese component production had not always lived up to stringent Japanese standards. They complained that after the release of new PC models in Japan, some firms had to issue recall notices because of problems associated with defective components from Taiwan.

‘Under the pressure of being competitive in global price wars we have had to depend on overseas procurement—often without sufficient preparation. We were not fully aware of some basic Taiwanese market facts that high-quality equates with higher prices, and that the relationship between manufacturers and suppliers in high-technology sectors is more-or-less equal” [comments by Katsuya Yoshioka, Associate Senior Analyst at NCB Research Institute (a research body of the Nippon Credit Bank group), reported by Takezaki (1997)].

Much of this misunderstanding between the two sides occurred because in Japan, component suppliers typically belong to a keiretsu group of companies who work closely with lead manufacturers, although this system is beginning to weaken (Lincoln and Gerlach, 2004). In a keiretsu, suppliers are expected to satisfy demands
(no matter how unreasonable) from the manufacturer, such as arranging quicker delivery schedules, and providing lower cost production. In return, suppliers receive support from lead manufacturers, such as long-term guarantees of stable orders and technological assistance. Although Japanese consumer electronics firms with many years of experience in Taiwan set up successful keiretsu groups of local suppliers (eg, Matsushita Electronics Industries and its CTV production, noted above), this has not happened in the fast-moving high-technology ICT sector. Consequently, Japanese PC and other ICT manufacturers were initially dismayed to find that they could not apply the keiretsu formula to their suppliers.

“In Taiwan, if a supplier feels that a manufacturer’s conditions for product quality and price are not acceptable, then the deal is simply not realized. In Japan, on the other hand, since suppliers depend heavily on assembly firms, they often must submit high-quality components even at low prices to maintain the relationship. This difference [between Taiwanese and Japanese supply firms] was bewildering for Japanese companies at the beginning” [comments by Katsuya Yoshioka, quoted by Takezake (1997)].

Since the mid-1990s Japanese PC makers have attempted to address these issues by becoming more vigilant regarding component quality control, as well as entrusting Taiwanese firms with production only, and not with product design.

Problems in technology licensing

Another issue relates to technology licensing. Our earlier narrative suggested that in the last ten years or so, Japanese firms had been forced to sell their technology in Taiwan in order to receive income through royalties in the era of a slow-growth domestic economy. In this regard, a challenging issue has been the lack of effective technology licence protection in Taiwan, leading to some Japanese firms’ reluctance to transfer their very newest technology. A major Japanese semiconductor equipment maker, Hitachi Kokusai International, gave the following comments on this issue:

“Taiwanese foundry maker TSMC will buy Hitachi Kokusai parts and then show them to a local Taiwanese maker to see if they could be made at a cheaper price. Sometimes they can, but there is always a risk that the part will not work. Anyhow, Japanese firms are often loathe to license to Taiwanese companies as there is a danger that it may be copied. But in China it is even worse as a licensing contract does not mean anything; the Chinese will cheat and try to manufacture at a lower price. Japanese firms cannot afford to spend money to fix this problem” (comments made by Ken Chen, President, Kokusai Electric Asia Pacific Co. Ltd, Hsinchu Science City, July 2007).

Beyond building special laboratories in Taiwan, which were necessary to facilitate the purchase and local testing of sophisticated ICT purchases, Japanese firms had little interest in upgrading R&D activities there—either for new products or for new software applications. Taiwan, with a population of around 23 million, was considered to lack sufficient highly skilled engineers for advanced R&D or software and, in terms of market growth, Japanese firms reported that the ‘bigger prize’ was seen as China (interview with Akira Yamashita, Mitsubishi Electronics, Taiwan, July 2007). From their perspective, Taiwanese firms which had technology ties to Japanese firms often objected to the restrictive licence conditions routinely imposed by Japanese companies, which were tied typically to particular end-products, and even to particular large projects and particular countries’ markets (eg, Taiwan, China, or Vietnam) (comments by Kenn Watnick, Marketing Vice-President, Shilin Electric Engineering Corporation, Taipei, July 2007).
Japanese firms and their Greater China strategy

In the 1990s Taiwanese production networks in computers and related peripherals and components, as well as semiconductor foundry activities, expanded first into Southeast Asia and then increasingly into China (Chen and Aquino, 1998). Despite political antagonism with the mainland, Taiwanese firms extended their production networks across the Taiwan Strait where they enjoyed a range of preferential treatments provided by Chinese local governments (Hsing, 1998). For instance, electronics industry agglomerations in Dongguan (Guangdong province), and in Kunshan (Jiangsu province) close to Shanghai, have derived largely from a concentration of Taiwanese firms (Sasuga, 2004). Taiwanese notebook computer assembly companies, in particular, have sought to boost their competitiveness by building large-scale production sites in China. About 80% of notebook computer shipments under Taiwanese control came from China in 2003, while Taiwanese electronics MNCs continued to maintain their R&D activities in Taiwan itself, and in some instances they were prevented from transferring advanced technologies to the mainland by the Taiwanese government on security grounds (Yang, 2006). Sasuga (2004) notes that around 70% of computer-related goods produced by Taiwanese firms in China have been based on OEM contracts with foreign firms—primarily from the US and Japan.

A second set of issues in Japan’s new relationships with Taiwan concerns, therefore, how Japanese electronics companies have addressed this shift of Taiwanese manufacturing to China. Have Japanese operations in Taiwan been proactive in taking full opportunity of this trend, or has the fact that Taiwanese factories were moving offshore ‘dampened’ the impact of long-term relations between Japanese and Taiwanese companies? While strategies and approaches differed, overall they indicated that Taiwan had been pivotal in extending Japanese MNCs’ involvement in China.

Japanese sales companies in Taiwan

First, many Japanese firms reported that they found it advantageous to sell components and license technology to Taiwanese subsidiaries—even though the factory of their Taiwanese clients had moved to China, while leaving behind their head office and research engineering. Consequently, Japanese electronics firms who had established sales offices in Taiwan had a greater chance of promoting high-technology products to Taiwanese firms than their competitors from other countries, who had no special Taiwanese connection; these competitors often had to make ‘cold calls’ to Taiwanese factories located in Guangdong or Shanghai. The local manager of a new semiconductor sales office in Taiwan made the following comments:

“We expect the Greater China Area comprising China, Hong Kong, and Taiwan, to account for 40% of worldwide semiconductor demand by 2010. Our main purchasers are Taiwanese firms who have already moved their factories to Shanghai and to the Shenzhen area [in Guangdong province]. We have about four engineers in each of these mainland locations in order to arrange customer support on a 24-hour basis. But our Taiwanese customers’ headquarters are still in Taipei and these Taiwanese firms continue to carry out several functions here, including finance, R&D, and marketing. However, about 90% of all their production has already moved offshore. Consequently, we obtain orders from the Taiwanese firms and then arrange to ship our products directly from Japan into mainland China. But even after Taiwanese firms moved to Shanghai, they still like to have a relationship with their Japanese suppliers back here in Taiwan. So this gives us a competitive edge over Toshiba Hong Kong, who hired local Chinese managers for their sales force in China. Taiwanese managers like to communicate with other Taiwanese—not Hong Kong or Shanghai people. So this business-to-business trade through
Taiwan is better for us” (Eric Chang, General Manager, Semiconductor Sales Division, Toshiba Electronics, Taiwan Corporation, Taipei, July 2007). In other words, Taiwanese supply firms have continued to benefit from Japanese electronics components—even as they shifted production to China to remain competitive and in order to win OEM/ODM sales contracts from US companies (and, increasingly, Japanese companies). This trend pointed to the emergence of an evolving division of labour in East Asia, whereby Japanese firms, such as Toshiba, have supplied equipment and components to Taiwanese firms, yet the actual manufacturing of PCs and other ICT products has taken place in China. Although the Hong Kong offices of Japanese electronics firms maintained control over the delivery of parts and components to Hong Kong firms in nearby Guangdong (Pearl River Delta) (Edgington and Hayter, 2005), Taiwan was still used as a base to arrange logistics, delivery, and pricing to Taiwanese factories located in and around Shanghai and in Shenzhen/Guangzhou (see figure 3).

International procurement organizations (IPOs) in China

Japanese firms have further responded to moves of production by Taiwanese firms to China with respect to the location of IPOs. Initially established in Taiwan during the 1990s (as noted above), branches have since been set up in China to negotiate more easily for ‘Taiwanese-made’ parts and components, and even completely made-up PCs (figure 3). A Fujitsu manager of an IPO in Taiwan explained his company’s recent strategy to move closer to the mainland:

“We started the IPO business in Taiwan during 1995—so we have about twelve year’s business experience here. In Taipei we operate a Greater China IPO Office. In Shenzhen [PRC] we have a branch of our business specializing in desktop PC parts, all bought from small Taiwanese firms in the city of Dongguan located in the Pearl River Delta; and in Shanghai we have another branch specializing in buying parts for our notebook PCs. In others words, an IPO office was needed in Dongguan and Shanghai to deal with logistics and parts checking on a day-to-day basis. This is because it is more convenient to conduct support operations from mainland China, such as delivery status and production status, close to where our clients’ factories are located. In Shenzhen, our staff look after technical assistance, quality assurance, and transportation, as Fujitsu has around 40–55 regular business suppliers there, and many more small business parts suppliers used on an ad hoc basis” (Minoru Yamada, Director, Business Promotion Division, Fujitsu Taiwan Ltd, Taipei, July 2007).

Nonetheless, Japanese managers stated that, as long as Taiwanese companies conducted their R&D locally in Taipei or in the Hsinchu Science Park, then Japanese firms such as Sony and NEC were also likely to continue using design and testing laboratories for ICT parts in Taiwan. This was necessary first to be closer to the engineers of their Taiwanese supply partners, and second to transfer their technology more easily—even though mass production would invariably take place in China. Moreover, as of 2007, the Taiwanese government still retained a number of long-standing restrictions on the transfer of high technology into China for political and security reasons. For these and other reasons, Japanese companies continued to use their Taiwanese base and long-term connections to purchase ICT products from Taiwanese customers. The CEO of the Japanese Chamber of Commerce and Industry in Taiwan also noted that direct sales of Japanese components to Taiwanese factories in China would likely not be carried out for some time because the key purchasing engineers of the major companies were still located in Taiwan (interview with Ted C H Huang, Secretary General, Japanese Chamber of Commerce and Industry, Taipei, July 2007).
Technology licensing for the Chinese market

A third example of how Japanese firms continued to use Taiwan as a ‘bridge to the mainland’ involved them following their Taiwanese clients to China in order to provide technology services, including licensing, so as to secure the Taiwanese firm’s success in the Chinese market. In these cases, the Japanese companies appeared satisfied that they could assist Taiwanese firms who could take advantage of cheaper wages in China, rather than engage in production there themselves.

“We set up a Shanghai branch when our major customer [Taiwan Semiconductor Manufacturing Company] started production in Shanghai [this particular transfer of technology to China was allowed by the Taiwanese government at the time of the interview]. The managers in our firm there are mainly Taiwanese people and not mainland Chinese. This is normal for many Japanese companies who work in Taiwan. When their Taiwanese industrial customers move into China they send local Taiwanese managers who look after the Shanghai operations, as they do not trust the local Chinese managers the same way. We have had many problems with our Chinese managers and workers. They cheat and do not tell you about production problems” (interview with Ken Chen, President, Kokusai Electric Asia Pacific Co. Ltd, Hsinchu Science City, July 2007).

Joint ventures in China

Fourth, many Japanese electronics firms have joint ventures with Taiwanese companies in new production operations in China (figure 3). Ito (2005; 2009) found that joint ventures between Japanese and Taiwanese electronics companies in mainland China improved market access for the Japanese partners by making it easier to: (1) connect with Taiwanese companies who had already established a large economic presence in China; (2) use Taiwanese partners' distribution networks; and (3) gain local information from Taiwanese partners whose language and cultures were more similar to those in China than in the Japanese firms. His research suggests that organizational costs were reduced because of the mutual trust built as a result of the long history of collaboration between the Japanese and Taiwanese partners in Taiwan. These results attest to our overall theme that Taiwan has provided a very convenient ‘bridge to the mainland’, based on Japanese historical and cultural connections with Taiwan.

The challenges of a Greater China Strategy

Despite the overall enthusiasm for developing a so-called Greater China Strategy, using Taiwan as an intermediary to the mainland, other Japanese MNCs reported that they had decided to sidestep Taiwan altogether. For example, Toshiba set up its own PC notebook factory in China near Shanghai in 2000 to take advantage of lower labor costs and access to the local market—benefits that were denied at the time to Taiwanese notebook manufacturers, such as Acer and Asus, by their government’s restrictions on high-technology investment in the mainland. These moves begged the question of how long Taiwan could continue to maintain its ‘hub’ or ‘bridge’ role between China and Japan. Indeed, both for export-oriented and for domestic-market-focused production, the question arises as to what would stop Japanese firms themselves using Chinese supply firms or setting up their own factories. Some firms responded by noting that, although the cheaper labour costs in China were indeed attractive, Japanese MNCs found that setting up a plant in China themselves could be expensive and complicated; in addition, transaction costs between Japanese and Taiwanese firms were much lower. Thus, a local Taiwanese executive of Hitachi reported:
“Many Japanese companies like to use their Taiwanese connections to work in China and use joint ventures as they more easily understand Taiwanese managers and OEM firms than local Chinese parts suppliers. In particular, the real meaning of information and decision making is often very difficult to catch when using Chinese firms. So, Taiwanese firms are a good bridge, and this will keep Japanese firms in Taiwan for quite a while, even though China is the third-largest economy [in 2007] and its labour force is much cheaper than here. Our only complaint is the problem of coordination between Shanghai, Taiwan, and Hong Kong. Two visas are presently needed to operate in Shanghai from Taiwan, as we have to travel to Hong Kong first. We badly need a direct airplane connection between Taiwan and the mainland” (Shih-Hung Chen, General Manager, Hitachi East Asia Ltd, Taipei Branch, Taiwan, July 2007).

For their part, Taiwan’s manufacturers stated that their factories in China making standard parts and components were hard to beat when it came to cost-cutting. Few anticipated a threat from Japanese firms’ efforts to set up their own Chinese plants:

“If Japanese factories outsourcing continues to make a profit for them, then of course it will continue to flow in this direction [to Taiwan]. Even though the Japanese set up factories in China they could not manage the Chinese better than the Taiwanese do, no matter how good they are, because the culture is different. I think that this is a significant advantage for Taiwanese firms” (Michael Wang, Manager, Quanta Chief Operating Office, Taipei, reported in Kramer, 2005).

Nonetheless, there is a fear that local production skills in Taiwan are shifting to the mainland:

“If too much overall production in Taiwan leaks away to China it will become harder to keep good engineers in Taiwan. We have seen a similar hollowing out in Japan” (comments by Eric Chang, General Manager, Semiconductor Sales Division, Toshiba Electronics Taiwan Corporation, Taipei, July 2007).

Moreover, recent trends in Japanese consumer electronics production in Taiwan may not bode well for Japanese continuing ICT operations there. Thus, in 2000, possibly in response to ‘hollowing out’ factors, Hitachi closed its Taiwanese CTV factory which it had opened initially in 1969 for local production as well as exports to the USA. After closing this factory, the company shifted its production to China. Also, Casio removed its manufacture of watch parts and cases from Taiwan to Guangzhou, China in 2006 (information supplied by Ted C H Huang, Secretary General, The Japanese Chamber of Commerce and Industry, Taipei, July 2007).

Conclusions
This study has extended thinking about the important role of cultural contexts in the evolution of production networks in East Asia. Japan–Taiwan corporate ties reflect Japanese colonial history, limited Taiwanese resentment towards the Japanese, and a build-up of trust and partnership between Japanese and Taiwanese firms after 1945—to the extent that Japanese MNCs are now considered ‘insiders’. Since the 1990s Taiwan has played an unusual pivotal role, because of its close cultural and business connections with Japan and China. It no longer simply stands in a hierarchical relationship with Japan, but acts as a collaborator and intermediary with the mainland. It is no longer a cheap export platform for routine goods, or an adept flexibly specialized supplier of components, but also a source of expertise and innovation. This last role may grow as it functions as a pro-active bridge between Japan and China. This study has revealed that, in providing these bridge functions, culture and trust are intimately related to economic performance because of their effects in reducing transaction costs. In so doing, this study has given analytical traction to the claim of the global
production network approach (Coe et al, 2008) to give greater priority to cultural considerations. We note that Taiwan has a special role vis-à-vis Japan, and it is uncertain if this exceptional position can be replicated in other contexts—either in East Asia or elsewhere.

Indeed, whether or not heterarchical relations between Taiwan and Japan will develop further—with Taiwan continuing to play a pivotal role in Greater China—remains to be seen. At the time of our research, Japanese MNCs remained committed to controlling technology through licensing and not dispersing long-term R&D to Taiwan. Cultural and historical ties in building trust between Japanese and Taiwanese firms appear, therefore, to have their limits. Although Taiwanese ODM firms were very efficient they brought challenges, such as intellectual-property risk, and Japanese MNCs did not wish to create competitors out of their Taiwanese supply companies and partners. More recently, the cross-Taiwan Strait economic cooperation framework agreement, which took effect in 2010, has fuelled renewed Japanese interest in investing in Taiwan (Copper, 2010). This new deal will likely lead to rising sales in the mainland of laptop computers produced by Taiwanese firms and, consequently, Japanese companies which sell components to Taiwan may reap a windfall. These new arrangements, together with more direct airline connections across the straits with China, might well strengthen ties between Japanese and Taiwanese ICT firms, as Japanese MNCs could benefit from Taiwanese companies’ knowledge of the Chinese market and their strengths in product innovation and commercialization. The possibility of a Japan–Taiwan–China trade agreement and its impact on regional production networks also need to be assessed (Office of the President, Republic of China, Taiwan, 2009).

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