Changing Competitiveness of Japanese Firms and Role of Japan’s FDI
Shigeki Tejima

ABSTRACT

The origin of Japanese firms’ international competitiveness is in the system of minimising ‘the sum of production costs and transaction costs’ in the procurements of ‘specialty’ parts. Japan’s location advantages are indispensable factors for Japanese firms to achieve the cost minimisation. Furthermore, existence of global demand for ‘specialty’ products has strongly supported the ownership advantages of Japanese automobile industry. However, recent ‘ICT revolution’ has caused accelerated ‘commoditisation’ of ‘specialty’ products, especially, in ICT and electronics industries. This ‘commoditisation’ undermined Japanese firms’ competitiveness in ICT and electronics industries. Japanese firms in the industries have to concentrate more on development of new products, instead of effective production. The Japanese electronics and ICT firms are facing several dilemmas, which need to be resolved.

I. The Background and the Issue

After the low growth age of Japanese economy (so-called ‘Japan’s lost decade’ with about 1 per cent growth or less per year) in the 1990s and beginning of 21 century, it seems that finally Japanese economy has turned to an upward direction of 2.5 per cent growth or more per year in recent years. However, is it true that Japanese firms have actually strengthened and recovered their competitiveness in some major industries, especially in ICT (information communication technology) industries?

In this article, I focus on the international competitiveness of some types of Japanese firms, which were considerably damaged by the ‘ICT revolution’ and that of other types of Japanese firms, which were maintained and strengthened even in that situation. Demand side as well as supply side will be examined in the analysis of Japanese firms’ competitiveness.

In the Section II, I briefly describe the recent trend of Japan’s international trade and foreign direct investment (FDI) and changing competitiveness of Japanese firms. In the Section III, I try to clarify that the origin of Japanese firms’ international competitiveness is a system to minimise ‘the sum of production cost and transaction cost’. The Section IV is an argument on the severe influence of ‘ICT revolution’ on Japanese firms’ international competitiveness, which is based on the ‘minimisation of production cost and transaction cost’. The effects on demand side are also analysed in this section. The Section V is regarding a possible solution to recover the international competitiveness of Japanese firms through foreign direct investment (FDI). Overseas business activity is one good solution to recover the competitiveness of Japanese firms in damaged
industries. In fact, it is a big chance for Japanese firms. However, it is also a big challenge for Japanese firms because characteristics of markets of intermediate goods and labour in foreign countries were not necessarily advantageous for Japanese firms. How to solve this issue of location ‘disadvantages’ is another big task for Japanese firms. Finally, the Section VI is the conclusion.

II. A Recent Trend of Japan’s International Trade and Foreign Direct Investment (FDI)

A Recent Trend of Japan’s International Trade

When we see the recent trend of Japan’s international trade, it is noteworthy that Japan’s export has steadily grown and Japan preserved a high level of trade surplus while Japan’s import has also rapidly increased even in the period of so called ‘Japan’s lost decade (or low growth age)’ of the 1990s (Figure 1).

Figure 1
Japan’s Export and Import

Source: Compiled by the author from Japan’s MoF (Ministry of Finance) data.

It seems that, generally speaking, Japanese companies have still maintained export competitiveness internationally although some of them were obliged to implement severe restructuring of their management, especially, in electronics and ICT industries.
Recent Trends of International Trade by Region

If we see the recent trend of international trade by region, it is clear that Japan's trade with Asia has prominently grown in recent years while the trade with North America grew more moderately. Asia was the largest destination of Japan's export since 1991 (Figure 2) and the region was continuously the largest source of Japan's import for the period from 1988 to 2004 (Figure 3). If we focus on the bilateral trade between Japan and the USA and between Japan and China, Japan's export to China has not yet reached the export level to the USA in that period but the gap between the two exports has been narrowed so rapidly (Figure 4).

On the other hand, Japan's import from China expanded so prominently in the past 15 years and exceeded the import from the USA in 2002 (Figure 5).

The above recent trends indicate that 'regionalisation into Asia' has become vigorous in Japan's international trade. However, if we take into account Japan's overseas affiliates' sales, we find a different picture of Japanese multinational corporations (MNCs)' globalisation (Figure 6).

Figure 2

Japan's Export by Region

Source: Compiled by the author from MoF data.
Figure 3

Japan’s Import by Region

Source: Compiled by the author from MoF data.

Figure 4

Japan’s Export to the USA and to China

Source: Compiled by the author from MoF data.
Figure 5
Japan’s Import from the USA and China

Source: Compiled by the author from MoF data.

Figure 6
Japan’s Export to the USA and China and Their Affiliates’ Sales in the USA and China

Source: Compiled by the author from MoF and METI (Ministry of Economy, Trade and Industry) data.
Figure 6 indicates that Japanese affiliates’ sales in the USA are extremely large in comparison with their sales in China, Japanese firms’ export to the USA and their export to China. In that context, recently strengthened regionalisation by Japanese firms in international trade is only one part of the total picture of Japanese firms’ global activity. According to the definition of Bartlett and Goshal, the “second stage globalization” by Japanese firms means that globalisation strategies have been achieved more actively by Japanese firms with their overseas affiliates’ sales rather than Japanese parent companies’ export since the 1980s, while the export was the major vehicle for them to expand and preserve foreign markets in the “first stage globalization” (Bartlett, Ghoshal 2003). Figure 6 shows us that Japanese MNCs is now exactly in the “second stage globalisation” regarding two major partners, China and the USA.

The Recent Trends of International Trade by Industry

Concerning Japan’s international trade by industry, we find that international competitiveness of Japanese firms is diversified by industry. According to JETRO, the automobile industry has turned to be the largest export machinery industry from Japan to the USA in the period of 1995 to 2004, taking the place of the electrical machinery industry (electronics and ICT industry). The international competitiveness of Japanese automobile industry has been preserved and strengthened in the export to the USA while their affiliates’ local production in the USA has already reached a far larger level than their export.

On the other hand, Japan’s electrical machinery industry has preserved the position of largest manufacturing export industry to China. Export competitiveness of Japan’s electrical machinery industry has been relatively weakened in the market of the USA in comparison with Japan’s automobile industry in the 1990s in the beginning of the 21 century. However, Japanese affiliates in the electrical machinery industry in Asian countries have expanded their export to the USA and the EU.

In the next section, we will see the content of Japan’s MNCs’ international competitiveness and the effects of ‘ICT revolution’ on it.

III. Japanese Firms’ Competitiveness and the Effects of ICT Revolution on it

Effective Partial Integration

The author of this article has to clarify that Japanese firms’ international competitiveness is based on ‘partial but effective vertical integration’ in the markets of intermediate goods (parts, components) and well-educated/trained labour (human resources) (Tejima’ papers in the reference).

The situation is the following. Japanese firms’ ownership advantage is based on the system to minimise transaction costs in procuring ‘specialty’ parts and sophisticated human resources (Williamson, 1998). According to Williamson, in trades of ‘specialty products,’ buyers and sellers face ‘information asymmetry’, opportunism by both parties and high risk of huge ‘sank cost’ on investment for production of new ‘specialty’ goods and services. In the procurement of the ‘specialty products,’ buyers have to pay substantial amounts of market transaction costs and/
or intra-firm transaction costs in addition to the production costs. Good examples of industries with high transaction costs are automobile, electronics and ICT industries, which have produced high value added products (‘specialty products’) with globally well-known brand names. Moreover, these industries use a variety of ‘specialty’ parts and human resources in their production. Japanese firms have conventionally advantages in producing such high-value added products with minimisation of the sum of transaction costs and production costs. We will discuss the mechanism in the next section.

**Williamson’s Model**

Firms, which are doing profit maximisation, have to minimise the sum of transaction costs and production costs in procurements of the ‘specialty’ parts. Williamson compared in his model ‘intra-firm production cost (G1) minus market production cost (G2)’ with ‘intra-firm transaction cost (C1) minus market transaction cost (C2)’ (Williamson, 1985). These costs are functions of the degree of ‘specialty’ of the product. Figure 7 indicates that market transaction costs (C2) and market production costs (G2) are very low while intra-firm transaction costs (C1) and intra-firm production costs (G1) are very high when the degree of ‘specialty’ is very low. Intra-firm production cost (G1) is extremely high because market production is far more effective than intra-firm production when the degree of ‘specialty’ of the product is very low, in other words, the product has a nature of ‘commodity’.

However, when the nature of ‘specialty’ is strengthened, market transaction becomes less popular. Therefore, both market transaction costs (C2) and market production costs (G2) are increased while intra-firm transaction costs (C1) and intra-firm production costs (G1) are constant. When the degree of ‘specialty’ is strengthened, the difference of intra-firm production costs (G1) minus market production costs (G2) is gradually diminished and finally it reaches to zero.

The difference of intra-firm transaction costs (C1) minus market transaction costs (C2) is also gradually diminished. Furthermore, it is turned to minus because market transaction costs exceed intra-firm transaction costs when the degree of ‘specialty’ is enough high.

As a result, the sum of ‘G1 minus G2’ plus ‘C1 minus C2’ is decreased and, finally, turned to negative when the degree of ‘specialty’ becomes enough high. In Figure 7 the sum is going down to zero, when the degree of ‘specialty’ reaches ‘S*’. When the ‘specialty’ is strengthened furthermore beyond the point ‘S*’, the sum becomes negative.

That is,

\[(G1-G2)+(C1-C2)<0 \quad (1)\]

In other words,

\[G1+C1<G2+C2 \quad (2)\]

It means that intra-firm procurement of the product is more effective (or cost saving) than purchasing the product in the market, when the degree of ‘specialty’ is higher than ‘S*’. On the other hand, if the degree of ‘specialty’ is less than ‘S*’, purchasing the product in the market is more cost saving than intra-firm procurement of the product.
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Japanese Firms’ Advantage Model by the Author

The above argument rationalises vertical integrations by assembling companies of parts suppliers when the parts have nature of high degree of ‘specialty’.

However, I insist that Williamson compared the cases of the two extremes. In one extreme, the firm procures completely 100 per cent of the parts in the market (with the cost of G2 plus C2) and, in another the firm procures completely 100 per cent of the product within the firm (with the cost of G1 plus C1).

It is true that intra-firm production cost (G1) is mostly equal to market production cost (G2) and that market transaction cost (C2) is far higher than intra-firm transaction cost (C1), when the degree of ‘specialty’ of the product is considerably higher than ‘S*’. It means that if the specialty degree of the parts is high enough (more than S*, for example, with the degree of S**), the following two equations (3) and (4) are valid.

\[
C1(100) < C2(0) \quad (3)
\]

\[
G1 = C2 \quad (4)
\]

In equation (3), figures in parentheses of transaction cost functions mean the percentage share of in-house parts production by the company itself in the total procurement of the specialty parts. We call the percentage share (\(\alpha\)) as ‘internal parts production ratio’.

In this section, I try to clarify that Japanese firms can achieve the minimum value of the sum of intra-firm transaction cost plus market transaction cost if they procure partially the specialty parts by in-house production and partially by out-sourcing by market transaction.
I will show that the following equation is set up in the case of Japanese firms’ parts procurements with the condition of equation (4).

\[ C_1(\alpha) + C_2(\alpha) = <C_1(100) < C_2(0) \] (5)

It means that there exists the point J, which minimises \((C_1(\alpha) + C_2(\alpha))\) when \(\alpha = J\).

The equation (5) is easily imagined if we consider the well-known situation of the automobile industry, where internal parts production ratio by Japanese automobile firms was far lower than that of the US automobile companies while Japanese automobile firms have maintained higher international competitiveness than American counterparts.

Japanese assemblers conclude supply contracts for medium-term (often three or four years) period with plural suppliers, reviewing parts each six months (Asanuma, 1989). On the other hand, Japanese automobile firms are producing the most important key parts by themselves.

Regarding production costs, the lowest production cost can be achieved among major assemblers and parts suppliers in Japan, the USA and EU (\(G_1 = G_2 = \text{constant} = \text{MC} (\text{marginal cost}) = \text{AC} (\text{average cost}) = \text{(constant)}\) in equation (4)', when economy of scale is achieved in matured industries, for example, automobile industry. It means that full economy of scale over the long-term period shall be commonly achieved in automobile companies and major parts suppliers in Japan, the USA and the EU. Moreover, \(G_1 = G_2\) is established for the parts of specialty degree ‘S**’ in Williamson’s model.

Therefore, we can concentrate on analysis of the mechanism to minimise the sum of intra-firm transaction costs (C1) and market transaction costs (C2).

Regarding market transaction costs (C2), the costs of specialty parts’ procurement is the highest for the assembler (buyer of the parts) when the assembler purchases 100 per cent of the parts in the market because its bargaining power against the parts supplier is the weakest when it completely relies on parts procurement in the market. In other words, ‘\(C_2(0)\)’ is the largest level of market transaction costs for the assembler, where the internal parts production ratio is zero.

It is noteworthy that the market transaction cost (C2) is decreasing sharply when the assembler increases the internal parts production ratio.

The reason of the sharp decrease of the market transaction costs is based on ‘Japanese parts suppliers’ preference in parts market’. When the parts supplier prefers stable transaction with the assembler for the long-term period to opportunistic profit in the short-term period, we call it as ‘Japanese parts suppliers’ preference in parts market’. With the preference, the parts suppliers are very eager to decrease the opportunistic profit, if the assembler begins the production of the specialty parts. Because, Japanese part suppliers recognise their assembler as the most important and profitable customer over the long-term period. Therefore, the parts suppliers try to persuade the assembler to stop any more expansion of the in-house production of the specialty parts by reduction of the opportunistic profit, which is the market transaction cost for the assembler. The parts suppliers are glad to lower drastically their opportunistic profits for maintaining the stable transaction with their assembler.
It is noteworthy that the assembler progressively increases the bargaining power against the parts suppliers when the assembler expands the internal parts production. Because the assembler obtains wider range of choice between in-house parts production and parts procurement in market than before. Furthermore, the assembler has much more knowledge and information regarding the characteristics and production of the specialty parts than before.

For example, if an automobile company (assembler) does not produce any engine by itself, the assembler has few bargaining power against the engine suppliers when the assembler needs to obtain the specialty engine in building a new model of passenger car. However, if the assembler achieves the R&D and production of the most sophisticated engine, the assembler can easily obtain the enough information of any type of less sophisticated engines as well as the most sophisticated engine. Therefore, the assembler can more easily start the production of any type of specialty engines if it want.

Because of parts suppliers’ preference for long-term contracts and growing bargaining power of assemblers, the market transaction cost \( C_2 \) is decreased continuously when the assembler increases the share \( \alpha \%) \) of internal parts production. \( C_2(100) \) equals to zero because there does not exist any market transaction.

One important point is that the diminishing rate of market transaction cost \( C_2 \) is decelerated because, for the parts suppliers, the importance of preserving long-term contract with the assembler is decreasing in accelerated rate \( C_2 \) curve in Figure 8). The diminishing attractiveness of the assemblers for the parts suppliers as a big customer is based on the assembler’s growing bargaining power against the parts suppliers.

In other words, the parts suppliers progressively discourage their enthusiasm for maintaining the long-term transaction with the assembler through the reduction of the opportunistic profit (market transaction costs for the assembler) when the assembler strengthens his bargaining power against the parts supplier in accelerated pace.

That is,

\[
\frac{dC_2(\alpha)}{d\alpha} < 0 \quad (6)
\]

\[
\frac{d^2C_2(\alpha)}{d\alpha^2} > 0 \quad (7)
\]

Then, we move to the intra-firm transaction costs \( C_1 \). The intra-firm transaction costs \( C_1 \) are zero when the internal parts production ratio \( \alpha \%) \) is zero because there does not exist any kind of intra-firm transaction. That is, \( C_1(0)=0 \). If the ratio \( \alpha \%) \) is increased, the intra-firm transaction costs \( C_1 \) are also increased because employees’ opportunistic profits in the assembling company can be expanded when its organisation is enlarged for responding to growing internal production of the specialty parts.

However, the intra-firm transaction costs \( C_1 \) are relatively small when the scale of the firm is small because the employees have ‘Japanese preference in labour market’. In other words, they prefer maintaining ‘de-facto life-time’ employment contract with the assembling firm over the long-term period to taking opportunistic profit in the short-term period. A variety of institutions and company systems, including ‘quality control’ groups of peer members, ‘job-rotation’ system and gradual promotion system over the long-term period have worked effectively to diminish
opportunistic profit of employees. Social insurance and pension systems are supporting ‘de-facto life-time’ employment system’. These institutions and systems are powerful tools of Japanese management to effectively lower transaction costs in the internal labour market over the long-term period. It means that intra-firm transaction costs for the assembling firms are considerably lowered in the beginning of in-house production of those specialty parts. However, when the organisation of assembling firms are enlarged to a larger scale to achieve higher internal production ratio \((\alpha\%)\), the growth rate of intra-firm transaction costs is accelerated \((C_1\text{ curve in Figure 8})\). Japanese preference in labour market is loosing effectiveness in accelerated pace when the organisation of the company is enlarged and ‘peer pressure’ in the same job is also weakened. It is often named as ‘large enterprise’s disease’ of Japanese firms, or ineffectiveness of large firms (or, ‘Dai Kigyou Byou’ in Japanese).

That is,

\[
\frac{dC_1(\alpha)}{d\alpha} > 0 \quad (8)
\]

\[
\frac{d^2C_1(\alpha)}{d\alpha^2} > 0 \quad (9)
\]

Finally, the market transaction costs reach the maximum value when the share \((f\alpha\%)\) of internal parts production is 100 per cent.

The Japanese firms’ sum of the market transaction costs and intra-firm transaction costs, which is \(C_1(\alpha)+C_2(\alpha)\) as described in Figure 8, can be minimised at point J in Figure 8. The cost minimised point (J) is on ‘strategic (ST) curve’ in Figure 8, which is the sum of market transaction costs \((C_2)\) and intra-firm transaction costs \((C_1)\). Point J is achieved at the optimum level of the internal parts production ratio \((J\text{ per cent})\).

On the other hand, the minimised point by Williamson, which is achieved at the complete intra-firm production of the parts, is point W in Figure 8.

The minimised cost at point J of Japanese firms in Figure 8 is smaller than the cost at point W of Williamson in Figure 8.

When \(\alpha=J\),

\[
\text{Mini } C_1(\alpha)+C_2(\alpha)<C_1(100)<C_2(0) \quad (10)
\]

The minimisation of the sum of the market transaction costs \((C_2)\) and intra-firm transaction costs \((C_1)\) can be achieved upon the conditions of the following equation \((11)\).

\[
\frac{d\{(C_1(\alpha)+(C_2(\alpha))}{d\alpha}(\alpha=J) = 0 \quad (11)
\]

That means that the following equation is satisfied.

\[
G_1(=G_2) + C_1(J)+C_2(J)<G_1(=G_2) +C_1(100) \quad (12)
\]

I insist again that this cost minimisation point ‘J’ exists based on ‘Japanese preference’ of Japanese specialty parts suppliers and employees of Japanese assembling companies in matured industries. They prefer stable transaction for the long-term period to opportunistic profit for the short-term period. The Japanese preference is supported by social and institutional systems, including insurance, pension and ‘de facto life-time’ employment. The Japanese preference and Japanese institutional systems are ‘location advantages’ of the home country (Japan) for Japanese firms.
Both market transaction costs and intra-firm transaction costs have quite different characteristics in foreign country, reflecting the quite different preferences of labour market and specialty parts market and institutional system of the society there. Regarding market transaction costs (C2), on the contrary to Japanese firms, the parts suppliers often prefer to obtain opportunistic profit in the short-term period to stable transaction with the assembler over the long-term period. We can call the preference in parts market as ‘non-Japanese preference in parts market’. The parts suppliers with ‘non-Japanese preference’ are more market-oriented and they are very reluctant to decrease the opportunistic profit, which is the market transaction costs for the assembler, when the assembler begins in-house parts production by itself. However, the rate of diminishing market transaction costs (C2) is accelerated because the assembler increases the bargaining power against parts suppliers in accelerated pace when it increases the internal parts production ratio ($f\alpha$) (C2 curve in Figure 9).
That is,
\[
\frac{dC2(\alpha)}{d\alpha} < 0 \quad (13)
\]
\[
\frac{d^2C2(\alpha)}{d\alpha^2} < 0 \quad (14)
\]

Finally, the market transaction costs are equal to zero when the internal parts production ratio \((\alpha\%)\) is 100 per cent. This is the typical trend of non-Japanese firms’ market transaction costs in matured industries, depending on internal production ratio \((\alpha\%)\) of the specialty product.

Regarding intra-firm transaction costs \((C1)\), we assume that foreign employees have ‘non-Japanese preference’ in non-Japanese firms. They prefer to take the opportunistic profit in the short-term period to maintaining a stable employment contract with the assembling firm for the long-term period. In this case the intra-firm transaction costs \((C1)\) are rapidly grown up when assemblers begins in-house production of the specialty parts because information asymmetry related to the specialty parts production is fully utilised by employees, who are eager to obtain the opportunistic profit in the short-term period.
However, the increasing rate of intra-firm transaction costs is decelerated because non-Japanese firms try to diminish the intra-firm transaction costs (C1) through utilising a very strict personnel evaluation on each employee’s performance in each short period (C1 curve in Figure 9).

That is,
\[\frac{dC1(\alpha)}{d\alpha} > 0 \quad (15)\]
\[\frac{d^2C1(\alpha)}{d\alpha^2} < 0 \quad (16)\]

Finally, the market transaction costs reach the maximum value when the share (\(\alpha\%\)) of internal parts production is 100 per cent. This is the typical case of non-Japanese firms in matured industries.

In the case of ‘non-Japanese preference’, which prefers the opportunistic profit in the short-term period to the stable transaction over the long-term period, we cannot find the point J on ‘strategic (ST) curve’, which expresses the minimum sum of market transaction costs (C2) and intra-firm transaction costs (C1), in Figure 9. In this case of ‘non-Japanese preference’, the minimisation of the sum of C1 plus C2 is achieved at the point W of Williamson, which is more cost expending than at the point J.

It means that the Japanese management in matured industries can generally achieve more effectively transaction costs-saving production than non-Japanese management.

In more generalised expression for a ‘specialty’ part named ‘\(n^{th}\) good’, which has degree of ‘specialty’ of ‘S**’ (\(S** > S^*\)), the sum of production costs plus transaction costs is in the following equations.
\[G1n (=G2n)+C1n(J)+C2n(J)< G1n(=G2n)+C1n(100) \quad (17)\]

In another expression,
\[C1n (J)+C2n(J) < C1n (100) \quad (18)\]

For the total procurement of specialty parts, which has degree of ‘specialty’ of ‘S**’ or more, the sum of production costs plus transaction costs is in the following formula.
\[\sum G1i (=\sum G2i)+\sum C1i(J)+\sum C2i(J) < \sum G1i (=\sum G2i)+\sum C1i(100) \quad (19)\]

In another expression,
\[\sum C1i(J)+\sum C2i(J) < \sum C1i(100) \quad (20)\]

Therefore, we can say that the transaction cost competitiveness based on Japanese management system and Japan’s location advantages in matured industries is generally expressed in the above equation (18) if production cost of highly specialised products is at the commonly same (constant) level for both Japanese and Western (American and European) firms (\(\sum G1i = \sum G2i\)).
IV. Advantages and Disadvantages of Japanese Firms by Industry in the Age of ‘ICT Revolution’

The Effects of ‘ICT Revolution’ on Ownership Advantages of Japanese Firms

As argued in the Section 3, Japanese firms in matured industries have prominent ownership advantages in the minimisation of sum of market transaction cost and intra-firm transaction cost, if the companies are procuring high ‘specialty’ parts under the condition of prevailing ‘Japanese preference’ in the location advantage of Japan. This is one clear reason that Japanese firms in automobile industry have preserved strong international competitiveness. They are continuously doing their best efforts of ‘transaction cost minimisation’ through improving their management tools described in Section 3.

On the other hand, electronics and ICT industries in Japan are gradually losing international competitiveness in the 1990s because many of their products are easily standardised to ‘commodity’ products in accelerated pace in the age of ‘ICT revolution.’ It means that the system of minimising transaction cost has been rapidly losing importance in the electronics and ICT industries.

This global trend of ‘commoditisation’ caused by ‘ICT revolution’ results in two types of competition.

The first one is how to create new ‘specialty’ products as soon as possible and how to preserve (‘encapsulate’) the know-how and the intellectual property right of the new products as far as possible within the company. In this new type of competition, Japanese firms, which are based on conventional Japanese advantages described in the Section 3, is not so competitive in electronics and ICT industries because the creation and commercialisation of new products in accelerated pace are more important than the minimisation of transaction costs in the production of ‘specialty’ goods with the constant AC (average production cost). Japanese firms’ advantages, which are based on the ‘Japanese preference’ oriented toward stable transaction over the long-term period, is not so effective for creating unique products in a short period. However, Japanese advantage based on the ‘Japanese preference’ is still effective in the development of new products in ‘integrated technology’, for example, the development of hybrid energy saving cars and the development of new specialty parts by cooperative works between assembling companies and parts suppliers in the automobile industry.

The second competition is lowering the production cost of commodity products, to which the former ‘specialty’ products can be shifted in the accelerated pace. In fact, global MNCs are seeking globally optimum production sites, as far as possible. Recent trend of Japan’s FDI concentration in China can be rationalised as a strategy of Japanese, Asian and Western MNCs for preserving cost-competitive production bases.

Commoditisation based on ‘ICT revolution’ has recently separated R&D activities from the manufacturing activities, in many fields of ICT and electronics industries. Therefore, many Western and Japanese firms are now concentrating on the sophisticated works of development
of new products, leaving production of parts and final products to low cost manufacturers in developing countries, for example, in China. In other words, new types of international division of labour is rapidly organised between developed countries engaged in the field of R&D/brand-making works and developing countries for low cost yet well-qualified production with new technology and huge economy of scales.

We can call this newly organised international division of labour as the ‘accelerated process of the product life cycle’ by Vernon through ‘ICT revolution.’ In the equation (19), if the specialty products are shifted into the commodity products because of the effects of ‘ICT revolution,’ the value of each transaction cost of $\Sigma C_{1i}(J)+\Sigma C_{2i}(J)$ and $\Sigma C_{1i}(100)$ shall be diminished rapidly and $G_1 >>> G_2$ shall be realised. Naturally, for the world MNCs in the industry, development of new specialty products by themselves and the achievement of globally optimum production of the standardised products are far more important than the minimisation of the sum of intra-firm transaction cost.

Summarising advantages and disadvantages of Japanese firms, we can say that home electronics and ICT industries in Japan are now facing serious difficulty in global competition. Because, Japanese advantages described before are neither effective for the development of new types of products with ‘independent technology’ nor for achieving low cost production.

On the other hand, Japanese automobile industry has continuously maintained prominent international competitiveness with its continuous improvement of the ‘specialty’ products’ quality, R&D works in step-by-step methods and huge scale global marketing of high value added ‘specialty’ products.

**Demand Side**

When we examine the effects of ‘ICT revolution’ and ‘commoditisation’ on Japanese competitiveness, analysis on supply side is absolutely necessary but it is not enough. We have to take into account the effects of ‘ICT revolution’ on demand of each industry.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Japanese Firms/Industries’ Competitiveness, Reflecting Advantages in Supply Side and Market (Demand) Conditions</th>
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<tr>
<td>Demand Side</td>
<td>Supply Side</td>
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<tr>
<td>(1) Specialty parts and final products production</td>
<td>(A) Automobile industry</td>
</tr>
<tr>
<td>(2) Specialty parts production, R&amp;D for innovative new products</td>
<td>(B) Sophisticated parts industry, cutting-edge ICT industries</td>
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<tr>
<td>(3) Commodity products production</td>
<td>(C) Catching up industries</td>
</tr>
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Source: Based on author’s calculations.
In the above table (Table 1), only (A), (B) and (C) industries are appropriately matching demand trend and supply conditions. Japanese automobile industries are competitive because their products have maintained nature of ‘specialty’ goods and they can find globally large-scale markets for the ‘specialty.’ Japanese ‘specialty’ parts suppliers in automobile, electronics and ICT industries also find huge markets for their ‘specialty’ products in the world. However, market for sophisticated home electronics products or motorcycles can be easily shifted to markets for the lower priced commodity products, especially, in China. In this case Japanese producers of highly priced specialty products cannot be competitive with Chinese rivals.

Table 1 suggests that Japanese automobile industries shall expand further FDI in order to develop global markets of high value added products and that Japanese ICT and electronics firms have to develop the capability to create new innovative products and to develop the markets for their ‘specialty’ products.

Reconstructing Japanese Advantages

In the age of ‘ICT Revolution’, Western firms in ‘non-Japanese preference’ are more advantageous for creating innovative products with independent technologies than Japanese firms in ‘Japanese preference’, where all parties are oriented toward stable transaction over the long-term period.

Nowadays, Japanese firms in ICT and electronics industries have implemented a variety of measures for reconstructing their declining competitiveness.


However, on the process of the shift, Japanese firms may lose their conventional advantages linked to ‘Japanese preference’. Furthermore, they cannot be guaranteed to obtain advantages of Western firms even if they engage in most eagerly in the transformation strategy.

This is one serious dilemma for Japanese firms, which are in the process of the shift of Japanese management to Western types of management.

However, Japanese firms have another way for reconstructing their competitiveness by positively expanding overseas production and overseas R&D in host countries. I discuss the possibility in the next section.

V. Japanese Advantages and Disadvantages in FDI—An Engine to Revitalise Japanese Firms and Economies

Japanese MNCs’ Motivations of FDI and Overseas Production/Sales

In Section 2, I explained that the overseas sales by Japanese affiliates in the USA and China are far larger than export to the countries by Japanese parent companies (Figure 6).

Major motivations of this accelerated FDI by Japanese MNCs are mainly ‘market-seeking FDI’ and ‘efficiency-seeking FDI.’ However, in addition to these motivations, Japanese MNCs have
Changing Competitiveness of Japanese Firms and Role of Japan’s FDI

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gradually increased their overseas R&D expenditure, reflecting recent stagnant performance of domestic R&D expenditure in the 1990s and the beginning of the 21st century (Development of Japan (DBJ) No. 63, 2004), Sakakibara 2004).

They seek more foreign resources and more communications with foreign firms to strengthen R&D globally.

According to the ‘Survey of Overseas Business’ by Japan’s Ministry of Economy, Trade and Industry (METI), Japanese firms’ overseas R&D expenditure has increased substantially from 279 thousand million Japanese Yen (about 2.8 thousand million US dollars) in FY 1997 to 363 thousand million Japanese Yen (about 3.6 thousand million US dollars) by 30.1 per cent in FY 2003 (Figure 10), if we assume that one US dollars is equivalent to 100 Japanese Yen for simplification. Still, the ratio of overseas R&D expenditure by Japanese affiliates to domestic R&D expenditure plus overseas R&D expenditure is relatively low but it was gradually increased from 2.2 per cent to 2.7 per cent in the same period (from FY 1997 to FY 2003).

When we focus on the trend of overseas R&D expenditure by region, according to the METI overseas research, 50 per cent or more of the total R&D expenditure was annually oriented toward North America in the period from FY 1993 to FY 2001. Europe was the second largest destination for Japan’s overseas R&D expenditure and Asia was the third largest.

The most serious issue of FDI for Japanese MNCs is whether they can utilise fully the location advantages of host countries through their FDI and overseas R&D.

In fact, they have to overcome difficult issues of Western management system, ‘non-Japanese preference’ and social and institutional systems of host countries. These are argued in the next Section.

Transforming Japanese Disadvantages in Host Countries to Their Advantage

Japanese affiliates in host countries have to face serious difficulties in applying Japanese management, which is based on ‘Japanese preference’. One basic issue for Japanese MNCs is that many host countries, including Asian countries as well as Western countries, have characteristics of ‘non-Japanese preference’.

In host countries, achieving the point J for cost minimisation is difficult for Japanese firms because location advantage of host country is closely linked with ‘non-Japanese preference’ of parts suppliers, assemblers, employees and employers. If Japanese affiliates enforce the application of Japanese management system to local human resources and firms, they may cause serious frictions with host countries and they may fall in failure of their overseas business. On the other hand, if they easily adopt non-Japanese management system, they achieve only non-Japanese firms’ cost minimisation point W in Figure 9.

Naturally, the former causes some ineffectiveness of Japanese managements by Japanese affiliates in host countries.

The latter means Japanese affiliates play in the foreign market as non-Japanese firms, utilising foreign resources and foreign location advantage.
In fact, Japanese affiliates in automobile industry in North America and Asia have handled well the difficult dilemma and endeavoured as far as possible to reconstruct their advantage of transaction cost minimisation at point J in foreign countries since the 1980s. Recently, automobile companies in North America and Asia have achieved prominent improvement of their sales and profit performance. It was a result of much endeavour by Japanese MNCs’ transforming location ‘disadvantages’ to location ‘advantages’ of host countries.

The first tool of that transformation is persuading local employees and parts suppliers to accept Japanese management system and ‘Japanese preference’. Naturally, the complete transformation is difficult, but Japanese management system linked with ‘Japanese preference’ has been gradually understood and accepted in North America and Asia (Abo, Itagaki, Ishii, 2005).

The second tool is huge FDI by Japanese automobile companies and their parts suppliers for constructing production and R&D networks in host countries.

Japanese electronics and IT industries in Asia were also substantially successful in the 1980s and early 1990s in constructing international production networks between Japanese parent companies and their affiliates in ASEAN countries.

These two ways of overseas business have strongly empowered Japanese MNCs in the past several years. Nowadays, sales and profit performance of major Japanese automobile companies are overcome by their affiliates, performance in the USA. According to METI, sales-current profit ratio of Japanese affiliates in Asia is higher than sales-current profit ratio of Japanese parent companies in Japan.

However, the revitalisation of Japanese MNCs in electronics and ICT industries are depending on whether they can truly achieve effective utilisation of foreign resources and foreign location advantage of the world for achieving prominent R&D. It is a long and difficult way.

Conclusion

Japanese MNCs’ ownership advantage is still vigorous in some industries, but Japanese firms have to effectively utilise foreign resources and foreign location advantage in order to recover their competitiveness and to develop markets of their ‘specialty’ products in wider range. It is the basic challenge for Japanese firms’ management system and Japanese economy.
References


