

**Japanese Multinationals:
An Evolutionary Theory and
Some Global Political Implications for the 1990's**

William V. Rapp

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William V. Rapp
Senior Research Fellow
East Asian Institute, Columbia University

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Large Japanese multinationals producing manufactured goods are the source of much of the political friction Japan has with other countries.¹ Their continued successful claim on global markets and resources would, from past experience, seem to be a potential source of continuing political economic friction. Japan as a nation has global economic importance, but it is the success of its major multinationals that accounts for much of this, as well as for Japan's ability to provide capital to other countries. Japanese firms, however, need access to world markets - especially the US and European markets - to grow and prosper, particularly in higher value-added products.

It is thus useful to understand these firms' strategic behavior and to predict some of the logical competitive and political economic consequences of the likely continuation, further implementation, and potential success of their strategies. Context is important, so I first examine the possible application of several theories of competitive behavior to the case of large Japanese multinational manufacturing firms. Further, this paper is part of a larger research effort, just beginning, that will examine the competitive dynamics and strategic evolution of these firms.

The three basic theories examined on an integrated basis are product cycle analysis, cost expectations based on experience, and an evolutionary theory of the firm. The first two have been investigated in some detail for Japan in previous studies by the author and others but the third is relatively unrepresented in the literature or current research. The evolutionary theory presented and utilized here is based on Nelson and Winter (1982).

The next two sections summarize the product cycle and experience based approaches, including how they relate to Japanese development and multinationals. The main purpose of this analysis is to highlight some essential differences between the postwar competitive experiences of a senior manager in a Japanese multinational manufacturing firm and his US and European counterparts. The evolutionary theory of firm growth and development is taken up in the third section and is integrated with the product cycle and experience approaches, again primarily in a Japanese context. The fourth section examines how some of the features

¹William V. Rapp is a Senior Research Fellow at the East Asian Institute, Columbia University, New York. The author would like to thank Columbia University Professors Gerald Curtis of the East Asian Institute and Hugh T. Patrick of the Center on Japanese Economy and Business for their generous support of this project in its initial stages and their thoughtful inputs. He, however, takes full responsibility for any errors of omission and commission which have no doubt crept into this work despite their best efforts.

of Japanese MNCs have evolved, these features' contribution to Japan's competitive success, and their effect on future competitive interaction. With this historical and theoretical background, the last two sections look at possible future competitive scenarios, including some of the potential political impacts they imply.

1. Product and Industry Life Cycles

Japan's economic and industrial development has followed a particular pattern. Products have first been imported from more advanced countries (often called "innovators," indicating a product or technology's origin). These imports were generally from the UK or Europe before World War II and from the US afterward. As domestic demand developed, the government protected and assisted the domestic industry (import substitution), which grew. Finally, as the industry became more efficient and competitive, it began to export. Japan was aided in this pattern by the fact that more advanced countries like the US and UK were at that time becoming less competitive in follower industries. They were moving into technically more advanced industries and products for which their economies had demand, which they had the factors to produce, and which justified the higher wages their workers expected. Once these technologies became known, however, the cost of technical transfer and diffusion dropped, aiding follower countries like Japan to constantly move up the technological ladder.

Having become internationally competitive, exports went first to countries that did not have the industry and where competition from the more advanced countries was on a relatively more even basis, that is, was export versus export. These markets were also generally more price sensitive, so aggressive pricing by follower firms could overcome quality and service deficiencies. Only after building export experience in LDCs and further lowering costs, while increasing efficiency and quality, did Japanese industry begin exporting to the more advanced countries. Such industries in the advanced countries were by that time quite mature, and their products were usually commodities produced in high volume. Price competition was thus again a viable entry strategy, given reasonable quality and service.

As Japan itself evolved, its own more labor intensive, less sophisticated industries and products became subject to the same competitive pressures from the next generation of followers - NICs such as Korea, Taiwan.

This classic product cycle pattern was first observed by Akamatsu (1962) in analyzing the development of Japan's cotton textile industry and the corresponding competitive decline of cotton textiles in the US and UK. He named it the "flying geese" pattern of development.

The initial, import substitution stage would usually be the high growth period for the industry or product. By the time the export stage arrived, domestic growth was usually starting to decrease. Indeed, this development was often part of the motivation for firms to start exporting. Thus, by the time local firms were selling to advanced countries, domestic demand was starting to mature. Exports from that point on became a higher and higher percentage of total production. Porter (1989) notes that when there is a large number of firms, the domestic market is saturated rather quickly and this forces firms to examine foreign markets sooner rather than later. Thus in postwar Japan, where many firms had relatively open access to the available global technologies, and new industries therefore had many entrants relative to domestic market size, domestic markets grew and saturated rapidly. Thus the pressures to export developed more quickly than they did for the innovators. This internal industry pressure was in turn accentuated by the government's promotion of exports in order to earn foreign exchange.

Reflecting another aspect of this process, Japan in the 19th century was producing and exporting very simple manufactures and primary commodities such as copper, green tea, raw silk, and the like. As the country grew and developed, it acquired the technical capability and generated the demand for technically more sophisticated products - initially cotton textiles, then steel, machinery, shipbuilding, automobiles, computers, etc. These more advanced industries were also usually more capital intensive so the build up of capital resources over time aided the process. This kind of inter-industry evolution for the Japanese economy is well-documented (Rapp 1967 and 1975).

Depending on the industry and Japan's overall growth rate, this evolutionary process could take an industry 20 to 40 years to complete. Because the country was constantly changing in terms of its ability to produce and use increasingly more advanced industrial technologies, at any point in time there were industries at different stages of development. For example, the cotton textile industry might be declining, the steel industry might be fairly mature and exporting successfully to a full range of countries, the auto industry might be exporting, but mostly to LDCs, and the semiconductor industry might be in an import

substitution mode, while aerospace might still be primarily imports. This is in fact a fairly good profile of Japan's industrial structure in the mid to late 1960s from a classic product cycle viewpoint.

From a firm and strategy development viewpoint, the influence of World War II on inter-industry development was important because it forced Japan to repeat this traditional development pattern in a relatively short time during the immediate postwar period. For instance, by the 1920s and '30s Japan's cotton textile industry had evolved into the world's most competitive in all export markets, and its steel industry was exporting to LDCs. This process was compressed and repeated at a very rapid rate in the early postwar years. Abegglen and Stalk (1985) note this shift was also reflected in Japan's largest manufacturing firm shifting from Toray (textile producer) in the 1950s to Nippon Steel in the 1960s and 70s to Toyota in the 1980s and today.

Thus, every Japanese manager, even in fairly traditional or well established industries like textiles and steel, became quite conscious of the economic forces behind the product cycle as it applied to his own industry. Managers also became aware of the substantial cost reductions that were possible because of high growth, the incorporation of new technologies via rapid investment, and constant market expansion.

Indeed, by the early 1970s this development pattern was so apparent that MITI stated it as its formal industrial policy. MITI Vice Minister Ojimi specifically noted "While certain segments of the industrial structure are being encouraged, there must be modification of those industries where productivity is low, where technology is stagnant and where there is reliance on simplistic intensified use of labor. ... The solution of this problem is to be found, according to economic logic, in progressively giving away industries to other countries, much as a big brother gives his outgrown clothes to his younger brother. In this way, a country's own industries become more sophisticated." Similarly, Takeo Fukuda, then Minister of Finance stated "Advanced countries must export capital and simple technology to developing countries and then produce new technologies [at home], industrialize these and move out to even higher industrial levels."

These statements anticipate by 15 years Porter's advice that notes the need for countries to move into industries requiring "advanced" factors of production rather than basic factors of

production if competitive advantage is to be sustained by a nation's industries. They also represented a view consistently held by the highest economic policy makers in Japan that persists today. In fact, Japan has incorporated this approach into its own foreign aid programs and economic development strategies for various LDCs.

In effect, what had been a pragmatic ad hoc policy to resuscitate Japan's economy after the war became, 25 years later, a formalized model of economic development because of Japan's rapid growth and economic success. In turn, this evolutionary approach was explicitly adopted by NICs such as Korea and Taiwan. Their successes reinforced the model's visibility and acceptance. It should be recognized that by its very nature such a policy tends to dynamically support basic economic forces, and so can be a powerfully self-reinforcing economic growth strategy, at least as one progresses through the follower stage in various industries. But there may be limits to its long-term applicability if firms' intra-industry development goals and the government's inter-industry development goals begin to diverge, as is discussed below.

In any case, based on this view, in the 1970s MITI consciously moved to phase out or de-emphasize the cotton textile industry while promoting the development of the semiconductor industry through projects like the VHISC (Very Highly Integrated Semiconductor) program. This strategic philosophy has persisted into the 1990s with the government's protection and support of efforts to develop Japanese made super-computers and satellites. At the same time, Japan's competitors in Europe and the US have been made forcibly aware of this process of competitive shift, both in the market place and in US and European management literature (see Vernon 1966 and Rapp 1973).

Many executives began to recognize the powerful political and economic forces acting to shift an industry's absolute and comparative advantage from one country to another as being a function of economic growth, changing factor costs, and the declining cost of technological transfer, combined with specific government development policies. They did not on the whole simply accept such a competitive shift as inevitable, however, if it was going to put them out of business. But they were not able in the classical economic tradition merely to move fungible units of capital and labor from producing textiles, steel, and automobiles to producing computers and airplanes. Rather, they had to pursue a mixed strategy that combined resisting, accepting, and following the shift in competitive advantage while on the whole remaining in

their basic businesses. Thus, US and European firms upgraded and diversified.

Some industries asked and generally got their governments to restrain foreign competition. In the U.S., a series of VRAs ("Voluntary" Restraint Agreements) in textiles, steel, television, automobiles, and semiconductors was negotiated over a 20-year period. This was itself in an evolutionary process that confirmed the inter-industry product cycle theory and Japan and the NICs' successful movement into constantly higher value-added industries.

US firms invested in lower cost production facilities offshore, which enabled them to continue to maintain their overall global corporate manufacturing competitiveness and thus retain their markets. However, production jobs were lost to the home country (the U.S.) and transferred to the followers (eg. Taiwan, Korea, etc.). The product cycle evolution of competitive shift remained in tact. This strategy did have the benefit, though, of frustrating the development of native competitors in host countries and keeping support, sales, and managerial people employed in the U.S. This was a new competitive situation.

The potential to upgrade or expand an existing product line through R&D and technical change is an important and often overlooked aspect of the classic product cycle. (For further analysis of this point see Rapp 1975). That is, in addition to inter-industry product cycle evolution, there also is significant intra-industry product cycle evolution. Synthetic textiles followed cotton textiles; high grade alloy steels evolved after carbon steel; color television came after black and white. Indeed, as Japanese firms have advanced through intra-industry development, and have used up the available pool of easily acquired foreign technology, they have ceased to be followers; they have necessarily become innovators. In fact, those not able to make this shift often start to fall behind competitively and become vulnerable to either foreign or domestic acquisition as in the cases of Isuzu (General Motors), Banyu (Merck), and Fuji Heavy Industries (Nissan).

The response of multinational firms to evolving international competition, especially in terms of overseas investment, has made the product cycle obsolete as a predictor of competitive developments in the eyes of many observers. However, it is still seen as a good description of past events. Indeed, several analysts have modified the classic product cycle to include foreign investment in the cycle profile (eg, see Gilpin 1975). I shall refer to this as "modified product cycle" analysis to distinguish it from the classic format.

In the history of the Japanese cotton textile industry, for example, foreign investment played no role, and the industry's ability to invest overseas to influence or limit the development of competitors in the NICs and LDCs was extremely limited. This is the classic format. In computers, however, foreign investment in Japan has played a definite role, and FDI is being used effectively by the Japanese in various industries and countries as a competitive tool as well.

There is a big difference between responding to and modifying the strategic outcome of economic forces and eliminating those forces. The basic forces operating to shift competitive advantage from one country to another under conditions of economic growth and development are still very much in evidence. A Korean worker watching the movement of Motorola semiconductor jobs to Malaysia or Nike sneaker jobs to China is every bit as adversely affected by the operation of the product cycle as an unemployed steel worker in Pennsylvania or auto worker in Michigan. The key difference is in the competitive impact on a Motorola or Nike compared to a US Steel or General Motors. This issue of corporate impact and survival compared to national impact is an important one, which is examined in more detail later.

2. Experience and Cost Declines

From the extensive literature on learning by doing, cost reductions based on experience, and the like, one learns that for a given technology or product, total real costs (net of inflation) for producing, delivering, and selling a product will decline in a fairly predictable manner as a function of accumulated experience (ie, the total amount of a product that has been produced). Such real cost reductions reflect scale economies, continued product development, improvement in worker skills, improved organizational structures, more sophisticated equipment, etc. For this reason, market share tends to be a good predictor of profitability, and cost reductions tend to take place most rapidly in the early stages of a product or technology's development when growth and accumulation rates are most rapid.²

Foreign competitors catch up relatively quickly, long before they have produced an amount equivalent to the leading innovator, because the follower starts on a lower but parallel cost experience curve compared to the innovator. This is logical when one considers that the

² See Abegglen and Rapp 1972, Abegglen and Stalk 1985, BCG 1972 and 1975, and Rapp 1973. Porter 1989 (p 66 and 70) refers to the competitive effects of learning by doing and the accumulation of small incremental improvements.

costs, including time and effort, to develop and introduce a new product are generally quite substantial. On the other hand, the costs of transfer, imitation, and diffusion are relatively lower. Moreover, the older and more mature the industry, the more readily available and cheaper the technology is to all comers.

Also, the follower or new entrant can import and utilize the latest and most productive equipment. In contrast, the innovator is often saddled with older, less productive, perhaps even obsolete, equipment. This situation may both reduce the innovator's average productivity level and make it expensive to respond competitively via new investment. The effect of this phenomena is particularly apparent if there is a major change in production technology. In steel, for example, Japanese firms clearly benefited from the fact that in growing their industry they were able to invest primarily in the new basic oxygen furnace and did not have a large amount of existing open hearth capacity, as US firms did (see Dresser, Hout and Rapp 1972). However, a given industry's technology does to some degree seem to define and drive its organizational structure and potential rate of continuous cost reduction. Therefore, while the follower begins his accumulation of experience from a lower initial cost point, future cost reductions seem to move along a curve that parallels the innovator's. That is, the slope and path of cost reductions seems to be the same. This parallel tracking appears logical in a global industry where technological advances and management or engineering practices are well publicized and are generally available to everyone within a relatively short period of time.

Changes in exchange rates have an impact by shifting the cost curves and therefore relative cost positions. Inflation also has an effect since actual costs and, in turn, market prices are found by multiplying the inflation rate times the real cost level and adding the profit margin. (See Hout and Rapp 1972 and Rapp 1973. The latter provides a simple formula relating the relative rates of growth, the fall in real costs due to experience, and inflation, to changes in cost competitiveness between firms or industries.)

Nevertheless, if exchange rates are operating properly, industries that are growing more rapidly should be gaining both comparative and absolute cost advantage over time. The relation between these phenomena and changes in competitive position as reflected in the product cycle is quite direct (see Abegglen and Rapp 1972). Such a cost reduction profile over time explains why, when a follower catches up and gets to the innovation stage, further cost reductions occur rather slowly and require substantial additions in experience (ie, accumulated

production) to achieve. It is clearly easier and cheaper to add capacity and reduce costs when one can acquire off the shelf technology from someone else. But in addition, the total size of the business and the total amount produced has grown quite large by that time. So the percentage impact of added sales is declining. A logical consequence of catching up, therefore, is a rise in capital output ratios and a decrease in the rate of productivity improvements by industry. This in turn takes place for a country as a whole as more and more of its manufacturing sector grows up and exits the follower stage.³

Therefore, acquiring foreign technology as the major means to grow and competitively develop a firm has become a progressively less viable strategy for large Japanese firms producing internationally traded products. By the time a firm is exporting to the advanced countries, the domestic market is fairly mature and the company is close to the innovation or technological frontier. There are then probably a limited number of new technologies to be introduced. At the same time, foreign firms, often the source of previous technology inputs, are painfully aware of Japanese companies' competitive presence and are not looking to do anything that would further a Japanese competitor's interests. Indeed, Japanese success has been so thorough and spectacular in so many areas that foreign managers routinely project Japanese competition in their industry or product as being possible even if it has not yet occurred. This perception restricts Japanese access to many new technologies, and forces them to develop their own.

Aside from offering an excellent analytical framework for assessing changes in competitive advantage between firms and industries on a global basis, cost-experience effects have had a major impact on the experience and thinking of postwar Japanese managers. Just as almost every senior Japanese manager in a major manufacturing firm has seen the operation of the product cycle in his own industry, so has he seen the rapid reductions in actual costs that came from rapid growth and large additions in productive capacity. This is especially true where the latest imported technology was used from the beginning (eg, see Gilpin 1975). He

³ In fact, Japan's capital output ratio has risen sharply. From 1970 to 1980, it went from 1.34 to 2.23. This compares to 2.10 and 2.53 in the US (see Sato 1987, p 143). By the early 1970s many of Japan's major industries - such as textiles, steel, shipbuilding, automobiles, and TV sets - had passed through the high growth phase and were entering the innovation stage, requiring more investment per unit of output. The trend was accelerated by the Nixon shock and the oil crisis. As these industries represented a growing percentage of total manufacturing, a rising capital- output ratio was almost inevitable. Also, Abegglen and Stalk (1985) point out the corresponding rapid rise in Japanese firms R and D expenditures in both absolute terms and as a percent of sales, pp. 119-147

also knows the benefits of pricing aggressively, in anticipation of cost reductions, in order to gain market share that will in turn justify further capacity additions. He knows this process will continue to be beneficial until further reductions in price do not expand the market domestically or even for exports (see Abegglen and Rapp 1970). One reason he knows this is because if his firm did not observe this phenomena and operate in this manner, it probably is not currently a major factor in its industry.

In terms of psychology and business experience, American managers have been ill-equipped to deal with competitors having "hands-on" experience of conscious product cycle policies and developments combined with the phenomena of managed cost reductions based on experience and growth in market share. US industries like textiles, steel, and autos were so mature during the postwar period that few if any of their executives had experienced a high growth, rapid cost reduction period. Furthermore, whatever real cost declines did occur with increases in accumulated experience were disguised by inflation that kept nominal or actual cash costs rising. Thus, these US managers were used to seeing costs and prices rise over time, not fall. Cost competitively, US firms were standing still just as Japanese competitors were catching up quickly and were continuing to lower prices to gain market share and further lower costs.

It was during the export phase of this process that Japanese managers discovered the happy coincidence that cost and quality improvements could move in tandem. Traditionally, quality control tended to be something that happened at the end of the production process where statistical sampling techniques were used to prevent defective items from being shipped to the consumer. More frequent samplings, while reducing the chance of shipping a bad product, were also more expensive. In the U.S., because most sales were domestic, producers had extensive after-sales service capability which often was an independent profit center. So the feeling was that any problems could be handled in the field at little or no cost to the producer.

~~The Japanese exporter couldn't do this, especially in areas like consumer electronics.~~ He was usually exporting to a large, price-sensitive retailer who was only interested in sales and customer satisfaction. Such a retailer had little or no service capability, and didn't want returns which were time consuming to handle. The Japanese manufacturer in turn had no extensive US service network and couldn't afford to have goods shipped back to Japan. At

this time, the Japanese were also fighting a global image of producing shoddy products. In sum, the product had to work right out of the box and be virtually free of defects if the Japanese producer was to penetrate the US market.

To achieve this in a cost effective manner led to the development of a "zero defect" manufacturing system. This system was then discovered to reduce total costs because smaller inventory, repair, unusable returns, service, and transportation costs were incurred. In addition, customer satisfaction improved. This situation combined with real quality and price competitiveness to help market penetration and to further reduce costs due to greater accumulated experience. Japanese companies had the self-reinforcing and interactive triple benefit of being preeminent quality manufacturers, low cost producers, and otherwise effective global competitors.

The only US industries where these phenomena were well recognized were computers and semiconductors. Here very rapid growth resulted in very rapid cost reductions and quick product obsolescence. It should not be surprising therefore that it was these industries that were the origin of the experience curve as an analytical framework for managing costs, of 100% automatic testing at different production stages as a way to improve yields, and of the use of offshore manufacturing locations as a way to use product cycles to maintain international competitive advantage. (See BCG 1972.)

Managing under conditions of high growth makes managers conscious of, and forces them to respond to, some unique phenomena related to cost management and international shifts in cost advantage in order to maintain the firm's competitive viability. The Japanese postwar situation has been somewhat unusual, though, in that this occurred not just at the high tech or venture capital frontier but across a wide spectrum of industries, including some industries that have traditionally been considered quite mature.

3. Evolutionary Theory in a Japanese Context

The growth and development of major Japanese multinationals has on the whole been evolutionary rather than revolutionary. That is, they have generally developed from the successful introduction of an established foreign technology into the Japanese market. They then gained competitive position from constant cost or product improvements that translated

into growth in market share both in Japan and abroad. While there are exceptions, such as Kyocera, they are considered mavericks in the Japanese context. Even a highly innovative company like Sony got its start by importing and adapting AT&T's transistor and RCA's Trinitron technologies. (See Baba 1989.)

This section first sets forth a brief synopsis of Richard Nelson and Sidney Winter's evolutionary theory of the firm, then demonstrates that Japanese multinational manufacturing firms are covered by their theory and that some of the model's predictions have in fact occurred in a Japanese context.

Nelson and Winter propose that organizations evolve to accommodate technology, but that organizations also modify technology. The evolutionary development process is thus interactive and involves a lot of trial and error ("searching") as well as learning by doing. Nelson and Winter's evolutionary approach supplements experience curve and product cycle analysis, so both are integrated into what follows.

3.1 Evolutionary Theory of Firm Growth and Development

Nelson and Winter (1982) are concerned primarily with large complex organizations producing a service or product for sale on a repetitive, relatively continuous basis for an extended period on which the company hopes to make a profit. Such a company probably has some history. Large organizations do not usually spring up over night, with the principle exception of government entities (which in any case are not often providing a service but rather are enforcing rules and imposing requirements).

Top management is unable to direct all the day-to-day details, as might be the case of a sole proprietorship. They therefore must delegate. To ensure that decisions are made in a consistent and predictable manner, these managers establish rules and "routines" within which delegated responsibilities can be exercised. Excerpting from Nelson and Winter:

[Routines] include characteristics of firms that range from well-specified technical routines for producing things, through procedures for hiring and firing, ordering new inventory, or stepping up production of items in high demand, to policies regarding investment, research and development (R&D), or advertising, and business strategies about product diversification and overseas investment. ...

In any case, evolutionary modeling highlights the similarities among different sorts of routines. At any time, a firm's routines define a list of functions that determine (perhaps stochastically) what a firm does as a function of various external variables (principally market conditions) and internal state variables (for example, the firm's prevailing stock of machinery, or the average profit rate it has earned in recent periods). ...

A second set of routines determine the period-by-period augmentation or diminution of the firm's capital stock (those factors of production that are fixed in the short-run). The extent to which actual investment behavior follows predictable patterns probably varies a good deal from one situation to another. In some cases the decision making surrounding the question of whether to build a new plant may not be much different in kind from the decision making regarding whether or not to continue to run a particular machine ... In other cases, the new plant decision may be more like a decision to undertake a major R&D program on a recently opened technological frontier, a problem without real precedent that is dealt with through improvised procedures. ...

These routine-guided, routine-changing processes are modeled as 'searches.' ... (pp. 14-18).

Consistency and predictability are important for repetition, and repetition is necessary if the firm's output is to be produced on a continuous basis. The decision rules and the routines used to implement them generally are based on historical experience and the feedback from actions undertaken in response to specific events or under certain circumstances. If the feedback was favorable, the action has generally been repeated. If not favorable, the action was dropped or modified. Routines thus incorporate the organization's memory and are often based on the product or service produced as well as the technology used.

In terms of innovation and searches - what they can do next - firms are restricted by their existing organization, technologies, and resource availabilities. That is, they normally look to make organizational or technical innovations or adaptations in the neighborhood of the existing organization and technology. Whether planned or stochastic, innovations represent changes in the company's routines. That is, organizations believe changes in routines are innovations in that they affect and alter the way the organization will operate in the future.

Competitive behavior is continuous and dynamic, and is not an exercise in comparative statics or in moving from one optimal equilibrium to another. In fact, Nelson and Winter

explicitly reject the need for maximizing behavior to explain firm action, looking instead to the rules and routines of each firm. Because these rules and routines are constrained by existing organizations and resources, firms are not free to choose from the entire range of possible or potential technologies and organizational forms, even if they had perfect foresight to choose the optimal path at any particular point in time.

3.2 The Evolutionary Model and Japanese Firms

In terms of modeling the reality of the Japanese multinational firm, the Nelson and Winter approach seems a sensible one. Japanese corporate behavior is very much a product of custom and history, as the extensive literature on Japanese management practices attests.

For example, up until the 1980s, Toyota always produced cars out of essentially a single location in Japan. Production had followed a normal product cycle evolution from import substitution through export. Indeed, export growth and foreign market penetration had been extremely successful and had further driven down costs and improved competitive market position both domestically and overseas, as expected from experience curve analysis. (See Hout and Rapp 1972, pp. 236-37, who note that Japan's automobile industry increased its exports between 1964 and 1970 from 15.3% of production to 44.6% while at the same time accumulating experience at a compound rate of 37% per annum compared to the US industry's 3.9%.)

However, in response to a revalued yen, a US VRA, and intense political pressure, top management realized that investment in the U.S. was inevitable. Toyota's response was an ordered one. First, the company established that its assembly and basic production routines, using mostly imported parts, could work in the US environment. It learned this by forming a joint venture in an existing GM plant in California. This was a comparatively low risk approach involving a relatively small outlay of funds and little commitment to suppliers in Japan.

Having successfully adapted its routines to the US environment, Toyota moved to replicate its organizational, supply, and production processes in Kentucky using some of the staff who had managed the Fremont operation. This move involved substantially more money as well as a commitment to the suppliers it encouraged to invest nearby. But again it was done

in stages, with engine manufacture coming after the assembly plant was operating successfully.

The final result reflected Toyota's history and its established routines. That is, the movement of its main keiretsu suppliers to the US to become part of the overall competitive effort was clearly a transfer of Toyota's well-known kanban (just-in-time) system and was a demonstration that it too could be replicated. Having developed managers who could transfer (innovate) Toyota routines to another environment, including its keiretsu and kanban systems, and having gained organizational confidence that it could be done successfully, Toyota undertook additional overseas plant investments, including in the UK. This appears to be a clear evolutionary process.

In addition, considerable analysis (searching) seems to have been done prior to each step, using inputs from prior events as well as changes in the Japanese technology and organizational base that took place during the period. There does not appear to have been any attempt to implement a local solution - such as an American-style assembly plant operation using strictly local parts suppliers - though that was clearly an option. Perhaps the output would not have been considered a Toyota.

The organizations Nelson and Winter wish to analyze are made up of people with different skills, and part of the function of a complex organization is to mobilize and use diverse skills to deliver a product or service. Some skills like computer programming are explicit and people with these skills can be hired or replaced. Other skills are firm-specific, such as knowledge of the company's specific programs or programming methods as well as knowledge of how the organization operates in terms of decision making and personnel interaction. In fact, much of this knowledge is not even articulated. It operates innately in the day to day operation of the firm and employees' normal interaction. Such tacit knowledge may be particularly strong in the Japanese environment due to an already very homogeneous culture and population where most managers are male college graduates with very similar educational experiences and tenure with the company tends to be very long. Many firms recruit from the same colleges year after year.

The innate rules on how things should function is often referred to as corporate culture. Here they are called routines and represent the organization's skill base. The more successful and efficiently the routines work, the more successful the organization. But many of the skills

that contribute to a firm's success are innate to the firm, such as the knowledge of one's role within Toyota's kanban system or the product and technology knowledge carried by Matsushita's product managers. (A description of how Matsushita uses product researchers to provide program continuity on a global basis is described in some detail by Bartlett and Ghoshal 1988 and 1989.) These skills are thus not readily transferred to or imitated by other firms.

An important competitive implication of this phenomena is that the more critical such innate skills are to a firm's success and the more time it takes to acquire and use them productively within the corporate routines, the more important it becomes to retain personnel. Any corporate or social routine that promotes longer employment tenure then becomes a competitive plus. The extension of this concept to the Japanese permanent or long-tenured employment system seems fairly direct. A natural consequence of long-term employment is a large commitment to both firm survival and the firm's basic business, as employment cannot easily be found elsewhere and it is not easy to bring in top managers from other companies with the requisite skills for diversification. This should lead to a greater degree of corporate specialization, a fact that has been noted by Sheard (1991) and others.⁴

Porter remarks that countries tend to succeed in businesses that accommodate the demands of top managers and financial markets. In this regard, he notes that compared to Japanese managers, senior US managers stay with their organizations a relatively short time, and the owners of capital buy and sell shares on a relatively short-term basis. Further, because US banks cannot own shares in corporate clients except via certain venture capital subsidiaries, there is a clear divergence between the objectives of lenders and shareholders if a firm runs into difficulties or has a drop in earnings. Both these aspects contrast with Japan's stable shareholder and main bank systems, which seem to promote stability and long-term relations. (See Aoki 1990.) For these reasons Porter suggests the US tends to be more successful in higher risk enterprises with substantial short-term payoffs for the individual - venture capital,

⁴ Many observers have correctly noted that Japan's permanent employment system has never applied to all workers, perhaps only to the 35-40% of the labor force at large firms and in the government (including former government enterprises such as the railroads and NTT). In addition, from the 1980s, slower growth, declining industries, and an aging labor force have put the system under pressure, especially the linkage of pay primarily to seniority. However, the firms being examined in this paper are those employing the system. Also, the very senior managers within those firms effectively do have life time employment, either moving up towards president or chairman in their 60s or being seconded to one of the major affiliates as a senior executive after becoming a director in the parent.

technology based. (The literature here is extensive, see for example, Abegglen and Stalk 1985 or Smitka 1991.) (3) Top management is unable to directly manage all the details of the organization and has developed extensive systems or routines to create predictable decision-making (eg, the ringi-system, seniority-based promotion, and an internal board of directors).

(4) Many business practices came into being on an ad hoc basis for one set of reasons, then evolved and had benefits that were originally unforeseen. When circumstances changed and these practices required modification, the arrangements, rather than being scrapped, were varied according to a firm or industry's competitive condition.

(5) Technologies and products were imitated or borrowed, but the institutional routines used to create them reflected the Japanese industry and individual firm's circumstances. (6) Such imitation was cheaper than the original innovation. (7) Most innovations and improvements to various routines have taken place within the neighborhood of the existing routines and have frequently been based on further imitations of changes in available world technologies. (8) Growth has been more rapid during the imitation stage and has slowed once the innovation stage has been reached.

(9) Accepted routines submerge differences within the organization, so existing practices have a strong inertia and change or innovation in existing routines can be very difficult if it deviates far from current practice. In this regard, the so-called consensus decision-making system is relevant since in order to reach a consensus everyone usually has to compromise. It is thus generally difficult to move far from the norm. Further, the need for a consensus enables "disconsensus decision making" to hold sway too in that any strong holdout can prevent a change from being made. (See Blaker 1977 and Rapp 1986, pp. 21-37 - particularly p. 25.)

(10) The existence of routines in one organization have become components of solutions in other organizations. - This last point is clearly seen in the operation of the kanban and keiretsu systems, as well as the synergies between various industries over time.

4. The Origins of Japanese Multinationals' Competitive Routines

While the role of industrial policy in Japan's economic development is much debated,

movies, software, investment banking, etc (Porter 1989, pp. 111-114). As pointed out by Nelson and Winter and by Bartlett and Ghoshal, a country's success in a given set of industries also depends on the mobility of labor and the real transferability of the skills to another corporation's routines in that or another industry. This is in turn a function of how important innate skills are to the routine operating competitively.

Nelson and Winter explicitly address not only innovation but also imitation. Imitation takes fewer resources than innovation and to imitate successfully one need not perfectly replicate the innovator's routines (ie, organization and technology). Rather, knowing that the product or service exists, one needs only to create a similar end result that is an economic success. That is, can one compete in the market place without losing money? To do this, it is possible, indeed it is likely, that the imitator will develop original processes and evolve unique routines. This is because it is not possible to constantly check the actual situation of the innovator. Further, the imitator is likely to be facing a different set of economic and competitive circumstances (search environment) than the innovator - who had little or no competition at the time of innovation if it was a new product or service.

Baba (1989), in his analysis of large Japanese manufacturing firms, explicitly sees Japanese industrial growth and manufacturing firm growth in large-scale industries as having been evolutionary in character. He also notes the differences between industry leaders who have usually achieved that position by being aggressive cost cutters (eg, Matsushita), managerial followers (eg, Hitachi), and innovative followers (eg, Sony). His categorization and assessment are very helpful when examining Nelson and Winter's simulation of the competition between innovators and imitators under an evolutionary perspective of growth and development, including the implications for the Japanese case.

There appears to be a good case for applying the Nelson-Winter approach to an assessment of postwar Japanese economic development and particularly to the role and evolution of what has become the large multinational Japanese manufacturing firm. Quite a number of characteristics support this view.

(1) The Japanese firms being examined are large organizations producing products and services on a continuous and repetitive basis. (2) They have administrative procedures, organizational arrangements, and decision making processes (routines), many of which are

there is general agreement that any major impact was prior to 1973 - more particularly, during the recovery of the late 1940s through the mid 1960s (see JEI 1991). Before the 1970s, the Japanese government had both the legal power and a national consensus to take actions to promote re-industrialization and export competitiveness. At the same time, events were occurring that have had a continual evolutionary impact on the development of the large Japanese multinational firm.

First, under the Occupation the zaibatsu holding companies were broken up, with shares in their subsidiary companies sold to the public. However, for the most part, only banks, insurance companies, and other corporations had the necessary funds to buy shares. Thus, cross-shareholdings between affiliated companies was established as well as equity ownership by the main and associated banks.

Second, because of the labor dislocations at the end of the war and the rise of unions and the Japanese Communist Party, there was a real incentive on the part of business and government to encourage both company unions and stability of employment. This was the origin of company unions and the permanent employment and seniority wage systems. (An excellent discussion of this point is Shimada 1987).

However, as Japan entered the high growth phase of the 1950s and 60s, these structures (routines) bore unexpected fruit. Because of the labor shortages that began to appear in the wake of high growth and the using up of the excess agricultural labor pool by 1957, the only readily available members of the work force were graduates coming out of high school and college. Thus, there was intense competition to recruit them. They were available, cheap, and had good educations. Additionally, given continued rapid growth, firms were going to need more middle and senior managers.

Such hiring practices combined with the seniority wage system led to a reduction in average wage costs for fast growing firms; the more rapid the rate of growth, the more rapid the drop in wage costs. Falling wage costs made rapidly growing firms more cost competitive, allowing them to reduce prices, pick up market share (ie, grow faster), and hire more workers right out of school. On the other hand, slow growing or mature firms and industries lost cost position and a claim on the available labor resources just as quickly.

Another element of this growth promotion mechanism was that the main bank and bank shareholding system combined beneficially with the "overloan" and indirect finance policies of the government. Dissolution of the prewar zaibatsu together with the hyper-inflation of the immediate postwar years had eliminated the traditional sources of capital for firm growth, and direct financing from the small capital markets clearly could not support rapid industrialization.

To deal with this, the government undertook policies to discourage consumption while encouraging savings to flow to the industrial sector through the banking system. It did this primarily via the Bank of Japan's overloan system: a bank made a loan to a client and BOJ discounted it, putting the bank in a position to lend additional funds to the same or another company. This was clearly a powerful allocation tool in the hands of the government. It could direct funds to chosen industries and even firms by controlling whose paper the BOJ was willing to discount. The system also increased banks' willingness to leverage their balance sheets to fund clients' rapid growth using debt because interest on the discounts with the BOJ was tax deductible, whereas dividends paid on additional bank capital were not. Increased leverage was fine from the companies' viewpoint, too, for similar reasons. At the same time, banks had every incentive to favor firms in which they had significant shareholdings. It was tax efficient for banks because the increased market value of the shareholdings was not taxed unless the shares were sold, whereas earnings on loans were subject to a relatively high corporate rate. Given rapid corporate growth, these shareholdings over time became the source of the banks' large "hidden" reserves.

Overloan also had the somewhat unforeseen competitive effect of uncoupling a firm's increases in sales and market share from growth in its retained earnings because the company did not need to finance from retained earnings the additional assets required to support the increase in sales. In effect a firm could grow using pretax dollars since banks had no real desire to be repaid. Indeed, loans became evergreen, actually increasing over time. Further, because the after tax cost of capital was lower in the high-leverage case, Japanese firms could price lower and grow faster than their US counterparts even if their actual operating costs were higher. ⁵

⁵ This analysis of the interaction of cost, price and increasing market share as a self-reinforcing, beneficial cycle is set forth in some detail in Abegglen and Rapp 1970 and 1972. This behavior only comes to an end when both domestic and foreign markets are saturated and further price declines do not bring forth additional demand. This point is known as "excessive competition" because firms continue to reduce prices anyway in order to use

Japanese industry was further assisted from a cost standpoint by another set of circumstances. At the end of World War II, its industry was in bad shape and technologically far behind the West, particularly the U.S. Firms therefore had a strong need to import technology. The government similarly had a strong desire to catch up with the West, to develop an efficient manufacturing base, and to conserve the outflow of foreign exchange. Policies were instituted requiring government permission to import technology given that royalty payments required foreign exchange. The government used this power to force dispersion of imported technology in order that it would benefit a large number of firms and potential exporters.

No technical patent-based monopolies were created. MITI's view was that competition would determine who was the best user of a given technology. Exports and import substitution would be widely stimulated, and profits would not get siphoned off in the form of royalties to foreign firms. MITI also was able to exercise "administrative guidance" so that companies did not get into bidding wars or import old technologies and thereby fall behind a rival. If IBM licensed its computer technology to Hitachi at a certain price, RCA was restricted to licensing its computer technology to NEC at the same price. There were some notable mistakes such as MITI's refusal to give Sony permission to import AT&T's transistor technology, but on the whole the system did what it was supposed to in terms of conserving foreign exchange, keeping the cost of imitation for firms in a given industry roughly equivalent and dispersing the inflow of imported technology. More important for the purpose here, a large number of fast imitators was created.

That is, this situation meant a relatively large number of competitors in a given industry had access to equivalent technology, and virtually all major competitors in all major industries were imitators. Under such conditions, competitive success is highly dependent on the ability to cut costs by making changes (innovations) in corporate routines while closely tracking the technological base. Further, cost savings have to be passed along to customers as price reductions fairly quickly—since monopoly rents from controlling supply are virtually impossible.

capacity. Such potentially destructive competitive behavior was adjusted for in mature industries in the late 1970s and '80s through capacity contractions and reductions in employment, often under the guidance of MITI or a MITI-organized cartel. However, these MITI actions usually ended up creating effective quotas based on existing market shares. This meant competitive incentives remained strong to rapidly expand capacity and market share during the high growth phase in order to lock-in the lead position once growth slowed.

There is little incentive to invent as long as more advanced technology can be imported and invention remains more time consuming and more costly. Because Japanese firms were growing rapidly and borrowing money aggressively, capital for production expansion was at a premium and funds available for basic R&D, as opposed to development R&D, were small. This is still consistent with the current allocation of research funds by most Japanese companies even though the technical environment has changed towards more internally generated innovation.

The shortage of capital also encouraged allocation of functions that could be delegated to other firms, such as to trading companies or subcontractors. Cross-shareholdings mitigated the business risk of the increased dependence on outside sourcing. The use of the long-term coal and iron ore import contracts that supported long-term project loans funded by offshore banks and foreign raw material producers were a clear innovation of this type. The extensive use of subcontractors from which the keiretsu system eventually evolved was another. It also encouraged the kind of narrower corporate specialization noted by Sheard (1991). Since the main bank was encouraged to lend to associated trading companies and subcontractors as a way of supporting a firm's competitive development, the origins of the bank-related groups was established as well.

However, it was the self-reinforcing nature of the competitive system that really set the corporate routines. Successful firms were the ones that cut costs best and priced accordingly. This could be done by growing aggressively in response to market demand, because this lowered labor costs, allowed the use of additional debt, and brought the latest technology rapidly into the production process.

Ohmae has noted this competitive compulsion (1990 and 1991) observing, for example, that "Japanese managers are victims of their own success and of the habits that success creates. ... If your goal is to beat the competition, you win by narrowing your field of vision and doing more better." (1990, p. 40).

Given the large number of initial competitors in an industry, the market tended to saturate quickly, encouraging exports. To exploit the growth opportunities in export markets, price competition was important - as noted earlier in terms of product cycle analysis. This meant being an effective cost cutter. If you were an effective cost cutter, exports grew

rapidly; then, because of experience effects, your cost position - and thus competitiveness domestically - improved as well. Expanding Japanese market share made one even more export competitive, and so on. It is thus hardly surprising that the cost cutters in Baba's analysis emerge as Japan's industry leaders, whereas in the U.S., innovative firms are usually more at the forefront.

In Japan's competitive environment, tracking the development of known technologies through aggressive investment policies and pursuit of market share even during economic downturns became the reinforced and established routine. As industries reached the technological frontier after 1973, though, some attention had to be paid to innovation even by the price cutters. This is also exemplified by Bartlett and Ghoshal (1988) in their analysis of Matsushita, the pre-eminent cost cutter among consumer electronics firms. However, the innovators that survived had to pay more attention to cost control, which shows the continued emphasis in the Japanese competitive environment on reducing costs and lowering prices.

Even aside from the particular dynamics of the Japanese market place, emphasis on cost control and cost reduction has a definite general business logic, especially if you are risk averse. If you are the low cost producer, it is unlikely you will be driven out of business. Indeed, many bankers, when assessing large project financings for commodity products, look for the entity to be among the 25% most efficient operations worldwide from a cost standpoint. This is meant to assure project survival in case there is a severe drop in commodity prices - on the presumption that less efficient producers go out of business first. Although firms generally don't have very good control over prices and markets due to competition, they usually have some ability to manage costs. Thus, cost minimization may be the best way to achieve company profit maximization. In any case, it has made sense in the Japanese competitive context during the postwar period, and this is what matters in understanding Japanese management routines.

This conclusion is supported by the results of Nelson and Winter's competitive simulation comparing the outcomes under different economic conditions for innovative firms versus fast imitators. The worst situation for innovators - in which their share of industry capital and market share drops the most during the period being examined - is when the fast imitators show no restraint when achieving profitability but instead continue to expand investment and market share aggressively. The situation is even worse when bank credit is

readily available, so that the fast imitator is not dependent solely on operating cash flow to expand. While this model was developed from purely hypothesized decision rules or corporate routines, the correspondence to the Japanese case could not be more direct. Nelson and Winter also observe that slow technical progress (ie, slow development of indigenous technologies as compared to rapid adoption of others' technology) should result in less industry concentration - that is, more competitors. This seems to be an accurate paradigm for Japan.

The model applies in both the science-based technology case, which most approximates Japanese industry prior to 1973 when a broad spectrum of world technology was readily available to Japanese firms, and the cumulative technology case endogenous to industry growth, which applies more as Japanese companies became more dependent on their own resources to advance the technological frontier. Nelson and Winter note:

"The results that show a tendency for firms that do innovative R&D to lose out in a competitive struggle with skillful and aggressive imitators are particularly provocative, and illustrate a possibility not much discussed in the literature. Nor has there been much discussion differentiating the kinds of regimes for technical progress under which the social costs are slight (science-based industries) or heavy (cumulative technology industries) when firms that invest in innovative R&D are driven to the wall or out of business." (p. 350).

The implications of this observation for U.S.-Japanese relations, with Japanese firms seen as continually exploiting US inventions, is fairly clear and will be addressed below. But first it is worth looking at some other interesting results from Nelson and Winter's simulation.

When R&D is profitable, innovators can grow with the imitators, but small firms tend to get eliminated (p. 350). This seems consistent with the Japanese case, where there appear to be a larger number of large firms in both the innovative and imitator categories in key industries and where venture capital is almost non-existent. Indeed, most Japanese venture investors - whether investing in US or Japanese start-ups - generally only invest once the product has been developed, produced, and sold. From a US viewpoint, this is mezzanine or third-generation risk capital. But it is consistent with the Japanese view of risk aversion, and their historical experience of buying or investing only in proven technologies. They can then track and improve it. In this manner even the innovation or technology selection pattern has become a routine for most large Japanese manufacturing corporations, reflecting their historical experience and what they consider to have been a source of competitive success.

"The rules are what they are because they have evolved that way over time" in response to real economic forces and competitive conditions. Those economic forces and competitive conditions have of course initially been Japanese. The routines developed to deal with them have then been successfully adapted to the international environment in the form of export growth and subsequently foreign direct investment. Hence the emergence of the competitively successful large multinational Japanese manufacturing firm.

5. Possible Competitive Scenarios and Potential Political Impacts

Successful routines have an inertia and self-reinforcing aspect. Once established they are difficult to change unless there is a reason such as a competitive or political compulsion. Even then, they are highly likely to be modified to accommodate the situation rather than be scrapped. This view appears particularly applicable to the Japanese corporate environment. In response to the changes in foreign exchange rates and the VRAs of the 1980s, for example, large Japanese exporters of manufactured goods - particularly cars, machinery, and electronics - at first absorbed much of the resulting cost increases in order to preserve market share. They then moved to develop sourcing and production facilities in both their advanced country markets and in the NICs and LDCs, depending on the product and industry. In this regard they were responding to the effects of product cycle developments. (See Marston 1990.)

Another factor also was in evidence. Once one firm in an industry moved abroad, almost all firms in that industry did as well. A foreign investment by Toyota could perhaps be interpreted as reducing the perceived risk of assembly abroad for Mitsubishi. A more important motivation, however, seems to be competitive compulsion. If Toyota is successful, Mitsubishi is hurt. Toyota will increase market share and improve its penetration of the US and other markets. This improves its global profitability and cost position, including in Japan. The increased volume of imported parts may lower its costs (experience curve effects), or Toyota can spread the cost of designing and developing a new model over a larger number of units on a global basis. Further, if Toyota were to eventually export from the U.S., experience curve effects could make it a stronger cost competitor in both the US and Japanese markets. Finally, Mitsubishi is facing the same adverse circumstances due to the VRA and the appreciation of the yen Toyota is, and this is the logical way to go to reduce costs and to be competitive.

Concurrently, steel companies began to see the import of Korean steel into Japan and an erosion of their competitive position in the U.S. while their major automobile customers were moving production to the US. Machinery manufacturers saw similar phenomena not only in autos but also in electronics. Therefore, they felt a compulsion to come to the US. While machinery and parts manufacturers could establish new plants rather easily, steel makers could not, due to the time and cost involved, including environmental regulations, of establishing a greenfields facility. Japanese tire and chemical companies faced similar situations. Thus, for these industries acquisitions (partial or total) and strategic alliances became the order of the day. These relationships universally involved substantial capital inflow to the U.S., introduction of more modern equipment, and innovation in the US companies' organizational and production routines.

Ironically, even companies like Armco, which had always been on the technological and value added forefront of the US industry, were forced into this type of arrangement because they no longer had the capital for modernization. For Armco, the reason was a disastrous diversification into insurance and real estate because it was dissatisfied with the returns from steel.

While a primary motivation of the Japanese producers was to continue to serve their major automobile clients as they shifted production to the US, the factors of competitive compulsion acted as well. That is, there was a concern that if they did not satisfy a major client's needs in the US, another Japanese competitor might via its US venture. Having established a satisfied customer contact, that competitor might then use it to access the client more widely. (In a sense the Japanese did something similar to US steel companies when they were unable to supply the market in the 1950s and '60s due to strikes. They developed satisfied US customers during the strikes who never fully returned to the US steel suppliers even after the strikes had ended.)

This can happen because the permanent employment system and constant job rotation of managers in large Japanese firms means everyone knows everyone else. So the man buying steel in the US may have had, or may in the future have, the job of buying steel in Osaka. In any case, he knows the man buying steel in Osaka. They may be from the same college or even friends. Given the proper introduction, a good steel marketing man could begin to develop the kind of relationship that might lead to orders, especially if the product had already

been bought and shown to work in the auto company's US cars.

The excellent management coordination and continuity of Japanese corporate networks exposes firms to this type of competitive risk. For this reason, Japanese firms tend to operate defensively as well as offensively, even offering products and services at a loss to maintain client control, though they make every attempt to minimize the cost of doing so.

Another possible example of this strategic thinking at work is Bridgestone's acquisition of Firestone. Not only was it felt they overpaid, they had to put in another \$1 billion to modernize the company after they bought it. However, the production of 2 million cars was moving to North America, and Bridgestone had the dominant share of the tires used when those cars had been made in Japan. Its major Japanese rivals already had presences in the US market, and Bridgestone could not build its own plant due to pollution regulations. From a Japanese viewpoint, they had no choice but to pay what ever it took. Of course Bridgestone was confident that over time it would be able to substantially lower the costs of Firestone's operations by introducing Japanese routines. The move from Akron is probably a part of this process.

From these examples one begins to appreciate that perhaps the competitive routines of Japanese multinationals are even more a function of continued competition among Japanese firms as they have moved from the import substitution stage through the foreign direct investment stage than of competition with major foreign corporations. Future routines will evolve similarly and will be a function of competitive pressures combined with likely economic, political, and other developments that affect their situation. Some of the relevant pressures and considerations that will have an impact on Japanese managers are listed in Table 1.

Table 1

Pressures and Considerations Affecting Japanese Managers

- 1 The over-riding consideration is corporate existence, and it will remain so despite shifts in national comparative advantage, exchange rates, capital costs, industry competitiveness or other conditions. The senior executives' own survival and benefits - there is really no alternative employment available to them - demand nothing less. Their

lifelong commitment to the firm, its customers, its employees, its suppliers, and its bank compel this as well. This is the origin of Ohmae's "companyism."

- 2 The yen will continue to remain strong and may get stronger. Further, the natural shift in cost competitiveness will continue towards the NICs in many major product areas.
- 3 Pressure from the US to reduce the balance of payments deficit will persist.
- 4 Japan's aging labor force and low birth rate will combine with continued growth to make the current labor shortages even more acute, especially for technical personnel (engineers and scientists).
- 5 The need to constantly upgrade technology on an intra-industry basis will continue due to pressures from Japanese and foreign competitors, as well as customer requirements. Competitive success and firm growth since the war has depended on continual access to and adoption of constantly improving technology. It is also one way to counter the shift in cost competitiveness towards the NICs while dealing with higher wages due to labor shortages and a stronger yen. The "Information Age" is a reality, and technology is a key component of it.
- 6 Because all Japanese producers in an industry face similar external pressures, and the managers have similar backgrounds, the competitive compulsion is such that followers will almost always follow the leaders if they can. In terms of foreign direct investment in already mature markets like autos in the US and Europe, this could lead to overcapacity and the transfer of "excessive competition" abroad. But government action has always served to preserve market share. Therefore being the most aggressive investor and lowest cost producer still may be the appropriate strategy and will be pursued until it is demonstrated to be unsuccessful.
- 7 ~~Technology transfers to the NICs and LDCs will be monitored carefully and if possible will be via one's own affiliates. The NICs will try to emulate Japanese experience and develop their own global competitors, who will try to evolve with the product cycle.~~
- 8 The Japanese market is quickly saturated, but it is large and an important place to

introduce products. Maintaining or growing market share domestically and abroad is still relevant, especially since Europe and North America are forming economic mega-states in which Japanese MNCs must fully participate in order to be globally competitive. Customers will also be participating in these markets and must be supplied. All this requires Bartlett and Ghoshal's (1988) global management and local action.

- 9 The Japanese government has achieved its long-term goal of catching up with the West and has been weakened by a series of scandals. It has no strong ability or desire to exercise authority over the actions of Japanese MNCs outside Japan.
- 10 The Japanese government's primary industry concerns are continued inter-industry development, eg, countering US satellites and supercomputers in Japan. Their major economic problem is the growing transfer payment claims on Japanese resources from an aging population.

Given these types of considerations and emerging economic factors, it is logical for large multinational Japanese manufacturing firms to try to develop strategic routines to manage the product cycle, which is what appears to be happening. For example, as higher quality products are used by Japanese auto assemblers, such as very thin, light-weight one-sided zinc-coated sheets, US auto producers are forced to upgrade too, and the product is only available from Japanese-affiliated US steel firms. This strategy also has the effect of denying the NICs the US market share that would normally have come to their firms with the operation of the classic product cycle as the US industry matured and became uncompetitive. The Japanese market is protected also to the extent Japanese customers constantly upgrade their requirements, and the NICs do not have the ability to build experience and lower costs based on US market penetration.

A similar phenomena can be observed in TVs where the Japanese have not only maintained US production, but by exporting large-screen sets from the US to Japan and elsewhere have effectively created a cost base that has kept the NICs out of this market segment. Upgrading to high definition TV may be an extension of this routine.

Japanese MNCs have also undertaken extensive investment in the NICs: Sanyo TVs from Korea, Canon cameras from Taiwan, etc. Their manufacturing investment in Malaysia,

Thailand, Korea, Taiwan, Indonesia, et al, has grown enormously. To the extent this modern capacity prevents development of local competitors in what would have otherwise been vulnerable mature products produced in Japan, the Japanese MNCs may have frustrated the replication of a Korean Toyota, a Taiwanese Matsushita or an Indian Toray. In this they have created Gilpin's modified product cycle evolution. Just as importantly, they have co-opted many of the available "advanced factors" in those countries, who in Porter's vision could provide the basis for those countries' long-term industrial competitive advantage in some sector.

Many economists would argue that a host country is benefiting from the training and addition of these factors to the labor force, so there is no cause for concern. However, balanced against this consideration is the worsening competitive situation for their native firms if Japanese MNCs are successful in translating their long-term employment routines to their local subsidiaries. They will then be able to retain and build on the benefits of these newly developed advanced factors. No wonder the Koreans are constantly complaining about the unavailability of the latest technologies from Japan.

Capturing such advanced factors, of course, not only helps the Japanese firms' competitive position by making it more difficult for competitors in the NICs to develop, but Japanese MNCs are also alleviating their own shortages of home-country technical personnel. Similarly, investments in US-based laboratories and software acquisitions are also part of strategic routines developed to supplement the availability of Japanese resources or, in some cases, their complete absence in Japan.

In the process they are initiating a new type of competition, which will no longer be just for global market share based on superior Japanese (primarily manufacturing) routines. The competition will be for key global resources, particularly the kinds of advanced factors Porter considers the basis for sustained competitive advantage. US scientific personnel in areas of competitive interest to large Japanese manufacturers are a clear objective. The US laboratories announced by major Japanese auto, electronic, and pharmaceutical firms all point in this direction. Investments in venture capital funds and the large number of patents filed worldwide each year do too.

Autos seem to demonstrate many of the routines being pursued. In the upscale market,

Japanese firms are taking advantage of the recession to offer high-quality cars at a good price without backing off the lower end of the market. This looks like a modified repetition of their traditional approach of first building experience in Japan, then entering export markets that are price sensitive where they can compete head to head, ie, their exports against the European exports in the US luxury import market. This strategy seems to have been successful. While Cadillac and Lincoln have helped US producers hold a steady 50% share of the US luxury market, it is European marques that have lost out to the Japanese - declining from a 32% share in 1987 to 24% in 1990 and 20% in the first half of 1991. Indeed in the face of a shrinking overall luxury market and their own falling sales, Peugeot and Sterling actually abandoned the US market in 1991.

In the regular car market, the Japanese are building capacity to maintain or improve market share and are extending their keiretsu and kanban systems to the US and Europe to achieve superior cost position. This raises Ohmae's concern about excess capacity in what are two mature, slow growing markets and, in turn, a possible industry shakeout. This situation could have adverse competitive implications for US and European firms if the Japanese are in fact the low cost local producers.

This may become quite clear-cut in the U.S. if they introduce the computerized ordering system they already use in Japan. This is now potentially possible given their US manufacturing base. If customers can order a car to their specifications in the expectation of three-week delivery, the implications are profound for reducing the cost of dealer inventories (financing and space), end of year sales, and rebates - while at the same time increasing customer satisfaction. Further, dealer networks could be expanded dramatically since any service station with a CRT and a couple of demonstration models becomes a potential outlet.

This shows the potential competitive effect of "disadvantaged factor" analysis. The high cost of land and the shortage of space encouraged Japanese manufacturers' drive to reduce inventories at all points in the design to delivery process. This is already well-known in the just-in-time delivery system for manufacturing, but another aspect is computerized customer ordering because in Japan there is little room for extensive showrooms or dealer inventories, and what exists is expensive. However, once such a system is developed, the cost of diffusion even overseas drops dramatically. An example of how computerized ordering has been used by a US consumer durable goods maker and its dramatic impact on cost position is

reported by Fortune (1991, p. 48). A program for side-by-side refrigerators cut the order-to-make cycle time by 50% and inventory costs by 20%, while increasing product availability by 6%.

In this sense, a nation's firms may gain a global competitive advantage because a routine developed in response to a set of factors in the home country would not be justified on the basis of factor costs in a competitor's country. However, having been developed, similar costs in the latter country can still be saved, creating a cost advantage.

To appreciate the competitive importance of this potential cost advantage, one must also recognize that US and European firms have no concept of "excessive competition" in their local markets. They have previously experienced it only in terms of Japanese imports, against which they got help from their governments. Japanese industrial history is replete with examples that indicate that any government solution to "excessive competition" that might arise would likely be based on market share. In some cases the economic rents received by firms under such government restraint systems have been quite large and are a direct function of market share. So there is no reason to exercise restraint in terms of growth and pricing. Therefore, the Japanese auto makers have taken aim at the US van market, even though they know Chrysler has half of that segment and desperately needs to hold it for corporate survival. The initial reaction has been a somewhat unusual banding together by the US companies and a joint dumping suit by the Big 3.

In addition, any restraint by one producer could benefit its Japanese competitors. This benefit to a competitor in an important product or market over time could give that competitor a sustainable and growing competitive advantage. High growth situations are especially risky as Japan's postwar economic history has amply demonstrated. This development could thus ultimately threaten a person's job and even the survival of their firm. Therefore the possibility of achieving a consensus on corporate restraint, ie, not aggressively seeking growth in market share by rapid investment and lower prices, seems remote. Someone fearing possible adverse competitive consequences would strongly resist the change in routines. To forego a competitive reality for an abstract concept would not make sense. This is why these intensely competitive routines persist.

The current routines of introducing more upscale cars, investing abroad, transferring

Japanese manufacturing methods, cooperating with supplier firms, using Japanese bank loans for finance, etc, have all been quite successful. Therefore, the feedback mechanism says keep doing them. This is why Ohmae's exhortation to be restrained is a bit unrealistic, though his observation that US and European competitors will have to deal with excessive competition in the market place, for which they may not be fully prepared, seems quite accurate (1991). After all, Japan's experience is that in the case of excessive competition, it is the low cost producer who wins.

On the other hand, Ohmae's concept of restraint would, if practiced, appear to have a favorable impact, at least according to Nelson and Winter's simulation. They note that restraint exercised by the fast imitators has much more favorable outcomes for the innovators. This is also true for the case when imitation is difficult (Nelson and Winter 1982, p 342). But neither of these two conditions seems to hold in the Japanese competitive environment.

Finally, it should be recognized that the auto producers are continuing to build on and to extend major inter-industry synergies begun first in the 1950s and '60s in steel and ships. At that time, to lower the cost of steel making, Japanese mills needed to lower raw material costs, particularly the transport component. Because ship capacity rose less quickly than construction costs, building larger coal and ore carriers was a good way to do this. Ordering progressively larger ships significantly lowered raw material costs and thus steel costs. It also made possible the building of very large blast furnaces at port sites, introducing further economies of scale. Shipbuilders were large users of steel, so this lowered their costs and prices, thus favorably influencing raw material import costs for steel, and so on. (A more detailed discussion of these phenomena can be found in Dresser, Hout and Rapp 1972 and Rapp 1973.)

The interactive ratcheting down of costs and prices was further benefited by Japan's switch from coal to imported oil for power generation. This created a large demand for VLCCs and ULCCs, which helped create experience and growth for both steel and shipbuilders. In addition, to the extent steel and shipbuilding were large consumers of power, they benefited from and contributed to a declining cost of power. Building on this very favorable domestic market situation, Japanese steel and ship producers were able to extend this beneficial competitive routine to exports. They were aided in this by the reduced cost of freight for finished steel exports in larger ships. This demonstrates with a vengeance Nelson

and Winter's observation of how one firm's routine can become part of another's solution.

The auto producers were able to build on and contribute to this synergistic relationship in two ways. First, they had a ready supply of high quality, low cost steel, making their cars more competitive. Their rapid growth furthered and interacted with this development. Second, when they had gained enough experience to enter the export market, they needed an efficient way to transport cars in volume. Enter the specialized car-carrying ship which eventually lowered the cost of shipping a car from Japan to the US west coast to below what Detroit could do via truck and/or rail. This interactive set of routines is continuing in the development of new quality steels for autos and the steel companies' US investment presence. Also, to the extent Japanese producers can use the same car carriers for exports from the US that they use for imports, they can cover their transport costs on the basis of a roundtrip rather than a one-way passage. This will further lower the cost of delivering cars from US and Japanese production locations, improving cost positions in both markets.

A new leg is emerging in this set of interactive industry routines which, from a competitive point of view, requires consideration. This is the increasing marrying of electronics, especially consumer electronics, with the automobile. The development of high performance car stereos, phones, faxes, electronic maps, electronic fuel injection, climate controls, cruise controls, and so on, testifies to this. Many of these systems are being pioneered in Japan, home of the world's dominant consumer electronics producers. Japanese auto producers have been particularly aggressive about introducing such equipment and features into their upscale and luxury models. The close working relation between these two groups and the overwhelming worldwide presence of Japanese consumer electronics would thus appear to give Japanese auto producers another synergistic routine that will become an integral part of their global strategies for the 1990s. To the extent these strategic routines are successful, the Japanese consumer electronics, steel, and shipbuilding industries will benefit as well.

Based on these and similar observations of current competitive behavior, and given the expected contextual considerations presented above, a number of strategic decision rules and corporate routines are likely to operate for Japanese MNCs in the future, based on existing technologies, past behavior, and competitive successes. These are listed in Table 2.

Table 2

Expected Japanese MNC Strategic Decision Rules and Corporate Routines

- 1 Firm survival and success will continue to be the over-riding goal due to limited and unattractive alternative employment opportunities combined with effective permanent employment for top management.
- 2 Cost control and cost minimization in manufacturing (especially to economize on capital costs per unit of output, including working capital such as raw materials, work in progress, and finished goods inventories) will be a key to competitive success. Routines developed as a function of the previous capital shortage and a shortage of physical space have continued to prove effective globally. Improvements in cost position and quality go together. Quality and cost position assure corporate survival if there is a shakeout.
- 3 Strategic growth and investment will not be constrained by debt or balance sheet considerations, because of the persistence of indirect finance (even direct finance in international capital markets often ends up in the hands of main banks, insurance companies, and other stable shareholders). In addition, the use of foreign debt can be used to hedge exchange risks and reduce taxes.
- 4 Technological development is of paramount importance to firm survival but will be pursued primarily on the basis of access to proven technologies. Progress will be on the basis of incremental improvements, including synergistic routines for product improvement from major suppliers. This view is based on their experience of profitable growth via broad-based technology acquisition, constant development, and a low risk of failure.
- 5 Long-term employment will facilitate global management due to a firm's ability to invest in and benefit from extended training and worldwide job rotation.
- 6 Maintaining or increasing global market share via aggressive investment and pricing strategies will remain important in order not to lose competitive position.
- 7 One's posture vis-à-vis other Japanese competitors is global and needs to be defensive as

well as offensive.

- 8 Domestic capacity additions, foreign investment, corporate relationships, trade, and acquisitions are strategic weapons to be used in achieving overall corporate objectives rather than something to be pursued for their own sake. For example, a Japanese MNC will not normally make an acquisition just to earn a high rate of return.
- 9 There is a need to manage the flow of technology abroad and to control competitors' access to technological resources.
- 10 Risk is to be avoided due to the lack of good employment alternatives, consensus decision-making, and the availability of proven routines and technology.
- 11 Innovations should stay close to one's existing business as this is what one has the routines, resources, and technology to support. It is also less risky.

While one cannot predict with certainty what the competitive outcome of following these rules and routines will be, and no simulation has yet been performed, still some reasonable judgments are possible. One can observe, for example, that past derivatives of these rules have worked pretty well, and they seem to be working competitively in the current environment too. Japanese companies control TV and other mass-market consumer electronics worldwide. There is only one very weak US TV producer left, and it has teamed up with a Korean manufacturer. US consumer electronics seems confined to the super quality niche market. Only in PCs is the US really holding its own. In autos, despite the recession, Japanese car makers are picking up share in the US and Europe, especially in the luxury models. Here they may have even been helped by the recession as yuppies feel poorer. So \$40,000 for a Lexus looks better than \$80,000 for a Mercedes. The rise in European exchange rates against the yen and the 10% US luxury tax on the cost of an automobile over \$30,000 that falls disproportionately on the relatively more expensive European imports may also have helped.

Transplants in autos, consumer electronics, tires, construction equipment, machine tools, zippers, chemicals, instant noodle manufacture, soy sauce, etc, are reported as going well. Some top foreign scientists are being attracted to the Japanese MNCs' new laboratories.

They have signed many technology-sharing agreements with major foreign competitors as well as numerous small high tech firms. The main Japanese companies (cost cutting leaders and innovators) seem to be setting the competitive agenda in each industry, and the other Japanese competitors in that industry appear to be following. Therefore, there appears to be a general, if modified, reworking of the routines described in this paper. Particular strategic routines of course vary with the firm, industry, product, point in the product cycle, local competition, government policies, etc. What is going on in the NICs or Europe will thus be different than what is happening in the US, though they will clearly be related.

5.1 Changes in the Nature of Competition with Japanese MNCs

Many analysts, policy makers, and non-Japanese competitors might view the foregoing as more of the same. What is different about the currently evolving Japanese multinational competition?

First, it is now local. The presumption that if Japanese MNCs invested abroad they would face the same cost factors as local producers is now in doubt. This means the assertion that local producers would then face a "level playing field" and could easily win at home is also in question.

Second, there was a feeling the Japanese would be constrained to the same availability of capital and debt as local counterparts, so their capital costs and capital structure would be similar. Further, they could not afford to expand overseas capacity rapidly. Actually, however, the use of debt raised from Japanese banks at favorable rates, as well as equity-linked Euro-financings, have enabled them not only to finance increasingly large investments but to hedge foreign exchange exposure, reduce their taxes, and lower their overall cost of capital. The keiretsu system has permitted them to spread investment costs and the risks of overseas production as well. It has also facilitated the speed of entry and establishment of overseas production capacity on a greenfields basis.

Three, potential exports from the US or Europe create the opportunity for both added experience curve benefits at the offshore production location and political leverage by helping a country's balance of payments.

Four, the use of Japanese-related suppliers may offer opportunities to spread development costs on a global relationship basis as well as to manipulate transfer prices to achieve cost advantage in a particularly competitive market.

Five, the objective remains market share and cost minimization even at the new production location. Japanese MNCs may not hold their offshore production locations to any particular profit goal, but rather will look at a model or product line's global profitability. This type of approach to internal accounting and cost management can create serious price to performance problems for local producers that are totally dependent on the local market or that look at each individual model's profitability in discrete markets.

Six, they may actually have, or will achieve, local low-cost production status.

Seven, in some markets there is now excess capacity compared to likely future demand. This may lead to aggressive pricing and a market shakeout, which is normally favorable for the low cost quality producer.

Eight, acquisitions and capacity additions will be made for strategic reasons, not for project-specific financial returns. This means Japanese firms may be willing to pay more for key resources, expecting to recoup the additional amount by minimizing future costs through the effective introduction of Japanese cost-cutting routines and by increasing future market share.

Nine, because production is now local, the political options open to local competitors are fewer and more constrained. When it was jobs in Osaka versus jobs in Michigan or the Midlands, the political equation was easy and trade restraints were possible. Jobs in Kentucky versus Michigan, or the Midlands versus Paris, is not such a clear political equation. In the NICs, local joint venture partners are also interested in maintaining their profitable situations. Japanese firms thus now have local political constituencies, which can be amplified by their customer relationships. This was discovered in the Toshiba case when US firms dependent on Toshiba chip supplies gave Toshiba support in conversations with their Congressional representatives. Further, the traditional solutions of exchange rate changes or VRAs will not work with respect to efficient local producers.

Dealing with this new competitive environment may be wrenching for many non-Japanese competitors if it requires changes in established corporate routines. Diversification is no panacea either. This is shown by Armco's and US Steel's experiences moving into businesses they didn't understand at a tremendous cost in management time and corporate resources that could have been better focused on meeting the competition in their basic business. The effects of diversification into unrelated businesses not only hurt the companies involved, it helped their foreign competitors, thus compounding the US companies' difficulties.

5.2 Political Aspects

There are policy concerns arising from the further evolution of the large multinational Japanese manufacturing firm, and people should be thinking about and assessing them.

It is important to note that there are potential areas of direct political friction between the Japanese MNCs and the Japanese government emerging from this suggested scenario. Having caught up with the West and achieved an increasing standard of living for its people, the government of Japan's current foreign policy seems more oriented towards assisting future world development than mediating between major Japanese multinationals and their foreign hosts. In addition, the government bureaucrats' power levers have been somewhat diluted while the resources and independence of the MNCs have increased.

Furthermore, government officials are continuing to promote their own successful development routine of inter-industry evolution in areas like space, supercomputers, and bio-engineering. The major Japanese MNCs, though, have no intention of being phased out of their basic businesses and are decidedly more interested in intra-industry evolution. Since industrial policy involves creating a differential access to resources for the favored industries, government policy clearly would aim to take resources from established mature industries like automobiles and transfer them to fields like aerospace. (A more detailed discussion of these phenomena can be found in Dresser, Hout and Rapp 1972 and Rapp 1973.) Those resources could be financial or just as importantly scarce technical personnel. Automobile manufacturers, however, might well like to use those same financial resources and advanced factors to develop additional models and markets for their luxury cars or to build additional capacity overseas. The potential competition between the government and the MNCs is

apparent due to these different industrial objectives and the rival claims for the available strategic resources and the advanced factors needed to achieve those objectives.

The Japanese government also will be facing larger and larger transfer payments over the next several decades to support an aging population in terms of pensions and medical care. They will expect Japan's major corporations to assist in meeting these social obligations. Those corporations, whose growth will be overseas, will have an increasing responsibility to their overseas work force compared to their Japanese work force. Given developments in the North American, European, and Asian markets, the bulk of their economic interests may also soon lie outside Japan. These areas, too, have aging populations, though not as rapidly as Japan's. Thus, it is not clear to what extent they will be willing or able to shoulder the burden the government may have in mind for them. Worldwide tax issues will loom large for Japanese MNCs in the coming years as they try to hold onto resources for their own growth. These conflicts over the access to, and use of, resources will not only be with foreign governments but with their own, as everyone tries to claim a piece of an apparently wealthy and growing Japanese MNC pie.

Past policy attempts by the governments of Japan's trading partners to confront competition from Japanese MNCs have been mostly inadequate or counter productive. Yen appreciation helped force overseas investment and made the investments relatively inexpensive. Also, by lowering the investment cost relative to the size of the total corporation, it reduced the relative level of perceived risk associated with these investments. Having established successful international investment routines, large multinational Japanese manufacturing firms are now using them to further build global market share. Foreign exchange effects were thus absorbed short-term and invested around long-term. Additionally, near term pressures to improve productivity at home eventually got transplanted as routines that improved cost competitiveness at overseas facilities.

Quotas and VRAs not only taxed U.S. and European consumers via higher domestic prices, they transferred the financial benefits abroad in the form of economic rents to the foreign producers (e.g. Japanese MNCs), who used the funds to grow and develop the next generation of higher value added products. As the Japanese MNCs expected, quotas were allocated on the basis of existing market shares, so they reinforced the success of the leading cost cutter's competitive routines while giving it the resources to start the process again on the

next generation of products or via overseas investment or both. One anomaly in this process in the case of automobiles was for Ford, GM, and Chrysler who had finally made investments in Japan (Isuzu, Suzuki, Mazda, and Mitsubishi) as a strategy to counter increasing Japanese competition globally.

Yet, they were actually hurt by the way the VRA and quotas were administered, even if they were somewhat assisted by reduced Japanese competition in the US marketplace. This is because the quotas were allocated to the Japanese producers by US export market share which helped the market leaders and their related companies. The US affiliated companies' share was fixed and limited by the VRA at a relatively low level as they were the weaker Japanese competitors. Indeed, this was one reason the US companies had been able to invest.

But given the way the VRA was administered, the weaker producer were denied a chance to improve their own or their parent's position in the global market place which would have come at the expense of the stronger Japanese firms on a compounding basis due to experience effects. The stronger firms of course represented the real competition then and in the future. In sum, the effect of the auto VRA was to strengthen the stronger Japanese producers financially and in terms of global market share. At the same time, it sent a negative signal to the US firms in terms of using this competitive routine (i.e. a Japanese affiliate) as an aggressive counterstrategy since it reduced its potential effectiveness in Japan and overseas as well as the parents' return on their investments.

Only under an auction system, in which the economic rents are captured by the local government and everyone has equal access, do quotas make competitive sense as a government routine. This also permits foreign MNCs the chance to team with weaker Japanese competitors as a reasonable counterstrategy. Such an approach not only denies leading Japanese competitors the added financial resources to facilitate their move into next generation products, it introduces an element of risk into the strategy of aggressive expansion. That is, the leading Japanese MNCs might not get the quota share needed to operate at full capacity or would in any case have to pay for it in competition with other exporters, foreign importers, and financial speculators. In the past they have gotten this quota as a free good or as an effective reward for their aggressive investment and cost cutting behavior. The auction approach could help to break the success feedback mechanism with respect to this routine.

Past government policies to manage the political economic consequences of Japanese competition have not worked well. However, given the potential for increasing competitive pressures, coupled with the potential for real competitive success, the environment now seems ripe for non-Japanese firms to press for political relief, despite Japanese manufacturers' local constituencies.

Successful local manufacture by Japanese firms has raised new political issues over taxes (due to the local subsidiaries' high debt and implicit corporate guarantees), transfer pricing (affecting taxes and customs duties), technology access and control (often defense related but also important to the NICs for their own development), invention versus exploitation (where Japanese firms are perceived as benefiting unfairly from their commercial exploitation of US ideas and inventions), antitrust (keiretsu transplantation shutting out local suppliers), national origin (EEC and US, including "screwdriver plants"), local-government subsidies to Japanese transplants (US and EEC), reverse dumping cases (Brother versus SCM), and treaty relations within the North American and European common markets.

Europeans are being forced to address some tricky considerations in the current Japanese-EEC auto talks which from a competitive strategy viewpoint are logically stuck on whether local production should be considered part of the overall long-term quotas. This is the true competitive nexus between the European and Japanese industry. It would certainly be appropriate if the US were engaged in a similar sort of debate.

The U.S. - Congress and executive branch - has generally practiced ad hoc, piecemeal protectionism even while the executive branch has preached free trade, and worked for it in many areas. In short, the government has eschewed having a coherent overall policy that would still address the particular problems of specific industries or sectors of the economy. This aversion stems in part from the fear that such a coherent policy would evolve in to an industrial policy. An industrial policy is in turn seen as antithetical to the Administration's strong belief in the benefits of unfettered market forces and an open economic system in determining the allocation of economic resources. What they fail to realize is that those benefits may never materialize if other countries and their industries manage their policies and allocation of resources in such a way as to gain the benefits but to not pay the price in terms of jobs and global marketshare of such an open system.

But the compelling real world logic of Nelson and Winter's evolutionary theory argues that the macro economy is composed of the results of micro decisions. If certain micro units are important enough, they can and will affect the overall results of the economy. Therefore, paying attention to the details of specific industries can be important even if one takes the view that whatever happens in the marketplace is OK. At least one would then have an appreciation of what results are likely, and whether one wanted to live with the political economic implications. As one Japanese diplomat said during President Bush's recent "job mission" to Japan: "the devil is in the details."

For example, a decline in the competitiveness of local firms reduces profits and wages, and thus taxes. It also increases expenditures for unemployment, welfare payments, and relocation. This all has an adverse impact on savings rates. If a VRA is pursued as a remedy, it not only does not solve the long-term competitive problem, it raises prices, thus increasing inflation and also reducing savings. Financial resources are transferred abroad, further adversely affecting long-term industry competitiveness and the profits needed for investment and growth. Indeed, Nelson and Winter note in their simulation that profit growth affects capital availability over time. So, given these micro conditions, one might expect such a loss in global competitiveness in key major industries to lead to a decline in the savings rate, a decline in real wages, a balance of payments deficit, a weakened capital stock, and a growing budget deficit. Conversely, the country whose firms are becoming more competitive and gaining global market share should see the reverse. This looks like the US and Japan beginning in the 1970s.

Being aware of the situation does not involve picking "winners and losers." The discussion here is about the impact of Japanese competition on real industries, employing real resources, whose performance have an important outcome on a country's total economic results. The other country's government has done the picking, and what is being suggested or requested is counter-targeting (ie, offsetting the effects of another government's actions) or even compensatory targeting (ie, offsetting past actions no longer occurring but whose residual competitive impact is still felt).

6. Conclusions

What has been described is a successful past, present, and quite possibly future

competitive scenario for large multinational Japanese industrial concerns based on the likely continuation of certain corporate routines. These successful routines are primarily found in a select number of companies producing a limited number of products in a few industries. The most immediate area of real concern, therefore, is among competitors who find it difficult to respond adequately to these successful routines and secondarily for firms who may find it difficult to do so in the future.

To the extent these difficulties are due to inadequate understanding of the routines being used, the analysis presented may be a useful tool for searching for and innovating new strategic routines. The analysis presented and evolutionary theory both note that while Japanese corporate strategy and decision making have many common factors, in fact each competitor, each industry, even each product is different and must be considered in its own context, particularly its place in the product cycle. There is no single solution to the competitive challenge. Rather, a series of searches and innovations in a complex of routines is required.

The competitive context (selection environment) will change over time, given changes in outside conditions and innovations among all the competitors. Taking these considerations into account is a complex and fuzzy task. Searching for and innovating a set of competitively successful routines requires a lot of analysis and discussion within and perhaps between affected corporations. Indeed, cooperative options are clearly being explored in several of the relevant industries, including between Japanese firms and foreign firms (eg, Ford-Mazda, Toshiba-Motorola) and among Japanese firms (eg, Isuzu-Subaru), even as they compete in other areas. Such activities will be quite detailed and specific, but will vary with each competitor according to its strengths, weaknesses, and existing or potential resources.

Resources include various forms of corporate relations and government assistance. This policy analysis approach thus offers no comprehensive design because of the important policy fact that there are no grand designs or comprehensive cure-alls. Innovating a competitively successful routine will evoke a competitive response from leading Japanese competitors in an industry or product area, and they are likely to pull other Japanese competitors along with them. They clearly have the resources and the resolve to stay for the long haul. In reaction to this response, the new routines will then probably require additional modifications, and so on.

Potential broader social and political concerns arise from the industries and firms under consideration being generally large and economically important to the nations concerned. They have political influence both directly and indirectly. They are large employers, often of unionized employees, as well as big purchasers of goods and services. They are suppliers to government, sometimes defense related. In some countries, the government is a significant shareholder, even the major shareholder. Therefore, if pressed competitively, the impact is highly visible to business leaders, senior politicians, and the whole population. The likelihood of their seeking, even being offered, political assistance seems apparent.

To the extent firms can develop competitively effective routines on their own, they may not need or want such assistance. But there are going to be cases where that will not happen. In these cases, governments will need to evolve new sets of routines or innovations to deal with the specifics of each situation. From this viewpoint Harley-Davidson and Sematech offer better models, at least in a US context, than VRAs such as were developed for textiles, steel, TVs, autos, and semiconductors (unless the benefits are subject to some sort of auction system). Nor would another devaluation of the dollar help much, since most leading Japanese manufacturing firms effectively insulated themselves from that kind of situation based on routines developed in response to the last round of exchange rate cuts.

This political economic process will naturally involve engagement with the Japanese government on trade, industrial policy, and economic issues. Both governments themselves have long evolutionary histories with respect to such discussions as various sets of "successful" negotiations have been frustrated in the details of the implementation stage (see Rapp 1986). These will no doubt color their approach to dealing with new issues.

In their approach, Nelson and Winter's view all this as quite natural. One expects government and industry to modify routines to deal with changed circumstances while maintaining their overall objectives. They also note "That the 'private enterprise' of agriculture is vastly different from the 'private enterprise' of aircraft manufacturing. And both of these sectors are substantially and differently shaped by public programs. The unique organizational characteristics of a particular sector ought to come to the fore in the analysis of policy towards that sector." (1982, p 364).

Americans have to get beyond the idea of the quick, permanent, or general fix. They

must address the fact that competitive issues are inherently specific and ongoing and will probably be the main source of friction between Japan and the rest of the world into the next century. There also needs to be some attempt to get ahead of the problems rather than examining options when the competitive situation may already have deteriorated badly. (Actions with respect to satellites, supercomputers, and telecommunications thus look better than those in textiles and semiconductors.)

These realities seem to be better recognized in Europe and the NICs, as seen in the current negotiations over the Japanese automobile industry's presence in the European market and Korean pressure for better technology access. Further, Americans need to reexamine the posture that all firms and industries are of equivalent value from a national perspective. That is, the notion there is no fundamental difference from a policy or security viewpoint between a GM or Intel and a McDonalds or Budweiser should be seriously questioned. In fact, this attitude needs to be thought through and discussed openly if only because it is clear that other countries and governments don't feel the same way and are pursuing or have pursued different routines with adverse outcomes for US companies and workers.

At the same time, not just other governments and firms need to rethink their current routines. The Japanese should begin to recognize that their major corporations are pursuing certain tracks that affect their well-being, not only because of reactions abroad but also because of future competing claims on resources. In addition, the recent financial scandals demonstrate that business as usual (acting according to previously accepted routines) can lead to actions that not only don't play well abroad but don't play well at home either. Problems aren't disappearing with the old solutions of tatemai and bureaucratic foot dragging.

Perhaps most importantly, Japanese need a new set of goals to substitute for growth and catching up with the West. Without a new vision, it will be difficult for the LDP and the bureaucracy to innovate the appropriate set of new routines even on an evolutionary basis. In this regard Japan may be facing some of the same concerns in the 1990s about the congruence of national interests, objectives, and benefits with respect to Japan's multinationals that Gilpin (1975) raised about the U.S. and its multinationals in the 1970s.

Unfortunately, given the apparent success of the current Japanese routines both in government and business, any fundamental change is unlikely. This makes it all the more

difficult for other governments to successfully manage any friction between their constituents and Japan over the growing competitive impact of large multinational Japanese manufacturing firms. The government of Japan is likely to see it as the foreign government's problem, the result of competitive inadequacies of the other country's firms and government. Japan's government may indeed claim it has no control or influence over Japanese corporations' actions. Still, no matter how valid these points are, when major portions of an economy and jobs are at stake, such an approach projects a rather rocky future for Japan's relations with the world.

Fortunately, many non-Japanese firms are seeking to develop appropriate routines to remain or become competitive. To the extent they succeed, Japan's relations as a country may actually be smoother than they would be otherwise.

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