No.87 (80-25)

Antineoclassical Management Motivation in a Neoclassical Economy: An Interpretation of Japan's Economic Growth

by

Hiroyuki Odagiri

August 1980

A B S T R A C T

This paper presents a hypothesis that Japan's rapid economic growth was achieved through a unique combination of neoclassical elements, implying competitiveness and efficiency, and antineoclassical elements, implying growth preference in corporate decisionmakings. After a model of economic growth is presented to establish a theoretical link between management motivation and economic growth, industrial organization, internal labor markets, and the capital market in Japan are investigated in comparison to those in the United States to substantiate the hypothesis above. The paper also shows that a similar explanation may be made for the faster economic growth in Germany over the United Kingdom and discusses policy implications.

1. INTRODUCTION

This paper presents a hypothesis that Japan's rapid economic growth was achieved through a unique combination of both neoclassical and anti-neoclassical elements. The neoclassical elements basically imply competitiveness and efficiency. The antineoclassical elements, I would like to argue, imply management preference toward growth in excess of what the neoclassical theory presumes and this resulted in a high level of investment and economic growth.

The argument that Japan's rapid economic growth mainly owes to the strong growth preference of the management has been already put forth by the author's forthcoming book, The Theory of Growth in a Corporate Economy (hereafter The Theory). The book, with a comprehensive and rigorous model of both microeconomic corporate decisionmaking and macroeconomic general equilibrium, proved that what is defined as the index of (effective) management preference toward growth affects the rate of growth of national income in an affirmative fashion and argued that Japan's management is characterized with a larger value of this index than American management explaining Japan's fast economic growth. One purpose of this paper is to represent the model and the argument with minimum technical details. This, however, is not the sole purpose here. The Theory only discussed the antineoclassical aspects of Japan to emphasize the management growth preference, perhaps leaving the impression that, "by orthodox standards, these [results of the book] are amazingly paradoxical conclusions" [Marris and Mueller, 1980, p.46]. It now seems, however, that there are other aspects in Japan which are quite neoclassical, in fact to the extent that a popular (though maybe somewhat controversial) Japanese economist asserts that "the distinctness of Japan lies in its embodying the spirit

of the neoclassical economic theory more faithfully than the United States and European countries" [Iida, 1979, p.2; my English translation]. These neoclassical elements prevented Japanese managers from utilizing their discretionary power in spending easy lives with inefficient management organizations and production methods and forced them to achieve efficiency. Were it not for the unique combination of these neoclassical and antineoclassical elements, Japan's economic growth must have been much slower.

The following section presents the theory of corporate decision-making and economic growth in a manner as concise and nontechnical as possible. Japan's business environment is discussed in section 3 in terms of industrial organization, internal labor markets, and the capital market to see its neoclassical and antineoclassical aspects and their implications. Section 4 examines the applicability of the theory to European countries, particularly West Germany and the United Kingdom, and section 5 gives some thoughts on policy implications.

Before proceeding to these analyses, it is verified that Japan's economic growth has been in fact rapid. Look at Table 1. In terms of both real GDP and manufacturing output, the last two decades have witnessed an exceptionally high rate of economic growth with Japan. For instance, real GDP has grown at an annual rate of 8.4 percent in Japan more than twice the rate of the United States and about two-thirds in excess of that of France, the second fastest growing country. Another finding from the table is that even after the oil crisis of 1972-73 this relative superiority of Japan's economic growth performance persists, for although after the crisis Japan experienced a decline of the rate of growth in manufacturing output to about one-third of the earlier

TABLE 1

THE COMPARISON OF ECONOMIC GROWTH PERFORMANCE

AMONG SEVEN OECD COUNTRIES

(in percentage)

Country	Annual Growth Rate					Household saving ratio, average of 1973-77
	Real GDP	Manufacturing output		Productivity in manufacturing		
	1953-77	1960-73	1973-78	1960-73	1973-78	
	(1)	(2)	(3)	(4)	(5)	(6)
Japan	8.4	12.7	4.1	9.1	5.9	22.0
United States	3.2	4.8	1.7	3.3	1.3	6.9
Canada	4.8	5.0	2.8	4.5	2.7	10.4
France	5.0[a/]	7.3	2.7	6.1	3.7	17.0
Germany	4.8	5.3	1.7	5.0	3.9	14.2
Italy	4.5[b/]	6.7[c/]	2.1	5.9[c/]	1.7	25.0[d/]
United Kingdom	2.6[a/]	3.0	-0.9	3.6	0.5	13.9

a/ 1953-76, b/ 1960-76, c/ 1962-73, d/ average of 1975-77.

Source: (1) IMF, International Financial Statistics, 31(5), May 1978

(2)-(5) OECD, Economic Surveys: United Kingdom, February 1980

(6) OECD, Economic Surveys: Japan, July 1979

rate, the speed of economic growth in other countries has also slowed down. With the rate of increase of labor force hardly variant among countries, the faster growth of Japan's economy had to be accompanied with faster growth of its labor productivity as shown in the columns (4) and (5).

Traditionally, two explanations have been offered. One attributes Japan's fast economic growth to its high saving rate. Both theoretical and empirical questions are posed to this explanation. Theoretically, it is noted that how the saving rate affects the speed of economic growth is not self-evident. As long as the labor market maintains equilibrium in a steady state, the rate of economic growth must equal the rate of increase of labor supply or, in Harrod's term, the natural rate of growth. Hence, in order that the saving rate affects the rate of economic growth, how it affects the natural rate of growth has to be explained. That is to say, we need a theory to the effect that technical progress induced by, say, industrial research and development increases the natural rate of growth. Nevertheless, seldom has such a theory been offered. Moreover, even with such a theory (like ours as the readers will soon see), it is empirically difficult to attribute Japan's fast growth entirely to its saving behavior. Its saving rate is not the largest but second after Italy whose growth rate is only fifth largest among the seven countries. If a simple regression is made with these seven countries, we obtain

the growth rate of real GDP = 2.26 + 0.16 (household saving rate)

with the predicted growth rate for Japan being 5.8 percent leaving 2.6 percent yet to be explained.[1]

The other explanation of Japan's growth is based on the so-called catch-up theory to the effect that in the 1950s Japan was not yet a

rich country and thereby had a lot to catch up with the aid of technologies and knowhows of advanced countries such as the United States. Robin Marris, in his on-going study yet to be published, incorporated this catch-up effect by hypothesizing that the rate of growth is inversely related to the level of real per-capita GDP (in logarithm) at the starting year, obtained a significant regression equation, and found that of the increase in Japan's per-capita GDP from 1955 to 1980 about one-third is still unexplained. It is thus concluded that even if catch-up effect is eliminated Japan is still a fast-growing country. In fact, how can the catch-up theory explain Japan's relatively fast economic growth after 1973 by which time it had already catched up?

2. THE MODEL[2]

Consider an economy with a fixed number of identical firms. These are corporations, namely joint-stock companies, and their shares of common stock are owned by households who may freely sell or purchase them in the stock market. Suppose further that these corporate shares are the only means of holding wealth available to the households. By this are implied two assumptions. First, there is no other financial assets, be it money or bonds. Second, households are not able to hold real physical capital such as machines and plants. The first is mainly for simplifying purposes (see The Theory, chapter 9). The second, on the contrary, is essential. This presumes that, even if the rate of profits to corporations exceeds the rate of return to stock ownership or even if the present value of profits to be gained from some real capital, say a plant, is expected to exceed the acquisition cost of the plant, households may not opt to own the plant. Put differently, between financial assets and physical capital no arbitrage is assumed to take place and the corporate sector

is separated from the noncorporate household sector with prohibitively high barriers to entry. We consider this a more or less realistic description of the present industrial capitalist economy because to own physical capital and manage it requires an organization of experienced and well-trained personnel and a series of group decisionmakings within it, and this is beyond the ability of individual investors.[3]

The economy consists of three competitive markets, labor, goods and stock, and the relative prices are the rate of interest, namely the rate of return to stock ownership, $i(t)$, and the wage rate $w(t)$, both in terms of goods. In a steady state growth path, $i(t)$ is constant at i and $w(t)$ grows at a constant rate ξ with the initial value w. The dynamics of this economy is to be investigated now.

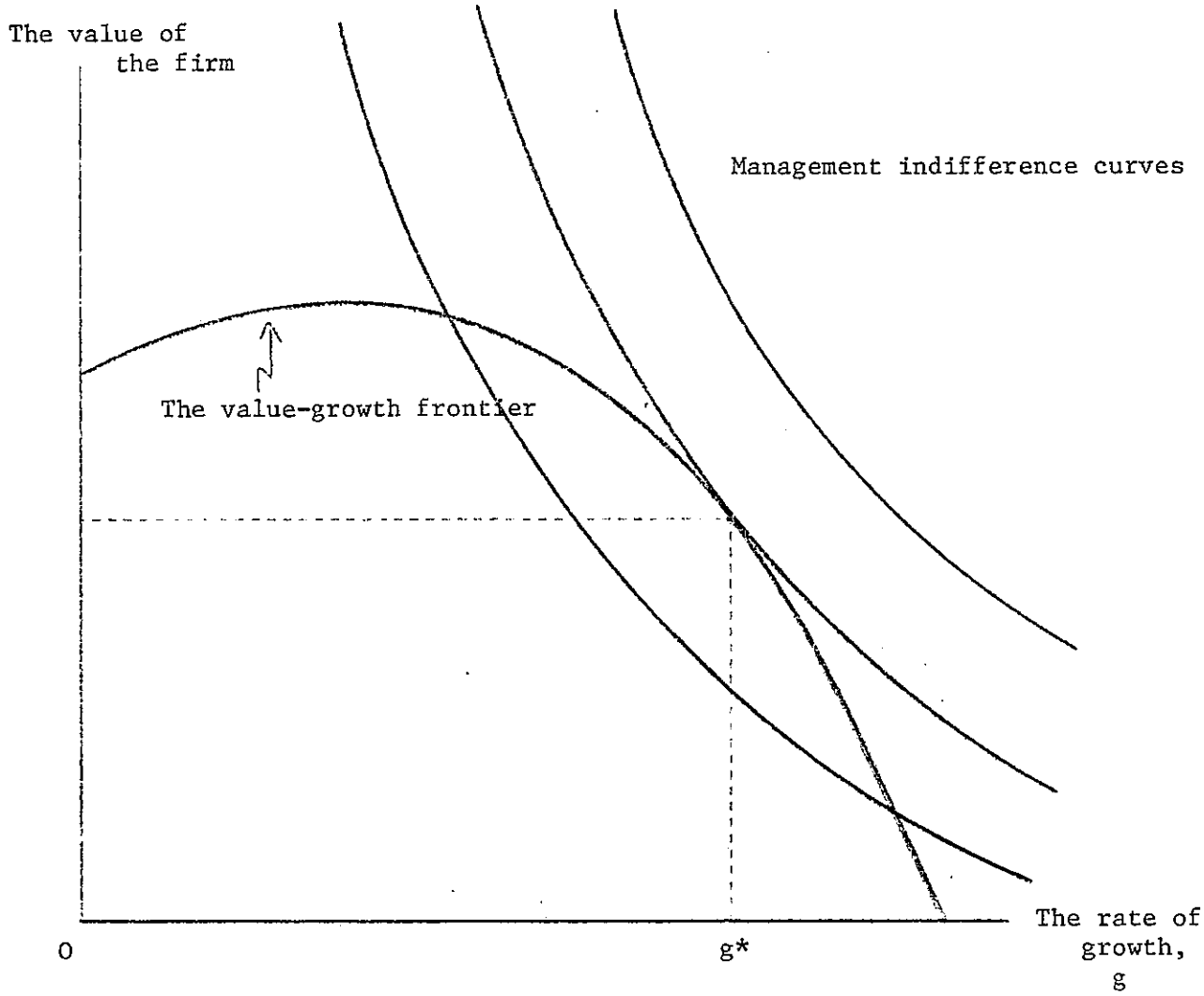
2-1. THE FIRM

The management of a corporation is most concerned with its growth: following Marris's [1964] and Galbraith's [1967] arguments, we assume this. This of course does not mean that the profitability or, more accurately, the value of the firm may be disregarded because it affects whether the management may or may not maintain its authority without outside interference; that is, in short, it affects the chance of survival of the management. If the actual value of the firm is thought to be too small relative to its potential maximum value, a raider may take over the firm, or shareholders may undertake proxy fights to oust the management, or creditors may press the management for policy changes perhaps with the threat of cutting their loans. The smaller the value of the firm given its potential maximum, the larger will be the probability of a takeover, a proxy fight, or other outside interferences; hence, the probability of survival of the incumbent management depends positively

on the value of the firm given its potential maximum. If the management maximizes some sort of expected long-run utility, then, we may formulate the management decisionmaking as maximizing the utility function comprising the rate of growth of the assets or sales of the firm, to be denoted by g, which positively affects the level of utility provided survival, and the value of the firm, which positively affects the chance of survival and hence the expected length of survival.

The firm has a set of policy variables; how much labor to employ, how much to produce, how much to advertise and in what media, how much to spend in research and development, how much to diversify and to which industry, and of course how fast to expand and accordingly how much to invest in expansion. Since the management presumably is concerned only with the growth rate and the value of the firm, we may solve the optimization problem in two stages: first, given the growth rate g, to maximize the value with respect to all the other policy variables; and second, to determine the optimal growth rate so as to maximize the management utility function. With the first stage of the optimization, the optimal values of all the policy variables other than g are solved as functions of g and relevant prices and so is the value of the firm if evaluated with these optimal values. This function that relates the value to g we call the value-growth frontier or, in short, the v-g frontier. It is a frontier because the value of the firm on the curve is attainable only if the firm operates efficiently given g. Fig. 1 illustrates this frontier. Most likely it is upward sloping for small g but turns downward sloping for large g. This is because of two conflicting effects. Faster growth implies, on the one hand, larger profits in the future and hence a larger value but, on the other hand,

FIG. 1


The value of
the firm
Management indifference curves
The value-growth frontier
The rate of
growth,
g
0
g*

larger costs of investment and hence a smaller value. If the growth rate is small, increasing it by one more percent is usually not so costly as to cancel out the positive effect of growth, but as it becomes larger increasing it further should require more and more efforts and costs and hence the negative effect may well become dominant. Thus the frontier is most likely to have the shape as in Fig. 1.

The second stage of the optimization determines the optimal growth rate so that one of the management indifference curves becomes tangent to the v-g frontier. In the diagram g* illustrates this optimal growth rate. Needless to say, if the shapes and positions of the indifference curves vary so does the optimal growth rate. A new parameter z is defined to capture this effect. That is, if Firm A chooses a larger growth rate than Firm B given identical prices, we say that A has a larger z. This may occur because A's management is so enthusiastic about growth or because the threat to A's management by means of takeovers, etc., is less effective. We call z the index of management preference toward growth (or the term, the index of effective growth preference, as suggested by Marris and Mueller [1980, p.46], may be more appropriate because it reflects not only the preference per se but also the exogenous factors such as the costliness of a takeover that influence the effectiveness of the preference).

An increase in price, i, w or ξ, also affects the optimal growth rate, probably negatively, by shifting the v-g frontier downward. We therefore have as a variant of the investment function

$$g = g(i, w, \xi, z) \qquad (1)$$

2-2. THE LABOR MARKET

Because the economy consists of three markets, supply-demand balancing

at two is necessary and sufficient for the general equilibrium by virtue of the Walras Law. This paper considers the labor and stock markets.

Assume a Harrod-neutral, namely, purely labor-augmenting, disembodied technical progress. Then, the labor market is in equilibrium over time only if

$$g = n + a \tag{2}$$

where n is the rate of increase of labor in manhours and a is the rate of increase of labor productivity, for at steady state with Harrod-neutral technical progress the ratio of capital to labor in efficiency units is constant and hence the demand for labor in efficiency units increases at the same rate g as capital whereas n+a is the rate of increase of labor supply in efficiency units.

The rate of technical progress a may be partly exogeneous to the economic system -- as manna from heaven -- but partly or, I would say, mostly endogenous as a result of conscious efforts by businesses. This is so because firms in our industrial economy expend substantial amounts on research and development out of their sales revenues in order to raise labor productivity and save future costs. They determine, as a part of the first stage of the optimization discussed in the previous subsection, how much research and development expenditure to make and consequently how much technical progress to achieve given the rate of growth and prices. The rate of technical progress is therefore determined endogenously in the following manner:

$$a = a(i, w, \xi, g) \tag{3}$$

In order that the labor market is in equilibrium, the marginal product of labor must equal wage rate at any time. This requires that the rate of increase of labor productivity a be equal to the rate of

wage increase ξ, for if $a > (<) \xi$ the marginal product eventually exceeds (becomes less than) the wage rate; hence,

$$\xi = a \tag{4}$$

2-3. THE STOCK MARKET

We separate two classes, workers and capitalists, according to whether an individual receives wages (a worker) or not (a capitalist). Both may own stocks to receive the returns, which to capitalists are the only incomes. This separation follows that of Pasinetti [1962]; however, in that we have separated the corporate sector from the non-corporate household sector ours drastically differs from Pasinetti's. In Pasinetti's, capitalists own real capital to gain profits: in ours, capitalists hold only shares of corporations, the owners of real capital, to receive the returns, namely, dividends and capital gains. Hence, the rate of return to real capital -- the rate of profit -- and the rate of return to stock ownership -- the rate of interest (denoted by i) -- are necessarily the same in Pasinetti's but not in ours.

Leaving the proof to The Theory, chapter 4, the steady state equilibrium condition in the stock market is as follows:

$$g = s_c i \tag{5}$$

where s_c is the capitalists' saving rate. The basic reason for this condition follows. The rate of interest indicates how much returns (dividends plus capital gains) to receive per dollar of stock. Multiplied with the capitalists' saving rate, the right hand side indicates how much dollar capitalists reinvest in stock per dollar of current stock-holdings; hence, it is the rate of increase of capitalists' stockholdings. At a steady state equilibrium in which the share of wealth of each class has to stay constant, this rate of increase of capitalists' stockholdings

must equal that of total value of stocks which in turn has to equal the rate of growth of corporate assets g.

This result may appear identical to Pasinetti's. As we have discussed above, however, the rate of interest may deviate from the rate of profit in this model unlike in Pasinetti's. In other words, Pasinetti's is a special case of ours where perfect arbitrage between real capital and stock forces the rates of return to the two identical.

2-4. ECONOMIC GROWTH

The model is now complete with five unknowns -- the rate of growth g, the rate of Harrod-neutral technical progress a, the rate of interest i, the initial wage rate w, and the rate of wage increase ξ -- and five equations -- the investment function (1), the labor market equilibrium conditions (2) and (4), the function to determine the rate of technical progress (3), and the stock market equilibrium condition (5). The given parameters are the index of (effective) management growth preference z, the rate of increase of labor in manhours n, and capitalists' saving rate s_c. The effects of these parameters to the equilibrium values of five unknowns are investigated by means of comparative analysis: the result is summarized in Table 2. It shows that, in addition to the traditionally popular explanations of fast economic growth such as high savin rate and fast increase of labor supply, we may now attribute it to the difference in management behavioral attitudes.

This result gives a powerful explanation of international differences in economic growth performance. Consider the faster economic growth of Japan over the United States. The rate of increase in labor varies little between the two countries[4] and, as explained in the first section,

TABLE 2

THE SIGN OF THE EFFECT OF PARAMETERS

ON EQUILIBRIUM VALUES

Equilibrim values	Parameters		
	s_c	n	z
g^o	+	+	+
i^o	?	+	+
w^o	?	-	+
a^o	+	-	+
p^o	?	+	-

the difference in saving behavior alone cannot explain the observed difference in the rate of economic growth.[5] Our model, however, provides another explanation -- management growth preference. That is to say, it may be that business environment in Japan is such as to make the management pursue faster corporate growth causing its national economy to grow faster than other countries. The next section will confirm this conjecture by investigating the Japanese business environment in detail.

A remark is in order before closing the section as to the theoretical character of our model. Here, the decisions concerning saving and investment are independently made by, respectively, the noncorporate household sector and the corporate sector, and the two balance only at the general equilibrium. In this respect, clearly our model is Keynesian. At the same time, however, the general equilibrium is attainable with full employment of all the resources. In this, ours is neoclassical. The Keynesian and neoclassical thoughts, therefore, are synthesized here. This is the distinct and, I believe, realistic feature not found in any other model.[6]

3. MANAGEMENT GROWTH PREFERENCE: JAPAN VERSUS USA

Our comparison of management growth preference between Japan and the United States is made in terms of three aspects: industrial organization, internalization of labor markets, and the capital market.

3-1. INDUSTRIAL ORGANIZATION

First we look at the level of overall concentration to confirm that in either Japan or the United States the greater part of economic activity is carried out by a limited number of big corporations. In all

US industries in 1973 the largest sixteen hundred corporations with assets exceeding a quarter of a billion dollars accounted for 62 percent of all the assets.[7] The largest seventeen hundred corporations in Japan in 1972 with a thousand or more employees accounted for 55 percent of all the paid-in capital.[8] However, these figures, particularly for Japan, underevaluate the power of big corporations because of the neglect of the affiliates. The Fair Trade Commission in Japan reports that including affiliates under majority ownership the hundred largest manufacturing corporations controlled 49.9 percent of total assets in manufacturing in Japan in 1970 whereas Kaplan reports that in the United States in 1960 using balance-sheet asset figures (thus reflecting the degree of consolidation reported by companies themselves) the hundred largest nonfinancial corporations controlled 30.8 percent.[9] Even taking into account the upward trend of overall concentration between 1960 and 1970 in the United States, it therefore appears that concentration in Japan is somewhat higher than in the United States.

Within these big corporations, the separation of ownership from control is almost complete. For the United States, Larner's [1966] famed study observed that 80 and 84.5 percent of the two hundred largest nonfinancial corporations in 1963 were, respectively, immediately and ultimately controlled. Mito [1972] applied the identical research method to find that in 1966 60 percent of the largest two hundred Japanese corporations were immediately management-controlled. This figure, however, underestimates the extent of management control in Japan by overlooking the role of interlocking share ownership prominent among Japanese leading corporations. A more detailed study by Nishiyama [1975] investigated several aspects including interlocking share ownership and

interlocking directorates of 332 giant Japanese corporations and concluded that, employing his own criterion, 89 percent of them -- 93 percent if government- and foreign-owned corporations are excluded -- are ultimately management-controlled. Thus, whether in Japan or the United States, most of big corporations are nowadays controlled by the management.

Now turn to the examination of competitiveness in individual markets. So far as the four-firm concentration ratio is concerned, not much difference is observed between Japan and the United States with perhaps somewhat lower concentration in Japan, for Caves and Uekusa [1967, p.19] reports that the weighted average of concentration ratios in individual markets in 19(was 40.9 percent in the United States and 35.4 percent in Japan. However, "competition to Adam Smith was essentially an independent striving for patronage by the various sellers in a market" [Scherer, 1970, p.9] and the extent of competition in this sense may not be captured by the concentration ratio alone since in a market with fewer competitors one may observe fiercer rivalry.

In this sense of Smith's, most Japanese markets appear more competitive than American markets. It is very often observed in Japan that firms make great efforts to outperform rivals, particularly in terms of market shares, by means of sales efforts, advertising brands, giving rebates to wholesale and retail dealers, and, though less often, price cutting. Entry to new markets is usually within a short period and by plural firms.[10] Firms are eager to construct new and more efficient production equipments to outperform the rivals, even to the extent that the Ministry of International Trade and Industry (MITI) becomes worried about the probable excess capacity as a consequence. It is with these observations that many people, more businessmen and the MITI officials than academic

economists, argue of excessive competition though excessive over what has seldom been made explicit. Be it excessive or not, that Japanese markets are competitive perhaps has to be accepted. Iida [1979, pp.78-79, with my English translation], for instance, argues that "there is no doubt that the Japanese industrial organization is almost unbelievably competitive compared to the United States and European countries." Caves and Uekusa [1976, p.52] are less sympathetic and generally denies the excessive competition thesis; still, however, they admit that "certain forces have promoted active and sustained rivalry among oligopolists in some industries." It appears reasonable therefore to conclud that Japanese markets are in effect more competitive than American markets.[11] If so, this competitive environment must have forced the firms to be efficient, leaving them no room to spend easy lives below the value-growth frontier.

A feature of Japan's industrial organization not found in the United Sta is business groupings such as Mitsubishi, Mitsui and Sumitomo. It is not easy to define business groupings or to draw a border to a group, because, unlike pre-war Zaibatsu from which most of the present groupings have originated and unlike American conglomerates, the member firms are basically equal in power and not tied with majority share ownership. Most appropriately, perhaps, it is characterized as a group in which member firms make their own decisions but some kind of coordination between them is undertaken if necessary. In addition, they are frequently observed to make voluntary exchange of information within the group through formal (such as in the presidents' regular meetings) or informal channels, preferential trading including preferential loans by the member financial institutions to the member borrowers, joint ventures

among the member firms, and interlocking (though not majority) share ownership and directorates. These behaviors, on the one hand, shift the value-growth frontier upward by making expansion less costly and, on the other hand, lessen the threat to the survival of the management by reducing the share of stock available to the outside of the group and providing the firm with a reliable and powerful group of owners. Obviously these allow the management to choose a larger growth rate than otherwise with a larger or smaller value of the firm;[12] hence, we may hypothesize that Japan's business groupings strengthen management growth preference.

Another consequence of business groupings concern their effect on competition. Of course, in the overall sense, they result in more concentration of power to fewer groups. For example, according to the study by Japan's Fair Trade Commission, 177 firms in six groups in 1977 held about a quarter of the total assets in Japanese industries.[13] However, there is another effect which stimulates competition. Each group is and intends to be diversified including every major industrial field within it. Because of this so-called "one set" principle of business groupings, each group is eager to enter whatever industry it lacks. This tendency is particularly evident in new and fast-growing industries, which has resulted in at least several competitors in each industry preventing monopoly or oligopoly with an unrivaled leader. Business groupings, therefore, may well have promoted competitiveness.

Industrial organization in Japan, we would like to conclude, has resulted in the dominance of big management-controlled corporations like (and perhaps somewhat more than) in the United States, more effective managem growth preference than in American businesses, and more competitive individual markets than in the American economy.

3-2. INTERNAL LABOR MARKETS

Japan's employment practice is often considered different from American or European practice in its two features, lifetime employment and the seniority wage system.[14] The former refers to the fact that usually an employee is hired by a firm directly from school and stays with the same firm until the age of compulsory retirement. The latter refers to the system of wage payment whereby earnings are related mostly to the length of service within the firm. These practices have contributed to management growth preference for two reasons. First, the faster the firm expands the smaller is the proportion of older and senior employees in the firm and, due to the seniority wage system, the smaller is the average wage cost. This tendency is reinforced by the fact that a faster-growing company attracts more applicants from the pool of new college graduates because it promises a better prospect of promotion and hence a larger expected lifetime income to an employee, and this allows the firm to recruit workers of better quality. This is particularly so because starting salaries vary little across firms and also because under lifetime employment the choice of a company is a career choice for a new graduate and thus he must be extremely cautious and thoughtful as to the choice.[15]

Once hired, an employee's concern is with the expected lifetime income he is to earn with the firm by the time of compulsory retirement. This gives the second reason for growth preference. Because under lifetime employment internal promotion and not external recruitment is the rule to fill vacancy in upper ranks and promotion means more pay, every employee is happier as more opportunities for promotion are created. Given the span of control for technological or sociological

reasons, only by expanding the corporate organization can this be done. Thus every employee has a strong motive to seek the growth of the firm. This preference of the employees necessarily influences the behavior of the firm. For one thing, in a firm in which internal promotion is the rule, the executives are themselves internally bred and this fact makes them more responsive to the employees' needs. For the other, today's corporate decisions are made not by an almighty top executive but with a series of group decisionmakings in many parts of the corporate organization as Galbraith [1967] emphasized. For instance, a personnel in sales section determines how much discount to offer to a certain customer and another in personnel section determines which applicant to hire. In making these decisions it is indeed unrealistic to presume that "the individual member of the technostructure subordinate his personal pecuniary interest to that of the remote and unknown stockholder" [Galbraith, 1969, p.174]. Most naturally, he will consider his own interest -- the expansion of the firm -- before anything else.

It needs be noted, however, that the practices of internal promotion, lifetime employment, and the seniority system are by no means absent in the United States as recent literature on internal labor markets such as Doeringer and Piore [1971] indicate. For instance, a larger proportion of executives than usually assumed have been internally promoted in the United States.[16] Therefore, the above-mentioned causes of growth preference may also stand for American companies. Still, however, we consider the United States and Japan different in two respects. One simply pertains to the extent of internalization: even though internal promotion and intrafirm immobility may be equally observed for blue-collar workers in th United States as in Japan, it appears doubtless that for white-collar

workers -- management staffs and executives in particular -- these tendencies are stronger in Japan. Another difference between the two countries concerns how internal labor markets work. In this connection, a detailed comparison of internal labor markets -- specifically, practices on promotion, transfer and layoff of blue-collar workers and the extent of the influence of labor unions upon these matters -- between Japanese and American big corporations in several industries by Koike [1977], unfortunately available only in Japanese, has to be referred to.

According to Koike, there are two major differences between the two countries. One pertains to the question of who to promote, transfer or lay off: the other pertains where to promote to or transfer to. As for the first question, contrary to the conventional wisdom, Koike found the American factories stricter in applying the seniority rule. When the management has to decide who to promote first, who to lay off first, or who to rehire first, American management cannot but strictly obey the seniority rule promoting the most senior, laying off the most junior, and rehiring the most senior, whereas Japanese management possesses considerable discretionary power on who to promote or transfer even though seniority usually comes as the first criterion. Also, because seniority rule is hardly established concerning who to rehire after layoff, layoff in Japan, even though much less often than in the U.S., is usually taken as dismissal.

As for the second question, namely where to promote or transfer to, American factories again were found to have a stricter rule than Japanese factories. That is, in the United States, where to move from a certain positi to is explicitly or inplicitly predetermined and consequently a worker goes

up a narrow promotion ladder. For this reason, the experience an American worker accumulates is quite job-specific. In Japan, on the contrary, the rule is looser and the management has more discretion as to where to promote or transfer a certain worker to. It is thus common that a worker goes through diverse jobs in the firm to acquire more firm-specific than job-specific skills. Although Koike's study focuses mostly on blue-collar workers, this generality of a worker's experience within the firm holds also for white-collar workers; for instance, a college graduate may start his career in a factory as a blue-collar worker and then goes through various white-collar-type sections in the firm such as sales, purchase and finance. That Japanese workers acquire mostly firm-specific skills not confined to a particular kind of job explains why they insist on lifetime employment with the firm, even ignoring seemingly better-paid outside jobs, and why the firm is happy to oblige to it.

It seems to the present author that these Japanese practices have resulted in three consequences: more intrafirm competition among employees, less impediment to structural changes that accompany growth, and more identification of employees' motives with the goal of the firm.

The looser seniority rule in Japan implies more freedom of the management in choosing from a pool of candidates. In addition, the generality of a worker's career implies that it may choose not only from those workers immediately below the position to be filled but also from workers in other jobs and sections. From a worker's standpoint, this obviously implies severer competition since if someone succeeds in proving able he should have better chance of promotion with less regard to his experience by that time. Intrafirm competition is thus strengthened

heightening workers' morale, reducing organizational slacks, and achieving efficiency.

In a dynamic situation, the firm does not just grow but also adjusts and changes. For instance, at some point in time, the firm may have to diversify into new industries or to get rid of a product with contracting or insufficient demand. Or as new and better technology is invented, it may have to restructure production lines replacing one job with another or replacing manpower with automation. Skills related only to narrowly specified jobs very often become obsolete and thus make the transfer of a worker from a job to another difficult. As a result, it is more often observed in the United States that labor unions resist the adoption of new and superior technology and the management is reluctant to venture into new industries and new technology. On the contrary, in Japan where firm-specific skills rather than narrower job-specific skills are acquired, to make adjustments required to maintain efficiency in the course of growth has been much easier and workers' resistance to growth and change has been little.[17]

With an experience of various jobs with the firm and acquisition of firm-specific skills, a worker tends to possess strong loyalty and devotion to the firm and identify and adapt his desire and motive to those of the firm. That is to say, Galbraith's [1967, p.102] argument that "identification -- the voluntary exchange of one's goals for the preferable ones of organization -- and adaptation -- the association with organization in the hope of influencing its goals to accord more closely with one's own -- are strong motivating forces in the technostructure" fits much better to Japanese corporations than American ones. That growth, provided survival, becomes the prime goal of the technostructure with such identification and adaptation perhaps needs no further

explanation [see Galbraith, 1967, chapter 15].

3-3. THE CAPITAL MARKET

Takeovers, regarded as the most effective means of controlling management discretion by Marris [1964] and Manne [1965], have been rare and virtually nonexistent in Japan. Of course there are many peaceful mergers and integrations; however, taking over a company against the objections of the management and employees is seldom observed. Tender offers, legalized since 1971, have seldom been adopted. One and perhaps the only such incidence was the bid in 1972 by Bendix Corporation of the Unit States against Jidosha Kiki, an automobile part manufacturer. In this case, however, the intention of Bendix was to increase its existing ownership and this was said to be under the agreement of the Jidosha Kiki management. Hence, this hardly is a takeover in the American or British sense, namely, a struggle between the incumbent management and the raider over corporate control.

We may cite two reasons for this rare occurrence of takeovers. One pertains to the difficulty of management after a takeover. A raider undertakes a takeover to raise profits or to serve whatever object he has. To do so, after takeover the raider has to interfere in the management of the acquired firm and reorganize it. If the employees of the acquired firm have strong loyalty and identification with the firm as in Japanese firms, however, they will surely regard the takeover as an intruision by an outsider to their own entity and fiercely resist the raider and his new management policy. Furthermore, even with such resistance, the raider will not be able to fire them because of the firm-specific skills they and no one else possess. This surely lowers the prospect of profits from the takeover and retard takeover activity.

Another reason for the infrequent takeover is the difficulty and costliness of acquiring sufficient amount of shares to take over. As discussed in subsection 3-1, interlocking shareholding is common within business groupings. The average proportion of interlocked shares amounted to 28 percent in 1977 in the biggest three groups, Mitsubishi, Mitsui and Sumitomo.[18] Though perhaps less reliable and steady, other firms have corporate shareholders as well. In fact, a study of all the companies listed in Japan's stock exchange markets in 1976 revealed that 61.6 percent of the stocks were held by financial institutions and nonfinancial corporations, and individuals held a mere 33 percent.[19] Although it may not be expected that all the institutional and corporate shareholders are dependable in case of takeover fights, one may easily assume that a raider will face tremendous difficulty in acquiring enough share for control, because a purchase of substantial amount of stocks likely jumps the price immediately and a tender offer likely fails to attract enough shareholders or invites counter proposals by other institutional shareholders.

In short, a takeover itself is difficult and costly, and, even if succeeded, to manage the acquired firm causes another difficulty. The rare occurrence of takeover in Japan is no wonder, therefore, and the management hardly needs worry about being taken over. An argument has been often made, however, that the management has to worry about another source of interference; i.e, financial institutions such as banks. Japanese firms are well known for the high debt ratio compared to American firms -- 83.89 percent in all industries and 80.88 percent in manufacturing in 1978.[20] Naturally, the financial institutions are concerned with the management of the borrowing firms and, with the

threat of withdrawing credits, they may influence the management policy of the firm. This has in fact occurred several times, all at the time when the borrowing firms were in trouble. An example is Toyo Kogyo Co., the producer of Mazda cars. When the company lost money with unbearably large inventories, mostly of then gasoline-consuming rotary-engine cars, the main creditor, Sumitomo Bank, came into the recue sending a vice-president.

Such interference by financial institutions, however, does not necessarily lead the management to maximize profits and the value of the firm. For one thing, they are concerned with whether their loans are to be repaid and as far as this is guaranteed they are unlikely to interfere. In fact, too much interference by a bank may well lead the firm to seek other banks for credits resulting in the loss of a customer to the bank. For another thing, banks are themselves management-controlled.[21] Hence, they are eager to expand their loans to whatever firm they consider safe and also they tend to be sympathetic to the growth-maximization behavior of the debtors. It does seem to the present author, therefore, that the role of financial institutions in Japan is hardly to deny the growth-maximization behavior of firms.

3-4. SUMMARY

Our comparison of management motivation between the United States and Japan may be summarized as follows. (1) In either Japan or the United States, the major part of the economic activity is carried out by a limited number of big management-controlled corporations with some studies suggesting slightly more overall concentration and slightly more widespread separation of ownership from control in Japan. (2) As

for individual markets, Japanese markets appear more effectively competitive than American markets even though statistical evidences on market concentration ratio do not reveal much difference between the two countries. (3) Business groupings in Japan enhance management growth preference by shifting the value-growth frontier upward and lessening the threat to the incumbent management. (4) The attempt to diversify and cover most major industrial fields by each grouping results in more market competition. (5) Lifetime employment and the seniority wage system tend to increase management growth preference. (6) Japan's adoption of looser rules in promotion, transfer and layoff results in more intrafirm competition among employees, more accumulation of firm-specific skills, less difficulty in making structural changes such as automation in the course of corporate growth, and more employees' loyalty and identification with the corporate goal. (7) Takeovers are very costly in Japan hardly threatening the management. (8) The influences of financial institutions, often considered the largest threat to the managerial behavior of Japanese firms, are limited due in part to the growth-pursueing behavior of the financial institutions themselves.

In sum, Japanese firms have many reasons to pursue growth even ignoring the shareholders' welfare, and the external forces to punish those firms not pursueing the shareholders' welfare are ineffective. Therefore, we may reasonably assign a larger value to the index of management growth preference, z, in Japan than in the United States. This, according to our theory, nicely explains the observed difference in the speed of economic growth between the two countries.

We also note neoclassical elements in Japan's economy. That is, both interfirm (among rivals in markets) and intrafirm (among employees)

Japan is more competitive than the United States. This competitiveness forced the firm efficiency. In our term, the firm is forced to be on the value-growth frontier not being allowed to spend easy lives below and inside of the frontier. This implies, on the one hand, a choice of larger growth rate given profitability constraint and, on the other hand, advantages in productivity, etc., over less competitive countries such as the United States perhaps explaining the current positions of the two countries in world markets. In short, in the sense of competitivenes and efficiency Japan is neoclassical; in the sense of managerial behavior Japan is antineoclassical. The unique combination of these two factors is what makes Japan's economy grow more rapidly and more efficiently than any other industrialized country.

4. EUROPEAN EXPERIENCE

The author is not as familiar with European countries as with Japan and the United States. It seems apparent, however, that our theory well explains the difference in the speed of economic growth among European countries, particularly the better performance of West Germany and France relative to the United Kingdom.

The United Kingdom is known for the intensity of takeover activity. For instance, Kuehn [1975, p.15] found that "over 43 percent of the firms existing during all or part of the period 1957-69 were taken over" and, further, that "the companies existing in 1957 had only slightly better than an even chance of surviving up to 1969." Growth cannot be the prime goal of a firm in this environment because survival necessarily becomes its most concern and, with a shorter expected length of survival, the management will hardly care about

the distant future of the firm. Other negative effects of intensive takeover activity are raised by George and Ward [1975, p.71]: "While a low level of gross investment is a long-standing feature of the UK economy, one factor which might have made an important contribution to this state of affairs in recent years is the intensification of merger activity. Thus not only does expenditure on acquiring subsidiaries represent a substitute for expenditure on new capacity as far as any individual company is concerned, but also it often takes a considerable time for the activities of the two companies involved to be satisfactorily rationalized and reorganized."

In contrast, takeover activity is inactive in France and Germany and there are more grouping and interlocking-shareholding activities in these countries. External control to corporate behavior is therefore weaker than in the United Kingdom: "It is probably accurate to suggest that in a few western countries today is the erosion of powers held by large shareholders in their companies as swift and dramatic as it is in West Germany now" [Vogl, 1973, p.33].

Another difference between German and British firms concerns the extent of lifetime employment and internal promotion. Germany is characterized by the lack of mobility of personnel between large companies [see Vogl, ibid., p.96] and lifetime employment and internal promotion are well established. We have argued that with these practices firms are strongly motivated to expand in order to create more positions to promote the employees. The following observation by Vogl [ibid., p.95] perfectly coincides with the argument and implies strong growth preference of the German management: "The only reason why such a rigid system [of hierarchy and promotion] has not provided major problems is

that most German companies have been expanding at such a rapid pace over the last two decades, that it has been no problem to promote people on to better salary levels and give them more impressive titles at a swift pace."

Furthermore, in his another study [1978], Koike found that the German management, like the Japanese management, possesses considerable discretion on who to promote without being entirely constrained by the seniority rule but, more like in American companies, German workers tend to stick with a narrow range of jobs. We may thus expect that intrafirm competition and growth preference of management and employees are more in Germany than in the United States and the United Kingdom though perhaps less than in Japan.

These rather scant observations appear sufficient to conclude that, in view of the desirability of growth to management and employees and the ineffectiveness of outside control such as takeovers, Germany (and perhaps more or less the same with France) is characterized with more effective management growth preference than the United Kingdom and the United States. The faster economic growth in Germany is thus wholly consistent with the prediction of our model of economic growth.

5. POLICY IMPLICATIONS

This final section considers what our theory suggests in terms of governmental policy provided the government wants to promote economic growth.[22]

Our model has shown that a country can increase the rate of economic growth by raising the saving rate of capitalists s_c and the index of management growth preference z given the rate of increase of labor force

in manhours for demographic reasons. One way to increase capitalists' saving rate is to tax capitalists less so that their disposable income increases and so is the ratio of their saving to their pretax income. Unless the government can reduce its expenditures or find other means of revenue, however, this policy is adoptable only if workers are taxed more at the same time. No doubt, this must be extremely unpopular among workers, making it politically infeasible.[23] We will therefore concentrate on the remaining factor, management growth preference.

The analysis in section 3 suggests that management growth preference may be encouraged by (1) promoting the separation of ownership from control so that owners possess less controlling power, (2) discouraging interfirm labor mobility, particularly of managerial staffs, and encouraging internalization of labor markets with lifetime employment and internal promotion so that workers tend to identify their interests with those of their companies and that their interests are closely connected with promotability, and (3) discouraging takeovers by making them more costly, i.e., by making capital markets more frictional, and/or encouraging interlocking shareholdings.

This is a strikingly antineoclassical list of policy recommedations. Not one of them conforms to the conventional (liberal, neoclassical, or whatever) wisdom and all are against. Conventionally, it has been thought that to achieve better allocation of resources and faster economic growth (though that the first does not necessarily imply the second has been frequently overlooked), owner control of firms should be secured so as not to permit wasteful discretionary behavior of the management, labor mobility should be maximized so that an efficient allocation of labor across industries and firms is realized, capital

markets should be perfect and smooth so that a firm run by poor management is taken over by someone with better managerial ability, and interlocking shareholdings should be prohibited or at least restricted to prevent the concentration of economic power. All these, however, are likely to lower the choice by the management of the rate of growth of the firm and as a consequence reduce the rate of economic growth of the country. That is to say, though these conventional policies may be effective to attain a higher level of income, they are not only ineffective to attain a higher rate of increase of income but even harmful.

Do we deny, then, all the conventional policy recommendations and the doctrine of "Invisible Hand"? Our answer is no because we also appreciate the role of competition. Recall our argument that Japan's economy is with a delicate balance of both antineoclassical factors which yield growth preference and neoclassical factors which yield competition and efficiency. Interfirm competition in markets and intrafirm competition among employees, we have seen, are in the Japanese economy and these forced the firms and the employees to be efficient. The doctrine of "Invisible Hand" and the principle of competition are therefore still indispensable.

More specifically, consider antitrust policies. To prevent concentration in each market and maintain or increase competitiveness is still necessary. It is not that every market should be atomistic; however, we require sufficiently effective competition among rivals in every market. Conventional antitrust policies such as the prohibition of cartels and collusion and the restriction of horizontal mergers should be mostly maintained, therefore. As for overall concentration,

it is more difficult to make policy recommendations. On the one hand, it may encourage growth preference by weakening the shareholders' relative power and by making entry to the corporate sector more difficult. On the other hand, this is likely to increase political and social power of big corporations which is usually considered undesirable. To keep balance between these two opposing effects should be essential. Similar arguments are made with groupings of firms, interlocking shareholdings, and the formation of giant conglomerates. Prohibiting these may reduce management growth preference; leaving them to the businesses' will may, however, result in too much concentration of power. In short, we more or less agree with conventional antitrust advocates as regards individual markets but less sympathetic and more cautious as regards corporate behavior across markets.

Finally, we consider the implications of worker participation and codetermination movements under way in European countries, most notably West Germany. The consequence, it seems to the present author, may be good or bad to economic growth. If workers only consider their own working conditions, they may demand easier works and less intrafirm competition by, say, reducing the discretion of the bosses concerning promotion: this will undoubtedly result in inefficiency retarding economic growth even though life could be more confortable to the workers. If workers identify their interests with corporate goals and consider matters from the viewpoint of the entire company, they may well propose faster growth of the firm to enhance promotability and make efforts to achieve efficiency: in this case, corporate growth will be encouraged. Hence, whether worker participation and codetermination promote or retard economic growth depends on the workers' attitudes and

concerns.[24] In Japan where worker participation is not legalized but apparently workers informally participate in management, the favorable effect has been dominant because of the identification of interests between workers and the management as discussed earlier. Whether the same holds in the case of European countries is yet to be seen.

NOTES

1. Admittedly the fit is poor; the correlation coefficient is 0.55 and the slope coefficient is not significantly different from zero. As for other countries, the regression equation slightly underestimates Canada's growth rate and substantially overestimates those of the United Kingdom and Italy.
2. For the detailed and rigorous analysis, see The Theory, chapters 2 to 5.
3. The Theory, chapter 10, extends the analysis to the case in which a more neoclassical sector with easy entry -- consider retail stores, restaurants and laundries for example -- coexists with the sector as described above with the result that none of the results to be obtained in the following needs be modified if some conditions are met.
4. Dennison and Chung [1976, pp.55-56] even found that the annual rate of employment increase was smaller in Japan (1953-71), 1.49 percent, than the United States (1948-69), 1.55 percent, though this order is slightly reversed once the change in age-sex composition and education is taken into account.
5. Strictly speaking, it is the saving rate of capitalists and not that of all the households that matters in the model. According to Family Saving Survey (Office of the Prime Minister), workers' saving rate in Japan is around 20 percent, only slightly lower than that of households. Also, according to Moore [1973, p.537], in the United States the saving rate out of capital gains and dividends is much larger than that out of labor income -- out of capital gains is 0.9-1.0, dividends 0.5-0.7, and labor income 0.02-0.05. In view of these facts and Japan's more equal distribution of

income and wealth, it appears quite likely that the difference in capitalists' saving rate between the two countries is not as large as that in household saving rate if not reversing the ranking between the two countries. If this conjecture is accepted, it is even more difficult to attribute the difference in the speed of economic growth between Japan and the United States solely on the difference in saving behavior.

6. The Theory, chapter 6, elaborates on this issue as well as compares this model to the Marx, Solow, Robinson and Kaldor models.
7. U.S. Internal Revenue Service, Statistics of Income.
8. Japan, Office of the Prime Minister, Establishment Census.
9. These are quoted in Caves and Uekusa [1976, p.18].
10. Foreign markets are no exception. Entry to American markets by Japanese firms has been in fact fast despite substantial cultural obstacles.
11. As Iida observes, it may be more appropriate to call American and European economies "excessively uncompetitive".
12. See Odagiri [1975]. Empirical supports to this argument are given in the same article and Odagiri [1974].
13. Nihon Keizai Shinbun, December 15, 1979. The figure does not include the affiliates.
14. Abegglen [1973] is perhaps most well known for emphasizing this difference and discussing its implications.
15. See Abegglen [1973, pp.31-32].
16. See the article titled "Organization Men Still Run the Show" in Newsweek, June 18, 1979.

17. For instance, Nihon Keizai Shinbun (July 12, 1980) reports that the newest plant of Nissan Motor Co. that produces Datsun cars now uses industrial robots to do 96 percent of the welding process. Those welders whose jobs were 'robbed' by the robots are not unhappy, however. They are still with the company for other jobs such as pressing. In fact, it is reported that the workers and the union are happy with the introduction of the robots because most of the transferred workers found their new jobs preferable to welding. It is further reported that similar moves are found in other Japanese automobile makers such as Toyota but not in General Motors.
18. Same as footnote 13 above.
19. Zenkoku Torihikisho, Kabushiki Bunpu Jokyo Chosa, as quoted in Okumura [1978, p.30].
20. These are the ratios of long-term and short-term debts to these debts plus stocks at face value plus retained earnings. Since stocks in the denominator are evaluated at face value, these are underevaluated and the ratio is overevaluated. Some decline with this ratio is noted; for instance, in 1975 it was 85.76 percent in all industries, 2.17 percent higher than in 1978. The figures are from Bank of Japan, Financial Statements of Principal Enterprises.
21. See Nishiyama [1975, chapter 4].
22. With this I by no means imply that economic growth should be the goal of the governmental economic policy.
23. See The Theory, chapter 8.
24. Another complication -- the difference in time horizon between a worker and a firm -- is noted in Odagiri [1980].

REFERENCES

Abegglen, James C. (1973) Management and Worker: The Japanese Solution. Tokyo: Sophia University, in cooperation with Tokyo and New York: Kodansha International.

Caves, Richard E. and Uekusa, Masu (1976) Industrial Organization in Japan. Washington, D.C.: The Brookings Institution.

Denison, Edward F. and Chung, William K. (1976) How Japan's Economy Grew So Fast: The Sources of Postwar Expansion. Washington, D.C.: The Brookings Institution.

Doeringer, Peter B. and Piore, Michael J. (1971) Internal Labor Markets and Manpower Analysis. Lexington, Massachusetts: Heath Lexington Books.

Galbraith, John Kenneth (1967) The New Industrial State. Boston: Houghton Mifflin.

George, Kenneth D. and Ward, T. S. (1975) The Structure of Industry in the EEC. Cambridge: Cambridge University Press.

Iida, Tsuneo (1979) Nihon-teki Chikarazuyosa no Saihakken [Rediscovering Strength in Japanese Style]. In Japanese. Tokyo: Nihon Keizai Shinbun Sha.

Koike, Kazuo (1977) Shokuba no Rodo Kumiai to Sanka [Trade Unions and Participation in Factories: Japan-U.S. Comparison of Industrial Relations]. In Japanese. Tokyo: Toyo Keizai Shinpo Sha.

Koike, Kazuo (1978) "Nishi Doitsu ni okeru Shokuba no Roshi Kankei" [Industrial Relations in West German Factories], in Japanese, Mikio Sumiya [ed.] Roshi Kankei no Kokusai Hikaku. Tokyo: Tokyo University Press. 61-90.

Kuehn, Douglas (1975) Takeovers and the Theory of the Firm. London: Macmillan.

Larner, Robert J. (1966) "Ownership and Control in the 200 Largest Nonfinancial Corporations, 1929 and 1963," American Economic Review, 56(4), September, 777-87.

Manne, Henry G. (1965) "Mergers and the Market for Corporate Control," Journal of Political Economy, 73(2), April, 110-20.

Marris, Robin (1964) The Economic Theory of "Managerial" Capitalism, London: Macmillan.

Marris, Robin and Mueller, Dennis C. (1980) "The Corporation, Competition, and the Invisible Hand," Journal of Economic Literature, 18(1), March, 32-63.

Mito, Tadashi (1972) "Keiei Shisutemu no Henbo" [The Changing Managerial System], in Japanese, Yuichiro Noguchi and Kazunari Abe [eds.] Gendai Dai Kigyo Ron. Tokyo: Yuhikaku. 68-78.

Moore, Basil J. (1973) "Some Macroeconomic Consequences of Corporate Equities," Canadian Journal of Economics, 6(4), November, 529-44.

Nishiyama, Tadanori (1975) Gendai Kigyo no Shihai Kozo [The Structure of Control in Modern Corporations]. In Japanese. Tokyo: Yuhikaku.

Odagiri, Hiroyuki (1974) "Kigyo no Choki Seichoritsu ni Ataeru Shudanka no Koka ni Tsuite" [The Grouping of Firms: Its Effect on Their Long-Run Growth Rates], in Japanese with English summary, Osaka Economic Papers, 24(1-2), September, 89-96.

Odagiri, Hiroyuki (1975) "Kigyo Shudan no Riron" [A Theory of the Grouping of Firms], in Japanese, Economic Studies Quarterly, 26(2), August, 144-54.

Odagiri, Hiroyuki (1980) "Worker Participation and Growth Preference: A Theory of the Firm with Two-Layer Hierarchical Structure and Profit Sharing," Discussion Paper, No. 77, Institute of Socio-Economic Planning, The University of Tsukuba.

Odagiri, Hiroyuki (Forthcoming) The Theory of Growth in a Corporate Economy: An Inquiry into Management Preference, Research and Development, and Economic Growth. Cambridge and New York: Cambridge University Press.

Okumura, Hiroshi (1978) Kigyo Shudan Jidai no Keieisha [Managers in the Age of Business Groupings]. In Japanese. Tokyo: Nihon Keizai Shibun Sha.

Pasinetti, Luigi L. (1962) "Rate of Profit and Income Distribution in Relation to the Rate of Economic Growth," Review of Economic Studies, 29(4), October, 184-96.

Scherer, Frederick M. (1970) Industrial Market Structure and Economic Performance. Chicago: Rand McNally.

Vogl, Frank (1973) German Business after the Economic Miracle. London: Macmillan.