

Organisational Mode of Firms and Economic Institutions

Keyword Labour; A-firm; J-firm; Employment System; Financial System

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. Introduction

This study shows how the strength of firms is dictated by the organisational mode and economic institutions they adopt.

The key issue is the organisational mode which the mode of coordination for the division of labour entails, and the subsequent cost of this coordination. Also, we will see two pairs of modes of coordination for the division of labour and organisational modes of firms, namely:

1. the detailed division of labour that corresponds to the A-firm, and
2. the social division of labour that corresponds to the J-firm.

The term "A-firm" describes the stylised U.S. mode of firms, and "J-firm" to the Japanese. The A-firm is characterised by specialisation of labour with clear boundary of work task, and takes its strength in technological product breakthroughs, or "product innovation", hierarchically generated from the top downwards. In contrast, the J-firm features horizontal coordination between labour at the work front, and its strength lies in the incremental innovation of existing products, or

"process innovation", generated from bottom upwards. Moreover, we will examine economic institutions, or employment and financial systems, suited to supporting the organisational modes.

. The Division of Labour and Organisation of Firms

The purpose of this chapter is to examine the relationship between the organisational mode of firms and technological factors. In section 1, we will first examine several types of organisational mode, both within and between firms. The key issue here is the mode of coordination of the division of labour.

Then, we will focus on the types of innovation and types of investment in technological factors, to this end, section 2 examines the relationship between the mode of coordination between firms and the types of investment, and section 3 the relationship between the mode of coordination within firms and the types of innovation.

The argument concludes in section 4, with a final analysis of the organisational learning paradigm and market-hierarchies para-

digm, typical of Japanese and U.S. firms respectively.

1: Coordination Cost and Division of Labour

1.1: Types of Division of Labour

There are two types of division of labour: 1. the detailed division of labour presented by Adam Smith, and 2. Karl Marx's social division of labour (Piore, 1992, pp. 165-166).

Let us look first at the detailed division of labour. Piore (1992, p. 168) explains that each operation is separated from every other operation and that the task definition is inflexible. The elements of the production process lose their original cognitive meaning in terms of the final product. This means that the conception of the final product and the execution of each task are separated. Therefore, the detailed division of labour dictates a strictly hierarchical organisation where the execution of the individual tasks is subordinated to a higher authority. This authority can re-assimilate the tasks into a cognitive frame in terms of the final market value of the product. Smyth and Lo (2000, p. 339) propose that the detailed division of labour underpins the market-hierarchies paradigms, which recognise a firm as a special kind of market arrangement comprising a "nexus of contracts". They conclude that all contractual phenomena including "the firm" can be understood in terms of utility maximising choice. They further explain that Williamson (1985, p. 12) adopts the hierarchical paradigm view and recognises the hierarchical firm as the product of economising on transaction cost. They note the concept by Williamson's (1985, p. 87) that "in the beginning there were markets", and that he perceives the firm as a logical extension of the market, rather than a separate learning process. The hierarchical paradigm is there-

fore, according to Smyth and Lo, in the same category as the market paradigm.

Concerning the social division of labour, Piore (1992, p. 160) introduces "flexible specialisation". He defines this as a series of small units engaged in increasing direct communication within a dense social network. Piore (1992, pp. 168-169) explains that such networks are often appropriate not only for relationships among small firms, but also among the internal units of large corporate enterprises, and between the corporation and its suppliers, customers, and external competitors.

Within this network, "flexible specialisation" gives rise to innovation. This is effected by a tension between two cognitive frames: a deepening of understanding within the given cognitive frame is opposed by the pull to re-integrate back into a different frame for product manufacture. "Flexible specialisation" is defined (Piore and Sabel, 1984, p. 17) as a strategy of permanent innovation of ceaseless change. This strategy is based on flexible multi-use equipment and skilled workers. The social division of labour is promoted by entities involved in the production, which deepen their knowledge within given conceptual categories, and develop their own specialities more fully. It is the network that enables them to deepen and integrate their conceptual specialities. Piore (1992, p. 170) explains that this form of growth permits horizontal coordination between entities and thereby eliminates a hierarchical social division of labour. Smyth and Lo (2000, p. 339), propose that this type of division underpins organisational learning paradigms. The new paradigm is characterised by the co-operative (or reciprocal) action of individuals within the organisation or between the organisations in a specified area (such as an indust-

rial district). So, the learning process - and hence, creation of knowledge - become not individual but collective, with individuals contributing jointly and sharing information to create and deepen the collective knowledge. Under this paradigm, individuals also tend to establish a long-term relationship with each other. In this respect, J-mode - the stylised organisational mode of Japanese firms outlined by Aoki (1990, p. 3) and characterized by horizontal coordination among units, sharing of ex-post on-site information (or learned result) and long-term commitments - is also categorised in the organisational learning paradigm.

However, let us consider last the feasibility of the social division of labour being promoted in the market. I would suggest that the social division of labour can also be considered by introducing the aspect of the organisational learning paradigm in the context of a market-hierarchies paradigm. This trend is in progress especially in the sphere of information technology, where entities can easily find trade partners and share information or knowledge. Here, the relationship of entities involved in the social division of labour does not always have to be long-term, and competition in the market disciplines the player involved.

1.2: Division of Labour and Coordination

An economy can become efficient and grow through specialisation by trading, exchanging and cooperating to pursue a common purpose. The division of labour is promoted through the interaction or integration of units, including people, which are involved in different types of economic activities. These, of course, have to be coordinated, which generates costs. On this point, Milgrom and Roberts (1992, p. 25), suggest that people can

produce more if they cooperate, specialise in their production activities and then transact with one another to acquire the goods and services they need. At the same time, their decisions and actions need to be coordinated to achieve the gains of cooperation, and they also need to be motivated to carry out their parts of the cooperative activity. So, specialisation entails coordination and coordination entails costs.

Sayer (1995, pp. 46-48) explains that coordination regulates material and information flows, controls rates of exchange, and provides signals, rules and incentives to players, in order to deliver specific products to specific users for specific needs. The mode of coordination links producers and users and also influences the allocation of scarce resources (including labour power). So, it affects who can produce or consume what. Therefore, he concludes, any mode of coordination requires an established definition of rights and responsibilities over the property being produced, used, and exchanged. It must also be made clear who is allowed to do what, with what.

Regarding coordination and division of labour, he suggests that the division of labour presupposes modes of coordination or integration that link the various specialised activities in time and space. The division of labour may be coordinated, according to Sayer, by various combinations of custom, authority, coercion, negotiation and democratic process. Therefore, modes of coordination are not only the "plan" or "market", but imply support for a certain mode of division of labour.

The above argument implies that coordination is promoted through institutions, either formal or informal. For instance, firms produce goods through the input of labour serv-

ice and capital. So, the relevant economic institutions, such the employment service which provides the labour and the bank which provides the finances, set up a certain mode of coordination. They thereby facilitate the economic activities of firms, and also deserve our attention. To this end, such economic institutions are analysed in next chapter.

The coordination cost of specialised economic activities (or the division of labour) is examined by Borland and Yang (1992, p. 386). They look at the relationship between the trade transaction cost and division of labour where 1. returns increase under a general equilibrium market and 2. there are individuals who are ex-ante identical. They suggest that there is a trade-off between the transaction cost and the increase in return by specialisation (or the division of labour). In Borland and Yang's model (1992, p. 387), if an individual purchases z units of consumption goods, this generates a transaction cost of $(1-k)*z$, and the individual receives kz from the purchase. In this condition, k can be interpreted as the transaction efficiency coefficient. They conclude that the market structure will depend on the relative size of transaction efficiency and increased returns due to specialisation.

Borland and Yang (1992, p. 339) further explain that the effect of "learning-by-doing" increases the benefits of specialisation. In their analysis, the optimal level of specialisation (division of labour) is low if the discounted value of the benefit from specialisation - generated through learning-by-doing - is outweighed by current utility losses. However, as learning-by-doing in production raises the benefits from specialisation relative to the costs of foregone consumption, a greater degree of specialisation

will occur. In summary, this argument suggests that the greater the benefit of learning-by-doing under the division of labour is, or the greater the transaction cost efficiency is, the greater will be the degree of division of labour.

Boland and Yang's argument treats the concept of the transaction cost, in general, as the cost generated in the market transaction. However, this argument, they suggest, can also be applied to analyse the evolution of the mode of division of labour between units or individuals within a firm, between firms, and between countries. As such, their argument seems to be applicable to coordination within firms.

The relationship between coordination, coordination cost, and the division of labour can be inferred from the above arguments. Stating the relationship explicitly, cost efficient coordination combined with the benefits of learning-by-doing, will entail the development of division of labour. On the other hand, coordination is necessary to improve or maintain coordination cost efficiency and the benefit of learning-by-doing in order to gain the benefit of specialisation (or the division of labour). On this condition, there are several modes of coordination, as constituted by different types of institutions.

1.3: Organisational Cost for Coordinating the Division of Labour within Firms

Let us now examine the contents of coordination cost and its attributes by focusing on "organisational costs" which are coordination costs for promoting the division of labour within firms.

As is in market, there is the division of labour between units and personnel promoted within firm. In order to promote this, firms allocate resources in a hierarchical

order. However, as Williamson (1985, p. 46), explains, due to bounded rationality, limited spans of control are implied. For instance, as the size of the firm increases, successive levels of organisation are added, and as a result, the effects of hierarchical control loss outweigh any gains.

Milgrom, P. and Roberts J. (1990, pp. 81-83) explain "influence costs" generated through coordination within a firm. Influence costs are caused by (1) excess intervention by the authority, (2) increase in time devoted to influencing activities, and a corresponding reduction in organisational productivity, (3) poor decision-making resulting from the distortion of information associated with influence activities, and (4) a loss of efficiency as the organisation adapts its structure and policies to control influence activities and their costs (such as the cost for filtering information).

Alchian A. and Demsetz H. (1972, pp. 779-781) focus on the metering problem caused by team production within a firm, and examine the determinants of firm expansion. They define a firm as an efficient market and as a means to increase productivity; the firm is a device for enhancing competition among sets of input resources as well as more efficiently rewarding the inputs. Therefore, they state that the existence of a firm can be explained by an increase in productivity by the synergy of team production. However, team production causes a metering problem that is an attribute of the coordination cost (the cost of monitoring). The classical firm, Alchian and Demsetz (1972, pp. 781-782) explain, emerged as a means to reduce the loss from shirking caused by team production. Hence, in their framework, the existence or size of a firm depends on the factors determining the monitoring costs within it.

These costs for the coordination of the division of labour within an organisation seem to depend on its structure (or mode of coordination for the division of labour), such as decision-making procedures, information processing, and the reward system.

2: The Mode of Coordination for the Division of Labour within Firms

2.1: Information Structure and Mode of Division of Labour within Firms

M. Aoki examines and compares the organisational structure of the stylised U.S. mode of firms (or "A-firm") and the stylised Japanese firms ("J-firm").

Aoki (1986, pp. 972-973) characterises the stylised U.S. mode by (1) a hierarchical distinction between planning and implementation, (2) separation between different processes, an emphasis on economy of specialisation, and (3) clear boundaries of work task between workers. He (1986, p. 971) explains that the top-level offices, which have professional ex-ante knowledge, commit to plan production, line management, and product development. Then, the ex-ante plan from the top-level offices is implemented by each operational unit of the lower level of hierarchy.

Regarding the separation of different processes, Aoki (1990, pp. 6-7) states that the feedback system is clearly distinguished phase-by-phase, and movement to the next phase is determined by an independent phase review conducted by a representative from each operational unit (such as production, sales, and engineering). In this system, the operational implementation of each unit is promoted independently from the adjustment between the units, each being separated to implement its own function.

Therefore, specialised skill is the most valuable function of the system. Aoki (1993,

p. 252) explains that the knowledge shared between units is documented and officially institutionalised. Thus, in the case of a change in engineering, the information feeds back to the planning section, which consequently officially redesigns the plan.

Aoki (1986, pp. 972-973) explains that the stylised Japanese mode of firms is characterised by (1) horizontal coordination among the operational units and (2) sharing spot information based on non-official and oral communication. This enables the sharing of tacit ideas in processing operations. In order to achieve the operation, blue-collar workers who are responsible at shop level need to be qualified and to understand not only their own part of the process but the whole, in order to deal with any emerging problem autonomously. An ex-ante plan is flexibly devised when information from the work front, such as a product defect, is available to the operational unit that implements the plan (Aoki 1990, p. 8).

Horizontal coordination, which requires time and labour in order to communicate, negotiate, and learn to gain new information. This entails sacrificing the economy of specialisation to some degree (Aoki 1990, p. 8). Aoki (1990, pp. 6-7) states that the movements between phases are generally flexible and correspond to each other. For example, a project is promoted by the team, comprising representatives from each operational unit - sales, manufacturing, engineering, and development - and the problem concerning authority is discussed by the group. The members of this feedback group are informally, horizontally coordinated and closely connected. Aoki (1993, p. 255) explains that the horizontal coordination is supported by the rotation system in which workers are rotated through several different offices and

become familiar with various jobs. This contributes to avoid identifying their interests with their own job or office and to reduce the probability of an increase in a sectoral interest which does not correspond to the interests of the whole organisation.

2.2: Types of Innovation Suitable for the two Modes and Evolution towards increased Strength

Aoki (1993, p. 252) outlines some propositions concerning the suitability of both modes of firm.

2.2.1: Stylised Japanese Mode of Firms

The stylised Japanese mode is efficient in an environment where the changing process is incremental and not rapid. In this case, Aoki states, the information value, which is created by horizontal coordination at the operational level, outweighs the loss of efficiency caused by sacrificing specialisation of operation. Best (1990, p. 138) also states that an entrepreneurial firm, which seems to correspond to the stylised Japanese mode, is advantaged by continuous improvement in methods, products and processes in a collective manner. Innovation is here characterized by accretion of marginal adjustment in product process and organisation, which is not only generated from the insight of the specialist engineer but also from the labourer at the work front. Thus, in production, their pursuit of innovation in process is realised by continuous improvement, and they seek a competitive advantage through superior product performance. In this sense, the stylised Japanese mode of firms has strength in "process innovation" (Aoki 1993, p. 252).

As for the evolved mode of stylised Japanese firms, Aoki (1995, pp. 339-342) presents the "horizontal hierarchy", in which organi-

sational practice is set to ensure that the operating units jointly observe the whole process and exert external effects on the productivity of entire units. Then, operating units observe respective idiosyncratic risk, which affects the individual productivity of each unit, in order to choose the appropriate operational level. The more complementary the operating tasks among the units, the more time is spent on collective observation of the whole process. This mode requires of the units the capacity for information processing, and workers are expected to possess a wide-ranging intellectual capacity to deal with emerging problems. With this system, the role of the management section is confined to providing the organisational framework.

2.2.2: Stylised U.S. Mode of Firms

Concerning the stylised U.S. mode, Aoki (1988, pp. 29-30) states when the planning environment - such as market, production line and development opportunity - is stable, learning at the operational unit level does not add information value to the ex-ante plan. On the other hand, when the environment is likely to change drastically and is uncertain, decentralised adaptation to the environmental change would result in instability. This is because learning takes time, so if the environment is very volatile and information to be learned and shared varies frequently, the benefit of horizontal coordination is lost (Aoki 1990, pp. 8-9). Therefore, in these two extreme cases, the prototype U.S. mode, characterised as an economy of specialisation and top-down decision-making, is superior in achieving the organisational goal. Aoki concludes that this mode, economy of specialisation, is efficient for stable mass production for a standardised

product, or is advantageous for uncertain innovation that includes the establishment of a new concept for potential market (hence product innovation), or a scientific approach that is highly specialised. Best (1990, pp. 117-118), also points out that the hierarchical firm, apparently corresponding to the stylised U.S. firm, is characterised by a traditional individualist approach. Its advantage lies in dealing with radical structural change. In other words, the stylised U.S. mode of firm has the advantage in product innovation by generating new concepts.

Turning to the evolution of the stylised U.S. mode of firm, Aoki (1995, p. 342) explains that in order to realise the required introduction of more complex technology, the careful attention and intelligent discretion of the worker on the spot are necessary to increase the information processing capacity at the lower level of the hierarchy. However, since this mode is characterized by a lack of capacity to make each operational unit access the systematic risk, it cannot deal with the endless technological innovation that requires the coordination of all the units. In order to overcome this, Aoki explains, the U.S. mode has been evolved to a "differentiated information structure." This mode is characterised by, each unit processing and interpreting the information in its own way and making decisions, despite observing both systematic and idiosyncratic risk.

2.3: Implications

So far, we have explained and compared the difference in the coordination of the division of labour and in the informational structure between the stylised U.S. and Japanese firms. The common focal point in these arguments has been the difference in the mode of coordination for the division of

labour between the operational units and the role of each level of entities (such as worker or unit).

In the stylised U.S. mode of firms, each operational unit only focuses on idiosyncratic risk and follows the hierarchical orders of the manager who has prior knowledge about systematic and idiosyncratic risk. At this stage of evolution, the coordination mode still has aspects of the detailed division of labour, because each unit does not have the concept of systematic risk (hence whole firm information). In the new mode (differentiated information structure), the organisation is designed to take systematic risk (whole firm information) into consideration for the decision-making of each operational unit. However, the unit obtains the whole firm information (or knowledge) and interprets it in its own manner for decision-making.

The interpretation of the information by different units is not necessarily the same (Aoki, 1997, p. 248). At this stage of evolution, each unit has a concept of the finished product (in terms of whole firm information) and promotes its execution. Thus, the coordination is the social division of labour.

As Aoki explains, the stylised U.S. mode stresses economy of specialisation through clearly distinguishing each operation. Under the strong power of the management unit, the cost of organisation seems to be solved by the hierarchical order. In this mode, the roles of the management section and professionals are crucial to designing the plan and the new concept. This corresponds to the market-hierarchies paradigm and is characterized by the individualistic approach of each unit (or worker) for coordinating the division of labour. The structural change of the firm or innovation largely depends on the manage-

rial section or professionals, and the establishment of a new concept for a potential market is the type of innovation, i.e. product innovation, most appropriate to this mode. Information sharing is promoted through documentation by the management (or planning) section, and each unit shares the information as explicit knowledge. With these features, according to Aoki (1995, p. 344), the evolved organisation enables each unit to have the whole firm's information. Thus, each unit develops the social division of labour. Regarding the competition of personnel, the allocation of human resources within this mode of coordination is basically determined by the conditions of the external (occupational) labour market. (The details of types of knowledge and labour market systems will be examined in the next chapter.)

However, in the stylised Japanese mode of firms, each unit puts relatively more weight on systematic risk, considering whole firm information, and stresses the stochastic correlation among the operational units and their complementary relation to each other. Each worker contributes to this mechanism, thereby integrating conception and execution. Therefore, all the workers in firm contribute to the development of social division of labour. The management section merely provides the organisational framework. Aoki (1995, p. 339), states that this type of information processing capacity is firm specific, and is useful in the context of operation, rather than operation through expert skill. Therefore, individuals, including shop-floor workers, must acquire the firm-specific skills and not only his/her process, but also the processes of others. In order to train and promote information sharing among workers, Aoki (1993, pp. 251-253), points out that even at the expense of economy of specialisation,

workers are rotated through several operational units in order to become familiar with various tasks, and this enables them to communicate unofficially and to understand tacit ideas.

This coordination is suitable for continuous and incremental improvement (or process innovation) of products or the production process. Rotation is also helpful in avoiding the worker developing his/her own interest in a certain division, so reducing the influence cost. Moreover, the skill of workers tends to be specific to a firm. All the units or workers communicate with each other and deepen their knowledge within given conceptual categories (in Aoki's words, units or workers observe systematic risk) and develop their own specialities. In this sense, this feature seems to belong to the social division of labour and promotes flexible specialisation (See Piore's (1992) argument in section 1). Therefore, the stylised Japanese mode underpins organisational learning paradigms.

3: Summary

As a summary of the whole argument presented in this chapter, there appear to be two extremes of types of coordination for the division of labour within firms; these correspond to the stylised U.S. and Japanese modes of firm, respectively. Both can be suitable for adapting to their environments and generating innovation.

3.1: Stylised U.S. mode/market-hierarchies paradigm

The first type is the market-hierarchies paradigm, and its division of labour is categorised as the detailed division of labour. The stylised U.S. mode of firms belongs to this paradigm. The coordination of this type

of organisation features a top-down hierarchical order in which the lower echelons develop the detailed division of labour.

Considering the suitability of environment, change in the market or technology, whether stable or radical, seems most suitable; in a stable environment, information or knowledge generated by the lower hierarchy does not generate value so much as the ex-ante policy implemented through the hierarchical order. But with radical changes in the environment, value comes not from the incremental improvement resulting from deep coordination between different units (or personnel) in the lower hierarchy, and consequent sacrifice of the benefits of specialisation; rather, value is generated by the new concept of the product for the potential market filtering down from professional specialisation at top of the hierarchy. We can therefore conclude that the strength of the stylised U.S. mode of firm lies in product innovation.

3.2: Stylised Japanese mode/organisational learning paradigm

The stylised Japanese mode of firms belongs to the organisational learning paradigm characterised by the social division of labour. The coordination for the division of labour of this paradigm manifests horizontal communication and a network of knowledge created from the work front. Looking at the division of labour within firms, coordination features horizontal communication and cooperation between the lower hierarchy (or work front) for knowledge creation. Here, the role of the top hierarchy is to create organisational framework as a coordinator. Each unit or worker operates with a conception of the final product and this, therefore, develops the social division of labour.

Table 1 : Paradigm, Mode of Coordination for the Division of Labour, and Suitability

	Market-Hierarchical Paradigm	Organisational Paradigm
Principle of the Division of Labour	Detailed Division of Labour	Social Division of Labour
Mode of Institutional Arrangement	Market or Hierarchy	Network (though Horizontal Communication)
Organisational Mode	Stylised U.S. Firm	Stylised Japanese Firm
Specialisation	Stress of Specialisation / Boundary of Job is Clearly Devined	Stress Horizontal Communication and Cooperation / Boundary of Job is Not Clearly Defined
Mode of Coordination for the Division of Labour	Hierarchical Coordination (DOL within Firm)	Horizontal Coordination (DOL within Firm)
Plan / Knowledge	DOL with ex-ante plan / knowledge	DOL with ex-post adjustment of plan / knowledge
Stable External Environment	Unstable (Radical Change) or Stable	Incremental Process of Change
Suitable Type of Innovation (DOL within Firm)	Product Innovation by Establishment of New Concept for Potential Market	Process Innovation by Continuous Improment at Work Front

Source: Compiled from chapter .

Finally we come to the question of a suitable environment for this mode, which seems to be that of incremental change in the market or technology. Under an environment characterised by incremental change, the benefit of information or knowledge generated by the lower hierarchy through deep coordination outweighs the loss of any benefits of specialisation. The strength of the stylised Japanese mode therefore lies in process innovation.

. Economic Institutions (Employment and Financial Systems) and their Influence on the Organisation of Firms

In this chapter, we look at the relationship between the types of economic institution, namely employment and financial systems, and their organisational structure, i.e. the mode of coordination for the division of labour within firms (as discussed in chapter

2). As North (1990, pp. 4-5) states, such economic institutions work to constrain or regulate organisations. But conversely, organisations also can influence the institutional framework. Thus economic institutions and organisations interact with each other.

The relationship between financial systems and employment systems is often perceived to imply a unified economic system, since they institutionally complement each other's functions and support each other (Aoki, 1989, pp. 39-40). Milgrom P. and Roberts, J. (1990, p. 1255), also suggest that the two systems strategically complement each other, implying that the more entities adopt a certain strategy, the greater the incentive for other entities to adopt it too.

Let us consider some issues arising from these arguments. In section 1 we will examine the influence of the financial structure of the firm on its management. The researcher has taken the view of incomplete contract

theory on this matter; the key issues are the characteristics of financial stakeholders and their demand for a return on their investment. Then, in section 2, we will look at the employment system adopted by the firm. We start here from the knowledge and skill formation of labour and proceed to the employment system, bearing in mind the types of labour market and incentive mechanisms of labour. In section 3, the relationship between the financial structure of the firm and the employment system will be examined.

This will allow us finally to discuss the influence of the two systems of economic institutions on the mode of the coordination or the organisational structure of the firm. We will conclude that a certain type of economic institution (in this case, the combination of financial and employment systems) works effectively in regulating a certain type of organisation, or of coordination for the division of labour.

1: Financial Systems

1.1: Financial Systems and Management of Firms

The most relevant and fundamental theory concerning the relationship between financial systems and management of firms is that expressed by M. Miller and F. Modigliani (1958, pp. 268-269): "under perfect competition without asymmetric information in the asset market, the firms' choices between debt and equity and their dividend decisions have no effect on their total market value, and therefore have no effect on firm management".

However, Aoki (1988, pp. 102-103) suggests that in reality, various taxes are imposed on a corporation and individuals, and there are institutions for financial intermediation between the owner of the wealth

and the corporation. Therefore, there are different patterns of corporate finance to deal with different tax systems, financial systems and restrictions on a financial institution. Milgrom and Roberts (1992, p. 491) also claim that the diverse tax obligation of dividends, capital gains and interest payments influences firms' decisions for financing. These arguments suggest that the presumption of the M&M theorem is not realistic.

An alternative view concerns the relationship between financial systems and firm management. Since a firm's organisation comprises several stakeholders, such as manager, employee and lender, each pursuing their own self-interest, the method of raising funds affects the decision of production and investment of the firm by stipulating rights of control and rewards for each of its members. Gintis (1990, p. 291) calls this system "external accountability", and explains that while the organisational structure of the firm is dictated by considerations of efficiency, the central relevance of external accountability prefers the firm structure that is influenced by political accountability. The factor of external accountability implies that a firm's choice of management, while reflecting its external accountability to financial stakeholders, may not always realise superior efficiency.

As Milgrom and Roberts (1992, p. 491) suggest, it is worth examining how capital structure can affect value; 1. by affecting the conflicts of interest that can arise between stockholders and creditors to alter the incentives of managers, 2. by influencing the probability that the costs of bankruptcy will be incurred, and 3. by providing incentives for equity investors and lenders to monitor management.

The basic idea for examining the influence

of stakeholders on firm management is, as Williamson (1988, pp. 572-575) suggests, that the model of governance involves an ex-ante stage in which market prices and contracts are formed, and an ex-post stage in which actual decisions are made. The ex-post stage is supposedly the area of the incomplete contract.

The basic premise of this theory is that in the production process of a firm, an effective contract can only cover part of the domain. Therefore, in the ex-post stage, corporate finance can affect how the control rights to decision-making are allocated in corporate management. Hirota and Ikeo (1996, p. 55) explain first, that the important issue is who owns the residual rights of control - the right to final decision-making on corporate management, which ex-ante contracts cannot define. Secondly, this allocation of rights among investors depends on how and from whom the corporation raises the funds. This is because the financier is generally given the right to claim the benefit, such as dividends and interest, and the right to participate in corporate management. Lastly, they suggest that other stakeholders, such as shareholders, may now take the inefficient action normally restricted to managers.

According to the above theory of corporate finance, the key issues are the characteristics of stakeholders (for example, whether they have a long-term or short-term view of their profit), and change in their composition, including a degree of concentration and the homogeneity of the holdings of stakeholders who own financial instruments (Berglof, 1990, p. 237).

1.2: The Characteristics of Financial Stakeholders and their Influence on Firm Management

Let us take the incentive of managers. Jensen (1989, p. 73) says that managers often take inefficient measures to maximise firm value and, consequently, share value. Rather, they prefer to pursue physical expansion of the firm and to spend on their facility, which is often not the best way for the firm to maximise profits. Milgrom and Roberts (1992, p. 492) state that managers are more interested than shareholders in the growth and longevity of the firm organisation, as it provides them with more opportunities for promotion. Management also tends to spend so much on perks for its members and possibly for their subordinates, because they can enjoy these while bearing only part of the cost of the perk. Moreover, Milgrom and Roberts suggest that managers prefer independence from outside interference, as this contributes to job security and allows them to set higher rates of pay for their own ranks.

However, some factors do help discipline managers to maximise share value. Firstly, even if management compensation were formally unrelated to share price, the effect of reputation motivates managers to maximise share value. Fama (1980, p. 292) argues that managers would seek to maximise shareholders' wealth in order to protect or enhance their reputations in the managerial labour market. Gibbons and Murphy (1992, p. 491) also suggest that there is a reputation effect which aligns the interests of managers and shareholders; however, they go on to state that the effect is not overwhelmingly strong, particularly for managers nearing the end of their careers. Garvey and Swan (1996, pp. 95-96) introduce the argument by Kato and

Rockel (1992) that managers' incentives in Japan, and conclude that career concerns are likely to be far weaker in Japan, where most CEOs are promoted from within the firm and the overall turnover is much lower. These arguments imply that the longer the managers' career and the more they are recruited externally, the greater the incentive becomes to care about the reputation effect and increasing share value.

Regarding the influence of shareholders, the corporation is typically run mainly in the stakeholders' interest, which is to maximise stock value. Moreover, shareholders have as a general rule the right to elect a new group of directors or even, in some cases, to recommend that managers take explicit actions. Pound (1992, p. 7) points out that many large institutional shareholders, such as in public pension funds, have attempted to influence corporate decisions, and at times succeeded in the 1990s. Richard J. Zeckhauser and John Pound (1990, p. 149, 177) highlight the positive influence of the efficacy of large shareholders as monitors.

Milgrom and Roberts (1992, p. 497) state that major shareholders who have large sums at stake can play an important role in disciplining management, because they are willing to incur the expense of filing lawsuits to protect their interests, and they are able to fire managers who are performing badly. In the case of Japan, they explain, other companies that hold another corporation's stock can also serve as monitors because of a very direct and pressing interest in the success of each other's firm. The necessarily close relationship among them may result in them playing an active role in monitoring. Milgrom and Roberts (1992, p. 497) cite the example of executives from a major firm becoming CEOs of a smaller, related firm in

order to affect the firm's decisions (known as "Horizontal Keiretsu" in Japan.)

However, Roe (1990, p. 16), explains that there is a problem not only with shareholders' knowledge but also with their ability to collaborate with other shareholders in order to affect the management for their own interests. Romano (1991, p. 55) states that class action suits brought by shareholders are not rewarding for the participants, thus implying that the cost of suing the management may be too expensive for shareholders as a means of influence.

The above arguments present two opposing views regarding the influence of shareholders on the corporate management. The first is to suggest the existence of the stakeholders' influence on the management. On the other hand, there are also arguments that limit influence to shareholders within the management. One possible hypothesis to help combine these two opposite views is provided by Milgrom and Roberts (1992, p. 499). They suggest that the outsiders (shareholders) would be more effective monitors in firms with relatively little "firm- and manager-specific capital" than those where capital is very largely "firm- and manager-specific", because in the latter case it will be harder both to analyse investment decisions and to change them to improve efficiency if performance seems lacking.

Another motivation for managers to maximise share value is the threat of takeover. Manne (1965, pp. 114-115) suggests that competition for the votes generally attached to equity shares (or the market for corporate control) is the most important force that drives managers to maximise shareholder wealth. Supporting this view, Morck, Shleifer and Vishney (1988, p. 101) make it clear that gross managerial slack can

be pruned by hostile takeovers, or at least the threat of them.

Conversely, there are some arguments which only recognise the distinct limitations of the influence of takeover on managers' decision-making. Kester (1991, p. 239) states that hostile takeovers are rare in Japan and Germany. Moreover, Jensen (1991, pp. 15-16) explains that even in the U.S., regular developments and the chilling of the junk bond market have substantially dampened the takeover market. One reason for the difficulty of takeovers may be that substantial cost barriers to hostile takeovers serve to insulate or even to entrench incumbent managers. Bradley, Desai and Kim (1988, p. 13) concluded that the price paid for shares in a successful takeover bid was on average 20-30 percent higher than the pre-bid price, and that the shareholders of some successful bidder firms actually lost money because of the takeover.

Dickerson, Andrew P., Heather D. Gibson, and Euclid Tsakalotos (1998, p. 298), conclude, from the results of a study of a large panel of U.K. quoted companies, that higher dividend payments are associated with a significantly lower conditional probability of takeover. Sheard (1994, pp. 318-319), points out that, as in Japan, the prevalence of interlocking shareholding, which prioritises defence against takeover, not maximisation of share value, effectively prevents hostile takeovers and alleviates the exit (or sell-off) of shareholders. Hence, the average shareholder would seem to have little influence.

As far as bond holdings are concerned, Gerald T. Garvey and Peter L. Swan (1996, p. 98) explain that, in early models, shareholders with limited liability receive all the residual gains of a firm's decisions when share prices increase, while bondholders bear some

of the losses associated with poor performance (in extreme cases, bankruptcy). However, Coffee (1986, p. 69) retorts that managerial incentives are naturally aligned with the bondholders' interest in the absence of explicit incentive schemes to make managers make decisions against their interests. Supporting this, Aghion, Hart and Moore (1992, p. 542) conclude that a key objective of management for solvent firms must be to avoid financial distress, and to ensure that creditors are paid. These arguments suggest that managers tend to respect the interests of bondholders as far as possible.

In the case of Japan, Aoki (1988, p. 127) states that leading creditors are often substantial shareholders; however, they are more active in defence of their bond holdings than of their shareholdings. Also, as Abe (1999, p. 80) indicates, the term of redemption for company bonds is relatively short, and generally, when the firm defaults, the priority for collecting the principal is lower than that of bank credit or employees' credit. Therefore, the creditor of direct finance, such as company bonds, would have a strong incentive to ensure that the managers do not default but also that they try to satisfy the standard to issue company bonds. Hence, both would be conscious of the principal-agent relationship. These arguments imply that if the proportion of company bonds in corporate finance increases, the pressure to maximise a firm's profit, which is a relatively short-term view, would increase.

The bank lastly has a strong influence as a stakeholder of corporate finance. Generally, a bank loan is long-term, and as with the "main bank system" in Japan, the bank establishes a long-term relationship with a certain firm. Aoki (1988, p. 142) suggests that while the individual shareholder may effec-

tively be locked out in Japan and in Germany, workers, debt holders and institutional shareholders (main banks) together exercise considerable influence.

On the subject of the influence of the main bank, Stiglitz (1985, p. 148) says that as a stakeholder, it has the role of monitoring - and providing a substitute for - the external capital market and the market for corporate control. It can become a monitor by gaining access to those informational and decision-making mechanisms of the firm that are generally unavailable or difficult to obtain for participants in the external capital market (Sheard, 1989, p. 403). This role is a product of long-term relationships, and corresponds to the interests of the bank, which provides a long-term loan. This relates to Milgrom and Roberts' (1992, p. 499) argument on firm - or manager-specific capital as outlined above. A firm primarily dominated by firm - and manager-specific capital is, by inference, more suitable for a bank loan in terms of monitoring capacity, as the bank can gain firm-specific information through a long-term relationship with this type of firm.

Moreover, as Aghion and Bolton (1992, p. 486) point out, debt makes firms in crisis reorganise, by transferring operational control rights from the manager to the creditor. These issues also affect the main bank in its role as a financial stakeholder. Nakatani (1996, pp. 176-177) presents a framework to explain nature and consistency of the incentive system of firm organisations under the main bank system. He states that in order to motivate the entity to take appropriate action, one must establish an incentive system composed of "reward", "rule", and "referee." Since each entity is motivated to behave appropriately if the incentive system works, the agency problem, which is caused by

information asymmetry, would be solved; this would minimise agency cost.

The firm's "reward" is tripartite; first, it gets to keep access to a stable financial resource, as long as it maintains a certain performance. Secondly, it can dispose of the surplus profit in any way, again providing it maintains a high performance. Thirdly, the firm can get financial and management relief from the main bank when it faces managerial difficulty, as long as it is able to continue a good relationship with the bank, by disclosing internal information to the bank and keeping in consultation with the bank for its operation.

Moreover, as Teranishi (1993, pp. 64-65) explains, the external creditor of a firm that has a relationship with the main bank recognises that the firm is monitored and has its management checked by the bank. Thus, the external creditor (except the main bank) is confident in financing the firm and keeping the interest rate low, even if the firm has an incentive to invest in high risk projects. The ensuing low interest rate allows the firm to benefit from a lower agency cost. This helps it to conduct stable investment activities, or even to accelerate investment-oriented growth, as can be observed in the rapid growth era in Japan (Hoshi T., Kashyap A., and Scharfstein D., 1991, pp. 38-40).

The firm's "rule" is to maintain a certain level of performance and to disclose its internal information to the bank. It goes without saying that the "referee" is the main bank.

These arguments suggest that the above mechanism realises the supply of long-term and stable financial resources to firms by the main bank, and makes the bank act as an external monitor for the firm's performance with a long-term view. As a result, the firm

pays less attention to the short-term profit maximisation sought by market shareholders, who seek financial gain from the investment.

1.3: Categorisation of Financial Systems

So, the management of a firm is apparently influenced and changed by the composition of capital structure. On this assumption, Berglof (1990, p. 237) categorises the financial systems into the "bank-oriented financial system" and the "market-oriented financial system".

Berglof (1990, p. 251) first defines the bank-oriented financial system as consisting of: (1) higher debt/equity ratio, (2) more concentrated and homogenous debt ownership, (3) less dispersed shareholdings, (4) large shareholdings of commercial banks in individual firms, (5) more stable debt and equity ownership over time, and (6) less common hostile takeover. He suggests that in this system, the bank as creditor controls a wider set of circumstances, and can actively use financial distress to reorganise problem firms. The contractual relations are characterized by a higher degree of repetition, making successful informal procedures more likely.

Aybar and Lapavitsas (2001, p. 31) explain that the financial system in Japan belongs to the category of the bank-oriented financial system, because banks provide long-term finance to the firm, monitor it intensively, intervene when it is in distress, and maintain a long-term relationship with the firm. Interlocking shareholdings among firms also contribute to a stable ownership structure, and protect the firm from takeovers. Berglof (1990, p. 252) suggests that, with this system, banks as creditors are carrying larger shares of firm-specific risk, because, as

Milgrom and Roberts (1992, p. 499) point out, monitoring by outside shareholders on firm- or management- specific capital is ineffective.

On the other hand, in market-oriented financial systems, reorganisation is conducted through external solutions, making takeovers more likely. The creditor structure, unlike in bank-oriented financial systems, is diffused, and creditor involvement in individual firms is restricted. This makes informal procedures difficult to administer; so, in the reorganisation process, the creditor often has to depend on the court-administrated bankruptcy solution. These features of the system render the ownership structure and the creditor-customer relationship more flexible. They change over time, as shareholders buy or sell the firm's stock. Aybar and Lapavitsas (2001, p. 31) also explain that creditors (banks) and firms establish an arm's length relationship, and terms are largely determined by prices and conditions specified on a market contract. This system is observed in Anglo-Saxon banking practices. In the case where the firm is in decline, investors tend to leave rather than trying to call for improvement. In order to satisfy investors' demands for short-term financial benefit, the management of the firm, such as human resources, also tends to adopt a short-term view. Under this system, new combinations of relationships emerge more frequently, and Berglof (1990, p. 255) indicates that this might be preferable to innovation. However, he also points out that management short-sightedness is more prevalent under a market-oriented financial system.

1.4: Types of Financial System and their Influence on Firm Management through the Employment System

The key issues of the above arguments are: (1) the long-term stability and flexibility of the relationship between financier and firm, and (2) the degree of formality in procedures; informal procedures of problem-solving lend themselves to an internal solution, formal to an external.

The determining factor of effectiveness of these kinds of financial institution seems to be the specificity of capital to the firm or management. If the state of capital can be measured in a relatively easy way by outsiders, through the collection of objective data, then a market-oriented financial system can be effective. However, if firm and management specificity make the state of capital difficult for outsiders to observe, a bank-oriented financial system may be more effective; it establishes a stable and long-term relationship with the customer, and the bank can access information that is not available to outsiders.

The relation of specificity of capital to types of financial system also applies to the employment system. The bank-oriented financial system, which allows a long-term relationship between the creditor and the firm and a stable financial condition, is also suitable for nurturing firm-specific human resources within the firm. This is because, long-term training is required for accumulating firm-specific human resources, which needs the stable financial environment provided by the bank-oriented financial system.

As we will see in the next section, the support of a stable financial environment, allowing retention of personnel when the firm faces cyclical recession, creates firm-specific human resources aided by long-term on-the-

job training. These are supported by a long-term employment relationship, seniority wage, and an internal promotion system. The opposite is true of the market-oriented financial system, under which the employment system is also influenced by market fluctuation.

2: Skill and Knowledge of Workers, Types of Labour, Employment System, and Firm Organisation

2.1: Skill and Knowledge of Workers, and Types of Labour

The main issue of the relationship between organisational structure and mode of employment, is how workers become skilled and are then allocated by the firm according to their skills. This relates to the issues of management or the structure of firm organisations, such as co-operative production processes, sharing of information between workers, and rotation of workers within the firm, which prevailed in the stylised Japanese firm according to Aoki's arguments. This management or structure of firm organisation is supported by institutions within or surrounding the firm, and also by various institutional settings in employment, such as hiring and dismissals, personnel management, promotion policy, and wage determination. These factors significantly influence the mode of management or the structure of firm organisations through the raising of employees' work incentives (Ohashi, I., and Tachibanaki, T., 1998, p. 14). Institutional settings vary apparently intentionally to take full advantage of different types of workers with diverse knowledge and skills as human resources.

Taking this view as our starting point, we will examine the types of knowledge and skills of workers, and the relation between

these and the institutional arrangement in employment.

2.1.1: Knowledge and Skill of Workers

Koike (1999, pp. 12-15) outlines the types of skills of human resources in Japanese labour. In his argument, he categorises two types of line operations in factories. One is termed "usual operations", which are simple, repeated and do not require any sophisticated skills. The other is "unusual operations", which are filled with uncertainty and unpredictable incidents, therefore requiring the workers to be skilled to cope with them. The unusual operations are further categorised into "problem solving" and "adaptation to change".

Koike (1999, p. 12), defines the skill of "problem solving" as detecting the cause of the problem, solving it, and inspecting the quality of the product. Workers acquire skills by learning about the mechanism of equipment and the whole system of production. Koike (1999, p. 13) defines "adaptation to change" as the skill to change the quantity of production to deal with the fluctuation of demand, to change the product to be manufactured, to adopt to or to propose new manufacturing methods, and to adapt to the change in the composition of personnel. In order to obtain this skill, workers need to know which tools should be used and how they prepare them for change. They foster their skills through long experience in their work place. Lastly, Koike (1999, pp. 21-22) explains that the skills of white-collar workers can also be understood in the same context as the skill formation of production line workers, which enable workers to cope with multifarious problems.

Inoki (1993, p. 108) categorises the knowledge necessary to form the skills into two

types: "general knowledge" and "specific knowledge". The first, "general" knowledge, is noted for its standardised and lawful characteristics and can be expressed quantitatively or abstractly. Nonaka and Takeuchi (1995, p. 8) also point out that the knowledge (which they call "explicit knowledge") can be expressed in words, easily communicated and shared in the form of hard data, scientific formulae, codified procedures, or universal principles. It can thus be easily processed by a computer, transmitted electronically, or stored in a database.

"Specific" knowledge cannot be coded and systematised. Hence, it is "specific" to a certain place or to the moment. Nonaka and Takeuchi (1995, p. 8) define the knowledge as "tacit ideas" and equate it with subjective insights and intuition, both highly personal and difficult to formalise. It is thus difficult to transmit or process in a systematic or logical way. This also makes tacit knowledge difficult for a third party to grasp, and impossible for a centrally operating unit to administer. Inoki (1993, p. 111) explains that the only way to transmit it is "by example" and face-to-face communications between workers through on-the-job training, usually from senior workers to junior workers.

2.1.2: Knowledge-Sharing and Creation: Comparison

The above arguments show that there are two types of knowledge sharing and creation among personnel within, and sometimes between, firm organisations. As explained above, personnel can share explicit knowledge through documentation, data and formulae. This type of knowledge-sharing, according to Nonaka and Takeuchi (1995, pp. 9-11), is prevalent in firm organisations in Europe and in the U.S. They go on to explain

the method of knowledge-sharing and creation prevalent in Japanese firm organisations, which consists of sharing individuals' tacit knowledge among personnel as organisational knowledge, then creating the new organisational knowledge via interaction among the personnel.

According to Nonaka and Takeuchi (1995, p. 122), the steps for creating and sharing the knowledge are:

- (1) Setting the theme by expressing what is usually inexpressible by using figurative language and symbolism, and making personnel from different backgrounds understand the subject intuitively. Figurative language often takes the form of metaphors and analogies, and is effective for disseminating knowledge, especially in the early stages of knowledge creation.
- (2) Disseminating the personal knowledge of individuals, and sharing or creating a new point of view with others as organisational knowledge. This is realised through the initiative of the individual and the interaction within the group, such as dialogue, discussion, experience sharing, and observation. Nonaka and Takeuchi also point out that redundancy, which is the overlapping process between different functional divisions (or personnel) working together in a shared division or labour, helps to create common cognitive ground by transferring tacit knowledge, and is important because it creates a place for dialogue and communication.

These arguments suggest that while firms in Europe and the U.S. consider knowledge explicit and standardised, Japanese firms consider it specific to themselves. Therefore, Japanese firms must acquire knowledge by dense communication and the direct experience of learning by doing, and connect it

between units (such as personnel or different divisions). Nonaka and Takeuchi (1995, p. 11) explain that the Japanese approach therefore defies the basic premise of the "modular" or "virtual" corporation, which uses the knowledge gained from outside partners in place of its own. (Thus the approach of firms in Europe and the U.S. matches the premise of the "modular" or "virtual" corporation.)

2.1.3: Knowledge, Skill, and Labour Type

Regarding types of worker, Osterman, P. (1982, pp. 350-351), states that there are three different employment systems: (1) the "industrial sub-system", where workers are internally promoted to higher positions within the firm organisation; (2) the "craft sub-system", where workers are characterized by their highly sophisticated skills and their great loyalty to his/her skill or speciality, but also by their lack of loyalty to the firm, and consequently common incentive to move to another firm to seek better conditions; and (3) the "secondary sub-system", where workers are characterized as being low skilled, and their mobilisation through the firm is high.

We can further develop the debate in light of the types of worker posited above. Comparing it first with Koike's argument as presented in 2.1.1 above, specific knowledge (or Inoki's "tacit ideas" presented above) is that needed to acquire skills needed for unusual operations, and for coping with unexpected problems and changes. Inoki explains that when promoting automation, tacit ideas allow one to arrange production procedures to the extent that machines can process simple operations, and that the more one promotes automation, the more difficult the task will be. He calls this "arranging opera-

tions" and suggests that workers are brought up to acquire the skill through on-the-job training (OJT) at the work place, requiring the worker to have preferably long-term experience in the firm organisation. The other way, as examined in the previous section, is to share individuals' tacit knowledge through dense communication between workers for the promotion of certain projects.

The common feature of both practices is to share tacit knowledge, which is often specific to the place and requires dense, face-to-face communications for promoting operations, although one may posit that explicit knowledge is also shared during communication. Therefore, the labour service of the first type of workers tends to be human resources with specific skills and specific knowledge of the firm. According to Osterman (1982, p. 350), this sort of labour applies to the industrial sub-system.

Osterman's second type of worker is of those who share explicit knowledge with others to promote operations. This type of knowledge-sharing does not require dense face-to-face communication, but is realised by documentation, data, and formulate containing openly available, standardised knowledge; but one might imply that not only the knowledge, but the skill of this type of worker is also standardised. Since the operation is promoted with explicit knowledge, the labour service of this type of worker tends not to be specific to the place or firm organisation. This also implies that this type of worker acquires skills in formal educational institutions, such as universities and vocational centres or through "off-the-job" training. This type of worker may, in Osterman's terms, be categorised into the "craft sub-system."

The final type is the low-skilled worker who is involved only in routine or simple operations. The operations do not require sophisticated knowledge or skills. This type of worker falls into the category of the "secondary sub-system."

2.2: Types of Labour Market and Employment Institutions: Conceptual Framework

Each type of employment system seems suitable for attracting and motivating a certain type of worker, and for raising efficiency and productivity. One useful concept that categorises the employment system is the distinction between internal labour markets (ILM) and occupational labour markets (OLM). Ariga, Brunello, Madono and Ohbi (1996, pp. 85-90), compare and explain the difference in the characteristics between ILM and OLM of skill formation, promotion, employment, reward and hierarchy.

Mainly focusing on the internal labour market in Japan, Ariga, Brunello, and Ohkusa (2000, pp. 1-9), also argue for two types of labour market. Following the definition of OLM and ILM in these two works, we will develop the argument about types of system of labour market and employment institutions. The keys to the division between OLM and ILM are the degree of proximity of skill, the relationship between promotion and consequent mode of competition, skill formation, and the organisational structure of the hierarchical firm.

2.2.1: Key Features of OLM and Employment System

According to the studies named above, the human resource that labour formed by OLM accumulates completely specialises in a certain task. The skill proximity between tasks is weak. Since the skill is often obtained

outside the firm and is standardised, inter-firm mobility of workers tends to be high. The definition and evaluation of professional ability which defines a certain job are conducted outside the firm that employs the worker, who hunts jobs and accepts offers based on job type (Ariga K., Burunello G., Madono S., and Ohbi Y., (1996, p. 89)). It is uncommon to form skills in an OLM through on-job training within a firm. The relation between skill formation and hierarchical steps within a firm is therefore weak. As Becker (1964, p. 12), explains, because skills are transferable between firms, trainees have to bear the full cost of such training.

In an OLM employment system, firstly, the hierarchical demarcation of employee promotion within a firm is very clear. In such a case, promotion is realised by replacing one occupational ability with another which befits a higher-ranking job. The premise for the promotion is therefore to acquire qualifications necessary for an upper post, reducing the influence on the workers' promotion prospects of assessment of performance in their current post. The disparity of earnings between upper and lower ranks is large. Then, as far as recruitment is concerned, an applicant unsuitable for a higher post would be employed as a worker to operate in a lower hierarchical post. Throughout the hierarchy, personnel with specialised skills are employed for a specific vacancy. Each job for a worker is clearly designated; skills are standardised and generally acquired outside of the firm at the individual worker's expense. Therefore, the organisation relies exclusively on externally hiring personnel with previous experience elsewhere and their own speciality. The reward is taken as a percentage of pay for the performance of the worker. This is denoted

by:

$$W(t) = MP(t)$$

(where W is wage, MP is marginal product, and t is a certain point in time or a short period.)

This is because the performance of individual workers is relatively easy to evaluate. It is supported by Brown's (1990, p. 180) findings that piece rates paid to workers are more common among jobs with a narrow set of routines than for those involving a variety of duties. Under this system, workers compete with anonymous outsiders, or workers of the occupational labour market outside the firm. Ariga, Brunello, and Ohkusa (2000, p. 4), state that firms with this type of employment system are commonly found in the U.K. and in the U.S.

In the employment system of a stylised U.S. firm (A-firm) introduced by Aoki (1988, p. 62), the inter-firm mobility of workers seeking better job opportunities is high, jobs are clearly divided and each worker specialises in a certain job so that worker and job exist in a one-to-one relationship. The rewards for workers are determined by a certain job allocated to the worker, and the standardised labour market is developed inside or outside the firm. These facts of the employment system of the stylised U.S. firm are similar to the features of the OLM system.

2.2.2: Key Features of ILM and the Employment System

The internal labour market (ILM) system adopts different policies for skill formation, promotion, recruitment, and reward.

The skills acquired by the workers are typified by the onus on the individual worker to obtain a mix of skills that deals with both his or her present job and jobs which may re-

sult from future internal promotion. The proximity of skill is relatively strong and is contextually acquired from within the firm. The mix of skills varies from firm to firm, and therefore the skills and human resources tend to be firm-specific (Koike, 1999, p. 166). Thus, the external labour market tends to place less value on human resources than does the internal, resulting in reduced mobility of human resources between firms. This results in allocation of internal labour to fill vacancies.

The relationship between the promotion system and internal skill formation is defined by the strong link between the incentive for skill formation under the long-term employment relationship, and the internal promotion system. The firm provides opportunity, place, time and means of job training, making it possible for workers to acquire firm-specific skills with on-location training which secures their position in return for investing in the skill. Employees are recruited on the premise that they can potentially be promoted to higher posts. Therefore, the requirement for employment is high, and applicants who do not seem incapable of being promoted will not be employed. The consequent hierarchical continuity ensures that income distribution is relatively equal compared with that of firms with OLM. Lastly, labour distribution and its service price are not determined by a wage system or by the supply-demand conditions of the labour service in the OLM but by the internal wage system of the firm. Seniority in the hierarchy is more influential on wage levels in the ILM than in the OLM. Wages are generally revised almost every year, and the revision depends either on assessment by a superior or on tests to measure the employee's ability.

A typical ILM system seems to be the

"rank hierarchy" which Aoki (1988, p. 72) proposes. This is the employment system embedded in stylised Japanese firms, characterised by a horizontal information structure between workers, adaptability to new types of operation, communication with members of other units, and leadership or assistance to subordinates. Both white- and blue-collar workers must acquire contextual skills developed through long-term job experience which should cover a wide range of operations. This implies high skill proximity, and the job parameters of each worker are not clearly defined.

Aoki examines how the rank hierarchy system encourages promotion of cooperation among workers while they compete to acquire skills, and how the system motivates and locks those workers who are productive, excellent at adapting or learning, diligent, and cooperative, into the firm. He presents three crucial factors that make up the incentive system:

- 1) A wage system that is based on a combination of seniority and assessment by superiors in places of work which employ workers in rotation.
- 2) An internal promotion system based on assessment - if the achievement of the worker satisfies certain criteria, he/she will be promoted to the next rank. On the other hand, a worker who cannot fulfil the necessary criteria may be forced to resign. This system makes workers form their skills contextually.
- 3) A retirement payment system. Since the amount is determined by length of service, this system functions as a reward for long-term service and simultaneously makes workers long-term hostages to the firm.

The personnel department centrally ad-

ministrates these three elements of personnel management. The tripartite system also solves problems with the incentives of both employer and employees.

In the latter case, consider the problem of retaining capable workers for the long term and motivating them to be diligent. First, on changing their job, workers may be seen as incapable and possibly incompetent in their previous employment, or to have failed their old company. See as such, they will be forced to take a lower position and financial reward in their new work place. In addition, their retirement payment will reduced when they change jobs. As Yashiro (1997, pp. 47-49) explains, since (1) workers' basic salary and (2) their length of continuous service within the same firm determine the amount of pension money they will accrue, the system locks workers into the same firm. These two factors operate to retain workers within the same firm organisation. Aoki also takes the view that seniority on wages has the aspect of a performance bond that stimulates workers to be diligent. With this view, when the worker is young, part of their salary is deducted as a guarantee for diligence, and is returned later. This is a disincentive against changing firms.

The system thereby takes workers hostage. Older workers' salaries, including the guarantee money which is returned, are therefore beyond their marginal production. The wage system in this case is denoted by:

$$MP = W(t) \cdot T$$

(where $W(t)$ is the wage at time point (t) , $MP(t)$ is the marginal product at time (t) , and T is the period from when the worker starts working to when he/she retires.)

On the other hand, under the system of rank hierarchy (or the tournament system for promotion), workers enter a firm at the

lowest rank. At this stage, the firm does not have any knowledge about the ability of workers, this only becoming clear after they have accumulated skills and performed their jobs; thus arises the problem of adverse selection. However, workers who do not demonstrate their ability will never gain the higher salary affiliated with more senior ranks, or can even be dismissed. As time passes after workers enter the firm, the disparity of rank and reward among workers of the same age expands according to their performance.

As far as evaluation of workers' ability is concerned, the rank hierarchy system is a sort of tournament in which workers who joined in the same year compete with each other and are evaluated on relative performance: an effective system, especially where job proximity among workers is high and it is difficult to measure the productivity of individuals. Another feature of promotion in this system is "late selection," whereby the selection of workers is conducted at a relatively late stage. This, among other things, is intended to control the signal for promotion and to keep workers' expectation of promotion high, thus maintaining competition (Itoh, 1994, p. 255).

Lastly, on firms' side, for consistent motivation of workers they have to guarantee long-term employment and seniority. Since they would lose their reputation as a credible employer if they dismissed older staff, the implicit contract which guarantees a higher wage for older workers would be broken. In this situation the firm would face difficulties in both motivating workers and obtaining capable young workers willing to invest in firm-specific skills.

In these ways, the system solves the "moral hazard" and "adverse selection" problems. It also ensures retention of skills formed by

workers in the firm and makes them continue their efforts to display their ability.

: Conclusion - Financial System, Employment System, and Structure of Firms

1: Bank Oriented Financial System, ILM, and Stylised Japanese Firms

We can infer from the arguments concerning the knowledge and skills acquired by workers that the ILM system is suitable for gaining specific knowledge, sharing tacit ideas between workers, and developing the skills of shop level workers for dealing with unusual operations. As discussed above, workers can obtain the skills for coping with such operations by understanding the equipment and the system of production. The workers must also be able to handle several different tasks in order to cope with problems or changes. In other words, the workers need to acquire a mix of skills and these, as a human resource, tend to be firm specific, realised through inter-staff communication and length of experience in the work place.

The knowledge needed to acquire or to develop these skills is called tacit ideas (or specific knowledge). This is not transmitted by standardised manuals or clearly documented text, but by junior workers imitating the example of senior workers. This ensures the transmission of firm-specific knowledge through face-to-face communication. Both the knowledge and the skills are formed through long-term job experience, and the process of acquiring them is continuous. Finally, since operations are promoted through communications and deepening of knowledge between workers with a conception of the whole system, the mode seems to be the social division of labour.

Applying the argument of Smyth and Lo introduced in Section 1 of Chapter , the mode of coordination for the division of labour corresponds to the organisational learning paradigm, and, as they indicate, Aoki's stylised Japanese mode of firm organisation, or Best's entrepreneurial firm. The employment system that supports the coordination is characterized by a long-term employment relationship, wage rises according to seniority, and internal promotion linked with contextual skill formation.

Workers within this system tend to be loyal to their firm and stay a long time, and are categorised by Osterman as an industrial sub-system. Personnel are selected from within the firm to fill vacancies. In the allocation of human resources, instead of competing with external applications in the OLM, workers of the firm are promoted to higher positions through the rank tournament system centrally administered by the personnel management division.

Lastly, in order to guarantee the employment system, the financial environment for corporate finance needs to be stable and managed with a long-term view. The bank-oriented financial system, which establishes a stable and relational financial system between bank and firm or between firms, is suitable for this. So, the financial system influences firm management by affecting the employment system.

2: Market Oriented Financial System, OLM, and Stylised U.S. Firms

On the other hand, the OLM's characteristically professional and standardised skills are easily evaluated by a third party and are transferable to other firms. There is furthermore no link between skill formation and hierarchical promotion. Human resources with

Table 2: Relationship between Economic System and Mode of Coordination

	ILM	OLM
Skill Formation	<ul style="list-style-type: none"> • Training within Firm • Proximity of Skill is High • Firm Specific Skill Contextual Skill Formation (Usually Linked with Promotion) 	<ul style="list-style-type: none"> • Acquired outside Firm • Proximity of Skill is Weak • Standardised Skill and Transferable (Not Linked with Promotion unless Acquiring Different Skills)
Types of Labour (In Osterman's (1983) terms)	<ul style="list-style-type: none"> • Industrial Sub-System (Loyalty for Organisation) 	<ul style="list-style-type: none"> • Craft Sub-System (Loyalty for his/her specialty)
Knowledge (or Information) Shared	<ul style="list-style-type: none"> • Tacit Knowledge through Deep Communication between Personnel 	<ul style="list-style-type: none"> • Explicit Knowledge through Documentation or Formulae etc.
Employment System	<ul style="list-style-type: none"> • Long-Term Employment Relationship • Seniority Wage • Internal Promotion 	<ul style="list-style-type: none"> • Labour Mobility is High • External Hiring to Fill Vacancies • Wage is Determined by Job Category, Percentage Pay
Allocation of Human Resources	<ul style="list-style-type: none"> • Promotion of Labour within Firm through Rank Tournament System 	<ul style="list-style-type: none"> • Filling a Certain Vacancy through Hiring Worker from Occupational Labour Market
Financial System	<ul style="list-style-type: none"> • Bank Oriented Financial System (High Debt/Equity Ratio, Stable Shareholdings) 	<ul style="list-style-type: none"> • Market Oriented Financial System (Shareholdings by Market Investors)
Mode of Organisation and Coordination	<ul style="list-style-type: none"> • Stylised Japanese Mode of Firm Organisation of Entrepreneurial Firm • The Social Division of Labour • Organisational Learning Paradigm 	<ul style="list-style-type: none"> • Stylised U.S. Mode of Firm Organisation or Hierarchical Firm • Social Division of Labour by Professionals or Managers • Detailed Division of Labour by Lower Hierarchy • Market-Hierarchical Paradigm
Suitable Environment	<ul style="list-style-type: none"> • Between Stable and Volatile 	<ul style="list-style-type: none"> • Stable or Volatile

Source: Compiled from chapter and .

this type of skill can be transacted in the occupational labour market (OLM), which is external to the firm organisation. The proximity of skill is weak and the speciality of each worker is clearly defined. Knowledge is shared through explicitly, for example through documentation.

Under these conditions, labour mobility between firms is high. To fill vacancies, workers are hired from the occupational, and hence external, labour market. So, a worker belonging to a certain firm competes with anonymous external workers. The wage is determined by the job and, since each worker specialises, it is easier to evaluate his or her performance. The reward system takes the

form of payment by piece rate to balance the wage and marginal production of workerson a short-term basis. Workers tend to move from firm to firm for better conditions.

This is categorised as a craft sub-system by Osterman, in which the firm, with no need to hold the same worker for a long period and the ability to adjust staff to cope with fluctuations of the economy, adopts the market-oriented financial system, managing it with a relatively short time horizon. This coordination corresponds to the stylised U.S. mode of firms, which is to say Best's hierarchical firm, characterized by a traditional individualist approach that responds to market reactions.

Since professional specialists and the workers at the lower level of the hierarchy are devoted to jobs without any conception of final product, the mode of division of labour in this case strongly represents the detailed division of labour and can be analysed within the market-hierarchies paradigm. Aoki's (1995) evolved mode of firm organisation, presented in section 2.2 of chapter , expands personnel's scope for promoting the social division of labour by sharing whole firm information.

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