Enchanted Tuning Forks:
Informal Institutions and Yamaha’s Mysterious Diversion

by

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This is a study of firms and about the experience of the two Yamahas—the Yamaha Corporation and Yamaha Motor Company. My purpose is not only to present a theory of how the firm behaves but also to talk about Yamaha’s exciting story—and I believe that I can best accomplish this by talking through the lens of economics, and about how unique the experience was. But the theory is not at all a simple one—the theory I present in this study is not (yet) a mainstream one and enormous controversy surrounds this topic and the theory. To give you some insights into what firms are, let me start with a personal story from my high school days.

**Hokurei High School Judo Team**

I was once the CEO of a firm. The firm was called, “Hokurei High School Judo Team,” a group consisting of roughly 45 toughly built, highly skilled martial artists (more than thirty of them held a blackbelt). It was a “firm” because all of the members were bound by membership contracts, both of the school and the team, instructing the members in what they were supposed to do and not to do, including
the daily routines of the team activities and a number of rules that were predetermined by the team. In this sense, the team was indeed a firm. The main objective of the firm was, however, a little different from typical business organizations—our business objective was to participate in competitions, fight and then win them, not to make profits.

To achieve this ultimate goal—to win competitions—I, as a leader, faced a number of obstacles and difficulties. The most problematic of these was not at all a technical one. It was not that the members were too weak to win the competitions nor too busy to come to the practices due to their tough academic workload at school, but the attitude toward the team. More precisely, it was the lack of a strong desire to win, to become successful that, at least as I saw it then, was the most problematic obstacle of the team to achieving its goal. After all, only the coaches and I were the most motivated, and the rest of the members were somehow feeling “forced” to participate in the hard practices that were all planned by the coaches and myself.

It was not that they did not like Judo either, nor did they dislike the team so that they were being reluctant. If so, they could have just left the team and joined some other team. It was rather a structural problem. Namely, how the administrators, the coaches and I in this case, tried to organize the team was not suitable for the members to effectively participate in its activities, and in a larger sense, to win. Vaguely understanding this, I quit being a “leader,” though I did not quit being the captain of the team. I stopped leading the team and tried to push the team instead by motivating the members.
I stopped planning the agenda of the practices and started letting the members decide instead. After a little struggle, I successfully achieved this by assigning a “responsible” day to each member, so that each had some time to think about what he (it was a boys’ school) should plan for the practice, or more importantly, what would be best for the team. We also started to hold more meetings at which members were encouraged to speak up about the team regardless of their age or class year—a practice that was culturally taboo in Japan.

These worked out remarkably. The team changed. Every single member of the team became motivated—passionate about both Judo and the team. Not only did they begin to come to practices every day, but they also all became the “leaders” of the team—they planned the workouts, spoke up about anything that concerned them about the team, shared their opinions about what we could do to bring the team to the next level. The team gradually began to walk by itself without the instructions of the coaches. Eventually, full of motivation, the team evolved into one of the prominent teams in the region, marking the greatest achievement in the history of the school.

Despite this remarkable change, nothing about the team had changed on paper. None of the contracts changed between the school and the team members, nor had the physical, technological environment in which the team existed—we were still the same Judo team at the same high school with the same coach, same captain (myself) and the same Dojo (practice room). But something in us had surely changed. For us, it was a completely different organization—and in fact, we achieved so much more than before.
This is the story that I actually told in my application to Wesleyan—and I got in! As a captain, I was very proud of the team’s achievement, and I knew I had been successful in motivating the team members. At the same time, I could not figure out what that “something” was that changed everything about the team. All I did, after all, was to increase the number of opportunities in which each member could think about the firm and think about what they could do for the firm. Once I did that, it seemed that the rest started to move by itself. Of course, we all eventually became much stronger physically too, since we all practiced harder than before, but the improvement in physical performance came after the change in something about us. I could not figure out what it was, the something that strongly pushed us forward and made us so passionate about the team.

Three years later, I visited my high school for the first time since my graduation. Of course, I visited the Judo team and joined a practice as the former captain. But, one thing about the practice left me with a weird feeling—the team seemed exactly the same as the day I left. Everything about the team was exactly the same as when I was a member, except for the fact that I did not know any of the team members—all I knew had already graduated. The practice was organized in the exact same way and the members looked motivated in the same way I used to be motivated. Every single procedure during the two hours of practice, from the warm-ups to the cool-down, was exactly the same as what my colleagues and I had started four years earlier.

Amazed by the similarities, I asked a member if they always practiced in this way. He responded, “Yes. This is how we practice. This is our tradition.” Tradition! The word was quite shocking to me. When I was a captain and made the reform, there was
no such thing as tradition—after all, I was the one who abolished the old ways of organizing practices and managing the team. Almost every routine was something that my colleagues and I had created, and thus everything was new. There was no tradition. It gave me a weird feeling to see that something we started had become a “tradition,” and everyone in the team was following the procedures that my colleagues and I had created, as if they had been the team’s tradition for decades.

What I created back in high school, which is now called “tradition,” is actually called an organizational culture, a type of informal institution that governs people’s behavioral patterns. The series of reforms my colleagues and I implemented, such as the change in the style of team meetings, the relationship between the members and so on, changed not only the way we organized the practices but also the way we think about ourselves and our team—this is an ideology, a shared belief about one’s identity and the interest of the group one belongs to. The change in the understanding of ourselves quickly altered our old attitudes towards the team into a new one, and created a new organizational culture that eventually persisted even after four years.

This story shows that things like culture and ideology do matter in understanding a firm’s actions. If our way of thinking had not changed after the reform, the members would not have been as motivated as they were. And if they had not been as motivated, we could not become a stronger team as we did. It all happened precisely because our ways of thinking has changed. Without it, there could not have been Hokurei Judo Team today.
Yamaha Puzzle

About fifty years earlier, there was a Japanese musical instrument manufacturer that was undergoing a similar experience as Hokurei Judo Team—Nippon Gakki, Ltd., the modern day Yamaha Corporation. Just like the members of the Hokurei Judo Team, Nippon Gakki’s employees became enormously motivated to work hard. The energy, however, did not only go to the musical instrument manufacturing but to the manufacturing of a new good—motorcycles. Despite the fact that the company had no prior experience in the motorcycle industry, the company made a decision to go into the new industry all of a sudden, and quickly succeeded in becoming one of the dominant motorcycle manufacturers not only in Japan but all over the world—which is the modern-day Yamaha Motor Company. Furthermore, the original Nippon Gakki evolved into the modern-day Yamaha Corporation, who is now an internationally recognized musical instrument manufacturer.

How did these two Yamahas, originally a single company, come to be experts in two such divergent fields? The question is intriguing, because the orthodox firm theories can hardly explain this matter. Almost all the firm theories in economics assume that the firm’s objective is to maximize profits and do whatever it can do to do so. But at a glance, this does not seem plausible in the case of the Yahama experience, as it would seem too costly for a musical instrument manufacturer to go into the motorcycle business. The kind of skills and knowledge required to do well in the subsequent two industries seem so different, and if that is the case, it must entail enormous costs for the company to enter into the motorcycle industry and acquire the skills and knowledge that are suitable for motorcycle manufacturing and marketing.
In short, Yamaha’s experience is mysterious. This is the Yamaha puzzle that I seek to answer in this study.

The Tuning Fork Marks of Yamaha Motor Company (left) and Yamaha Corporation (right)

Capabilities Approach

In this study, I seek to unpack the Yamaha puzzle through the lens of institutions. To this end, I employ the emerging capabilities theory of the firm to conceptualize what firms are and how they may behave. To bring a close insight into the institutional dynamics surrounding Yamaha, I rely on the contracts-in-performance theory, a branch of the capabilities theory, in particular.

The decision to apply capability theory to the firm corresponds to what is commonly called the “evolutionary perspective” of economic theory (Langlois 1986). This perspective generally neglects the rather narrow focus of the neoclassical framework on the economic equilibrium, and instead sheds lights on different time-schemes and dynamically on-going economic phenomena. While the neoclassical framework tends to remain naive about the nature of the disequilibria that exist
everywhere in the economic phenomena of the real world, treating them rather as exceptions or abnormal cases, the evolutionary economists are interested in the notion of economic competition as “processes,” rather than as states of affairs, as the market system is not situated in a time vacuum, but is something that develops as part of competitive processes (Nelson and Winter 1982) (Nelson and Winter 1982; (Langlois 1986, Adelstein 2012). The evolutionary perspective further observes aspects of the economic environment that are exogenous to the firm, seeing firms, in a way, as entities that are constantly pressured by, and responding to, the external economic environments in which the firms are located. As a result, firms follow their idiosyncratic evolutionary paths, which can be seen as the unique results of the dynamic relationships of the history of the changes in their external environments, and the firms’ responses to them and their outcomes, which further reinforces their influences on both their perceptions of their given situation, and the contingencies posed by such consequences.

This work can have much to contribute to this literature. Partially due to its infancy, but more to the dominant position that the neoclassical framework has established for itself with its mathematical precision and rigor, this evolutionary perspective is still considered to be a minor, rather eccentric school of thought in the field of economics. Without exception, the framework established by the capabilities theory has been considered to be an aberrant theory with little explanatory power, mostly due to the difficulty of operationalizing it in mathematical terms. But like the masterpieces of the great classical economists, economics is neither a branch of mathematics nor physics, and its mission is not to seek mathematical precision but to
understand various socio-economic phenomena, which are often far more complex than what mathematics can explain for us – based on human factors which are often not easily quantifiable.

But the inability to model the theory in mathematically precise terms hardly means that the capabilities theory is useless. Rather, I believe it can offer the kind of explanation that mathematics cannot possibly offer. This study is one of these attempts to apply the capabilities theory to understanding actual historical phenomena, and hopefully it will help to facilitate a meaningful discourse on how the theory can be utilized effectively.

**Plan of This Project**

In Chapter 2 and 3, I explain the overview of the capabilities theory. In Chapter 2, I introduce the basic framework through which the firm can be analyzed by introducing past works in the field of firm theory. I begin with the transaction-cost theory, a theory of firms and institutions that is still dominant in the field, and explain its significance and weaknesses so as to explain the strength of the capabilities approach. The later part of the chapter focuses on the core understanding of the firm’s capabilities, namely, what they are and how they are different from the market.

Based on the framework introduced in Chapter 2, Chapter 3 develops the capabilities approach into the dynamic theory of the firm’s boundaries, which explains the firm’s expansion and shrinking in terms of the firm’s capabilities. The chapter sees this process as the dynamic interplay of exogenous and endogenous
institutions. This framework also allows us to see that the orthodox capabilities theory implicitly assumes that the firm’s objective is to maximize its profits.

Chapter 4 investigates how the firm’s objective is determined, especially from the perspective of how informal institutions influence the firm’s objective. In short, I regard informal institutions as group-schemata, and show how the changes in informal institutions affect individuals’ motivations and eventually the firm’s objective. The chapter also shows how the firm’s leader can help solve the problem of coordinating the members by making correct decisions and manipulation of the firm’s endogenous informal institutions.

Finally Chapter 5 turns directly to the history of Yamaha. As I explained above, Yamaha’s experience seems to contradict the orthodox capabilities theory at a glance. By incorporating the theoretical framework developed in the previous chapter, with a particular emphasis on the role of informal institutions in influencing the firm’s objective, I conclude that the objective of Nippon Gakki, the predecessor of the two Yamahas, was not to maximize its profits, but to maximize the employees’ desire to contribute to the nation’s prosperity. The three leaders of the company, Torakusu Yamaha, the founder, Kaichi Kawakami, their president and, most importantly, Genichi Kwakami, President at the time of the diversion. As we will see, President Genichi Kwakami is responsible for most of Nippon Gakki’s decisions
This chapter addresses the basic framework within which to analyze firms—particularly business firms. Despite their common existence and the crucial role they play in markets—coordinating production, employment and facilitating innovation, little consensus exists in understanding what firms are as a social or collective phenomenon, and how they might behave in the economic environment. The lack of a consensus, however, hardly stems from varying perspectives of different disciplines—say, the way neuroscientists consider human cognition versus the way philosophers do, but are more misconceptions facilitated by the weaknesses of different schools of thought within economics, mostly in the attempts by each to emphasize their strengths. But discrediting the mainstream theories is neither the point of this chapter nor my project in general. Rather, in this chapter, I seek to tie together the “theories of the firm” that are particularly relevant to the purposes of my study, and to propose a basic framework to analyze firms and their behavior. To that end, I focus on the emerging capabilities theory of the firm, a distinct theory of the
firm that has strong explanatory power for both the nature and behavior of firms. But one can hardly appreciate its significance without understanding its background and the history of this field of inquiry. The first part of this chapter is devoted to this purpose, and the latter part focuses on the details of the capabilities theory.

Theory of the Firm: Neoclassical and Transaction Costs Approaches

Firms exist everywhere; like organisms can be found everywhere on earth. Living organisms consume natural resources and generate new kinds of resources, shaping the surrounding environment in which they reside. Business firms behave in a similar way, in this case in the socio-economic environment, searching for food—input resources—and transforming it into energy—production outputs, in accord with their own interests based on their survival and prosperity, simultaneously shaping both their endogenous and exogenous environments. Firms are, in this metaphorical sense, like living organisms of the socio-economic realm that live and can only live in a reasonably suitable environment given their individual characteristics. In simple classical economic theories, nothing stands in the way of economic goods being exchanged and efficient allocation thereby being achieved—the consequence that is explained through the famous “invisible hand.” While trying to understand the consequences of their roles as producers and distributors of goods, however, the mainstream literature on industrial organization and the neoclassical theory of the firm insistently refuse to investigate what such actors are—namely, to determine their nature and how they might function as they are and how they change their forms in
accord with both their endogenous qualities and exogenous environment. Such a mentality leads many economists to treat firms, despite their complex structures, as mysterious black-box-like entities; it is a taboo to look inside to see how decisions are actually made and production actually carried out. Consequently, the neoclassical theory offers little explanation for why the firm exists at all, lacking insight into the internal mechanisms of the firm.

If markets are as efficient at allocating scarce resources as these models suggest, moving goods easily and cheaply from lower-valuing owners to higher-valuing ones, why are these firms at all? Why do we rely on firms to coordinate production, instead of simply utilizing the system of free exchange, much as resources are allocated within them through exchange? To answer this, we need to understand not only firms as endogenously complex systems, but also the reality of markets and firms’ internal productive operations, and that the neoclassical theory has little to offer in this project.

Ronald Coase (1937) was one of the first to open a crack into this mysterious black-box. In his famous “The Nature of the Firm,” he asks, “[I]f production is regulated by price movements, [and] production could be carried on without any organization at all, well might we ask, why is there any organization?” (p388). His answer to the question was the existence of transaction costs, the costs of using the market to buy and sell goods, as distinct from the price of the goods, which specifically arise from the consequences of searching for potential trading partners, negotiating over terms of trade, and transferring goods from one place to another, all of which often take a considerable amount of time, effort, and expense. For Coase, firms come into existence to cope with these transaction costs and the uncertainty
associated with them: “Within a firm, … market transactions are eliminated, and in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator, who directs production” (ibid., p388). Consider two companies, Robb Motors and Eben Electronics. Eben Electronics supplies automatic navigation systems to Robb Motors, who relies on Eben Electronics’s navigation systems for its cars. In this case, the two companies are using the market system for these transactions, for Eben Electronics selling its products to Robb Motors, which, in turn, is purchasing them. One can consider various kinds of costs in the transactions between the two companies. One such transaction cost, for instance, is the cost of writing contracts: The contract might require negotiations over the terms both companies are willing to accept, which might cost time and effort. If such costs are sufficiently high, one way to avoid these costs would be for Robb Motors and Eben Electronics to merge so that negotiations are no longer needed. In this way, companies can vertically integrate when transaction costs are high.

Coase argues that organizing additional transactions within a firm also costs something. Managers have to supervise the number and quality of the goods to be produced in each production process in order for the whole production to be carried out effectively. The managers must devote their time and effort to the supervision of the production, while that same effort and time could be allocated for other tasks. There are, thus, opportunity costs in organizing transactions. Consider a manager, Ryan, of Robb Motors, which has purchased Eben Electronics to avoid the transaction costs as described above. It is now Ryan’s job to supervise the employees of the former Eben Electronics, to carry out the production that Robb Motors needs. Ryan
has to calculate the number of goods the former Eben Electronics produced and order the adequate number of products to fulfill Robb Motors’ needs. Ryan must devote considerable time and effort in making these calculations, as well as the costs involved, and finally communicate with the employees of the former Eben Electronics. Thus the costs of organizing additional transactions can entail large costs.

The costs of organizing such production also increase as the firm continues to grow, because the costs of organizing additional transactions marginally increases as the number of transactions expands over time. Thus, Ryan might be able to perform well in managing the transaction between Ryan Motors and its division that used to be Eben Electronics, but his performance may diminish as the number of transactions Ryan must supervise increases, and eventually it reaches a point where he can no longer execute all of his tasks—there is a limit in the number of tasks Ryan can perform in a given time. Robb Motors, then, must hire more managers to conduct the same task as Ryan’s in order to organize all the necessary transactions. As a result, the expansion of the firm has to stop where these transaction costs and the benefits of organizing transactions within the firm are in equilibrium. The boundaries of the firm, therefore, are determined by the relative costs of transactions in the market and the costs of organizing such transactions within the firm.

Coase’s insight into the boundaries of the firm was revolutionary in the sense that it was the first of its kind to address the question, analytically, of why firms exist in the first place, and how they grow or shrink. It captures the complex mechanisms by which individual actors are located within the market system, and face various kinds of sometimes quite substantial costs, in conducting their activities. Pioneering as his
idea was, however, Coase’s insight into the “costs” of transactions and management have little to offer for understanding the nature of these transactions. In the end, Coase’s notion of transaction costs, as he explains it, “the cost of using the market mechanism,” was ambiguous enough to regard any kind of costs entailed in transactions, and certainly, it was far from formally theorizing the idea. Accordingly, Coase’s original work is limited in the extent of its argument, to the notion of the existence of transaction costs and their relationship to the existence of firms, but offers virtually no sense of either the specific qualitative or quantitative factors that constitute the circumstances in which an acting entity in the market, whether a firm or an individual, faces varying levels of transaction costs. In the market, many circumstances can entail various kinds of costs—preparing contracts and negotiations, as well as costs that stem from uncertainty in the nature of the transaction, which will be discussed later in the work of Oliver Williamson. Thinking in this way reveals that Coase’s theory is incomplete, lacking analytical insight into what the costs of transactions were, precisely. As Coase himself states, his original work was indeed, “just stating the obvious,” while providing the original framework for what is later called “transaction-cost economics.”

Oliver Williamson, in turn, developed this framework into a more operational, analytical tool by identifying the detailed circumstances in which these transaction costs occur in a range of production environments (Williamson 1991, 90). Through what Williamson calls a “microanalytic approach,” this framework consists of two

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2 Coase mentioned this in the annual Coase Lecture at the University of Chicago Law School in 2003. The details of such can be found here: (http://www.youtube.com/watch?v=pKJiXZKiIh_U)
basic behavioral assumptions about human agents, one of which is “bounded rationality,” and the other, “opportunism.” The former refers to the notion that human agents are “intended to be rational, but only limitedly so” (Simon 1961; Williamson 1991, 92). “Limitedly so” here means that human beings are trying to act rationally, but there are limits to own obtaining and utilizing sufficient knowledge about the present and the future—some of this knowledge is simply nonexistent or irreducibly uncertain, and largely limited by one’s cognitive abilities. The notion of opportunism, the other aspect of the behavioral assumption, depicts human agents as given to a self-interest-seeking state of mind that may contemplate guile. But the significance of this second assumption actually stems from the notion of bounded rationality, in that because of limited knowledge of the present and irreducible uncertainty about the future, one is exposed to a continuous fear of the opportunistische behaviors of other contractual parties, thus making credible commitments unreliable. Consider, again, Eben Electronics, trying to sell its new smartphone, named “Model S.” A large network provider, Kergorlay Wireless, is potentially a good customer with its nation-wide network coverage. Thus, by selling the Model S to Kergorlay Wireless, Eben Electronics can expand its domestic market share very quickly with the help of Kergorlay Wireless’s nation-wide coverage. From Eben Electronics’ perspective, however, what Kergorlay’s business strategy is for expanding or shrinking its coverage or raising fees is largely unknown, and these can affect unknowns the sales of Model S if Eben Electronics counts on Kergorly’a’s potential customers for using Model S. For Kergorlay Wireless, too, some degree of uncertainty is entailed in buying the Model S for its customers. The production of the Model S, for instance,
might stop out-of-the-blue when there is a strike at Eben Electronics, a possibility Kergorlay Wireless may know very little about. Furthermore, a new, better model may come out from another company, in which case committing to the sales of the Model S may not be the best choice. In this way, the unavoidably insufficient knowledge about the present and the future, and more importantly, a number of strategic speculations about the other parties, condition transactions in the market.

With these assumptions in mind, Williamson seeks to understand the circumstances in which these particular aspects of uncertainty occasion different degrees and kinds of transaction costs. The focus of this analysis is (1) the frequency with which particular transactions recur, (2) the degree and type of uncertainty to which they are subject, and most importantly, (3) the condition that Williamson calls asset-specificity (Williamson 1991). Asset specificity refers to the extent to which particular assets, both human and material, can be limited in their use values to specific users, and thus become significantly more valuable, in relative terms, in some uses rather than others. As particular technologies, and human and material resources—often the results of durable, nontrivial investment efforts—become highly technical, they often become increasingly specific to only a handful of users, making the competitive state in the exchange environment rather ineffective, and forcing each party within the supply chain to stick together—in Williamson’s terms, it makes them “bilaterally dependent” on each other (Williamson, 94). Williamson calls this process the fundamental transformation of large numbers of potential trading partners to small numbers, that is, with both parties continuously investing in transaction-specific human and physical capital, the relationship between the buyer and the seller
becomes increasingly transformed into a bilateral monopoly (Williamson, 1979, p. 241). Combined with the behavioral assumptions of bounded rationality and opportunism, these specific assets become a crucial factor in the existence of extremely costly transactions, with rather intensified uncertainty and the possibility of opportunistic behavior. As the transactions between Eben Electronics and Kergorlay Wireless increasingly recur, Eben Electronics might attempt to develop a specific model, Model S-K, which is designed to be suitable to downloading music from the internet quickly. Eben Electronics develops this model because Kergorlay Wireless is developing a service that allows its customers to download music for free to encourage more customers to buy Model S-K and download music, which, in turn, increases the number of customers and their usage of their phones. In this case, Eben Electronics’s investment on the development of Model S-K, as opposed to Model S, and Kergorlay Wireless’s investment in the new unlimited data service for music downloading are made in expectation that each company continues to invest in the current production and service, because otherwise each company’s investments would be less effective than they should be. The development of Model S-K and the unlimited data service for music downloading must come together to attract customers. And if there is uncertainty about either of the investments, it becomes increasingly risky for the companies to rely on the market system to carry out such transactions. Buyers and sellers, in turn, hereby have considerable incentives to merge through a long-term contract to secure the value of the specific assets, and thus securing their production as a whole. Therefore, Eben Electronics and Kergorlay Wireless can merge to secure their investments, if the uncertainty surrounding their
transactions is high. Thereby firms, Williamson concludes, extend themselves backward and forward along the production chain by integrating with each other, where the transactions between them are quite costly—this is what is commonly referred to as vertical integration. Similarly, such expansions the firm has lose their momentum where the degree of specificity of each trading party’s assets becomes adequately broad to carry an effective, operational competitive exchange order, with sufficiently abundant alternative options for both buyers and sellers (Williamson 1979; 1985, 30-67).

Williamson’s framework is indeed significant in explaining firms’ behavior in terms of their expansion and shrinkage along the production chain—that is, operations of vertical integration and disintegration. But the transaction-cost approach to the theory of the firm is still insufficient in the sense that it does not explain why the firm exists at all, apart from the circumstances when the market is costly to be utilized. Williamson’s framework posits firms as the “second best” choice for organizing production when doing so through exchange orders is too costly. For Williamson, production and other various on-going activities within the firm are by nature no different from ones potentially done through markets. Williamson’s micro-analytic approach, in which he claims to regard the transaction as the basic unit of analysis, is too microscopic in the sense that it virtually loses the bigger picture of the true “nature” of the firm with respect to what they really are as a whole. In short, for Williamson, the firm only exists as a kind-of coordination devise for organizing production, and the kind of economic activities conducted within the firm is no different from the ones in the market.
But the firm is qualitatively different from the market. Somewhat ironically, Coase, the great pioneer of the transaction-cost approach, from whom Williamson obtained his original inspiration, quotes the following passage by D. H. Robertson as a starting point of his endeavor with respect to the transaction-cost approach: “[We find] islands of conscious power in this ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk” (Coase 1937, 388; D.H. Robertson, 85). Although it was not Coase’s intention to illustrate this in his article, firms, in fact, differ qualitatively from the realm of the simple, discrete contractual relationships of individuals found in the markets. Williamson intentionally neglects to explain these qualitative differences in his obsession with transaction costs. Williamson’s framework is, in this sense, largely limited in its analytical scope and ability to explain the true nature of the firm—namely, what they are, and how they might behave—lacking as it does the appreciation for the notion of firms as collective entities and not at all the sum of individual economic actors. We also need to pay attention to the bigger picture of what the firm is capable of as a whole, while appreciating Williamson’s contributions to the literature. This calls for a new theoretical framework—the capabilities theory.

The Capabilities Theory

Taking firms as units of analysis, instead of transactions, we can see that firms as collective entities possess something that is non-existent otherwise. One approach to understanding this “something” is to consider it as “capabilities” that the firm possesses—more specifically, the firm’s abilities to utilize the skills, experience,
knowledge and other resources within the firm. This capabilities theory of the firm argues that the firm possesses two critical dimensions—(1) intrinsic core capabilities and (2) ancillary capabilities. The core capabilities are idiosyncratic, inimitable and incontestable: they exist uniquely within the firm as its core, characterizing what the firm is, and exhibit different capabilities from the sum of the members of the firm. They comprise a number of factors—unique histories, traditions, culture, unique knowledge and many others—and generate unique outcomes that are more valuable than the outcomes that the core elements could produce separately. Such unique core capabilities can be regenerated only through long-term implementation, which requires tremendous time and costs. The core capabilities are, therefore, typically historical, that is, the capabilities are the product of the long-term operation of the firm. Such capabilities may include the way the company processes information or organizes production. An obvious example includes, but is not limited to, Toyota Motor Corporation’s Toyota Production System (TPS), which includes management philosophy and practices that comprise what is called “The Toyota Way” (Toyota Motor Company, n.d.). Ancillary capabilities, on the other hand, are subordinate to the core capabilities—they are contestable and are easily acquired through short-term implementation or purchases through the market system. This includes, for instance, factory machines or some technologies that can be easily attained. While it would be difficult for General Motors to implement the TPS in its own factories, the production machines that Toyota operates can be purchased by GM relatively easily. The capabilities of the firm as a whole are the combination of these two types of capabilities.
Core capabilities most frequently consist of knowledge and skills that are expressed in the form of the individual and collective behavior of members of the organizations, and are difficult to acquire or communicate to others—thus, they are “idiosyncratic” by nature (Langlois and Robertson, 1995). This is because the knowledge and skills are asset-specific to the system, that is, such resources can be cultivated and function only within the larger system of the specific firm. This asset-specific knowledge and skills are far from being problems, rather, they are the outcomes of the successful adaptation to the efficient operation of the system as a result of what Nelson and Winter call “remember[ing] by doing.” Describing the collectively constituted knowledge as organizational memory, they argue that organizational memory is comprised of routinized activities within the firm:

[The routinization of activity in an organization constitutes the most important form of storage of the organization’s specific operational knowledge. ... We claim that organizations remember by doing. ... The point that remembering is achieved largely through exercise, and could not be assured totally through written formal memories and that these formal memories play an important role (Nelson & Winter, 1982, p. 99).

The emphasis here is that the remembering by doing requires a radically different process than the remembering of work through written formal memories. Remembering by doing requires a constant performance of the routines, which itself facilitates the learning and remembering of the activities. Consider Daniel, an employee at Eben Electronics, whose job it is to assemble three different parts, monitor sheet, battery and motherboard, into a phone case to make a smartphone. The instruction provided by his manager states that the ways in which these parts can be
fitted into the phone case, such as “side A of the sheet will come to the outside of the case,” or “the blue terminal on the battery should be connected to the blue sign on the motherboard.” As Daniel tries to learn the routines to execute these tasks, he may try to do them in the order that is explained in the instruction—from assembling the monitor sheet with the case and battery with the motherboard. Because he is not familiar with the operation, he may have to refer to the instruction each time he executes his tasks. But as he becomes used to the operation of the routines, he eventually does not have to refer to the instruction and becomes able to perform the routines in a shorter period of time. Thus, Daniel remembers his tasks, and how to do well in performing the tasks, by exercising the routine.

The unique form of knowledge and skills—organizational memory—is a collective attribute of the firm and irreducible to any individual, or even the sum of the individuals’ knowledge and skills. This is because the knowledge and skills that each individual possesses are only fractions of the whole, and are only applicable in strictly specific contexts in the larger, more comprehensive system or subsystem of the whole. Consider a small observable workplace—making a mochi, a Japanese rice cake. Apart from the preparation of the ingredients, making a mochi involves pounding the mochi. Pounding a mochi is a two-person operation, that is, one person pounds the mochi with a giant wooden hammer and the other one wets and repositions the mochi between each stroke. Figure 1 shows how a typical mochi is pounded.
Each of these acts involves the performance of a set of movements. For instance, pounding the mochi involves lifting up the hammer and pounding, while wetting and repositioning involves the person to put water on the hand, placing the water on the mochi, and at the same time repositioning it. Thus, mochi making requires two different routines to be performed in the coordinated manner, and neither of the routines alone can make mochi. It is the collective skills of the two that allow mochi making.

These routines, furthermore, develop themselves in such a way that they reduce the need for conscious choice, making the whole operation much cheaper and more efficient (ibid., p.93). Imagine two Japanese men, Kotaro and Shingo, pounding a mochi. At first, Kotaro may not know how fast he should lift the hammer and pound the mochi because he does not know how fast Shingo wets and repositions the mochi.
Kotaro must be extra careful when he pounds the mochi because the hammer is very heavy and if he accidently hit Shingo’s hand, it could lead to a disaster. But after a while of making mochi together, Kotaro learns how fast he should pound the mochi, knowing the exact duration Shingo needs to wet and reposition the mochi. In short, Kotaro and Shingo create a rhythm with which they both feel most comfortable in performing each task. Kotaro and Shigo, of course, also improve their skills in performing their subsequent subroutines of using the hammer to pound the mochi and wetting and repositioning quickly and accurately. These improvements in both coordination and individual performances together lead to faster and more efficient making of mochi.2

Likewise, the routines and subroutines upon which each individual is acting—and developing knowledge and skills—cannot generate their productive roles in the absence of the larger, more complex systems which tie each specialized routine and subroutine together into a whole comprehensive system. In the market, buyers need sellers and vice versa, but they do not coordinate their behaviors to produce goods. But routines and subroutines form the collective skills as a whole. The two processes in mochi making must be performed in the comprehensive order at the right timing, that is, the wetting and repositioning of the mochi has to be done while the hammer is lifted and vice versa. The organization as a whole can form a collective memory, while its continuity depends on the condition that all members continue to know and perform in accord with their respective jobs, in turn defined by the routines and

2 Japan Style.com reports that the maximum of 140 pounds per minute were observed in the mochi pounding event held in Ise City, Mie pref., Japan in 2012. This means that the group pounded the mochi approximately 2.3 times per second on average.
subroutines in which they operate. These memories—the knowledge and skills that the organization has collectively—make up the “core” part of its capabilities.

In this sense, what defines routines and subroutines within the firm is the position of each worker who exercises the routines and subroutines in relation to the larger organizational context. Kotaro and Shingo’s capabilities in mochi making are precisely what they are because Kotaro and Shingo are performing their subsequent routines and subroutines in accord with their *relationship* to one another—that is, Kotaro as a mochi pounder and Shingo as Kotaro’s assistant to wet and reposition the mochi. For the capabilities to exist and function correctly, Kotaro must perform his routines based on his position as a mochi pounder. Similarly, Shingo cannot act as if he is a mochi pounder. If he did so, there would be no one to wet and reposition the mochi, and thus no one can pound the mochi adequately because the mochi would be too sticky and flat to pound. Kotaro and Shingo can make mochi, because each person performs the routines and subroutines based on the relationships to one another. In other words, the relationship of the two dictates the routines and subroutines one is ought to perform to create the capabilities.

**Firms as Relational-Contracts-in-Performance**

These relationships of the members of the firm are specified between the members in contracts—what Ian R. Macneil calls *relational contracts*, ones which are radically different in their nature from the discrete ones usually seen by economists as “contracts” (Macneil calls these “classical” or “neoclassical” contracts). Relational contracts are *relation-specific* in that they govern *patterns* of transactions rather than
discrete transactions themselves. This is because each discrete, individual transaction is largely influenced by the on-going concern with respect to the long-term relation of the contractual parties—in other words, their recurrent transactions are based on their relationships and the patterns of transactions such relationships entail, and affect the terms of future negotiations. Relational contracts exist at both the organizational and individual levels. The discrete transaction of the sales of Model S-K, for instance, is based on the relationship between Eben Electronics and Kergorlay Wireless. Eben Electronics develops the model in the expectation that the two companies can work together continuously—that is, Eben Electronics continuously supplies its smartphones to Kergorlay Wireless, and Kergorlay Wireless, in turn, sells the smartphones to its customers. At the individual level, too, as we have seen from the mochi-making example, each transaction between Kotaro and Shingo, such as the each pound that Kotaro makes, or each act of Shingo’s wetting and repositioning the mochi, is not itself a discrete transaction that is the ends itself. Rather, the relationship between them, as a mochi pounder, and his assistant to wet and reposition the mochi, precedes the transactions, and affects what kinds of transactions should be made between them. If the nature of the relationship is different, such as Kotaro being a cameraman to take pictures of the mochi making, the kinds of transactions would be different. Relational contracts do not directly determine individual, discrete transactions, but the patterns of transactions by defining the relationship between contractual parties.

Recall that capability theory suggests that the firm can be defined by the capabilities—particularly the idiosyncratic ones—that the firm possesses. But what
these capabilities really are is the performance of the relational contract among workers that define their routines and subroutines, and that allow the firm to function in the way it does. Richard Adelstein (2012) captures this aspect of the firm’s capability, naming it contracts-in-performance. In understanding the creation of the firm’s capabilities, his emphasis is on the interactions among the members of the firm:

Once one or more people consent to join an entrepreneur in a contract to organize production according to her plan, what had been the entrepreneur’s speculative vision of how a hypothetical firm might work becomes a real firm that must mobilize people to act cooperatively and compete in its name. From this moment on, daily interactions within the firm begin to produce the gradually changing routines that are embodied in the performance of the firm’s changing roster of participants and manifest its distinctive capabilities. The operation of the routines is the relational contract in performance, and because the routines represent not just the actions, but the interaction of the participants under the terms of the contract, their outcomes cannot be reduced solely to the behavior of any or all of the contractors in isolation (Adelstein, 2012, p. 73).

Emphasis on this insight is that firms are collective entities whose existences lie in the web-like relationships among the their members. The capabilities of the firm, therefore, can exist, if and only if each routine and subroutine is performed in accord with the relational contract that adequately arranges relationships to constitute a collective entity. From this perspective, the capabilities of the firm are what define and constitute what the firm is, but the knowledge and skills of the firm—including the ones described as “organizational memory”—are the product of assets of each member of the firm (which is often specific to the context of that workplace) and their combinations, as defined by relational contracts. The capabilities of the firm are the
expression of the particular relational contract, that is, relational contracts that are in performance.

**Conclusion**

The central question of the nature of the firm with respect to the firm’s boundary has attracted many economists’ attentions. The transaction-cost theory, pioneered by Coase and developed by Williamson, has been considered to be a strong theory in explaining the firm’s growth. The theory, however, does not explain the qualitative differences between the firm and the market, and having little insight into what the firm really is and how it behaves as a collective entity. This insufficiency leads the transaction-cost theory to falsely consider the firm as the “second best choice” next to using the market when the costs of doing so are too high, when there are, in fact, many occasions in which firms are preferable to using the market for the reasons that cannot be reduced to high transaction costs.

By taking firms as units of analysis, instead of transactions, the capabilities theory can offer richer insight into the internal structure of firms. The capabilities of the firm consist of routines and subroutines performed by the members. With the sum of these routines and subroutines, the firm can have capabilities as a collective entity that cannot be reduced into any individual’s performance or capabilities. The routines and subroutines are determined by the relationships of the members with the other members of the firm and the firm as a whole.

These relationships are defined by relational contracts, the contracts that concern relationships between the contractual parties rather than the transactions between them. Relational contracts, therefore, are the backbones of the capabilities that the
firm possesses. The qualitative differences between firms can be analyzed by evaluating the capabilities of each firm, the ways in which relational contracts are manifested within the firm. If different ways of organizing relational contracts can indeed facilitate the operations of different capabilities of the firm, what variations can exist and how do they affect the firm’s capabilities and its behavior? The hierarchical relationships in the mega-firms described by Chandler are, after all, particular expressions of these webs of relational contracts that consist, again, of particular types of capabilities that the firm possesses. But the actual expressions of the relational contracts and the subsequent results for the firm’s capabilities indeed vary, and certain mechanisms exist to create this diversity. Understanding this variety is indeed essential to understanding the precise implications of the nature of the firm and its behaviors. The next chapter explores the mechanism in which the firm expands and shrinks, which is the original question Coase asks, depending on its own capabilities and the external environment.
THE DYNAMIC CAPABILITIES CHANGES: 
INTERPLAY OF THE EXOGENOUS AND ENDOGENOUS INSTITUTIONS

The transaction-cost theory takes transactions as the unit of analysis to explain the firm’s expansion and shrinking, which, as we have seen, is the source of the strengths and weaknesses of the theory—that is, the theory has few implications for explaining the qualitative differences between the firm and the market so as to explain why the firm exists, expands and shrinks. Understanding what the routines and subroutines performed by the members of the firm, the capabilities theory attempts to explain the nature of the firm to the extent that the transaction-cost theory is inadequate, and to show that is the purpose of this chapter. In the previous chapter, I argued that the firm’s capabilities are relational-contracts-in-performance, that is, they are the actual expression of the contracts that govern the relationships among the members of the firm so as to determine the routine and subroutines.

This chapter is concerned with how exactly the firm’s capabilities matter in understanding its expansion and shrinking. I argue that the expansion and shrinking
of the firm can be understood in terms of the interplay between endogenous and exogenous institutions.

Exogenous and Endogenous Institutions

In *Institutions, Institutional Change and Economic Performance*, Douglas North defines institutions as “the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction” (North 1990, 3). These rules limit the extent to which individual agents can perform freely, and reduce the uncertainty surrounding their behavioral decisions and provide a structure to everyday life. Institutions, thus, include any form of constraint that human beings devise to shape human interaction (ibid., 4). Examples include law or legal institutions, educational institutions, political institutions and so on. Consider how institutions, for example the law, influence individual behavior in everyday life. While it is rather obvious that law affects our behavior, the law indeed provides a set of rules that change the set of alternatives open to individuals or the returns to certain courses of action that individuals receive. Imagine Asher, who is late for his high school that is 20 miles away from home. Trying to get to school on time, he may want to drive as fast as he can, which will be around 120 mph. But the law restricts him to drive only as fast as 65 mph on the way to the school. In this case, Asher faces two conflicting choices—he can either follow or break the law. Following the law means that Asher will probably be late for school and his teacher will punish him. If he breaks the law, on the other hand, he may be able to get to school on time, which means there will be no punishment, but he will also face a risk of being caught by the police. If this
happens, Asher will face a tremendous degree of disutility from the legal punishment such as the payment of a violation fine. Facing this dilemma, Asher estimates which choice is most likely to generate the largest utility or the least disutility, and chooses the better option overall. In this way, institutions affect individual behavior by influencing the available choices and their expected payoffs.

North also offers a comparison between institutions and organizations in which the dynamic interactions of the two shape the dynamically changing socio-economic environment (North 1990). Taking institutions as the rules of human interactions, North argues that organizations (the equivalent of firms in this context) are also constrained by the institutions existing in the external environments, such as markets, legal institutions, political institutions and so on—I call this exogenous institutions, to reflect the fact that these institutions exist externally to the firm (ibid., 5). In this sense, firms are also the players of the “games in a society.” Take the market as an example, one can easily see that firms utilize the market in the same way as individual agents do. Imagine Robb Motors seeking to purchase Eben Electronics’s electronic navigation system. This transaction relies on the market: Eben Electronics proposes whatever price for the navigation system that makes sense for Eben Electronics’s business purpose, to Robb Motors. And Robb Motors, in turn, either negotiates for the lower price or accepts it. Thus, the final price will be strongly influenced by the existence of the substitutes in the market and thus how much Robb Motors wants to purchase the system from Eben Electronics given the price. If both companies agree on a certain price, a transaction is made, and Eben Electronics supplies the ordered number of electronic navigation systems to Robb Motors in
exchange for the appropriate amount of money. This transaction presupposes the existence of various institutions. For instance, if both companies are in the US, the US dollar is likely to be the currency used in the transaction. This is because both companies can trust the validity of US dollars as a credible medium of exchange, backed up by the Federal Reserve and the US legal systems. If US dollars are not credible, the companies may seek on another medium of exchange or the transaction may simply not be made. In short, the seemingly simple transaction between Robb Motors and Eben Electronics is conditioned and constrained by the various institutions that exist externally to both companies. Exogenous institutions provide rules that constrain both the behavior of firms and of individual agents alike. This insight allows us, to borrow the language of game theory, to consider a game in which firms act as players, in assessing the constraints exogenous institutions impose upon firms.

North characterizes the firm, however, as more than an entity that consists of rules that constrain the firm’s members, but a purposeful agent that has a particular objective (ibid., 74). Puting this in another way, the firm consists of the set of rules to achieve its own goal in the game. As we have seen in the previous chapter, these rules are defined by relational contracts that coordinate the firm’s members to perform the routines and subroutines so as to generate the firm’s capabilities. Therefore, I regard relational contracts, in contrast with exogenous institutions, as endogenous institutions. This allows us to see the firm as a purposeful entity whose members are coordinated through endogenous institutions to best achieve its purpose. Consider a soccer game between Wesleyan and Amherst. In the game, each team must follow the
basic rules and regulations set by the official rulebook. Roughly speaking, such rules
and regulations are: a team consists of a maximum of eleven players, one of whom is
a goalkeeper; goalkeepers are the only players allowed to play the ball with their
hands or arms, provided they do so within the designated penalty area in front of their
own goal and so on. But each team’s objective is to win the game. Each team seeks to
coordinate its team members, by placing some players in the front positions, others in
the defense positions and so on. These decisions are based on their skills, knowledge,
experiences, to maximize the capabilities of the team for achieving its objective—to
win. The firm’s exogenous institutions, relational contracts, coordinate the firm’s
members in order to best achieve the objective of the firm.

We have, thus, two kinds of institutions interacting with one another—exogenous
and endogenous institutions. Exogenous institutions shape the rules of the game
which firms must follow, just as individual agents do. But, firms themselves consist
of endogenous institutions that coordinate their members to generate the capabilities
so as to achieve the firm’s objective. The mechanism by which such interactions
occur is summarized in Figure 1. We will, then, turn our attention to more details to
understand how these interactions occur.

**Figure 1**
Dynamic Theory of the Boundaries of the Firm: Interplay between exogenous and endogenous institutions

The capabilities theory explains that firms expand and shrink depending on the external environment and their own capabilities (Langlois and Robertson 1995). Consider again the example of Eben Electronics and Kergorlay Wireless. As Kergorlay Wireless seeks to expand its business, Kergorlay Wireless wants to sell smartphones to its customers as a special package linked to its unlimited data service. In this case, Kergorlay Wireless needs the capabilities to produce smartphones, either directly or indirectly. With respect to Kergorlay Wireless’s business strategy, there are three options it can take: (1) to develop the capabilities for smartphone production on its own, (2) to purchase the capabilities from Eben Electronics or (3) buy smartphones from Eben Electronics. In the first two cases, Kergorlay Wireless is acquiring the capabilities directly, by internalizing the capabilities into its own capabilities. In the third case, on the other hand, the capabilities utilization by Kergorlay Wireless is indirect in the sense that Kergorlay Wireless takes advantage of Eben Electronics’s capabilities for smartphone production via market transactions. The capabilities theory concerns which of these three decisions should be made in the given external environment, and with the capabilities that the firm already has.

Langlois and Robertson analyze this mechanism through the notion of dynamic transaction cost, the cost of not having the capabilities when they are needed (Langlois and Robertson 1995, 35). In short, firms expand when the dynamic transaction costs are high, and shrink when they are small. Langlois and Robertson
identify three important factors in determining dynamic transaction costs: (1) the pattern of existing capabilities in firm and market; (2) the extent of the market and the level of development of market-supporting institutions; and (3) the nature of the economic change called for. The pattern of existing capabilities refers to the degree of concentration of the existing capabilities, for example, whether a few firms possess most of the capabilities or whether widely distributed in the market. Consider Robb Motors, an automobile manufacturer again. The capabilities for automobile production require those to produce various parts—such as frames, axles, springs, wheels, motors, radiators, steering gears, electrical systems just to name a few. These capabilities can also exist externally to Robb Motors, in which case there are other companies that produce those parts. If Robb Motors relies on these firms, the capabilities required for Robb Motors to produce automobiles are ones for assembling these products. Robb Motors can also concentrate these capabilities and either develop the capabilities to produce those parts on its own or purchase those companies that produce the parts, if Robb Motors chooses not to rely on the other companies to supply the parts. As far as a particular industry is concerned, how concentrated particular capabilities are can indicate the pattern of existing capabilities, which influences the firm’s decision to expand or shrink.

The nature of the market is also important in that it influences the extent to which the needed capabilities can be tapped through existing arrangements. This insight has two implications with respect to the use of the market: extent to which (1) market failure occurs and (2) economies of scale can be realized. The former, of course, includes transaction costs, which has already been discussed, as well as various
negative externalities such as ill-defined property rights. For instance, when the legal system cannot guarantee property rights adequately or currencies, it becomes costly to rely on the market. This is because the firm itself must invest in the security of its own properties—thus, the opportunity cost of securing property rights on its own is a negative externality to the firm.

Other externalities can also raise the costs of using the market. For instance, as we have already discussed, in light of how exogenous institutions influence firms, transactions between companies often require a medium of exchange, such as currency. This is not a problem when the currency is supported by a central bank or equivalent institution such as the Federal Reserve, that is adequately credible. However, it becomes extremely costly to rely on the market if the currency in question becomes untrustworthy. Consider the transaction between Eben Electronics and Kergorlay Wireless. Eben Electronics may be willing to sell the Model S-K to Kergorlay Wireless for $60 per unit. In this transaction, Eben Electronics receives $60 in exchange for Model S-K. But imagine the situation where the currency inflates at a rate of 12% per month. If Eben Electronics is aware of the inflation, Eben Electronics may hesitate to receive the payment in US dollars or raise the price of Model S-K because the currency becomes less valuable. However, for Kergorlay Wireless, this might not be acceptable as, for Kergorlay, the value of Model S-K is around $60 at the given time, not to mention that it might be costly itself to rely on a foreign currency for the transaction. In this case, the transaction between Eben Electronics and Kergorlay Wireless might not occur. The level of development of
market-supporting institutions significantly influences the costs of relying on the market.

The size of the market has crucial implications for the use of the market, as the extent to which the firm can exploit economies of scale partly depends on the size of the economy itself. Economies of scale refer to the cost advantages that the firm can obtain due to size, output, or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output (Chandler, 1977). An example of this is the hierarchical firm and the increasing diversification of production processes within it (Chandler, 1977). With the development of transportation and communication technologies, it has become increasingly easier and less costly for the firm to reach out more demands for goods, which subsequently made it economical to produce a large amount of goods. This simple insight is theoretically supported by the theories of industrial organization, which state that the larger the size of the economy is, the wider the firm can spread its production costs. This allows the firm to reduce the long-run average costs of production by shifting the short-run average total cost curve down and to the right.

Lastly, the firm’s existing capabilities are especially relevant to technological or other changes in the economy, which affects how suitable a particular arrangement of capabilities (potential extension of) will be compared to the firm’s current capabilities. The invention of the steam engine that influenced the mass production system is a well-known example of this. The introduction of steam engines during the Industrial Revolution from the late eighteenth to the nineteenth century allowed many firms to substitute mechanical devices, powered by engines, for human skills, which lowered
the per unit costs (Landes, 1969). But as Landes points out, it was after the methods of metalworking were improved, which allowed accurate cylinder production, that the steam engine really became effective in factories (ibid., 2). This example shows that a particular type of capabilities, mass-production powered by steam engines, was closely tied to technologies in other fields. It is also important to restate that, the increase in the number of hierarchically-organized large firms mainly stems from the development of transportation and communication technologies (Alfred D., 1990, p. 19). Technological and other changes in the economy influence the firm’s capabilities. All these factors determine what kinds of capabilities are needed in what external environments—that is, the dynamic transaction costs of having the capabilities when they are needed.

In thinking about the relative benefit of developing capabilities instead of relying on the market, several factors that characterize the nature of capabilities must be paid particular attention. One benefit of utilizing the firm rather than the market stems from the problem of asset-specificity, as we have already discussed: The high transaction costs in the market make the firm’s organization preferable to the market in organizing production. Another benefit, however, lies in the flexibility of internal organization in comparison with the decentralized system of market transactions. Because relational contracts govern the relationships among the members of the firm, transactions within the firm tend to be altered or reorganized relatively easily compared to ones in the market. This is because the production of goods requires the coordination of different routines and subroutines that constitute the whole production process, and the centrally organized firms can allow the particular coordination to be
carried out through *planning*. Consider the production of automobiles at Robb Motors again. As we have already discussed, production of automobiles requires the capabilities to produce frames, axles, springs, wheels, motors, radiators, steering gears, electrical systems and the like, in addition to the capabilities to assemble these parts. Suppose Robb Motors seeks to produce a new model called “Model R,” which requires radical changes in frames, engines, radiators and the electrical systems that govern such parts, from the ones previously being produced. These changes are comprehensive in the sense that a new design of the frames allows the car to carry a better, more developed engine, which subsequently requires a new radiator to cope with the developed engine, and the new electronic systems to deal with the new engine and so on. The coordination of such systematic innovation is relatively easy if all the production is possessed by Robb Motors, because the subsequent changes can be implemented in accord with the central plan to assemble Model R, which is the final product that Robb Motors sells. But what if each capability is organized in the market, instead of at Robb Motors? Even if Robb Motors manages to have a plan to assemble Model R, with a well-planned blueprint for the car, Robb Motors needs to negotiate with the companies which possess the capabilities to produce each part and persuade them to carry out the changes in their products for the production of Model R. Furthermore, since the changes required in each part are comprehensive as a whole, Robb Motor needs to make sure that the changes in each product, frame, engine, radiator, electronic systems, are compatible with one another. This process can be much more difficult, costly and slower than Robb Motors to organize everything from
the topdown. The decentralized nature of the market may pose some difficulties in organizing production, especially in two face of changes in capabilities.

The superiority in coordinating production can be understood not necessarily from the perspective of how flexible the internal structure can be, but how a particular coordination of production allows the firm to invest for innovation. William Lazonick argues that firms are fundamentally different from the market in their ability to seek innovations, and to carry out changes in the production process in a way the market cannot (Lazonick 1991, 199). Innovation often requires a significant investment in the productive resources, whose returns remain unknown ex ante the investment efforts are made—Lazonick coins the term productive uncertainty to refer to this kind of uncertainty (ibid.). Consider the case in which Robb Motors requires a significant investment in its research and development department to design a new model of automobile, Model H. Such investment efforts could be substantial, especially if Robb Motors attempts to develop a model that is largely different from the previous models. To do so, Robb Motors might need to develop all aspects of the existing car such as new engines, frames, radiators, electronic systems and so on. But there is no formula to calculate how much investment is to be made into what department, research, and so on in order to develop the car that Robb Motors wishes to produce before the investments are made: the extent to which the investments can yield returns is largely uncertain, as Robb Motors has little idea about what kind of new findings it may or may not bring during the development of the car. On the other hand, consider what happens when the capabilities to produce the parts, engines, frames, radiators, electronic systems are spread across the market instead of being organized
by Robb Motors. In this case, each firm with its respective capabilities may or may not have their research and development departments for their own products. But for the innovation to be carried out as a new car model, the investment in the development of each part has to be made in such a way that respective innovation leads to the development of Model H. The transaction-cost states that the asset-specific nature of this kind of investment makes the transactions between the parts suppliers expensive, and thus the firm becomes preferable. In this sense, what makes the transactions expensive is the uncertainty for the suppliers of being able to sell these parts to the assembler, Robb Motors—Lazonick calls this competitive uncertainty (ibid., 199). But the fact of the matter here is that the return from the investment on the development of Model H itself is uncertain, which means that the uncertainty with respect to the development of Model H cannot be reduced solely by concentrating the necessary capabilities. It is Robb Motors’s capabilities that actively confront the productive uncertainty in developing Model H, not any other supplier’s or the sum of their capabilities.

**Dynamic Interplay of Institutions**

Understanding the relationship between exogenous and endogenous institutions such as relational contracts through the lens of the dynamic theory of capabilities change, we can see the process of capabilities change as the interplay of various institutions. In sum, exogenous institutions such as markets, market-supporting institutions, legal institutions and the like, constantly shape the firm’s external environment so as to constrain the firm’s behavior. These are the rules of the game that firms play. These
institutions influence the firm’s decision about expansion and shrinking, that is, whether it is better to develop its capabilities or simply utilize the market to carry out the production the firm wishes.

The firm’s relational contracts, on the other hand, are themselves institutions. But unlike the rules of the game that the firm plays, the rules are determined in order to best achieve the objective of the firm. Upon exercising routines and subroutines, which constitute the firm’s capabilities, the employees rely on relational contracts so as to determine what tasks they ought to perform. The firm’s endogenous institutions determine the firm’s capabilities. Thus, the expansion and shrinking of the firm can be understood in terms of the interaction between the firm’s capabilities and the external environment, more specifically, between endogenous and exogenous institutions.

In detail, the expansion and the shrinking of the firm are the outcome of the interaction of innovation, the distribution of capabilities, and the level of transaction costs (Langlois and Robertson1995, 46). This is essentially the interaction between the firm’s capabilities and the external environment in which the firm operates. Firms have two choices with respect to the boundaries of their own capabilities: (1) expand their capabilities by developing their own capabilities or internalizing the capabilities existing in the external environment, or (2) use the market to utilize the capabilities in the external environment. But the dynamic theory of the boundaries of the firm implicitly assumes that the main objective of the firm, which shapes the endogenous institutions, is the maximization of profits. Thus, what the theory actually explains is how firms expand and shrink when their capabilities are manifested, in order to best
maximize their profits. This assumption is plausible, as most firms do whatever they can to maximize their profits, which means that their main objectives are indeed profit-maximization. But this assumption poses a limit on the capabilities approach to explain the actual experience of some firms, when the firm’s goal is not to maximize its profits. The focus of the next chapter is devoted to this topic, that is, how the firm’s objective is determined and how the firm’s behavior changes when the objective is something other than profit-maximization.
THE ESSENCE OF THE CAPABILITIES: INSTITUTIONS, INFORMAL CONSTRAINTS AND LEADERSHIP

The previous chapters set out the basic framework within which the firm can be analyzed. We mapped the firm’s capabilities to utilize its assets, in particular knowledge, skills and other types of human capital. Granted the role of institutions in shaping the capabilities of the firm and the external environments, however, institutions are not always clearly written or recognizable. The discussion in the previous chapter is limited in the sense that it only concerns formal institutions, the kind of institutions that are artificially created for the purpose of human governance. Simply stated, institutions include not only the formal ones, such as contracts, policies and the like, but informal ones, social orders that arise spontaneously. The informal institutions include, but are not limited to, things like norms, cultures or, in special circumstances, ideology, which have equally important roles in the formal institutions. Informal institutions also contribute to shaping the dynamic interactions
of institutions, and thus the firm’s capabilities. It is the aim of this chapter to discuss this matter.

In particular, I will argue that much of the critical information in a relational contract relies on informal institutions; the existence of durable informal institutions precedes functional relational contracts. Both cultures and organizational cultures are informal institutions and have considerable influence on the way a firm’s capabilities are actually manifested.

All these factors are centered around the question of how the objective of the firm, which we have discussed in the previous chapter, is determined. As it turns out, the leader(s) of the firm, whether the CEO, president or the board of executives, plays a crucial role in determining the objective of the firm or persuading the employees that the objective of the firm is in accord with the employees’ objectives.

**Culture and Shared-Schemata as Informal Institution**

Countless criticisms have been made of the general approach employed by neoclassical economics. We have already discussed the problem of the well-known “black-box” representation of the firm, which may misrepresent what firms actually do in the economy. Informal institutions that may influence economic performance are also not discussed, despite their non-trivial influences, though they have recently attracted increasing attention among social scientists outside the neoclassical tradition. In light of the capabilities theory, understanding informal institutions is essential because the endogenous patterns of actual human behavior within the firm are not
shaped solely by the relational contracts, but also by the influence of culture and ideology on the firm’s participants. Informal institutions like culture and norms play a significant role in determining the specific behaviors of individuals. In addition, ideologies help to shape particular types of informal institutions. This section looks closely at cultures as an important kind of informal institution.

A *culture* is not always defined clearly among scholars. Nevertheless, Paul DiMaggio usefully points out the supra-individual nature of a culture—that is, that culture involves shared representations of individuals’ beliefs, especially in the form of *schemata*, which function as representations of knowledge and information-processing mechanisms simultaneously (DiMaggio 1997). At the cognitive level, schemata consist of the systematic patterns of thought or behavior that organize categories of information and the relations among them. In the following, I claim that *a culture is the extent to which individuals’ schemata are shared among a certain group.*

At the individual level, one uses his/her schemata (1) to select relevant information from the external environment by identifying the context based on existing schemata; (2) to compute the information to assess its implications and predict the relevant future (or expected outcome); (3) to re-evaluate the previous prediction based on the actual outcome, and if necessary, update the schemata for better cognitive function in the future—that is, a learning process. Figure 1 shows the basic framework in which such interactions occur.
To illustrate how schemata work, let me compare their functions with those of computers. A typical computer consists of two essential parts—1) a processing unit, what we call a central processing unit (CPU) and 2) information storage (memory). The CPU follows a set of fixed rules for reading and editing the information provided by the memory. The schemata, on the other hand, function as these two combined, that is, the schemata function both as information stores and programs to compute the information. Furthermore, schemata update themselves and integrate new information into data that they have already received and processed. In other words, they learn from the new information simultaneously as they process the information.
The information is processed through categorization, which itself inevitably requires a certain framework. Consider how Wesleyan University consists of various categorical terms. When I think about Wesleyan University, I think of Wesleyan University as a (1) private (2) liberal arts (3) college in (4) middletown, (5) CT. Even in this simple example, the concept of Wesleyan University clearly includes several categories. But each concept also consists of subcategories. Liberal arts college, for instance, entails notions such as college, small student body, many hipster students, and so on. Thus, the concept of Wesleyan University consists of a hierarchy of various categorized concepts, shown in Figure 2. Now, consider another liberal arts college, Amherst College in Amherst, Massachusetts. My mental representation for Amherst College turns out to be similar to Wesleyan University, being described by many identical categorical terms such as private, liberal arts college and so on. The complex relationships of these various categories show the mental representation of the concepts of “Wesleyan University” and “Amherst College.” Figure 3 shows such mental representations of Wesleyan University, Amherst and, for the sake of clarity, Harvard University.

These categories and subcategories are acquired through experience and combined into the existing schemata. Various types of experiences can be considered in this acquisition process. One way is, of course, by directly perceiving the external environment through the physical senses—sight, touch, hearing, etc. But humans also use language to send signals representing various combinations of categories to others through words and sentences. Some of these signals even represent abstract ideas of categories that cannot be directly perceived through the physical senses—
thus, sharing of these abstract ideas leads to the accumulation of different models that cannot be acquired individually (Seabright 2004). In this way, individuals can share their schemata with other individuals, which implies that one’s shemata are not idiosyncratic.

Figure 2: Schematic representation of Wesleyan University

![Figure 2: Schematic representation of Wesleyan University](image)

Figure 3: Schematic representation of Wesleyan University and its relationship with other colleges

![Figure 3: Schematic representation of Wesleyan University and its relationship with other colleges](image)
With respect to this sharing mechanism, two aspects are particularly relevant: 1) \textit{communications} and 2) \textit{common experiences}. Communications include, but are not limited to, the use of various \textit{languages}, that is, symbolic and non-symbolic communications. Denzau and North explain this communication process as comprised of two steps—encoding and decoding (Denzau and North 1994). Their model of communication goes as follows: 1) Individual A conceptualizes an idea inside his/her mind through his/her schemata; 2) encodes the idea through various communication tools such as languages, gestures or other means of communication; 3) subject B receives such encoded information through physical senses; 4) decodes the information based on B’s own schemata. Once the information is decoded by B’s schemata, the decoded information in turn contributes to the construction of the updated schemata. In other words, information received through communication contributes to the updating of B’s schemata, in addition to the information directly perceived by B through the physical senses.

Consider two Wesleyan students, Ross and Biko, talking about their breakfast they ate that morning. First of all, (1) Ross recalls what his breakfast was and conceptualizes its image combing his knowledge and other categories he has accumulated before. (2) Ross then tries to describe his breakfast through various words Ross thinks Biko knows as well—such as wheat toast, fried eggs, bacon and so on. So he says, “My breakfast was huge! I had two slices of wheat toast, two fried eggs and I had some bacon too!” To describe how big the eggs were, Ross also makes a big circle with his hands. (3) Biko then hears Ross’s sentences and sees Ross’s
gestures to understand what Ross’s breakfast looked like. (4) Biko then imagines what Ross’s breakfast might have looked like based on the images and information he knows about things such as “wheat,” “toast,” “fried eggs,” combed with the image of the circle Ross was making with his hands, and “bacon.” Then, Biko understands what Ross’s breakfast was, which adds up to the knoweldge he has about “Ross,” “breakfast,” “Ross’s typical breakfast,” Ross’s appetite and so on.

A problem in this process is that certain kinds of knowledge cannot be encoded into identifiable communication tools—this kind of knowledge is called tacit knowledge. The concept of tacit knowledge, introduced by Michael Polanyi (1958), refers to the kind of knowledge that is difficult to transfer to another person in words. Unlike the kind of knowledge that can be identified in one’s mind relatively easily, explicit knowledge, tacit knowledge is difficult to articulate (Nonaka and Takeuchi 1995). The transmission of tacit knowledge requires extensive personal contact and regular interaction (Goffin and Koners 2011). And the communication channel itself can be noisy and imperfect as well. Another problem is that the decoding of the received message is based on the listener B’s schemata, not A’s, which the original codes from A are based on. In other words, A and B must share sufficiently similar schemata—that is, similar sets of organized patterns of thoughts and computational processes—for their communication to be effective. Not to mention that Biko and Ross must speak the same language, which is a necessary prerequisite for their communication, the ideas associated with the words must be identical between Ross and Biko for Biko to accurately understand Ross’s breakfast. For instance, it is possible that “fried eggs” for Biko, being from the Caribbean island of St.Croix,
means something close to what typical Wesleyan students would call an “omelet.” Many reasons can be considered for the differences in the idea of “fried eggs” between Ross and Biko. It might be because what Biko’s mother has been cooking for him as “fried eggs” were, in fact, omelets, in which case, the difference stems from Biko’s mother’s misconception. Or it could be that “fried eggs,” in St. Croix, really means what people commonly call “omelet.” In short, the idea of fried eggs for Biko comes from his past encounters with what he experienced as “fried eggs.” If this is the case, Biko’s understanding of Ross’s breakfast will be something that Ross would understand as wheat toast, a two-egg omelet, bacon and the like. Then, the ideas associated with the words: wheat toast, fried eggs, bacon and so on, must be similar to one another, for Biko to understand Ross’s breakfast adequately. And for the ideas to be similar, Biko and Ross’s past experiences these words must be sufficiently similar so as to share similar that they share schematic information about them. The more the schemata of Ross and Biko share common features, the easier the encoding and decoding of their internal ideas into a shared communication tool. With increased similarity between Ross and Biko’s schemata comes an easier ability to encode and decode each other’s communications, creating a better, more efficient tool for transferring knowledge and simultaneously improving the ability of their respective schemata to predict outcomes of their perceived environment.

The above example shows that schemata can be shared among individuals: Denzau and North call these “shared mental models (SMM),” and argue that individuals tend to rely more on SMM when the level of uncertainty about the exogenous environment is high, which makes collecting information at the individual
level difficult. The process which occurs is similar to the transaction-cost theory of the firm—that is, the incentives to rely on SMM stems from the combination of uncertainty and the bounded rationality of individual agents. When the information about the present state of the external environment is insufficient, and the uncertainty about the future is high, individual agents require tremendous investment into acquiring information about the external environment to construct schemata, through which to compute the collected information in order to estimate future outcomes. Consider an example in which this occurs at the individual level. In writing an undergraduate honors thesis, a Wesleyan student, Henry, tries to make a plan for proceeding with his research project, which requires research and writing the thesis. Lacking previous experience with working on a thesis, Henry faces enormous uncertainty in thinking about how this project should be carried through. For instance, he does not know much about the overall amount of work he will be required to do in completing the project; what kind of difficulties he is likely to face during his work process; how many hours of work are needed to complete his thesis by the due date and so on. In making an appropriate plan, Henry asks his thesis adviser, Adam, to get sufficient information about the thesis. Adam is an experienced thesis adviser with nearly 40 years of experience in advising undergraduate thesis writers, and he has already constructed his understanding of what the workload is likely to be. Such understandings include things such as “a typical student will get his/her first chapter done by Christmas, second by the end of the winter break, third by the spring break”; “if a student works a few hours every day, the thesis should be completed on time”; “a typical student is likely to face difficulties in trying to continue his/her research too
much and end up running out of time to spend enough time on writing,” and so on. This represents Adam’s schematic understanding of the “undergraduate honors thesis.” Based on these understandings, Adam tells these understandings to Henry and offers advice to him by saying things such as “I think you should try to start with your first chapter in a month, and hopefully you will have your first chapter by Christmas”; “if you have some difficulty in conceptualizing your argument, just keep on writing and think about it along the way” and so on. Henry, in turn, listens to this advice, and constructs his own schematic understanding of what his experience writing an undergraduate thesis will be like. Based on this, Henry makes his plan for completing his thesis. In this example, he seeks to get the schematic information from another individual, Adam, and internalizes it into his own schemata.

Common experience shared between individuals is essential for forming schemata that share sufficiently similar features to enable functional communication. To some extent, the schemata, as we have seen, can be shared from the physical senses, as, when two individuals have similar experiences, their schemata are likely to have similar features, which may allow them to communicate relatively easily from the get-go. In the previous example of Ross and Biko, the two could have had the same idea of “fried eggs” if Ross and Biko grew up in similar environments in which the words meant the same things to both of them, there will be no miscommunication about Ross’s breakfast. In this, the external environment (both socio-economic and geographic) two individuals have experienced must be similar to a certain degree for them to have effective communication.
But as soon as communication between the two begins, the patterns of concepts embodied in their schemata become more similar through the dialectical process of modifying each others’ schemata during communication. As a consequence, the schemata of the two individuals become more similar due to their increasingly similar schemata, compared to a pair of individuals who have never interacted. Realizing what he originally thought or as a “fried egg” was called an “omelet” by most Americans, thanks to Ross, Biko has a new understanding of fried eggs. But there can be other things about which Ross and Biko do not have the same understanding of, and as a result, either Biko or Ross, or even both may or may not update their schemata that are relevant to the things they are discussing. The more often the two communicate, the higher the probability that they will realize these differences, thus there is a higher probability of their updating their schemata. In this way, the interaction of common experiences and repeated communications between individuals allow them to share their schemata.

Sharing of schemata occurs at the group level as well. When interactions occur repeatedly within a certain group, the members of the group increasingly share their schemata—due to repeated communications and common experiences. Consider a group consisting of Ross and Biko, and two more Wesleyan students, David and Mike. As we have already seen, the repeated interactions between Ross and Biko allow them to share their schemata. The same process can indeed occur between David and Mike too, as their interactions recur among them, and thus they also come to share their schemata. Since it is one group in which all four individuals are interacting with one another, all of them have opportunities to share their schemata.
with the rest of the members of the group. The more complex nature of such interactions is characterized in Figure 4 (each arrow represents the sharing of schemata).

**Figure 4**

There are, however, many types of schemata that contain different kinds of schematic information—knowledge, opinions, values, truth, criteria and so on, which, in some cases, construct *norms* and *ideologies*. When the shared schemata have some implications for the rules individuals should follow, then, the resulting shared belief is called a *norm* (Basu 2000). Kushik Basu introduces two types of social norms that influence the individual choices in economic activities—(1) rationality-limiting norms, and (2) preference-changing norms (ibid., p72-73). Rationality-limiting norms are norms that work against doing certain things or choosing certain options, irrespective of how much utility such options provide us. For instance, most students at Wesleyan
University do not choose the option of cheating on exams, despite the fact that, in most cases, professors are not present in classrooms when exams are held. This action is, in large part, explained neither by speculating on the potential punishment in case of accusation, nor by comparing the expected non-utility posed by such a situation and the expected utility of cheating. If a decision can be made in a norm-free environment in a purely utilitarian manner, the likely choice would be to cheat, due to the lack of strict supervision. To borrow a term from game theory, one could say that the unique Nash equilibrium, defined by the decision set from which no one has an incentive to deviate, is for all the students to cheat—the famously known Prisoners’ dilemma situation. Most students, however, do not cheat, despite the fact that some may. This is because cheating on exams for most students is something that is simply not done for most of them. In this case, “do not cheat on exams” functions as a rationality-limiting norm that eliminates cheating from a choice set of most students.

For some, however, cheating may have a much larger meaning, that is, some honest students might feel a strong discomfort about conducting such activities, so that they would not do it anyways, regardless of how much utility they can gain by scoring high on the exam. This becomes an example of a preference-changing norm, a norm that has been internalized by the students who are affected by the norms in such a way that they contribute to the construction of their preferences themselves. These two types of norms affect the subjective perceptions of individuals and their resulting preferences.

The culture of the group is constructed through the interface of the various types of schemata. Thus I define a culture as a form of interface of shared or group-
schemata, which include beliefs about knowledge, opinions, values, truth, criteria, social norms and the like. Markus and Kitayama, for instance, argue that many Asian cultures have distinct conceptions of individuality that insist on the fundamental relatedness of individuals, with an emphasis on attending to others, fitting in, and harmonious interdependence with them (Markus and Kitayama 1991). American culture, on the other hand, neither assumes nor values such an overt connectedness among individuals, and instead, individuals seek to maintain their independence from others by attending to the self and by discovering and expressing their unique inner attributes. This difference in the assumptions on the nature of relationships in these two cultures is, by definition, cultural, which means that the attitude toward social relationships is a reflection of the group-schemata within the cultures. In this way, cultures play a significant role in preparing the ground for understanding knowledge, contexts, languages, or other information that are embedded in the culture. They provide a shared understanding of matters or information that cannot be transmitted through overt short-term communications within the members of the group who are exposed to the culture.

**Exogenous Informal Institutions and Capabilities**

In the previous chapter, I presented a theory that explains the firm’s expansion and shrinking in terms of the interactions of endogenous and exogenous institutions. In the framework presented by the theory, two points are particularly relevant in explaining the firm’s behavior: (1) exogenous institutions influence the available choices of the firm to achieve their objectives; (2) endogenous institutions also
include the rules of the game within the firm, but those rules are set in such a way as to best achieve the objective—or strictly speaking, to have the capabilities to achieve the objective. But as I have already implied, the orthodox capabilities theory of the firm implicitly assumes that the firm’s objective is profit-maximization, without explaining how that is the case. To fill this gap, we need to consider how the objective is determined. Put another way, we need to understand under what circumstances the firm’s objective is not to maximize its profit. This section argues that the objective of the firm is strongly influenced by the exogenous informal institutions of the firm. Since the firm’s objective influences the way in which the firm’s endogenous institutions (relational contracts) are manifested, the corollary of this argument is that the exogenous informal institutions influence the endogenous institutions of the firm, and thus its capabilities.

i. **Exogenous Informal Institutions and Individual Objectives**

The fundamental assumption in the field of economics with respect to human motivation is utility-maximization, or more specifically, expected-utility maximization. The development of this basic behavioral assumption in the neoclassical framework lies in so-called *rational choice theory*, the theory that considers that one is taken to be *rational* if the person chooses the action that best achieves their objective, given the available information. To give a brief lecture from an introductory economics class, the objective is described through the notion of utility (broadly speaking), the ability to satisfy needs or wants, thus represents satisfaction experienced by the consumer of a good. Depending on the relative
intensity of the utility provided by various goods, a consumer constructs his/her own preferences for the available goods. In this sense, the objective of an individual is to maximize his/her own utility, which is based on his/her preferences.

Informal institutions have an enormous influence on the preferences one constructs. I have already argued that exogenous informal institutions like cultures consist of beliefs about knowledge, opinions, values, truth, criteria, norms and so on. One such mechanism is, of course, that preference-changing norms, as I have already introduced, alter individuals’ preferences, as well as rationality-limiting norms prevent individuals’ to strictly maximize their profits. The information a culture can provide also plays a considerable role in one’s ability to shape and assess preferences. Paola Giuliano (2007), for instance, argues that the living arrangements of second-generation immigrants in the US are affected not only by their economic conditions, but also by their cultural heritages. Furthermore, Fernández and Fogli (2009) also show that culture, even after controlling for education and spousal characteristics, has significant explanatory power in predicting the work and fertility choices of second-generation American women. With respect to the role of values in influencing preferences, one of the earliest attempts to understand this problem was famously made by Max Weber (1905) in *The Protestant Ethic and the Spirit of Capitalism*. In his early attempt to understand the interaction between religious ideas of moral and economics, Weber argues that the Protestant ethic influenced a large numbers of people to engage in work in the secular world, developing their own enterprises and engaging in trade and the accumulation of wealth for investment. In recent studies, a large body of literature about cultural economics addresses the question of how
cultural values influence individual preferences. The study by Guiso, Sapienza and Zingales (2006) suggests that there is a strong link between religious values and preferences for thriftiness. Their empirical studies show that Catholics are 3.8%, Protestants 2.7%, Buddhist 7.2%, Hindus 7.2%, Jews 6.4%, more likely than non-religious people to view teaching thrift to their children as an important value, while the likelihood is the same between Muslims and non-religious people. All these studies strongly suggest that cultures indeed influence the preferences of individual agents, and therefore their objectives.

ii. Individual Objectives and Firm’s Objective

Having acknowledged that informal institutions influence individuals’ objectives, these individuals’ objectives also influence the firm’s objectives as a whole. In thinking about how the firm’s objective is determined, we need to first consider how the firm comes into existence, as that is when the original objective is determined. So far, we have seen that the firm comes into existence in order to acquire the capabilities to do things that the individual members or a fraction of the firm alone cannot do in the market. What the dynamic theory of the capabilities really concerns, therefore, is this: Assuming that individuals have objectives to achieve, in what circumstances is it better for individuals to rely on a firm’s capabilities rather than simply utilizing the market? This suggests that the collective objective of the firm stems from the objectives of the individuals who, in turn, agree to join the firm’s activities.
Richard Adelstein (2012) explains the political aspect of the formation of the firm, in which entrepreneurship plays an important role in the process by which people come to submit to a collective entity so as to form a collective objective for a firm. The process begins with the moment of discovery by the entrepreneur, where he/she realizes the potential in how things that are being done now could be done differently in a way previously unknown (Kirzner, 1997; Adelstein, 2012, p. 30). But for the ideas to be put into effect, entrepreneurs must perform the next step in the process—a process of persuasion. For the firm to be established, entrepreneurs must persuade individual agents to become part of the firm and to execute a specific task, to carry out the routines that produce the capabilities that the entrepreneur(s) envision(s) (ibid.). From the individual agent’s perspective, this involves the realization that their objectives can be best achieved through participation to the firm. This is exactly the idea that the entrepreneur must convince them to agree on. Once the entrepreneur succeeds in persuading individual agents to give up some degree of freedom in their economic activities and join the firm, the relational contract between the entrepreneur and the individual agent, who is now an employee of the firm, will be put into effect. The individual objectives, in this sense, must be converted into the collective objective of the firm, through which the individual employees can realize their objectives. In other words, the firm is a human device that aims to best achieve the objectives of the members; the collective nature of the firm—one of its capabilities—allows the members to achieve what they cannot otherwise, and thus forming a firm.

This process requires some degree of correspondence between the objectives of the individuals and the firm. In a typical firm, whose objective is to maximize
profits, the objectives of the employees are to maximize their profits, that is, their wages or salaries. To earn as large a profit as he/she can, each worker works, that is, performs their routines and subroutines so as to carry out the capabilities of the firm that are best suited to achieving the firm’s objective—which is to maximize profits. A increase in the profits of the firm translates to an increase in the individual’s wage or salary, because per person share of the overall profits increases, although in reality there are issues with the distribution of the profits within the firm. But profit-maximization is not the only reason the firm is created. Consider five Judokas (people who practice Judo), Jake, Chris, Max, John and Jim, whose objectives are to be recognized for their Judo skills. They have a choice of competing individually to seek recognition, but there is a problem in doing this—that is, they are equally very strong and skilled Judokas, and furthermore, all in the same under 90 kg division. Assuming that they must get a gold medal to achieve the recognition they want, they must take the risk of being defeated by one of the four other Judokas to become a champion. Jake, terrified of the risk of being defeated by the other three, realizes that there is an option where this risk is avoided: He realizes that the five Judokas can compete as a team in the group division. This is a genius idea—if all five are equally good enough to become a champion, the team of five must be invincible to the other competing teams. Being convinced by Jake’s idea, the other four indeed agree to join a team.

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3 Employment relationships are, by nature, quasi-public matters, which means that one faces some deree of costs to exist once one enters into the relationship. This poses the possibility for opportunism by the employer, in inadequately distributing the profits to his/her workers, because for the employee to reasonably exist, the employment would require either (1) the cost of exiting is sufficiently small, (2) the gain by continuing to work—that is the expected wage or salary at the current workplace is sufficiently small, or (3) both of these cases.
together—to win the competition to become the champion and receive the recognition they want. In this example, the objective of the firm is to become a champion in the Judo competition, which stems from the members’ individual objectives to become champions and receive adequate personal recognition through their recognition as a team. This example illustrates that, just as is the case for the profit-maximizing firm, individuals’ objectives shape the firm’s objective.

iii. Firm’s Objective and Capabilities

As we have discussed in Chapter 3, the firm’s endogenous institutions are determined in order to best achieve the firm’s objective. So, when the objective of the firm is to maximize profits, the firm will choose the capabilities that best suit it to make the most profits depending on the conditions of the already-existing capabilities and the external environment. Nevertheless, this mechanism is not exclusive to profit-maximizing firms. For instance, if the firm’s objective is to become a champion in a Judo competition, as is the case for Jake, Chris, Max, John and Jim, the team’s relational contracts will be determined in such a way so as to maximize their capabilities to win the competition. Jake is tall and relatively skinny for his height, and his playing style is stronger against short, light Judokas, who tend to move fast. Chris, on the other hand, is a short Judoka, who is better against taller guys but relatively weak against light Judokas, who can move very fast. Max is very good at leg throws, which tend to be very effective against heavy opponents, who cannot move so fast. John and Jim are all-rounded Judokas, they are neither tall nor short, and can move relatively fast—but because of this, they can compete against any type
of Judokas equally well, but are not particularly better against any type. Because all five are extremely good Judokas, they successfully proceeded to the final match, and where they face the rival team, which is equally as skilled or possibly even stronger.

The opposing team consists of the following five—Julian, Dan, Winston, Gil and Paul, all excellent Judokas. Julian is also the champion in the individual under 66 kg division. He is very fast and accurate. Dan is also a champion but in the heavier division of over 100 kg, so he is very powerful but slow. Winston is a tall Judoka, who is very good at throwing his opponent with uchimata, where he raises his leg to throw the opponent—this throw tends to be very effective against short opponents.

Both Gil and Paul are all-round competitors like John and Jim. Gil, in particular, is an internationally recognized Judoka in the under 80 kg division—he is clearly the best competitor whom almost no one can beat. Jake seeks to organize the team in such a way that they have the best probability of winning. If Jake knows the order of Julian’s team—Julian, Dan, Winston, Gil and Paul, he is likely to organize the team in the following way—Jake should go first to compete against Julian, because Jake is good against light players, who move fast; Max should go against Dan, because Max’s leg throws will be suitable to beat Dan, who is heavy and moves slowly; and Chris should fight against Winston, because he tends to be good at going against tall opponents.

The problem is how to deal with Gil—for Jake’s team to win, they must win at least three matches out of a total of five, and since Gil is very strong, it is clear that they will lose at least one. To secure the victory, Jake decides that Jim should go against Gil, not to win but to try to tie against him. Since making a tie is easier than winning, the team is more likely to not lose the match against Gil. In this way, the team has the
highest probability to win against Jake’s team. In this example, the order of the team is determined according to the organization of the rival team *vis-à-vis* the available resources of Jake’s team. This illustration shows that team’s desire to win forces the team to be organized in such a way that maximizes their chance of realizing its objectives.

To sum up, exogenous informal institutions affect firms’ relational contracts and thus capabilities. Exogenous informal institutions, such as culture and norms, influence the objectives of individual agents and motivate them to submit themselves to firms to best achieve their objectives when the firm is preferred. For this to happen, the objectives of the individuals must be sufficiently similar to the firm’s objectives. But the firm’s objectives are what determines the firm’s endogenous institutions, which in turn depend on the external environment the firm faces. Exogenous institutions, therefore, influence firms’ endogenous institutions. The mechanism by which this occurs is summarized in Figure 5.

**Figure 5**
Leadership and Endogenous Informal Institutional Change

As we have already discussed, an individual or individuals (a CEO or a board, president and the like), or what I call the firm’s leader(s), makes the decisions about the endogenous institutions that coordinate the capabilities, including but not limited to the expansion or contraction of the firm (rather than each member of the firm giving input). I discussed this a political aspect of the firm’s decision-making. Apart from the firm’s overall decisions, which Langlois calls the entrepreneur’s ultimate judgment (R. N. Langlois 2007: 1117), leaders must persuade people to join the firm and coordinate them to execute a specific task in order to carry out the routines that produce the capabilities that the leader envisions (Adelstein, 2012, p. 30). As we have already seen, this process requires the people’s objectives to be sufficiently similar to the firm’s objective.

Yet, not every member can be aware of what kind of capabilities the firm should possess, or how each routine and subroutine should be coordinated to carry out the desired capabilities. The employees’ primary concern is how to best achieve their own objectives through participating in the firm’s operation, and not necessarily how to achieve the firm’s objective itself. In a profit-maximizing firm, for instance, what kind of capabilities the firm possesses is another matter for the employees. This is because each employee’s objective is to maximize their personal wealth, where the available choices are either to use the market as a free agent or earn a set wage from the firm. While the employees are concerned about the firm’s performance to the
extent that their wages are impacted, they are not concerned about the profit that the firm makes as a whole. Employees are typically not informed about how much profit the firm can make from their labor, and what kind of tasks are required to form of the necessary capabilities for the firm—though there are certainly some exceptions (which would itself be part of that particular firm’s capabilities). The political aspect of the capabilities creation involves the leader’s role in persuading and coordinating employees. Thus, the leader of the firm has some degree of steering capacity in how to achieve the objective.

This is not a problem in a firm whose relational contracts sufficiently motivate its members, because relational contracts inform each employee how the firm’s objective is related to their own individual objectives and how they should behave in order to achieve the firm’s objective. In this case, the central issue with respect to the coordination of the firm is the issue of how much employees can be paid, and how hard they must work in a given work environment. In other words, how attractive the employment relationship is to the employee compared to using the market as a free agent. As the employment relationship becomes less attractive, the need for the leader to directly convince the employees becomes increasingly larger in order to maintain the firm’s coordinated operations.

But exogenous informal institutions can change over time. Various kinds of external shocks can bring a change to the exogenous informal institutions. An ideology, for instance, is a strong force that can transform exogenous informal institutions radically. Ideologies are group-schemata about the identity and the interests of the group (Van Dijk 1998). If a ideology comes to exist, the objectives of
the employees quickly change, and thus it is no longer clear whether the employment *per se* can sufficiently motivate the employee to perform adequate tasks. But, the capabilities of the firm cannot change as quickly as changes can occur in the exogenous environment, and thus, there will be a crisis in the coherence of the informal institutions of the firm and the capabilities that are desirable for the given exogenous change—which means that the dynamic transaction costs become higher. Then the coordination of the members of the firm becomes threatened.

The leader in this situation faces a difficulty in deciding on an objective for the firm that can adequately persuade the employees to continue to work for the firm. This is not an easy task for the leader, who must bear a tremendous burden in coordinating the organization in a top-down manner. This is done by what Ulrich Witt calls *cognitive leadership* (Witt 1998; 2007; R. N. Langlois 2007). The leader’s cognitive leadership becomes increasingly more crucial if the objectives of the employees change and become incompatible with the objective of the firm. In a crisis of incompatibility, the leader can persuade the employees in approximately two different ways or a combination—(1) change the objective of the firm to one that adequately motivates the employees and (2) manipulate the firm’s endogenous informal institutions so as to influence the employees’ interpretation of the relational contracts.

The former includes decisions about business strategies and the capabilities that corresponding to them. For instance, when a firm and its employees’ objectives are to maximize profits, the leader must convince workers that a particular business decision that develops a particular kind of capability will generate more profit to the firm so as
to distribute more wages to the employees, although whether the profit is adequately distributed is another issue (see the earlier footnote). In this way, the entrepreneur can maintain the firm in coherent order by preventing the relational contracts from failing. The leader’s decisions with respect to the kind of capabilities the firm seeks is crucial in motivating employees.

The leader can also provide an alternative understanding of how the relational contracts should be interpreted so that members of the firm are sufficiently motivated, no matter how “irrational” it may seem to an outsider. This process of persuasion includes creating and influencing the employees’ objectives through manipulation of the endogenous informal institutions such as organizational culture and norms. This is possible because there is space for the existing relational contracts to be interpreted. The next section concerns this matter.

**Endogenous Informal Institutions and Relational Contracts**

The implicit knowledge and expectations embedded in cultures influence the operation of relational contracts, and thus the capabilities of the firm. To recall, the core argument of the capability theory lies in the following points: 1) the firm can be analyzed through its capabilities to utilize its resources, such as knowledge, skills and various other types of human capital; 2) operations rely much on the organizational memory, in which information is stored in the combinations of routines and subroutines that the employees perform; 3) these routines and subroutines are determined by their roles in relation to other operations, which are specified by the relational contract existing as the firm—so the firm is the manifestation of relational
contracts. Rather than being discrete contracts that govern transactions, as in neoclassical contracts, relational contracts concern the relationships between contractors by creating the context for individual transactions to occur and affect the terms of future negotiations. In this respect, relational contracts consist of an agreement between multiple parties to commit themselves to a collective entity. This manifests itself as the firm and a collective entity of committed individuals. I argued in the previous chapter that relational contracts are the rules of the game within the firm, that employees follow so as to perform adequate routines and subroutines in order to carry out the capabilities of the firm—and thus I called the relational contract as the *endogenous institutions* of the firm. In this sense, the “backbone” of the firm is the relational contract that governs the relationships between the members of the firm, and the firm as a “behaving” entity is the expression of the relational contract that is being performed. In the last chapter, we called this theory the *contracts-in-performance* theory of the firm (Adelstein, 2012).

The relational contract by nature leaves some ambiguity in the contractual agreement, whose contents cannot be specified clearly in detail. This leads to the distinction between *real relational contract* and *ostensible relational contract*, the former simply defining rules and relationships explicitly, while the latter includes the unwritten rules and implicit norms that are largely tacit and context-specific. Imagine Café Europa, a coffee shop in Middletown, CT. When you enter into café, you will first encounter two employees, Stefanie, a cashier, and Janette, a barista. Being a cashier, Stefanie’s job is to receive orders and then pass them on to Janette. Janette, in turn, prepares the orders and serve them to the customers who have ordered the coffee.
These are all defined by the relational contract between Stefanie and Janette and form the capabilities to serve coffee. This simple relational contract includes many implicit rules and assumptions. For instance, seeking efficiency, the two may develop their unique ways to communicate to one another about the orders. Instead of directly telling Janette verbally about the orders, which sometimes makes Janette confused about the orders when the café is the busiest, Stefanie might develop her strategy to write the initials of the order, such as chai tea as CT, cappuccino as CP, latte as L, on the cup and pass it to Janette. In this way, Stefanie does not have to scream the orders at Janette and Janette does not have to remember the orders. The overall performance of the café may improve. While this communication strategy is indeed part of their jobs, Stefanie writing the initials of the order on the cup and passing it to Janette and Janette interpreting the initials and preparing the order accordingly, these are not specified in the simple formal job descriptions and the relationship between Stefanie and Janette at the workplace—thus the ostensible relational contract. The real relationships between Stefanie and Janette in carrying out their capabilities require much more details, informal understanding of the relationship that cannot be specified by the ostensible relational contract.

This means that two relational contracts with seemingly similar appearances can pose features that are quite different from one another in practice, depending on the characteristics of the unwritten part of the contract. After all, almost all coffee shops have cashiers and baristas, whose relational contracts are indeed identical to the ones between Stefanie and Janette—that is, receiving and preparing orders. But not all the pairs of cashier and barista may adopt this communication strategy. Implicit parts of
the relational contract, in this sense, play a significant role in deciding the nature of the real relational contract.

That the participants understand the implicit part of the relational contract, accurately, is essential for the contract to be functional. Individuals, after all, rely on their own schemata to interpret what the relationship might mean and what sort of tasks it entails. But because the individual schemata are purely subjective, different people can have different interpretations of what the relationship requires of them. Ostensible relational contracts alone, in this sense, cannot allow the functional capabilities of a firm to form, because not all the information that is required to enable participants to perform in the relational contract can be embedded in the ostensible relational contract itself. The ostensible relational contract must be supplemented by the unwritten rules and norms. A culture, containing a set of implicit norms, knowledge and the like, allows the unwritten part of the real relational contract to be understood. The capabilities of the firm cannot be fully understood unless one considers the cultures in which the firm is operating and the organizational culture the firm possesses. Simply stated, *cultures play an enormous role in the manifestation of the real relational contract, and thus the capabilities.*

To illustrate this, consider two firms, Robb Motors and Berger Motor Company. Both companies are in the same automobile industry, with the same way of organizing relationships of their members—say, hierarchical organization. In this case, the ostensible part of the relational contract of the two companies must be nearly identical, with their members having apparently similar relationships with one another. Despite their similar appearances, however, the real relational contracts can
differ substantially. Consider the case of the cultures that are organizational-specific—called *organizational cultures* (Gibson & Hodgetts, 1991). Robb Motors has a culture that embraces the employees’ subjection to the other members in the higher positions, that is, the people in the subordinate positions must obey the orders from their managers without an objection—Charles. B. Handy calls this type of culture, the “role culture” (Handy 1976). In this culture, the role, or the job description, dictates the individual’s performance, and thus, individuals are not required to perform in accordance with the role prescription and anything beyond that can be even disruptive. Berger Motor Company, on the other hand, may possess a culture that embraces a discourse among the members of the company so that people in the lower positions of the hierarchy can freely speak up to the people in the higher positions as if their opinions are equally important to the company’s managerial decision—Handy calls this “task culture.” Thus, influence within the firm’s operation is based more on expertise than on position like Robb Motors. Accordingly, individuals in Berger Motor Company have a high degree of control over their work accompanied by the relatively equal relationships with other members of the firm (even the ones in the higher positions). All of these differences are not specified in the ostensible relational contract because all these assumptions with respect to how the contractors should *perceive* the relationship are often not written.

What if Robb Motors and Berger Motor Company merge? On the surface, such a merger is not so difficult because these two firms are after all in the same industry—thus, technologically speaking, their operation must be similar to a greater or lesser degree. Moreover, the members are organized in the same hierarchical way,
making the organizational structure identical in appearance. Such a merger, however, is likely to pose tremendous difficulties for the newly merged firm, due to the different cultures of the original firms—the role culture and the task culture. In Berger Motor Company, Lief, a former-member of Robb Motors, who is trained to execute no more than the tasks described in the contract, may get lost easily in executing his tasks because the job descriptions in Berger Motor Company are not as clearly specified as the ones in Robb Motors; by seeing him only executing the minimum tasks described in the contract, the members of Berger Motor Company may feel that Lief is not working hard. This causes some inefficiency because Lief’s performance is not fully exploited, not to mention the fact that the deprivation by the members of Berger Motor Company may itself lead to a low level of motivation among the employees. What is happening in this example is a misunderstanding of the real relational contract perceived by the members of Robb Motors and Berger Motor Company. With their contrasting expectations regarding the unwritten part of the contract, despite the same ostensible contract, the real relational contract fails between the members of Robb Motors and Berger Motor Company. In the case of a merger, this kind of misunderstanding can occur everywhere within the firm, threatening the capabilities of the new firm to fail completely—thus, without appropriate intervention, the merger is likely to experience a tremendous hardship, or potentially a failure.

This illustration shows that informal institutions, and in particular, organizational cultures, as well as the cultures in the external environment, play a significant role in shaping the real relational contract of the firm. In other words, a firm’s capabilities
cannot be fully understood until one considers the organizational culture and the culture in the larger exogenous environment in which the firm is operating. Since as we have seen, exogenous informal institutions such as cultures influence individuals’ objectives, the leader must manipulate the endogenous informal institutions to correspond to the exogenous informal institutions. The role of the leader with respect to his cognitive leadership is therefore crucial in understanding the firm’s behavior in the face of uncertainty, or specifically, the threat of failure of the relational contract. Richard Langlois calls this aspect of cognitive leadership as charismatic authority (R. N. Langlois 1998a, 2007). Langlois explains:

We normally think of charismatic authority—whether in the form of a military commander, cult leader, or visionary entrepreneur—as ‘irrational’. … But that does not make it irrational in the modern economist’s sense (that is, inefficient). …[C]harismatic authority is rational in the sense that it solves a problem of coordination. In a world without rules, charismatic authority provides a structure to which entrepreneurial collaborators can orient themselves. …[S]uch authority serves to keep everyone on the same page. …Charismatic authority is a way of reducing dynamic transaction costs by packaging a bundle of complex knowledge and information in a form that others can cheaply absorb. (R. N. Langlois 2007: 1121)

As Langlois implies in this explanation, the leader can utilize various means to exercise charismatic authority. Recall that a ideology, a group-schema about the identity and the group’s interest, has the ability to transform existing informal institutions radically. Thus, the ideology influences the employee’s schemata so as to collect and interpret the information in the external environment in a specific way. Through the use of ideologies or other ways to manipulate group-schemata, the leader can provide new interpretations to alter the existing endogenous informal institutions into ones that can motivate the employees. In this sense, speech, corporate philosophy
and the like, despite the fact that economists tend to disregard these factors, can perform as a means to achieve charismatic authority, and thus to generate the informal institutions that can motivate employees to perform the firm’s capabilities that the leader envisions.

As we will see in the next chapter, this is exactly what Yamaha experienced in the much-confused post-war Japanese socio-economic environment. While the unique structure of the Japanese economy has a significant impact on the endogenous culture of Yamaha, the unusual socio-political climate in WWII and the subsequent defeat of the nation clearly had a considerable influence on the culture, which posed for Yamaha a crisis of capabilities, rather than a change. President Kawakami successfully dealt with the crisis with his cognitive leadership and charismatic authority, and directed the firm in unprecedented directions.
The last three chapters constructed a theoretical framework through which the firm can be analyzed. The firm’s expansion and shrinking can be understood in terms of the firm’s capabilities vis-à-vis the capabilities available in the market. Dynamic transaction costs are the costs of organizing production via the market (or the capabilities of other firms) in comparison with relying more on the firm’s own capabilities. Richard Langlois calls these “the costs of not having the capabilities you need when you need them” (Langlois and Robertson 1995: 35). When the dynamic transaction costs are high, firms attempt to expand their boundaries. But learning new capabilities itself is a costly process, and thus, if such costs are too high, then firms might face institutional inertia to hold on to the existing capabilities. Exogenous and endogenous institutions, the former being markets, legal structures, external
capabilities and the like and the latter the firm’s relational contracts, interplay with each other.

The third chapter poses a question in this framework, arguing that institutions include not only formal ones but also informal. Formal institutions refers to the the rules that are political and judicial alike, which, in general, pose a visible presence, although the degree to which they are apparent largely differs (North 1990: 47). Informal institutions, on the other hand, are not as visible as formal institutions; they are mostly not clearly written and normative, and often spontaneously arise out of social interactions (Ibid.: 36). The example of informal institutions, therefore, includes cultures, social norms or ideologies as a special case. The second chapter argues that informal institutions, as well as formal institutions, play a significant role in the formation and persistence of the firm’s capabilities; in fact, the functioning of formal institutions necessitates durable informal institutions. Especially, the chapter focuses on the role of cultures, as exogenous informal institutions, and organizational cultures, as endogenous informal institutions. To sum up, exogenous informal institutions, such as cultures and norms, influence the objectives of members of the firm, and thus, the change in the firm’s exogenous informal institution may or may not make the firm a less attractive option for them to utilize.

In light of the discussion about the interplay between formal and informal institutions, the second chapter claims further: When the objective of the firm becomes questionable to the employees, leaders, may or may not be able to exercise cognitive leadership. Cognitive leadership refers to the leader’s making business decisions to develop particular capabilities so as to motivate the employees, which
also includes the top-down reformation of the endogenous informal institutions such as through the implementation of corporate philosophy, and so on. Cognitive leadership thus seeks to generate an artificial informal institutional framework which employees can use to interpret the existing relational contracts. In short, the cognitive leadership facilitates a radical reinterpretation of the relational contract existing in the firm in the way the informal and formal parts of the contract become compatible with one another—to maintain the real relational contract. In this way, the entrepreneur can play an important role in “steering” the firm, especially if the firm’s objective and the employees’ objectives become incompatible.

The theory, thus, can be seen as a dynamic interplay between exogenous and endogenous institutions, each of them consisting of formal and informal parts. The endogenous institutions are constantly shaped by exogenous institutions, and formal institutions must correspond to informal institutions. Some aspects of the firm’s decision to expand, shrink or develop a particular type of capabilities can be understood as a response to change(s) in one or the other of these institutional frameworks. In other words, the changes in the exogenous institutions necessitate changes in the firm’s capabilities, which consist of formal and informal institutions.

A careful investigation reveals that the Yamaha Corporation and Yamaha Motor Company are unique products of the combination of Japan’s modernization after the Meiji Restoration, The changes in the formal and informal institutions in the Japanese economy and society during WWII and its legacy in the post-WWII period cultivated Yamaha’s endogenous institutional dynamics over time.
The Yamaha Puzzle: Mysterious Diversion of Capabilities

The symbol of the Yamaha Motor Company (YMC), one of the world’s leading motorized vehicle-producers, is comprised of three crossed tuning forks. Seen from one perspective, it symbolizes a wheel of the motorcycles they proudly produce. But it is not a wheel at all: It is the symbol of Japan’s leading musical instrument manufacturer—the Yamaha Corporation—representing their pride as the manufacturer of a “well tuned” instrument—one of the world’s highest quality musical instruments. And it is no coincidence that these two companies—the YMC and Yamaha Corporation—share the symbol and the name—Yamaha. After all, the YMC originated in the Yamaha Corporation, and evolved over the course of a 120-year history. The Yamaha Corporation today manufactures some of the world’s highest quality musical instruments, concert pianos being the most famous of these. The YMC, on the other hand, produces some of the world’s most recognized motorcycles, engines and boats. This fact raises an interesting question from an economist’s perspective: How did these two Yamahas, originally a single company, come to be the experts in two such divergent fields? The question is intriguing, because if this was a voluntary choice by the Yamaha Corporation, no reasonable explanation seems to exist under the orthodox firm theory. The orthodox firm theory assumes that “firms maximize profits,” or “firms minimize production costs,” which can hardly be applied to the case of Yamaha, as it would seem too costly for a musical instrument manufacturer to go into the motorcycle business: the tremendous degree of difference between the two fields—the music industry and the automotive
industry—must entail enormous transaction costs for a company in one field to enter into another, and continue its operations.

Even in the framework of the capabilities theory, the origins of these two companies are still puzzling, as the capabilities required for the two industries differ radically, at least at first glance. The dynamic transaction costs for developing the capabilities must be extremely high. What is more striking is that the motorcycle market was one of the most rapidly expanding in the fast-growing Japanese economy, accounting for 140 makers in 1953, and about 200 makers in the following year of 1954 (Yamaha Motor 50th Anniversary Project 2005: 61). The orthodox capabilities theory states that the existence of a number of well-developed external capabilities means the dynamic transaction costs of acquiring the capabilities via the market are low, thus Yamaha has little incentive to develop its capabilities. Even if technologically feasible, Yamaha’s rational choice should be to utilize these external capabilities by internalizing them, by purchasing other firms or using its technology to supply already existing companies. Even the capabilities theory cannot fully explain Yamaha’s decision to produce motorcycles, which seems irrational from its perspective.

This is because the orthodox capabilities theory presupposes that the firm would do anything to maximize profits For Yamaha to be a profit-maximizing firm, however, the objectives of its members, in general, must also be profit-minded. But the informal institutions, as well as formal institutions, in Japan were rapidly changing during the time during when Yamaha made the decision to go into the motorcycle industry, thus it is not so clear that Yamaha was a profit-maximizing firm at the time.
of the separation. We must investigate these institutional changes over the course of Yamaha’s history.

The major changes in the institutional frameworks surrounding Yamaha occurred in three periods of modern Japanese history—1) foundational period, 2) war period and 3) post-WWII period. These periods were divided, not due to the historical events themselves, but to changes in the endogenous and exogenous institutions of Yamaha. These periods are continuous, and institutions evolve over time. The periods are, however, critical times at which Yamaha has experienced radical changes in its institutional dynamics. The seemingly mysterious, yet overwhelmingly successful diversion of the company is the outcome of the interplay of various institutions and changes.

**Japan and Yamaha: Institutional Changes**

1) **Foundational Period: 1887-1920s**

The original Nippon Gakki, Ltd., which was the predecessor of the Yamaha Corporation rapidly developed its capabilities upon its foundation. The founder, Torakusu Yamaha (1851-1916), played a classic entrepreneurial role in founding the firm, making most of the decisions by himself, from the *discovery* of new business opportunities based on his personal capabilities, to the implementation of his business visions through the persuasion of new employees who would help him create the company’s original capabilities. Yamaha rapidly developed its original capabilities and became Japan’s leading musical instrument manufacturer.
The foundational root of the Yamaha Corporation is the founder Torakusu Yamaha himself, who originally was a medical instrument technician. His moment of discovery happened in July 1887, when he encountered a broken organ, one of the few organs in Japan at the time, at Hamanatsu Jinjou Elementary School (now the Motoshiro Elementary School). As it was still in the early phase of Japan’s modernization, virtually no organs were manufactured in the country back then. The organ cost around 45 yen, which was more than ten times the average monthly salary of even a government official (2-3 yen). Although he originally visited the city of Hamamatsu for the purpose of repairing some of the medical equipment at Hamamatsu Hospital, he contributed to the repair of many other cutting-edge technological instruments of the day, such as clocks and watches, toys, and so on—and the organ was just one, though one of the most precious, of them.

Torakusu Yamaha (1851-1916)

Torakusu’s experience with this “sound-producing box” from the distant West led him to study organs and eventually to build one with his own hands. Financially
supported by Toyosaku Fukushima, the Director of Hamamatsu Hospital, where he was originally working, Torakusu started the project in a one-room workshop with Kisaburo Kawai, a decorative metalwork designer. Soon after their project began, they faced the first obstacle. Lacking even basic knowledge of music and musical instruments, their first organ turned out to be worse than just out-of-tune – rather, it was simply wrong, and failed to meet the basic requirements of proper tuning. The Ongaku-torishirabe-sho (present part of the Music Department at Tokyo National University of Fine Arts and Music) noted that “[t]he tuning is incorrect, the organ is useless” (ibid.: 2005). Lacking the capabilities to produce proper organs, its foundation required the development of adequate capabilities from scratch. Eventually, through struggle and effort, including Torakusu’s studying music theory as a special auditing student at the school, Torakusu and Kisaburo managed to complete their second organ by the end of 1887, which the Ongaku-torishirabe-sho applauded as “an organ as good as imported instruments”—making it the first domestically-manufactured organ that actually functioned. Thus the first domestically-produced organ came into existence in westernizing Japan.

But being able to produce organs one at a time does not mean that the production of them could be commercially successful. There were no other domestic companies that produced organs, but nevertheless the demand was potentially substantial. Evidently, the reputation of the first domestically-manufactured organ spread quickly, and Torakusu quickly started his plan for mass production of the organ. Torakusu received initial orders for seven organs, including some by the official decree of the Shizuoka Governor.
The mass production plan was mainly led by Torakusu’s employment of a team of manufacturers from the local population, whom he thought were suitable for the production of organs. There were no external capabilities for the organ production in the market, and Torakusu hardly had an alternative to developing the necessary capabilities himself and within the firm because virtually no one had any experience with manufacturing organs in Japan back then. Yet, his selection of the employees reflected his attempt to choose individuals whose original skills could be most compatible with the capabilities that Torakusu was trying to develop. Evidently, the new employees, including cabinetmakers, carpenters, and spring crafters, started to work in the manufacturing process in earnest as the Yamaha Organ Works, which was built on the site of an abandoned temple in Hamamatsu City. Nippon Gakki, Ltd. (Japan Musical Instrument), the predecessor of the modern-day Yamaha Corporation, was established in 1897.

The development of the original capabilities was not an easy task for the newly established Nippon Gakki. Experiencing a number of struggles in establishing both stable production and marketing systems, Torakusu exercised his cognitive leadership to establish an informal institution that would sufficiently motivate and direct the employees. Torakusu and his staff sought to establish their particular work ethic, which influenced what Yamaha now calls “Yamaha’s corporate spirit.” This spirit emphasized the three fields of their operations—manufacturing, sales and engineering, which in fact are represented by the three crossed tuning forks of the company’s symbol (Figure 1).
Torakusu thought these elements as the key to succeed as a musical instrument manufacturer. Among these three fields—manufacturing, sales and engineering—Torakusu’s management in the manufacturing sector was particularly innovative. Of particular importance, Torakusu was envisioning factory-style, mass-production, not crafts production. Unlike craftsmanship, which requires people to conduct every step needed to produce a good, factory-style production demands each person to perform one or two steps of the overall process, and thus requires them to specialize in a couple of specific steps. But the original employees of the former craftsmen, who were used to executing their tasks individually, as factorymen—let me call this the task culture (Handy 1976). This meant that the existing task culture was not adequate for the mass-production that Torakusu was envisioning, and he needed to change this.
informal institution into one that is adequate for factory-style mass-production. The implementation of factory-style production thus necessitated the introduction of a new work ethic, as a new informal institution that was adequate for the new system. In other words, the introduction of the new work ethic was necessary to coordinate the employees who are not yet used to the factory-style production. With Torakusu’s cognitive leadership, this reformation of the informal institutions was implemented widely within the firm. This served the company as an informal institution that tied the employees together during the difficult period of developing the new capabilities.

As Torakusu envisioned, the western style manufacturing system was introduced, with the standardization of parts, rationalizing assembly work and otherwise implementing production-line methods, which were already common in the West at that time. *Ongaku Zasshi*, a popular music magazine at the time, praised the highly efficient operation of Nippon Gakki’s factory:

> There are several sections in the factory with different craftspeople working on each part of the manufacturing process, from reeds, keyboards, and bellows, to painting and leather parts, […] in another room, ten or so tuning experts with keen ears for pitch play the keys and skillfully tune the notes to complete the creation of each organ (*Ongaku Zasshi*).

Each manufacturing process was highly divided according to the skills required, all ordered in a coherent manner—it was American-style factory production. With this system, production rapidly increased to over 250 sales a year. Torakusu successfully introduced the organizational culture that was suitable for the western-style production that Nippon Gakki was heading towards.
With the capabilities to mass-produce organs, the company expanded its business, and thus its capabilities, into the manufacture of other musical instruments such as pianos, harmonicas, xylophones, high-quality wooden furnishings, and toy musical instruments, all of which were products without a substantial number of competitors nor external suppliers at the time (Alexander, 2008). The result of such rapid diversification was overwhelmingly successful, marked by its piano’s winning of the Honorary Grand Prize at the 1904 World’s Fair in St. Louis, Missouri—the first Japanese musical instrument manufacturer to win the prize (Yamaha Motor 50th Anniversary Project, 2005: 68).

Two aspects of the experience of Nippon Gakki in the foundational period should be emphasized. First, the original capabilities were developed in a vacuum, that is, there were neither other competing firms nor external capabilities available for Nippon Gakki to utilize in the production of the organs. This forced it to develop its own capabilities. Thus, the interplay between the endogenous and exogenous formal institutions was as follows: Lacking reliable exogenous institutions to utilize, Nippon Gakki sought to develop its own capabilities, led by the cognitive leadership of Torakusu. Torakusu envisioned developing the capabilities for mass-producing high quality musical instruments. But most of the original employees were craftsmen, not factory workers, who were not yet used to performing specific tasks individually. Torakutsu introduced new informal institutions so as to guide them to perform adequately in the mass-production system. Nevertheless, the informal institutions and the development of the new capabilities within Nippon Gakki were highly related, in that the development of “Yamaha Spirit” and the introduction of a Western style
mass-production system were compatible with one another, and together they created the capabilities of Nippon Gakki (Figure 2). This framework persisted until the next period—the war period.

**Figure 2: Institutional Dynamics surrounding Nippon Gakki’s Capabilities in the Foundational Period**

2) **War Period: Late 1930s-1944**

The dynamics of the institutions surrounding the capabilities of Nippon Gakki persisted until the late 1930s, when Japan began to step its way toward the further expansion of militarism. The totalitarian regime began to influence every part of the Japanese economy, particularly of the manufacturing sector, under the National General Mobilization Law in 1938 (Noguchi 1998). Nippon Gakki was tasked with helping to increase the production of aircraft propellers under army management. From Nippon Gakki’s perspective, though, the shift to the production of aircraft
propellers was not such an irrational decision. The totalitarian regime significantly limited and restricted the use of iron and steel, with the beginning of the collection of iron goods in February 1939 for military purposes—thus changing the array of exogenous formal institutions. The demand for high-quality musical instruments themselves also radically declined due to the war preparation—many could not afford such expensive goods, which, at least for the militaristic Japanese of the time, did not seem to produce any added value for the war effort (Alexander, 2008). Then, with the direct order of the state, adapting to the successful production of aircraft propellers became inevitable for the company. Under these circumstances, Nippon Gakki launched production of wooden propellers for the army in March 1931.

Nippon Gakki had a comparative advantage in producing propellers, with capabilities relatively more suitable to the production of propellers than others’. Nippon Gakki’s highly efficient, Westernized production line and management system for the musical instruments—the combinations of wooden and iron parts—were, at that time, unusual, and particularly suitable for the mass production of aircraft propellers, which requires a high level of precision in its production process. The decision to produce propellers was ultimately made in a top-down manner, by the direct order of the military government (Kawakami, 1979). Thus, Nippon Gakki possessed capabilities that were relatively suitable compared to other companies, which allowed, or in a way forced, it to develop its own capabilities based on its existing ones.

While its mass-production system was suitable for producing warplane propellers, Nippon Gakki still needed to make some effort to develop its own capabilities for the
mass-production of airplane propellers, as the capabilities required for the two are indeed similar, but not identical. To achieve this, President Kaichi Kawakami, the third-generation president of Nippon Gakki, exercised his cognitive leadership to implement an ideology in an attempt to establish a new informal institutional framework that would be suitable to propeller manufacturing. The ideology can be best observed in the Nippon Gakki’s corporate principles, in which President Kawakami expressed his ideals about the relationships between society and business, and business and individuals, in order to motivate the employees to “buy in” to the development of the capabilities for warplane propeller production:

> All employees of the company should strive to be diligent in learning and cultivating the mind, to be considerate and sincere in all actions, to love their work and be quick to action, to value discipline and cooperation, to bring a relentless spirit of innovation and improvement to their work and, in doing so, to be constructive citizens contributing to the good of our country and society (Kaichi Kawakami from Yamaha Motor 50th Anniversary Project 2005: 53).

This narrative corresponded to the one the Imperial Japanese Government sought to implement among the popular masses—I call this Japan’s war ideology. The essence of the ideology was summarized in *Kokutai no Hongi (Fundamentals of Our National Polity)* issued by the government in 1937. *Kokutai no Hongi* served as the state religious document addressed to all Japanese subjects as an attempt to guide them in matters of religious faith and government; thus it is largely considered to be the most important of a series of documents produced by the Japanese government that sought to articulate an official ideology for a nation on the brink of total war (Skya 2009: 264). To reflect the similarity with Kawakami’s principle, but more to reflect the larger view of the war ideology as an especially important exogenous informal
institution, several aspects of the ideology require particular attention. *Kokutai no Hongi* starts with the following statement:

The various ideological and social evils of present-day Japan are the result of ignoring the fundamental and running after the trivial, of the lack of judgment and the failure to digest things thoroughly. This is because since the days of Meiji, so many aspects of European and American culture, systems, and learning have been imported too rapidly. As a matter of fact, the foreign ideologies imported into our country are mainly ideologies of the Enlightenment that have come down from the eighteenth century, or extensions of them. The views of the world and of life that form the basis of these ideologies are rationalism and positivism, lacking in historical views, which, on the one hand, place the highest value on, and assert the liberty and equality of, individuals and, on the other hand, place value on a world by nature abstract, transcending nations and races. Consequently, importance is given to human beings and their groupings, who have become isolated from historical entireties, abstract and independent of one another (de Bary, Gluck, & Tiedemann, 2005, p. 968).

It is clear from the passage that the authors attempted to link Japan’s internal problems of the time to the spreading individualism among the population, which the document claimed originated in Enlightenment ideology. The invasion of individualism into many aspects of Japanese social lives, it claimed, is the underlying basis for the socio-political turmoil associated with the ideologies of democracy, socialism, anarchism, and even communism (Skya 2009: 267). By identifying Western ideologies as being responsible for almost all the social problems of the time, the dissatisfied social masses were mobilized to believe in Japan’s war ideology relatively easily.

From the 1920s to 1930s, Japanese society was extremely unstable. The cause of the political turmoil traced back not necessarily to one of the ideologies but to the economic instability persisting into the 1930s. Some point out that the widening differences in wealth and status between social classes and the severe economic
recessions of the 1930s contributed to the political instability (Iritani, 1991). Hugh Patrick argues that there were two economic problems at the time in Japan, which contributed to the political instability during this period—(1) the increasing distress of both the agrarian and urban poor and (2) the increasing concentration of economic power in the hands of zaibatsu (Patrick, 1971). This distress eventually culminated in an extreme nationalistic sentiment, provoked by the economic recession due to the Great Kanto earthquake in 1932 and the slowing of economic growth caused by the government’s obsession with going back to the gold standard at pre-WWI parity. The attempt to restore the gold standard turned out to be a disaster, allowing the domestic market to be influenced by the Great Depression directly, which was described then as “opening a window in the middle of a typhoon.” As a result, Japan’s real GDP remained level through 1930 and 1931 without growth or contraction, though domestic prices dropped sharply (Flath, 2005). The political instability was fueled by the economic recession and distortion during this period.

Nevertheless, the rejection of individualism came with the introduction of a new ideal—the spirit of harmony. Harmony referred to the kind of spiritual bonds that allegedly united the Japanese subjects, and the idea sought to cement relationships both vertically and horizontally (ibid.: 270). It was the aim of the authors to unite the nation under the ideological control of radical Shinto ultranationalism. The ideology further provides guidance for labor, stating that each person in society was to try their best at their own task or occupation:

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4 Muto Sanji, president of Kanebo, the largest domestic cotton spinning company at the time, quoted in Flath 2005: 57.
Those serving in Government offices as well as those working in firms must follow this Way of Harmony. In each community there are those who take the upper places while there are those who work below them. Through each one fulfilling his position is the harmony of a community obtained. To fulfill one’s part means to do one’s appointed task with the utmost faithfulness each in his own sphere; and by this means do those above receive help from inferiors, and inferiors are loved by superiors; and in working together harmoniously is beautiful concord manifested, and creative work carried out (de Bary, Gluck, & Tiedemann, 2005).

The emphasis was on absolute submission to people in higher positions, through which the government sought to form a massive hierarchical relationship among the subjects. As a consequence, this informal institution encouraged the many firms to concentrate their decision-making power about their operations in the top executives of the companies. This structure came about because, as a result of the war ideology, people’s first concern became the nation’s prosperity, not the maximization of their incomes. This “work hard for the harmony of the Japanese community” mentality was to be associated with the historical origin of the nation, and thus, Japan’s national identity as a whole. Evidently, it states that “[h]armony is a product of the great achievements of the founding of the nation and is the power behind our historical growth” (ibid.). The analysis of history in the document traced back to Shinto’s (Japanese religion) explanation of the origin of the Japanese nation and the race with a multiple references from the holy “scriptures,” the Kojiki and Nihonshoki. This mainly served for two purposes: 1) establish the deification of the Emperor and its relationship with the “Japanese subjects” and 2) to provide such views as the Japanese people and their lands are sacred and special, which emphasized the holistic national identity of Yamato. The goals were accomplished through the confirmation of the Japanese emperors as the flesh-and-blood descendants of Amaterasu Omikami,
the Sun Goddess and the universe itself (de Bary, Gluck and Tiedemann 2005: 969). As serving for the emperor meant serving god, it emphasized that the meaning of life stems from unconditional loyalty to the emperor and “the rationale of making our historical ‘life’ live in the present; and on this [was] based the morality of the people” (ibid.). With these aspects of the ideology—rejection of individualism, the spirit of harmony and the unconditional loyalty to the holy emperor, the Japanese government mobilized the Japanese popular masses.

The effort to implement propaganda was made in every part of Japanese society: The Cabinet Board of Information, the Ministry of Foreign Affairs, military propaganda platoons sent to the Chinese mainland, the Special Higher Police, private individuals, advertisers, comedians, publishers, and writers all urged the nation to support the war (Kushner 2006: 184). The implementation was overwhelmingly successful in manipulating public opinion and mobilizing the Japanese popular masses. According to one poll conducted by the conservative Japanese magazine Bungei shunju in 1940, an overwhelming two-thirds of the urban respondents suggested that social controls of the already totalitarian government should be further strengthened to help support Japan’s interests in China (ibid.: 19). The government propaganda successfully shaped the informal institutions of the Japanese society into one with the war ideologies centered around the notion of harmony and unconditional loyalty to the emperor, which was backed up by the Shinto religion.

The sturdy informal institutions in the form of the war ideology, as well as the corresponding foundation of the corporate spirit, helped Nippon Gakki cope with the difficult economic situation of the wartime (including pre-war) effectively. The
particular emphasis of the principle on learning and the ethical obligation to pursue innovation was strongly influenced by the spirit of harmony and devotion to the company and the nation. President Kawakami perceived these notions as fundamental in the radically changing socio-economic environment of the war. President Kawakami emphasized the importance of learning and innovation, because they were particularly the kinds of tasks Nippon Gakki needed to perform in order to develop the new capabilities of propeller production. Because the whole nation was influenced by the war propaganda, the Japanese people were motivated to make efforts in the nation’s interest. Accordingly, they were more likely to execute their assigned tasks, no matter how hard the work might be, if such tasks could be seen to be linked to the nation’s interest. What President Kawakami did, therefore, was to correspond the informal institution within Nippon Gakki to this exogenous informal institutional framework—in other words, making the employees’ work motivating in the larger wartime informal institutions. The corporate spirit allowed Nippon Gakki to develop the radical development of the new capabilities relatively easily.

Evidently, Nippon Gakki’s propellers eventually became considered to be one of the most sophisticated aircraft propellers ever manufactured under the Imperial Japanese army—with monthly production of more than 1,300 propellers and nearly 10,000 workers by 1944, the year before the war ended (Yamaha Motor 50th Anniversary Project 2005: 61).  Nippon Gakki developed its existing capabilities to produce musical instruments into the capability to produce one of the best airplane propellers. The best-known of these propellers was the P-33 propeller, which was used for the well-known Zero Fighter planes, which are largely considered to be one of the most sophisticated propeller combat aircrafts ever built.

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propellers in the history of Japan. The demand for aircraft propellers hardly decreased in the post-WWII period, because the outbreak of the Korean War in 1950 brought strong demand for Nippon Gakki’s high quality propellers from the US armed forces (ibid.). The demand for aircraft propellers hardly decreased in the post-WWII period, because the outbreak of the Korean War in 1950 brought strong demand for Nippon Gakki’s high quality propellers from the US armed forces (ibid.). Nippon Gakki’s success in propeller production continued until 1953, the year the Korean War ended.

Nakajima Type-97 Plane and Nippon Gakki’s Propellers  

The institutional changes surrounding Nippon Gakki during this period can be summarized as follows. The imposition of the government to produce the warplane propellers and the radical decline in the demand for musical instruments forced Nippon Gakki to develop new capabilities that were suitable for propeller production. This change in exogenous formal institutions of the policies and the market necessitated Nippon Gakki’s development of the new capabilities to produce warplane propellers. But learning the new capabilities required a change in both
informal (organizational culture) and formal (technologies, skills, etc.) institutions.

Being a musical instrument manufacture, Nippon Gakki did not have any knowledge about aviation. Nippon Gakki overcame this challenge through the introduction of the “corporate spirit” put forward by the cognitive leadership of President Kawakami, which provided a new informal institutional framework to restructure and motivate Nippon Gakki’s employees. The corporate spirit itself was strongly influenced by the change in the exogenous informal institutions of Japanese society, which was strongly influenced by government propaganda to mobilize the Japanese populace through war ideology. The ideology emphasized the holy Yamato identity topped by the emperor and the spirit of harmony, which was effectively linked to the narratives of the Shinto religion. As a result, the ideology was widely supported by the Japanese populace.

The introduction of the corporate spirit effectively motivated the employees, together with the larger context of the war ideology. In this informal institutional framework, Nippon Gakki developed its capabilities for propeller production. Figure 3 represents the construction of Nippon Gakki’s capabilities (Figure 3). Thanks to the new capabilities, Nippon Gakki achieved overwhelming success both in quality and quantity of propeller production. This institutional dynamic persisted until the end of the war.
3) Post-World War II Period: 1945-late 1950s

The institutional framework in the exogenous environment changed rapidly in the post-WWII period. Following Japan’s official surrender in 1945, the General Headquarters (GHQ) sought to restructure both formal and informal institutions in Japan. Many of the formal institutions were replaced by new, democratic ones in an attempt to de-militarize and establish a peaceful democratic nation. Such a state-building effort was accompanied by reform in the informal institutions. GHQ sought to achieve this reform through the use of various propaganda in education, media and the like. Successful as such reforms were, the core informal institutions established during wartime largely remained, and were mixed with the democratic, “Americanized” informal institutions, like consumerism. Nippon Gakki needed to develop new capabilities that could respond sufficiently to the change in the exogenous institutional changes, based on the capabilities for propeller production that it already possessed. The decision to go into the motorcycle industry and the
following success was the result of just such a capabilities change. To see the interaction of the institutions surrounding Nippon Gakki, the analysis of this period proceeds with the exogenous institutions and then the effect of these changes in Nippon Gakki’s endogenous institutions.

**Japan’s Institutional Change After World War II**

At noon, on August 15, 1945, millions of Japanese heard the voice of the Emperor Hirohito for the first time in their lives through radio broadcasting. The war was over; Japan had lost and would surrender. What came after was tremendous social and political turmoil in the face of the transition both in formal and informal institutions. John Dower describes the people’s response: “[T]he tears that ordinary people everywhere did shed reflected a multitude of sentiments apart from emperor-centered grief: anguish, regret, bereavement, anger at having been deceived, sudden emptiness and loss of purpose—or simple joy at the unexpected surcease of misery and death” (Dower, 2000: 38). On January 1, 1946, the emperor was declared to be “human” (ningen sengen), which increased the already existing ideological confusion of the Japanese populace (Matsuda 2007: 20). Matsuda Takeshi explains:

> The feelings of stagnation and prostration were overwhelming. The Japanese were close to bankruptcy intellectually and culturally and sadly disillusioned with the traditions, standards, and cultural heritage that they had long deeply cherished. In particular, the abolition of emperor worship with one stroke of the pen dealt them a crushing blow. It left them in a “spiritual and ideological vacuum,” further driving them into a taste of profound spiritual and moral confusion (Ibid.: 19).

The war ideology, after all, did not tolerate surrender. Rather, it stated that the “subjects” of the emperor were forbidden to surrender as it meant a betrayal of the
sacred master of the holy nation. There was no greater shame than this, it taught the Japanese citizens. The mere fact of the surrender, announced directly by the emperor himself, already meant the ideology was compromised.

The first mission of the General Headquarter (GHQ), led by General Douglas MacArthur, was to restructure the Japanese society into a democratic and peaceful nation—thus to bring reform to the formal institutions of the Japanese government. The war ideology and the democratic ideals were, however, opposite to one another. The war ideology, which had provided the powerful informal institutional framework in totalitarian Japan, was, after all, the ideology of the spirit of harmony and the holy emperor. Democratic ideals, on the other hand, were based on the Enlightenment ideas of individualism (Moore 1966). The “bible” of the war ideology, Kokutai no Hongi, as we have already seen, emphasized the total rejection of individualism. The existing informal institutional framework, although it was already severely damaged with the nation’s defeat, was not suitable at all for democracy. The concept of restructuring the society, therefore, was not merely about democratization of the formal institutions, but also the destruction of the old, already damaged informal institutions and replacing them with new ones suitable for democracy.

GHQ was aware of this need, as one of the initial planners of occupation policy put it, “to get at the individual Japanese and remold his ways of thinking and feeling” to appreciate freedom and democratic ideals (ibid.: 206). This was done throughout what Matsuda calls America’s “cultural offensive,” a manipulation of the educational system and everyday culture under the Fundamental Law of Education (Matsuda 2007, 18). A massive web of censorship on any form of publication, from textbooks
to newspapers or magazines, was implemented. To ensure a single voice of “democracy” in the main broadcasting operations, occupation authorities chose to perpetuate the total monopolization of broadcasting through the national broadcasting station (NHK) (Dower 2000: 206). On the surface, this reformation was successful and postwar Japan was indeed democratized quickly with the new constitution. The new constitution came into effect on May 3, 1947 (ibid.: 403). The constitution is often called the “Peace Constitution” for its emphasis on the renunciation of war and the emperor as a symbol of the unity of the people—thus, stressing the “government of the people, by the people, and for the people.” GHQ’s reformation officially ended with the enactment of the United States-Japan Security Treaty in 1951, recognizing the full sovereignty of the Japanese people over Japan and its territorial waters (Treaty of Peace Between The Allied Powers and Japan, 1951). The wartime formal institutions, especially the political ones, were in large replaced by the new democratic institutions, although some, mostly economic institutions remained to some extent. It was a radical change in both the formal and informal institutions in Japan at the time.

The majority of the Japanese populace was accepting of the ideological change, not only the political one but also the cultural one. Japan experienced economic prosperity within the political and economic structure largely brought by the reformation during the occupation (Igarashi 2000: 78). With regard to the relationship with the US, the outbreak of the Korean War brought a huge economic gain from the US military expenditures. A total of more than one billion dollars was spent in Japan by the end of the war, and the special procurement on the part of the US reached
64% of Japan’s total exports in 1953 (ibid.). This tremendous economic growth intensified the spillover of the US consumer culture into everyday life in Japan. The average annual GDP growth between the late 1940s and the early 1950s amounted to close to 10%, with an overwhelming 14.88% reached in 1948 (Maddison 2003). As Yoshikuni Igarashi explains, “the desire for material wealth represented by American culture was the foundation for the self-sustained economic development of postwar Japan” (Igarachi 2000, 78). The growing wealth brought by the “Americanization” of Japan both in formal and informal institutions comforted the Japanese populace, who were much confused by the sudden institutional change, and the wealth provided informal institutions upon which people could act for the Japan’s recovery and development. That is, the growing economy itself became a symbol of postwar prosperity in Japan, which was closely associated with the cultural atmosphere brought about by the reform.

Although the war ideology seemed to be completely replaced by the new democratic ideals, people’s mindsets could not be altered as easily as it might have seemed. The military aspect of the war ideology was completely banished by popular anger toward the government and the implementation of the new ideals by the GHQ. But the basic norms on which people were acting—such as “obey those in higher positions regardless of whether or not you agree with their orders”—remained (Iritani 1991: 235). Furthermore, directly following the war, there was growing nationalistic sentiment, which was the legacy of the shocking defeat in WWII. Shimizu Ikutaro links the root of the nationalistic sentiment and the war experience:
They knew life before the war, knew life during the war, and knew life after the war. They not only knew it; they managed to survive it. During this period, always feeling uneasy, they experienced many things. With each experience, they were swayed by deep emotions…. Everybody’s past was filled with anxiety, fear, rage, hunger, and humiliation. Certainly, some elements of these emotions were concerned with oneself or one’s family. Yet other aspects obviously revolved around our nation, Japan. There was nationalism (Shimizu 1993: 482).

The nationalistic sentiment cultivated during the war was still extant, despite the nation’s defeat and the reform by the GHQ. This is because people understood the war as the “fault” of the military government, and in turn welcomed the Americans and Western culture (Dower 2000). But this did not lead to the complete overthrow of the informal institutions; rather the Japanese people accepted the defeat in the larger framework of the informal institutional framework that already existed. The result of this complexity was what Igarashi calls the “hybrid identity” of the Japanese people (Igarashi 2000: 79). This hybridity refers to Japan’s unique position in its cultural stance in relation to other nations. Many Japanese people conceptualized Japan as a third term between Asia and the West. Japanese people were proud of their cultural identity, neither Asian nor Western, and saw Japanese as unique identity that does not belong to either of the two. Some may argue that this hybrid identity had existed even before the post-war period (ibid.). There has certainly been a cultural clash between the traditional culture and the Western one since the arrival of Commodore Matthew Perry in 1854 and the rapid modernization of the nation following that event (Akamatsu 1972). It was, however, the war ideology, as we have seen from Kokutai no Hongi, that actively shed light on the ideological clash between Japan and the West as the central focus of Japan’s traditional values among ordinary Japanese
citizens. Once rejected completely, the hybrid identity that arose in the aftermath of WWII could be seen as a new kind of identity that did not exist in the pre-war Japan. The combination of the emphasis on harmony and Yamato identity centered around the Shinto religion and Westernized consumerist ideals was unprecedented. This hybridity was the new complexity of the Japanese informal institutions that were based on Western democratic ideals, placed upon the old informal institutions from the wartime or even older. It was a mixture of the Western consumerism and the nationalism of wartime.

The change in the informal institutions was more a change in direction rather than a total alteration of the informal institutions. With the hybrid identity, Japanese people were now gearing toward the economic means to restore Japan’s national pride rather than militaristic ones. Informal institutions following the war were neither those of wartime nor of Western vanity, which the GHQ attempted to implement in Japanese society. It was a mix: The change in purpose from militaristic ones to consumerist ones was established within the larger framework of the informal institutions brought by the war. Japan was indeed no longer militaristic, but people still acted upon some of the informal institutions that had operated during wartime. The redirection of the wartime informal institutions was depicted by Sabine Fruhstuck (2007) in her explanation of the “salaryman,” or white-collar employee:

[T]he salaryman has been glorified in popular media and advertising in and outside Japan as the “company warrior” (kaisha senshi)... These “company warriors” give their best for the company and sacrifice their health and their family life, from which they are usually alienated....Through the military references to battle, victory, defeat, and death in relation to the white-collar employee’s total devotion to his company, ...[it was seen that] the white
collor worker [was seen] as a peacetime incarnation of the warrior (Fruhstuck 2007: 56).

These “company warriors” were not just a rhetorical metaphor for most of the Japanese at the time, but they were actually “fighting” for the nation, for the nation’s glory, sacrificing individual interest. There was a war—for Japan and its quest for national pride. The informal institutions, despite the defeat of Japan and the cultural reform by the GHQ, were neither overthrown nor destroyed. They were redirected towards a new purpose—economic growth to restore national pride.

The economic structure also experienced a radical transformation during this period. The clusters of industrial, commercial, and financial corporations known as the keiretsu system became increasingly important in the Japanese economy (Lincoln & Gerlach, 2004). The keiretsu system itself emerged as a legacy of the zaibatsu system, industrial and financial conglomerates being developed after the Meiji restoration, and the wartime economic reform from above. The major zaibatsus—Mitsubishi, Mitsui, Sumitomo and alike—were dissolved by the GHQ in 1945 (Flath, 2005: 75). Despite the dissolution, many of the firms previously affiliated with the major zaibatsu reestablished their old relationships and began to form the keiretsu system. Accordingly, the keiretsu system is best characterized as a close relationship between firms and banks. A typical firm has a bank, often called the “main bank,” that is its largest lender, shareholder, and sometimes supplies a few board members (Hoshi, 1994). The keiretsu system was dominant in the postwar Japanese economy, which itself could be seen as a legacy of the Second World War.
The economic role of the keyretsu system is mixed. Some, for instance, argue that corporate grouping led by the keiretsu system served as an implicit insurance mechanism, with the banks adjusting interest payments to smooth the profits for industrial firms (Nakatani, 1984). Others point out that such a system mitigates some informational and incentive problems in financial markets and reduces the cost of distress (Hoshi, 1994). One reason for this is that the keiretsu system allowed banks to participate in leading de facto consortia by major banks. Because a typical firm borrows from the other large banks apart from their main banks, major banks form a de facto consortium for major banks, with each bank acting as a main bank for the subsequent firms. For instance, Mitsubishi Bank is the main bank of a firm in the Mitsubishi group, but the firm borrows also from banks outside the group, that is, Sumitomo, Mitsui and the like. In this way, the firms in the keiretsu system were financially more distressed and eager to combat uncertainty with respect to capability development, by investing in innovative efforts, such as R&D efforts.

Thus the institutional change in the exogenous environment can be summarized as depicted in Figure 5. With the defeat in the war and the collapse of the totalitarian regime, Japan’s institutional dynamics have changed dramatically in the post-WWII period. The GHQ sought to destroy the war ideology and replace it with the new democratic ideals of individualism in order to construct a peaceful democratic state. This effort was overwhelmingly successful and Japan was quickly democratized. The war ideology, however, survived as a form of hybrid ideology, which sought to promote the nation’s prosperity by economic means. The economic structure was also radically different from the orthodox market economy that one finds in the US.
Despite the dissolution of the zaibatsu system, the keiretsu system became dominant in the Japanese economy, which allowed Japanese firms to be innovative, in the sense that they were not strictly constrained by short-term investment returns, and thus could invest relatively flexibly in the development of new capabilities. This institutional dynamics influenced the Japanese people to have their objectives as seeking for the nation’s prosperity and restoring national pride through the economic means. As we will see in the next section, this exogenous institutional framework strongly influenced Nippon Gakki’s business decision.

Figure 5: The Summary of the exogenous institutions that shaped the Japanese socio-economic environment in the post-WWII period

Yamaha’s Institutional Change in the Post-World War II Period

The experience of Nippon Gakki in the postwar period was parallel to the exogenous institutional change. The capabilities Nippon Gakki acquired during the war could be used to continue propeller production to meet the demand brought by the Korean War. While there could be some degree of ideological confusion directly following the war, the increasing demand for the propellers kept the dynamic transaction costs for
developing new capabilities sufficiently low to keep the capabilities adequate to continue the firm’s operation. To be sure, parts of the informal institution, especially the ones directly related to militarism, were compromised by the defeat and cultural reform by the GHQ. As we have already seen, however, the basic framework in which people’s motivations were based largely remained, but was redirected towards the new goal of economic growth. In short, while the military soldiers no longer existed, “company soldiers” were fighting everywhere for Japan’s prosperity. Without doubt, there were soldiers at Yamaha as well.

When the Korean War eventually ended in 1953, the demand for Nippon Gakki’s propellers declined rapidly (ibid. p62). The highly motivated “company soldiers” were ready to fight for the company, or even the nation, but the decline in demand meant that there was no battleground for the soldiers. This threatened the informal institutions of Nippon Gakki—the war ideology had lost a war to fight. Reacting to this crisis, President Genichi Kawakami, son of Kaichi Kawakami, sought to find a new business toward which the employees could be motivated to overcome this crisis, making use of existing capabilities. The choice of what kind of capabilities Nippon Gakki should develop had to correspond to the informal institutions carried over from WWII. Figure 4 shows the dilemma represented by the interplay of informal and formal institutions that make up Nippon Gakki’s capabilities (Figure 4).
To achieve this, President Kawakami sought to take advantage of the facilities—the high-precision general-purpose machines for the variable-pitch propeller production—to produce new products whose demand did not rely on military purposes. Nippon Gakki discovered that the structure of the variable-pitch propellers resembled the internal parts of engines—thus their capabilities could potentially be used to produce engine parts. They proceeded to use their machine tools to manufacture engines, although, at this point, it was far from clear whether Nippon Gakki’s capabilities could be adequately adapted to a new business.

On November 7, 1953, the executive officers of Nippon Gakki received a confidential directive from President Genichi Kawakami, indicating his direct order to produce a motorcycle engine as a test. The choice of the motorcycle was in fact ultimately decided by President Kawakami himself, based on his personal belief and preferences despite the fact that the market was already crowded with other manufacturers. Kawakami’s business vision and his interest to the motorcycle
industry became a determination after his so-called “70-day” inspection tour of Europe (West Germany and France, mostly) with two engineers from Nippon Gakki in January 1954. They visited automakers, motorcycle manufacturers, and machine tool manufacturers in various countries for something over two months. An employee magazine reports one of the engineers’ impressions of his visit in West Germany:

The German automobile industry is really splendid. The Volkswagen, which was designed 15 years ago, [...] has not lost its freshness even today and is adored as a new style. [...] The factory design is also wonderful. Machine parts are all brought in by conveyor and engine and chassis assembly takes place on ideal assembly lines (YMC employee magazine).

As much as they learned from the inspection of the facilities of the European automobile and motorcycle manufacturers, they were also greatly impressed by the highly efficient and developed production system and its resulting products. Such impressions led to the conclusion within Nippon Gakki that the performance of Japanese motorcycles was substantially inferior to the rest of the world, and therefore, even a latecomer to the domestic market could still compete if it could manufacture products up to international standards. The motorcycle market, however, was already one of the most rapidly expanding in the fast-growing Japanese economy, accounting for 140 manufacturers in 1953, and about 200 makers in the following year of 1954 (Yamaha Motor 50th Anniversary Project 2005: 62). According to orthodox capabilities theory, that is, if Nippon Gakki were seeking to maximize its profits, this would not seem to be a rational choice—the existence of a number of well-developed external capabilities meant that Nippon Gakki’s rational choice would be to produce the engine parts for which Nippon Gakki could easily develop the required
capabilities, and sell those parts to the other suppliers further up the production chain. In this way, Nippon Gakki might not have focused on the motorcycle industry but could also have supplied their parts to other industries such as sewing machines, ship screws, or three-wheeled motor vehicles, all of which could have been supplied by Nippon Gakki’s technology (ibid. p63). The choice of the motorcycle was largely due to Genichi’s “entrepreneurial sixth sense,” based on his personal impression and belief in the industry. His decision was based on and supported by the informal institutions of the war ideology for the nation’s prosperity. President Kawakami himself stated:

> When a company has achieved a certain level of success and has some financial flexibility, it must perform research and make steps into new businesses. This is what we, as management, are naturally duty-bound to do. … If we do not make a serious effort, we will become dependent on imported goods in the future (Kawakami 1979).

Kawakami was aware that the decision to go into the motorcycle industry was not a rational one in terms of profit-maximization. The company was not a profit-maximizing firm at the time: The informal institutional framework was, despite its “consumerization,” based on the war ideology of the nation’s prosperity. The company was, to some extent, a kind of “national-interest-maximizing” firm, with its employees acting as if they were warriors who are fighting for national pride, although it indeed became profitable because of the high quality motorcycles it produced (which will be discussed later). To keep its capabilities functional, that is, the for the firm’s objective to make sense to the employees, Nippon Gakki had to
seek a new business decision that could sufficiently motivate the employees within the existing informal institutions.

![Genichi Kawakami (1912-2002)](source: www.yamaha-motor.com)

It was one of Nippon Gakki’s capabilities that allowed it to bring this innovation, even in a financial sense—which corresponds to one of the firm’s advantages for bringing in innovations. In the decision to go into the motorcycle industry, Nippon Gakki faced loose budget constraints. Thanks to propeller sales during the Korean War and the increasing demand for pianos, the firm’s capital stock, which was around ¥30 million in 1944, jumped to ¥100 million by 1949. Then, between 1950 and 1953, the first three years of Genichi Kawakami’s service as president, Nippon Gakki’s capital stock tripled again to ¥300 million. The tight relationship with Sumitomo, one of the four major keiretsu banks at the time along with Mitsubishi, Mitsui and Yasuda, and meant that Nippon Gakki had little financial distress. While Nippon Gakki was not a profit-maximizing firm, it had sufficient capital to develop new capabilities with reliable backup. This could not possibly have been organized through the market.

Kawakami dictated most of the decisions made over this transitioning process. A meeting was held with the attendance of all senior managers, on April 26, 1954,
announcing Kawakami’s intention to start a separate company for the motorcycle business in the future. At the meeting, Kawakami also announced the introduction of an expensive, state-of-the-art cylinder honing machine, which then cost about ¥3.33 million, demonstrating his determination to the managers (Yamaha Motor 50th Anniversary Projec 2005). In 1955, the Yamaha Motor Company, Ltd. (YMC) was founded, focusing on the motorcycle business being spun off from Nippon Gakki’s motorcycle manufacturing department. With paid-in capital of 30 million yen and 150 employees, its production target was set up at 200 units per month, and seven sales offices were also established nationwide—its headquarters was built within Nippon Gakki in Nakazawa, Hamamatsu City, and Genichi Kawakami, the president of Nippon Gakki, became the president of both Nippon Gakki and the YMC. Thus, Nippon Gakki’s capabilities were separated into two sections, the one for musical instrument production and the other for motorcycle production, and the two branches began to separate in their own directions. This was mainly accomplished through the cognitive leadership exercised by President Kawakami. But the underlying reason for his decision (and its success) was based on Kawakami’s awareness and exploitation of the increasing nationalist sentiment among the employees. In short, Kawakami successfully mobilized the company in this unprecedented direction and brought the innovation in their capabilities by directing the employees’ motivation into new capabilities development. As anticipated, YMC faced some challenges at first, but eventually overcame them thanks to the devotion of its motivated employees.
How Yamaha Motor Came to Succeed: Challenge and Success

The presence of rival companies challenged the quality of the YMC’s motorcycles as well as its marketing skills—a number of companies were already in the industry competing for market share. In 1955, the year YMC was founded, the market share of YMC motorcycles was only 0.9%, while other companies were substantially present in the market—20.2% for Tokyo Hatsudoki Co., Ltd., 16.4% for Honda Motor Co., Ltd. and 12.7% for Mitsubishi Heavy Industries, Ltd. (Figure 6). These companies were better known than the newly-established YMC.

Figure 6

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Sources: Compiled from the following: Annual special issue of Small Vehicle Information, History of Mini-Vehicle Evolution, Vol. 2, and annual Overview of Two-Wheeled Vehicle World
The YMC’s survival strategy required a high degree of capabilities development. Although the YMC could focus on developing the capabilities to produce motorcycles, the YMC sought to produce the best-quality motorcycle in the domestic market—what economists may call a strategy of “quality-based differentiation” (Vogel 2005). This decision was again made by Genichi Kawakami, who gave strict orders to copy the RT125, a 125cc motorcycle built by Dampf-Kraft-Wagen (DKW) in what was then West Germany, whose 2-stroke engines had a world-class reputation. In making this decision, Genichi was determined that if the company could copy the world’s leading motorcycle, it would be able to make a debut that would eclipse its domestic rivals. Nevertheless, development of the capabilities posed challenges to the YMC. For instance, it was reported that the first cylinders, developed based on the technique used to make piano frames, looked almost like lumps of steel and were ironically called “teapots” (ibid., 64). This is no surprise since RT125 was, at that time, one of the highest quality motorcycles in the world. The capabilities to produce RT125 were based on the core capabilities of the DKW, which had been manufacturing automobiles with a 2-stroke engine, as well as motorcycles, since the pre-war period. In other words, the DKW’s capabilities that allowed the production of the highly reputed RT125 was the achievement of their long legacy as the world’s leading motorcycle manufacturer. RT125 was not at all a product that a newly-established company without previous experience could easily imitate, and this inevitably caused some trouble for the YMC in their effort to develop the capabilities to produce motorcycles that were equally as good as the RT125.
To develop the adequate capabilities, YMC’s first resolution was a “reverse engineering” of RT125, and they eventually succeeded in doing so. Eventually, the project went far beyond that, with multiple original upgrades. The transmission was significantly modified with four gears instead of three. Moreover, it had a new structure, in which the gear-change pedal and the kick-start pedal share the same axis. With these significant upgrades, the YMC’s first motorcycle, named YA1, went beyond its original model that was at the time the world’s bestseller (ibid. p65). Thus, by the time the first motorcycle was sold, it seems that the YMC already possessed the capabilities to produce top-quality motorcycles.

![YA-1 (Nippon Gakki) and RT-125 (DKW)](source: [www.yamahamotorsport.com](http://www.yamahamotorsport.com); [http://www.audi.in](http://www.audi.in))

Without the adequate capabilities to do so, the YMC faced some difficulties in marketing as well. With great confidence in the quality of their first model, the YMC marched into the market, where many rivals were already starting to flourish with their sales. YMC’s salespeople rushed out with sample vehicles, first making the rounds to exclusive dealers of other companies, motorcycle dealers, and bicycle shops in an attempt to develop exclusive dealers for YMC. Being a latecomer had worse consequences than YMC had originally expected, and the negotiations proved quite
difficult, because the rival companies already had an established relationship with virtually all the exclusive dealers. Besides, the YA1 was priced at 138,000 yen, while the average price of competing motorcycles in the 125c class was 110,000-120,000 yen (ibid.: 65). Lack of experience in the industry posed several technical issues, represented, for instance, by the fact that YMC’s sales conditions were generally cash, with the books closing on the 20th of the month and payment on the 5th of the following month, which was unusual in the motorcycle industry at the time. Many of these issues prevented the YMC’s immediate success right after launch. The decision to go into the motorcycle industry was, indeed, proven to be difficult and irrational in the profit-maximizing sense. This is because YMC’s capabilities were not sufficiently developed to do well in business, even if it could produce motorcycles. Doing well in the industry required may more capabilities than the capabilities for production motorcycles. YMC needed to develop those capabilities as well in order to survive in the industry.

Therefore, there were a number of hardships that YMC needed to overcome. Eventually, however, YA1 become widely accepted by the consumers because of its high quality. The quality of the YA1 was far beyond the Japanese standard of the time, and Yamaha only needed a chance to prove its quality and spread its reputation. An opportunity eventually presented itself to YMC in the form of the increasingly popular motorcycle races put on by President Kawakami. On July 10, 1955 at the third Mt. Fuji Ascent Race, widely considered the top event in the motorcycle industry at the time in Japan. Yamaha eventually dominated the race with a hands-down victory of the YA1 over the motorcycles of the other manufacturers, with an
excellent performance by its efficient four-speed transmission, which efficiently yielded high power from the engine. Following this victory, YMC further took part in the first Asama Highlands Race in November 1955, and YA1 again dominated the upper ranks in the 125cc class. The results were even more conclusive in the following years. In 1956, YMC took the first eight places in the 125cc class, and, in 1957, the first five places in the 250cc in the Mt. Fuji Ascent Race and first, second and fifth places in the 125cc class and the first three places in the 250cc class in the Asama Highlands Race. Consequently, YMC’s commitment to racing raised public awareness of the Yamaha brand, and annual production rose from 2,272 units in the initial year of 1955 to 8,743 in the following year of 1956, and 15,811 units in 1957 (ibid.: 68). President Kawakami’s quality-differentiation strategy marked the success of the initial stage of the diversion of the Yamaha business as a whole.

The vastly motivated employees were the key to such a success. Some records indicate the details of the work of the motivated employees, who played a critical role in the YMC’s success. For instance, to prepare for the third Mt. Fuji Ascent Race, on a number of occasions the employees had to work to an extreme degree. In an attempt to boost up the engine performance before the race, “they ended up working double shifts, day and nights” with much motivation (ibid.: 67). But the true critical moment came when the engine revealed some weakness in the premium aircraft gasoline, which the YMC team sought to use for the race. The issue was urgent, and the response of the YMC employees was overwhelming:

Responding to calls from the race-site technical crews for “superior engines,” the technical team worked day and night for three days without a break, up to
the day just before the race. They were able to deliver 16 engines, including five spares, to the race-site crews (ibid.).

This hard-working attitude of the employees indicates that “company warriors” were indeed present and fueling the extraordinary motivation that helped the YMC to develop the capabilities for high-quality motorcycle production very quickly.

Yamaha continued to march along its victorious road to become one of the world’s most recognized motorcycle manufacturing companies through successive ambitious performances—participation and a number of victories in the World Grand Prix throughout the 60s; entrance into the sport motorcycle industry and even to the outboard motor market all resulted in the astonishing expansion of both the revenue and the scale of business of the YMC, as well as its world-wide recognition.

With the informal institutions that had shaped it since its foundation and the war ideology, President Kawakami continued to make critical decisions that brought enormous success to the company. Nippon Gakki and its offspring Yamaha Corporation continued to spread its business after the establishment of the YMC, with the highly motivated “company warriors.” Nippon Gakki developed an electronic organ called the Electone, released in 1959, which by 1970 virtually dominated the scene, forcing many rivals out of the market, and contributed to the development of digital synthesizers—the fueling event to the rise of the age of electronic musical instruments. President Kawakami, again, made the decision despite employing zero electrical engineers, and simply solved the problem by sending his engineers abroad to study the technology of electronic acoustic engineering, with strong confidence in the company’s future as a successful manufacturer of the instrument. Struggling with
the use of vacuum tubes, which the president denigrated as sounding like “electronic toys,” and despite the popularity of the tubes among the leading producers, Nippon Gakki decided to employ transistors instead, still very expensive equipment at the time. The decision was made, again, by President Kawakami: “If we are going to make something, we should make something that is the first of its kind in the world” (Kawakami, 1979). This decision eventually allowed “Electone,” as revolutionary as it is, to make its name synonymous with electronic organs worldwide. The informal institutions, altered during the war, and redirected by President Kawakami, were vital to Yamaha’s business, bringing miraculous innovations in its subsequent industries.

**Conclusion**

The divergence of the YMC from Nippon Gakki can be understood as the outcome of the interplays between Nippon Gakki’s capabilities and the exogenous environment. Yamaha’s experience, in particular, can best be understood by (1) the changes in the exogenous/endogenous institutional dynamics, and (2) the response of the president to the changes.

The first transformation of the capabilities happened during wartime, when the informal institutions were strongly influenced by Japan’s war ideology. The original capabilities for organ production, which were developed in the absence of external capabilities, were used to produce warplane propellers during wartime. Nippon Gakki was forced to develop the capabilities because of direct orders from the government, although the demand for musical instruments was already low. While this required a change in its capabilities, Japan’s war ideology provided Nippon Gakki an adequate
informal institutional framework for the new capabilities. Thanks to the war ideology, the employees were sufficiently motivated for the capability change. At this point, Nippon Gakki’s informal institutions were no longer ones of profit-maximizing, but for contributing to the nation’s war effort.

The war itself ended in 1945 with the unconditional surrender of Japan. The war ideology, however, remained not as one aimed toward the nation’s military victory, but one that motivated Japanese citizens to achieve the nation’s prosperity through economic means. Within this informal institutional framework, Nippon Gakki also performed well until the end of the Korean War in 1952, when the demand for propellers declined sharply. Despite the lack of demand for the propellers, Nippon Gakki needed to continue its business in a way that was adequate for the existing informal institutions. The choice was made by President Kawakami to go into the motorcycle business, by taking advantage of the capabilities for propeller production.

The decision was widely accepted and motivated the employees enormously, because such a challenging business strategy corresponded to the informal institution of the hybrid ideology. Additionally, Nippon Gakki could afford to invest sufficiently in the development of the new capabilities, supported by the abundant capital stock and little financial distress due to the keiretsu system. With highly motivated employees, the production of motorcycles was overwhelmingly successful and the level of their quality was unprecedented.

This story clearly shows that informal institutions did matter in Yamaha’s history. If the war ideology had not existed, Nippon Gakki might have used its capabilities to produce engine parts instead of a motorcycle itself. At the time of divergence, the
external capabilities for motorcycle production were widely available to Nippon Gakki, and thus Nippon Gakki could have either internalized the capabilities or supplied their engine parts to other companies. Nippon Gakki did neither. Rather, it decided to produce entire motorcycles despite their lack of capabilities to do so. Despite the difficulties this decision presented to Nippon Gakki, the challenging decision was in fact adequate for the company to overcome the problems in the informal institutions. In other words, President Kawakami aggressively sought to develop Nippon Gakki’s own capabilities so as to coordinate the employees who were eager to devote themselves to the nation’s prosperity. As a result, Nippon Gakki as a whole acted as if the company’s objective itself was to achieve the nation’s prosperity, and more specifically, the company acted on President Kawakami’s belief that Japan needed to produce high-quality motorcycles by its own hands. As he himself stated, “[i]f we do not make a serious effort, we will become dependent on imported goods in the future.”
Douglas North says, “incorporating institutions into history allows us to tell a much better story than we otherwise could” (North, 1990: 131). This project is, in large part, an illustration of this idea. Institutions, the formal and informal alike, pose us constraints in all aspects of our lives. Yet, it is also easy to omit these factors, as many economists often do, for the sake of simplicity in explaining social phenomena. Some justify this by resorting to the principle of Occam’s Razor, popularized by the fourteenth century philosopher Wiliam of Ockahm, which states that one should proceed to simpler theories until the simplicity is traded for greater explanatory power. This is perhaps the strongest defense by many economists who only consider the simplest models in explaining economic activities and disregard anything that complicates their models. This is why, some claim, economics is a scientific discipline. While the exact nuance of the “simplest” is open to various interpretations, one has to remember, however, what Occam’s razor truly favors is the greatest explanatory power with the smallest number of entitites required to explain a given phenomena.
After acknowledging that the neoclassical approach has little to offer in explaining Yamaha’s experience, I extended its scope to the transaction-cost theory of the firm, which also turned out to be too simple. Transaction-cost theory does an excellent job of explaining how firms expand and shrink along the production chain, that is, why firms sometimes internalize their suppliers or buyers or externalize some of their divisions. The capabilities approach was more comprehensive in the sense that it can also explain the firm’s expansion and shrinking that are not along the production chain. And taking firms as a unit of analysis, it allows us to see what the firm does as whole, not just a set of various small productions. Its insight into the routines that operate within the firm made it clear that there are things that firms can do that the market cannot.

But, the capabilities approach still could not explain Yamaha’s experience by itself, because the Yamaha Corporation and the Yamaha Motor Company possess their own idiosyncratic capabilities that have enabled them to maintain their top-level performances in their divergent fields of the musical instrument industry and the automobile and engine manufacturing industry, while sharing the same foundational roots. Even more strangely, its decision to start the motorcycle business did not seem a rational idea given that a number of other companies, such as Honda, Mitsubishi and so on, who are still considered to be “giants” in the industry, were already experiencing success in the industry before Nippon Gakki, the predecessor of Yamaha, decided to go into it. If the company was not acting rationally, then, the company must be irrational—and there would be nothing interesting to say about Yamaha from an economic perspective.
But one must realize that “rationality” here means profit-maximization: firms are taken to be profit-maximizers that would do anything to increase their profits under given constraints. Accordingly, the capabilities theory assumes that firms’ objectives are to maximize their profits by whatever means. Seeking an explanation for why Yamaha behaved in a seemingly irrational way, and before we conclude Yamaha was irrational, we must consider the possibility that Yamaha, in fact, was a true outlier!—not a profit-maximizing firm.

In this study, I have concentrated on the ways in which four important kinds of institutions, exogenous and endogenous and informal and formal institutions, affect and are affected by various social and economic changes. My primary concern has been to understand how firms expand and shrink in the market, depending on the changes in the external environment in which the firms exist. In particular, I included informal institutions such as cultures and norms in the scope of analysis, so as to explain how these factors affect the motivations of individual agents and firms.

While this was a relatively unique approach to making sense of firms, I depended on the larger framework provided by the emerging capabilities theory, in order to conceptualize what firms are and how they behave. The capabilities theory argues that firms possess a set of capabilities that allow them to act in certain ways and undertake activities efficiently, under the constraints posed by such exogenous institutions such as political, legal and market-supporting institutions, and so on. One needs certain types of capabilities to carry out production, but acquiring the capabilities in itself also entails some costs, as well as the costs of production within the firm and transactions in the market. Thus, firms expand and shrink depending on
the relative costs between using their own capabilities and utilizing the capabilities of
the market determines the firm’s particular arrangement of capabilities.

My approach, to include informal institutions, was an extension of this basic
model. I argued that firms’ objectives are strongly influenced by exogenous informal
institutions, such as culture and norms, and thus firms become motivated to achieve
their objectives. Incorporating this notion into the framework provided by the
capabilities theory, I explained how firms expand and shrink so as to best achieve
their objectives even as they are also constrained by the existing exogenous
institutions. Of particular importance was the idea that the firm’s leader(s) must solve
a problem of coordinating the members, whose goals and preferences may change
over time, based on the exogenous informal institutions. The leader can achieve this
by setting the firm’s objectives in order to make the employment more motivating to
the members, manipulating endogenous informal institutions—such as organizational
cultures—to affect how the members interpret the employment, or both. In this sense,
the leader’s role becomes increasingly important in the face of changes in exogenous
informal institutions, not to mention that their role is also important in all other
decisions that the firm makes.

Illustrating this theory is difficult, as changes in the exogenous informal
institutions do not occur as often in exogenous formal institutions. We can find a
wide variety of changes in technologies, communications, policies and so on, which
serve as exogenous formal institutions. On the other hand, we cannot so easily see
cultures or norms changing radically. This is mainly because informal institutions (1)
are informal by definition and difficult to visualize unlike most formal institutions,
but more importantly, (2) they typically change gradually over a long period of time. The second point, in particular, poses an enormous difficulty for analyzing the effect of informal institutions, because we cannot know, for sure, what changed when into what.

In this sense, Japan’s war and post-war experience was an extraordinary opportunity for a case study in order to see how informal institutions played out. The first transformation of the informal institutions happened slightly before or during the war. Japan’s war ideology brought by the totalitarian regime at the time penetrated the whole nation to transform the old institutions into ones suitable for fighting the war. The ideology was highly nationalistic and strongly linked to the Shinto religion. Through making use of the existing informal institutions based on the Shinto religion, the government successfully implemented its war ideology into the Japanese populace.

The second informal institutional change happened after the war, which was the combination of the following two factors: (1) The defeat in the war, which knocked down the militaristic aspect of the wartime informal institutions, (2) the GHQ’s effort to “democratize” the informal institutions, which was associated with the spread of consumerist sentiment. These two factors created the informal institutional framework that motivated the Japanese people to build on informal cultural norms to promote the nation’s prosperity by economic means.

Constrained by these informal institutions, the Japanese people had a very unique view toward their professions, and those people were called “company warriors” for their soldier-like devotion not only to the companies they worked for,
but also importantly for the sake of Japan’s prosperity and restoring national pride. In this sense, their attitudes towards work were largely influenced by the nationalistic sentiment that was carried over from the wartime informal institutions.

Responding to this radical change in the exogenous informal institutional framework, President Genichi Kawakami sought to go into a new business plan and develop new capabilities to maintain the coherence between the employees’ objectives and the firm’s objective. This meant that Nippon Gakki needed to make a business choice that adequately fit the hybrid ideology of consumerism and Westernization. While the new business plan and the choice of motorcycle were based on Kawakami’s personal beliefs, the way he framed his decision sufficiently motivated the employees to work hard for their purposes. With its highly motivated employees, Yamaha Motor Company, the successor of the motorcycle division of Nippon Gakki, quickly developed the capabilities for high quality motorcycle production and became successful.

Yamaha’s experience, therefore, shows that informal institutions do matter. If there had been no war ideology that penetrated the whole nation with a religion-like extreme nationalism, or the “hybrid” ideology had not arisen, it is highly unlikely that Nippon Gakki would have made the decision to go into the motorcycle industry and become successful. Even if President Kawakami could implement the plan, it is questionable whether employees would be as motivated to carry out the new capabilities as they were in Nippon Gakki at the time. Over all, the informal institutional approach that I took has strong explanatory power in elucidating how Yamaha came to be two companies with very different capabilities.
Needless to say, there are limits to this approach as well. As I have already mentioned, identifying informal institutions itself is a very difficult task, but even more difficult when one has to determine what, out of multiple possibilities, informal institution actually matters in a given case. Thus, by incorporating informal institutions into the analysis, one runs the risk of incorporating ones that do not actually matter, or not taking into account the ones that actually do matter. In short, there is a risk of selection bias in this approach.

Furthermore, while one can easily argue that a particular informal institution poses constraints on a given group of people, it is very difficult to assess how influential such constraints actually are to the subject group. In this study, for instance, it was relatively easy to point out that the Japanese hybrid identity influenced the rise of consumerism and Westernization in Japan. It is almost impossible to actually evaluate how strong its influence was to a particular group of people. Understanding this would require extensive study on each social, cultural or political group that was exposed to the informal institution.

Nevertheless, my aim was to present a plausible theory of how informal institutions matter and show an example of how the theory can be applied to explain things that cannot be understood otherwise. I strongly believe that informal institutions must be seriously incorporated into the scope of analysis, and legal and political institutions alike must be aware of their influence, role in society, and even their limits. We cannot just say they matter or do not matter. We must know how they matter and do not matter, when and in what way. My hope is that this study has made
some contribution to this matter. Of course, the reader must be the judge of whether such an intention has paid off.
BIBLIOGRAPHY

Annual Special issue of Small Motor Vehicle Information, history of Mini-vehicle Evolution, Vol.2 and Annual Overview of Two-Wheeled Vehicle World


