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Valuation of Firms

——An Organizational Study——

Waseda University Makoto Fujita

1. OVERVIEW OF THE BOOK

This book presents a conceptual framework and measurement models for valuation of firms, particularly of their resources and competences. To build the framework, I critically examined the Resource-Based View (RBV) of strategic management research and further studied the RBV research field beyond its scope to shown an organizational theoretic framework for valuation of firms.

In most cases, firm valuation, or simply valuation, refers to the model based on the financial management theory. The basic feature of the model is designated as the "shareholder model" (McKinsey & Company, Copeland, Koller, & Murrin, 2000), "stockholder wealth maximization model," (Jones, 1992) or the "discounted cash flow method" (DCF method). This book partly employs the DCF method but not the stockholders' or shareholders' wealth maximization model. Instead of the stockholder model, it employs a "multiple stakeholder model" of the firm.

The fundamental thesis of RBV is that "resources and competences are important sources for sustained competitive advantage of firms" (Barney, 2002). We can find this thesis in practical business situations and popular presses when we hear or read statements such as "this firm is extremely good at research & development (R&D) activities," or "that company has a great ability for sales and marketing." These statements imply that we evaluate a firm from the perspective of its resources and competences, although we do not have precise tools to measure them. Accordingly, the valuation model I have proposed in the book is based on the basic concept of RBV.

People with knowledge about strategic management and financial management may perceive firm valuation and RBV as different research fields independent of each other, with almost no common aspects. Indeed, most strategic management textbooks do not cover firm valuation and most financial management textbooks do not describe the RBV perspective of strategic management. However, SWOT analysis in strategic management (Barney & Clark, 2007) is closely related to firm valuation. SWOT analysis comprises the internal and external analysis of a firm; the internal analysis evaluates the strengths and weaknesses of a firm and the external analysis assesses its opportunities and threats. The former entails evaluating the resources and competences of a firm. At this point, the RBV in strategic management and firm valuation in financial management are essentially closely related.

As a research field, strategic management research has been and is influenced by the concepts and reasoning of economics, similar to RBV. Therefore, studies conducted according to the RBV tradition have been unable to identify completely the firm resources, and the model to measure them. An important reason why economics basing RBV remained in this situation is that RBV theorists do not recognize firms as organizations. To overcome this drawback of RBV studies, I incorporated concepts from the organizational theory into the model for valuating resources and competences. This

is the most prominent and distinguishing feature of the valuation model described in this book.

2. BASIC CONCEPTS

2-1. Model of the Firm and Valuation

According to financial management textbooks, stakeholders state that the firm is owned and managed for the interests of its owners. For example, Jones describes that:

> *It is a well-accepted doctrine that the financial goal of the firm should be owner-oriented —specifically, common stockholder-oriented because the common stock of the firm denotes the ownership interest* (1992: 12).

Although Jones mentions other stakeholders of the firm such as employees, suppliers, and so forth, his statement is a typical formulation on how to view the firm from a financial management perspective. Based on the stockholder model, the value of a firm is the sum of the future cash flows into the firm, considering the time value of money. In its simplest form, the model, known as the DCF method, can be expressed in the following manner.

V = value of the firm
E_t = earning at time t
C_0 = initial capital
i = discount rate

$$V = \frac{E_1}{1+i} + \frac{E_2}{(1+i)^2} + \frac{E_3}{(1+i)^3} \bullet \quad \bullet \quad + \frac{E_n + C_0}{(1+i)^n}$$

The above formula is based on the firm model assuming that a firm's owner is interested in profit or wealth maximization of the firm and is also responsible for managing it. Mintzberg (1983: 8-9) referred to it as the "one actor/one goal model" of the firm. He also postulated other firm models; the "one actor/multiple goals model," "multiple actors/multiple goals model," and the "multiple actors/no goals model" (1983: 12-21). Although we cannot indicate which model is true or correct, we can infer that each model has its theoretical validity, depending on the situation applying the model to reality. In this book, I set the "one actor/multiple goals model" as the basic model of the firm and also consider the "multiple actors/multiple goals model," if applicable.

In the model assuming multiple goals, we have to consider corporate social responsibilities (CSR) or societal performance when evaluating the firm. Intuitively, although it appears that CSR and financial performance of the firm cannot be compatible, however, previous studies addressing the relationship between these two factors have shown otherwise in some cases. Thus, I principally focused on the financial performance of the firm when constructing the valuation model, but it implicitly included the valuation of the firm's CSR.

2-2. Resource-Based View and the Concepts of Resources and Competences

As mentioned earlier, the fundamental thesis of RBV is that "resources and competences are important sources for sustained competitive advantage of firms" (Barney, 2002). Although this thesis is quite simple, we have not yet reached a mutual understanding regarding identifying these resources and competences. For example, Barney defined firm resources as "all assets, capabilities,

competencies, organizational processes, firm attributes, information, knowledge, and so forth that are controlled by a firm and that enable the firm to conceive and implement strategies designed to improve its efficiency and effectiveness" (Barney, 2002: 155). Per this definition, Barney and some scholars do not distinguish between the resources and competences of firms. Regarding the difference or similarity of resources and competences, Barney states:

> *Whether the resources in question are labeled "resources," "capabilities," "organizational capital," and so on, the theory predicted that these firm assets were only to be a source of sustained competitive advantage when they enabled a firm to implement a strategy that increased the willingness of its customers to pay and/or reduced its costs while simultaneously being path-dependent, causally ambiguous, or socially complex in nature* (2007: 249).

Barney's account may be plausible if we do not intend to provide some implications for senior managers who are responsible for strategic decision-making in business firms. However, if we are interested and attempt to offer some suggestions for practical managers, it is crucial to distinguish between the resources and competences of firms. For example, we can consider established corporate and individual product brands as "resources" of a firm, while it would be more appropriate to regard the ability to build and maintain corporate or product brands as a competence of the firm. Alternatively, we can obtain most resources by paying the appropriate price, but cannot easily develop competences of the firm. Further, we could say that resources are similar to materials or goods owned by the firm, while competences present the actions or behavior of the firm. Thus, I assumed resources and competences to be different concepts, albeit closely related.

In the book, I have defined resources of the firm as "anything that will contribute to generate revenue for the firm," and competences as "the ability of the firm to accumulate, utilize or integrate resources of the firm to provide goods and services." We could assume "architectural competence" and "component competences" as competences. The latter refers to the competences in functional areas such as R&D, manufacturing, sales and marketing, and so on, and/or competence in each business unit within a firm.

Barney proposed the VRIO framework, according to which if resources and competences are "valuable," "rare," "costly to imitate," and "exploited by organization," they could contribute towards gaining sustained a competitive advantage for the firm (2002: 173). This VRIO framework is well known to strategic management researchers and practitioners. Besides the features shown in Barney's framework (valuable, rare, inimitability, and organized), I suggested that the concept of "isolating mechanism" presented by Rumelt (1984) is also indispensable while explaining why some resources and competences could be sources of competitive advantage. With this isolating mechanism, a firm could gain a position inaccessible to other firms, which, in other words, is the competitive advantage of the firm. We can posit that the features addressed in the VRIO framework are antecedent factors of the isolating mechanism.

3. MEASUREMENT MODELS OF RESOURCE AND ANALYSES

3-1. Brand Valuation as a Measurement Model of Resource

3-1-1. *METI model*

Several resources exist, which could be the source of competitive advantage for firms. Among them, brand is one of the most influential and remarkable resources of firms, which could provide competitive advantage to firms, especially those in advanced economies. Several methods and models

measure the monetary value of a brand, from among which, this book explains the model developed by "*The committee on brand valuation, Ministry of Economy, Trade and Industry, Japan*." The report written by the committee is on the METI web-site (http://www.meti.go.jp/english/information/downloadfiles/cbrandvalue.pdf). Henceforth, this model developed by the committee will be referred to as the "*METI model*," and references and citations from the committee's report as the "***Report***."

In many cases brand means the logo, name, and design of a particular product or service but in the *METI model* it refers to a corporate brand defined as "the emblem with competitive advantage derived from corporate names or corporate logos" (***Report***, 2002: 27).

The basic expression of the model is described as follows.

BV = Brand Value
PD = Prestige Driver
LD = Loyalty Drive
ED = Expansion Driver
r = discount rate
BV = $f(PD, LD, ED, r)$

The first variable of the model is the Prestige Driver (PD), "which focuses on the price advantage created by the reliability of the brand that enables the company to sell the product constantly at higher prices compared with the competitor" (***Report***, 2002: 67). PD implies the relative advantageous position a firm enjoys in the specific market.

Most brand valuation models have been struggling with how to measure this aspect of brands, and each model has developed its unique way of measuring. The basic premise of the *METI model* was "to use only information available in the publicly reported financial statements that are assured through financial statement audit" (***Report***, 2002: 66). Thus, the following formula was proposed (***Report***, 2002: 72).

S = Sale of the firm
C = Cost of sales of the firm
A = Advertising and sales-promotion cost
S^* = Sales of the benchmark firm
C^* = Cost of sales of the benchmark firm
OE = Operating cost

$$PD = \frac{1}{5}\sum_{i=-4}^{0}\left\{\left(\frac{S_i}{C_i} - \frac{S_i^*}{C_i^*}\right) \times \frac{A_i}{OE_i}\right\} \times C_0$$

The second variable of the model is Loyalty Drive (LD), "which focuses on the capability of a brand to maintain stable sales for a long period based on stable clients or repeaters with high loyalty" (***Report***, 2002: 72). This is the proxy variable for the existence of loyal customers of the firm. In the *METI model*, this variable is expressed as below (***Report***, 2002: 74).

LD = Loyalty Drive

μ_c = Five-year average of cost of sales

σ_c = Standard deviation of cost of sales

$$LD = \frac{\mu_c - \sigma_c}{\mu_c}$$

It is important to understand why the five-year average of cost of sales is incorporated into the formula. Since the financial reporting system in Japan has changed from the period ending March 2000, at the time when we proposed the *METI model,* we could not obtain adequate historical information from the consolidated financial statements of Japanese firms. We can and should include longer-than the five-year average of cost of sales if we use this model, depending on the availability of historical financial statements.

The last variable of the model is Expansion Driver (*ED*), which "focuses on the fact that a brand with high status is widely recognized, and therefore, is capable of expanding from its traditional industry and markets to similar or different industries as well as to overseas expanding its market geographically" (***Report***, 2002: 74). We measure this variable in the following manner (***Report***, 2002: 77).

ED = Expansion Driver
SO = Overseas sales
SX = Sales of non-core business segments

$$ED = \frac{1}{2}\left\{\frac{1}{2}\sum_{i=-1}^{0}\left(\frac{SO_i - SO_{i-1}}{SO_{i-1}} + 1\right) + \frac{1}{2}\sum_{i=-1}^{0}\left(\frac{SX_i - SX_{i-1}}{SX_{i-1}} + 1\right)\right\}$$

3-1-2. *METI model* and brand management

The *METI model* was developed primarily for accounting, taxation and finance purposes (***Report***, 2002: 23). However, the model is valuable for developing and analyzing brand management. I analyzed the information from the questionnaire survey executed by the committee and the estimated brand values of Japanese major companies listed on the *First section of the Tokyo Stock Exchange*, to explore the factors contributing to enhance the brand value of firms.

The survey was carried out in 2001 and the brand valuations were estimated using data from two accounting periods ending March 2001 and March 2005, respectively. Considering the limitation of correlational data to infer the cause-and-effect relationship (Bollen, 1989), the major results from analyses of brand values of 2005 are shown here.

The analysis indicated that firms that emphasize on "sending consistent messages" and "establishing brand identity and criteria" in brand strategy showed tendencies to have higher brand values. Further, firms setting the age of customers as the basis for their market-segmentation strategy showed statistically significant higher brand values. Other results from the analyses are discussed in the book.

3-2. Valuation of Intellectual Property (IP) and IP strategy

Intellectual properties (IPs), such as patents, copy rights, trademarks are also business resources

that could provide a competitive advantage to firms. In advanced economies, generating, protecting, and utilizing IP is a crucial aspect of business strategies.

In 2003, the Japanese government publicized the "Strategic Program for the Creation, Protection, and Exploitation of Intellectual Property," which suggested not only creating and protecting IPs but also exploiting them. When exploiting IPs, it is necessary to evaluate their monetary value, especially when buying or selling them or financing on their security. During this period, that is, around the turn of the 21st century, there were many research studies about valuation of IPs, such as Contractor (2001) and Smith & Parr (2000).

Currently, the trend and enthusiasm for evaluating IPs is receding. However, this does not imply that valuation of IPs is meaningless or worthless. Rather, the trend is fading because mainly due to the deficiency of necessary information, it is almost impossible to construct a feasible valuation model of IPs. In fact, Parr & Smith (2016) continue to provide information about the IP valuation methods and ideas.

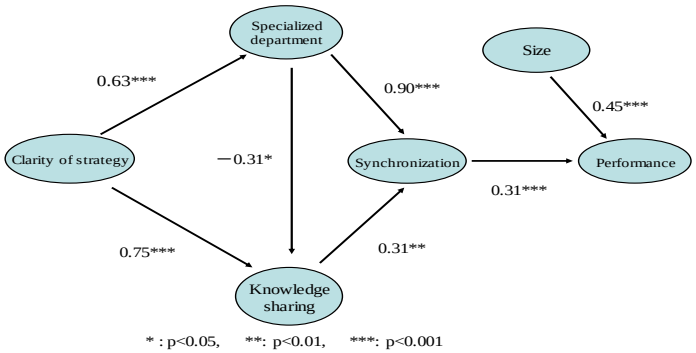
In the book, a basic idea and formula about a patent valuation model is described. However, due to its complexity, describing it here is beyond the scope of this document. For details regarding the model, please refer to the book written by Hirose, Hiruma, Fujita, Sakurai, Suzuki, & others, 2013.

Besides IP valuation, generating IPs is the vital aspect for management of business firms. Creating IPs is almost identical to innovation in business activities. However, previous studies in innovation have not focused much on IPs in the innovation process. In the book, the model about IP strategy is presented. The underlying idea about IP strategy is that we should consider IP-related information during innovation processes of the firm.

A famous example of an IP strategy is the development process of the copy machine by *CANON*. At the time when *CANON* commenced designing its own product, crucial and indispensable patents for the copy machine were held by the pioneering US Company, *Xerox*. The engineers of *CANON* studied the patents owned by *Xerox* and explored a new mechanism of the machine with new technologies that did not infringe *Xerox's* patents. Consequently, *CANON* created the requisite product and became a leading company in the global copier market. This case illustrates that it is effective and rewarding for business firms to synchronize innovation and IP, especially patent, management processes.

While procuring data from major Japanese companies via a questionnaire survey, I tested an IP strategy model as described in the FIGURE 1.

FIGURE 1　An Analytical Model of IP Strategy



This model assumes that clarity of an IP strategy has positive effects on establishing a specialized department responsible for management of patents and knowledge sharing about patents between related departments within a firm. Further, forming a specialized department for managing

patent information will have positive effects on knowledge sharing within a firm and synchronization between R&D and patent management processes. In addition, synchronization of R&D and patent management processes will lead to a higher performance as measured by the number of patents and royalty revenue.

A structural equation model analysis revealed that this model mostly fits the data in a statistically significant way. However, an interesting result was that formation of a specialized department dealing with patents and other IPs could hinder knowledge sharing between related departments. Although this analysis is not free from the constraint of correlational data and we cannot offer convincing causal relationships, it is still safe to consider that the model shown in FIGURE 1 was qualified as having empirical validity.

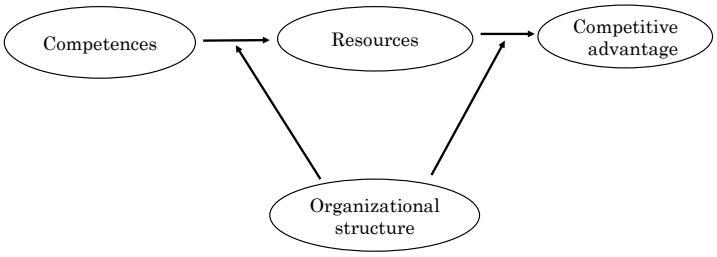
4. CONCEPTUAL FRAMEWORK OF FIRM COMPETENCES

In the previous chapters, I introduced and examined the measurement models about brands and IPs. As mentioned earlier, I distinguish between the resources and competences of firms and from this perspective, brands and IPs of a firm should be considered as firm resources. The discussion so far has implicitly indicated that although there exist some measurement models to evaluate firm resources, there is almost no model to estimate firm competences.

In this situation, I proposed a conceptual framework about firm competences. The basic notion is that there are several competences in a firm such as R&D, manufacturing, marketing, and so forth, and it would be impossible or would not be significant to try to measure the competences of a firm as a numerical value in monetary terms, such as brand value. Instead, we can estimate several competences in a firm by setting multiple indices. For example, we can estimate the competence for innovation of a firm by measuring the degree of specialization, knowledge sharing, and so forth within an organization.

At a conceptual level, we can posit the relationship among competences, resources, organizational structure, and competitive advantage of a firm as shown in the FIGURE 2. This figure suggests that the competences of a firm will influence the effectiveness of the utilization of firm resources, and these utilized resources will lead to a competitive advantage for the firm. Organizational structure such as formalization and standardization will be the moderating variables that influence the relationships between competences and resources, and between resources and competitive advantage.

FIGURE 2 The Relationship among Competences, Resources, Organizational Structure, and Competitive Advantage



Previous studies in RBV had assumed a simple causal relationship between resources and competitive advantage, which implies that valuable, rare, inimitability, and organized resources will

lead to a competitive advantage for firms (Barney, 2007). Further, as noted before, most RBV theorists had not distinguished resources, competences, and organizational structure. In contrast, in the model described in the FIGURE 2, competences, resources, and organizational structure are recognized as different factors and the relationships among them are supposed. This is a prominent feature of the conceptual framework illustrated in the book that had not been clarified in previous research in RBV.

5. CONCLUDING REMARKS

The enthusiasm for RBV in the strategic management research field seems to have receded. However, there still exist studies based on RBV (Vomberg, Homburg, Bornemann, 2015; Wang, Choi, Wan & Dong, 2016), and we can infer that RBV has become a research paradigm within the research field. Despite becoming an influential paradigm in the field, the fundamental concepts of RBV, such as firm resources and competences, are still slightly unclear. Further, we still lack a widely recognized model to measure resources and/or competences. Although this book was written almost 10 years ago, it still contains valuable information regarding such situation, for management scholars and practitioners.

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