



Research of Integrating RBV and TCE to Explore Outsourcing Decision of TMT

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To cite this article:

Tien-Chin Wang, Ming-Fa Chen. Research of Integrating RBV and TCE to Explore Outsourcing Decision of TMT. *International Journal of Economics, Finance and Management Sciences*. Vol. 4, No. 6, 2016, pp. 378-383. doi: 10.11648/j.ijefm.20160406.20

Received: November 17, 2016; **Accepted:** December 7, 2016; **Published:** January 4, 2017

Abstract: Efficiency firms have increasingly turned to outsourcing in an effort to capture cost savings. A critique of these theories as a means of understanding the complexities of R&D outsourcing is presented. The paper has used the Resource-Based View (RBV) and Transaction Cost Economics (TCE) to examine the role of specialized capabilities as a potential source of value creation in firms. Such a study would further contribute to an understanding of the outsourcing phenomenon within firms. A research model is developed that proposes different hypotheses to test from the TCE and RBV of the firm. The main contribution of this study is the offer of a mechanism to combine both theories for the outsourcing decision. This research anticipative finding the TMT positively moderates between TCE and RBV attributes to present competence on integration is support, also indicating the decisions on outsourcing can be inherent advantages in firms.

Keywords: Outsourcing, Transaction Cost Economics, Resource-Based View, Top Management Team

1. Introduction

An essential issue in internal management of firm is promoting innovation and developing technology. Some problems of research and development (R&D) activities due to uncertainty and risk linked with their new knowledge [26]. In Petrochemical industries, technology was obliged to apply for industrial intentions are available in the competitive market. Prior to engaging in the risky procedure of R&D, firms can perform a make or buy inspection and decision whether the R&D scheme is reasonable or not. Especially, outsourcing was defined as mode for creating value of organizations [37].

Over the past decade, many firms investing in technologies that improve productivity and efficiency are making outsourcing more strategic. A new part of sourcing might also help organizations focus on enhancing its productivity of internal research by Tebboune and Urquhart [43] discussed that netsourcing strategies for vendors, present a conceptual model of vendor sourcing decisions using both RBV and TCE perspective is successful, and help organizational advantages of internal specialization in research, promoting product, what's more expanding new knowledge [8]. Thus,

further outsourcing of R&D becomes an inescapable trend, which is a growing towards outsourcing of activities, previously deemed too core to be outsourced. In latest survey, outsourced downstream process development is fast, from 22.1% to 29.2% increasing in a year earlier [24].

Dewing to R&D was viewed as the core of competitive value in firms [41]. Besides, increasing in the outsourcing of R&D is linked with the growing globalization of technological activities, and it is required to integrate all of innovations [27]. It also has become a critical decision that can allow firms to develop the capabilities required to rival in business environment [40].

A critical factor in the decision to externalize R&D concerns the type of technological diversity. In comparison to the supply of products and services in petrochemical industries, the outsourcing of R&D is more difficult when the outcomes are uncertain. Hence, R&D outsourcing is more minutely when it solicitudes non-specific technologies [1].

By reason of core of R&D in the management of innovation, commanding the R&D fields of the Petrochemical firms has attracted vast consideration in practice. Teece [42] argued that firms need critical resources from external technologies, which is diversity. On the other

hand, [5] also pointed out that organizations should choose that they obtained technology externally via cooperative R&D. Even, the TMT of organizations affects the capacity to blend with effective decision-making. Therefore, TMT might provide the ability to manage resources and competences to enhance innovation performance [12].

In spite of R&D has been distinguished as a core function of the firm [25], nevertheless R&D activities still have frequently become subject to outsourcing [21]. The performance of R&D tasks for existing research has most prominently focused on two influential theories in the study of outsourcing have been transaction cost economics (TCE) and the resource based view (RBV) of the firm. Transaction cost economics specifies the conditions under which a firm should manage an economic exchange internally within its boundaries and the conditions suitable for managing an economic exchange externally [46]. On the other hand, TCE theory is used extensively [3], but the results of outsourcing advocated by TCE are seldom valid, displaying insufficiencies when deciding organizations' fields [35].

In order to defeat these restrictions, various academic papers showed that the study of outsourcing should reflect both the RBV and TCE theories [28] for bridging a former gap in the literature, and then there is relatively little research observing the impact of the effect of the TMT on outsourcing R&D performance [48]. These studies do not provide distinctly mechanisms to integrate both theories, and consequently, this paper attempt to settle an important gap to address in hereafter studies.

2. Literature Review

2.1. Petrochemical Industry

Despite a lack of oil resources, Taiwan has had a thriving petrochemical industry for a half century now. In ethylene production, Taiwan is currently the ninth largest producer of the chemicals in the world. Nowadays, in most organizations are face much challenge, which it keeps on altering in nature. Therefore, business management has become more complicated [23].

Taiwan is a small island but the eighth largest petrochemical producer in the world. Chinese Petroleum Corporation (CPC) and Formosa Petrochemical Corporation (FPC) have a combined 4 million M/T ethylene capacities, it means a huge petrochemical capacity in a small country. Moreover, Taiwan petrochemical industries did suffer a lot of depression, such as anti-pollution protest and strict environmental regulations have badly restrained the development of new petrochemical construction. After all, as regional petrochemicals development continues, the industry will face significant challenges relating to energy and feedstock availability and to climate change, particularly carbon dioxide emissions. But some expansions are delayed so we will lag behind Thailand and Singapore from future year [34].

According to Global View reported that the output of

Taiwan's petrochemicals soared to over NT\$2.2 trillion (US\$73.3 billion) in 2012, becoming the third industry to top NT\$2 trillions after the semiconductor and the flat panel display industries. Moreover, according to the government economic figures showed that the gross domestic product (GDP) in Taiwan expanded 0.15 percent in the June quarter of 2016 over the previous quarter. GDP Growth Rate in Taiwan averaged 1.31 percent from 1981 until 2016. Apart from petrochemicals production had a reduction such as market demand reduced 50% and continued until the year end. Faced with a sharp decline in business, many petrochemical manufacturers altered their annual plant maintenance schedules to be ready for any upturn in business [15].

Organizations attempt to improve returns and force to take action to encourage such firms may need to internalize more activities of the product value to overcome a mass of market defectiveness. Moreover, it is probably that outsourcing relationships governance as firms search to focus on R&D competencies [36]. Because of outsourcing activities toward trend for reduce cost, create sustainable competitive advantage and stretch technical capabilities of Organizations [4]. Most of data showed that firms have undergone a major transformation and outsourcing of R&D is becoming a central issue in manufacturing business' strategies [27].

2.2. Transaction Cost Economics (TCE)

According to Coase's [9] view, the expansion of a firm may achieve a point at which the marginal cost of organizing an internal transaction is greater than the cost of transacting in the market. In terms of innovation, outsourcing has the competence to lower innovation costs and risks [39], it also has the ability to advance financial effectiveness [10]. The determination to outsource a movement should strengthen on economic factors, while combine into the concepts of transaction costs and core competencies [46]. If outsourcing is implemented availably, it will increase firm value and operating cost will be diminished [6]. Analyzing TCE from the aspect of the decision to make or buy, the theory predicts that manage leaders will live up to business form that decrease transaction costs [44]. The decision is also facilitated by economic cause of specialized assets and uncertainties [45].

2.3. Resource Based View (RBV)

The resource based view (RBV) is a model, which view resources as a key to greater organizational performance. In order to sustain competitive advantages, organizations need to make sure their resources is permanent, not easy to imitate, and difficult to transfer or replicate [2].

According to the RBV the firms which perform better are those that hold valuable assets with certain characteristics. Organizations often focus their resources on core competencies in which they have definite advantages over their competitors [38]. Furthermore, most firms must focus their resources on a set of core competencies in which they

have definite advantages over their competitors and offer unique value to their customers [31]. Therefore, an important theory that the RBV may affected firm's core ability to accomplish market strategies in competitive market.

2.4. Theoretical Framework and Hypotheses Development

2.4.1. Asset Specificity

Asset specificity is one of the critical factors affecting outsourcing intensity in both TCE and RBV perspectives [29]. High asset specificity signifies costs that do not have value outside the transaction. The costs can be in the form of physical asset specificity such as specific equipment and machinery or human asset specificity such as level of specialized knowledge affected in the transaction [29].

RBV asserts that outsourcing decision is determined by the degree to which the firm can develop an idiosyncratic knowledge and skills produced within the firm.

In addition, TCE indicates that when the management outsourcing practices involve high levels of asset specificity. As a result, it may be preferable in-source to avoid high transaction costs and grant more frequent accommodation [13]. However, as management outsourcing functions become more specialized, asset specificity rises and altering management outsourcing functions can be difficult and costly [32]. Hence, it is hypothesized that:

H1: The higher the level of the asset specificity of management outsourcing functions, the less likely it is that management outsourcing functions will be outsourced.

2.4.2. Uncertainty

In management outsourcing practices, if business activities are dynamic, unstable outsourcing functions due to changes in corporate structure, acquisitions or factory closures; unstable number of purchase as a consequence of economical trends, the marketplace related to sequential outsourcing practices also becomes unpredictable and unstable [14]. TCE argues that if firms can predict and integrate the marketplace related to their management outsourcing practices correctly, the transaction costs should be low and organizations will outsource such functions.

Moreover, TCE indicates that in highly environmental uncertainty, firms prefer to carry out their management outsourcing functions internally, believing that they can favorably respond to the marketplace more quickly than external third party can do. Hence, the hypothesis based on the above discussion is as follows:

H2: The higher the degree of environmental uncertainty in management outsourcing functions, the less likely it is that management outsourcing functions will be outsourced.

2.4.3. Technological Diversity

Technological diversity can be defined as the variety in the knowledge system and principles underlying the nature of products and their methods of production. It is the result of a range of knowledge and competence from R&D strategic alliances.

In technological context, technology management must be

the capability to improve existing technology and to generate new knowledge and skills in response to the competitive business environment [22]. One of the objectives of the RBV is to help managers to realize why competence is perceived as a firms' most valuable asset and to understand how those assets may influence outsourcing decision.

It is useful to maintain a broad technology base to explore and experiment with new technologies for possible deployment in the future that accelerate the pace of technical advance [16]. RBV also clarified that those firms that are lack of competence; outsourcing is more appropriate. Based on these perspectives, it might be consider technological diversity as a driver of outsourcing decisions. Accordingly, we predict the following hypothesis:

H3: The stronger the degree of technological diversity, the more likely it is that management outsourcing functions will be outsourced.

2.4.4. Competitive Capability

Resource-based theorists view the firm as a unique bundle of assets and resources that, if employed in distinctive ways, can create competitive advantage [2, 33]. Therefore, the outsourcing decision is influenced by the ability of a firm to invest in developing a capability and sustaining a superior performance position in the capability relative to competitors. Activities in which the firm lacks the necessary resources or capabilities internally can be outsourced.

As management R&D outsourcing can assist greater specialization and efficiencies, a higher degree of outsourcing is expected for organizations that are faced with high levels of competition intensity. Hence, we predict the following hypothesis:

H4: The stronger the competitive capability faced by the company, the more likely it is that management outsourcing functions will be outsourced.

2.4.5. Top Management Team (TMT)

The role of the firm's top management team (TMT) is to integrate all the activities of the firm by making and implementing strategic and operational decisions capable of creating [7]. TMT decides whether to outsource and how far they can go in outsourcing R&D. Due to shortening of life cycle of petrochemical products, speed to the targeting market plays a key role in business success. Therefore, TMT plays a critical role in positioning the firm strategically. Evidence indicates that the quality of the TMT is crucial to the organization's position in the market [20].

The top management team, which may defined as team mutual confidence, trust, and fluency of task execution [30], presents a crucial antecedent of team effectiveness. Hambrick & Cho [19] refer to TMT heterogeneity as a "double-edged sword" of empirical evidence, indicating that heterogeneous teams have both beneficial and detrimental effects on firm's outcomes.

The top management team (TMT) who they not only have to face tougher challenges in outsourcing R&D, but also have been very careful to distinguish core from non-core

technologies, and they only outsource mature and declining technologies while keep full control of emerging and promising technologies. Therefore, the TMT developed a series of strategies to defend their core competences when outsourcing to third party.

In this study we advance the literature by TMT cognitive with R&D decision making. While TMT perceived environmental uncertainty, the TMT will have a strong influence on R&D outsourcing performance. In the same way that environmental turbulence moderates the relationship between the TMT and performance of organizations [18]. Consequently, the earlier arguments are summarized in the following hypothesis:

H5: TMT industrial heterogeneity positively moderates the association between TCE/RBV attributes and R&D outsourcing performance.

3. Methodology

3.1. Research Framework

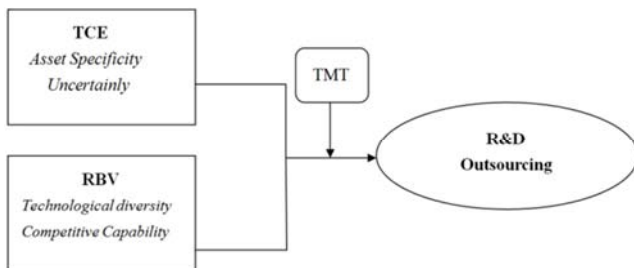


Fig. 1. Research framework.

The assumption provides a framework showed that TMT moderates the relationship between the TCE, RBV and R&D outsourcing. The different points of view, backgrounds in a diverse technological, high competitive capability and asset specificity with uncertainty to its state of theoretic analysis.

3.2. Research Design

The research presented in this paper has evolved from a research project concerned with analyzing both the theoretical and practical influences on outsourcing in petrochemical organizations. The paper derives from integrating the TCE and the RBV, and undertaking in-depth case study analysis of two organizations. This paper also engaging in an empirical investigation of outsourcing of R&D activities by petrochemical firms located in Taiwan. In order to obtain easy sample and discussion more interactive, the object of this study is petrochemical industry using case studies was instrumental to this research.

This qualitative approach was justified because outsourcing is a contemporary phenomenon having complex and dependent interrelationships in the context in which it occurs [47]. In this study, the multiple case study strategy was used because it permitted us to observe the replication of results throughout the cases by the RBV and TCE theories. The petrochemical industry consists primarily of 50 up and

mid-stream manufacturers located in Taiwan.

In a study of multiple cases, the faith depends on a well-designed research protocol [11]. The first step of the protocol required the selection of interviewees. Because the outsourcing decision is perceived as a strategic activity in organizations [17], it was decided that the interviews should be conducted with a representative of organizational strategic leadership team. The second step determines the questions to be used in the interviews.

3.3. Data Collect

To progress about the importance of TMT for outsourcing performance through an in-depth investigation of two firms of this study's sample. To take the sample of questionnaire will gather utilizing face-to-face interviews with the senior executives of the for select firms. These interviews time setting last between one and two hours and were followed by visits for direct discussion. This was accomplished by revealing the data analysis to the participants, allowing them to assess and offer the feedback on the precision of the researchers' comprehension.

4. Discussion and Suggestion

The study has used the RBV and TCE to examine the role of specialized capabilities as a potential source of value creation in firms. According to our anticipating empirical study, the analyzed firms outsource activities with the intention of reducing costs, improving the performance of concentrating their exertion on core competencies. This study also contributes an empirical proofing, and the understanding of this complex appearance of outsourcing based on the RBV and TCE theories.

From a research perspective, TCE and RBV of the relative influence and strength of relationships needs to be further evaluated. This methodology can be valuable for developing a series of research propositions.

5. Conclusions

This paper offers a better understanding of the causes why firms outsource activities in their competitive value, combining the TCE and RBV theories in the context of the petrochemical industry. The finding supports that the top management team (TMT) plays a crucial role on determining outsourcing. The study resolves that when analyzing outsourcing, the two theories should be applied in a complementary way. From the managerial view, the TMT must practice their competent role by explicitly clarifying the outsourcing strategies of organizations.

This research anticipative finding the utility of integrating TCE and the RBV, and reveal that these theories should be discreetly in implement, and the TMT positively moderates between TCE and RBV refer to present competence on integration is support, also indicating that the decisions on outsourcing capable of profit from using transaction cost economics and the resource based view in organizations.

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Biography



Tien-Chin Wang, male, Professor, PhD. He is a professor in National Kaohsiung University of Applied Sciences. He created four methodologies: Fuzzy Linguistics Preference Relations (Fuzzy LinPreRa), Fuzzy VIKOR, Fuzzy PROMETHEE, Fuzzy Incomplete Linguistics Preference Relations (Fuzzy InLinPreRa). Professor Wang is the journal reviewer: *Information Sciences*; *European Journal of Operational Research*; *IEEE Transactions on Fuzzy Systems*; *Applied Soft Computing*; *Applied Mathematical Modelling*.



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