STRATEGIC MANAGEMENT PRACTICES IN THE CONSTRUCTION INDUSTRY: A STUDY OF INDONESIAN ENTERPRISES

BY

MUHAMMAD SAPRI PAMULU

B.Eng. (Civil), M.Eng. (Project Management)

A Thesis submitted to Queensland University of Technology
in fulfilment of the requirements of a

DOCTOR OF PHILOSOPHY

School of Urban Development
Faculty of Built Environment and Engineering

July 2010

ABSTRACT

Since the establishment of the first national strategic development plan in the early 1970s, the construction industry has played an important role in terms of the economic, social and cultural development of Indonesia. The industry's contribution to Indonesia's gross domestic product (GDP) increased from 3.9% in 1973 to 7.7% in 2007. Business Monitoring International (2009) forecasts that Indonesia is home to one of the fastest-growing construction industries in Asia despite the average construction growth rate being expected to remain under 10% over the period 2006 – 2010. Similarly, Howlett and Powell (2006) place Indonesia as one of the 20 largest construction markets in 2010.

Although the prospects for the Indonesian construction industry are now very promising, many local construction firms still face serious difficulties, such as poor performance and low competitiveness. There are two main reasons behind this problem: the environment that they face is not favourable; the other is the lack of strategic direction to improve competitiveness and performance. Furthermore, although strategic management has now become more widely used by many large construction firms in developed countries, practical examples and empirical studies related to the Indonesian construction industry remain scarce. In addition, research endeavours related to these topics in developing countries appear to be limited. This has potentially become one of the factors hampering efforts to guide Indonesian construction enterprises.

This research aims to construct a conceptual model to enable Indonesian construction enterprises to develop a sound long-term corporate strategy that generates competitive advantage and superior performance. The conceptual model seeks to address the main prescription of a dynamic capabilities framework (Teece, Pisano & Shuen, 1997; Teece, 2007) within the context of the Indonesian construction industry. It is hypothesised that in a rapidly changing and varied environment, competitive success arises from the continuous development and reconfiguration of

firm's specific assets achieving competitive advantage is not only dependent on the exploitation of specific assets/capabilities, but on the exploitation of all of the assets and capabilities combinations in the dynamic capabilities framework. Thus, the model is refined through sequential statistical regression analyses of survey results with a sample size of 120 valid responses.

The results of this study provide empirical evidence in support of the notion that a competitive advantage is achieved via the implementation of a dynamic capability framework as an important way for a construction enterprise to improve its organisational performance. The characteristics of asset-capability combinations were found to be significant determinants of the competitive advantage of the Indonesian construction enterprises, and that such advantage sequentially contributes to organisational performance. If a dynamic capabilities framework can work in the context of Indonesia, it suggests that the framework has potential applicability in other emerging and developing countries. This study also demonstrates the importance of the multi-stage nature of the model which provides a rich understanding of the dynamic process by which asset-capability should be exploited in combination by the construction firms operating in varying levels of hostility. Such findings are believed to be useful to both academics and practitioners, however, as this research represents a dynamic capabilities framework at the enterprise level, future studies should continue to explore and examine the framework in other levels of strategic management in construction as well as in other countries where different cultures or similar conditions prevails.

Keywords: Indonesia, construction enterprises, dynamic capabilities, hierarchical regression analysis, competitive advantage, organisational performance.

ACKNOWLEDGEMENT

I would like to take this opportunity to take this opportunity to acknowledge those who have supported me throughout the course of my research study and contributed towards this thesis. Without them this thesis would definitely not have been possible

I would sincerely like to thank my supervisory team, Professor Stephen Kajewski as Principal Supervisor and Professor Martin Betts as Associate Supervisor. Being an International student the majority of my time has been spent working under their patient, professional and knowledgeable guidance. Their advice and guidance have been vital towards completing this thesis. Thank is also extended to Professor Martin Skittmore for his helpful comments on an earlier version of final draft of this thesis.

This study would not have been possible without the scholarships from the Faculty of Built Environment & Engineering (BEE), and Queensland University of Technology (QUT). Their financial support is gratefully acknowledged.

Sincere thanks goes to Dr. Scott Newbert for permitting me to adapt his RBV-instrument. Appreciation is also due to Mr Peter Nelson (ISS QUT) for his editorial review and Associate Professor Bambang Trigunarsyah for sharing his experience and knowledge.

Gratitude for the support and assistance from Mr Agus Kartasasmita (GAPENSI), Mr Pandri Prabono (GAPENRI/Tripatra), and Dr. Said Didu (Ministry of State-owned Enterprises of Republic Indonesia) is acknowledged and appreciated. Special gratitude is also extended to those business practitioners from the Indonesian construction industry, who kindly participated in the questionnaire survey of this study.

Finally, I would also to take this opportunity to thank my family for their continuous encouragement and support.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AEC	:	Architecture, Engineering, and Construction
AIEMC	:	Association of Indonesian Electrical and Mechanical Contractors
ANOVA	:	Analysis of Variance
BMI	:	Business Monitoring International
BPS	:	Biro Pusat Statistik
CA	:	Competitive Advantage
DC	:	Dynamic Capabilities
DCF	:	Dynamic Capabilities Framework
E	:	Environmental Hostility
FFF	:	Five Forces Framework
G	:	Grade
GDP	:	Gross Domestic Product
ICA	:	Indonesian Contractors Association
IO	:	Industrial Organisation
LPJK	:	Lembaga Pengembangan Jasa Konstruksi
NAIC	:	National Association of Indonesian Consultant
NCAI	:	National Contractors Association of Indonesia
NCSDB	:	National Construction Service Development Board
P	:	Performance
PPP	:	Public Private Partnership
R	:	Rareness/Rarity
RBV	:	Resource-based View
SCP	:	Structure-conduct-performance
SPSS	:	Statistical Package for Social Science
TCE	:	Transaction Cost Economics
V	:	Value
VRIO	:	Value, Rarity, Inimitability, Organisation

STATEMENT OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made

Signature:_____ Date:_____

CHAPTER 1
INTRODUCTION

1.1 Research Background

The construction industry is one of the key contributors to most economies. The importance of the construction industry to the economy can be measured by its contribution to the gross domestic product (GDP); its contribution to investment; and the volume of labour employed. Internationally, the construction industry contribution to GDP is from 3% to 10%; typically lower in developing countries and higher in developed countries.

Since the establishment of the first national strategic development plan in the early 1970s, the construction industry has played an important role in terms of the economic, social and cultural development of Indonesia. The industry contribution to the GDP increased from 3.9% in 1973 to 7.9% in 1996. This constitutes about 60% of gross fixed capital formation. Construction work from 1996 to 1999 was sharply reduced due to the Asian monetary crisis, but went into an upswing from 2000 to 2007 (Figure 1).

The construction sector's contribution to the country's total GDP increased from 5.5% to 7.7% in 2007 and this is set to expand to 7.8% in 2012. Despite this, the growth in construction activity has been slowing since mid-2008, according to Indonesia Economic Quarterly data (World Bank, 2009) but the slowdown has not been great and spending was still 6.3 percent higher in the first quarter of 2009 on a year earlier. Central Bureau of National Planning (Bappenas) projected the construction market of this country for the period of 2010 – 2014 to be about US$180 billion (Directorate of Public-Private Partnership Development, 2009).

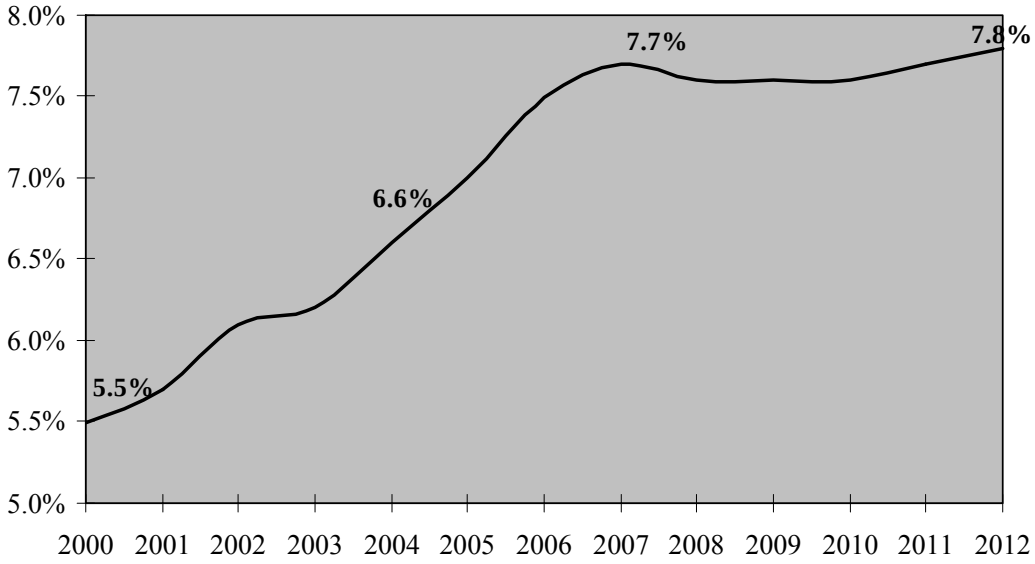

Figure 1.1 Construction contributions to GDP (BMI, 2009)

Business Monitoring International (2009) forecasts that Indonesia is home to one of the fastest-growing construction industries in Asia despite the average construction growth rate being expected to remain under 10% over the period 2006 – 2010. This expectation is applicable since Indonesia's economic outlook is certainly among the most positive in the Asia Pacific. The number of construction establishments and value of construction work is also expected to continuously grow over the next five years with the construction sector contributing 6 – 7% of GDP in this period. Business Monitoring International (BMI) forecasts that the sector will reach a value of US$78 Billion in 2013, double the figure of US$39 billion achieved in 2008, and will employ 5.6 million workers and this number will potentially reach 6.5 million in 2012 which make up approximately 6.27% of Indonesia's total workforce in 2012.

In its latest report "Indonesia Infrastructure Report Q1/2010" Business Monitor International (2010) put Indonesia as one of 14 the most rapidly growing of emerging markets, where infrastructure investments are a strategic priority for governments, and will have significantly scope for new infrastructure facilities from very basic level projects (e.g. highways and heavy rail) to higher value projects (e.g. renewable and urban transport). According to BMI data, infrastructure as a percentage of total

construction is found to be on average around 45% and above. As comparison, developed countries and emerging Europe are estimated to have on average 30% - 40% only. Furthermore, Howlett and Powell (2006) placed Indonesia as one of 20 largest construction markets in 2010 (Refer to Table 1.1).

Table 1.1 Largest Construction Markets in 2010 (Howlett & Powell, 2006)

#	Construction Market (Country)	Construction Investment (in Billion)	Growth (%)
1	China	1,196.7	285
2	United States	958.5	32
3	Japan	916.3	35
4	Germany	598.0	89
5	France	302.2	88
6	Italy	273.5	111
7	United Kingdom	224.5	57
8	South Korea	212.8	198
9	Brazil	201.5	240
10	Spain	187.5	103
11	Canada	127.9	79
12	Indonesia	120.1	567
13	Mexico	119.1	148
14	India	114.2	227
15	Australia	99.7	79
16	Netherlands	83.7	107
17	Thailand	71.1	427
18	Belgium	69.3	109
19	Switzerland	69.3	102
20	Austria	69.3	34

Although the prospects for the Indonesia construction industry have become attractive and promising, many local construction firms have still faced serious difficulties since the 97/98 crisis. As a result, many Indonesian construction firms are plagued by low profitability and low competitiveness.

Figure 1.2 shows the net profit of Indonesian listed construction firms compared to other public firms in South East Asian (SEA) countries. From this figure, it can be seen that the profitability level is lower, but in contrast the revenue from construction works is higher. This indicates that many Indonesian firms have not been able to capture such opportunities to attain a higher level of performance. Sudarto et al.

(2008) found that constraints in capturing market as a most significant factor that contribute in lowering the performance of Indonesian construction firms. They also identify low competitiveness as one of considerable factor of market forces problems

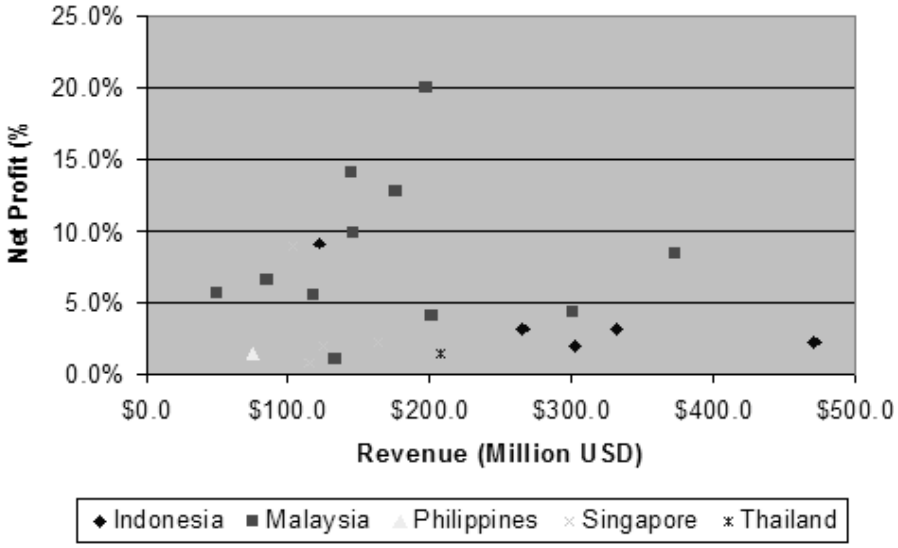

Figure 1.2 Profitability of Selected SEA Public Contracting Firms (Reuters, 2008)

In general terms, there are many reasons behind the problem of low profitability and low competitiveness. From an external perspective, the construction industry is believed to be experiencing "excessive competition" (Budiwibowo, Trigunarsyah, Abidin & Soeparto, 2009) In fact, there are so many construction companies in Indonesia, it is a mix of small, medium and large size enterprises Construction Firm Statistics (LPJK, 2006) reveal that there are 116,460 construction firms operating in Indonesia. Of these firms, 1% can be categorised as large in size, including the foreign or international affiliated firms. However, this small big firm plays a dominant role and control to the Indonesian construction market.

The Indonesian government is rapidly adopting the procurement method of public private partnership (PPP), which opens a new way for the injection of foreign private sector funds into large infrastructure projects. As a result, the competition for foreign direct investment between countries has intensified. Current figures show that the majority of foreign construction companies in Indonesia originate from Japan,

followed by the US, China and then Europe. The companies are required to operate through a loan agreement policy and international competitive bidding particularly in the oil and gas sector, power plant projects and large infrastructure projects occurs under loan or grant agreement. Chiang, Tang and Leuw (2001) identified this as institutional factor that enable foreign-owned firms to gain advantage in the host countries, thus they dominate all of sector of complex infrastructure projects in many developing countries.

From an internal perspective, it is reported that many Indonesian firms have been trapped in the public procurement process which is marked by inefficiency and high cost transactions, collusion, low competitiveness, low profitability and growth, and incompetent human resources (Suraji, 2007). Moreover, the National Board of Construction Services Development (NBCSD) (2004) also identified some significant problems being faced by Indonesian firms, i.e. financial problems due to capital shortages; market domination by the large foreign companies; and professional and technological problems due to skilled worker shortages.

From a financial accounting perspective, companies need to exercise better control over their corporate financial strategies, both in terms of direct and indirect costs. The lack of an appropriate corporate strategy means that sustaining their construction business over the long-term is difficult. As Soeparto et al. (2007) note in their recent study that Indonesian construction players prefer to have a short term benefit than long term sustainability. Moreover, some of the local firms may not be able to survive and sustain their business through the recent global financial meltdown.

In short, there are two main reasons behind the problem of low profitability and low competitiveness: the environment that they faced is not favourable, and the other is the lack of strategic direction to improve their competitiveness and performance. Betts and Ofori (1999) suggest that in developing countries, the large construction firms will need to undertake strategic management and process analysis if they are to survive the expected onslaught of foreign construction enterprises following the adoption of free-market economic policies by most governments. Small companies will also require a longer-term perspective if they are to survive factors such as

downward ‘plundering’ by larger firms, continual change in public sector development budgets, rising client aspirations, and changing industry practices.

Although strategic management has now become more widely used by many large organisations who are allocating substantial resources to the task (Price, Ganiev & Newson, 2003), its application to the construction context remains limited (Chinowsky, 2000). In addition, strategic management studies building on either practical cases or empirical findings related to the Indonesia construction industry are seriously lacking, as well, research endeavours related to these topics in developing countries appears to be limited.

1.2 Research Objectives

The main objective of this research is to construct a conceptual model to enable Indonesian construction enterprises to develop a sound long-term corporate strategy that generates a competitive advantage, and superior performance. The model should fit with the Indonesia business environment, and aims to analyse strategic factors and their characteristics and inter-relationships that would contribute to competitive advantage and the performance of the firm.

Therefore, the objectives of this research are outlined as follows:

(1) Explore a number of strategic factors and their characteristics and inter-relationships that may potentially affect the competitive advantage and the performance of a firm.

(2) Construct a conceptual model that captures the linkages with specific factors, competitive advantage and performance

(3) Verify the characteristics and inter-relationships of the factors and setting within the conceptual model based on survey feedback.

(4) Present a finalised model that will enable Indonesian construction enterprises to develop a sound long-term strategy that generates a competitive advantage, and superior performance.

1.3 Research Scope

This research seeks to address the central question in strategic management within the context of the Indonesian construction industry, with a specific focus on exploring the strategic paradigm model which is associated with "Dynamic Capabilities Framework" (Teece, Pisano & Shuen, 1997; Teece, 2007; Teece, 2009). As the key question on strategic management is how to create, and sustain competitive advantage (Hamel, 1994; Barney & Clark, 2007), thus the research question of this research is:

(1) What is the source of competitive advantage for Indonesian construction enterprises?

(2) What are the strategic factors in Indonesian construction enterprises that are associated with the Dynamic Capabilities Framework?

(3) What is the effect of their deployment on the performance of Indonesian construction enterprises?

The scope of this research is limited to those Indonesian construction enterprises belonging to the first-class qualification, which are relatively larger in size than companies in other classes and are capable of undertaking construction work in a greater scale or complexity. According to Construction Law No. 18/1999, construction enterprises consist of consulting and contracting companies. A consulting company can offer design and engineering, and supervision services. The number of certified consulting companies was 4,389 firms consisting of 3,280 firms (small), 824 firms (medium) and 285 firms (large) and registered by National Board of Construction Services Development (NBCSD) in 2008. In the same year, the number of certified contracting companies was 116,250 firms registered by NBCSD

2008. These contracting companies consist of G1 up to G7 qualification firms. The number of small contracting companies (G1-G3) was 101,293 firms (90%). The number of medium contracting companies (G4-G5) was 10,083 firms (9%) and the big contracting company (G6-G7) was only 695 firms (1%), including the foreign or international affiliated construction enterprises.

The term "construction enterprise" is adopted from Betts and Ofori (1999). It refers to any business entity involved in any aspect of the construction process within the Architecture, Engineering, and Construction (AEC) sectors including general contracting firms, specialist contractors, architectural or engineering design partnerships, cost consultancy practices, and development companies.

1.4 Research Significance

This research potentially contributes to both academics and management practices and informs strategic groups in the Indonesian construction industry. The main contribution of this research derives from filling the gap between theoretical construct and practical evidence of dynamic capabilities framework (Teece et al., 1997; Teece, 2007) within the Indonesian construction industrial context, as research endeavours related to these topics are very limited. This study introduces the dynamic capabilities framework for Indonesian construction firms which has never adopted previously by others. Ambrosini and Bowman (2009) call for researchers and practitioners to conduct more empirical test to enable the concept of dynamic capabilities to be useful for strategic management as a field of study. Thus this study should help reinforce the framework's recognition as a rigorous theory of strategic management.

The research study utilises multi-stage model which should provides a better understanding of the various interactions that affect companies' competitive advantage and performance and offers a rich understanding of the dynamic process by which asset and capability should be exploited. This multi-stage model is important because it captures the dynamics by which assets and capabilities have

long been argued to contribute to competitive advantage and organisational performance.

1.5 Structure of the Thesis

The structure of this thesis is organised as follows:

Chapter1 Introduction

Chapter 1 gives an introduction of this thesis by describing the background of this research. It also describes the objectives, scope and significance of the research.

Chapter 2 Literature Review

This chapter reviews the different streams of strategic management theories. First, it explores general strategic management concept and theories including different schools of thought in strategy, it then focuses on theories and past research on strategy that is related to construction in general and the Indonesian construction industry in particular. Finally, the chapter reviews those theories and research gaps that provide a theoretical foundation for the conceptual model to be constructed later in this research.

Chapter3 Conceptual Model and Research Hypothesis

This chapter is to describe the conceptual model to be constructed in this research, and then a series of theoretically justified hypotheses which explore the inter-relationships between the strategic factors of the construction enterprises. The conceptual model specifically focuses on the key assets and capabilities that enable the enterprises to create and retain competitive advantage. Following the model, a series of research hypotheses are addressed to explore the inter-relationships between the dynamic capabilities, competitive advantage and organisational performance in dynamic nature of the construction industry

Chapter 4 Research Methodology

This chapter outlines the methodology used to test the hypotheses. The chapter addresses the development of appropriate strategies and approaches for the research including a description of the process used to develop the survey questionnaire, research study procedures, and sample selection.

Chapter 5 Analysis and Results

This chapter describes the results of the research study performed to test the conceptual model and research hypotheses. Firstly, it briefly introduces a "hierarchical multiple regression" as a key statistical technique in this study. Secondly, it evaluates general characteristics of the respondents, survey constructs, and the descriptive statistics of survey data. Thirdly, it examines non–response bias, and the reliability and validity of the survey construct. Finally, the chapter reviews the results of statistical analysis to test the research hypotheses, and then evaluates the sequential model. It also addresses some discussions of the results and implications arising from the findings.

Chapter 6 Conclusion, Contribution and Recommendation

This chapter summarises the main conclusions of the research study, it then presents the contributions and implications made by this research. Finally, the chapter address some limitations of this study and recommendations are given on possible future research directions.

CHAPTER 2
LITERATURE REVIEW

This chapter reviews the different streams of strategic management theories. First, it explores general strategic management concept and theories including different schools of thought in strategy, it then focuses on theories and past research on strategy that is related to construction in general and the Indonesian construction industry in particular. Finally, the chapter reviews those theories that provide a theoretical foundation for the conceptual model to be constructed later in this research.

The first section examines the schools of thought and paradigm in strategy with a specific focus on Porter's (1980) five forces framework, Barney's (1991) VRIO framework, and Teece's (1997) dynamic capabilities framework. The second section turns attention to those strategy framework applications in construction industry. Finally, the last section presents a research gap in order to set up the basic theoretical foundations for subsequent development of the model, and more specifically, the dynamic capabilities framework is explored from which the conceptual model is based.

2. 1 Strategy and Strategic Management Concepts

Since the 1980s, the field of strategic management has advanced dramatically in both the theoretical domain and empirical research. It is now considered as an important field not only in business, but also in other disciplines. Ansoff is believed to develop the term "strategic management" (Mason, 1986), but the term was actually coined at a conference at Pittsburgh University in 1977 (Lyles, 1990; Pettigrew, 2006). The conference renamed "business policy" to "strategic management" and defines it in conjunction of Schendel and Hofer's (1979, p.11) definition as follows:

> *Strategic management is a process that deals with the entrepreneurial work of the organisation, with organisational renewal and growth, and more particularly, with developing and utilising strategy, which is to guide the organisation's operations.*

Before the Pittsburgh conference, Schendel and Hatten (1972) have proposed to change the name of the field from "business policy" to "strategic management".

According to Nag et al. (2007) , the field of strategic management deals with (a) the major intended and emergent initiatives (b) taken by general managers on behalf of owners, (c) involving utilisation of resources (d) to enhance the performance (e) of the firms (f) in their external environments. Hence, these six elements make up the consensual definition of the strategic management field.

The first element of definition refers to relatively deliberate, planned and emergent initiatives that occur in a firm. The second element reflects the key actors within the firm such as managers, directors, and owners. The third definitional element represents usage of the resources and its link to the firm's environment. The fourth element refers to the main objectives or outcomes of the firm. The fifth definitional element reflects the focal unit of analysis of strategic management. The last element refers to the immediate environment of the firm.

In order to best understand the central arguments of the concept, it is helpful to look at the history of the strategic management field. Hitt et al. (2004) suggest that derivation of the field of strategic management can be traced back to several different dates e.g. 1980, 1978, 1962, and 320BC. The year of 1980 was a determining year because it marked the publication of Porter's book of "Competitive Strategy" (1980), as well as the initiation of the Strategic Management Society. Hofer and Schendel's (1978) published "Strategy Formulation" which became the first textbook for the field. Alfred Chandler's "Strategy and Structure" (1962) and Igor Ansoff's "Corporate Strategy" (1965) was pioneering work on strategy. Finally, the roots of the field can perhaps be traced as early as 320 BC to the work of Sun Tzu on military strategy. Tzu wrote in "The art of War" (Hawkins and Rajagopal, 2005, p.23):

> *The one who figures on victory at headquarters before even doing battle is the one who has the most strategic factors in his side. The one who figures on inability to prevail at headquarters before doing battle is the one with the least strategic factors on his side…. Observing the matter in this way, I can see who will win and who will lose.*

Similarly, Furrer et al. (2008) divide the historical development of strategic management into three periods: (1) the precussors; (2) birth in the 1960s; and (3) transition towards a research orientation in the 1970s. The first period is the prehistory of strategic management as academic field started from studies of economic organisation and bureaucracy. These studies were to find a linkage between the study of organisation and economic ideas. The second period is characterised by the contingent perspective where organisations need to adapt to their external environment, and these studies were managerially oriented under a normative prescription. In the third period, a transition began towards a research orientation with two sets of different research perspectives. While one perspective utilise descriptive studies of strategy formation and implementation (process approach), another perspective with deductive studies seeks relationships between strategy and performance (structural approach).

Furthermore, Hoskisson et al. (1999) traced the pendulum-like swings in the emphasis of strategic management field on firms' external environments and internal resources. The period from the mid 1960s to the late 1990 is portrayed as four periodic swings from internal firm focus to external firm focus and then back again. Thus focus of the field moved from the 1960s and 1970 work in the business policy tradition to externally emphasised era in the 1980 dominated by Industrial Organisation (IO) economics, then in the mid 1980 organisational economics try to combine inside and outside perspectives, and finally with the rise of the resource- and knowledge-base theories n the 1990s, a swing back to an internal focus in explaining competitive advantage and/or performance of the firm.

As the field of strategic management is still very young, De Wit and Meyer (1998) identify strategy paradox that represents disagreeing opinions on most of the key issues within the field of strategic management, as illustrated in Table 2.1.

Table 2.1 Strategy Paradoxes (De Wit and Meyer, 1998)

Table 2.1 Strategy	Strategy Topics	Strategy Paradoxes
Strategy Process	Strategic Thinking	Logic vs. Creativity
	Strategic Formation	Deliberateness vs. emergence
	Strategic Change	Revolution vs. Evolution
Strategy Content	Business Level Strategy	Market vs. Resources
	Corporate Level Strategy	Responsiveness vs. Synergy
	Network Level Strategy	Competition vs. Cooperation
Strategy Context	Industry Context	Compliance vs. Choice
	Organisational Context	Control vs. Chaos
	International Context	Globalisation vs. Localisation

Consequently those disagreements run so deep that even a common definition of the term of strategy is illusive. Thus, it is difficult to find a single clear and commonly accepted definition of strategy. However, management theorists and practitioners agree that strategy deals with the long-term direction of an organisation. For instance, Johnson et al. (2006) define strategy as the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competencies with the aim of fulfilling stakeholder expectations. Similarly, Hubbard et al. (2008) define strategy as those decisions that have high medium-term to long-term impact on the activities of the organisation, including the analysis leading to the resourcing and implementation of those decisions, to create value for key stakeholders and to outperform competitors.

Besanko et al. (2007) argue that a firm should confront four broad classes of issues to successfully formulate and implement strategy (framework of strategy): (1) Boundaries of the firm - what should the firm do, how large should it be, and what business should it be in?; (2) Market and competitive analysis - What is the nature of

the markets in which the firm competes and the nature of competitive interactions among firms in those markets?; (3) Position and dynamics - How should the firm position itself to compete, what should be the basis of its competitive advantage, and how should it adjust overtime?; and (4) Internal organisation - How should the firm organise its structure and system internally?

Most of the theoretical work of strategy has come from one of two discipline sources: economics or organisational psychology. Base on the strategy theorist's background, French (2009) identify two group categories of school of strategic thought. First, strategy scholars with an organisation or management theory background e.g. Chaffee (1985); Whittington (1993); McKierman (1996); Feurer and Chaharbaghi (1997); Mitzberg, Ahlstrand, and Lampel (1998).

The second scholars come from an economic theory background based on the "Economic Theory of the Firm" such as Porter (1980); Jacobson (1992); Teece (1997); Rindova and Fombrun (1999); Foss (1999); Phelan and Lewin (2000). French argues that allocating the ideas of strategy into "schools" models is a better approach than seeking definitions, however in terms of epistemological perspective, the models are neither postmodernism or Critical Theory, but it is essentially Modernist.

With regard to the first category, Mintzberg (1998) has been a significant contributor to the discussion of strategic ideas. In the second category, Porter (1980; 1985; 1991) has had the greatest influence on strategic theory from economist.

Mitzberg et al. (1998) classified ten concepts that typically dominate current thinking on strategy and that can be categorized under the three major types: prescriptive schools, descriptive schools and one configuration school. Table 2.1 illustrates these ranges of concepts.

Table 2.2 Ten School of Thoughts in Strategy (Mintzberg et al., 1998)

No.	Schools	Key Source	Base Discipline	Intended Messages	Realized Messages
1	**Design**	Selznick (1957) Chandler (1962) Andrews (1965)	None (Architecture as metaphor).	Fit	Think (strategy making as case study)
2	**Planning**	Ansoff (1965)	Some links to urban planning, system theory, & cybernetics	Formalize	Program (rather than formulate)
3	**Positioning**	Sun Tzu's 'The Art of War', Porter (1980)	Economics (industrial organization) & military history	Analyse	Calculate (rather than create or commit)
4	**Entrepreneurial**	Schumpeter (1934), Cole (1946) & others in economics	None (although early writings come from economics)	Envision	Centralize (then hope)
5	**Cognitive**	Simon (1947) & J.G. March (1955)	Psychology (cognitive)	Cope or create	Worry (being unable to cope in either case)
6	**Learning**	Lindblom (1963), Bower (1970), Weick (1979), Quinn (1980), Prahalad & Hamel (1990)	None (perhaps some peripheral links to learning theory in psychology & education). Chaos theory in mathematics.	Learn	Play (rather than pursue)
7	**Power**	G.T.Alison (1971), J.Pfeffer & G.R.Salancik, & W.G.Astley (1984)	Political science	Promote	Hard (rather than share)
8	**Culture**	Rhenman (1973), Normann (1977)	Anthropology	Coalesce	Perpetuate (rather than change)
9	**Environment**	Hannan & Freeman (1977)	Biology	React	Capitulate (rather than confront)
10	**Configuration**	Chandler (1962), Milles & C.C.Snow (1978)	History	Integrate, transform	Lump (rather than split, adapt)

Prescriptive schools have a normative character of how a strategy should be developed and describe its consequences to an organisation. Design, planning and

position schools assume that strategy is a result of analysis and process. Descriptive schools describe how strategies are developed and pursued. Entrepreneur and cognitive schools put strategy as an entrepreneurial act and an organisational decision process. In configurational schools, theory of organisational configuration and resulting strategies is described. This school analyses strategy development as an interplay between organisational constraints and strategic requirements.

Further, Mintzberg et al (2003) make a link between recent approaches to strategy to these ten schools in an eclectic and interesting way. For example, research on strategic manoeuvring (first-mover advantage) links the power and positioning school, whereas the work of resources-based theory connects the cultural to the learning school – and dynamic capabilities approach of Hamel and Prahalad (1994) as a hybrid of design and learning schools.

Porter (1980, p.6) in his book "Competitive Strategy" put a foundational quest for strategic management theory by stating that

> *"The essence of formulating strategy is relating a company to its environment"*

From this statement, there are three conceptual entities that clarify relationships between the economics and strategic management, i.e. (1) strategy; (2) company (firm); and (3) environment (market). These threes are interdependent and interacting. Strategy is formed to fit and connect varying organisational and/or environmental characteristics. In other words, the theory of strategic management requires theory of market and theory of the firm to explain strategic phenomena.

Another approach to strategy concepts is provided by Whittington (2001) and Barney (2008). Whittington (2001) categorises four generic approaches to strategy: rational, fatalistic, pragmatic, and relativist. These four distinct schools of thought could basically be mapped alongside two axes: outcomes of strategy in the vertical axis and the process by which it is made in the horizontal axis (see Figure 2.2).

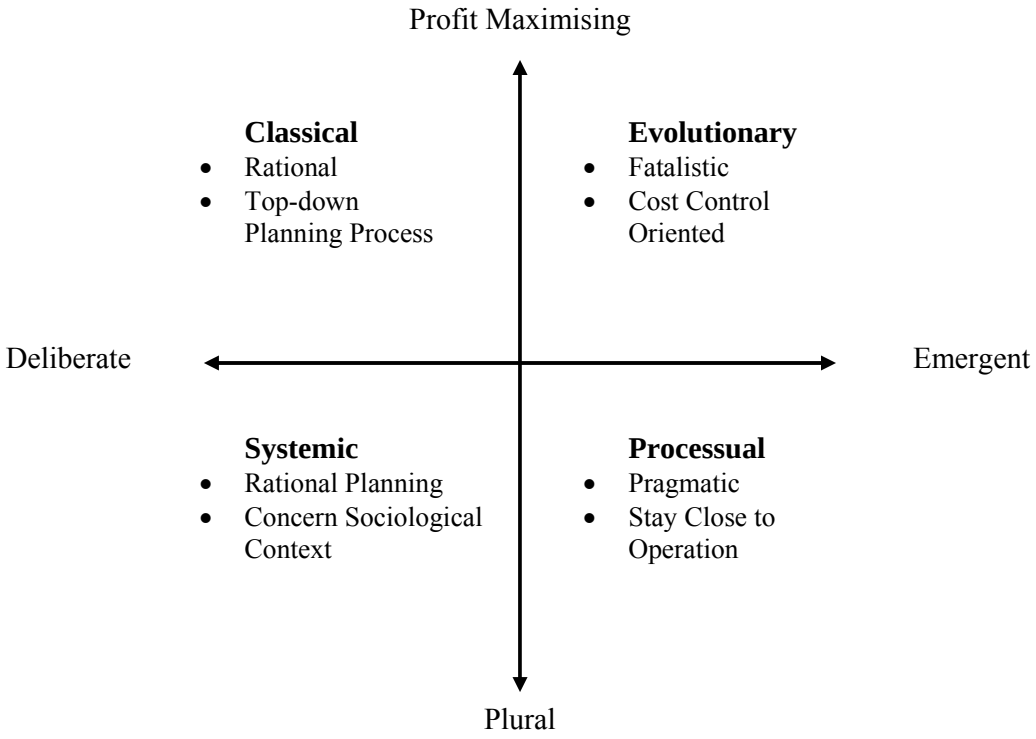

Figure 2.1 Four Generic Approaches to Strategy (Whittington, 2001)

The vertical axis examines the degree of variation of strategic intent and outcome either profit-maximizing or plural. The horizontal axis considers the fact of whether such outcomes are derived from deliberate planning or simply as an emerging product of accidents, chance, and social and organisational inertia. The basic assumptions of these approaches to strategy could be read off from the relative positions along the two axes in this figure.

Along the vertical axis, Classical and Evolutionary approaches consider that profit-maximizing is the main outcome of strategy-making; Systemic and Processual approaches are more pluralistic – many complex outcomes such as social responsibilities other than profit-maximizing are realized. Along the horizontal axis, Evolutionary and Processual approaches see strategy as emerging from processes governed by chance and accident. On the other side, Classical and Systemic approaches think that the strategy-making process should be derived from deliberate planning, calculation and formulation.

Barney (2008) classify three approaches to answer the central question in strategic management: (1) mistakes by some firms create advantages for others; (2) firms that exploit market power gain advantages over others; and (3) firms with special capabilities gain advantages over others.

Table 2.3 Approaches to Competitive Advantage (Barney, 2008)

No.	Approach	Key Authors	Theory	Managerial Prescription
1	**Mistake**	Williamson (1975; 1985), Jensen and Meckling (1976), Kogut (1991)	Transactions cost; Agency theory; Real options	Don't make mistakes!
2	**Market Power**	Saphiro (1986) Porter (1980; 1985)	Game theory: SCP models	If you have market power, use it and protect it wisely
3	**Capabilities**	Barney (1986; 1991); Teece (1997)	Resource-base Dynamic capabilities	Imitate what you can to gain competitive parity; Exploit your unique assets to gain advantage

Faced with these diversified strategic thoughts and disciplines, Teece et al. (1997) work is found to be extremely helpful in streamlining such diversity and narrowing down to two group categories of fundamentally different approaches of strategy by distinguishing the source of competitive advantage: Market Power Paradigm and Efficiency Paradigm.

Rumelt, Schendel and Teece (1994) note that the field of strategic management deals with the question of how to achieve and sustain competitive advantage. Porter (1991) also indicates that asking why firms succeed or fail is perhaps the central question in strategy. In a simplified word, what are the sources of competitive advantage and disadvantage (success or failure)?

Table 2.4 shows characteristics of strategy paradigms as distinguished by Teece (1997): competitive forces, strategic conflict, resource-based and dynamic capabilities perspective.

Table 2.4 Paradigms Strategy (Teece et al., 1997)

No.	Paradigm	Representative Authors	Nature of Rents	Fundamental Unit of Analysis	Role of industrial structure
1	**Competitive Forces**	Porter (1980)	Chamberlinean	Industries, Firms, products	Exogenous
2	**Strategic Conflict**	Saphiro (1986) Ghemawat (1986)	Chamberlinean	Firms, product	Endogenous
3	**Resource-based Perspective**	Wernerfelt (1984) Barney (1991)	Ricardian	Resources	Endogenous
4	**Dynamic Capabilities Perspective**	Prahalad & Hamel (1990) Teece (1997)	Schumpeterian	Process, Positions, Paths	Endogenous

Moreover, according to Teece, the economic rents of the first two paradigms are Chamberlinean (monopoly) rent. Firms in an industry earn rent when they have the ability somehow to impede the competitive forces which tend to drive economic profit to zero. In the game theoretic perspective, Rents in are ultimately a resulted from manager's intellectual ability to play the game. In contrast to competitive forces, the resource-based approach focuses on the rent accruing to the owners of scarce firm-specific rather than the economic profit from industry specific factors. In short, rents are Ricardian. In his framework of dynamic capabilities, Teece acknowledges that the approach is dynamic rent of Schumpeterian. Innovators earned the rent during the period of time between the introduction of an innovation and its successful diffusion. This kind of rent is also known as entrepreneurial rent (Collis and Montgomery, 1997).

In summary, a great deal of research has been carried out in the field of strategy management. It started from a business policy shift to strategic management and from external firm to internal firm focus. However, in terms of time horizon, the field has undergone a major shift in focus over the last two decades, from market paradigm to efficiency paradigm. The former focus grew out of the structure-conduct-performance (SCP) paradigm of industrial organization (I/O) economics. This first paradigm is perhaps best represented by Porter's (1980) "Five Forces"

framework. In comparison, the firm-specific focus, as articulated in the resource-based view (RBV) of the firm, focuses on a firm's individual resources as a basis for strategy. This second paradigm is relatively new paradigm, and best represented by the VRIO framework (Barney, 1991), and "Dynamic Capabilities" framework (Teece et al., 1997). Hitt (2005) suggests that I/O economics and the RBV have dominated much of the research and thinking in the field over the past 25 years. Hence, these two paradigms might be considered to be mainstream approaches to strategic management.

2.1.1 Porter's Five Forces of Framework

The five force framework is a paradigm model developed by Michael Porter (1980). This model has been dominated the strategy paradigm since the 1980s. According to Teece, Porter's model has its roots in the structure-conduct-performance (SCP) framework of industrial organisation economics of Mason and Bain (Teece, 1984). The SCP framework is shown in Figure 2.2.

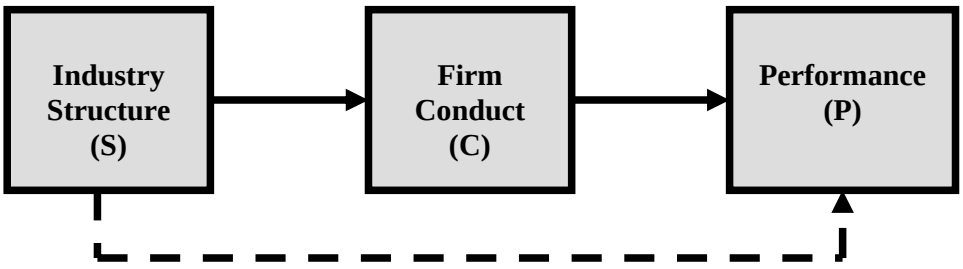

Figure 2.2 Structure-Conduct-Performance Framework

The term "industry structure" (S), in this view, refers to the characteristics of an industry. The terms "firm conduct" (C) and "performance" (P) refer to specific firm actions in an industry such as strategies and the individual firms' performance such as profitability.

The above framework views the structure of the market (industry) as the key determinant for potential profitability of the firm and industry. Firstly, the industry

structure is the major force to determine the conduct of the firm, and this conduct can determine the performance of the firm. Secondly, the industry structure might directly influence the firm's performance. The structure of the industry is a primary aspect of the firm's environment. Hence either the competitive rules of the game or the strategies potentially available to firms are highly influenced by the structure of the industry.

In the Porter's five forces framework as shown in Figure 2.3, there are five industry level forces that determine the inherent profitability of the industry: (1) "Threat of New Entrants"; (2) "Threat of substitution"; (3) "Bargaining Power of Buyers"; (4) "Bargaining power of suppliers"; and (5) "Rivalry among existing firms".

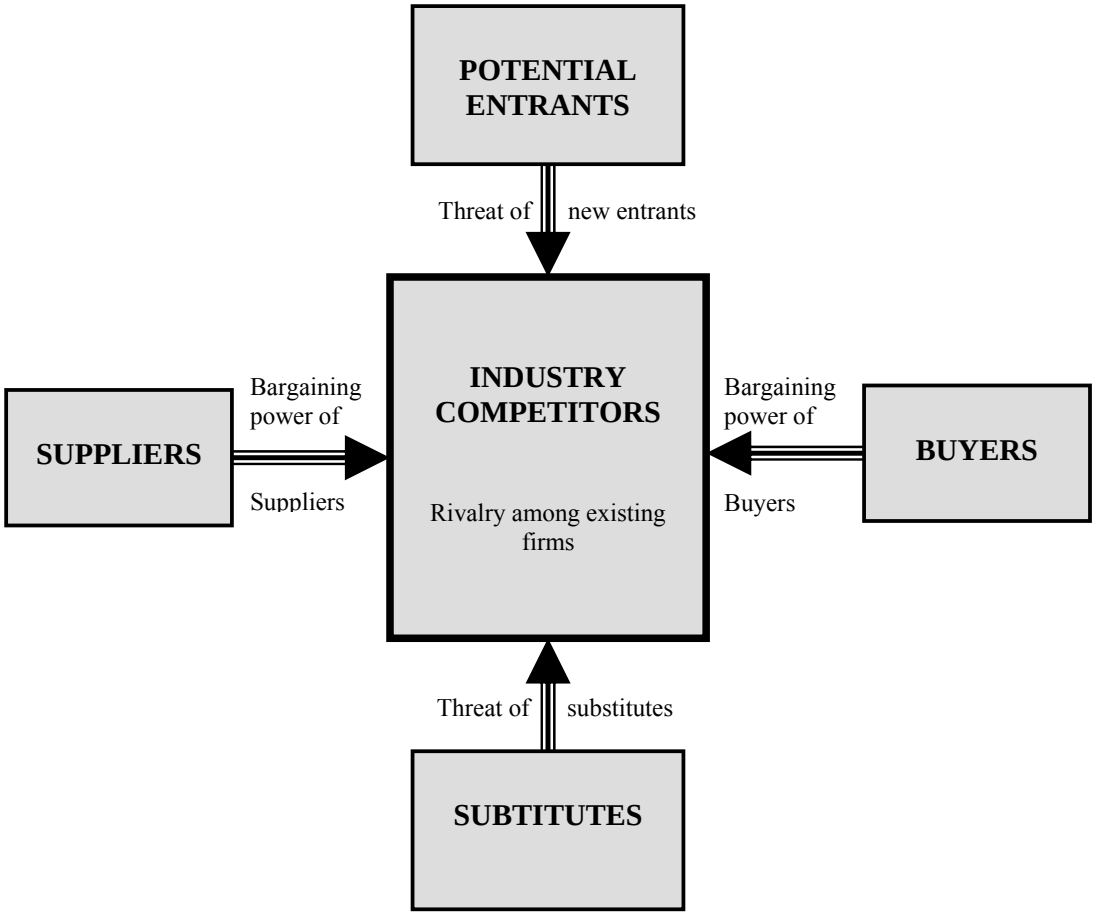

Figure 2.3 Porter's Five Forces of Competitive Framework (Porter, 1980)

The firms should find a fit position in their industry from which they can best defend themselves against competitive forces or influence them in their favour. Thus, this model is also popularly known as the position or positioning approach. The strength of their defence position against the five forces determines whether the firm will achieve competitive advantage or disadvantage. In this sense, the firm will have competitive advantage when they outperform their competitors, earning profits above the industry average. Porter (1985) argues that the fundamental basis of above-average profits in the long run is sustainable competitive advantage.

As noted above, this five-force framework provides a rigorous approach to how competitive forces ascertain the profitability of an industry where the firm stand in relation to their industry. Each element of the five forces determines its impact on industry profitability.

First forces, “Threat of New Entrants” which is decision from new competitors to enter an industry and the desire to gain market share, thus level of profits being earned by existing firms is decreased. The seriousness of the threat of entry will depend on the existence of barriers to entry and the reaction that entrants can expect from existing competitors. Porter (1980) advocates that higher barriers to entry make lower serious threat of entering for the new entrants. There are some major sources of barriers to entry including economies of scale, product differentiation, capital requirement, cost advantages independent of size, access to distribution channels, switching costs, and government policy.

The second force is the “Bargaining Power of Buyers”, where customers affect an industry through their ability to force down prices, bargain for higher-quality or more services, and play competitors off against each other. This power of buyers or customers depends on a number of characteristics of the market situation and on the relative importance of purchases to the industry compared with its overall business.

In the third forces, Suppliers can exert bargaining power on participants in an industry by raising prices or reducing the quality of purchased goods and services.

Powerful suppliers can thereby squeeze profitability out of an industry unable to recover cost increases in its own prices.

The fourth force is the "Threats of Substitution", where substitute of products and services can limit the potential returns of an industry by placing a ceiling on the prices firms in the industry can profitably charge. Substitute products and services are those products or services that appear to be different but can satisfy the same need as another products or services.

The last force is the intensity of rivalry among competitors. The amount of direct competition among the firms within industry is a determinant of the competitive state of most industries and their overall profitability. If firms in the industry exhibit a higher degree of rivalry, then make industry profits to be lower level.

According to Porter (1991), strategy can be viewed as building best defences against the five competitive forces or as finding positions in the industry where the forces are weakest. To enable the firm to deal effectively with the five competitive forces and thus generate a sustainable competitive advantage, the firm is required to develop a defendable position in an industry through competitive strategy. Although a firm can have numerous strengths and weaknesses vis-à-vis its competitors, the firm can have only one of two basic types of competitive advantage: low cost or differentiation.

As Porter (1996) notes that strategy is the creation of a unique and valuable position involving a different set of activities. The firm needs to make a choice, to be either cost leader or differentiator, it cannot do both. The company is also required to have a choice over the competitive scope of activities over which it seeks advantage - broad or narrow segments of the industry. The two basic types of competitive advantage combined with the competitive scope of activities which a firm seeks to achieve them lead to three generic strategies for outperforming rivals within an industry: (1) cost leadership; (2) differentiation; and (3) focus.

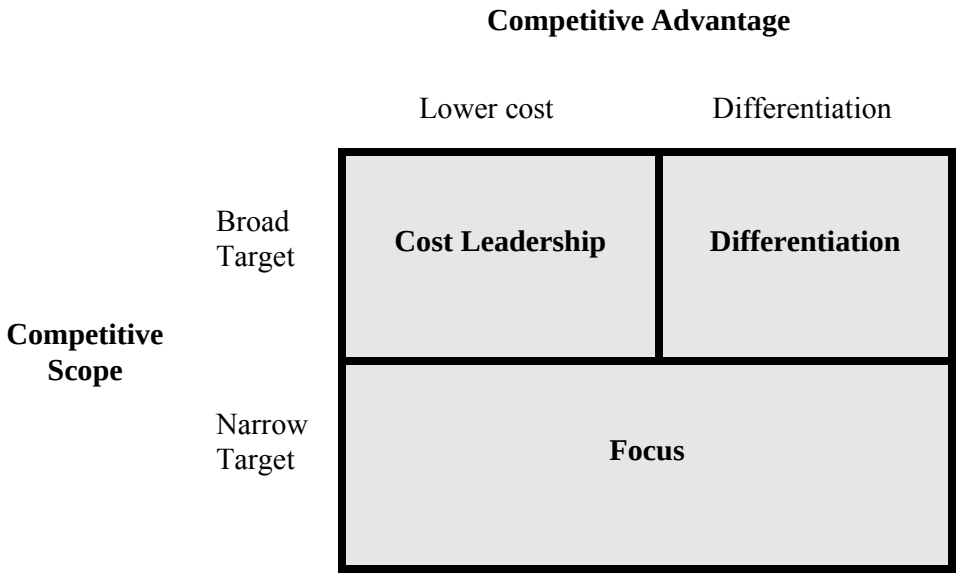

Figure 2.4 Generic Competitive Strategies (Porter, 1980)

Figure 2.4 shows the generic competitive strategies. These three strategies are referred to as generic because they apply different types of firms in different industries. The firm should be involved in each generic strategy, if it fails to do any of them it will become "stuck in the middle", and then have no advantage.

Each of the generic strategies involves a different route to competitive advantage. The first generic strategy, a cost leadership strategy engages the firm being the lowest-cost producer to outperform rivals within industry without loosing any potential profit. The second, a differentiation strategy set the firms to have unique or different products or services perceived by customers. From that uniqueness or difference, customers are ready to pay premium prices and thus allowing the firm to earn above-average profits. The last strategy is referred as a focus strategy that enables the firm to efficiently serve a particular segment or niche within market. However, the particular actions are required to implement each generic strategy differ broadly from industry to industry, as do the reasonable generic strategies in the specific industry.

Despite of the remarkable work of Porter, criticisms of the five forces framework have increased since the 1990s. First of all, it is related to static nature of analysis of the five forces framework which is having an assumption on relatively stable markets. Prahalad and Hamel (1994) argue that the reality of business during the 1990s shows that industry structures are not stable and are going through major transitions. Similarly, D'Aveni (1994) refers to an aggressive type of competition (hypercompetition) that is creating constant disequilibrium and change.

Second, criticism includes the concept of complements. Gordon (1997) suggests that the government could be as the sixth force, as it has direct in the industry and also have indirect influence by affecting the other five forces, whether favourably or unfavourably. In his book, Hunger and Wheelen (Hunger and Wheelen, 2001) also put other stakeholders as the sixth forces, including government, local communities, creditors, trade associations, special interest groups, shareholders, and complementors.

The third criticism of Porter's (1980) work is that it overemphasizes competition to the detriment of cooperation. Indeed, the five forces framework builds on Porter's conviction that the source of profits is primarily to be found in the nature and balance of competition. Brandenburger and Nalebuff (1996) use the game theory in their "value net" framework. The value net is such a map of the competitive game, which represents the players in the game and their relationships to each other. In short, the firm is required to create value and a larger market which is best undertaken by cooperating with customers and suppliers. It is suggested that a company has to play what they call as co-opetition which combines competition and cooperation (Brandenburger and Nalebuff, 1996).

Finally, another important criticism of Porter relates to the different perspective on how sustainable competitive advantage might be achieved. The criticism comes from proponents of the resource-based view (RBV) of strategy. While Porter assumes that a firm finds an attractive industry, decides to become a cost leader or differentiator, and acquires the necessary resources to achieve competitive advantage, the RBV is "inside out". The RBV perspective focuses on strategies that exploit existing firm-

specific resources. Some empirical researches show than the firm-effects have had significantly higher than industry-effects on performance e.g. Rumelt (1991), McGahan and Porter (1998), Hawawini, Subramanian and Verdin (2003).

In summary, Porter's five forces framework views the attractiveness of industry structure as the main determinant of a firm's profitability. Porter's model implies that a market entry strategy begins with carefully analysing an industry in terms of its structural forces in order to assess its profitability. If this is achieved, a competitive position should be selected in order to effectively align the firm with the industry and generate sustainable competitive advantage.

2.1.2 Resource-based VIRIO Framework

Today, the resource-based view (RBV) is considered to be one of the most widely accepted theories of strategic management (Powell, 2001). The RBV of strategy is exemplified by the work of Wernerfelt (1984), Barney (1986; 1991), Peteraf (1993), Rumelt (1984; 1991), Grant (1991), Prahalad and Hamel (1990), Teece et al. (1997), with links stretching back to Penrose (1958).

Barney and Clark (2007) acknowledge that the RBV prescriptions come from at least four sources of theoretical work: (1) the traditional study of distinctive competencies; (b) Ricardo's rent analysis; (3) Penrose (1958); and (4) the study of the antitrust implications of economics. According to Newbert (2007), Barney's (1991) paper on firm resources and sustained competitive advantage is widely regarded as the most comprehensive theoretical framework of RBV.

Barney articulates the firm's resources as the fundamental determinants of competitive advantage with two critical assumptions: heterogeneity and immobility. First, resources are assumed to be heterogeneously distributed among firms (Barney, 1991). Such a condition allows for the existence of differences in firm resource endowments. Second, resources are assumed to be imperfectly mobile (Barney, 1991). This condition allows for these differences to persist over time. Barney argues

that only resources which are simultaneously valuable and rare can generate competitive advantage.

However, the assumed heterogeneity and immobility are not sufficient conditions for sustained competitive advantage. Barney (1991) suggests that a firm resource must have the following attributes: (1) it must be valuable; (2) it must be rare: (3) it must be inimitable; and (4) must be non-substitutable in order to be source of a sustained competitive advantage. Putting these all these attributes together provides a single framework -VRIO framework- which is summarised in Figure 2.5.

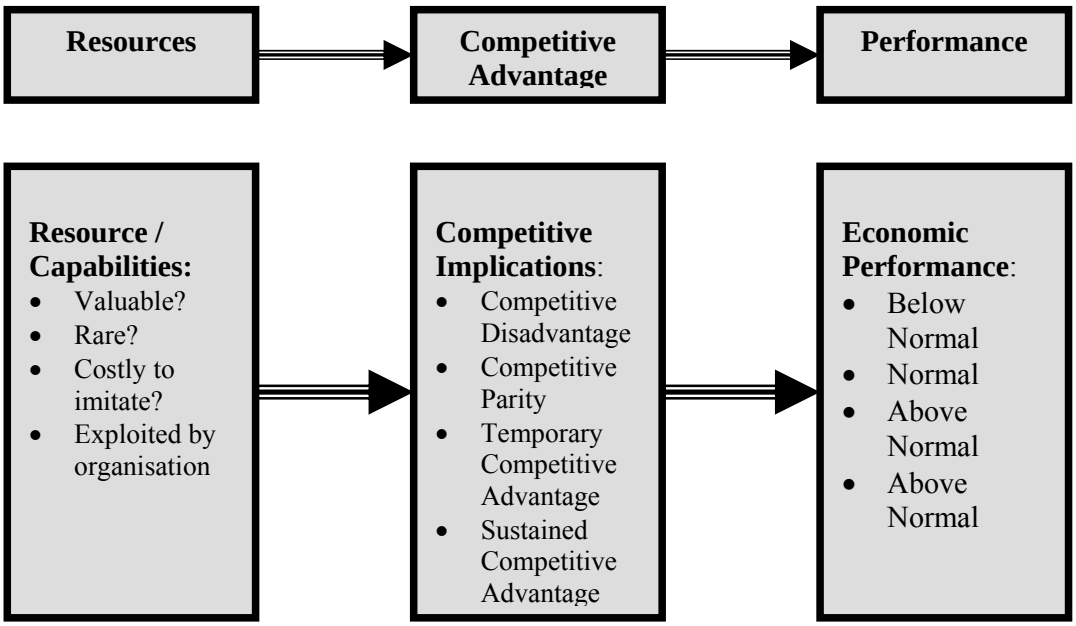

Figure 2.5 the VRIO Framework (Barney, 1991)

The framework is firstly introduced by Barney in his book on Gaining and Sustaining Competitive Advantage (Barney, 1997). VRIO stands for Value, Rarity, Inimitability, and Organisation terms. The VRIO framework expresses the four key parameters for resource-based analysis as a series of questions about the business activities of the firm:

1. The question of Value: Do a firm's resources and capabilities enable it to respond to environmental threats or opportunities?

2. The question of Rarity: Is a resource currently controlled by only a small number of competing firms?

3. The question of Imitability: Do firms without resources face a cost disadvantage in obtaining or developing it?

4. The question of Organisation: Are a firm's other policies and procedures organised to support the exploitation of its valuable, rare, costly to imitate resources?

In addition, Peteraf (1993) presents four conditions underlying sustained competitive advantage: (1) superior resources (heterogeneity within an industry); (2) ex post limit to competition: (3) imperfect resource mobility; and (4) ex ante limits to competition. First condition, Heterogeneity ensures that firms at least breakeven, at best earn rents, as firms with more efficient productive factors/resources earn rents above their marginal cost. These rents are ricardian, meaning that some firms possess superior productive factors, in limited supply, that cannot be expanded to satisfy demand - they have inelastic supply curves. This leads to other companies entering the market with inferior resources that produce as long as price exceeds marginal cost. Thus, efficient firms can sustain this type of competitive advantage only if their resources are not imitable and expandable freely by other firms.

The second condition, Ex post limits to competition, usually dependent on imperfect imitability and imperfect substitutability, serve as barriers that prevent rents from being competed away. The third condition, Imperfect mobility (property rights, patents) allows valuable resources to remain a source of sustained advantage because they are specialized to firm-specific needs, and although possibly tradable they are simply more valuable within the firm. The last condition, Ex-ante limits to competition (sunk costs) ensure that the costs incurred to establish a superior resource position do not offset the rents earned. Peteraf and Barney (2003) clarify

that Barney's (1991) and Peteraf's (1993) frameworks are consistent once some terms are unambiguously defined.

Recently, Barney and Clark (2007) have suggested some additional works including creation theory, dynamic resource-based theory, and link between resource-base theory and economics, required to expand RBV theory in the future. They also recommend additional empirical tests and mathematical models to extend resource-based theory.

Despite, the fact that the resource-based view (RBV) is one of the most broadly accepted approaches to strategic management, it is not without criticism. Criticisms relate to the unit of analysis, the tautology of RBV theory, the exogenous nature of value, the relation to the environment, and the heterogeneity.

Foss (1998) addresses a problem in terms of unit of analysis the RBV. As this view take the individual resource as the appropriate unit of analysis to study competitive advantage, but Foss (1998) points out that there are strong relations of complementarity and co-specialisation among resources. He argues there are still some important resources-related to have an understanding of the competitive advantage, those are the way resources are clustered and how they interplay and fit into the system. Foss (1998) also identifies the concepts 'capabilities' and 'competences' in this clustering and interplay. This line of criticism echoes much of Penrose (1958) work in which she argued that resources are seldom valuable in isolation. As a result, combination of the firm's resources might be able to be valuable, and then sustainable competitive advantage is unlikely attributed to one individual resource (Lockett, Thompson & Morgensten, 2009)

The second criticism is the issue of tautology. Priem and Butler (2001a; 2001b) claim the circular reasoning of the resource-based view. They argue that Barney's (1991) statement that "only valuable and rare resources can be a source of competitive advantage" is necessarily true if the concepts valuable and competitive advantage have the same definition. Peteraf and Barney (2003) answer this criticism by proposing a more narrow definition of competitive advantage, no more in terms of

profitability advantage but in terms of competitive edge. Recently, Barney and Clark (2007) later clarify that RBV theory can be stated as if it was tautological. Priem and Butler (Priem and Butler, 2001a) also identify a second important problem related to the exogenous nature of value in the RBV. In his response to this criticism, Barney (2001a) acknowledges that exogenous nature of resources value was presented in his 1991 paper. Hence, Priem and Butler (2001a) wrap these two problems up that the RBV makes a limited contribution to explaining or predicting competitive advantage and recommend further research on core connections between resources and the environment. They note that in satisfying customers' needs, resources represent what can be done, and the competitive environment represents what must be done to compete effectively. Foss (1998) argues that bringing the firm's resources and the competitive environment together into a single framework makes it easier to understand how resources contribute to performance and how resources influence competitive dynamics.

Finally, it is the condition of heterogeneity. Some scholars suggest for the development of an endogenous theory of heterogeneity. Mahoney and Pandian (1992) propose taking either the organisational economics and dynamic capabilities approach or the equilibrium model of industrial organisation into the RBV to explain the origins of heterogeneity. Furthermore, Foss and Knudsen (2003) stress that uncertainty and immobility should be the only conditions to enter the study of sustained competitive advantage as exogenous elements, whereas a host of additional conditions are candidates for inclusion as endogenous elements. These include input heterogeneity in this unbounded list of additional conditions that give shape to competitive advantage. Lockett et al. (2009) suggest that heterogeneity also creates problems for researchers who are interested in generating a homogeneous sample of firms for testing specific RBV hypotheses.

In most recent review and assessment of the RBV, Kraaijenbrink, Spender and Groen (2010) categories the critiques to the RBV into eight categories: (a) the RBV has no managerial implications, (b) the RBV implies infinite regress, (c) the RBV's applicability is too limited, (d) SCA is not achievable, (e) the RBV is not a theory of

the firm, (f) VIRIO is neither necessary or sufficient for SCA, (g) the value of a resource is too indeterminate to provide for useful theory, and (h) the definition of resource is unworkable. They argue that the first five critiques do not really threaten the RBV's status, but the last three critiques should be taken into account if the RBV is to more fully support its notion to explain sustainable competitive advantage, especially beyond predictable and stable environments.

In Summary, The resource-based view (RBV) emphasises the firm's resources as the fundamental determinants of competitive advantage. It is different to Porter's (Porter 1980) framework which sees industry as a key determining factor. However, a number of RBV authors (Wernerfelt, 1984; Barney, 1991; Mahoney and Pandian, 1992; Amit and Schoemaker, 1993; Peteraf, 1993; Foss and Knudsen, 2003; Peteraf and Barney, 2003) recognise that the resource-based perspective and industrial organisation tools, such as Porter's five forces model, complement each other in explaining the sources of firm performance. As Foss (1998) notes above a combination of these two models in a single composite framework help to explain how resources contribute to performance and influence competitive dynamics. In addition (Spanos and Lioukas, 2001) identify conceptual similarities between them: (1) the RBV and Porter's (1980) five forces framework share the view that persistent above-normal returns are possible; and (2) both perspectives seek to explain the sustainable competitive advantage phenomena.

2.1.3 Dynamic Capabilities Framework

The dynamic capabilities approach extends the strategic management notion by addressing competitive advantage in dynamic fashion, since the VIRIO model (Barney, 1991) and the five forces model (Porter, 1980) remain as static prescriptions (Prahalad and Hamel, 1994; Priem and Butler, 2001a). This approach is an evolutionary version of the RBV, where it shares similar assumptions Barney (2001b), however it also incorporates external factors such as institutional and market position. Teece and Pisano (1994) suggested that it is necessary to consider

the shifting character of the external environment and hence the key role of strategic management, which is predominantly about adapting, integrating and reconfiguring internal and external organisational skills, resources and functional competencies toward the changing environment.

There are various definitions on dynamic capabilities, but the original definitions of referred to the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments (Teece et al., 1997). Helfat et al. (2007) define dynamic capability as the capacity of an organisation to purposefully create, extend, or modify its resource base.

Similarly, Helfat and Peteraf (2003) suggest that dynamic capabilities involve adaptation and change as it build, integrate, or reconfigure other resources and capabilities. Einsenhardt and Martin (2000) describe dynamic capabilities as the firm's process that utilise resources –specifically the processes to integrate, reconfigure, gain and release resources- to match and even create market change. Zollo and Winter (2002) define dynamic capabilities as a learned and stable pattern of collective activity through which organisation systematically generates its operating routines in pursuit of improved effectiveness.

Despite these different perspectives, they share similarities where all definitions tend to assume dynamic capabilities as firm-specific process, activities or routines, and also put the inimitability of the firm capacity to build and reconfigure the resource base as the key to attain competitive advantage.

According to Barreto (2010), Teece's dynamic capabilities approach consists of six main elements that emphasise its major theoretical underpinnings. First, they categorised the nature of the concept as being an "ability" (or "capacity"), stressing the critical role of strategic management. Hence it extended RBV by suggesting a different kind of capability.

Second, they specified the role of the capability as being to integrate (or coordinate), build, and reconfigure internal and external competences. In this case, it assumed an

evolutionary economics perspective (Nelson & Winter, 1982) by articulating the role of routines, path dependencies, and organisational learning.

Third, it focused on a particular type of external context, namely, rapidly changing environments. This is a natural consequence of dynamic capabilities approach as an extension of the RBV toward regimes of rapid change, for which it undertook a more entrepreneurial perspective (Schumpeter, 1934).

Fourth, it is assumed that dynamic capabilities are typically built rather than bought and that their creation and their evolution are embedded in organisational processes that are shaped by firms' asset positions and the evolutionary paths they have adopted in the past. This assumption is consistent with the evolutionary economics perspective.

Fifth, it emphasised that dynamic capabilities are heterogeneous across firms because they rest on firm-specific paths, unique asset positions, and distinctive processes. These are similar to resources and capabilities considered within RBV. Finally, dynamic capabilities approach clearly claimed sustained competitive advantage as a direct outcome.

The dynamic capabilities paradigm is perhaps best represented by Teece's (Teece et al. 1997; Teece, 2007) dynamic capabilities framework. According to Teece et al. (1997), the term actual "dynamic capabilities" highlights two key aspects that were previously oversimplified. First, the term dynamic refers to changing business environment that requires the capacity to renew competences and innovative responses. Secondly, the term capabilities are seen as the manner in which firms appropriately adapt, integrate, and reconfigure their internal and external skills, resources and competences in order to respond to a changing environment.

Teece (2007) acknowledges that the dynamic capabilities approach builds upon the theoretical foundation provided by Schumpeter (1934), Penrose (1958), Williamson (1975; 1985), Barney (1986), Nelson and Winter (1982), and Teece (1988; 1994). Teece (2007) claims that the dynamic capability framework draws from intellectual streams, including entrepreneurship, the behavioural theory of the firm and

behavioural decision theory, organisation theory, transaction cost economics, and, to some extent, evolutionary economics.

According to Ambrosini and Bowman (2009), Teece and Pisano's (1994) article on the dynamic capabilities of the firms is the first formal publication of the dynamic capabilities framework. They pointed out that it is essential to consider the changing nature of the external environment and hence the role of strategic management, which is principally about 'adapting, integrating and configuring internal and external organizational skills, resources and functional competencies toward the changing environment (Teece & Pisano 1994). Then the framework was elaborated upon in Teece et al. (1997) and Teece (2007; 2009). They defined dynamic capabilities as 'the particular (nonimitability) capacity of business enterprises to shape, reshape, configure, and reconfigure assets so as to respond to changing technologies and markets and escape the zero-profit condition (Teece 2007; 2009). The Teece's (1997; 2007) framework is shown in Figure 2.6 and Table 2.4.

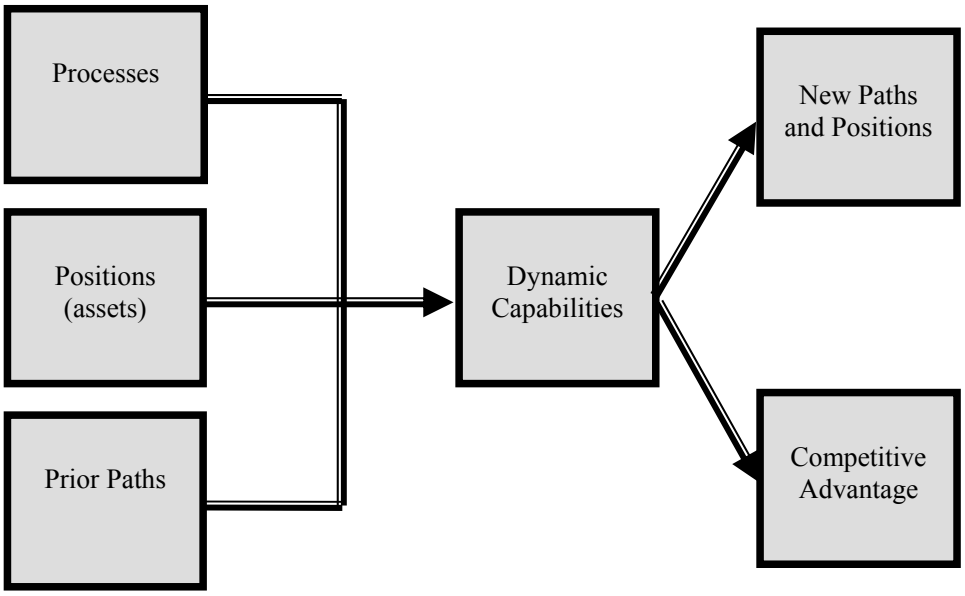

Figure 2.6 Dynamic Capabilities Framework (Teece et al. 1997)

In their framework, Teece et al. (1997) described dynamic capabilities as processes shaped by positions and paths. Hence, these three dimensions make up the

conceptualisation of the dynamic capabilities. The processes are the mechanisms by which the dynamic capabilities are put in to use (Helfat et al., 2007). Positions and paths are the internal and external forces enable and constrain dynamic capabilities.

Schreyogg and Kliesch-Eberl (2007) suggest that the "process" dimension is at the heart of conception of dynamic capabilities. In Teece and Pisano (1994) and Teece et al. (1997), there are three organisational and managerial processes as core elements of dynamic capabilities. Those process have three roles: (1) coordination/integration (static concept); (2) learning (dynamic concept); and (3) reconfiguration (transformational concept) within the dynamic capabilities framework. Since the dynamic capabilities concept comprises both static and dynamic elements, it is reasonable to call it as an integrative approach.

The coordination and integration refers to role of managers to coordinate or integrate internal and external activities of the firm. Teece et al. (1997) argue that strategic advantage increasingly requires the integration of external activities and technologies as well as the importance of efficient and effective internal coordination/integration.

Learning is a process by which repetition and experimentation enable task in order to have better and quicker performance. The learning is believed more important process than integration, as in the concept of dynamic capabilities a coordinative management process opens the door to the potential for inter-organisational learning (Teece et al., 1997). According to Easterby-Smith and Prieto (2008), the process of learning is a central element in the creation and renewal of dynamic capabilities

Reconfiguration and transformation refers to the ability to sense the need reconfigure the firm's asset structure and to accomplish necessary internal and external transformation. Teece et al. (1997) point out that the capacity to reconfigure and transform is itself a learned organisational skill. Thus the more frequently those capacities practiced, the easier accomplished.

Table 2.4 describe different assets that are relevant to the position and its enhancing points of differentiation. Positions, like coins are double sided. It refers to both internal and external positions. The internal position relates to five assets of the firm

i.e. technological, complementary, financial, reputational, and structural assets. The external position refers to the firm vis-à-vis its institutional environment and its market (structure) assets. Teece et al. (1997) suggest that the strategic posture of a firm is determine not only by its learning processes and by the coherence of its internal and external processes and incentives, but also by its specific assets.

Table 2.5 Assets and Its Position within Dynamic Capabilities (Teece et al. 1997)

Positions	Assets	Differentiation Points
Internal Position	Technological Assets	• All technology does not enter into emerging markets of know-how as firms are unwilling to sell it, and it is difficult to transfer • Thus ownership protection and utilisation are key differentiators among firms
	Complementary Assets	• Technological innovations require the use of certain related assets to produce and deliver new product and services
	Financial Assets	• Firm's cash position and degree of leverage have strategic implications
	Reputational Assets	• Reputation often summarise a good deal of information about firms and shape the responses of customers, suppliers, and competitors • The intangible assets enable firms to achieve various goals in the market
	Structural Assets	• Formal and informal structure of organisation and their external linkages have an important bearing on the rate and direction of innovation, and how competencies and capabilities co-evolve
External Position	Institutional Assets	• Public policies are important in constraining what firm can do • Institutions are critical element of the business environment
	Market Assets	• Market position in regimes of rapid technological change is often extremely fragile • Strategy should be formulated with regard to the more fundamental aspects of firm performance, which is rooted in competencies and capabilities and shaped by positions and paths

The current position of a firm determines to certain extent the future of the decisions a firm can make. Furthermore, Teece et al. (1997) explain that the position of the

firm will determine the firm's strategic posture and competitive advantage. The competitive advantage depends on the stability of market demand and the easiness of replicability (expanding internally) and inimitability (replication by competitors).

Paths (path dependencies) are about history of an organisation and recognising that history matters, that 'bygones are rarely bygones' and that the firm's past and present guide and constrain its future behaviour.

Teece (2007) returns clarify his early framework in his article on the nature and microfoundations of dynamic capabilities. Dynamic capabilities redefined as the particular (nonimitability) capacity of business enterprises posses to shape, reshape, configure, and reconfigure assets so as to respond to changing technologies and markets and escape the zero-profit condition (Teece, 2007). He argues that dynamic capabilities are the foundation of enterprises-level competitive advantage in regimes of rapid (technological) change.

The enterprise requires sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied in order for it to build and sustain competitive advantage (Teece, 2007). Sensing refers to analytical systems (and Individual Capacities) to learn and to sense, filter, shape, and calibrate opportunities. Seizing refers to enterprise structures, procedures, designs and incentives for seizing opportunities; transforming refers to continuous alignment and realignment of specific tangible and intangible assets.

According to Teece (2007), the dynamic capabilities framework is not only to give emphasis to the traits and process needed to achieve good position in a favourable environment, but it also endeavours to explain new strategic considerations and the decision-making disciplines needed to ensure that opportunities, once sensed, can be seized; and how the business can reconfigured when the market and/or the technology inevitably is changed once again.

As shown in Table 2.5, Teece (2007) further disaggregates dynamic capabilities into 12 component capabilities that are necessary to sustain superior enterprises performance in highly dynamic environment

Table 2.6 Dynamic Capabilities Framework (Teece, 2007; 2009)

Dynamic	Foundations	Micro-foundations
Sensing	Analytical systems (and individual capabilities) to learn and to sense, filter, shape, and calibrate opportunities	Processes to direct internal R&D and select new technologies
		Processes to tap supplier and complementor innovation
		Processes to tap developments in exogenous science and technology
		Processes to identify target market segments, changing customer needs
Seizing	Enterprise structures, procedures, designs, and incentives for seizing opportunities	Delineating the customer solution and the business model
		Selecting decision-making protocols
		Selecting enterprise boundaries to manage complements and "control"
		Building loyalty and commitment
Transforming / Managing Threats	Continuous alignment and realignment of specific tangible and intangible assets	Decentralization and near decomposability
		Governance
		Cospecialization
		Knowledge management

Despite the dynamic capabilities perspective (Teece et al., 1997; Teece, 2007) has drawn increasing attention from management scholars in recent years, it is not without criticism. Arend and Bromiley (2009) address some criticisms relate to its lack of clarity or coherent theoretical foundation, oversimplified dynamics of strategic change, unresolved measurement issues and weak empirical support. In response to the criticism, Helfat and Peteraf (2009) argues that Teece et al.'s (1997) concept of dynamic capabilities is identifiable theoretical foundations, and the concept is also rooted in the resource-based view (RBV).

Moreover, Helfat and Peteraf (2009) also find these critiques are suffering from a number of misconceptions regarding the relationship between dynamic capabilities and performance in Teece et al. (1997), Eisenhardt and Martin (2000) and Teece

(2007). Dynamic capabilities are clearly concerned with strategic issues related to firm performance which is largely missing from research on change management, as Arend and Bromiley (2009) nominated "change management" as an alternative to dynamic capabilities.

In Summary, in this strategy perspective, in rapidly changing environment, competitive success arises from the continuous development and reconfiguration of firm specific assets ((Teece and Pisano, 1994; Teece, Pisano et al., 1997; Teece, 2007). Since it composites an internal and external strategic factors, this most recent paradigm provides a valuable point of view in securing competitive advantage of the firm. Moreover, dynamic capability is a complete approach, which integrates and synthesises concept and research findings from the field of strategic management, from business history, industrial economics, law and economics, the organisational science, innovation studies, and elsewhere (Teece, 2007). However, as the theoretical construct of dynamic capabilities did not start until Teece et al. (1997), it is lack of empirical support. Hence (Ambrosini and Bowman, 2009) suggest that to enable the concept of dynamic capabilities to be useful for strategic management, as a field of study, and for practitioners, it should be fully researched in the near future.

2.2 Strategic Management in Construction

Numerous studies have been developed to explore the concept of strategic management and practice in the construction industry. Construction researchers have built their own framework to answer the central question in strategic management which is how to create and sustain competitive advantage by adopting two mainstream paradigm in strategic management, i.e. the external-focus and internal-focus paradigms. Price and Newson (2003) found that despite the variety of definition of strategy in the construction industry, Johnson's (2006) definition is commonly accepted. According to Brown (2004), the UK construction and engineering industry has shown a high commitment to strategic management development.

Despite this, Chinowsky and Meredith (2000) and Betts, Clark, and Ofori (1999) noted that strategic management application to the construction context remains limited and lags behind that in other industries. Cheah and Garvin (2004) found that operational strategy has dominated strategic management research in the construction industry. Indeed, strategic management capabilities are being broadly developed by many large construction firms, however, there are considerable limitations which need to be addressed (Price et al., 2003). After identifying all eight schools of thoughts in business management, Huovinen (2004) concluded that there is no established tradition in construction-related business management research.

Among the numerous scholars who have investigated the application of strategic management in the construction context are Betts and Ofori (1992; 1993; 1994; 1999) who introduced the idea of strategic planning and a five-framework level of strategic management in construction; Male and Stocks (1991) who developed an organisation model for the construction company; and Langford and Male (1991; 2001) who developed a basic framework for the contingency model of strategic management in construction. These authors provide a systematic way of thinking about how construction organisations should develop and sustain their competitive advantage. However, Lansley (1987; 1994) and Hillebrandt and Cannon (1989; 1990; 2000) remain as foundation-stone scholars for corporate strategy in the construction context. Lansley (1994) and Hillebrandt (2000) introduced Williamson's (1985) transaction cost approach as a strategic perspective in construction. This is the first momentous work in relation to economic ideas.

Betts and Ofori (1992; 1999) made an important contribution with their linkage of the study Porter's framework of five competitive forces (Porter, 1980), and generic strategies (Porter, 1980) in a construction business environment. They suggested a Five-level framework at which strategic management may be applied in the construction context: (1) National construction industry, (2) Professional Institution, (3) Construction Enterprise, (4) Construction project, and (5) Construction product. While recognising the importance of professional institution and trade associations,

they argue that the corporate or enterprise level is a most significant example of strategic management and business process analysis.

Though Bett's (1999) work focuses primarily on exogenous factors in determination of competitive advantage, he also considers slight endogenous factor i.e. "core competencies" as an alternative strategic approach to business by a construction firm, following Prahalad and Rumelt (1990), who are resource-based theorist. However, Betts et al. (1999) suggested the importance of a new approach to the management of construction enterprises due to the dynamic nature of environment in the construction industry.

While Betts and Ofori's (1992; 1994) work mostly represent the economic theory of the firm, Male and Stocks (1991) and Langford and Male (1991; 2001) primarily address strategic ideas from an organisational/management perspective. Male and Stock (1991) proposed a preliminary model of a construction company based on Mitzberg's (1983) component model of a large organisation and nominated the strategic apex, the middle line, and the operating core as important elements in a construction firm.

Langford and Male (1991; 2001) identify organisational structure; reputation and innovation are primary sources of distinctive capabilities stem. These capabilities may lead to a competitive advantage, as Male and Stocks (1991) note that innovation as one of specific-firm advantage for construction enterprise. In presenting their contingency model of strategic management for construction, Langford and Male (1991) described the importance of the human capital for strategic flexibility under a given set of environmental evolutions. According to them, to translate those into strategic management behaviour, the construction firm should cooperate with others in the market to achieve competitive advantage.

From 2000 onward, strategy research in construction started to spread with some researchers explicitly addressing the endogenous view of strategy, with a focus on internal structure, resources, and capabilities of the construction firm. However, prior to that period, Junnonen (1998) and Winch (1998) had pointed out that the resource-

based view (RBV) and Transaction Cost Economics (TCE) were appropriate for analysing construction companies, both in terms of their operations and strategy formation.

Among the most relevant research of strategic management in construction that followed the firm-specific model are those offering a competence-based approach (Lampel, 2001; De Haan, Voordijk & Joosten, 2002; Huovinen, 2005; Chew, Yan & Cheah, 2008), Transaction cost approach (Bang, 2002; Bridge and Tisdell, 2004), and resource-based view (Liu and Wu, 2004; Jaafar and Abdul-Aziz, 2005; Phua, 2006). Jaafar and Abdul-Aziz (2005) offer a dynamic version of resource-based approach and confirmed that managerial capability is determinant of the construction firm's success.

Similarly, De Haan et al. (2002) and Chew et al. (2008) empirically show that the core capability is a sound approach to explain the construction firm's performance. Whilst De Haan et al. (2002) refer to offers of innovation; marketing and production capabilities as determinants, Chew et al. (2008) add them with entrepreneur capability. They both recognise their study emerges from a resource-based perspective.

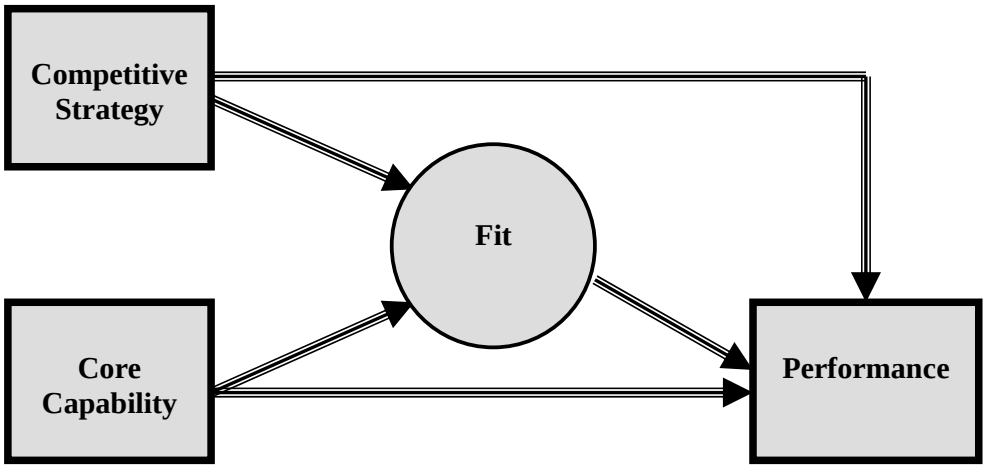

Figure 2.9 Strategy Framework for Construction SMEs in China (Chew et al., 2008)

In contrast, Lampel (2001) found that the core competency theory explains the success of project-based services firms. Ngowi, Iwisi and Mushi (2002) found that Botswana construction firms could not acquire large quantities of resources and capabilities that enabled them to create and sustain a competitive advantage. Cheah and Garvin (2004) developed an open framework for corporate strategy in construction, and lay out seven strategic fields and two internal mechanisms in corporate strategy. Huovinen (2004) argues that a firm's competence has played a key role as a part of the generic and construction-related business-management concepts in the last decade.

The endogenous approach has attracted a more attention as the exogenous model has come under criticism; however, Porter's (1980) model of competitive forces and generic strategies is still popular among from construction economic scholars. Some recent studies of those models are adopted by Korkmas and Messner (2008), Yates (2007), Price (2003), Kale and Arditi (2002; 2003), Dikmen and Birgonul (2003), Ozlem (2001), Rapp (2001), Wang and Yang (2000). For instance, Wang and Yang (2000) proposed a business strategies model based on Porter's generic strategies (1980) for Australian construction companies.

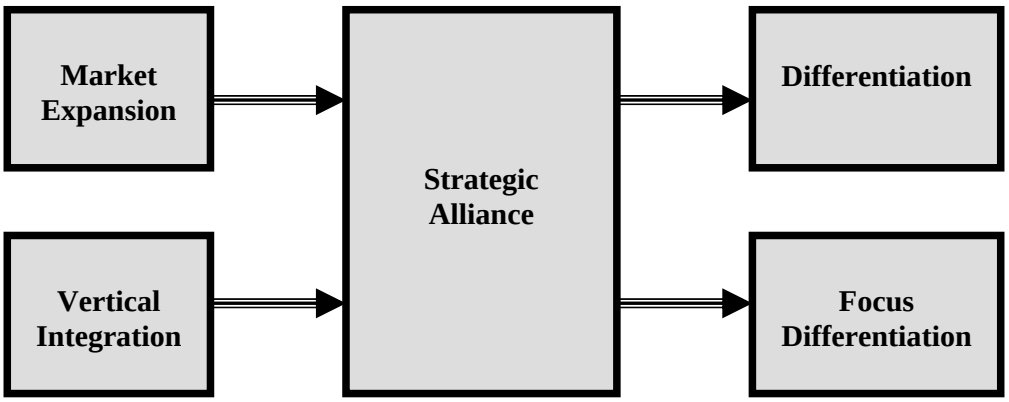

Figure 2.10 Business Strategies for Australian Construction Firms (Wang & Yang, 2000)

They recommend two types of strategic choices: a strategic alliance through a market expansion overseas and integration strategies as common strategies, and differentiation strategy as generic strategies for the Australian construction firms. Overall, Porterian-based scholars, while recognising industry-specific factors as determinants for competitive advantage, also noted that dynamic nature of environment should be addressed.

For instance, Yates (2007) addresses the changing nature of construction industry competition such as barriers to competitiveness, nationalism issues, and external influences on competition. He argues that although there are always new ways to compete against local firms, it requires more knowledge about local conditions, cultures, and politics, thus organisational transformation is the most effective strategy to adopt for the next century. Construction enterprises should transform their organisations from their native country's way and move them toward the forefront of domestic and global business arenas at the close of the twentieth century (Yates, 2007). Price and Newson (2003) believe that for many construction enterprises, success in the future will depend upon on transformational strategies.

Phua (2007) in another study also found that senior manager's perception of environmental uncertainty positively affects the strategic function of construction firms. These findings indicate importance of considering dynamic fashion in strategising for construction enterprises, and as the result, Korkmas and Messner (2008) suggest that future research should focus on the change of environmental factors.

Similarly, in their latest report "2009 Construction Industry Strategy Survey", Blair (2009) found that there is a significant shift in the industry context, and then construction firms must adapt their strategies to remain viable. The shifting context is the main impetus driving construction enterprises to revisit their current strategy. The findings suggest that while most companies anticipate a high degree of future uncertainty, the firms have not adapted the way they develop strategy.

While most scholars nominate a certain approach, another study combines those two approaches (Chinowsky and Meredith, 2000; Bridge and Tisdell, 2004; Phua, 2006; Cheah, Kang & Chew, 2007; Lu, Shen & Yan, 2008; Wethyavivorn, Charoenngam & Teerajegul, 2009). Chinowsky (2000) identifies both internal and external issues as a central of part of the strategic management process in the context of the construction industry: vision-mission-goal, core competencies, knowledge resources, education, finance, markets, and competition.

Chinowsky (2000) found that knowledge (technology) resources and market awareness were strongly positive issues, while education and competitive positioning required more strategic emphasis from construction organisations. Bridge and Tisdel (2004) developed a framework through a combination of RBV and TCE to find the determinants of the vertical boundaries of the construction firm. Study by Florence Phua (2006) found that both industry-specific institutional and firm-specific resource based factors positively affect the firm performance.

Wethyavivorn et al. (2009) introduce "capability framework" which is developed from Ansoff's (1965) "organisational capabilities", Porter's (1985) "value chain", Grant's (1999) classification of resources; Rangone's (1999) "core capabilities" and Warszawski's (1996) "business capabilities" in construction. They found 14 strategic assets that drive on organisational capabilities of Thailand construction firms. Thai construction organisations emphasis that three the most strategic assets to enhance their competitiveness in the market: excellent reputation, strong bargaining power, and financial stability.

Similarly, in their study on impact of resource and capabilities on construction companies' performance, Izik, Arditi, Dikmen and Birgonul (2009) find that the performance is determined by resource and capabilities, strategic decisions, strong relationships and project management competencies. In other study, having specialisation in particular construction project is identified as the strongest advantage for Turkish construction firms (Kazaz and Ulubeyli, 2009). Nguyen, Neck and Nguyen (2009) suggest that combination of social and technical capabilities is an

ideal approach to gain competitive advantage and improve the performance of construction organisations.

All of the findings also confirm that the importance of firm-specific capabilities in creating and sustaining competitive advantage (Ngowi et al., 2002). Overall, the composition of those capabilities is dominantly governed by intangible assets' contribution.

Another interesting study is conducted by Cheah et al. (2007) who develop a conceptual model that combines Porter's, resource and competence-based approaches. Their conceptual model is tailored to the large Chinese construction firms (see figure 2.9). Cheah et al. (2007) argues that some Western theories of strategy may be applicable to the Chinese construction context, however some influential local environment issues should be considered. They reveal that two competitive strategies i.e. differentiation strategy and market/product diversification contribute directly to the firm's competitive advantage.

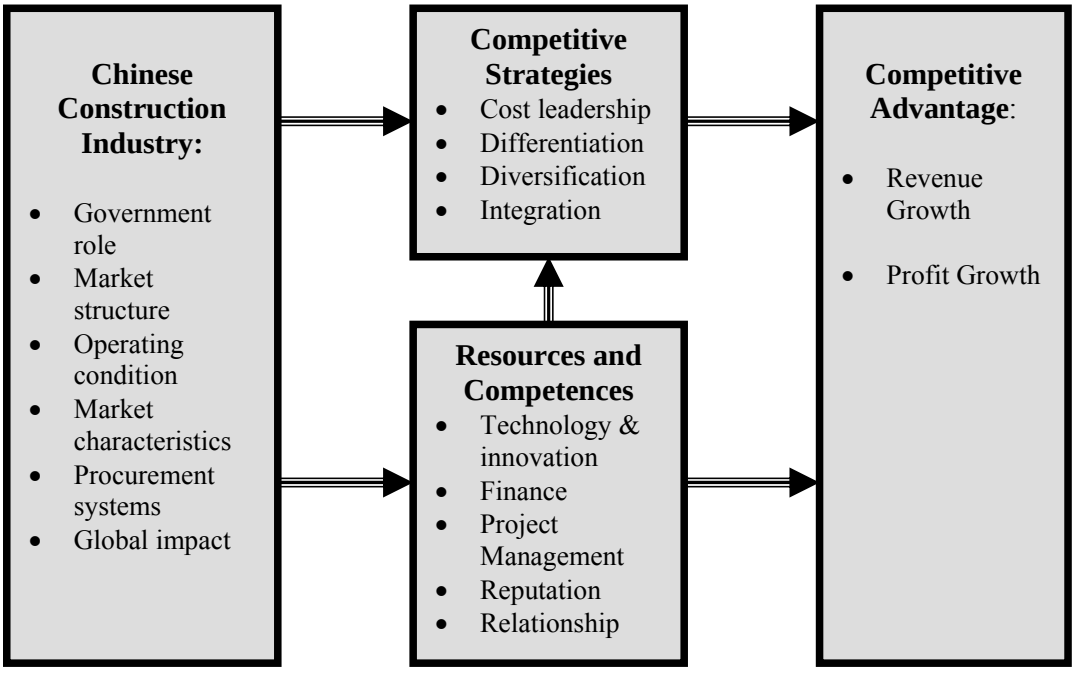

Figure 2.11 Conceptual Model for Chinese Construction Firms (Cheah et al. 2007)

In terms of resources and competences, Cheah et al. (2007) found that "guanxi" resources (relationships and connections), technological and innovative capabilities, and financial capabilities significantly affect the competitive advantage. They further recognise the importance of considering changing conditions of the Chinese construction industry.

However, as in many other similar construction studies, Cheah's et al. (2007) study, the competitive advantage is simply defined in terms of revenue or profit growth (organisational performance), whilst they are two different research construct. Competitive advantage relates to a firm in retaining a sustainable edge over competitors in specific industry setting (Powell, 2001), and organisational performance is usually associated with the attainment of strategic and financial objectives (O'Shannassy, 2008). Moreover, Newbert (2007; 2008) argues that the importance of mediating role competitive advantage in the resource/capability performance relationship.

Refer to Porter's (1980) and Barney's (1991) models as outlined in section 2.1 above, the firm conduct or the resource attributes is having a bridging role between the structure of industry or resource and capabilities and performance of the firm. Moreover, Barney et al. (2007) acknowledge that the definition of competitive advantage is consistent with the Porter's (1985) usage of the term.

According to Barney et al. (2003), a firm has a competitive advantage when it is able to create more economic value than the marginal (breakeven) competitor in its product market. But, Porter (1985) uses calendar time to define sustainable competitive advantage, which means a competitive advantage that persists over a long period of time. In contrast, Barney (1991) challenges the usage of this time frame and believes that a sustained competitive advantage is attained only if the competitive advantage which continues to exist after the competitors' attempts to duplicate that advantage has come to an end. In short, competitive advantage is a key construct in strategic management research.

Most recently, Green, Larsen and Kao (2008), and Birgonul, Dikmen and Ozorhon (2009) adopted Teece's (1997) framework of dynamic capabilities. However, Quigley, Kearney, Dangerfield and Fleming (2006) firstly introduced dynamic capabilities framework in their model competitive index of firms in the UK construction sector. It is argued that the competitiveness of construction enterprises depend on two key factors.

First factor is the capacity to understand and identify the competitive forces, and how they change over time. Second factor is the capabilities to re-configure resources and re-modify routines with their shifting business environment.

Green et al. (2008) point out that the dynamic capabilities approach has been largely ignored in the construction-related strategy literature, thus, suggesting the need for more practical research on the dynamic capabilities. They also find that it is rare to find any notion of dynamic capabilities within the current improvement agenda of the construction industry. According to them, in the UK construction industry, the construction firms are encouraged to adopt best practice prescription rather than to think how the firm could adjust their organisational routines to the changing environment.

Moreover, Green et al. (2008) study several UK construction enterprises to understand how these firms operate and survive within a constantly changing business environment. They found that long-term survival strategies of those firms are extremely good at reconfiguring their operating routines to deal with shifting business environment within the construction industry. In addition, these firms also have capabilities to manage their reputation and relationship in sustaining their competitive advantage. The findings suggest that dynamic capabilities are best conceived as something that organisation does, rather than something that they have (Green, 2008).

Birgonul et al. (2009) developed a conceptual model that embraces the influence of absorptive capacity and the competitive scope of a construction company on the development of dynamic capabilities on the level of international competitive

advantage. They further recommend that the reverse knowledge transfer should be examined in detail to reveal the interrelation between the dynamic capabilities, competitive scope, absorptive capacity and competitive scope (See figure 2.12).

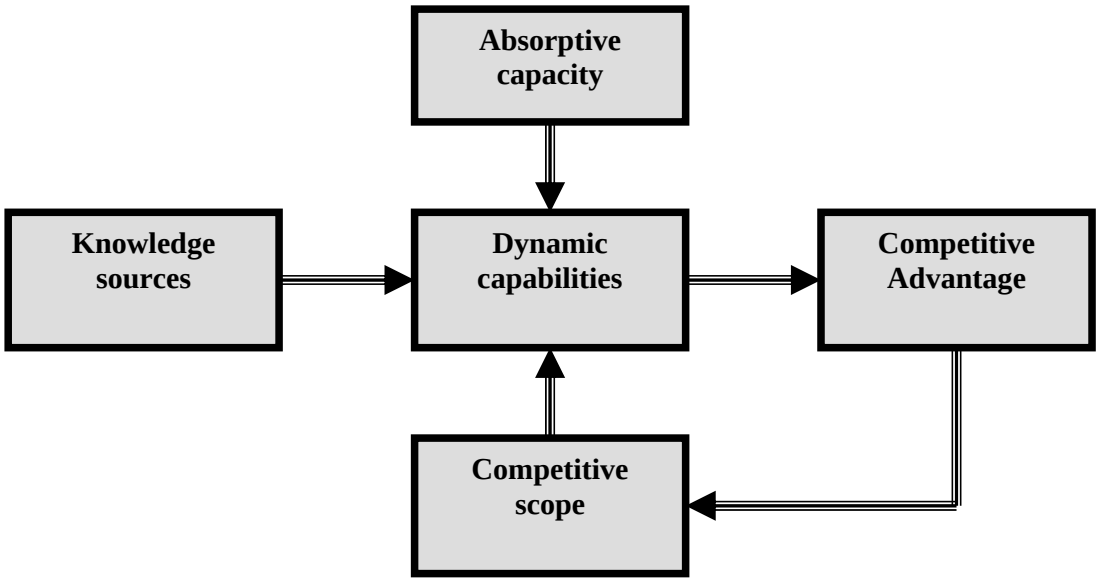

Figure 2.12 Conceptual Model of Reverse Knowledge Transfer (Birgonul et al., 2009)

However, these two recent studies did not explicitly elaborate what and how the dynamic capabilities are to be concurrently valuable to gain competitive advantage. Eisenhardt and Martin (2000) argues that dynamic capabilities are set of specific and identifiable strategic and organisational processes that create value for the enterprises and provide them with competitive advantage.

Secondly, interactions and inter-relationships between core elements in the Teece's (1997; 2007) dynamics capabilities framework remain unexplored. As Teece (2007) notes, the enterprise needs to have sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied for it to build and sustain the competitive advantage. Thus, sustainable advantage requires more than ownership of knowledge assets.

Finally, those studies are exploring of a specific asset and/or certain capability as determinants of competitive advantage, not the exploitation of all assets and capabilities combinations in the Teece's (1997; 2007) framework of dynamic capabilities.

In summary, various applications of strategic management concepts are already identified by construction practitioners and researchers. It started from a strategic planning shift to strategic management and from static to dynamic fashion of strategy. In many models developed b construction scholars, competitive advantage is simply defined as organisation performance, while they are two different research constructs (Powell, 2001; O'Shannassy, 2008; Grahovac & Miller, 2008). As competitive advantage is a key construct in strategic management research, its mediation role in the resource/capability performance relationship is critical (Newbert, 2007; 2008).

As noted by Huovinen (2004), research tradition in construction-related business-management is still lacking; however, the research is still giving great power to market (industry specific-factors) or firm-specific factors, and relatively little power to the combination of those two factors. Construction researchers are satisfied with their single-based strategy paradigm rather than an integrative approach, such as dynamic capabilities which composites internal and external factors. In fact, strategic management studies building on either practical cases or empirical findings related to dynamic capabilities are seriously lacking in the construction industry.

2.3 Literature in Indonesian construction enterprises

Some empirical and market research reports cover the Indonesian construction industry from a strategy perspective. However, they primarily focus on aspects that are external to companies such as macro and micro environment influences in which construction firms operate. In the macro environment, Indonesian enterprises are becoming affected by a variety of trends in the specific sense that political,

economical, social, and legal developments are assuming greater strategic importance relative to market competition.

The Competition Committee of Organisation for Economic Co-operation and Development (Competition Committee, 2008) identify construction authority – National Construction Service Development Board (NCSDB) - as an institutional problem in Indonesian construction industry, including problems associated with the legality of NCSDB as a regulator institution in undertaking its authorities and tasks in accordance with the Law No. 18/1999 on Construction Service. In fact, NCSDB's status becomes unclear on whether as a construction society organisation or a regulatory body. This problem has become complicated since NCSDB is considered to only benefit several parties, such as business actors or business associations which lead to collusive tendering to improve its market position (Competition Committee, 2007).

According to Suraji et al. (2007), the collusion in construction is as a result of distortion between industry and market structure, where small and medium sized enterprises have dominated the industry, but have relatively weak market position. They suggest that the government and construction authority to revitalise the industry to address this key problem.

Numerous studies have been done in the micro environment context to explore the strategic perspectives of Indonesian construction enterprises, and the most recent are Budiwibowo et al. (2009); Sudarto et al. (2007a; 2007b; 2008); Soeparto et al. (2007); Alin et al. (2007); Suraji et al. (2007); and Koesmargono (2004).

Budiwibowo et al. (2009) in their study on competitiveness of the Indonesian construction industry found there was a low level of competitiveness due to an unsuccessful effort in developing relevant strategies and policies. In terms of the competitiveness context of structure, strategy and rivalry, they identified higher level competition among the construction firms due to a low barrier to enter the industry. The firms also concentrated on general construction rather than specialised market, where the market condition is unconducive due to unfairness which contributes to

higher indirect costs for the firm. In short, they recommended a cluster approach to enable the industry to grow more competitively. This kind of approach is introduced by Porter (1990) through his diamond framework, and this idea was directly presented by him to Indonesian government (Porter, 2006).

Sudarto et al. (2007a; 2007b; 2008) has completed intensive research on the influence of external forces on the Indonesian construction enterprises. Some of their findings indicated that a number of external factors influenced significantly the performance of the firm in terms of the credit crunch with high interest rate loan; poor support from financial institution; unfair competition; and unpredictable condition factors (Sudarto et al., 2007). They also identified threats from new entrants and the bargaining power of suppliers as contributing external factors.

In a similar way, Suraji et al. (2007) pointed out that many Indonesian construction firms have been trapped in the public procurement process which is characterised by inefficiency and the high cost transactions, collusion, low competitiveness, low profitability and growth, and incompetent human resources.

In their other study on the market and internal-specific factors, Sudarto et al. (2008) found a low level capabilities which determine the firm's performance, such as that lack of marketing and entrepreneurship constraints, low competitiveness with foreign-owned firms, and low level of innovation. They argue that Indonesian construction companies should focus on market forces subject to those factors. Market forces were found as most powerful factors to the growth and sustainability of the construction firms.

Secondly, they further suggested that corrective actions through knowledge-based management should be put in place in order to deal with managerial problems (Sudarto et al., 2007a). Moreover, Sudarto et al. (2007b) in their research on determinants of a firm's successful performance concluded that Indonesian construction firms are short-term profit oriented, and not yet realised the importance of sustainable growth.

Koesmargono (2004) points out that there is a significant relationship between key variables related to organisational effectiveness, concepts of planning and goal setting and the strategic management process such as establishing the mission and stating goals and objectives. This study also shows that there is a strong relationship between the need for flexibility and the changing environment.

In line with this research, Soeparto et al. (2007) suggest industry players consider the business environment for their long term strategy in pursuing long-term productivity for competitiveness. Their study found that construction businesses sought short term benefit rather than long term sustainability and growth. They recognised that strategic planning is a significant contributor to long term productivity. It is also suggested that several steps should be taken to improve productivity of Indonesian construction industry e.g. changing marketing orientation toward more sophisticated project, institution networking for collaboration and adopting of good governance practices within the industry (Soeparto et al., 2007).

Some market research and statistical reports also provided practical internal insights in terms of the competitive environment: Construction of Buildings in Indonesia (IBIS World, 2006), BDO (2009) and Indonesia Infrastructure Report (BMI, 2007; 2008; 2009), Construction Statistics (BPS, 2008).

Table 2.7 Value of Construction Work Completed 2001-2007 (BPS, 2008)

Construction Work	Value (IDR Million)	Valid Percent
Residential	37,057,928	11.9%
Non residential	95,428,355	30.6%
Electrical installation	15,026,872	4.8%
Gas and Water supply installation	1,340,715	0.4%
Sanitary installation	841,850	0.3%
Foundation	3,279,135	1.1%
Sound system, AC, lift, etc	5,948,349	1.9%
Water supply network	2,256,027	0.7%
Oil and Gas pipe network	3,019,238	1.0%
Electricity network	7,111,924	2.3%
Road and bridge works	85,294,514	27.4%
Irrigation/drainage	20,872,869	6.7%
Electric power and Telecom Network	4,549,830	1.5%
Construction or improvement airport, harbour, etc.	6,878,563	2.2%
Other construction works	22,555,557	7.2%

In term of product and services segmentation, as can be seen in Table 2.7, it is reported that approximately 42% of total turnover of the Indonesian construction industry in last eight years is coming from residential and non-residential building work, and infrastructure works such as road, bridges, and irrigation works is about 35% of total construction value (BPS, 2008). Private sector contributes 70% share of the turnover for building projects (IBIS-World, 2006).

Looking more closely, based on value and geographic spread of construction works completed, Greater Jakarta (include West Java) contribute 39.4% of total projects, followed by Central Java and East Java at 8.5% and 8.8% respectively. These figures clearly indicate that construction work was predominantly located at Java Island (60.2%).

The level of industry concentration is low due to the turnover of the premium companies' account for less than 40% of the total industry turnover. All the publicly listed firms constitute at about 20% share in Indonesia construction market (Gularso and Tamin, 2008). BDO (2009) suggests that market dominance by listed construction firms, did not create a significant barrier of entry as for these companies which mostly dominant government projects, and there are still many opportunities in the private project sector.

Table 2.8 Number and Grade of Construction Enterprises (LPJK, 2008)

Classification (Grade)	Consulting	Contracting	Total
Large (G6 – G7)	285	695	980
Medium (G4 – G5)	824	10.083	10.907
Small (G1 – G3)	3.280	101.083	104.363

According to Indonesian Construction Law No. 18/1999, construction enterprises consist of consulting and contracting companies. A consulting company offers design and engineering, and supervision services. The number of certified construction firms was 116,250 firms consisting of 4,389 consulting/engineering firms (4%), and 111,861 (96%) registered by National Board of Construction Services Development (NBCSD) in 2008. In term of company size, the number of small enterprises (G1-

G3) was 104,363 (90%). The number of medium enterprises (G4-G5) was 10,907 (9%) and the large enterprises (G6-G7) were only 980 (1%) firms, including the foreign or international affiliated construction enterprises. Similar to geographic spread of construction works, 35% of total firms reside in Java Island, and 37% of the large companies are running their business at Jakarta, Indonesian capital city. Size and capabilities of the firms are main preference for contractor selection in both private and public construction market (IBIS-World, 2006).

In terms of basis for competition in the Indonesian construction industry, most companies heavily rely on their reputation which is founded experience and proven performance within specific area or type of construction work and specialisation in a niche market to region. Reputation is a very important intangible asset for most business players in the Indonesia construction industry, both large and small to medium scale enterprises (IBIS World, 2006). Secondly, having a good relationship with suppliers and the compliance of government regulations are also included as key factors.

New entrants face relatively low formal barriers for entry into the industry when they have satisfied registration and licensing requirements, and a mode of entry is likely with a pre-established reputation and relationships with existing prime or large contractors. These big firms have the distinctive advantage of having a pool of skilled subcontractors, arrangements with suppliers, and financial institutions.

According to IBIS World (2006), differentiation is a considerable strategy for competition amongst the medium and large firms in the Indonesian construction industry. However, there has been past evidence of collusive tendering practices that involved most of the large-scale contractors and a special arrangement that existed between the company winning and losing the public procurement bid. As identified above, this kind of arrangement became possible due to institutional problems within construction authority such as using licensing or certification to seize the competition. Collusion was found in many cases and started at planning stage by setting up requirement and specification that lead to benefiting certain construction firms (Competition Committee, 2007; Competition Committee, 2008).

Despite the promising growth of the construction industry growth in the near future, Indonesia's business-operating environment is among the poorest of G-20 nations, as investors have to contend with security concerns and weak governance characterised by widespread corruption, lack of transparency, and poor legal compliance (Business Monitor International, 2009). BDO (2009) in its latest report ranked Indonesia disappointingly at 19 out of a total of 20 countries in the "Doing Business" database. It also ranked Indonesia 18th in terms of business transparency and 12th in dealing with construction permits.

Table 2.9 Infrastructure Tiers of Countries (BMI, 2010)

Classification (Group)	Countries
Tier I: Developed States	Australia, France, Germany, Greece, Hong Kong, Israel, Japan, Singapore, Taiwan, UK, US.
Tier II: Core Emerging Markets	Brazil, China, Hungary, India, Indonesia, Mexico, Nigeria, Peru, Poland, Russia, South Africa, South Korea, Turkey, Vietnam.
Tier III: Emerging European	Bulgaria, Czech Republic, Croatia, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia, Ukraine.

Business Monitor International (2010) classifies three groups of Infrastructures tiers of countries. Each tier comprises a group of countries that have similar economic social development trajectory, and similar pattern of infrastructure spending, levels of infrastructure development and sector maturity (Refer to Table 2.9). In terms of GDP and other related macro-economic indicators, International Monetary Fund (2009) lists 158 countries as emerging and developing economies. Dixon et al. (2009) suggest that enterprises in developing country are facing unusually radical transformation process while lacking of the resource and capabilities to face competitive markets. As Indonesia has similar characteristics to other countries in terms of economic development (BMI, 2010; IMF, 2010), its case may represent strategic management studies of construction organisations operating in emerging and developing countries.

Applicability of strategic management theories and practices has been a major concern of scholars dealing with developing country situations (Hoskisson, Eden, Lau, & Wright, 2000). In contrast to universal theory (Simon, 1997) that believe there are similarity of management practices within organisations all around the word, Hofstede (1993) argues that culture is the constraints of management theories and main source of management differences between developed and developing countries or western and eastern countries. It is suggested that cultural differences between nations can be described using five bipolar dimensions:

1. Power Distance Index (PDI), refers to the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. This represents inequality (more versus less), but defined from below, not from above.

2. Individualism (IDV) on the one side versus its opposite, collectivism, that is the degree to which individuals are integrated into groups.

3. Masculinity (MAS) versus its opposite, femininity refers to the distribution of roles between the genders which is another fundamental issue for any society to which a range of solutions are found.

4. Uncertainty Avoidance Index (UAI), deals with a society's tolerance for uncertainty and ambiguity; it ultimately refers to man's search for Truth. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations.

5. Long-Term Orientation (LTO) versus short-term orientation: deals with Virtue regardless of Truth. Values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'.

The position of a country on these dimensions is to make some predictions on the way their society operates, including their management processes and the kind of

theories applicable to their management. The fifth dimension, Long-Term Orientation is essential to understanding the mindsets of business players and adoption of longer planning horizon from different countries. It is believed that this fifth dimension is the foundation of economic success of East Asian countries (Hofstede, 1993) notes that it. Table 2.10 lists the scores on all five dimensions for the selected countries.

Table 2.10 Culture Dimension Scores for Selected Countries (Hofstede, 1993)

Country	PDI	IDV	MAS	UAI	LTO
USA	40 L	91 H	62 H	46 L	29 L
Germany	35 L	67 H	66 H	65 M	31 M
Japan	54 M	46 M	95 H	92 H	80 H
France	68 H	71 H	43 M	86 H	30*L
Netherlands	38 L	80 H	14 L	53 M	44 M
Hong Kong	68 H	25 L	57 H	29 L	96 H
Indonesia	78 H	14 L	46 M	48 L	25*L
West Africa	77 H	20 L	46 M	54 M	16 L
Russia	95*H	50*M	40*L	90*H	10*L
China	80*H	20*L	50*M	60*M	118 H

*) estimated, H = top third, M = medium third, L = bottom third

Looking more closely, In Power Distance Index, Indonesia has higher score at 78 than average Asian countries at 71. This shows that a high level of inequality of power and wealth within the Indonesian society. Indonesia is one of the lowest world rankings for Individualism with a 14, compared to the greater Asian rank of 23, and world rank of 43. The score on this Dimension indicates the Indonesian society is Collectivist as compared to Individualist. With Uncertainty UAI's value at 48, this reflects a more moderated influence of this Dimension within the Indonesian society. Indonesia was included in the group of countries that had the low level of Long Term Orientation (LTO).

In the last two decades, strategic management has now become more widely used by many large construction organisations in the developed countries (e.g. Australia,

Canada, Netherland, United Kingdom, and United States), but strategic management studies building on either practical cases or empirical findings related to the Indonesia construction industry are seriously lacking, as well, research endeavours related to these topics in developing countries appears to be limited. This has potentially become one of the factors hampering efforts to guide construction enterprises in emerging and developing economies.

In summary, in a similar way as the literature that was reviewed in relation to strategic management in construction, this research endeavour is still giving great power to external specific-factors for explaining the performance of Indonesian construction organisation, and relatively little power to internal-specific factors. There is very few study exists that started to explore an internal perspective on strategy of Indonesian construction enterprises. While recognise long-term strategy and flexibility to changing environment should be taken into account, the construction organisation appears remain short-term oriented.

2.4 Summary of Literature Review

In summary, the past literature on the different schools of thought in strategy, the strategy theories related to the construction industry in general and current research of the Indonesian construction industry confirm that there is a lack of research on the strategy of Indonesian construction companies. In order to fill this gap, some theories are reviewed in order to set up the basic theoretical foundations for subsequent development of the model. It has been identified that the relevant foundations include: Five forces framework (Porter, 1980) which has an outside-in approach to strategy, VRIO framework (Barney, 1991) which has an inside-out approach to strategy and Dynamic capabilities framework (Teece et al., 1997), which combine both internal and external perspectives on strategy. Given the characteristics of the construction industry and business environment of Indonesia, it seems that the dynamic capabilities framework is a viable approach to the Indonesian construction context:

- Most strategy theorists and practitioners agree that external-focused and internal-focused perspectives complement each other in explaining the sources of competitive advantage and performance of the enterprises. The dynamic capabilities framework is a comprehensive approach, which integrates and synthesises concepts and research findings from the field of strategic management. As a new approach to strategy, dynamic capabilities lacks empirical support, and should be fully researched to enable concept of dynamic capabilities to be useful for strategic management as a field of study and for practitioners (Ambrosini and Bowman, 2009), and hence strategic management studies building on either practical cases or empirical findings related to the dynamic capabilities are seriously lacking in the construction industry (Green et al., 2008).

- While Porter's (1980) five forces framework and Barney's (1991) VRIO framework is a sound approach to enterprises in stable/static nature of environment, it is believed that a new approach to management of construction enterprises is required due to the dynamic nature of environment in construction industry (Betts et al., 1999; Cheah et al., 2007; Phua, 2007; Korkmaz and Messner, 2008). In fact, construction researchers are satisfied with their single-based strategy paradigm rather than integrated approach, such as dynamic capabilities approach. Single theoretical perspective is highly unlikely able to explain strategic decisions that are made in turbulent environment (Wright et al., 2005). Moreover, as noted by McCaffer and Edum-Fotwe (2005), competing on the basis of the traditional models of tangible value alone is inadequate in the complex and unstable environment.

- Recent studies on application of Teece's (1997; 2007) dynamic capabilities framework in construction industry, interactions and inter-relationships between core elements remain unexplored. As Teece (2007) notes, the enterprise needs to have sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied for it to build and sustain the competitive advantage. Moreover, those studies are exploring of a specific asset and/or certain capability as determinants of competitive advantage, not the exploitation

of all assets and capabilities combinations. As a result, the standard (or single stage) model is mostly utilised by past researcher in testing their research frameworks, whilst multi-stage nature of model which may be more fruitful and provides a better understanding of the dynamic process by which competitive advantage could be achieved in varying levels of environment.

- In many models developed by construction scholars, competitive advantage is simply defined as organisation performance, while they are two different research constructs. Competitive advantage relates to a firm in retaining a sustainable edge over competitors in specific industry setting (Powell, 2001), and organisational performance is usually associated with the attainment of strategic and financial objectives (O'Shannassy, 2008). As competitive advantage is a key construct in strategic management research, its mediation role in the resource/capability performance relationship is crucial (Newbert, 2007; 2008).

- Although Indonesia's business scene is subject to flux, instability and complexity, the researcher is still allocating great effort to static strategy approaches which is suitable for stable environment, thus relatively no attention is given to a dynamic view of strategy. The static approaches to strategy is greatly fit in stable and predictable business environment (Lan, 2009)

- Despite strategic management has now become more widely used by many large construction firms in developed countries, its empirical findings related to the construction industry in developing countries remain scarce. As Indonesia has similar characteristics to other countries in terms of economic development (BMI, 2010) and cultural dimensions (Hofstede, 1993), its case will able to represent strategic management studies in construction organisations operating in developing countries. Thus the applicability of dynamic capabilities framework (Teece et al., 1997; Teece, 2007) in the context of Indonesia has the potential applicability to fill the gap between theoretical construct and practical evidence in other emerging and developing countries.

CHAPTER 3
CONCEPTUAL MODEL AND RESEARCH HYPOTHESIS

This chapter describes the conceptual model and hypotheses to be constructed in this research. The model specifically focuses on the key assets and capabilities that enable the enterprises to create and retain competitive advantage. In terms of the conceptual model, a series of research hypotheses are addressed to explore the inter-relationships between the dynamic capabilities, competitive advantage and organisational performance in dynamic nature of the construction industry.

3.1 Conceptual Model

The conceptual model adopts a "dynamic capabilities framework" (Teece et al., 1997) rather than "five forces framework" (Porter, 1980) and "VIRIO framework" (Barney, 1991). Firstly, this is because of the dynamic nature of business environment of Indonesian construction industry. Indonesia's business-operating environment is among the poorest of G-20 nations, as investors have to contend with security concerns and weak governance characterised by widespread corruption, lack of transparency, and poor legal compliance (Business Monitor International, 2009). Secondly, Porter's (1980) and Barney's (1991) frameworks are static approaches to strategy which greatly fit in stable and predictable business environment (Lan, 2009)

Jansson (2007) lists Indonesia as one of 25 of emerging country markets which are being transformed from pre-market economy stage to the market stage of mature capitalistic economy. Some general characteristics of emerging country are economic growth, complexity, turbulence and volatility. IBIS World (2006) suggests that Indonesian construction industry has a medium level of volatility. Extremely high long-term currency volatility and high inflation levels have contributed to the

significant decrease in Indonesia's score of project finance rating (BMI, 2009).All these examples and many more appear to point out that Indonesian construction enterprise is operating under the condition of complex and dynamic market. As suggested by Hawawini et al. (2004), firms' activities depend significantly on their operating environment, thus static approach of strategic management does not adequately explain the reason for competitive advantage during turbulent environment

As discussed in previous chapter, Porter's (1980) five forces framework is having an assumption on relatively stable markets, but in the reality of business during the 1990s shows that industry structures are not stable and are going through major transitions (Prahalad and Hamel, 1994). Moreover, Baack and Boggs (2007) confirm that implementation of a cost-leadership strategy by MNCs is rarely effective in emerging markets such as Indonesia. On other hand, the intrinsic weakness of Barney's (1991) VRIO framework and the RBV is the lack of ability to deal with dynamic environments then make both approaches inherently static (Kraaijenbrink et al., 2010).

Since Indonesia's business environment is subject to flux and complexity, this study is exploring Teece's (1997; 2007) framework of dynamic capabilities as strategy paradigm. In this strategy perspective, in rapidly changing environment, competitive success arises from the continuous development and reconfiguration of firm specific assets (Teece et al., 1997; Teece 2007). Since it composites an internal and external strategic factors, this most recent paradigm provides a valuable point of view in securing competitive advantage of the firm.

The dynamic capabilities framework is an extension of a resource-based view of the firm where it shares similar assumptions (Barney, 2001b; Arend and Bromiley, 2009). However, Teece (2009) broadened the treatment that the dynamic capability framework draws from intellectual streams, including entrepreneurship, the behavioural theory of the firm and behavioural decision theory, organisation theory, transaction cost economics, and to some extent evolutionary economics.

In their assessment of several challenges for future research on dynamic capabilities, Easterby-Smith et al (2009) argue that there may value in exploring the research construct in more traditional industries and in other countries. In response to this call, a sample of Indonesian construction firms was surveyed. In addition, strategic management studies building on empirical findings related to the Indonesia construction industry are seriously lacking, as well as, research endeavours related to these topics in developing countries appears to be limited.

With reference to past research on competitive advantage by Grahovac & Miller (2009), O'Shannassy (2008), Powell (2001) and Ma (2000), it is believed that competitive advantage does not equate organisational performance, but they are a distinct construct. Competitive advantage relates to a firm retaining a sustainable edge over competitors in a specific industry setting (Powell, 2001), and organisational performance is usually associated with the attainment of strategic and financial objectives (O'Shannassy, 2008).

Grahovac and Miller (2009) define competitive advantage as the cross-sectional differential in the spread between product market demand and marginal cost, and performance as the longitudinal differential between what a firm appropriates in the product market and what it paid in the factor market. Market and Efficiency approaches are two dominant paradigms in strategy which purpose to explain (sustainable) competitive advantage also differentiate competitive advantage from superior performance (Ma, 2000).

Furthermore, Amstrong et al. (2009) through their analysis of citation pattern of articles in the “Strategic Management Journal” from 2004 to 2009 identify12 distinct conversations surrounding competitive advantage. Thus competitive advantage and performance are two different construct and their relationship seems to be complex. As competitive advantage is a key construct in strategic management research, its mediation role in the resource/capability performance relationship is crucial (Newbert, 2007; 2008).

According to Helfat and Peteraf (2009) dynamic capabilities rest on a process that can alter current positions, leading to an effect on firm performance and competitive advantage, as well as new positions and paths. Zott (2003) argues that dynamic capabilities are indirectly linked to enterprise performance by aiming at changing a firm's bundles of resources, operational routines, and competencies, which in turn affect economic performance. Indeed, Teece et al. (1997) explain that the position of the firm will determine the firm's strategic posture and competitive advantage. Barreto (2010) argues that relationship between dynamic capabilities and performance is perhaps the most important one in the field. Putting all these logics together provides a conceptual model- which is depicted in Figure 3.1.

Figure 3.1 Conceptual Model

Figure 3.1 shows key elements of the conceptual model, i.e. dynamic capabilities which combine of sensing, seizing, and reconfiguration capabilities, competitive advantage, and organisational performance.

In order to avoid some potential confusion regarding similarity assumptions with RBV, it is important to define and differentiate terms "dynamic capabilities" and "resources/capabilities" in the context of RBV. As Teece's (Teece et al., 1997) early definition outlines, dynamic capabilities are the firm's ability to integrate, build and reconfigure internal and external competences/assets to address a rapidly changing environment. However, Teece (2007) later clarifies that this involves the particular (nonimitability) capacity of business enterprises to shape, reshape, configure, and reconfigure assets so as to respond to changing technologies and markets and escape the zero-profit condition.

Savory (2006) differentiates the term resource, competence, capability and dynamic capabilities. Resource is defined as factors that are owned and controlled by the organisation or available trough alliance and other external relationships, whereas, competence refers to the ability to use the resources to an acceptable level of performance towards a desirable purpose. Furthermore, Savory (2006) define capability as the ability to operate a specific configuration of an organisation's set of resources, and dynamic capabilities refers the ability to configure both the use and coordination of a specific configuration an the development of new configurations of resources, according to changes in the organisation's environment and strategic decision. This reinforces Teece et al's (1997) definition of dynamic capabilities.

Many strategy scholars have offered a similar definition of dynamic capabilities. For instance, Eisenhardt and Martin (2000) define dynamic capabilities as the firm's process that uses resources –specifically the process to integrate, reconfigure, gain and release resources- to match or even create market change. It thus is the organisational and strategic routine by which firms achieve new resources configurations as markets emerge, collide, split, evolve, and die (p.1107). Winter (2003) points out that dynamic capability are those that operate to extend, modify or create ordinary capabilities (p.991). Helfat et al. (2007) define the dynamic capabilities as the capacity of an organisation to purposefully create, extend or modify its resource base (p.1),

According to Ambrosini and Bowman (2009) all the above definitions reflect that dynamic capabilities are organisational processes in the most general sense and that their role is to change the firm's resource base. They further argue that a dynamic capability is not a resource. As Barney (1991) broadly define it capabilities are a type of intangible resources (operating capabilities), but they are repeated processes that have evolved through time. Thus the dynamic sometimes refers to environmental dynamism and capabilities that change themselves overtime.

In addition, Teece et al. (1997) use the term "asset" to imply the (nonimitability) firm-specific asset that has a similar meaning to "resource" within the RBV. Whilst in RBV, resources are categorised into 5 internal resources i.e. financial, human,

intellectual, organisational and physical resources, Teece et al. (1997) classifies 7 assets based on their internal and external positions. Table 3.1 shows different type of assets (position) and capabilities (process) within dynamic capabilities framework (Teece et al., 1997).

Table 3.1 Assets and Capabilities (Teece et al., 1997; Teece, 2007)

Assets	Capabilities
Technological Assets: Ownership protection and utilisation	Sensing: Analytical systems (and individual capabilities) to learn and to sense, filter, shape, and calibrate
Complementary Assets: Technological innovations	Seizing: Enterprise structures, procedures, designs, and incentives for seizing opportunities
Financial Assets: Firm's cash position	Transforming: Continuous alignment and realignment of specific tangible and intangible assets
Reputational Assets: Reputation raised from of customers, suppliers, and competitors	
Structural Assets: Formal and informal structure of organisation and their external link	
Institutional Assets: Public policies and institution	
Market Assets: Market position	

In Teece's (1997) framework, dynamic capabilities are processes shaped by positions and paths, i.e. the internal position relates to five assets of the firm: technological, complementary, financial, reputational, and structural assets. The external position refers to the firm vis-à-vis its institutional environment and its market (structure) assets. Dynamic capabilities relate to the enterprise's ability to sense, seize, and adapt in order to generate and exploit internal and external enterprise-specific assets and to address the enterprise's changing environment (Teece and Pisano 1994; Teece, et al. 1997).

3.2 Research Hypotheses

Eisenhardt and Martin (2000) argue that attributes of dynamic capabilities are only valuable and rare; it is not inimitable and substitutable. According to the RBV logic, to sustain competitive advantage, the resources/capabilities are not only valuable and rare, but also not inimitability and substitutable. Similarly, Smart et al. (2007) and Lampel and Shamsie (2003) found that dynamic capabilities are similar across the firms within the biotech and movie industry. However, Teece (2007; 2009) advocates that dynamic capabilities refer to the inimitable capacity of the firm. Zott (2003) suggests that the complex nature of dynamic capabilities makes it difficult to describe and imitate. Considering this debate, dynamic capabilities will be explored in valuable and rareness characteristics, but this is not intended to suggest that dynamic capabilities are imitable and substitutable. Newbert (2008) argues that the firms with rare and valuable resource/capabilities will give themselves the best probability of attaining competitive advantage and in time strong performance.

In terms of elements of dynamic capabilities, it will be looked at in combination; they do not have a singly sensing, seizing and configuration capability or particular internal and external asset. Ambrosini and Bowman (2009) acknowledge that they are not unclear how the dynamic capabilities operate singly or in combination. However, Teece (2007) recognise an adoption of entrepreneurship theory in his framework. He views that the emergence of new product and processes results from a new combination of knowledge and that the processes of organisational and strategic renewal are essential for the long-term survival of the business firm, thus enterprises must also match the exploration of new opportunities with the exploitation of existing ones (Teece, 2009). Teece (2009) suggests that the dynamic capabilities framework is concerned with how firms identify opportunities, create new knowledges, disseminate it internally, embed it in new business models and/or new goods and services, and launch new product and services in the market. Schumpeter (1934) advises that new resource combinations are entrepreneurial to the extent that they engender radical economic change through the introduction of new

goods and/or methods of production that benefit society and lead to economic development.

Furthermore Penrose (1958) pointed out that value creation does not come from the possession of the resource (capabilities), but from their use, and how much value is created would depend on how these resources (capabilities) are combined within the firm. In short, dynamic capabilities may have great potential value when it is combined with corresponding resource (capabilities). Given entrepreneurial element and single interactive capability in Teece's (2007; 2009) dynamic capabilities framework, the exploitation of valuable asset-capability combination will be the key to achieving a competitive advantage.

Teece (2007; 2009) suggests that successful enterprises must utilise all of three types of capability and employ them, often simultaneously. Together they might be called as asset "orchestration" processes. In this sense, achieving a competitive advantage not only depends on the exploitation of a specific singly asset/capability, but rather the exploitation of all of assets and capabilities in the dynamic capabilities framework.

Hypothesis 1: The value of asset-capability combinations that an enterprise exploits will have a positive relationship with its competitive advantage

As mentioned above, the dynamic capability shares a similar assumption to the RBV. According to Arend and Bromiley (2009), the core of dynamic capabilities shares some of the VRIO characteristics (i.e. value, rare, inimitability and non substitutable, organisational appropriability) of the RBV (Barney, 1991; Barney, 1997).

Following Barney's (1997) parameter of rareness, that resource or capabilities should be controlled by only a small number of competing firms, and then it leads to attain a competitive advantage. Dynamic capabilities have valuable and rare characteristics (Eisenhardt and Martin, 2000; Winter, 2003). Taking the combination approach into

this attribute, rare capabilities could be important in the attainment of a competitive advantage if they are combined with other unique capabilities.

Hypothesis 2: The rarity of asset-capability combinations that an enterprise exploits will have a positive relationship with its competitive advantage

Teece (2009) states that dynamic capabilities refer to the particular capacity possessed by the firm to shape, reshape, configure and reconfigure assets so as to respond to changing technological and market and avoid the zero profit. From this statement, Teece characterises dynamic capabilities as the way out of the zero profit condition; in such conditions the firms will make only just enough to cover their cost of capital. In other words, firms should have a (sustainable) competitive advantage to have superior profit and leave the firm with zero economic profit. In this sense, zero economic profit refers a normal accounting profit or just the normal profit. It is the profit that is just sufficient to keep the enterprise alive (Boyes and Melvin, 2008).

Barney and Clark (2007) suggest that a firm has a competitive advantage when it is able to create more economic value than the marginal (breakeven) competitor in its product market. The economic value is the difference between the perceived benefits gained by the purchasers of the good and the economic cost to the enterprise (Peteraf and Barney, 2003).

As the first scholar termed competitive advantage, Porter (1980) advised that lower cost or differentiation as the alternative to escape the zero-profit condition and gain supernormal profits. Similarly, Barney and Clark (2007) suggest that to create more value than its rivals, an enterprise must produce grater net benefit, through superior differentiation and/or lower cost.

In addition, Barney (1991) suggests that if firms want to improve their performance, their strategies should exploit opportunities or neutralise threats. O'Shannassy (2008) advocates that the firm with competitive advantage should pursue a strategy that is

not being executed by a rival firm or firms, then provide an opportunity for cost reduction (i.e. low cost), or exploits market opportunities with premium product/services (i.e. differentiation).

Moreover, Teece (2009) suggests that dynamic capabilities necessarily end up identifying organisational capabilities that enable the firm to build and maintain value enhancing points of differentiation. Newbert (2008) argues they are not equivalent; whilst competitive advantage refers to creation of the economic value from exploitation of resource-capability combinations, performance refers to capturing an economic value from their commercialisation.

In short, all these statements clearly indicate that competitive advantage and performance are two different constructs. As Teeces (2009) notes that the dynamic capabilities framework is to identify the key classes of capabilities should be possessed by the firm to attain its sustainable competitive advantage in generating superior performance. Thus it is likely the performance of the firms that are able to attain competitive advantage will have a better performance than of that of the firms that do not have this advantage.

> *Hypothesis 3: An enterprise's competitive advantage will have a positively correlation to its performance.*

As argued above, mediation role of the competitive advantage in the resource/capability performance relationship is critical in strategic management research (Newbert, 2007; 2008), thus some approaches to relationship between firm's asset-capabilities, and their performance should be considered. However, this is not intended to ignore a role of the value and rarity of the asset-capabilities combination within dynamic capabilities framework. Baretto (2010) proposes three approaches to the relationships between dynamic capabilities and performance and

argues that the approach suggesting an indirect link between them is the most promise approach.

Hypothesis 4: An enterprise's competitive advantage will have a mediating role between the value and rareness of the asset-capabilities combination and its performance

Hypothesis 5: An enterprise's competitive advantage will have a mediating role between the dynamic capabilities and its performance

In summary, the above hypotheses reflect the theoretical model of strategic management that dynamic capabilities enable the construction enterprises to attain a sustainable competitive advantage that generate superior business performance, as depicted in following figure 3.2 and 3.3.

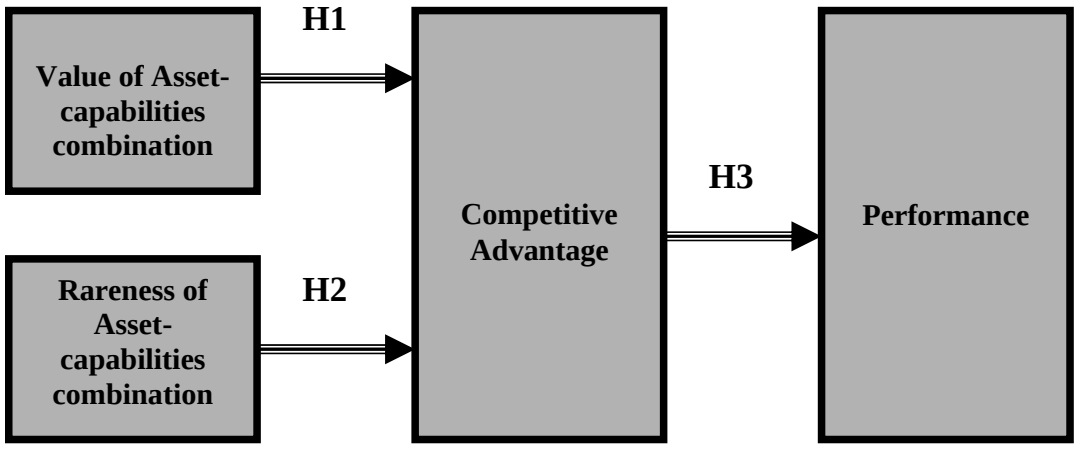

Figure 3.2 Hypotheses 1-3 Frameworks

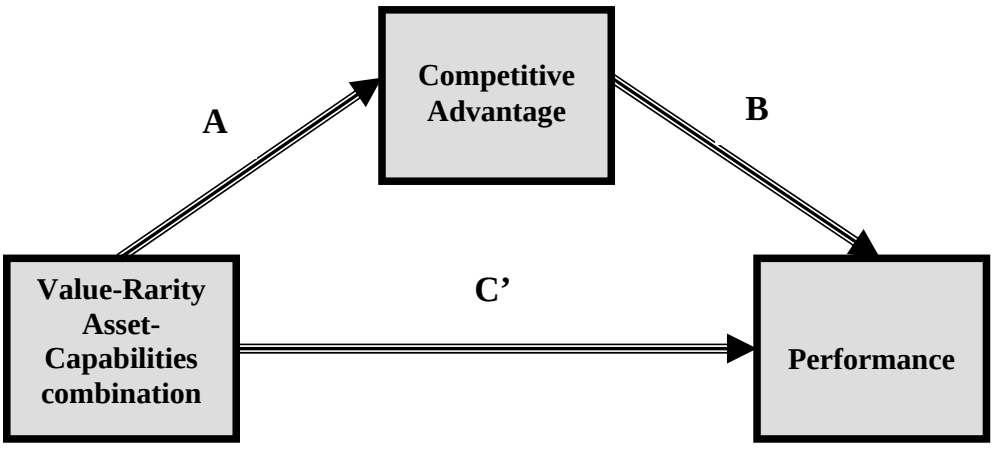

Figure 3.3 Hypothesis 4 Framework

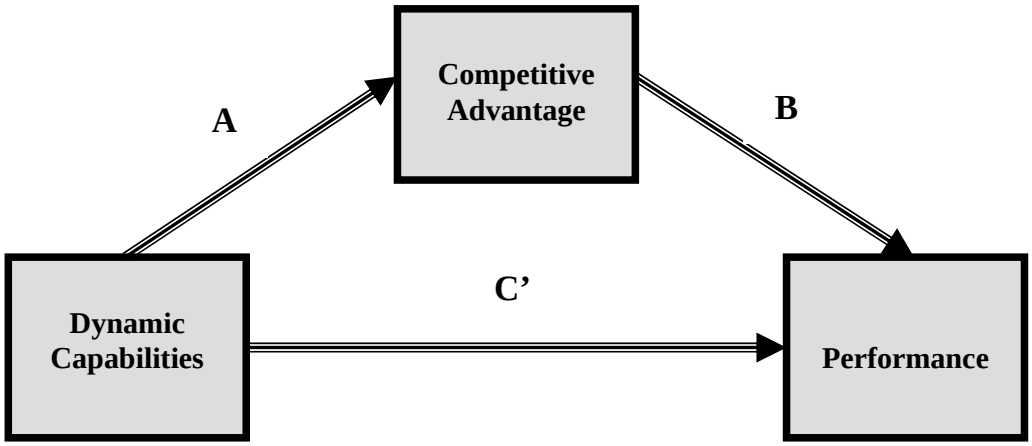

Figure 3.4 Hypothesis 5 Framework

CHAPTER 4
RESEARCH METHODOLOGY

This chapter outlines the methodology used to test the hypotheses. The Methodology refers to the overall approach to the research process, from research approaches and strategies to the techniques and procedures.

4.1 Research Approach

The general approach to the research is known as the research paradigm or philosophy. Saunders, Lewis & Thornhill (2007) explains these in the following diagram:

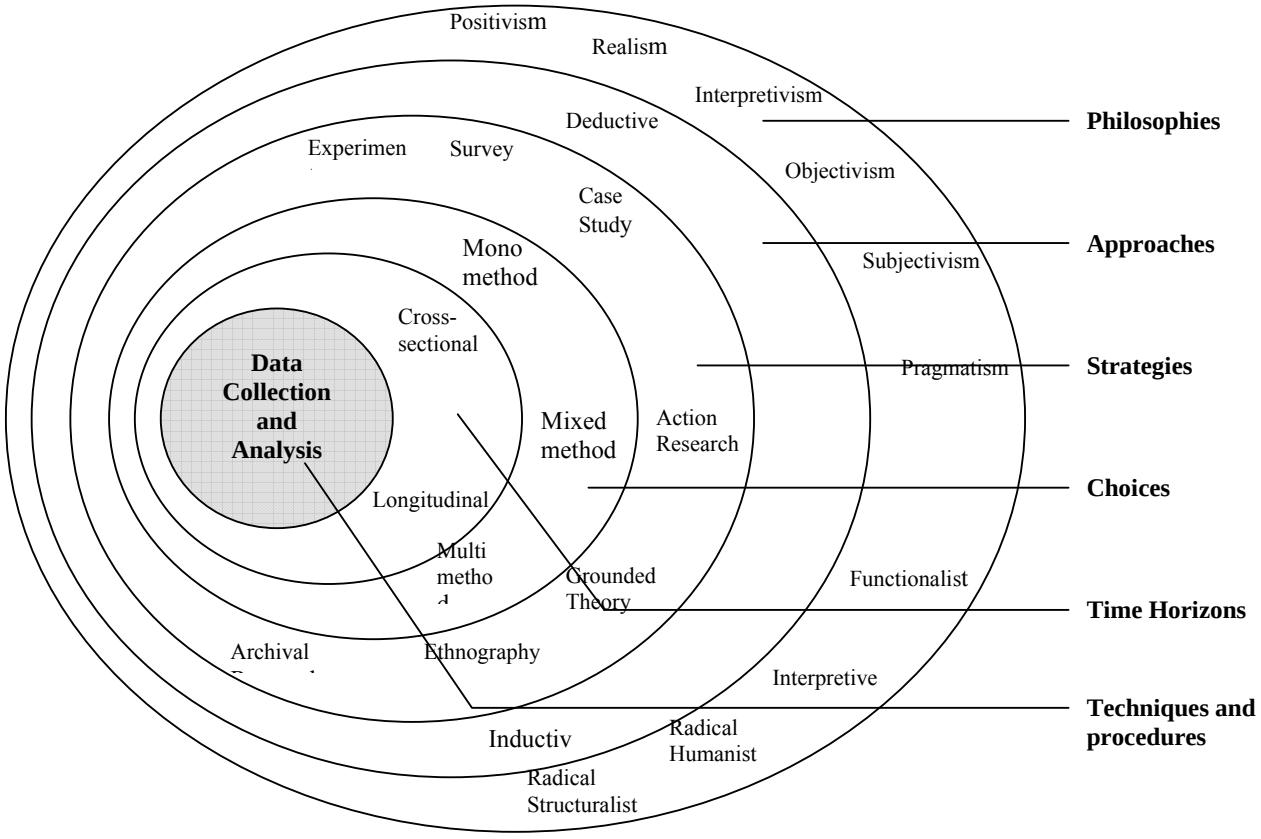

Figure 4.1 The Research Onion (Saunders et al., 2007)

Love (2002) suggests that there has been considerable debate in construction management literature as to which research methodology is the most appropriate for the industry's research problems, so the process of research approach selection is just as important as the research strategy. According to Veal (2005), a number of considerations should be taken into account in the process of selecting an appropriate research method, i.e. the research question or hypothesis, previous research, data access/availability, resources, rime, validity and reliability, ethics, and uses/users of the findings.

However, Yin (2003) argues that the first and most important condition for differentiating among the various strategies is to identify the type of research question being asked. Furthermore, Yin (2003) distinguishes the research strategy using the three conditions: (a) the type of research question posed, (b) the extent of control an investigator has over actual behavioural events, and (c) the degree of focus on contemporary as opposed to historical events. Table 4.1 displays these three conditions and shows how each is related to five major research strategies in the social sciences: experiments, surveys, archival analysis, histories, and case studies.

Table 4.1 Relevant Situation for Different Research Strategies

Strategy	Form of Research Question	Requires control over behavioural events?	Focus on Contemporary Events?
Experiment	How, why	yes	yes
Survey	Who, what, where, how many, how much	no	yes
Archival Analysis	Who, what, where, how many, how much	no	yes/no
History	How, why	no	no
Case Study	How, why	no	yes

In order to facilitate an evaluation of research strategies, it is useful to restate the research hypotheses that are derived from the research questions. This study is designed to test the following hypotheses:

Hypothesis 1: The value of capability combinations that an enterprise exploits will have a positive relation to its competitive advantage

Hypothesis 2: The rarity of capability combinations that an enterprise exploits will have a positive relation to its competitive advantage

Hypothesis 3: An enterprise's competitive advantage will have a positive correlation to its performance.

The above hypotheses seek to address the central question in strategic management within the context of the Indonesian construction industry i.e.

Question 1: What is the source of competitive advantage for Indonesian construction enterprises?

Question 2: What are the strategic practices in Indonesian construction enterprises are associated with theDynamic Capabilities Framewor?

Question 3: What is the effect of their deployment on the performance of Indonesian construction enterprises?

In reference to Yin's (2003) criterion, these types of questions are likely to favour survey and archival analysis strategies. Hence, the research strategy adopted for this study is a survey, and this survey strategy is usually associated with a deductive approach. In addition, the survey method is selected to address the research questions or hypotheses based on careful consideration of a range factors as suggested by Veal (2003).

First, previous research show that 70% of empirical studies on dynamic capabilities used surveys and case-based data sources (Arend and Bromiley, 2009). Archival strategy is also utilised by studies on dynamic capabilities in last ten years (Barreto, 2010). In their review of how the content of the Strategic Management Journal during its first 25 years, Ketchen et al. (2008) found that survey and archival strategies still dominate the research methodology in strategic management, as well as in the cross sectional approach and regression analysis. Slater and Gima (2004)

argue that primary data developed through a survey methodology have one significant advantage over almost `all secondary data in strategic management research. The advantage is that the research design is developed specifically to address the research question. Thus the survey method is a valuable and valid approach for conducting research on strategy-related issues (Slater and Gima 2004).

Secondly, As the Indonesian construction industry is dominated by private firms, their financial data is not easy to access. Construction firm statistics (LPJK, 2008) provide general financial data only in terms of revenues and total assets. Moreover, annual report was only available from publicly listed firms. Thus, it is not possible to do archival research.

Finally, as research resources and time is limited, it is not possible to do a longitudinal study that requires data to be collected from the same sample unit at multiple points in time or a time series of observations. Veal (2005) points out that the survey approach can be cheaper and quicker, but it often results in low response rates. Consequently, the survey is designed as a cross-sectional study at a single point in time. Bednar and Westphal (2006) suggest that establishing ties with prominent executives who can give an endorsement will give a lot of benefit to survey researchers.

The overall research processes are shown in Figure 4.2. The processes include three major phases: literature reviews, conceptual model development and verification.

Stage 1 and 2 have been described in Chapter 2 and 3, and therefore the following section focuses on development of questionnaire surveys including survey sampling and administration, and questionnaire design and constructs.

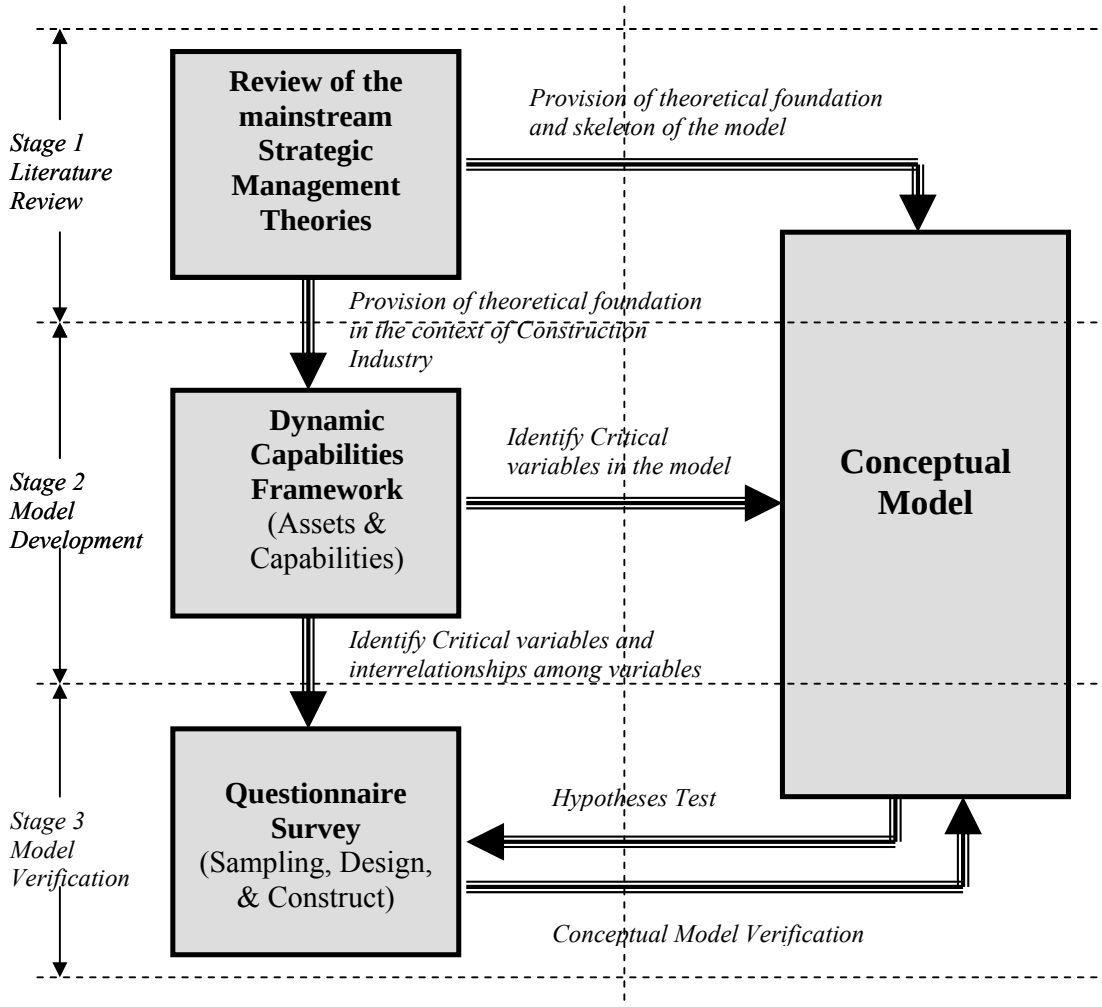

Figure 4.2 The Research Framework

4.2 Survey Sampling and Administration

In order to test the hypothesis, this study adopts Indonesian construction enterprises as the research sample. The term 'construction enterprise' is adopted from Betts and Ofori (1999) and refers to any business entity involved in any aspect of the construction process within the Architecture, Engineering, and Construction (AEC) sectors including general contracting firms, specialist contractors, architectural or engineering design partnerships, cost consultancy practices, and development

companies. Construction enterprises are suitable research subjects because the nature of their business environment is complex and constantly changing (Yates, 2007).

Easterby-Smith et al (2009) recommends that there may be value in exploring the construct of dynamic capabilities in other contexts, including more traditional industries, public sector, and in other countries where different constraints and conditions prevail. Indonesia's business-operating environment is among the poorest in Asia, as investors have to contend with security concerns and weak governance characterised by widespread corruption, lack of transparency, poor legal compliance and a highly inefficient tax regime (Business Monitor International, 2009). Similarly, Indonesia is ranked 129 out of 181 economies in the "Ease of Doing Business" database (World Bank, 2008). Recently, the Indonesian government is rapidly adopting the procurement method of public private partnership (PPP) as well as free-market economic policies, which opens a new way for the injection of foreign private sector funds into large infrastructure projects. However, BDO (2009) in its latest report ranked Indonesia at 14 in a total of 20 countries in an overall G-20 attractiveness ranking for inbound construction activity. IBIS-World (2006) describes the Indonesian construction industry as having a medium level of volatility. Therefore, it is reasonable to assume that such flux and complexity characterise Indonesian construction firms, and so make them appropriate for the purposes of this research study.

In Indonesia, according to Construction Law No. 18/1999, construction enterprises consist of consulting and contracting companies, and to operate their business they need to be registered and then classified by Construction Service Development Board (CSDB) through their construction firms associations. Suraji and Krisnandar (2008) reveal that the number of certified consulting companies was 4,389 firms consisting of 3,280 small firms (small), 824 medium-size firms and 285 large firms. In the same year, the number of certified contracting companies was 116,250 firms consisting of 104,363 small firms (90%), 10,907 medium sized firms (9%) and 980 large firms (1%). These contracting companies are classified into seven grades, from Grade 1 (G1) up to Grade 7 (G7). The small contracting companies are graded as G1 to G3,

grade G4-G5 for the medium-sized contracting and grade G6-G7 for the large contracting company. However, the construction firms could be allocated different grades based on their capacity in certain types of construction work. In fact, the large contractors can have grade qualifications from G5 to G7, and the small-medium contractors from grade G1 to G4. Similarly, small-medium consulting or engineering firms can be grade G1 to G2 and large companies' grade G3 and G4 only.

The sample of this research is limited to those Indonesian construction enterprises belonging to the premium qualification, which are relatively larger in size than companies in other classes and are capable of undertaking construction work in a greater scale or complexity. This includes the foreign or international affiliated construction firms, state-owned enterprises, and publicly listed companies. As Indonesia is an archipelago with more than a thousands islands, such premium firms operate their construction businesses in all parts of Indonesia. Publicly listed enterprises have at least 20% of total construction market share in Indonesia (Gularso and Tamin, 2008). Despite representing only 1 % of a total construction enterprise, they play a dominant role in the Indonesian construction market (CSDB, 2008). Ball (2006) argues that while large construction firms are common in many countries, they seem to play particularly important roles in parts of Asia and Europe.

Respondents for this study come from construction enterprises which are members of the Indonesian Contractors Association (ICA/AKI) and National Contractors Association of Indonesia (NCAI/GAPENSI), The Association of Indonesian Electrical and Mechanical Contractors (AKLI/AIEMC), and The National Association of Indonesian Consultant (NAIC/ INKINDO). These four of 38 associations represent 68% of Indonesian construction contractors and consulting firms. The survey was predominantly conducted in the Jakarta area. Most of premium construction enterprises have their head office and representatives in Jakarta. Construction firms statistics (CSDB, 2008) show that more than a third of the large contractors are located in the capital city. Moreover, sixty percent of the construction work is on the island of Java, and more than half of this is in the greater area of Jakarta (BPS, 2008).

From CSDB database (2008), a total of 503 construction firms are identified as a population with first-class qualifications. This comprises 292 contractors and 211 engineering firms. The database contains company details including board of directors, basic financial information, and contact address. Then the required sample is determined according to Kish's (1965) sampling formula, and the resultant sample includes more than 84 enterprises. However, Tabachnick and Fidell (2007) recommend simple rules of thumb for testing the multiple correlation which is N>50+8m (where m is the number of independent variables). These rules of thumb assume a medium size relationships between the independent and dependent variables. It is recommended to calculate the N sample both ways and choose the larger number of cases. Refer to dynamic capabilities framework (Teece et al., 1997), seven assets are identified to be variables for testing the hypothesis, and consequently, 106 enterprises are required to meet the sample requirements.

However, due to the relatively small number of the population, all of the companies were sent the questionnaire, either by postal mail and/or electronic mail. After the questionnaires were mailed, the respondents were re-contacted to ensure that they had received the questionnaire and were urged to return them promptly. The questionnaire was also available online to meet the sample requirement. In addition, in order to get a sound response rate, the questionnaire was printed in a variety of languages, i.e. English, Bahasa Indonesia and Japanese. Some large Indonesian enterprises are foreign or international affiliated construction firms, and consequently, English and Japanese version of questionnaire are required.

Among the questionnaire survey forms mail/emailed, 75 were returned undelivered and/or declined to participate. 5 of the returned questionnaires were deemed invalid. The respondents were given one month to respond, however, some respondents required longer time to finalise their responses. The final number of valid questionnaires was 120, representing a response rate of 28% of the 428 delivered. According to business segmentation, 82% respondent firms are from construction contractors, and 18% are from consulting/engineering firms.

4.3. Questionnaire Survey Construct and Development

Survey items were developed to describe the research construct as presented in Figure 3.2, that is, value and rareness of dynamic capabilities, competitive advantage and performance. In measuring these research constructs, the survey items and scales were designed by incorporating the dynamic capabilities framework (Teece & Pisano, 1994; Teece et al., 1997; Teece, 2007; Teece, 2009) with relevant literature; in particular Resource-based theory (Barney, 1991; Barney and Clark, 2007).

The items and scales for capabilities and competitive advantage were substantively adopted from a conceptual-level test of the RBV (Newbert, 2008; O'Shannassy, 2009), as the dynamic capabilities framework and RBV share similar assumptions (Barney, 2001b; Arend and Bromiley, 2009). However it was also necessary to modify the items to accurately portray the dynamic capabilities approach. For example, with regards to resources, RBV classifies five resources which are all internal assets of the firms, thus this study modified "resources" to include "assets" that relate to both the internal and external position of the enterprises. According to Teece (2007), an enterprise should have dynamic capabilities to shape, reshape, configure, and reconfigure assets as to respond to shifting environment and attain competitive advantage.

In the RBV (Barney, 1991), resources are classified into five categories: financial, human, intellectual, organisational and physical resources, while dynamic capabilities (Teece et al., 1997) categorise it into seven assets i.e. technological, complementary, financial, reputational, structural assets, institutional environment and its market (structure) assets. As a result, this study developed seven variables to measure three different constructs dealing with all the capabilities: capabilities value, capabilities rareness, and competitive advantage. The variables include all three dynamic capabilities to exploit each of the seven assets. Thus, the measurement employs a 5 point Likert scale ranging from 1 indicating "strongly disagree" to 5 indicating "strongly agree".

The first four items, performance measures are questioned in terms of marketing, revenue growth, profitability and market share. The measurement employs a 4 point Likert scale that ranges from 1 indicating "much worse" to 4 indicating "much better". Newbert (2008) suggests that there are three types of performance measures which are regularly employed in the strategy literature: objective financial performance, subjective financial performance, and subjective non-financial performance. Similarly, O'Shannassy (2009) simply categorises the organisation performance in the strategy literature into two measures: strategic (e.g. sales growth, market share, customer satisfaction, quality) and financial objectives (return on assets, return on equity, return on sales). Since mostly Indonesian construction firms are privately held, it is not possible to measure objective financial performance, thus the survey items are adapted from Delaney and Huselid's (1996) performance scale, a subjective scale that cover both financial and non-financial indicators. While revenue growth and profitability indicate subjective financial performance, marketing and market share are subjective non-financial performance indicators (see Table 4.2 as below, items P1-P4). This variable is operationalised by summing the responses to the four items.

In the second construct, three items are sought to identify the manner of asset-combination that an enterprise possessed in attaining competitive advantage. Teece (2009) argues that when an enterprise possesses resource/competences only but lacks dynamic capabilities, it has a chance to make a competitive return for a short period, and consequently, the enterprises cannot sustain supra-competitive returns for the long term except due to chance. It is clearly indicated that the enterprises should have both resources/assets and capabilities to attain and sustain the competitive advantage. In addition, the enterprise is generally acknowledged as consisting of bundles of resources and capabilities (Penrose, 1959; Wernerfelt, 1984; Barney, 1991).

According to Barney and Clark (2007), a firm has a competitive advantage when it is able to create more economic value than the marginal (breakeven) competitor in its product market. The economic value is the difference between the perceived benefits gained by the purchasers of the good and the economic cost to the enterprise (Peteraf

and Barney, 2003). As the first scholar termed competitive advantage, Porter (1980) advised that lower cost or differentiation as the alternative to gain competitive advantage.

Similarly, Barney and Clark (2007) suggest that to create more value that its rivals, an enterprise must produce grater net benefit, trough superior differentiation and/or lower cost. In addition, Barney (1991) suggests that if the firms want to improve their performance, their strategies should exploit opportunities or neutralise threats. O'Shannassy (2008) advocates that the firm with competitive advantage should pursue a strategy that is not being executed by a rival firms or firms. This then provides an opportunity for cost reductions (i.e. low cost), or to exploit market opportunities with premium product/services (i.e. differentiation).

In short, competitive advantage could be defined as the degree to which an enterprise has reduced cost, exploited opportunities, and neutralised threats (see Table 4.2 as below, items CA1-CA3). In operationalising this variable, response to these three survey items will be summed for each asset category, and as the result, there are five scale scores that reflect the competitive advantages the enterprises attained from the exploitation of their technological, complementary, financial, reputational, structural assets, institutional environment and market assets. Finally, a composite score reflecting the average level of competitive advantage across all asset/capability categories will be created by averaging these seven scores.

The third research construct, value and rareness of capability combination are questioned. As noted above, Arend and Bromiley (2009) note that the core of dynamic capabilities shares some of the VRIO characteristics (i.e. value, rare, inimitability and non substitutable, organisational appropriability) of the RBV (Barney, 1991; Barney & Clark, 2007). Dynamic capabilities have valuable and rare characteristics (Eisenhardt and Martin, 2000; Winter, 2003). Teece (2007; 2009) advocates that dynamic capabilities represent the inimitable capacity of the firm. Zott (2003) suggests that the complex nature of dynamic capabilities makes it difficult to describe and imitate. Penrose (1958) argues that value creation does not come from the possession of the resource (capabilities), but from their use, and how much value

is created would depend on how these resources (capabilities) are combined within the firm. Teece (2009) suggest that successful enterprises must utilise all of three types of capability and employ them, often simultaneously.

Taking the combination approach into this attribute, value and rare capabilities could be important in the attainment of a competitive advantage if they are combined with other unique capabilities. In operationalising the value construct, response to the three items of construct in terms of competitive advantage is summed up for each asset category (see Table 4.2 as below, item V1-V6). This then results in seven score that reflect the value of each firm's technological, complementary, financial, reputational, structural assets, institutional environment and its market assets. A composite score reflecting the average value of all the firm's capabilities is computed by averaging the seven score. Similarly, one item of rareness constructs reflects the rarity of seven assets possessed by the enterprises (see Table 4.2 as above, item R1).

The fourth construct is environmental hostility which is a control variable. According to the environmental hostility scale of Khandwalla (1976), three items were adopted to measure the degree to which a firm's environment is characterised by competition and risk (see Table 4.2 as below, Item H1-H3). In operationalising this variable, responses to the three items of construct is summed up.

Finally, there is business process which is a micro-foundation for dynamic capabilities. Teece (2007; 2009) disaggregates dynamic capabilities into 12 component capabilities that are necessary to sustain superior enterprises performance in highly dynamic environment (see Table 4.1 as below, Item DC1-DC12). In operationalising this variable, responses to the twelve items of construct are summed up into three categories of dynamic capabilities: sensing, seizing and transforming capability.

Other general questions are used to obtain characteristics of the construction enterprises including size of the company in terms of number of employees, business age, typical form of the firm, and business segment, type of client, type of

construction projects, and the location of construction project in all of main parts of Indonesia. Finally a general question is related to respondent identity, but it is an optional item.

In summary, Table 4.2 shows the survey constructs, item scale/measurement, source and development. A sample of survey questionnaire is presented in Appendix A.

Table 4.2 Survey Constructs and Development

Constructs	Scale/Measurement item	Source	Development
Performance (4 item)	P1 Comparative performance to other construction enterprises over the past 3 years in terms of Marketing P2 Comparative performance to other construction enterprises over the past 3 years in terms of Growth in sales P3 Comparative performance to other construction enterprises over the past 3 years in terms of Profitability P4 Comparative performance to other construction enterprises over the past 3 years in terms of Market share	Delaney and Huselid (1996)	- Adopted from the conceptual-level test of the RBV (Newbert, 2008; O'Shannassy, 2009)
Competitive advantage (3 items)	CA1 The manner of asset-capability combinations that an enterprise possesses in order to reduce cost competitively CA2 The manner of asset-capability combinations that an enterprise possesses in order to reduce fully exploit all targeted market opportunities CA3 The manner of asset-capability combinations that an enterprise possesses in order to defend against all known competitive threats	Porter (1980); Barney (1991); Teece et al. (1997); Barney & Clark (2007); Teece (2007)	- Adopted and modified from the conceptual-level test of the RBV (Newbert, 2008; O'Shannassy, 2009) - A new item scale developed from dynamic capabilities framework (Teece, 1997;2007)

Table 4.2 Survey Constructs, and Development (continued)

Constructs	Scale/Measurement item	Source	Development
Value of asset-capabilities combinations (6 items)	V1 The value of capability combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to reduce cost further V2 The value of asset combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to reduce cost further V3 The value of capability combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to better exploit targeted market opportunities V4 The value of asset combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to better exploit targeted market opportunities V5 The value of capability combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to better defend against known	Barney (1991); Teece et al. (1997); Barney & Clark (2007); Eisenhardt & Martin (2000); Teece (2007)	- Adopted and modified from the conceptual-level test of the RBV (Newbert, 2008; O'Shannassy, 2009) - A new item scale developed from dynamic capabilities framework (Teece, 1997;2007)

	competitive threats V6 The value of asset combinations that an enterprise possesses to shape/reshape, and configure/reconfigure the seven assets in order to better defend against known competitive threats		
Rareness of asset-capabilities combinations (3 item)	R1 The rareness of asset combinations that an enterprise differently possesses to shape/reshape, and configure/reconfigure the seven assets in order to reduce cost, exploit targeted market opportunities, and defend against known competitive threats: R2 The rareness of capability combinations that an enterprise differently possesses to shape/reshape, and configure/reconfigure the seven assets in order to reduce cost, exploit targeted market opportunities, and defend against known competitive threats R3 The uniqueness of asset and capability combinations that an enterprise differently possesses to shape/reshape, and configure/reconfigure the seven assets in order to reduce cost, exploit targeted market opportunities, and defend against known competitive threats	Barney (1991); Teece et al. (1997); Barney & Clark (2007); Eisenhardt & Martin (2000); Teece (2007)	- Adopted and modified from the conceptual-level test of the RBV (Newbert, 2008; O'Shannassy, 2009) - A new item scale developed from dynamic capabilities framework (Teece, 1997;2007)

Table 4.2 Survey Constructs, and Development (continued)

Constructs	Scale/Measurement item	Source	Development
Environmental Hostility (3 item)	H1 – The firm's environment in terms of threat to the survival (risk) H2 – The firm's environment in terms of Richness in investment and marketing opportunities H3 – The firm's environment in terms of Environment dominance	Khandwalla (1976)	Adopted from the conceptual-level test of the RBV (Newbert, 2008)

Table 4.2 Survey Constructs, and Development (continued)

Constructs	Scale/Measurement item	Source	Development
Micro-foundation (capabilities) (3 item)	DC – 1 Processes to direct internal R&D and select new technologies DC – 2 Processes to tap supplier and complementor innovation DC – 3 Processes to tap developments in exogenous science and technology DC – 4 Processes to identify target market segments, changing customer needs and customer innovation DC – 5 Delineating the customer solution and the business model DC – 6 Selecting decision-making protocols DC – 7 Selecting enterprise boundaries to manage complements and "control" platforms DC- 8 Building loyalty and commitment DC – 9 Decentralization and near decomposability DC – 10 Governance DC – 11 Cospecialization DC – 12 Knowledge management	Teece et al. (1997) Teece (2007; 2009)	New items

CHAPTER 5
ANALYSIS AND RESULT

This chapter describes the results of the research study performed to test the conceptual model and research hypotheses. Firstly, it briefly introduces a "hierarchical multiple regression" as a key statistical technique in this study. Secondly, it evaluates general characteristics of the respondents, survey constructs, and the descriptive statistics of survey data. Descriptive statistics are used to check initial data for any violation of the assumption of statistical techniques that are employed to test the research hypotheses and the model. Thirdly, it examines non–response bias, and the reliability and validity of the survey construct. Finally, the chapter reviews the results of statistical analysis to test the research hypotheses, and then evaluates the sequential model. It also addresses some discussions of the results and implications arising from the findings.

5.1 Hierarchical Multiple Regression

This study uses multiple regression techniques to test the research hypotheses and evaluate the resulting model. Wiersema and Bowen (2009) note that regression is predominant statistical techniques in strategy research. Pallant (2007) suggests that multiple regression is a statistical technique that can be used to explore the predictive ability of a set of independent variables on one dependent measure. It also provides an assessment about the model as a whole (all subscales) and the relative contribution of each variable that make up the model (individual subscales). There are several different types of multiple regression technique that might be used depending on the nature of the research question raised: (1) standard or simultaneous; (2) hierarchical or sequential; and (3) stepwise multiple regressions. As an extension of standard regression technique, hierarchical regression allows the researcher to statistically control for an additional variable when exploring the

predictive ability of the model. Whilst in standard regression, all the independent variables are entered into the equation simultaneously in standard regression; hierarchical regression in contrast, enters the independent variables into the equation in order as specified by the researcher based on theoretical grounds. This is done by entering a variable or set of variables into separate steps or blocks for analysis, with each independent variable being assessed in terms of what it adds to the prediction of dependent variable, after previous variables have been controlled for. In short, this study will examine and evaluate the ability of the model (which includes value and rarity of asset-capabilities combination) to predict competitive advantage and performance, after controlling for environmental hostility as an additional variable. With reference to the research hypotheses described in the previous chapter, three models will be tested and evaluated:

1. Regression model that controls for the possible effect of environment hostility, variables of the value and rarity of assets- capabilities combination and is still able to predict a statistically significant amount of the variance in competitive advantage

2. Regression model that control for the possible effect of environment hostility, variables of competitive advantage and is still able to predict a statistically significant amount of the variance in performance

3. Regression model that control for the possible effect of environment hostility, variables of dynamic capabilities and is still able to predict a statistically significant amount of the competitive advantage.

Tabachnick and Fidel's (2007) checklist is found to be very helpful in analysing sequential regression models. It is similar to standard regression, but has additional pieces of information. The check list provides required procedures and issues in analysing the model, and the results are reported in summary of research statistics (see Appendix C)

5.2 General Characteristics of Respondent

All respondents of the survey were from large Indonesian prime construction enterprises as described in chapter 4. The respondents for this study come from construction enterprises which are members of the Indonesian Contractors Association (ICA/AKI) and National Contractors Association of Indonesia (NCAI/GAPENSI), The Association of Indonesian Electrical and Mechanical Contractors (AKLI/AIEMC), and The National Association of Indonesian Consultant (NAIC/ INKINDO).

Response Rate

Among the questionnaire survey forms mail/emailed, 75 were returned undelivered and/or declined to participate. Five of the returned questionnaires were deemed invalid, and the final number of valid questionnaires was 120. The respondents were given one month to respond, however, some respondents required longer time to finalise their responses.

Table 5.1 Response Rate

Number of Replies	120
Returned Undelivered	75
Total Number of Forms Sent	503
Response Rate (%)	28,04 % (delivered)
	23,86 % (of total)

The overall response rate of 28 % (of the 428 delivered) and 24 % (of the 503 total) which is comparable to similar studies in the field (Table 5.2). Owen and Jones (1994) argue that an average of 20% of questionnaires returned is considered satisfactory, while 40 percent is exceptionally good. Similarly, Alreck and Settle (2004) state that mail surveys with response rates over 30 percent are rare. So, the response rate of this questionnaire is then reasonable.

Table 5.2 Response Rate in Similar Surveys

Research Survey	Author (year)	Response Rate
Strategic management in construction	Chinowsky, P.S., & Meredith, J.E (2000)	26.5% (106/400)
Competitive positioning in United States construction industry	Kale, S & Arditi, D. (2002)	20.9% (103/492)
Changing strategic management practice within UK construction industry	Price, A.D.F., Ganiev, B.V., & Newson, E. (2003)	22.5% (45/200)
Strategic analysis of large local construction firms in China	Cheah, C.Y.J, Kang, J. & Chew, D.A.S (2007)	28.3% (85/300)
Strategic assets driving organizational capabilities of Thai construction firms	Wetyavivorn, Charoenngam, & Teerajetgul, W. (2009)	25.1% (258/1027)
Strategic management practices in Turkish construction firms	Kazaz, A. & Ulubeyli, S. (2009)	37.4% (52/139)

From a statistical point of view, response rate represents the number of appropriate sample size for a research survey. Refer to Kish's (1965) table of sample size for 10% Precision level with 95% Confidence level, 84 samples are required for size of population for 500 respondents. It is about the response rate of 17%, thus the response rate of 24% in this research study is adequate. Tabachnick and Fidell (2007) suggest another formula for testing the multiple correlation which is N>50+8m (where m is the number of independent variables). This formula assumes a medium size relationships between the independent and dependent variables. Refer to the number of independent variables for testing the hypothesis; consequently 106 enterprises are required to meet the sample requirements. It reflects a response rate of 21%. As a result, the response rate of 24% in this research questionnaire is statistically acceptable.

Non-response Bias

According to Amstrong and Overton (1977), non-response bias is one of the key issues raised in a survey methodology. It is a test to determine if respondents differed from non-respondents. This study utilises ANOVA test to check for differences in performance and number of employees between early and late respondents to

measure non-responses bias. The responses returned within four weeks were grouped as early respondents and those received after four weeks were classified as late. From this classification there are 76 early and 44 late respondents.

The ANOVA analysis (refer Table 5.2) indicates that there is no significant difference in the mean responses between the two groups in performance (p=0.42) and the number of employees (p= 0.37).

Table 5.3 ANOVA Result: Significant Group Response

Item	Group	Mean	F-statistic
Performance	Early Respondents	11.66	0.069[+]
	Late Respondents	11.77	
Employees	Early Respondents	3.15	2.861[+]
	Late Respondents	3.70	

[+] p>0.05

Respondent Profile

As this profile was on optional answer in the questionnaire, only 109 respondents provided their demographic profiles. Eleven cases are missing for the profile data.

Table 5.4 shows the size distribution for all of companies surveyed. The companies represented in the survey had a workforce that varied from less than 50 to over 200 employees. More than a half of the construction companies have more than 150 employees.

Table 5.4 Company size (Number of employees)

Number of Employees	Frequency	Valid Percent	Cumulative Percent
<50	24	22.0	22.0
51 – 100	19	17.4	39.4
101 – 150	7	6.4	45.9
151 – 200	10	9.2	55.0
>200	49	45.0	100.0

As shown in Table 5.5, 90 firms (83%) have been involved in the construction business for over 10 years. This indicates that the firms which responded have been operating since the 1997/1998 financial crisis, when construction works decreased in this period due to the turmoil in Asian financial markets.

Table 5.5 Enterprise Age

Years in Business	Frequency	Valid Percent	Cumulative Percent
<5	1	0.9	0.9
5 – 10	18	16.5	17.4
10 – 15	14	12.8	30.3
15 – 20	13	11.9	42.2
>20	63	57.8	100.0

Table 5.6 indicates, in terms of the ownership of the firm, 87% of the companies are privately owned and 17% are publicly owned. It is common that ownership of firms in the construction industry is predominantly private Moreover, independent firms account for 45 of the respondents, business unit for 36 and corporate parent companies for 28.

Table 5.6 Enterprise Ownership

Ownership	Frequency	Valid Percent	Cumulative Percent
Privately owned	95	87.2	0.9
Publicly owned	18	16.5	17.4

Construction and diversified business related to construction comprise the largest business activity of these respondents. The Indonesian construction authority, CSDB, categorises 5 kinds of primary construction activity: architectural, civil, electrical, mechanical and environmental services and each respondent would be involved in at least one of categories in the list. Closer examination indicates that 70% of these construction companies are involved in at least two of these categories. These firms are

mostly involved in civil, electrical and mechanical construction works. Almost all of construction companies have been operating throughout the country (Refer Table 5.7).

Table 5.7 Construction Business Activity

Ownership	Frequency	Valid Percent	Cumulative Percent
Construction only	50	45.9	45.9
Diversified business to construction related	51	46.8	92.7
Diversified business to non-construction related	8	7.3	100

The results shown in table 5.8 show that construction organisations to be more involved in private rather than government projects, and this is an indication of the importance of private sector construction in the Indonesia economy. In its latest report, BDO (2009) suggest market dominance by publicly listed construction firms, but it does not create a significant barrier to entry as these companies are mostly dominant in government projects, and there are still many opportunities in the private project sector. The results shown in Table 5.8 also reflect the market orientation of Indonesian large construction contractors.

Table 5.8 Construction Client

Ownership	Frequency	Valid Percent	Cumulative Percent
Government	51	46.8	46.8
Private	58	53.2	100.0

5.3 Evaluation of Survey Constructs

In evaluating the survey constructs, some statistical tests have been undertaken e.g. reliability test, validity test, and correlations test. While the reliability test examines the degree to which individual items used in a construct are consistent with their measurements (Nunnally, 1978), the validity test to examine the degree to which items are designed to load on the same construct (Carmines and Zeller, 1979). The

correlation test is conducted to examine the presence of multicollinearity (Pallant, 2007). This refers to the relationships among the items in the constructs and requires a good regression model.

Reliability

The reliability test of Cronbach's Alpha is used to examine internal consistency of the constructs. As can be seen from the reliability coefficients reported in Table 5.9, each of the constructs demonstrates high reliability, as all Alpha coefficients are above the 0.7 threshold suggested by Nunnaly (1978).

Table 5.9 Reliability: Internal Consistency

Construct	N	Item	Alpha
Performance	120	4	.839
Competitive Advantage	120	21	.936
Value of Asset-Capabilities	120	42	.973
Rareness of Asset-Capabilities	120	21	.955
Environment Hostility	120	3	.734
Dynamic Capability Processes	120	12	.872

Validity

Factor analysis is used to examine convergent validity. In this kind of analysis, loadings are employed to detect appropriate loading on the predicted construct. All of the construct items have been extracted into two factors using the Principal Component Analysis and rotated using the Varimax rotation method with Kaizer normalisation. It should be noted that factor analysis is generally regarded as a techniques for large sample size (N), with N=200 as reasonable absolute minimum (Comrey and Lee, 1992).

However, Winter et al. (2009) recently suggest N=50 as a sensible absolute minimum for factor analysis, it is well under the minimum number of 100 samples as proposed by Mundrom et al. (2005) and Gorsuch (1983). Thus the number of sample

in this research (N=120) is acceptable. The result of factor analysis for all of the survey items are presented in Table 5.10 to Table 5.16.

Table 5.10 Factor Analysis: Competitive Advantage

Constructs / Items	Cost (CA1)	Opportunity (CA2)	Threat (CA3)
Technological Asset-Capabilities (CA1)	.823	.905	.848
Complementary Asset-Capabilities (CA2)	.867	.896	.818
Financial Asset-Capabilities (CA3)	.561	.684	.730
Reputational Asset-Capabilities (CA4)	.783	.640	.697
Structural Assets Capabilities (CA5)	.560	.677	.700
Institutional Assets-Capabilities (CA6)	.717	.837	.901
Market Position Asset-Capabilities (CA7)	.872	.556	.729

Table 5.10 shows that the items loaded appropriately on the proper factors using a cut-off score of 0.50 (Tosi, Aldag & Storey, 1973). In terms of the total variance, sixty percent of the cumulative variance is explained by the set of items, and the eigen-value for this item was over the threshold of 1.00, which is typical for this type of analysis. In addition, KMO and Bartlett's Test strongly support the measure of the sampling adequacy (sig. p <0.005).

Table 5.11 Factor Analysis: Value Capabilities

Constructs / Items	Cost (V1)	Opportunity (V3)	Threat (V5)
Technological Asset-Capabilities (V1)	.896	.888	.908
Complementary Asset-Capabilities (V2)	.897	.875	.914
Financial Asset-Capabilities (V3)	.619	.525	.594
Reputational Asset-Capabilities (V4)	.757	.711	.567
Structural Assets Capabilities (V5)	.731	.733	.717
Institutional Assets-Capabilities (V6)	.885	.889	.863
Market Position Asset-Capabilities (V7)	.836	.637	.743

As can be seen from the Table 5.11, each value of capabilities (items V1 through V7) demonstrates a sound validity, as all component coefficients are above the 0.5

threshold (Tosi et al., 1973). The items explain 68.5% of total variance with an average Eigen value of 3.9. Moreover, the KMO and Bartlett's Test show the adequacy and significance of the sampling measure (p <0.005).

Table 5.12 Factor Analysis: Value of Assets

Constructs / Items	Cost (V2)	Opportunity (V4)	Threat (V6)
Technological Asset-Capabilities (V1)	.913	.803	.834
Complementary Asset-Capabilities (V2)	.887	.827	.881
Financial Asset-Capabilities (V3)	.566	.755	.695
Reputational Asset-Capabilities (V4)	.728	.828	.656
Structural Assets Capabilities (V5)	.790	.790	.705
Institutional Assets-Capabilities (V6)	.876	.648	.879
Market Position Asset-Capabilities (V7)	.787	.824	.734

The table 5.12 illustrates evidence of appropriately loading the items on the proper factors using a 0.50 threshold as suggested by Tosi et al. (1973). In terms of total variance, 64% percents of the cumulative variance is explained by the set of items, and the Eigen value for this item was over 1.00 and that is a typical value for this type of analysis. In addition, the KMO and Bartlett's Test strongly support the measure of the sampling adequacy (sig. p <0.005).

Table 5.13 Factor Analysis: Rarity of Assets Capabilities

Constructs / Items	Capabilities	Assets	Combination
Technological Asset-Capabilities (R1)	.861	.897	.851
Complementary Asset-Capabilities (R2)	.870	.884	.889
Financial Asset-Capabilities (R3)	.540	.590	.640
Reputational Asset-Capabilities (R4)	.738	.581	.552
Structural Assets Capabilities (R5)	.782	.748	.693
Institutional Assets-Capabilities (R6)	.830	.862	.872
Market Position Asset-Capabilities (R7)	.730	.735	.843

As can be seen from Table 5.13, each of the rarity of asset-capabilities (items R1 through R7) shows a fine validity, as all loadings values are above the 0.5 threshold (Tosi et al., 1973). In addition to the KMO and Bartlett's Test proving the adequacy and significance of the sampling measure ($p < 0.005$).

Table 5.14 Factor Analysis: Performance

Construct	Item	Loading
Performance	Marketing (P1)	.773
	Sales Growth (P2)	.871
	Profitability (P3)	.855
	Market Share (P4)	.773

Factor analysis for survey items of performance (P1 – P4) exemplifies convergent validity (Tabel 5.14) where all loadings values are above the 0.5 threshold as suggested by Tosi et al. (1973). The KMO and Bartlett's Test strongly supports the measure of sampling adequacy (sig. $p < 0.005$).

Table 5.15 Factor Analysis: Environment Hostility

Construct	Item	Loading
Environment Hostility	Control over environment (E1)	.964
	Safety of environment (E2)	.903
	Richness of opportunities (E3)	.806

Table 5.15 demonstrates that there is strong evidence of appropriately loading the items on the proper factors using a 0.50 threshold as suggested by Tosi et al. (1973). In terms of the total variance, 60% of the cumulative variance is explained by the set of items, and KMO and Bartlett's Test strongly supports the measure of sampling adequacy (sig. $p < 0.005$).

From Table 5.16, each of the variable of dynamic-capabilities (items DC1 through DC12) shows a well validity, as all loadings value are above the 0.5 threshold (Tosi et al., 1973) and the adequacy and significance of sampling is correctly confirmed by KMO and Bartlett's test.

Table 5.16 Factor Analysis: Dynamic Capabilities

Items/constructs	Sense	Seize	Transform
DC1	.800		
DC2	.982		
DC3	.812		
DC4	.723		
DC5		.903	
DC6		.691	
DC7		.616	
DC8		.938	
DC9			.951
DC10			.865
DC11			.869
DC12			.732

In summary, the item scales employed in this study are suitably reliable and valid indicators of the constructs' measure. The reliability coefficients reported in Table 5.8 demonstrate the high level of reliability of each construct, as all Alpha coefficients are above the 0.7 threshold suggested by Nunnaly (1978). The loading coefficients reported in Table 5.9 to Table 5.15 provide evidence of well convergent validity, as all coefficients are above the 0.5 cut-off suggested by Tosi et al. (1973).

Correlation

A Pearson product-moment correlation test is used to measure interrelationships between variables: control variable, independent variables and dependent variables. This test is conducted to examine the presence of multicolinearity (Pallant, 2007). As the model hypotheses are to be tested using Hierarchical Multiple Regression, correlation tests were first carried out to rule out the presence of multicolinearity. Such colinearity will not result in a good regression model. According to Pallant (2007), multicolinearity exists when the independent variables are highly correlated (r=.9 and above). Table 5.17 shows the correlation coefficients of all the variables.

Table 5.17 Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10
1. E										
2. V1	-.086									
3. V2	-.043	.897**								
4. V3	-.042	.484**	.557**							
5. V4	-.179	.653**	.709**	.633**						
6. V5	-.040	.564**	.600**	.537**	.620**					
7. V6	-.134	.391**	.396**	.488**	.574**	.649**				
8. V7	-.173	.601**	.605**	.627**	.708**	.688**	.655**			
9. V8	-.123	.803**	.833**	.759**	.860**	.824**	.738**	.863**		
10. R1	-.219*	.641**	.507**	.272**	.395**	.401**	.315**	.488**	.531**	
11. R2	-.163	.538**	.591**	.364**	.413**	.424**	.291**	.444**	.538**	.757**
12. R3	-.110	.253**	.321**	.681**	.397**	.372**	.402**	.533**	.521**	.457**
13. R4	-.257**	.387**	.428**	.337**	.563**	.333**	.329**	.452**	.497**	.587**
14. R5	-.124	.366**	.401**	.407**	.444**	.791**	.484**	.558**	.612**	.514**
15. R6	-.259**	.271**	.285**	.384**	.413**	.549**	.813**	.562**	.584**	.462**
16. R7	-.205*	.390**	.397**	.388**	.400**	.503**	.474**	.720**	.580**	.620**
17. R8	-.239**	.502**	.518**	.510**	.539**	.603**	.561**	.675**	.690**	.777**
18. CA1	-.102	.644**	.575**	.256**	.335**	.337**	.108	.326**	.450**	.565**
19. CA2	-.120	.555**	.602**	.385**	.402**	.385**	.250**	.347**	.512**	.439**
20. CA3	.015	.212*	.274**	.627**	.319**	.267**	.203*	.363**	.397**	.180*
21. CA4	-.148	.376**	.422**	.343**	.500**	.332**	.221*	.386**	.452**	.390**
22. CA5	-.193*	.360**	.367**	.322**	.384**	.675**	.382**	.467**	.524**	.353**
23. CA6	-.183*	.229*	.221*	.346**	.434**	.453**	.759**	.507**	.525**	.329**
24. CA7	-.152	.354**	.368**	.299**	.366**	.447**	.398**	.599**	.501**	.457**
25. CA8	-.165	.509**	.528**	.490**	.515**	.546**	.441**	.568**	.634**	.508**
26. DC1	-.017	.333**	.309**	.241**	.219*	.155	.097	.253**	.280**	.261**
27. DC2	-.060	.315**	.328**	.323**	.275**	.127	.173	.328**	.327**	.194*
28. DC3	.029	.291**	.304**	.312**	.239**	.266**	.219*	.274**	.335**	.223*
29. P	-.265**	.216*	.209*	.189*	.320**	.282**	.269**	.327**	.321**	.338**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.17 Correlation Matrix (Continued)

Variable	11	12	13	14	15	16	17	18	19	20
1. E										
2. V1										
3. V2										
4. V3										
5. V4										
6. V5										
7. V6										
8. V7										
9. V8										
10. R1										
11. R2										
12. R3	.590**									
13. R4	.571**	.587**								
14. R5	.553**	.556**	.528**							
15. R6	.416**	.572**	.552**	.629**						
16. R7	.539**	.613**	.709**	.642**	.702**					
17. R8	.782**	.786**	.811**	.790**	.781**	.868**				
18. CA1	.434**	.230*	.317**	.285**	.087	.271**	.384**			
19. CA2	.499**	.304**	.345**	.339**	.189*	.310**	.428**	.814**		
20. CA3	.272**	.631**	.269**	.303**	.190*	.274**	.381**	.439**	.512**	
21. CA4	.434**	.448**	.683**	.387**	.273**	.470**	.550**	.516**	.577**	.556**
22. CA5	.339**	.337**	.316**	.602**	.334**	.386**	.476**	.560**	.570**	.460**
23. CA6	.274**	.418**	.356**	.360**	.680**	.439**	.515**	.296**	.392**	.370**
24. CA7	.447**	.451**	.540**	.452**	.407**	.674**	.615**	.429**	.479**	.388**
25. CA8	.506**	.537**	.530**	.515**	.411**	.534**	.632**	.757**	.811**	.709**
26. DC1	.246**	.144	.142	.051	.033	.131	.177	.300**	.224*	.045
27. DC2	.259**	.269**	.233*	.061	.107	.192*	.235**	.228*	.221*	.143
28. DC3	.285**	.253**	.272**	.215*	.168	.215*	.290**	.232*	.268**	.126
29. P	.399**	.376**	.478**	.418**	.321**	.354**	.478**	.210*	.254**	.189*

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5.17 Correlation Matrix (Continued)

Variable	21	22	23	24	25	26	27	28	29
1. E									
2. V1									
3. V2									
4. V3									
5. V4									
6. V5									
7. V6									
8. V7									
9. V8									
10. R1									
11. R2									
12. R3									
13. R4									
14. R5									
15. R6									
16. R7									
17. R8									
18. CA1									
19. CA2									
20. CA3									
21. CA4									
22. CA5	.505**								
23. CA6	.414**	.523**							
24. CA7	.675**	.550**	.565**						
25. CA8	.797**	.785**	.675**	.772**					
26. DC1	.084	.137	.077	.163	.192*				
27. DC2	.187*	.133	.167	.218*	.244**	.859**			
28. DC3	.213*	.245**	.191*	.260**	.288**	.807**	.863**		
29. P	.429**	.309**	.290**	.441**	.400**	.028	.099	.149	

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

As can be seen from Table 5.17, all of the correlation coefficients are below the threshold level as suggested by Pallant (2007). As suggested by Tabachnick & Fidell (2007), the tolerance value (TOL) the variance inflation factor (VIF) and the

condition index (CI) will be evaluated to ensure that there is no violation of the assumption of multicolinearity. These three tests are executed in SPSS in producing sequential regression models. According to Meyers, Gamst and Guarino (2006), a VIF value above 10 or a TOL value less than 0.10 or a CI value greater than 30 are commonly used as cut-off points for determining the presence of multicolinearity. Given the value of VIF, TOL, and CI found in the regression analysis (see appendix B-6), the assumption of multicolinearity is not violated.

5.4 Statistical Test of Hypotheses

As mentioned in section 5.1 above, this study uses hierarchical regression models to test the research hypothesis. The regression model will be evaluated according to the check list suggested by Tabachnick and Fidell (2007). This study is aimed testing the following hypotheses:

Hypothesis 1: The value of asset-capability combinations that an enterprise exploits will have positive relation to its competitive advantage

Hypothesis 2: The rarity of asset-capability combinations that an enterprise exploits will have positive relation to its competitive advantage

Hypothesis 3: An enterprise's competitive advantage will have a positively correlation to its performance.

Hypothesis 4: An enterprise's competitive advantage will mediate the relationship between value and rareness of the dynamic capability combinations and its performance.

Hypothesis 5: An enterprise's competitive advantage will mediate the relationship between the dynamic capability combinations and its performance.

Each hypothesis was tested using eight two-stage hierarchical regression models. The eight models reflect the seven different type of asset and capabilities which respondents were asked to comment on in the survey questionnaire (technological, complementary, financial, reputation, structural, institutional and market assets) as well as the average responses across the seven classes for the asset-capabilities combination.

The two-stages reflect a hierarchical approach to the multiple regression analysis in which the control variable is entered in the first stage and then the predictor variables are entered in the second stage. This kind of technique provides evidence of the incremental impact the set of predictor variables has on the dependent variable and beyond the relations that exist between control variable and dependent variable.

The rationale for using this approach is based on interest in analysing the magnitude of value and rarity of asset-capabilities combinations in predicting firm competitive advantage and performance after accounting for the effects of environment hostility. As a result, mathematical models for all of the hypotheses are as follows:

1. Mathematical model for hypothesis 1 and hypothesis 2

   $$\mathbf{CA = A + B_1.E + B_2.V + B_3.R}$$

   Where,

   CA_n = Competitive Advantage for asset-capabilities

   A = Constant Coefficient (intercept)

   B_1 = Variable Coefficient for Environment Hostility

   E = Environment Hostility

   B_2 = Variable coefficient for Value of asset-capabilities combination

   V = Value of asset-capabilities combination

   B_3 = Variable coefficient for Rareness of asset-capabilities combination

R = Rareness of asset-capabilities combination

2. Mathematical model for hypothesis 3

$$\mathbf{P = A + B_1 . E + B_2 . CA_n}$$

Where,

P = Performance

A = Constant Coefficient (intercept)

B_1 = Variable Coefficient for Environment Hostility

E = Environment Hostility

B_2 = Variable coefficient for Competitive Advantage for asset-capabilities n

CA_n = Competitive Advantage for asset-capabilities n

This mathematical model is evaluated to determine which variables should be included in the regression model equation by using the unstandardised coefficient value of B. The standardised value of Beta (β) will also be evaluated to assess which variable makes the strongest unique contribution to explaining the dependent variable.

Hypothesis 1 and 2 – Evaluating the model

Hierarchical multiple regressions were utilised to test hypotheses 1 and 2: one pertaining to each of the seven distinct asset/capability types as categorised by Teece (1997, 2007), and one pertaining to the average for these categories. Preliminary analyses were conducted to ensure no violation of the assumptions of normality and colinearity using SPSS Regression and SPSS Explore. With the use of a $p < 0.001$ the criterion for the Mahalanobis distance, some outliers among the cases were identified. These results led to the elimination of the variables which have outliers

and thus the sample size become 115 and 116 cases from the original sample of 120 cases. The results of these regressions are shown in the Table 5.18

Table 5.18 displays the correlation between the variables, the unstandardised regression coefficient (B) and intercept (A), the standardised regression coefficient (β), R, R-Squared, and the adjusted R-Squared after the entry of the two independent variables. As can be seen from this table, all eight stage-2 models are significant, as all value of the F-statistics ANOVA and the F-Change are have threshold value of less than 0.01 ($p < 0.001$). This not only suggests that the stage-2 model fits the data well, but also that the addition of independent variables produces models that fit the data significantly better that stage-1 models.

The result show that while the stage-1 models explaining less than 10% of the variance of competitive advantage, the stage-2 models explain a considerable amount of the variance of competitive advantage (32.1% to 49.7% across the eight models), which in each case reflects a substantial increase from the stage-1 model (R-Squared add from 30.6% to 45.5% for change).

Table 5.18 Regression Results for Hypothesis 1 and 2

	Technological Assets and Capabilities (Model 1)		Complementary Assets and Capabilities (Model 2)		Financial Assets and Capabilities (Model 3)		Reputational Assets and Capabilities (Model 4)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	12.55***	1.99+	12.85***	5.24***	11.38***	2.187*	13.25***	4.019***
Environment (B)	-.071^{ns}	0.045^{ns}	-.075^{ns}	-.028^{ns}	.015^{ns}	.062^{ns}	-.119*	-.006^{ns}
Value (B)		.262***		.221***		.237***		.179***
Rarity (B)		.258***		.139+		.275**		.329***
Environment (β)	-.114^{ns}	-.071^{ns}	-.133^{ns}	-.048^{ns}	.022^{ns}	.091^{ns}	-.199*	-.011^{ns}
Value (β)		.549***	.421***	468***		.449***		.362***
Rarity (β)		.280*	.	156+		.301**		.386***
R	.114	.743	.135	.577	.022	.691	.199	.694
R Sq	.013	.552	.018	.332	.000	.478	.039	.482
Adjusted R Sq	.004	.540	.0009	.315	-.008	.464	.031	.468
R Sq (Change)		.539		.315		.478		.443
F Stat (ANOVA)	1.475	45.25***	2.06^{ns}	18.59***	.027^{+}	34.19***	2.64***	34.73***
F Stat (Change)		66.28***		26.40***		51.23***		47.84***
N	114	114	115	115	116	116	116	116

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

B= Unstandardised coefficient, β= Standardised coefficient

Looking more closely, institutional and market models have higher record of beta coefficients than other six models in all the stage-2 regression models. These results suggest that external position of asset-capability combination is more important to predict enterprises competitive advantage than internal position of asset-capability. In terms of internal related position, Reputational model is recording the largest value of predictor coefficient for variance in competitive advantage.

Table 5.18 Regression Results for Hypothesis 1 and 2 *(Continued)*

	Structural Assets and Capabilities (Model 5)		Institutional Assets and Capabilities (Model 6)		Market Assets and Capabilities (Model 7)		Average Assets and Capabilities (Model 8)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	13.013***	5.460***	11.56***	3.32***	12.97**	3.052**	12.406***	4.577**
Environment (B)	-.187***	-.108*	-.126*	-.033 ns	-.144*	-.014 ns	-.098*	-.021 ns
Value (B)		.213***		.234***		.248***		.117***
Rarity (B)		.191+		.220*		.238*		.384**
Environment (β)	-.302***	-.174*	-.199*	-.053 ns	-.215*	-.021 ns	-.205*	-.045 ns
Value (β)		.409***		.492***		.475***		.246***
Rarity (β)		.193+		.240*		.260*		.455**
R	.302	.630	.194	.711	.215	.708	.205	.675
R Sq	.091	.397	.037	.506	.046	.501	.042	.455
Adjusted R Sq	.083	.381	.029	.492	.038	.488	.034	.441
R Sq (Change)		.306		.468		.455		.413
F Stat (ANOVA)	4.572**	24.372***	4.402*	37.875**	5.483*	37.209**	4.980**	30.933***
F Stat (Change)		28.160***		52.601**		50.662**		42.099***
N	115	115	115	115	115	115	113	113

ns Not sig., +p<0.1, * p<0.05, ** p<0.01, *** p<0.001
B= Unstandardised coefficient, β= Standardised coefficient

In the final model, all two significant variables ($p < 0.05$) are included in the following regression mathematical models

$Y_1 = 1.99 + 0.26_1 + 0.26X_2$ (Technological Model)

$Y_2 = 5.32 + 0.221X_1 + 0.14X_2$ (Complementary Model)

$Y_3 = 2.19 + 0.24X_1 + .28X_2$ (Financial Model)

$Y_4 = 4.02 + 0.18X_1 + .33X_2$ (Reputational Model)

$Y_5 = 5.46 + 0.21X_1 + .19X_2$ (Structural Model)

$Y_6 = 3.32 + 0.23X_1 + .22X_2$ (Institutional Model)

$Y_7 = 3.05 + 0.25X_1 + .24X_2$ (Market Model)

$Y_8 = 4.58 + 0.12X_1 + .38X_2$ (Average Model)

Where,

Y = Competitive advantage;

X_1 = Value of asset-capabilities combination;

X_2= Rarity of asset-capabilities combination.

These models imply that control for the possible effect of the environment hostility; variables of value and rarity of assets-capabilities combination are still able to predict a statistically significant amount of the variance in competitive advantage. Since coefficients of the value and rarity are positively related to the competitive advantage of Indonesian construction enterprises, so it is suggesting that more valuable and rare a firm's asset-capabilities make the greater its competitive advantage.

Hypothesis 1 and 2 – Evaluating the variable contribution

In terms of the individual variable contribution, Table 5.18 demonstrates that the control variable environment hostility is only significant in two of the eight stage-2 regression models only, i.e. the structural and market models. The control variable does not make unique contribution to explaining the dependent variable in technological, complementary, financial, reputation, institutional, and average models. This suggests that this variable has little or no effect on competitive advantage.

With respect to the hypotheses at issue, the variable coefficient for value is positive and significant in all eight regression models (+β, $p < 0.05$). This finding offers support for Hypothesis 1, that the value of asset-capability combinations which an enterprise exploits will have a positive relation to its competitive advantage. Additionally, the variable coefficient for rareness is also significant and positive in

all eight stage-2 models (+β, $p < 0.05$). This finding suggest that the rarer an enterprises asset-capability combinations, the greater the competitive advantage it will attain from this exploitation. Thus, Hypothesis 2 is fully supported.

Looking more closely, in the stage-2 regression models, the value of asset-capability has a higher record of beta coefficients than the rarity in all but reputational model. These results suggest that the value of asset-capability combination is more important to predict an enterprises competitive advantage than rarity of asset-capability. In respect of position of asset-capabilities, the external related position has largest beta coefficient of the value (Institutional Model).

In other hand, the internal related position (Reputational model) records the largest value of beta coefficient. Compared to other models, the Value and Rarity of Reputational, Financial and Technological model appears to have the most important asset-capability to explain the competitive advantage of Indonesian construction enterprises, as these variables have the largest total Beta coefficient (β=0.75, $p <$ .01). Other models i.e. Complementary and Structural models have a lower value of Beta Cofficient (β=0.6).

In summary, as evaluated above, the result offers support for Hypothesis 1 and 2, that an enterprise's value of rarity of asset-capabilities combinations a positively correlation to its competitive advantage. Thus, Hypothesis 1 and 2 is fully supported.

Hypothesis 3 – Evaluating the model

Hypothesis 3 was tested using sequential regression models similar to those already discussed that is, one pertaining to each of the seven individual asset/capability categories, and one pertaining to the average for these categories. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, and colinearity using SPSS Regression and SPSS Explore. With the use of a $p < 0.001$ the criterion for Mahalanobis distance, some outliers among the cases were

identified. These results led to the elimination of the variables that have outliers and thus the sample size become 116 to 119 cases from the original sample of 120 cases.

Table 5.19 Regression Results for Hypothesis 3

	Technological Assets and Capabilities (Model 1)		Complementary Assets and Capabilities (Model 2)		Financial Assets and Capabilities (Model 3)		Reputational Assets and Capabilities (Model 4)	
Hierarchical Reg. Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	13.892***	11.361***	13.585***	9.619***	13.602***	10.173***	13.812***	9.080***
Environment (B)	-.206***	-.192**	-.180**	-.152*	-.188**	-.201***	-.196***	-.151**
Performance (B)		.202*		.309**		.311***		.354***
Environment (β)	-.303***	-.282**	-.262**	-.222*	-.284**	-.304***	-.302***	-.233**
Performance (β)		.190*		.283**		.321***		.333***
R	.303	.358	.262	.384	.284	.428	.329	.444
R Sq	.092	.128	.069	.147	.081	.184	.108	.197
Adjusted R Sq	.084	.112	.061	.132	.073	.169	.100	.184
R Sq (Change)		.036		.078		.103		.106
F Stat (ANOVA)	11.566***	8.284***	8.494**	9.833***	10.188***	12.929***	11.747***	14.267***
F Stat (Change)		4.634*		10.472**		14.486***		15.347***
N	116	116	117	117	118	118	119	119

ns Not sig., +p<0.1, * p<0.05, **p<0.01, ***p<0.001
B= Unstandardised coefficient, β= Standardised coefficient

Table 5.19 displays the correlation between the variables, the unstandardised regression coefficient (B) and intercept (A), the standardised regression coefficient (β), R, R-Squared, and adjusted R-Squared after the entry of the two independent variables. As can be seen from this table, all eight stage-2 models are significant, as all value of the F-statistics ANOVA and the F-Change are less than 0.01 threshold value ($p < 0.05$). This suggests that not only that the stage-2 model fits the data well, but also that the addition of independent variables produces models that fit data significantly better that stage-1 models. The result indicates that while the stage-1 models provide explanation for less than 10% of the variance of performance, the stage-2 models explain a reasonable amount of the variance of competitive

advantage (10.1% to 20.2% across the eight models), which in each case reflects a reasonable increase from the stage-1 model (R-Squared add from 6.4% to 12.4% for change).

Looking more closely, reputational and market models have higher record of predictor coefficients (ΔR^2) than other six models in all the stage-2 regression models. In contrast, Institutional and technological models are the lowest predictors in explaining variance of organisational performance. These results suggest that reputational and market asset/capabilities are relatively more important determinants of enterprises performance.

Table 5.19 Regression Results for Hypothesis 3 *(Continued)*

	Structural Assets and Capabilities (Model 5)		Institutional Assets and Capabilities (Model 6)		Market Assets and Capabilities (Model 7)		Average Assets and Capabilities (Model 8)	
Hierarchical Reg. Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	13.523***	10.174***	13.385***	10.413***	13.812***	9.485***	13.812***	8.800***
Environment (B)	-.174**	-.135*	-.159*	-.121*	-.196**	-.151**	-.196**	-.155**
Performance (B)		.269**		.242***		.337***		.403***
Environment (β)	-.260**	-.202*	-.199*	-.176*	-.302**	-.233**	-.302**	-.238**
Competitive Advantage (β)		.275**		.266***		.359***		.314***
R	.260	.374	.233	.349	.302	.464	.302	.431
R Sq	.068	.140	.054	.122	.091	.216	.091	.186
Adjusted R Sq	.060	.125	.046	.106	.083	.202	. .083	.172
R Sq (Change)		.072		.067		.124		.095
F Stat (ANOVA)	8.513**	9.434***	6.659*	7.961***	11.747***	15.937***	11.747***	13.238***
F Stat (Change)		9.720**		8.814**		18.381***		13.476***
N	119	119	118	118	119	119	119	119

^{ns} Not sig., $^{+}p<0.1$, $^{*}p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$

B= Unstandardised coefficient, β= Standardised coefficient

In the final model, all significant variables ($p < 0.05$) are included in the following regression mathematical models

$Y_1 = 11.361 - 0.192X_1 + .202X_2$ (Technological Model)

$Y_2 = 9.619 - 0.152X_1 + .309X_2$ (Complementary Model)

$Y_3 = 10.173 - 0.201X_1 + .311X_2$ (Financial Model)

$Y_4 = 9.080 - 0.151X_1 + .354X_2$ (Reputational Model)

$Y_5 = 10.237 - 0.136X_1 + .265X_2$ (Structural Model)

$Y_6 = 10.413 - 0.121X_1 + .242X_2$ (Institutional Model)

$Y_7 = 9.485 - 0.151X_1 + .337X_2$ (Market Model)

$Y_8 = 8.800 - 0.155X_1 + .403X_2$ (Average Model)

Where,

Y = Performance;

X_1 = Environmental Hostility;

X_2 = Competitive Advantage

These models imply that control for the possible effect of the environment hostility; variable of competitive advantage is still able to predict a statistically significant amount of the variance in performance. Since the coefficient of the environmental hostility is negatively related to performance, so it is suggesting that less hostile a firm's environment makes the greater its performance. This finding is consistent with prior research (Newbert, 2007).

Hypothesis 3 – Evaluating the variable contribution

In terms of the individual variable contribution, Table 5.16 demonstrates that the control variable environment hostility is significant in all of the eight stage-2 regression models. The control and independent variables make a unique contribution to explaining the dependent variable (performance). Since the coefficient of the environmental hostility is negatively related to performance, this

therefore suggests that the less hostile a firm's environment is, the greater its performance. This finding is consistent with prior research (Dess et al., 2003; Newbert, 2007). With respect to the hypotheses at issue, the variable coefficient for competitive advantage is positive in all eight regression models (+β, $p < 0.05$). This finding offers support for Hypothesis 3, that an enterprise's competitive advantage will have a positive correlation to its performance. Thus, Hypothesis 3 is fully supported.

Closer examination shows that the reputational and market model has the highest record of beta coefficients. This result suggests that competitive advantage of having reputational and market asset-capabilities are most important in predicting an enterprises performance. The technology asset-capabilities have made up the lowest value of beta coefficient.

With respect to the hypotheses at issue, the variable coefficient for competitive advantage is positive in all eight regression models (+β, $p < 0.05$). This finding offers support for Hypothesis 3, that an enterprise's competitive advantage will have a positively correlation to its performance. Thus, Hypothesis 3 is fully supported.

Hypotheses 4 and 5 – Mediating Effect of Competitive Advantage

As discussed in previous chapter, competitive advantage is a key construct in strategic management research; as a result, its mediation role in the resource/capability performance relationship is crucial (Newbert, 2007). Hypotheses 4 and 5 were tested using sequential regression models similar to those previously discussed, but the model includes the mediating variable (M).

The mediating role of competitive advantage in particular is tested on the basis of an approach which was suggested by Baron and Kenny (1986). Using this approach, the following criteria must be met: (1) independent variable (X) must be correlated with dependent variable (Y); (2) independent variable (X) must be correlated with mediating variable (M); (3) Mediating variable (M) must be correlated with

dependent variable (Y) holding constant any direct effect of X on Y; and (4) when the effect of M on Y is removed, X is no longer correlated with Y (complete mediation) or the correlation between X and Y is reduced (partial mediation). In this case, competitive advantage plays a mediating role between value and rarity of asset-capabilities combination and performance (Hypothesis 4). Similarly, competitive advantage acts in a mediating role between dynamic capabilities combinations with a firm's performance (Hypothesis 5).

The results highlighted above demonstrate that the first two of Baron and Kenny's (1986) conditions are met, namely that value and rareness are related to competitive advantage (see Table 5.16) and that competitive advantage is related to performance (Table 5.17). However, the third condition has not been satisfied with respect to value. As can be seen in the Table 5.20, the unstandardised coefficient (B) value is not significant in both stage-1 and stage-2 models.

Table 5.20 Regression Results for Hypothesis 4

	Technological Assets and Capabilities (Model 1)		Complementary Assets and Capabilities (Model 2)		Financial Assets and Capabilities (Model 3)		Reputational Assets and Capabilities (Model 4)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	10.95***	10.67**	10.28***	9.46***	10.3`***	10.02***	8.59***	7.83***
Environment (B)	-.173*	-.174 **	.175 *	.-.168**	-.185 ***	.-.194**	-.113**	-.109 s
Value (B)	-.41 ns	-.61 ns	-.058 ns	-.112 ns	-.027 ns	-.058 ns	-.010 ns	-.038 ns
Rarity (B)	0.307**	.289*	.396***	.379***	.349***	.312***	.394 ***	.326**
Competitive Advantage (B)		0.85 ns		.190+		.134+		.180 ns
t	2.790***	0.736***	3.848***	1.656+	3.402***	1.224 ns	3.558***	1.481***
R	.416	.420	.475	.494	.475	.494	.490	.505
R Sq	.173	.177	.225	.244	.225	.244	.240	.255
Adjusted R Sq	.151	.148	.205	.217	.205	.217	.220	.228
R Sq (Change)		.004		.019		.019		.015
F Stat (ANOVA)	7.94***	6.07***	.10.95** *	9.03***	11.86***	9.31***	11.922* **	9.584***
F Stat (Change)		.54ns		2.74 ns		1.49ns		2.19ns

ns Not sig., +p<0.1, * p<0.05, **p<0.01, ***p<0.001

Table 5.20 Regression Results for Hypothesis 4 *(Continued)*

	Structural Assets and Capabilities (Model 5)		Institutional Assets and Capabilities (Model 6)		Market Assets and Capabilities (Model 7)		Average Assets and Capabilities (Model 8)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	9.58***	9.09***	9.89***	9.45***	9.80`***	9.23***	8.55`***	7.86***
Environment (B)	-.139*	-.129*	.115^{+}	.-.110^{+}	-.138***	-.142**	-.128***	.-.127**
Value (B)	-.055^{ns}	-.081^{ns}	.028^{ns}	-.009^{ns}	-.034^{ns}	-.076^{ns}	-.041^{ns}	-.066^{ns}
Rarity (B)	.455***	.441***	.238***	.216^{ns}	.227^{+}	.146^{ns}	.494***	.440***
Competitive Advantage (B)		0.100^{ns}		.135^{ns}		.278^{ns}		.164^{ns}
t	3.588***	.903^{ns}	1.708^{+}	1.049^{+}	1.658^{+}	2.213^{n*}	3.854***	1.068^{ns}
R	.472	.478	.475	.494	.491	.498	.491	.498
R Sq	.222	.228	.225	.244	.241	.248	.241	.248
Adjusted R Sq	.202	.200	.205	.217	.220	.221	.220	.221
R Sq (Change)		.006		.019		.036		.019
F Stat (ANOVA)	10.77***	8.27***	6.28***	4.99***	8.05***	7.48***	11.84***	9.18***
F Stat (Change)		.82^{ns}		1.099^{ns}		.4.89*		.008^{ns}

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

In terms of rareness, the results show that all unstandardised coefficients in the first stage are statistically significant, thus satisfying Baron and Kenny's (1986) condition. Table 5.20 also shows that the significance between rarity and performance is eliminated or reduced upon the inclusion of competitive advantage to the model and as a result, the fourth condition of Baron and Kenny (1978) is satisfied. These findings suggest that competitive advantage fully mediates the rareness-performance relationship for all the eight regression models.

Furthermore, The Sobel, Aroian and Goodman tests are conducted to assess whether the mediating variable (competitive advantage) has any influence in carrying rareness of asset-capability combination to the dependent variable (performance). In order to confirm this mediation test, the regression model was rerun without value variable, in order to assess whether the reported results might have been affected by this correlation.

From regression result, t-statistics of stage-1 and stage-2 models are input to Preacher's interactive mediation test (see Appendix B-7). As a result, the following

table shows mediated effect of the predictor variable (competitive advantage) to relationship between rareness of asset-capability combination with performance of construction organisations.

Table 5.21 The Mediating Effect Results of Competitive Advantage

Mediated Relationships [1]	Sobel	Aroian	Goodman
Rareness of Technological Asset-capability combinations and Performance	.337 ns	.323 ns	.353 ns
Rareness of Complementary Asset-capability combinations and Performance	.647 ns	.631 ns	.664 ns
Rareness of Financial Asset-capability combinations and Performance	.446 ns	.434 ns	.459 ns
Rareness of Reputational Asset-capability combinations and Performance	1.745 +	1.718 +	1.773 +
Rareness of Structural Asset-capability combinations and Performance	.498 ns	.458 ns	.509 ns
Rareness of Institutional Asset-capability combinations and Performance	1.050 ns	1.003 ns	1.104 ns
Rareness of Market Asset-capability combinations and Performance	2.452 *	2.403 *	2.504 *
Rareness of Average Asset-capability combinations and Performance	1.486 ns	1.462 ns	1.511 ns

ns Not sig., + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

[1] Note that regression result for this mediation relationship is reported in appendices

As can be seen from Table 5.21 above, Sobel, Aroian and Goodman tests were conducted, but most of these tests were not statistically significant, thus there is no mediating relationship of competitive advantage for the six models. Similar to rareness, mediated effect for value of asset-capabilities combinations and performance is found in two models, .i.e reputational, and market models. Since this mediating effect is found in two of the eight regression models only, thus Hypothesis 4 is partially supported.

Table 5.22 Regression Results for Hypothesis 5

	Technological Assets and Capabilities (Model 1)		Complementary Assets and Capabilities (Model 2)		Financial Assets and Capabilities (Model 3)		Reputational Assets and Capabilities (Model 4)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	9.139***	8.108***	9.139***	8.216***	9.139***	8.402***	9.139***	6.254***
Environment (B)	-.150*	-.144*	-.150*	-.143**	-.150*	-.156*	-.150*	-.123*
Sensing (B)	-.073^{ns}	-.113^{ns}	-.073^{ns}	-.088^{ns}	-.073^{ns}	-.059^{ns}	-.073^{ns}	-.031^{ns}
Seizing (B)	.070^{ns}	.075^{ns}	.070^{ns}	.068^{ns}	.070^{ns}	.040^{ns}	.070^{ns}	.014^{ns}
Transforming (B)	.263**	253**	.263**	.235*	.263**	.254**	.263**	.190*
Competitive Advantage (B)		.142^{ns}		.131^{ns}		105^{ns}		.335***
t	2.772***	1.554***	2.772**	1.333^{ns}	2.772**	1.300^{ns}	2.772**	3.617***
R	.417	.438	.417	.433	.417	.432	.417	.513
R Sq	.174	.192	.174	.187	.174	.187	.174	.263
Adjusted R Sq	.144	.155	.144	.144	.144	.149	.144	.229
R Sq (Change)		.018		.013		.013		.089
F Stat (ANOVA)	5.736***	5.132***	5.736***	4.977***	5.736***	4.956***	5.736***	7.715***
F Stat (Change)		2.416^{ns}		1.777^{ns}		1.690^{ns}		13.086***
N	114	114	114	114	114	114	114	114

^{ns}Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

Table 5.22Regression Results for Hypothesis 5 *(Continued)*

	Structural Assets and Capabilities (Model 5)		Institutional Assets and Capabilities (Model 6)		Market Assets and Capabilities (Model 7)		Average Assets and Capabilities (Model 8)	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Constant (A)	9.139***	7.789***	9.139***	7.880***	9.139***	7.210***	9.139***	6.504***
Environment (B)	-.150*	-.129*	-.150*	-.132*	-.150*	-.122*	-.150*	-.128*
Sensing (B)	-.073^{ns}	-.082^{ns}	-.073^{ns}	-.052^{ns}	-.073^{ns}	-.075^{ns}	-.073^{ns}	-.077^{ns}
Seizing (B)	.070^{ns}	. 092^{ns}	.070^{ns}	.049^{ns}	.070^{ns}	.033^{ns}	.070^{ns}	.070^{ns}
Transforming (B)	.263**	. .202*	.263**	.229*	.263**	.176^{ns}	.263**	. .041**
Competitive Advantage (B)		.171^{+}		.160^{+}		.343***		.356***
t	2.772***	1.822+	2.772**	1.858^{+}	2.772**	3.771***	2.772**	2.968^{ns}
R	.417	.446	.417	.447	.417	.520	.417	.486
R Sq	.174	.199	.174	.199	.174	.270	.174	.236
Adjusted R Sq	.144	.161	.144	.162	.144	.236	.144	.201
R Sq (Change)		.025		.026		.096		.062
F Stat (ANOVA)	5.736***	5.350***	5.736***	5.383***	5.736***	.096***	5.736***	6.679***
F Stat (Change)		3.319^{+}		3.454^{+}		14.219***		8.807**
N	114	114	114	114	114	114	114	114

^{ns}Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

As Table 5.22 shows, each test is statistically significant in stage-1 of each of the eight models. Since no relationship exists between sensing and seizing capability for competitive advantage to mediate, but on other hand, the results for transforming capability are more shows potential. As seen in Table 5.23, as the unstandardised coefficient for transforming capability in the first stage models are significant, therefore the third condition of Baron and Kenny (1978) is satisfied.

Table 5.23 The Mediating Effect Results of Competitive Advantage

Mediated Relationships	Sobel	Aroian	Goodman
Transforming capability and Performance are mediated by technological competitive advantage	1.276 ^{ns}	1.239 ^{ns}	1.318 ^{ns}
Transforming capability and Performance are mediated by technological competitive advantage	1.206^{ns}	1.171^{ns}	1.246 ^{ns}
Transforming capability and Performance are mediated by complementary competitive advantage	1.329 ^{ns}	1.290 ^{ns}	1.371 ^{ns}
Transforming capability and Performance are mediated by reputational competitive advantage	2.664 *	2.619 *	2.712 *
Transforming capability and Performance are mediated by structural competitive advantage	1.592 ^{ns}	1.549 ^{ns}	1.639 ^{ns}
Transforming capability and Performance are mediated by institutional competitive advantage	1.742 $^{+}$	1.696^{+}	1.792 $^{+}$
Transforming capability and Performance are mediated by market competitive advantage	2.692 **	2.646**	2.739**
Transforming capability and Performance are mediated by average competitive advantage	2.355 *	2.306 *	2.407 *

^{ns} Not sig., $^{+}p<0.1$, * $p<0.05$, $^{**}p<0.01$, $^{***}p<0.001$

Table 5.23 also shows that the significance between transforming capability and performance is eliminated or reduced upon the inclusion of competitive advantage to the model and as a result, the fourth condition of Baron and Kenny (1978) is met. These findings suggest that competitive advantage fully mediates the transforming capability-performance relationship for all the eight regression models.

Furthermore, The Sobel, Aroian and Goodman test are conducted to assess whether the mediating variable (competitive advantage) has an influence in carrying dynamic capabilities combination to the dependent variable (performance). In order to confirm this mediation test, the regression model was rerun without sensing/seizing capability variable, in order to assess whether the reported results might have been affected by this correlation. From regression result, t-statistics of stage-1 and stage-2 models are input to Preacher's (2004) interactive mediation test.

As a result, the following table shows mediated effect of the predictor variable (competitive advantage) to relationship between transforming capability with performance of construction organisations.

Table 5.23 demonstrates that competitive advantage mediates relationships between transforming capability and the performance of construction enterprises. Similar to transforming capability, mediated effect for seizing capability combinations and performance is found in three models, i.e. reputational, market, and average models. There is no significant models was found for sensing capability. Since this mediating effect was found for the reputational, market and average models, therefore Hypothesis 5 is partially supported. Looking more closely in term of individual process as micro-foundation of dynamic capabilities, processes in building loyalty and commitments (seizing capability), and knowledge management (transforming capability) were found as the most influential processes enable the firm to effectively reduce costs, exploit market opportunities, and/or neutralise competitive threats (See Appendix B-8).

There are two observable areas that are of interest even though they are not the main focus of this study. The first is an understanding of whether or not better-performing firms exhibit different characteristics, with respect to their competitive advantage, to worse-performing firms. According to Porter (1991), asking why firms succeed or fail is perhaps the central question in strategy. Similarly, Barney (2007) recently suggested the same key question regarding fundamental question strategic management. Thus, the field of strategic management deals with the question of how

to achieve and sustain competitive advantage (success/better-performance) rather than how to deal with competitive disadvantage (failure/worse-performance).

The second area is an understanding of whether or not asset combinations show evidence of distinct characteristics, with respect to their relationships to the competitive advantage, rather than capability combinations. McCaffer and Edum-Fotwe (2005) note that intangible asset is still the latent dimension in achieving project and corporate competitiveness in the construction industry. Similarly, Lee et al. (2005) argue that intangible assets determine a firm's value for the future construction industry.

In their recent study, Galbreath and Galvin (2007) suggest that full attention should be given to intangible assets and capabilities rather than 'traditional' factors such as tangible resources, as they did not find any effect of the tangible resources on performance in both manufacturing and services firms. However, it is important to note that this study examines the exploitation of all assets and capabilities in achieving a competitive advantage, not a specific single asset or capability combination.

To evaluate the initial differences, the sample is divided into two categories: better and worse-performers. Firms are categorised as better performers when their records of all performance is 3 or higher on a 4-point scale, and low performers have performance values of 2 or lower across all three variables: environmental hostility, value, and rarity of asset-capability. For other differences, the response is divided into category: asset and capability. Assets and capability are categorised according to Teece's (1997) framework of dynamic capability as these two categories are already identified in a survey construct. Regression analysis is utilised to test for differences between better-performing and worse-performing firms.

Table 5.24 Performance Determinants: Better vs. Worse Performer

	Competitive Advantage(β)	
Stage-2 Model	Better	Worse
Technological Asset-Capabilities	.246*	.058ns
Complementary Asset-Capabilities	.256*	.193 ns
Financial Asset-Capabilities	.215+	.174 ns
Reputational Asset-Capabilities	.291*	.251+
Structural Asset-Capabilities	.214+	.191 ns
Institutional Asset-Capabilities	.160 ns	.145 ns
Market Asset-Capabilities	.248 *	.350 *

ns Not sig., +p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 5.24 demonstrates that technological, complementary, financial, structural, and average models of competitive advantage explain differences between better- and worse-performing firms. Indeed, variable's contribution to the model for better-performing firms is statistically significant. In contrast, the variables of competitive advantage for the worse-performing firms are mostly insignificant (5 of 7 regression models).

The most interesting finding is that there is no significant difference between better- and worse-performing firms with respect to reputation, institutional and market advantage, as all of the firms put these variables as determinants of their performance. It is suggested that reputational and market asset-capability combinations are statistically associated with performance.

Table 5.25 Competitive Advantage Determinants: Asset Combinations

Stage-2 Model	Value	Rarity
Technological Assets	.483***	.229**
Complementary Assets	.453***	.199*
Financial Assets	.398***	.303***
Reputational Assets	.233*	.446***
Structural Assets	.615***	.049ns
Institutional Assets	.576***	.200+
Market Assets	.369***	.340***

ns Not sig., + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Table 5.26 Competitive Advantage Determinants: Capability Combinations

Stage-2 Model	Value	Rarity
Technological Capabilities	.550***	.168*
Complementary Capabilities	.504***	.178*
Financial Capabilities	.468***	.308***
Reputational Capabilities	.274***	.502***
Structural Capabilities	.597***	.089ns
Institutional Capabilities	.679***	.087ns
Market Capabilities	.297***	.430***

ns Not sig., + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Tables 5.25 and 5.26 show the value and rarity of asset/capability combinations are statistically significant contributors to competitive advantage. There is a slight difference in the institutional model where capability combinations have had value only, and this is most likely due to the assets including both tangible and intangible assets in dynamic capability framework. Because the assets in this framework are intangible, then it is suggested that both intangible asset and capability combinations make unique contributions to the firm's competitive advantage.

Table 5.27 Competitive Advantage Determinants: Size Effect

Stage-2 Model	Asset	Capability
Technological Asset/Capabilities	.636	.661
Complementary Asset/Capabilities	.595	.620
Financial Asset/Capabilities	.619	.690
Reputational Asset/Capabilities	.613	.660
Structural Asset/Capabilities	.679	.685
Institutional Asset/Capabilities	.752	.757
Market Asset/Capabilities	.657	.655

On closer examination, Table 5.27 shows that capability models have higher coefficient value than asset combination. The size's effect (R) for practical significance is weighed against the statistical significance of the regression models. This finding concludes that dynamic capabilities (capabilities combinations) were found as the most influential process enabling the construction enterprises to achieve and sustain a competitive advantage.

5.5 Summary of Results

Five hypotheses are presented, which affirm that asset-capability combinations are key determinants of competitive advantage/performance. Particularly, the hypotheses allow for the precise analysis of asset-capability combinations and a firm's competitive advantage in leading to superior performance with a particular interest in confirming Teece's (Teece et al., 1997; Teece, 2007) prescription of dynamic capabilities. In further statistical analysis (see Appendix B), the predicting power of asset-capabilities combinations have higher value coefficient than asset combination and capabilities combination only.

A summary of the findings of this research study is provided in Table 5.28

Table 5.28 Summary of Results

#	Hypotheses	Findings
H1	The value of asset-capability combinations that an enterprise exploits will have positive relations to its competitive advantage	Supported
H2	The rarity of asset-capability combinations that an enterprise exploits will have positive relations to its competitive advantage	Supported
H3	An enterprise's competitive advantage will have a positive correlation to its performance.	Supported
H4	An enterprise's competitive advantage will mediate the relationship between the value and rareness of the dynamic capability combinations and its performance.	Partially Supported
H5	An enterprise's competitive advantage will mediate the relationship between the dynamic capability combinations and its performance	Partially Supported

5.6 Discussion of Results

The first and second hypotheses assess the characteristics of asset-capability combinations in a firm's competitive advantage after controlling the affect of environmental hostility. All of the eight regression models offer full support for hypotheses 1 and 2 where all asset-capability combinations fully exhibit the characteristics of value and rarity. Consistent with Eisenhardt and Martin (2000) and Winter's (2003) argument, those dynamic capabilities are valuable and rare. Like Penrose's (1958) theory of resource/capability combinations, Rubin (1973) argues that in order to effectively process resource/capabilities in activities, a firm must use them in effective combination. Overall, it confirm Teece's (2007; 2009) prescription that if an enterprises possesses resource/competences without dynamic capabilities, it can not sustain supra-competitive returns for the long term except due to chance.

In terms of the individual variable contribution of asset-capabilities combinations, this study found that all value variables of asset-capabilities make better unique contributions to explain the dependent variable (competitive advantage) rather than rarity variables, as the value beta coefficients are higher than rareness except in the reputational model. Whilst, the reputational model records the largest contributor of rarity, the institutional model contributes the highest value of asset-capability combinations. This finding confirms previous recent studies: construction enterprises place a great emphasis on their reputational development as these assets are certainly critical to the survival of a construction business (Wethyanvivorn et al., 2009; Green et al., 2008). Ball (2006) argues that large construction firms achieve such reputations through efforts such as branding, sustaining work quality, and client satisfaction. Moreover, Hall (1993) argues that the reputation of a company and its product/service is the highest potential intangible asset to sustain the firm's competitive advantage. Similarly, Langford and Male (2001) identify organisational architecture, innovation and reputation as three distinctive capabilities in attaining competitive advantage in the construction industry. Steinkamp et al. (2008) conclude that an enterprise's reputation is often highly sought in the construction market. Dynamic capability framework suggests that reputational asset often summarise a

good deal of information about firms and shape the responses of customers, suppliers and competitors (Teece et al., 1997). The finding also confirm IBIS-World's (2006) report, as described in Chapter 2, that reputation and institutional assets are key success factors in the Indonesian construction industry. Most players in the Indonesian construction industry, both large and small-scale enterprises, closely rely on their reputation as a basis for competition as well as having good relationships with suppliers and the compliance of regulations of public institution (IBIS-World, 2006).

The third hypothesis evaluates the impact of competitive advantage on the performance of Indonesian construction enterprises. Market and reputational asset/capabilities are key determinants to the performance of Indonesian construction firms. Compared to others, these two models of asset-capability combinations record the highest beta coefficient, as well as its prediction power (ΔR^2). In contrast, the technological advantage model is the lowest scorer in making unique contributions to the performance. These findings also reinforce the Indonesia Infrastructure Report (BMI, 2009), in which it is reported that most Indonesian contractors still operate old equipment technology which inhibits the speed and quality of construction work, purchased before the 1997 financial crisis. However, it is believed that technology strategy including technology transfer had a significant direct relationship with the competitive performance of Indonesian construction firms (Sekarsari, 2001).

In reconciling the results from the five hypotheses, evidence of the significance of the eight regression models suggest that market and reputational asset-capability combinations are major contributors in determining the competitive advantage and performance of Indonesian construction enterprises. As Quigley et al. (2008) note, market assets in construction cover special types of construction services, and the Indonesian construction industry mostly offers general construction services (Budiwibowo et al., 2009). Ngowi et al. (2001) suggest that strategic market positioning in the construction industry involves a careful selection of activities that a firm can perform differently to its rivals. Thus, speciality in the construction market has more promising asset/capability in the Indonesian construction industry. It should

be noted that another category of asset-capability combinations can not be seen as irrelevant, as all of the eight regression models show their significant contribution in predicting the competitive advantage and performance of the Indonesian construction enterprises.

The fourth and fifth hypotheses or the final hypothesis offers the most important level of analysis in this research study. In this hypothesis, the competitive advantage is analysed as mediator between characteristics of asset-capabilities combination with performance as well as dynamic capabilities and performance. It is argues that competitive advantage does not equate organisational performance. There is evidence to suggest that competitive advantage fully mediates the transforming capability-performance relationship for all the eight regression models. In similar, competitive advantage also fully plays it mediation role in the relationship between characteristics of asset-capabilities combination and performance of the firm. The results here affirm the studies of Grahovac & Miller (2009), O'Shannassy (2008), Powell (2001) and Ma (2000) that competitive advantage and performance are two distinct construct. This also confirms Tang and Liou's (2009) proposition on competitive advantage: competitive advantage may be reflected in the causal relationship between resource configuration, dynamic capability and observable financial performance.

Despite dynamic capabilities framework being developed for and evaluated within the Indonesian context, the framework could have potential applicability, but that is a long way from demonstrating it. The framework may also work in more stable market context but dynamic capabilities turn into simple and repeatable as suggested by Einsenhardt & Martin (2000). The research study reveals the framework well worked in Indonesia, thus it provides strong evidence in support of the notion that dynamic capability framework is able to support and enhance the construction organisations in developing countries in improving their organisational performance.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This chapter concludes the research study. First, it summarises the major findings, and it then presents the contributions and implications of this research study. Finally, the chapter reviews limitations of this research study and provide recommendations for future research.

6.1 Conclusions

The main objective of this study is to construct a conceptual model to enable Indonesian construction enterprises to develop a sound long-term corporate strategy that generates a competitive advantage, and superior performance. This aim is achieved through the collection and analysis of data and the incorporation of extant literature to address the main prescription of dynamic capabilities (Teece et al., 1997; Teece, 2007) within the context of the Indonesian construction industry. In this study, in varying environments, competitive success arises from the continuous development and reconfiguration of a firm's specific assets achieving a competitive advantage which not only depends on the exploitation of a specific asset/capability, but rather the exploitation of all of the asset and capabilities combinations. The results of this study suggest following conclusions:

- This study provides empirical evidence in support of the notion that a competitive advantage via the implementation of a dynamic capability framework is an important way for the Indonesian construction enterprise to improve its organisational performance. If a dynamic capabilities framework can work in the context of Indonesia, it suggests that the framework has potential applicability in other emerging and developing countries.

- The value and rarity characteristics of asset-capability combinations contribute to the competitive advantage of the Indonesian construction enterprises, and that such an advantage, sequentially contribute to its organisational performance.
- As most valuable capabilities inside the firms are intangible assets and hence non-tradable, such processes of building loyalty and commitments, and knowledge management were found to be the most influential processes enabling the Indonesian construction firms to effectively reduce costs, exploit market opportunities, and/or neutralise competitive threats.
- Hierarchical regression analysis provides a rich understanding of the dynamic process by which asset-capability must be exploited in combination. All of the eight regression models make a significant contribution in predicting the competitive advantage and performance of the Indonesian construction enterprises. As with the sequential regression model, this study also offers practical evidence of a positive direct relationship between the characteristics of the enterprises' asset-capability and its competitive advantage, as well as, its mediating effect on organisational performance.

6.2 Research Contributions and Implications

This research study has introduced the Dynamic Capabilities Framework for construction enterprises in Indonesia which has been never adopted previously by others. The main contribution of this research derives from filling the gap between the theoretical construct and practical evidence of dynamic capabilities within the construction industrial context. As concluded above, this study provides evidence support of the concept that adoption of dynamic capabilities framework is important to construction enterprises in sustaining their competitive advantage.

Such findings are believed to be useful to both academics and practitioners. For academics, by empirically testing the research hypotheses based on the dynamic capabilities framework, this study fills an important gap in the empirical literature. Ambrosini and Bowman (2009) call for researchers and practitioners to conduct more empirical tests to enable the concept of dynamic capabilities to be useful for

strategic management as a field of study. Hence, the present findings should help to reinforce the dynamic capabilities framework's recognition as a rigorous theory of strategic management. The findings from this study provide a few key points with respect to the dynamic capabilities view.

In addition to these implications for academics, this study also demonstrates the importance of the multi-stage nature of the model which provides a rich understanding of the dynamic process by which asset-capability should be exploited in combination by the construction firms operating in varying levels of hostility. By framing the predictor variables in terms of asset-capability combinations (against individual assets or capabilities), this study captures the dynamics by which assets and capabilities have long been argued to contribute to competitive advantage and organisational performance.

In the context of the results of the hypotheses for the mediation effect, this study also finds that despite the value and rarity of resource-capability combinations being essential in determining organisational performance, their effect on performance is neither direct nor inevitable. Referring to an approach suggested by Baron and Kenny (1986), by demonstrating that competitive advantage plays an important role in the asset/capability exploitation process, testing the direct relationship between asset/capabilities and performance should not be done. These findings are important from a theoretical perspective. O'Shannassy (2009) invites researchers to acknowledge the conceptual differences between competitive advantage and performance in empirical research constructs.

For a practitioners' point of view, this study's finding that a competitive advantage stems from the combination of valuable and rare assets and capabilities may inform the way in which managers make decisions to alter their firms' asset/capability bases. Consistent with Teece's (2007) argument, those enterprises possess asset/resources but lack dynamic capabilities; it has a chance to make a temporary competitive return, but not a sustainable competitive advantage. Assets and capabilities are to be combined to enable a firm to attain a competitive advantage, which suggests that managers need not necessarily seek out novel resources and capabilities, but rather

develop new ways (orchestration) in which to combine those assets and capabilities to find new value-enhancing combinations inside and outside the enterprises.

As processes of building loyalty and commitment, and knowledge management were found to be the most influential processes enabling Indonesian construction enterprises to generate sustainable competitive advantage in varying environment, this study also suggests the importance of the knowledge assets as micro-foundation for dynamic capabilities. If managers want to develop dynamic capabilities to attain or sustain competitive advantage and superior performance, it is important that they develop and/or renew dynamic capabilities by focusing on elements of knowledge assets: people and systems. Lee et al. (2005) suggest that people and system are basic elements of knowledge assets in the construction industry. This can be done by improving the learning process.

Easterby-Smith and Prieto (2008) argue that the process of learning may be a central element in the creation and renewal of dynamic capabilities and it mediate between environmental dynamism and the appropriate configuration of organisational capabilities. The study's result confirms this but emphasises the processes that form micro-foundation for creating configuration/transforming capabilities. It is consistent with Teece et al. (1997) argument, the capacity to reconfigure and transform is itself a learned organisational skill. Thus learning is a critical aspect in developing and/or renewing dynamic capabilities and managers have to learn from the activities they undertake and the capacities they practice.

6.3 Limitations and Directions for Future Research

Although this study may provide insight into the dynamic capabilities framework, in particular the asset/capability-competitive advantage-performance relationship, it has some limitations.

Firstly, given that the research presented herein challenges current theory, the conceptual arguments and empirical tests are likely to be met with some degree of criticism. As cross sectional research, this study employed a survey strategy over a short period of time. This study does not fully explore the paths within the dynamic

capabilities framework, which are about history and recognising that history matters, and that the firm's past and present guide and constrain its future behaviour. Thus, it is important to conduct longitudinal studies to measure the framework in varying conditions of the internal and external environments of the construction firm in plenty of time.

The second limitation is in regard to respondents and methodology, as the data were provided by single respondents and survey approaches. Because respondents were senior-level executives or managers at their respective firms, the collected data are therefore believed to be accurate, but multiple respondents within the firm and triangulation with other methods are included in alternative data collection to be explored in similar research in the future. In addition to the above limitation, the sample firms surveyed may potentially limit the generalisation of the findings. Since these large firms operate in a specific sector of the economy, the findings do not represent small and medium-sized enterprises. Moreover, this research represents dynamic capabilities framework at the enterprise level. Therefore future research should be expanded to companies of different sizes and with different levels of analysis (e.g. project/industry levels). A full study would be highly beneficial for this important sector of the economy.

Third, despite the item scales employed in this study being suitably reliable and valid indicators of the theoretical constructs' measure, further pre-tests such as a pilot study and face validity should be considered in future research. If possible, a questionnaire should be piloted with a reasonable sample of respondents who come from the target population. Future efforts should also focus on the further development of final validation tests for assessing the prediction ability of models.

Fourth, as the results of this study also suggest the significance of the combination of asset-capabilities, future research may wish to explore certain distinctions that can exist between assets and capabilities categories that render their exploitation the only one of its kind.

Finally, it is notable that this study tends to focus on Indonesia. There may value in exploring the construct in other emerging and developing countries where different culture or similar condition prevails. As Indonesia has similar characteristics to other countries in terms of economic development (BMI, 2010) and cultural dimensions (Hofstede, 1993), the dynamic capabilities framework has prospective applicability to other construction organisations in both advanced and emerging economies.

REFERENCES

Alreck, P. L. and R. B. Settle (2004). *The Survey handbook*. Boston: McGraw-Hill/Irwin.

Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management?. *International Journal of Management Reviews, 11*(1), 29-49.

Ambrosini, V., Bowman, C., & Collier, N. (2009). Dynamic capabilities: an exploration of how firms renew their resource base. *British Journal of Management, 20*(1), 9-24.

Amit, R., & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent. *Strategic Management Journal, 14*(1), 33-46.

Amstrong, C. E., Drnevich, P. L., & Newbert, S.L. (2009). Conversations in competitive advantage: A bibliographic analysis of the major research streams and their influence on the field. *Sixth Annual Meeting, Atlanta Competitive Advantage Conference, May 2009*. Atlanta: Goizueta Business School, Emory University

Ansoff, H. (1965). *Corporate strategy*. New York: McGraw-Hill.

Arend, R., & Bromiley, P. (2009). Assessing the dynamic capabilities view: Spare change, everyone?. *Strategic Organization, 7*(1), 75-90.

Armstrong, J. S. and Overton, T. S. (1977). Estimating non-response bias in mail survey. *Journal of Marketing Research, 16*(3), 396-402.

Baack, D. W., & Boggs, D. J. (2008). The difficulties in using a cost-leadership strategy in emerging markets. *International Journal of Emerging Markets, 3*(2), 125-139.

Ball, M. (2006). *Markets & institutions in Real Estate & Construction*. Oxford: Blackwell Publishing.

Bang, H. L. (2002). *Strategic Organization of Construction Contracting Firms: Ownership, Form, Growth, and Boundaries*. Copenhagen: Copenhagen Business School.

Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management Science, 32*(10), 1231–1241.

Barney, J. B. (1991). Firm resources and sustainable competitive advantage. *Journal of Management, 17*(1), 99-120.

Barney, J. B. (1997). *Gaining and sustaining competitive advantage*. Reading: Addison-Wesley.

Barney, J. B. (2001a). Is the resource-based "view" a useful perspective for strategic management research? Yes. *Academy of Management Review, 26*(1), 41-56.

Barney, J. B. (2001b). Resource-based theories of competitive advantage: ten years restrospective on the resource-based view. *Journal of Management, 27*(6), 643-650.

Barney, J. B. (2008). So, why do some firms outperform others? *Zur 70. Wissenschaftlichen Jahrestagung des Verbands der Hochschullehrer für Betriebswirtschaft e. V., Mai 2008*. Berlin: Freie Universitat.

Barney, J. B., & Clark, D. N. (2007). *Resource-based theory: Creating and sustaining competitive advantage*. New York: Oxford University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management, 36*(1), 256-280.

BDO, S. H. (2009). *G20 Inbound construction opportunity heatmap*. London, U.K.: BDO Stoy Hayward LLP.

Bednar, M. K., & Westphal, J. D. (2006). Surveying the corporate elite: Theoritical and practical guidance on improving response rate and response quality in top management survey questionnaire. In D. Ketchen and D. Bergh (Eds.), *Research Methodology in Strategy and Management* (pp. 37-55). Amsterdam: Elsevier.

Betts, M., Clark, A., & Ofori, G. (1999a). The importance of new approaches to management. In M. Betts (Ed.) *Strategic Management of I.T. in Construction* (pp. 3-13). Oxford: Blackwell Science.

Betts, M., Clark, A., & Ofori, G. (1999b). Strategic management - definitions and techniques. In M. Betts (Ed.) *Strategic Management of I.T. in Construction* (pp. 15-39). Oxford: Blackwell Science.

Betts, M., & Ofori, G. (1992). Strategic planning for competitive advantage. *Construction Management and Economics, 10*(6), 511-532.

Betts, M., & Ofori, G. (1993). Competitive advantage in construction: Reply. *Construction Management and Economics, 11*(1), 73-74.

Betts, M., & Ofori, G. (1994). Strategic planning for competitive advantage in construction: The institution. *Construction Management and Economics, 12*(3), 203-217

Betts, M., & Ofori, G. (1999). Strategic management in construction. In M. Betts (Ed.) *Strategic Management of I.T. in Construction* (pp. 3-13). Oxford: Blackwell Science.

Birgonul, M. T., Dikmen, I., & Ozorhon, B. (2009). The impact of reverse knowledge transfer on competitiveness. In L. Ruddock (Ed.) *Economics for the Modern Built Environment* (pp. 212-228). Oxon: Taylor & Francis.

Biro Pusat Statistik. (2008). *Statistical yearbook of Indonesia 2008*. Jakarta: BPS.

Blair, B. (2009). *Strategy in the eye of the storm*. Raleigh, North Carolina: FMI Corporation.

Boyes, W.J., & Melvin, M. (2008). *Microeconomics* (7th Ed.). Boston: Houghton Mifflin

Brandenburger, A., & Nalebuff, B. J. (1996). *Co-opetition*. New York: Doubleday.

Bridge, A., & Tisdell, C. (2004). The determinants of the vertical boundaries of the construction firm. *Construction Management and Economics, 22*(8), 807-825.

Budiwibowo, A., Trigunarsyah, B., Abidin, I., & Soeparto, H.G. (2009). Competitiveness of the Indonesian construction industry. *Journal of Construction in Developing Countries, 14*(1), 51-68.

Business Monitor International. (2010). *Indonesia infrastructure report Q2 2010*. London, UK: Business Monitor International, Ltd.

Business Monitor International (2009). *Indonesia infrastructure report Q4 2009*. London, UK: Business Monitor International, Ltd.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity Assessment*. Newbury Park: Sage Publications.

Chandler, A. (1962). *Strategy and structure: Chapters on the history of the American industrial enterprise*. Cambridge: MIT Press.

Cheah, C. Y. J., & Garvin, M. J. (2004). An open framework for corporate strategy in construction. *Engineering, Construction and Architectural Management, 11(*3), 176-188.

Cheah, C. Y. J., Kang, J., & Chew, D. (2007). Strategic analysis of large local construction firms in China. *Construction Management and Economics, 25*(1), 25-38.

Chew, D., Yan, S., & Cheah, C.Y.J. (2008). Core capability and competitive strategy for construction SMEs in China. *Chinese Management Studies, 2*(3), 203-214.

Chiang, Y., Tang, B., & Leuw, W. (2001). Market structure of the construction industry in Hong Kong. *Construction Management and Economics, 19*(7), 675-687.

Chinowsky, P. (2000). *Strategic corporate management for engineering*. New York: Oxford University Press.

Chinowsky, P., & Meredith, J. (2000). Strategic management in construction. *Journal of Construction Engineering and Management, 126*(1), 1-9.

Collis, D. J., & Montgomery, C. A. (1997). *Corporate strategy: A resource-based approach*. Chicago: Irwin/McGraw-Hill.

Competition Committee. (2007). *Public procurement: The role of competition authorities in promoting competition*. Paris, France: Organisation for Economic Co-operation and Development.

Competition Committee (2008). *Competition policy roundtables: Competition in construction industry*. Paris, France: Organisation for Economic Co-operation and Development.

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis*. New Jersey: Erlbaum.

Construction Service Development Board. (2008). *Daftar registrasi badan usaha 2008*. Jakarta: Lembaga Pengembangan Jasa Konstruksi.

Cuervo, J. C., & Pheng, L. S. (2003). Ownership advantage/disadvantages of Singapore transnational construction corporations. *Construction Management and Economics, 21*(1), 81-94.

D'Aveni, R. A. (1994). *Hypercompetition: Managing the dynamics of strategic manoeuvring*. New York: Free Press.

De Haan, J., Voordijk, H., & Joosten, G. (2002). Market strategies and core capabilities in the building industry. *Construction Management and Economics, 20(*2), 109-118.

De Wit, B., & R. Meyer (1998). *Strategy process, content, context: An international perspective* (2nd Ed.). London: Internation Thompson Business Press.

Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perception of organizational performance. *Academy of Management Journal, 39*(4), 949-969.

Dess, G., G, Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P.J. (2003). Emerging issues in corporate entrepreneurship. *Journal of Management, 29*(3), 351-378.

Directorate of Public-Private Partnership Development. (2009). Indonesia infrastructure development program 2010-2014. *Seminar Infrastructure Development Options For Indonesia, Outlook And Strategy For 2009*. Jakarta, Indonesia: Bappenas

Dirkmen, I., & Birgonul, M. T. (2003). Strategic perspective of Turkish construction companies. *Journal of Management in Engineering, 19*(1), 33-40.

Dixon, S. E. A., Meyer, K. E., & Day, M. (2009). Stages of organisational transformation in transition economies: A dynamic capabilties approach. Journal of Management Studies*, 47*(4), 416-436.

Easterby-Smith, M., Lyles, M. A., & Peteraf, M. A. (2009). Dynamic capabilities: Current debates and future directions. *British Journal of Management, 20*(1), 1-8.

Easterby-Smith, M., & Prieto, I. M. (2008). Dynamic capabilities and knowledge management: An integrative role for learning. *British Journal of Management, 19*(3), 235-249.

Eisenhardt, K., & Martin, J. A. (2000). Dynamic capabilities: What are they?. *Strategic Management Journal, 21*(10), 1105-1121.

Foss, N. (1998). The resource-based perspective: An assessment and diagnosis of problems. *Scandinavian Journal of Management, 14*(3), 133-149.

Foss, N., & Knudsen, T. (2003). The resource-based tangle: Towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics, 24(*4), 291-307.

French, S. (2009). Re-thinking the foundation of the strategic business process. *Journal of Management Development, 28*(1), 18-37.

Furrer, O., Thomas, H., & Goussevskaia, A. (2008). The strucure and evolution of the strategic management field: A content analysis of 26 years of strategic management research. *International Journal of Management Reviews, 10*(1), 1-23.

Galbreath, J., & Galvin, P. (2008). Firm factors, industry structure and performance variation: New empirical evidence to a classic debate. *Journal of Business Research, 61*(2), 109-117.

Ghemawat, P. (1986). Sustainable advantage. *Harvard Business Review, 64*(5), 53-58.

Gordon, P. J. (1997). Ten strategic audit questions. *Business Horizons, 40*(5), 7-14.

Gorsuch, R. L. (1983). *Factor analysis* (2nd Ed.). New Jersey: Erlbaum.

Grahovac, J., & Miller, D. J. (2009). Competitive advantage and performance: The impact of value creation and costliness of imitation. *Strategic Management Journal, 30*(11), 1192-1212.

Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review, 33*(3), 114–135.

Green, S., Harty, C., Elmualim, A.A., Larsen, G, & Kao, C. C. (2008). On the discourse of construction competitiveness. *Building Research & Information, 36*(5), 426-435.

Green, S., Larsen, G. D., & Kao, C. C. (2008). Competitive strategy revisited: Contested concepts and dynamic capabilities. *Construction Management and Economics, 26*(1): 63-78.

Gularso, K., & Tamin, H. (2008). Management presentation: Company performance and F-08 Target. *Indonesia Investor Conference*, August 2008. Jakarta, Indonesia: Citibank.

Hall, R. (1993). A Framework linking intangible resources and capabilities to sustainable competitive advantage. *Strategic Management Journal, 14*(8), 607-618.

Hamel, G. (1994). The concept of core competency. In G. Hamel and A. Heene (Eds.) *Competence-based competition* (pp. 11-33). New York: John Wiley & Sons.

Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston: Harvard Business School Press.

Hawawini, G., Subramanian, V., & Verdin, P. (2003). Is performance driven by industry- or firm-specific factors? A new look at the evidence. *Strategic Management Journal, 24*(1), 1-16.

Hawawini, G., Subramanian, V., & Verdin, P. (2004). The home country in the age of globalization: How much does it matter for firm performance?. *Journal of World Business, 39*(2), 121-135.

Hawkins, D. E., & Rajagopal, S. (2005). *Sun Tzu and the project battleground*. Basingstoke: Palgrave Macmillan.

Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., et al. (2007). *Dynamic capabilities: Undestanding strategic change in organizations*. Oxford: Blackwell Publishing.

Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal, 24*(10), 997-1010.

Helfat, C. E., & Peteraf, M. A. (2009). Understanding dynamic capabilities: Progress along a development path. *Strategic Organization*, 7(1), 91-102.

Hillebrandt, P. M. (2000). *Economic theory and the construction industry*. London: Macmillan.

Hillebrandt, P. M., & Cannon, J. (1989). *The management of construction firm*. London: Macmillan.

Hillebrandt, P. M., & Cannon, J. (1990). *The modern construction firm*. London: Macmillan.

Hitt, M. A. (2005). Spotlight on strategic management. *Business Horizons, 48*(5), 371-377.

Hitt, M. A., Boyd, B. K., & Li, D. (2004). The state of strategic management research and a vision for the future. In D. Ketchen, & D. Bergh (Eds.), *Research methodology in strategic management* (pp. 1-31). Amsterdam: Elsevier.

Hofer, C. W., & Schendel, D. (1978). *Strategy formulation: Analitical concept*. St Paul, MN: West.

Hofstede, G. (1993). Cultural constraints in management theories. *Academy of Management Executive, 7*(1), 81-94.

Hoskisson, R.E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal, 43*(3), 249-267.

Hoskisson, R. E., Hitt, M. A., Wan, W. P., & Yiu, D. (1999). Theory and research in strategic management: Swings of a pendulum. *Journal of Management, 25*(3), 417-456.

Howlett, A., & Powell, R. (2006). Infrastructure projects in China and selected markets in Asia. The 2006 International Construction Superconference, May 2006. London: ICONdirect.

Hubbard, G., Rice, J., & Beamish, P. (2008). *Strategic management: Thinking, analysis, action* (3rd Ed.). Frenchs Forest, NSW: Pearson Education Australia.

Hunger, J. D., & Wheelen, T. L. (2001). *Essentials of strategic management* (2nd Ed.). Upper Saddle River: Pearson Education, Inc.

Huovinen, P. (2004). Applied business-management research: How do we incorporate this missing link into aour revaluing construction agenda?

Proceedings of the CIB World Buidling Congress 2004 "Building for the Future", May 2004. Toronto, Canada: National Research Council of Canada.

Huovinen, P. (2006). Contextual platform for advancing management of construction and engineering business: 52 concepts published 1990-2005. *The 2nd Specialty Conference on Leadership and Management in Construction and Engineering "International Perspectives"*, May 2006. Grand Bahama Island, Bahamas: ASCE-CIB.

IBIS World, D. (2006). *Construction of buildings in Indonesia*. Jakarta, Indonesia: PT Dataindo Into Swakarsa.

International Monetary Fund/IMF. (2010). *World economic outlook: Country composition of WEO groups*. Retrieved April 1, 2010, from http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/groups.htm#oem

Isik, Z., Arditi, D., Dikmen, I., & Birgonul, M. T. (2009). Impact of resources and strategies on construction company performance. *Journal of Construction Engineering and Management, 26*(1), 9-18.

Jaafar, M., & Abdul-Aziz, A. R. (2005). Resource-based view and critical success factors: a study on small and medium contracting enterprises (SMCEs) in Malaysia. *The International Journal of Construction Management, 5*, 61-77.

Jansson, H. (2007). *International business strategy in emerging country market*. Cheltenham: Edward Elgar Publishing Ltd.

Johnson, G., K. Scholes, et al. (2006). *Exploring corporate strategy* (6th Ed.). Harlow: Prentice Hall.

Junnonen (1998). Strategy formation in construction firms. *Engineering, Construction and Architectural Management, 5*(2), 107-114.

Kale, S., & Arditi, D. (2002). Competitive positioning in United States construction industry. *Journal of Construction Engineering and Management, 128*(3), 238-246.

Kale, S., & Arditi, D. (2003). Differentiation, conformity, and construction firm performance. *Journal of Construction Engineering and Management, 19*(2), 52-59.

Kazaz, A., & Ulubeyli, S. (2009). Strategic management practices in Turkish construction firms." *Journal of Construction Engineering and Management, 25(*4), 185-194.

Ketchen, D., Boyd, B. K., Bergh, D. D. (2008). Reseach methodology in strategic management: Past accomplishments and future challenges. *Organizational Research Method, 11*(4), 643-658.

Khandwalla, P. N. (1976). Some top management styles, their context, and performance. *Organization and Administrative Sciences, 7*(4), 21-51.

Kish, L. (1965). *Survey sampling*. New York: Wiley.

Koesmargono, A. (2004). Pengaruh manajemen stratejik pada efektifitas organisasi : Studi kasus pada 21 perusahaan kontraktor di Indonesia. *Jurnal Teknik Sipil*, *5*(1), 1-12.

Korkmaz, S., & Messner, J. I. (2008). Competitive positioning and continuity of construction firms in international markets. *Journal of Construction Engineering and Management, 24*(4), 207-216.

Kraaijenbrink, J., Spender, J. C., & Groen, A. J. (2010). The Resoruce-based view: A review and assessment of its critiques. *Journal of Management, 36*(1), 349-372.

Lampel, J. (2001). The core competencies of effective project execution: The challenge of diversity. *International Journal of Project Management, 19*(8), 471-483.

Lampel, J., & Shamsie, J. (2003). Capabilities in motion: New organizational forms and the reshaping of the Hollywood movie industry. *Journal of Management Studies, 40*(8), 2189-2210.

Lan, H. (2009). Corporate strategic management: Static and dynamic paradigms. Frontier Business Research China*, 3*(1), 50-62.

Langford, D., & Male, S. (1991). *Strategic management in construction*. Hants, London: Gower.

Langford, D., & Male, S. (2001). *Strategic management in construction* (2nd Ed.). Oxford: Blackwell Science.

Lansley, P. R. (1987). Corporate strategy and survival in the UK construction industry. *Construction Management and Economics, 5*(2), 141-155.

Lansley, P. R. (1994). Analysing construction organizations. *Construction Management and Economics*, *12*(4), 337-348.

Larsen, G. D., Green, S. D., & Kao, C. C. (2008). Re-configuring an organisation's capabilities: A view from the UK construction sector. *The 15th Anniversary Organization Science Winter Conference*, February 2009. Colorado, USA: Organization Science

Lavie, D. (2006). Capability reconfiguration: An analysis of incumbent responses technological change. *Academy of Management Review, 31*(1), 153-174.

Lee, T. S., Lee D. W., & Lee, J. U. (2005). Knowledge asset classification in the construction industry. *KSCE Journal of Civil Engineering, 9*(6), 453-463.

Liu, L., & Wu, J. (2004). Dynamic Capabilities for Construction Contractos. *The 2nd International Conference Clients - Clients driving innovation: Moving ideas into practice,* March 2004. Gold Coast, Australia: CRC Construction Innovation.

Lockett, A., Thompson, S., & Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International Journal of Management Reviews, 11*(1), 9-28.

Love, P. D., Holt, G. D., & Li, H. (2002). Triangulation in construction management research. *Engineering, Construction and Architectural Management, 9*(4), 294-303.

LPJK. (2006). *2006 Construction firm statistics*. Jakarta, Indonesia: Lembaga Pengembangan Jasa Konstruksi Nasional.

LPJK. (2008). *2008 Construction firm statistics*. Jakarta, Indonesia: Lembaga Pengembangan Jasa Konstruksi Nasional.

Lu, W., Shen, L., & Yan, M. C. H. (2008). Critical success factors for competitiveness of contractors: China study. *Journal of Construction Engineering and Management, 134*(12), 972-984.

Lyles, M. A. (1990). A research agenda for strategic management in the 1990s. *Journal of Management Studies, 27*(4), 363-375.

Ma, H. (2000). Competitive advantage and firm performance. *Competitiveness Review, 10*(2), 15-32.

Mahoney, J., & Pandian, R. (1992). The resource-based view within the conversation of strategic management. *Strategic Management Journal, 13*(5), 363-380.

Male, S., & Stocks, R. (1991). *Competitive advantage in construction*. Oxford: Butterworth-Heinemann.

Mason, J. (1986). Developing strategic thinking. *Long Range Planning, 19*(3), 72-80.

McCaffer, R., & Edum-Fotwe, F. T. (2005). Managing intangibles - The latent dimension for achieving project and corporate competitiveness in construction. *Proceedings of the Third International Conefrence on Construction in the 21st Century*, September 2005. Athens: CITC

McGahan, A. M., & Porter, M. E. (1998). How much does industry matter really?. *Strategic Management Journal, 18*(S1), 15-30.

Meyers, L.S, Gamst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. Thousand Oak: Sage Publications

Mintzberg, H. (1983). *The new managerial work*. New York: Prentice Hall.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy safari: A guided tour through the wilds of strategic management*. New York: Free Press.

Mintzberg, H., Lampel, J., Quinn, J., & Goshal, S. (2003). *Strategy process: Concepts, contexts, cases*. Upper Saddle River, N.J.: Pearson Education.

Mundrom, D.J., Shaw, D.G., & Ke, T. L. (2005). Exploratory factor analysis with small sample sizes. *International Journal of Testing, 5*(2), 159-168

Nag, R., Hambrick, D., & Chen, M. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic Management Journal, 28*(9): 935-955.

Nelson, R., & Winter, S. (1982). *An evolutionary theory of economic change*. Cambridge: Harvard University Press.

Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: An assessment and suggestions for future research. *Strategic Management Journal*, *28*(2), 121-146.

Newbert, S. L. (2008). Value Rareness, competitive advantage, and performance: A conceptual-level empirical investigation of the resource-based view of the firm. *Strategic Management Journal, 29*(7), 745-768.

Ngowi, A. B., Iwisi, D. S., & Mushi, R. J. (2002). Competitive strategy in a context of low financial resources. *Building Research & Information, 30*(3), 205-211.

Ngowi, A. B., Iwisi, D. S., & Rwelamila, P D. (2001). Creating and sustaining a construction market position. *International Journal for Construction Marketing*, *1*(1). Retrieved March 2, 2009, from http://www.brookes.ac.uk/ other/conmark/ IJCM/issue_01/ngo.html

Nguyen, Q. T. N., Neck, P. A., & Nguyen, T. H. (2009). The critical role of knowledge management in achieving and sustaining organisational competitive advantage. *International Business Research*, *2*(3), 3-16.

Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.

O'Shannassy, T. (2008). Sustainable competitive advantage or temporary competitive advantage: Improving understanding of an important strategy construct. *Journal of Strategy and Management, 1*(2), 168-180.

Owen, F, & Jones, R. (1994). *Statistics*. London: Pitman.

Oz, O. (2001). Source of competitive advantage of Turkish construction companies in international markets. *Construction Management and Economics, 19*(2), 135-144.

Pallant, J. (2007). *SPSS survival manual: Step by step guide to data analysis using SPSS*. Sydney: Allen & Unwin.

Penrose, E. T. (1958). *The Theory of the growth of the firm*. New York: Wiley.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal, 14*(3), 179-191.

Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource based tangle. *Managerial and Decision Economics, 24*(4), 309-323.

Pettigrew, A., H. Thomas, & Whittington, R. (2006). Strategic Management: The strengths and limitations of a field. In A. Pettigrew, H. Thomas and R. Whittington (Eds.), *Handbook of Strategy and Management* (pp. 3-30). London: SAGE Publications.

Phua, F. T. T. (2006). Predicting construction firm performance: An empirical assessment of the differential between industry- and firm-specific factors. *Construction Management and Economics, 24*(3), 309-320.

Phua, F. T. T. (2007). Does senior executives' perception of environmental uncertainty affect the strategic functioc of construction firms?. *International Journal of Project Management, 25*(8), 753-761.

Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors*. New York: Free Press.

Porter, M. E. (1985). *Competitive Advantage: Creating and sustaining superior performance*. New York: Free Press.

Porter, M. E. (1990). *The competitive advantage of nations*. New York: Free Press.

Porter, M. E. (1991a). *Michael E Porter on competition and strategy*. Boston: Harvard Business School Publishing Divison.

Porter, M. E. (1991b). Towards a dynamic theory of strategy. *Strategic Management Journal, 12*(S2), 95-117.

Porter, M. E. (1996). What is strategy?. *Harvard Business Review, 74*(6), 61-78.

Porter, M. E. (2006). Raising Indonesia's competitiveness, Jakarta, Indonesia: Institute for Strategy and Competitiveness, Harvard Business School.

Powell, T. C. (2001). Competitive advantage: Logical and philosophical considerations. *Strategic Management Journal*, *22*(9), 875-888.

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review, 68*(3), 79-91.

Prahalad, C. K., & Hamel, G. (1994). Strategy as a field of study: Why search for a new paradigm?. *Strategic Management Journal, 15*(S2), 5-16.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731.

Price, A. D. F. (2003). The srategy process within large construction organisations. *Engineering, Construction and Architectural Management, 10*(4), 283-296.

Price, A. D. F., Ganiev, B. V., & Newson, E. (2003). Changing strategic management practice within the UK construction industry. *Strategic Change*, *12*(7), 347 – 366.

Price, A. D. F., & Newson, E. (2003). Strategic management: Consideration of paradoxes, process, and associated concepts as applied to construction. *Journal of Management in Engineering, 19*(4), 183-192.

Priem, R., & Butler, J. (2001a). Is the resource-based "view" a useful perspective for strategic management research?. *Academy of Management Review*, *26*(1), 22-40.

Priem, R., & Butler, J. (2001b). Tautology in the resource-based view and the implications of externally determined resource value: further comments. Academy of Management Review, *26*(1), 57-66.

Quigley, M., Kearney, J. R., Dangerfield, B.C., & Fleming, A. J. (2006). Using system dynamics methodology to model the competitive index of firms in the UK construction sector. *Proceedings of CIB W92 Symposium on Sustainability and Value through Construction Procurement (pp. 450-460)*, November 2006, University of Salford. Salford, UK: CIB W092.

Rangone, A. (1999). A Resource-based approach to strategy analysis in small-medium sized enterprises. *Small Business Economics, 12*(3), 223-248

Rapp, R. R. (2001). Business strategy: ideas for construction master's degrees. *Leadership and Management in Engineering, 1*(2), 37-42.

Reuters. (2008). *Company snapshot (Dow Jones)*. Retrieved April 20, 2008 from Factiva Database, available at http://global.factiva.com.ezp01.library.qut.edu.au /cof/default.aspx?NAPC=K

Rubin, P. H. (1973). The Expansion of firms. *Journal of Political Economy, 81*(4), 936-949

Rumelt, R. P. (1984). Towards a strategic theory of the firm. In R. Lamb (Ed.) *Competitive strategic management* (pp. 556-570). Englewood Cliffs: Prentice-Hall.

Rumelt, R. P. (1991). How much does industry matter?. *Strategic Management Journal, 12*(3), 167-185.

Rumelt, R. P., Schendel, D., & Teece, D. (1994). *Fundamental issues in strategy: A research agenda*. Boston: Harvard Business School Press.

Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods for business students* (4th Ed.). Harlow, Essex: Pearson Prentice Hall Financial Times

Savory, C. (2006). Translating knowledge to build technological competence. *Management Decision*, *44*(8), 1052-1075.

Schendel, D., & Hatten, K. J. (1972). Business policy or strategic management: a broader view for an emerging discipline. *Academy of Management National Meeting Proceedings*, August 1972. Indiana: Krannert Graduate School of Industrial Administration, Purdue University.

Schendel, D., & Hofer, C. W. (1979). *Strategic management: A new view of business policy and planning*. Boston: Little, Brown.

Schreyogg, G., & Kliesch-Eberl, M. (2007). How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization. *Strategic Management Journal, 28*(9), 913-933.

Schumpeter, J. A. (1934). *Theory of economic development*. Cambridge: Harvard University Press.

Sekarsari, J. (2005). Knowledge management employed by firms: A study of Indonesian construction contractors. *Proceedings of Seminar 25 Tahun MRK ITB*, August 2005. Bandung, Indonesia: ITB Press.

Shapiro, C. (1989). The theory of business strategy. *Journal of Economics, 20*(1), 125-137.

Simon, H. (1997). *Administrative behavior* (4th Ed), New York: The Free Press.

Slater, S. F., & Gima, K. A. (2004). Conducting survey research in strategic management. In D. Ketchen, & Bergh, D. (Eds.), *Research Methodology in Strategy and Management* (pp. 227-249). Amsterdam: Elsevier.

Smart, P., Bessant, J., & Gupta, A. (2007). Towards technological designing innovation a dynamic capabilities. *International Journal of Operations and Production Management, 27*(10), 1069-1092.

Soeparto, H. G., Soepandji, B. S., Abidin, I., & Trigunarsyah, B. (2007). Long term Indonesian construction industry's aggregate productivity simulation considering overall business environment. *Fourth International Conference on Construction in the 21st Century (CITC-IV): Accelerating Innovation in*

Engineering, Management and Technology, July 2007. Gold Coast, Australia: CITC.

Spanos, Y., & Lioukas, S. (2001). An examination into the causal logic of rent generation: Contrasting Porter's competitive strategy framework and the resource-based perspective. *Strategic Management Journal, 22*(10), 907-934.

Steinkamp, N., Thompson, C. J., & Lane, E. (2008). A Contractor's Primer on SFAS 157 & SFAS 159. *CFMA Building Profits*, *Jan/Feb. 2008*, 51-56.

Sudarto, S., Abidin, I., Trigunarsyah, B., & Riantini, L. S. (2008). The Influence of market forces to construction companies' performance in Indonesia. In Y. B. Yang, L. J. Leu, C. S. Chen and P. C. Su (Eds.), *Eleventh East Asia-Pacific Conference on Structural Engineering & Construction (EASEC-11): Building a Sustainable Environment*, November 2008. Taipei: National Taiwan University.

Sudarto, S., Riantini, L.S. Abidin, I., & Trigunarsyah, B. (2007). Determinants of construction company's success performance indicators in Indonesia. *The Fourth International Structural Engineering and Construction Conference (ISEC-4): Innovations in Structural Engineering and Construction*, September 2008. Melbourne, Australia: Taylor & Francis.

Sudarto, S., Trigunarsyah, B., & Abidin, I. (2007). Lesson learned corrective cction internal factors of construction company in Indonesia. *Fourth International Conference on Construction in the 21st Century (CITC-IV): Accelerating Innovation in Engineering, Management and Technology*, July 2007. Gold Coast, Australia: CITC.

Sudarto, S., Trigunarsyah, B., Abidin, I., & Seopandji, B. S. (2007). Identification of the cause of external factor problems that influence construction company's performance in Indonesia. *The Fourth International Structural Engineering and Construction Conference (ISEC-4): Innovations in Structural Engineering and Construction*, September 2008. Melbourne, Australia: Taylor & Francis.

Suraji, A. and D. Krisnandar (2008). The Construction sector of Indonesia. *The 14th Asiaconstruct Conference*, October 2008. Tokyo, Japan: Research Institute of Construction and Economy.

Suraji, A., Tamin, R. Z, Wibowo, M.A., Soeparto, H.G., Trigunarsyah, B., Soemardi, B. W., et al. (2007). *Konstruksi Indonesia 2030 untuk kenyamanan lingkungan terbangun*. Jakarta, Indonesia: Lembaga Pengembangan Jasa Konstruksi Nasional (LPJK).

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston: Pearson.

Tang, Y., & Liou, F. (2009). Does firm performance reveal its own causes? The role of Bayesian inference. *Strategic Management Journal, 31*(1), 39-57.

Taylor, J. E., & Jeselkis, E. J. (2010). Introduction to the special issue on research methodologies in construction engineering and management. *Journal of Construction Engineering and Management, 136*(1): 1-2.

Teece, D. J. (1984). Economic analysis and strategic management. *California Management Review, 26*(3): 87-110.

Teece, D. J. (1988). Technological change and the nature of the firm. In G. Dosi, C. Freeman, R. Nelson, S. Silverbeg and L. Soete (Eds.), *Technical change and economic theory* (pp. 256–281). New York: Pinter Publishers.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, 28*(13), 1319-1350.

Teece, D. J. (2009). *Dynamic capabilities & strategic management: Organizing for innovation and growth*. New York: Oxford University Press.

Teece, D. J., & Pisano, G. (1994). The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change, 3*(3), 537-555.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509-533.

Tosi, H. L., Aldag, R., & Storey, R. (1973). On the measurement of the environment: An assessment of the Lawrence and Lorsch environmental uncertainty sub scale. *Administrative Science Quarterly, 18*, 27-36.

Veal, A. J. (2005). *Business research method: A managerial approach*. French Forest, NSW: Pearson Education Australia.

Veronilka, A., L. S. Riantini, Sudarto, S., & Abidin, I. (2007). Identification of the factors in corporate management that influence construction company's performance in Indonesia. *The Fourth International Structural Engineering and Construction Conference (ISEC-4): Innovations in Structural Engineering and Construction*, September 2008. Melbourne, Australia: Taylor & Francis.

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilties: A review and research agenda. *International Journal of Management Reviews, 9*(1), 31-51.

Wang, G., & Yang, J. (2000). Business development strategy and Australian construction industry. *International Journal for Construction Marketing, 2*(1), 13-22.

Warszawski, A. (1996). Strategic planning in construction companies. *Journal of Construction Engineering and Management, 122*(2), 133-140.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171-180.

Wethyavivorn, P., Charoenngam, C., & Teerajegul, W. (2009). Strategic assets driving organisational capabilities of Thai construction firms. *Journal of Construction Engineering and Management*, *135*(11), 1222-1231.

Whittington, R. (2001). *What is strategy and does it matter*. London: Thomson Learning.

Wiersema, M. F., & Bowen, H. P. (2009). The use of limited dependent variable techniques in strategy research: Issues and methods. *Strategic Management Journal, 30*(6), 679-692.

Williamson, O. E. (1975). *Markets and hierarchies*. New York: Free Press.

Williamson, O. E. (1985). *The Economic institutions*. New York: Free Press.

Winch, G. (1998). The construction firm and the construction project: a transaction cost approach. *Construction Management and Economics, 7*(4), 331-345.

Winter, J. C. F., Dodou, D., & Wieringa, P. A. (2009). Exploratory factor analysis with small sample sizes. *Multivariate Behavioural Research, 44*(2), 147-181.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal, 24*(10): 991-995.

World Bank (2008). *Doing business 2009: Country profile for Indonesia*. Washington: Office of the Publisher - The World Bank.

World Bank (2009). *Indonesian economic quarterly: Weathering the storm*. Washington: The World Bank.

Wright, M., Filatotchec, I., Hoskisson, R. E., & Peng, M. W. (2005). Strategy research in emerging economies: Challenging the conventional wisdom. *Journal of Management Studies, 42*(1), 1-33.

Yates, J. K. (2007). *Global engineering and construction*. New Jersey: John WIley & Sons.

Yin, R. C. (2003). *Case study research: Design and methods*. California: Sage Publication.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies, 43*(4), 917-955.

Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science, 13*(3), 339-351.

Zott, C. (2003). Dynamic capabilities and the emergence of intra-industry differential firm performance: Insights from a simulation study. *Strategic Management Journal, 24*(2), 97-125.

APPENDIX A-1 QUESTIONNAIRE – ENGLISH VERSION

INDONESIAN CONSTRUCTION BUSINESS SURVEY

Instructions

Below are some questions that will help us learn how you use your Capabilities and Assets/Resources for the purposes of reducing costs to a competitive level, exploiting targeted market opportunities, and/or defending against known competitive threats. When responding to these questions, please select your answer based on the following definitions:

Assets: the tangible or intangible assets/resources a firm possesses or has access to. Important classes of Assets/Resources are as follows:

1. **Technological assets**: ownership protection and utilization of technological assets
2. **Complementary assets**. Technological innovations or the use of certain related assets to produce and deliver new products and services
3. **Financial assets**. a firm's cash position, degree of leverage and cash flow
4. **Reputational assets**. Firm's reputations or a good deal of information about firms and shape the responses of customers, suppliers, and competitors
5. **Structural assets**. The formal and informal structure of organizations and their external link-ages
6. **Institutional assets**. Public policies, Regulatory systems, as well as intellectual property regimes, tort laws, and antitrust laws, the system of higher education and national culture.
7. **Market (structure) assets**. Product market position matters or the fundamental position of the enterprise in its external environment

Capabilities: the intangible organizational and managerial processes (such as the distinct skills, processes, procedures, decision rules, and innovations, etc.) with which a firm exploits Assets/Resources in the execution of its day-to-day operations. Important classes of capabilities are as follows:

1. **Sensing Capabilities**: Ability to Learn and to Sense, Filter, Shape, and Calibrate Opportunities trough Analytical Systems (and Individual Capacities)
2. **Seizing Capabilities**: Ability to seize an opportunities through Enterprise Structures, Procedures, Designs and Incentives
3. **Transforming Capabilities**: Ability to continuously align and realign Specific Tangible and Intangible Assets.

SECTION I – COMPANY CHARACTERISTICS

This section is designed to assess performance levels, competitive advantage, value and rareness of the company and/or firm's product and services, and environment hostility.

A. PERFORMANCE

Please circle or mark the single most appropriate response for each the items below:

Compared to other organizations that do the same kind of work, how would you compare the organization's performance over the past 3 years in terms of:

		Much Worse ⟷ Much Better			
1	Marketing	**1**	**2**	**3**	**4**
2	Growth in sales	**1**	**2**	**3**	**4**
3	Profitability	**1**	**2**	**3**	**4**
4	Market share	**1**	**2**	**3**	**4**

B. COMPETITIVE ADVANTAGE

Please circle or mark the single most appropriate response for each the items below:

B-1. The manner in which my firm combines Assets/Resources and Capabilities enables it to reduce its costs to a highly competitive level.

		Strongly Disagree ⟷ Strongly Agree				
1	Technological assets and Capabilities	**1**	**2**	**3**	**4**	**5**
2	Complementary assets and capabilities	**1**	**2**	**3**	**4**	**5**
3	Financial assets and capabilities	**1**	**2**	**3**	**4**	**5**
4	Reputational assets and capabilities	**1**	**2**	**3**	**4**	**5**
5	Structural assets and capabilities	**1**	**2**	**3**	**4**	**5**
6	Institutional assets and capabilities	**1**	**2**	**3**	**4**	**5**
7	Market assets and capabilities	**1**	**2**	**3**	**4**	**5**

B-2. The manner in which my firm combines Assets/Resources and Capabilities enables it to fully exploit all targeted market opportunities.

		Strongly Disagree ⟷ Strongly Agree				
1	Technological assets and Capabilities	**1**	**2**	**3**	**4**	**5**
2	Complementary assets and capabilities	**1**	**2**	**3**	**4**	**5**
3	Financial assets and capabilities	**1**	**2**	**3**	**4**	**5**
4	Reputational assets and capabilities	**1**	**2**	**3**	**4**	**5**
5	Structural assets and capabilities	**1**	**2**	**3**	**4**	**5**
6	Institutional assets and capabilities	**1**	**2**	**3**	**4**	**5**
7	Market assets and capabilities	**1**	**2**	**3**	**4**	**5**

B-3. The manner in which my firm combines Assets/Resources and Capabilities enables it to defend against all known competitive threats.

		Strongly Disagree ←				→ Strongly Agree
1	Technological assets and Capabilities	**1**	**2**	**3**	**4**	**5**
2	Complementary assets and capabilities	**1**	**2**	**3**	**4**	**5**
3	Financial assets and capabilities	**1**	**2**	**3**	**4**	**5**
4	Reputational assets and capabilities	**1**	**2**	**3**	**4**	**5**
5	Structural assets and capabilities	**1**	**2**	**3**	**4**	**5**
6	Institutional assets and capabilities	**1**	**2**	**3**	**4**	**5**
7	Market assets and capabilities	**1**	**2**	**3**	**4**	**5**

C. VALUE

Please circle or mark the single most appropriate response for each the items below:

C-1. Given the Resources my firm possesses and has access to, if my firm possessed other Capabilities it could reduce its costs further.

		Strongly Disagree ←				→ Strongly Agree
1	Capabilities to exploit Technological assets	**1**	**2**	**3**	**4**	**5**
2	Capabilities to exploit Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Capabilities to exploit Financial assets	**1**	**2**	**3**	**4**	**5**
4	Capabilities to exploit Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Capabilities to exploit Structural assets	**1**	**2**	**3**	**4**	**5**
6	Capabilities to exploit Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Capabilities to exploit Market assets	**1**	**2**	**3**	**4**	**5**

C-2. Given my firm's Capabilities, if my firm possessed or had access to other Assets/Resources it could reduce its costs further.

		Strongly Disagree ←				→ Strongly Agree
1	Technological assets	**1**	**2**	**3**	**4**	**5**
2	Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Financial assets	**1**	**2**	**3**	**4**	**5**
4	Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Structural assets	**1**	**2**	**3**	**4**	**5**
6	Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Market assets	**1**	**2**	**3**	**4**	**5**

C-3. Given the Resources my firm possesses and has access to, if my firm had access to other Capabilities it could better exploit targeted market opportunities.

		Strongly Disagree ←				→ Strongly Agree
1	Capabilities to exploit Technological assets	**1**	**2**	**3**	**4**	**5**
2	Capabilities to exploit Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Capabilities to exploit Financial assets	**1**	**2**	**3**	**4**	**5**
4	Capabilities to exploit Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Capabilities to exploit Structural assets	**1**	**2**	**3**	**4**	**5**
6	Capabilities to exploit Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Capabilities to exploit Market assets	**1**	**2**	**3**	**4**	**5**

C-4. Given my firm's Capabilities, if my firm possessed or had access to other Assets/Resources it could better exploit targeted market opportunities.

		Strongly Disagree ←				→ Strongly Agree
1	Technological assets	**1**	**2**	**3**	**4**	**5**
2	Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Financial assets	**1**	**2**	**3**	**4**	**5**
4	Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Structural assets	**1**	**2**	**3**	**4**	**5**
6	Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Market assets	**1**	**2**	**3**	**4**	**5**

C-5. Given the Resources my firm possesses and has access to, if my firm had access to other Capabilities it could better defend against known competitive threats.

		Strongly Disagree ←				→ Strongly Agree
1	Capabilities to exploit Technological assets	**1**	**2**	**3**	**4**	**5**
2	Capabilities to exploit Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Capabilities to exploit Financial assets	**1**	**2**	**3**	**4**	**5**
4	Capabilities to exploit Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Capabilities to exploit Structural assets	**1**	**2**	**3**	**4**	**5**
6	Capabilities to exploit Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Capabilities to exploit Market assets	**1**	**2**	**3**	**4**	**5**

C-6. Given my firm's Capabilities, if my firm possessed or had access to other Assets/Resources it could better defend against known competitive threats.

		Strongly Disagree ←				→ Strongly Agree
1	Technological assets	**1**	**2**	**3**	**4**	**5**
2	Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Financial assets	**1**	**2**	**3**	**4**	**5**
4	Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Structural assets	**1**	**2**	**3**	**4**	**5**
6	Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Market assets	**1**	**2**	**3**	**4**	**5**

D. RARENESS

Please circle or mark the single most appropriate response for each the items below:

D-1. Compared to companies with similar Capabilities, my firm uses them to exploit very different Assets/Resources when attempting to reduce costs, exploit market opportunities, and/or defend against competitive threats.

		Strongly Disagree ←				→ Strongly Agree
1	Technological assets	**1**	**2**	**3**	**4**	**5**
2	Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Financial assets	**1**	**2**	**3**	**4**	**5**
4	Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Structural assets	**1**	**2**	**3**	**4**	**5**
6	Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Market assets	**1**	**2**	**3**	**4**	**5**

D-2. Compared to companies that possess or have access to similar Assets/Resources, my firm exploits them with very different Capabilities when attempting to reduce costs, exploit market opportunities, and/or defend against competitive threats.

		Strongly Disagree ←				→ Strongly Agree
1	Capabilities to exploit Technological assets	**1**	**2**	**3**	**4**	**5**
2	Capabilities to exploit Complementary assets	**1**	**2**	**3**	**4**	**5**
3	Capabilities to exploit Financial assets	**1**	**2**	**3**	**4**	**5**
4	Capabilities to exploit Reputational assets	**1**	**2**	**3**	**4**	**5**
5	Capabilities to exploit Structural assets	**1**	**2**	**3**	**4**	**5**
6	Capabilities to exploit Institutional assets	**1**	**2**	**3**	**4**	**5**
7	Capabilities to exploit Market assets	**1**	**2**	**3**	**4**	**5**

D-3. Compared to my firm's competitors, my firm exploits very unique combinations of Assets/Resources and Capabilities when attempting to reduce costs, exploit market opportunities, and/or defend against competitive threats.

		Strongly Disagree ⟷ **Strongly Agree**				
1	Technological assets and Capabilities	**1**	**2**	**3**	**4**	**5**
2	Complementary assets and capabilities	**1**	**2**	**3**	**4**	**5**
3	Financial assets and capabilities	**1**	**2**	**3**	**4**	**5**
4	Reputational assets and capabilities	**1**	**2**	**3**	**4**	**5**
5	Structural assets and capabilities	**1**	**2**	**3**	**4**	**5**
6	Institutional assets and capabilities	**1**	**2**	**3**	**4**	**5**
7	Market assets and capabilities	**1**	**2**	**3**	**4**	**5**

E. ENVIRONMENTAL HOSTILITY

Please circle or mark the single most appropriate response for each the items below:

Very safe, little threat to the survival and well-being of my firm ⟷					**Very risky, a false step can mean my firm's undoing**	
1	**2**	**3**	**4**	**5**	**6**	**7**

Rich in investments and marketing opportunities ⟷					**Very stressful, exacting, hostile, very hard to keep afloat.**	
1	**2**	**3**	**4**	**5**	**6**	**7**

An environment that my firm can control and manipulate to its own advantage, such as a dominant firm has in an industry with little competition and few hindrances ⟷					**A dominating environment in which my firm's initiatives count for very little against the tremendous competitive, political, or technological forces.**	
1	**2**	**3**	**4**	**5**	**6**	**7**

F. CAPABILITIES

Please circle or mark the single most appropriate response for each the items below: A rating of impact on your capability to reduce costs, exploit market opportunities, and/or defend against competitive threats.

		Less Impact ⟷ High impact				
1	Processes to direct internal R&D and select new technologies (sensing capability)	**1**	**2**	**3**	**4**	**5**
2	Processes to tap supplier and complementor innovation (sensing capability)	**1**	**2**	**3**	**4**	**5**
3	Processes to tap developments in exogenous science and technology (sensing capability)	**1**	**2**	**3**	**4**	**5**
4	Processes to identify target market segments, changing customer needs and customer (sensing capability)	**1**	**2**	**3**	**4**	**5**
5	Delineating the customer solution and the business model (seizing capability)	**1**	**2**	**3**	**4**	**5**
6	Selecting decision-making protocols (seizing capability)	**1**	**2**	**3**	**4**	**5**
7	Building loyalty and commitment dalam perusahaan (seizing capability)	**1**	**2**	**3**	**4**	**5**
8	Selecting enterprise boundaries to manage complements and "control" platforms (seizing capability)	**1**	**2**	**3**	**4**	**5**
9	Desentralisation and near decomposability, Adopting Loosely Coupled Structures; Developing Integration and coordination skills (transforming capability)	**1**	**2**	**3**	**4**	**5**
10	Governance: Achieving Incentive Alignment; Minimizing Agency Issues (transforming capability)	**1**	**2**	**3**	**4**	**5**
11	Cospecialization/ Managing Strategic Fit So That Asset Combinations Are Value Enhancing. (transforming capability)	**1**	**2**	**3**	**4**	**5**
12	Knowledge management: Learning; Knowledge Transfer; Know-how Integration; Achieving Know-how and Intellectual Property Protection. (transforming capability)	**1**	**2**	**3**	**4**	**5**

SECTION II - DEMOGRAPHIC DETAILS

This part of the questionnaire is designed to collect general demographic information about your firm.

Please respond to each question as indicated below.

A	Number of full-time employees of our company (Please circle the single most appropriate response)
1	<50 peoples
2	51 – 100 peoples
3	101 – 150 peoples
4	151 – 200 peoples
5	> 200 peoples

B	Our firm has been in business for (Please circle the single most appropriate response)
1	<5 years
2	5 – 10 years
3	10 – 15 years
4	15 – 20 years
5	> 20 years

C	We are a (Please circle the single most appropriate response)
1	Privately owned firm
2	Publicly listed firm

D	We are (Please circle the single most appropriate response)
1	An independent business
2	A business unit (SBU) of a corporation
3	A corporate parent

E	The (core) business of our firm is (Please circle the single most appropriate response)
1	Construction Sector only (Contracting or consulting Company)
2	Diversified in sectors strong related to construction (include EPC)
3	Diversified in sectors unrelated to construction

F	The competitive advantage strategies of our firm is (Please circle the single most appropriate response)
1	Lower Cost Strategy: the ability of a company or a business unit to design, produce and market a comparable product/services more efficiently that its competitors
2	Differentiation Strategy: the ability to provide unique and superior value to the buyers/client in terms of quality, special features or after-sales service

G	Type of client -client type that has the highest percentage in total number of projects- (Please circle the single most appropriate response)
1	Government
2	Private Sector

H	Type of construction projects involved -project type- (circle at least one type)
1	Architecture / Engineering Design
2	Civil Engineering
3	Mechanical
4	Electrical
5	Environmental

I	Location of construction projects involved –business region- (circle at least one type)
1	Sumatera
2	Jawa
3	Kalimantan
4	Bali & Nusa Tenggara
5	Sulawesi
6	Maluku & Papua

RESPONDENT (optional) –Souvenir and Research Summary will be provided-		
1	**Name/Company Name**	
2	**Postal Address**	
3	**Post Code**	
4	**Phone/Fax**	
5	**Mobile**	
6	**Email**	
7	**Website**	

SURVEY COMPLETION

Thank you very much for your time and cooperation in this study. Please make sure that you have completed all items.

Once you have answered all the items, kindly please return the survey to

M. Sapri Pamulu / Stephen Kajewski
Queensland University of Technology, Brisbane, Australia 4001
International Fax +61-7-31381170 (Brisbane)
Local Fax +62-21-7817235 (Jakarta)
Email m.pamulu@qut.edu.au
For other inquiries, please call or sms at +61-402155808

APPENDIX A-2 QUESTIONNAIRE – JAPANESE VERSION

インドネシアの建設業調査

指示

以下に、私たちがあなたが競争力があるレベルにコストを削減する目的にどうあなたの能力と資産/リソースを使用するかを学ぶのを助けるいくつかの質問があります、狙っている市場機会を利用する、そして/または、知られている競争相手の脅威に対して防御して。
これらの質問に応じるときには、以下の定義に基づく答えを選択してください:

資産:　　会社が持っているか、または近づく手段を持っている触知できるか無形の資産/リソース。
重要なクラスの資産/リソースは以下の通りです:

1. **技術資産: 技術資産の所有権保護と利用**
2. **補足的な資産。**
   新製品とサービスを起こして、届けるのが、あるである関連する資産の技術革新か使用
3. **金融資産会社の現金持ち高、てこの作用の度合い、およびキャッシュフロー**
4. **評判資産。会社と形の会社の評判が多くの情報が顧客、供給者、および競争相手の応答です。**
5. **構造的な資産。組織の正式で非公式の構造とそれらの外部のリンケージ**
6. **制度的資産。**
   公共の政策、規定システム、知的財産政権、不法行為法、および反トラスト法、高等教育と国民文化のシステム。
7. **(構造)資産を売り出してください。外部の環境における企業の製品市場位置の件か基本的な立場**

能力:
会社がその日その日の操作の実行における資産/リソースを利用する無形の組織的で経営者の過程(異なった技能や、過程や、手順や、決定規準や、革新などの)。重要なクラスの能力は以下の通りです:

1. **検知能力:**
   学んでくださいと、そして、感覚への能力、フィルタ、形、および機会を較正してくださいくさび分析システム(そして、個々の能力)
2. **止まっている能力:**
   エンタープライズ構造、手順、デザイン、および誘因を通してきっかけをつかむ能力
3. **変形能力: 絶え間なく特定の有形資産と無形資産を並べて、再編成する能力。**

セクションI - 会社の特性
このセクションは、会社、そして/または、会社の製品、サービス、および環境敵意について性能レベル、競争力において有利な立場、値、およびめったにを評価するように設計されています。

A。性能

それぞれのための最も適切な応答が以下の項目であると旋回するか、またはマークしてください:

同じ種類の仕事をする他の組織と比べて、あなたは過去3年間以下に関してどのように組織の性能を比較しますか? .

はるかに悪いです ⟷ はるかに良いです

1	マーケティング	**1**	**2**	**3**	**4**
2	販売における成長	**1**	**2**	**3**	**4**
3	収益性	**1**	**2**	**3**	**4**
4	シェア	**1**	**2**	**3**	**4**

B。 競争力において有利な立場
それぞれのための最も適切な応答が以下の項目であると旋回するか、またはマークしてください:

B-1。
私の会社が資産リソースと能力を結合する方法は、非常に競争力があるレベルにコストを削減するのを可能にします。

強く ⟷ 強く
意見を異にしてください　　同意してください

1	技術資産と能力	**1**	**2**	**3**	**4**	**5**
2	補足的な資産と能力	**1**	**2**	**3**	**4**	**5**
3	金融資産と能力	**1**	**2**	**3**	**4**	**5**
4	評判資産と能力	**1**	**2**	**3**	**4**	**5**
5	構造的な資産と能力	**1**	**2**	**3**	**4**	**5**
6	制度的資産と能力	**1**	**2**	**3**	**4**	**5**
7	市場資産と能力	**1**	**2**	**3**	**4**	**5**

B-2。
私の会社が資産リソースを結合して、能力がすべてを完全に利用するのを可能にする方法は市場機会を狙いました。

強く ⟷ 強く
意見を異にしてください　　同意してください

1	技術資産と能力	**1**	**2**	**3**	**4**	**5**
2	補足的な資産と能力	**1**	**2**	**3**	**4**	**5**
3	金融資産と能力	**1**	**2**	**3**	**4**	**5**
4	評判資産と能力	**1**	**2**	**3**	**4**	**5**
5	構造的な資産と能力	**1**	**2**	**3**	**4**	**5**
6	制度的資産と能力	**1**	**2**	**3**	**4**	**5**
7	市場資産と能力	**1**	**2**	**3**	**4**	**5**

B-3。
私の会社が資産リソースと能力を結合する方法は、それがすべての知られている競争相手の脅威に対して防御されるのを可能にします。

強く ⟷ 強く
意見を異にしてください　　同意してください

1	技術資産と 能力	**1**	**2**	**3**	**4**	**5**
2	補足的な資産と 能力	**1**	**2**	**3**	**4**	**5**
3	金融資産と 能力	**1**	**2**	**3**	**4**	**5**
4	評判資産と 能力	**1**	**2**	**3**	**4**	**5**
5	構造的な資産と 能力	**1**	**2**	**3**	**4**	**5**
6	制度的資産と 能力	**1**	**2**	**3**	**4**	**5**
7	市場資産と 能力	**1**	**2**	**3**	**4**	**5**

C。値
それぞれのための最も適切な応答が以下の項目であると 旋回するか、またはマークしてく ださい:

C-1。
私の会社が所有していて、近づく 手段を持っているリソースを考えて、私の会社が他の能力を所有しているなら、それはさらにコストを削減するかもしれないでしょうに。

強く ⟷ 強く
意見を異にしてください　　同意してください

1	技術的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
2	補色資産を利用する能力	**1**	**2**	**3**	**4**	**5**
3	財政的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
4	評判資産を利用する能力	**1**	**2**	**3**	**4**	**5**
5	構造的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
6	制度上資産を利用する能力	**1**	**2**	**3**	**4**	**5**
7	市場資産を利用する能力	**1**	**2**	**3**	**4**	**5**

C-2。
私の会社の能力を考えて、私の会社が他の資産リソースに持っているか、または近づく 手段を持っているなら、それはさらにコストを削減するかもしれないでしょうに。

強く ⟷ 強く
意見を異にしてください　　同意してください

1	技術資産	**1**	**2**	**3**	**4**	**5**
2	補足的な資産	**1**	**2**	**3**	**4**	**5**
3	金融資産	**1**	**2**	**3**	**4**	**5**
4	評判資産	**1**	**2**	**3**	**4**	**5**
5	構造的な資産	**1**	**2**	**3**	**4**	**5**
6	制度的資産	**1**	**2**	**3**	**4**	**5**
7	市場資産	**1**	**2**	**3**	**4**	**5**

C-3。
私の会社が他の能力に近づく 手段を持っていたなら、私の会社が所有していて、近づく 手段を持っているリソースを考えて、それは狙っている市場機会を利用するかもしれないほうがよいです。

		強く 意見を異にしてください				強く 同意してください
1	技術的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
2	補色資産を利用する能力	**1**	**2**	**3**	**4**	**5**
3	財政的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
4	評判資産を利用する能力	**1**	**2**	**3**	**4**	**5**
5	構造的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
6	制度上資産を利用する能力	**1**	**2**	**3**	**4**	**5**
7	市場資産を利用する能力	**1**	**2**	**3**	**4**	**5**

C-4。
私の会社の能力を考えて、私の会社が他の資産リソースに持っているか、または近づく 手段を持っているなら、それは狙っている市場機会を利用するかもしれないほうがよいでしょうに。

		強く 意見を異にしてください				強く 同意してください
1	技術資産	**1**	**2**	**3**	**4**	**5**
2	補足的な資産	**1**	**2**	**3**	**4**	**5**
3	金融資産	**1**	**2**	**3**	**4**	**5**
4	評判資産	**1**	**2**	**3**	**4**	**5**
5	構造的な資産	**1**	**2**	**3**	**4**	**5**
6	制度的資産	**1**	**2**	**3**	**4**	**5**
7	市場資産	**1**	**2**	**3**	**4**	**5**

C-5。
私の会社が他の能力に近づく 手段を持っていたなら、私の会社が所有していて、近づく 手段を持っているリソースを考えて、それは知られている競争相手の脅威に対して防御されることができたほうがよいです。

		強く 意見を異にしてください				強く 同意してください
1	技術的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
2	補色資産を利用する能力	**1**	**2**	**3**	**4**	**5**
3	財政的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
4	評判資産を利用する能力	**1**	**2**	**3**	**4**	**5**
5	構造的資産を利用する能力	**1**	**2**	**3**	**4**	**5**
6	制度上資産を利用する能力	**1**	**2**	**3**	**4**	**5**
7	市場資産を利用する能力	**1**	**2**	**3**	**4**	**5**

C-6。
私の会社の能力を考えて、私の会社が他の資産リソースに持っているか、または近づく 手段を持っているなら、それは知られている競争相手の脅威に対して防御されることができるほうがよいでしょうに。

		強く ← → 強く 意見を異にしてください				同意してください
1	技術資産	**1**	**2**	**3**	**4**	**5**
2	補足的な資産	**1**	**2**	**3**	**4**	**5**
3	金融資産	**1**	**2**	**3**	**4**	**5**
4	評判資産	**1**	**2**	**3**	**4**	**5**
5	構造的な資産	**1**	**2**	**3**	**4**	**5**
6	制度的資産	**1**	**2**	**3**	**4**	**5**
7	市場資産	**1**	**2**	**3**	**4**	**5**

D。めったに
それぞれのための最も適切な応答が以下の項目であると 旋回するか、またはマークしてく ださい:

D-1。
同様の能力と 共に会社と 比べて、私の会社は、コストを削減するのを試みるとき、非常に異なった資産リソースを利用して、市場機会を利用する、そして/または、競争相手の脅威に対して防御するのに彼らを使用します。

		強く ← → 強く 意見を異にしてください				同意してください
1	技術資産	**1**	**2**	**3**	**4**	**5**
2	補足的な資産	**1**	**2**	**3**	**4**	**5**
3	金融資産	**1**	**2**	**3**	**4**	**5**
4	評判資産	**1**	**2**	**3**	**4**	**5**
5	構造的な資産	**1**	**2**	**3**	**4**	**5**
6	制度的資産	**1**	**2**	**3**	**4**	**5**
7	市場資産	**1**	**2**	**3**	**4**	**5**

D-2。
コストを削減して、市場機会を利用する、そして/または、競争相手の脅威に対して防御するのを試みるとき、同様の資産リソースに持っているか、または近づく 手段を持っている会社と 比べて、私の会社は、非常に異なった能力と 共にそれらを利用します。

		強く 意見を異にしてください				強く 同意してください
1	技術的資産を利用する能力	1	2	3	4	5
2	補色資産を利用する能力	1	2	3	4	5
3	財政的資産を利用する能力	1	2	3	4	5
4	評判資産を利用する能力	1	2	3	4	5
5	構造的資産を利用する能力	1	2	3	4	5
6	制度上資産を利用する能力	1	2	3	4	5
7	市場資産を利用する能力	1	2	3	4	5

D-3。
コストを削減するのを試みるとき私の望い功績の私の会社の競争相手、資産リソースの非常にユニークな組み合わせ、および能力と 比べて、市場機会を利用してください、そして、競争相手の脅威に対して防御してください。

		強く 意見を異にしてください				強く 同意してください
1	技術資産と 能力	1	2	3	4	5
2	補足的な資産と 能力	1	2	3	4	5
3	金融資産と 能力	1	2	3	4	5
4	評判資産と 能力	1	2	3	4	5
5	構造的な資産と 能力	1	2	3	4	5
6	制度的資産と 能力	1	2	3	4	5
7	市場資産と 能力	1	2	3	4	5

E。 環境敏意
それぞれのための最も 適切な応答が以下の項目であると 旋回するか、またはマークしてください:

私の会社の生存と 幸福への非常に安全で、小さい脅威					非常に危険であることで、誤ったステップは、私の会社が元に戻すことを意味できます。	
1	2	3	4	5	6	7

投資とマーケティング機会におけるリッチ					非常にストレスが多い、そして、強要する、敵対的、そして、浮いた状態で非常に保ちにくいです。	
1	2	3	4	5	6	7

私の会社が優越企業などのそれ自身の利点に制御して、操ることができる環境は、少して産業で競争とわずかな妨害しか持っていません。					物凄い競争力があるか、政治上の、または、技術的な力に対して私の会社のイニシアチブがわずかのために重要である支配する環境。	
1	2	3	4	5	6	7

セクションIII - 人口の詳細

アンケートのこの部分は、あなたの会社に関する一般的な人口学的情報を集めるように設計されています。以下に示すように各質問に応じてください。

A	弊社(最も適切な応答を旋回する)の常勤者の数
1	<50の民族
2	51 ? 100の民族
3	101--150の民族
4	151--200の民族
5	> 200の民族

B	私たちの会社は中でビジネスでした(最も適切な応答を旋回してください)。
1	<5年
2	5--10年
3	10--15年
4	15--20年
5	> 20年

C	私たちがいる、(最も適切な応答を旋回してください)
1	個人的に所有されている会社
2	公的に記載された会社

D	私たちはいます(最も適切な応答を旋回してください)。
1	自営
2	会社のビジネス部(SBU)
3	親会社

E	私たちの会社の(コア)ビジネスがあります(最も適切な応答を旋回してください)。
1	工事セクターだけ
2	セクターでは、強い状態で、工事(EPCを含んでいる)と関連していた状態で多角化します。
3	工事に関係ないセクターでは、多角化します。

F	私たちの会社の競争力において有利な立場戦略があります(最も適切な応答を旋回してください)。
1	低い費用戦略 匹敵する製品/サービスで、より効率的にそれを設計して、生産して、売り出す会社かビジネス部の能力、その競争相手
2	差別化戦略 質の点からユニークで優れた値を買い手/クライアントに提供する能力、特徴またはアフターサービス

G	総数のプロジェクト(最も適切な応答を施回する)で最も高い百分率を持っているクライアントがタイプするクライアントのタイプ
1	政府
2	民間部門

H	建設計画のタイプはプロジェクトタイプを伴いました(少なくとも1つのタイプを施回してください)。
1	構造/技術設計
2	土木工学
3	機械的
4	電気
5	環境

I	プロジェクトがかかわった工事の位置-ビジネス領域(少なくとも1つのタイプを施回します)
1	スマテラ
2	ジャヴァ
3	カリマンタン
4	バリ　と　ヌサテんーガラ
5	スラウェシ
6	マルクとパプア

応答者(任意の)- 記念品と研究要約を提供するでしょう。		
1	**名前/会社名**	
2	**郵便の宛先**	
3	**通知ロード**	
4	**電話ファックス**	
5	**モバイル**	
6	**メール**	
7	**ウェブサイト**	

調査完成
この研究への時間と協力をありがとうございます。すべての項目を完成したのを確実にしてください。

一度、あなたは項目と、親切が調査を返してくださいすべてに答えたことがあります。

ムハンマド サプリ　パムル/スティーブン　カジェウィスキ
技術のクイーンズランド大学、ブリスベーン(オーストラリア)4001
国際ファックス+61-7-31381170(ブリスベーン)
ローカルのファックス+62-21-7817235(ジャカルタ)
メールm.pamulu@qut.edu.au

他の問い合せには、+61-402155808までsmsに電話をしてください。

APPENDIX A-3 QUESTIONNAIRE – BAHASA VERSION

SURVEI BISNIS KONSTRUKSI INDONESIA

Instruksi

Berikut ini adalah daftar pertanyaan yang akan mengkaji bagaimana kapabilitas dan asset/sumber daya perusahaan dalam mengurangi biaya-biaya, memanfaatkan peluang-peluang pasar yang diharapkan, dan mempertahankan diri terhadap ancaman-ancaman persaingan yang diketahui. Dalam menjawab pertanyaan di bawah ono, dimohon memilih jawaban yang benar berdasarkan definisi-definisi sebagai berikut:

Asset: assets-asset atau sumber daya yang dipunyai perusahaan baik yang nyata/terukur atau tidak. Klasifikasi asset-asset atau sumber daya adalah berikut ini:

1. **Asset Teknologi**: kepemilikan dan pemanfaatan asset teknologi
2. **Asset Inovasi (Komplementer)**. Innovasi teknologi atau pemanfaatan asset yang terkait untuk menghasilkan produk dan layanan baru.
3. **Asset Keuangan:** posisi kas, beban, dan arus kas keuangan perusahaan
4. **Asset Reputasi**. Reputasi atau nama baik yang dimiliki perusahaan oleh klien, supplier dan kompetitor
5. **Asset Struktur (Organisasi)**. Struktur formal dan informal dari organisasi, dan hubungannya dengan pihak luar dan usia perusahaan
6. **Asset Institusi (Publik)**. Kebijakan-kebijakan publik, system-sistem peraturan, seperti halnya hak kekayaan intelektual, hukum, system pendidikan tinggi dan budaya nasional
7. **Asset Pasar (Posisi Pasar)**. Terkait dengan posisi pasar dari produk/layanan perusahaan atau posisi dasar perusahaan terhadap lingkungan luar

Kapabilitas: proses-proses organisasi dan manajerial dari perusahaan yang merupakan kemampuan tidak nyata/terukur (seperti keterampilan tersendiri, proses-proses, prosedur-prosedur, peraturan pengambilan keputusan, dan inovasi, dan lain sebagainya) yang dimiliki perusahaan dalam mengeksploitasi asset atau sumber daya dalam pelaksanaan operasi usaha sehari-hari. Klasifikasi penting dari kapabilitas ini adalah sebagai berikut:

1. **Sensing Capabilities**: Kemampuan untuk belajar dan menyensor, menyaring, membentuk dan mengkalibrasi peluang-peluang melalui system yang analitis (dan kapasitas –kapasitas tersediri) dari perusahaan.
2. **Seizing Capabilities**: Kemampuan untuk menangkap dan mengolah peluang-peluang melalui struktur, prosedur, rancangan dan insentif perusahaan.
3. **Transforming Capabilities**: kemampuan terus menerus dari perusahaan untuk menyelaraskan dan menyetel ulang asset-asset/sumber-sumber daya baik yang terukur/nyata atau tidak.

SECTION I (BAGIAN I)– KARAKTERISTIK PERUSAHAAN

Bagian ini dirancang untuk menguji produk/layanan perusahaan dalam hal tingkat kinerja, keunggulan bersaing, nilai, kelangkaan dan bahaya/ancaman lingkungan bisnis.

A. KINERJA

Silahkan melingkari/menyilang atau **mewarnai** satu jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

Dibandingkan perusahaan-perusahaan lain yang mempunyai lahan usaha atau bidan g pekerjaan yang sama, bagaimana anda menilai capaian kinerja perusahaan andi sendiri dalam 3 (tiga) tahun terakhir, dalam hal:

		Lebih Buruk ⟷ Lebih Baik			
1	Pemasaran/Marketing	**1**	**2**	**3**	**4**
2	Pertumbuhan Penjualan/ Omzet (sales growth)	**1**	**2**	**3**	**4**
3	Tingkat Keuntungan (Profitability)	**1**	**2**	**3**	**4**
4	Pangsa Pasar (Market share)	**1**	**2**	**3**	**4**

B. KEUNGGULAN BERSAING

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

B-1. Cara/metode perusahaan saya dalam mengkombinasi asset-asset dan kapabilititas agar dapat mengurangi biaya-biaya pada tingkat persaingan yang ketat.

		Sangat Tidak Setuju ⟷ Sangat Setuju				
1	Kapabilitas dan Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas dan Aset Innovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas dan Asset Keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas dan Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas dan Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas dan Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas dan Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

B-2. Cara/metode perusahaan saya dalam mengkombinasi asset-asset dan kapabilititas agar dapat mengeksploitasi semua peluang pasar yang ditargertkan

		Sangat Tidak Setuju ⟷ Sangat Setuju				
1	Kapabilitas dan Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas dan Aset Innovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas dan Asset Keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas dan Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas dan Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas dan Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas dan Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

B-3. Cara/metode perusahaan saya dalam mengkombinasi asset-asset dan kapabilititas agar dapat mempertahankan diri terhadap semua ancaman-ancaman persaingan yang diketahui.

		Sangat Tidak Setuju ⟷				Sangat Setuju
1	Kapabilitas dan Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas dan Aset Innovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas dan Asset Keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas dan Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas dan Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas dan Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas dan Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C. VALUE (NILAI)

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

C-1. Dengan asset-asset/sumber-sumber daya yang dimiliki, jika perusahaan saya memiliki kapabilitas lainnya maka akan dapat mengurangi biaya-biaya lebih banyak.

		Sangat Tidak Setuju ⟷				Sangat Setuju
1	Kapabilitas mengeksploitasi asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas mengeksploitasi asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas mengeksploitasi asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas mengeksploitasi asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas mengeksploitasi asset Struktur	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas mengeksploitasi asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas mengeksploitasi asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C-2. Dengan kapabilitas-kapabilitas yang dimiliki, jika perusahaan saya memiliki asset-aset atau sumber daya lainnya maka akan dapat mengurangi biaya-biaya lebih banyak.

.

		Sangat Tidak Setuju ⟷				Sangat Setuju
1	Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C-3. Dengan asset-asset/sumber-sumber daya yang dimiliki, jika perusahaan saya memiliki kapabilitas lainnya maka akan dapat mengeksploitasi peluang pasar yang ditargetkan dengan cara yang lebih baik.

		Sangat Tidak Setuju ←				→ **Sangat Setuju**
1	Kapabilitas mengeksploitasi asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas mengeksploitasi asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas mengeksploitasi asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas mengeksploitasi asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas mengeksploitasi asset Struktur	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas mengeksploitasi asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas mengeksploitasi asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C-4. Dengan kapabilitas-kapabilitas yang dimiliki, jika perusahaan saya memiliki asset-aset atau sumber daya lainnya maka akan dapat mengeksploitasi peluang pasar yang ditargetkan dengan cara yang lebih baik.

		Sangat Tidak Setuju ←				→ **Sangat Setuju**
1	Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C-5. Dengan asset-asset/sumber-sumber daya yang dimiliki, jika perusahaan saya memiliki kapabilitas lainnya maka akan dapat mempertahankan diri terhadap semua ancaman-ancaman persaingan yang diketahui dengan cara yang lebih baik.

		Sangat Tidak Setuju ←				→ **Sangat Setuju**
1	Kapabilitas mengeksploitasi asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas mengeksploitasi asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas mengeksploitasi asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas mengeksploitasi asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas mengeksploitasi asset Struktur	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas mengeksploitasi asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas mengeksploitasi asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

C-6. Dengan kapabilitas-kapabilitas yang dimiliki, jika perusahaan saya memiliki asset-aset atau sumber daya lainnya maka akan dapat mempertahankan diri terhadap semua ancaman-ancaman persaingan yang diketahui dengan cara yang lebih baik.

		Sangat Tidak Setuju				Sangat Setuju
1	Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

D. RARENESS (KELANGKAAN)

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

D-1. Dibandingkan dengan perusahaan yang memiliki kapabilitas yang sama/serupa, perusahaan saya menggunakannya dengan asset-aset/sumber daya yang sangat berbeda dalam upaya untuk mengurangi biaya-biaya, mengeksploitasi peluang-peluang pasar, dan mempertahankan diri dari ancaman persaingan.

		Sangat Tidak Setuju				Sangat Setuju
1	Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

D-2. Dibandingkan dengan perusahaan yang memiliki asset-asset/sumber daya yang sama/serupa, perusahaan saya menggunakannya dengan kapabilitas-kapabilitas yang sangat berbeda dalam upaya untuk mengurangi biaya-biaya, mengeksploitasi peluang-peluang pasar, dan mempertahankan diri dari ancaman persaingan.

		Sangat Tidak Setuju				Sangat Setuju
1	Kapabilitas mengeksploitasi asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas mengeksploitasi asset Inovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas mengeksploitasi asset keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas mengeksploitasi asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas mengeksploitasi asset Struktur	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas mengeksploitasi asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas mengeksploitasi asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

D-3. Dibandingkan dengan perusahaan pesaing (competitor), perusahaan saya menggunakan kombinasi yang sangat unik dari asset/sumber daya dan kapabilitas dalam upaya untuk mengurangi biaya-biaya, mengeksploitasi peluang-peluang pasar, dan mempertahankan diri dari ancaman persaingan.

Sangat Tidak Setuju ⟷ **Sangat Setuju**

1	Kapabilitas dan Asset Teknologi	**1**	**2**	**3**	**4**	**5**
2	Kapabilitas dan Aset Innovasi	**1**	**2**	**3**	**4**	**5**
3	Kapabilitas dan Asset Keuangan	**1**	**2**	**3**	**4**	**5**
4	Kapabilitas dan Asset Reputasi	**1**	**2**	**3**	**4**	**5**
5	Kapabilitas dan Asset Struktur Organisasi	**1**	**2**	**3**	**4**	**5**
6	Kapabilitas dan Asset Institusi Publik	**1**	**2**	**3**	**4**	**5**
7	Kapabilitas dan Asset Posisi Pasar	**1**	**2**	**3**	**4**	**5**

E. ENVIRONMENTAL HOSTILITY (ANCAMAN LINGKUNGAN)

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

Sangat aman, Sedikit ancaman terhadap kelangsungan dan kemapanan perusahaan ⟵					**Sangat riskan, Suatu kesalahan dapat merontokkan perusahaan** ⟶	
1	**2**	**3**	**4**	**5**	**6**	**7**

Kaya akan investasi dan peluang pasar ⟵					**Sangat terancam, Sangat sulit untuk bertahan** ⟶	
1	**2**	**3**	**4**	**5**	**6**	**7**

Lingkungan usaha dimana perusahaan dapat mengontrol keunggulan, dominant dalam industri dengan sedikit pesaing dan hambatan kecil ⟵					**Didominasi oleg lingkungan usaha, dimana perusahaan tidak berdaya melawan persaingan, factor politik dan teknologi** ⟶	
1	**2**	**3**	**4**	**5**	**6**	**7**

F. CAPABILITIES (KAPABILITAS)

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan sebagai berikut:

Beri nilai pengaruh atau dampak dari kemampuan perusahaan untuk mengurangi biaya-biaya, memanfaatkan peluang pasar, dan/atau bertahan terhadap ancaman persaingan.

Dampak Tinggi ← → **Dampak Rendah**

1	Proses-proses mengarah kepada Litbang internal (R&D) dan memilih teknologi baru (sensing capability)	**1**	**2**	**3**	**4**	**5**
2	Proses-proses menyadap supplier dan komplementor inovasi (sensing capability)	**1**	**2**	**3**	**4**	**5**
3	Proses-proses menyadap perkembangan-perkembangan di luar tentang ilmu pengetahuan dan teknologi(sensing capability)	**1**	**2**	**3**	**4**	**5**
4	Proses-prose mengidentifikasi target segmen pasar, kebutuhan pelanggan yg berubah-ubah dan inovasi pelanggan (sensing capability)	**1**	**2**	**3**	**4**	**5**
5	Menggambarkan.memberi solusi pelanggan, dan model bisnis (seizing capability)	**1**	**2**	**3**	**4**	**5**
6	Memilih protocol/tata cara pengambilan keputusan (seizing capability)	**1**	**2**	**3**	**4**	**5**
7	Membangun loyalitas dan komitment	**1**	**2**	**3**	**4**	**5**
8	Memilih batasan perusahaan untuk mengelola komplemen dan mengendalikan platform (seizing capability)	**1**	**2**	**3**	**4**	**5**
9	Desentralisai, membangun skill koordinasi dan integrasi (transforming capability)	**1**	**2**	**3**	**4**	**5**
10	Tata laksana bertugas/wewenang/Governance (transforming capability)	**1**	**2**	**3**	**4**	**5**
11	Cospesialisasi: Mengelola kesesuaian strategi dg kombinasi asset (transforming capability)	**1**	**2**	**3**	**4**	**5**
12	Manajemen Pengetahuan: Pembelajaran; Transfer Pengetahuan; Integrasi Know-how dan and Perlindungan hak kekayaan intelektual (transforming capability)	**1**	**2**	**3**	**4**	**5**

SECTION II (BAGIAN II)- PROFIL DEMOGRAFIS

Bagian ini untuk mengetahui profil umum atau informasi demografis tentang perusahaan anda

Silahkan melingkari atau menyilang **satu** jawaban yang paling tepat untuk setiap item pertanyaan H-1 sampai H-10 sebagai berikut:

A	Jumlah Karyawan Tetap (Termasuk kantor Cabang dan Proyek, jika ada)
1	<50 orang
2	51 – 100 orang
3	101 – 150 orang
4	151 – 200 orang
5	> 200 orang

B	Usia/Lama perusahaan berbisnis dalam industri konstruksi di Indonesia
1	<5 tahun
2	5 – 10 tahun
3	10 – 15 tahun
4	15 – 20 tahun
5	> 20 tahun

C	Perusahaan kami merupakah
1	Perseroan Terbatas (Privat)
2	Perseroan Terbuka (Publik terdaftar di Bursa Efek)

D	Perusahaan kami adalah
1	Perusahaan independent (Tidak ada anak atau induk perusahaan)
2	Perusahaan anak dari korporasi/konglomerasi
3	Perusahaan induk

E	Bisnis inti dari perusahaan kami adalah
1	Sektor konstruksi saja (perusahaan kontraktor atau konsultan)
2	Diversifikasi usaha ke sector yang sangat terkait dengan konstruksi (termasuk EPC)
3	Diversifikasi usaha ke sector yang tidak terkait dengan konstruksi

F	Strategi keunggulan bersaing perusahaan kami adalah
1	Strategi dengan biaya yang rendah: kemampuan perusahaan untuk mendesain, melaksanakan dan memasarkan jasa konstruksi yang lebih efisien dibandingkan dengan pesaing/perusahaan lainnya
2	Startegi Differensiasi: kemampuan perusahaan untuk menyediakan jasa yang unik dan superior kepada klien/pelanggan dalam hal kualitas, fitur, atau pelayanan purna jual/pasca-konstruksi.

G	Jenis klien/pengguna jasa yang paling sering memakai perusahaan kami
1	Pemerintah
2	Sektor Swasta

H	Jenis-jenis proyek konstruksi yang biasa ditangani- (pilih beberapa item)
1	Aristekstur / Rancangan
2	Teknik Sipil
3	Mekanikal
4	Elektrikal
5	Tata Lingkungan

I	Lokasi-lokasi tempat proyek kami berlangsung- (pilih beberapa item)
1	Sumatera
2	Jawa
3	Kalimantan
4	Bali & Nusa Tenggara
5	Sulawesi
6	Maluku & Papua

RESPONDENT (optional) –Souvenir dan Ringkasan hasil penelitian akan dikirim kepada responden yang bersedia melengkapi data/informasi kontak personal/perusahaan berikut-		
1	**Nama/Perusahaan**	
2	**Alamat Pos**	
3	**Kode Pos**	
4	**Phone/Fax**	
5	**Mobile/HP**	
6	**Email**	
7	**Website**	

AKHIR SURVEY

Terima kasih atas waktu dan kerjsamanya dalam studi ini. Mohon diperiksa sekali lagi jikalau semua bagian telah terjawan dengan benar dan lengkap.

Jika sudah lengkap, mohon survey ini dikembalikan ke alamat sebagai berikut:

M. Sapri Pamulu / Stephen Kajewski
Queensland University of Technology, Brisbane, Australia 4001
International Fax +61-7-31381170 (Brisbane)
Local Fax +62-21-7817235 (Jakarta)
Email m.pamulu@qut.edu.au

Untuk pertanyaan lainnya, silahkan telp atau sms ke **+61-402155808** untuk memperoleh tanggapan dengan segera. Terima kasih

APPENDIX B - SUMMARY OF STATISTICS

APPENDIX B-1 RATIO OF CASE

Table B-1 Ratio of Cases to Independent Variable (Regression Model)

Research Hypothesis	Dependent Variable DV)	Independent Variables (IV)	Number of Cases (N)	Minimum cases (N*)
Hypothesis 1 Hypothesis 2	Competitive Advantage	1. Environment 2. Value 3. Rarity	113 - 116	74 (Rule 1) 107 (Rule 2)
Hypothesis 3	Performance	1. Environment 2. Competitive Advantage	116	66 (Rule 1) 106 (Rule 2)
Hypothesis 4	Performance	1. Environment 2. Value 3. Rarity 4. Competitive Advantage	116	82 (Rule 1) 108 (Rule 2)
Hypothesis 5	Performance	1. Environment 2. Sensing 3. Seizing 4. Transforming 5. Competitive Advantage	114	90 (Rule 1) 109 (Rule 2)

Remark:

Rule of thumb (Tabachnick & Fidell, 2007)

$N \geq 50 + 8m$ for testing multiple correlations (Rule 1)

$N \geq 104 + m$ for testing individual predictors (Rule 2)

Where m = is the number of independent variables

Summary:

Number of samples is acceptable

APPENDIX B-2 RESPONSES SUMMARY

Table B-2 Statistical Summary of Response

Question #1

Items	P1	P2	P3	P4
Valid	120	120	120	120
Missing	0	0	0	0
Mean	3.01	3.03	2.81	2.86
Median	3.00	3.00	3.00	3.00
Mode	3.00	3.00	3.00	3.00
Std. Deviation	0.72	0.64	0.71	0.73
Minimum	1	1	1	1
Maximum	4	4	4	4

Question #2

	CA11	CA12	CA13	CA14	CA15	CA16	CA17
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.8	3.9	3.8	3.9	3.7	3.4	3.7
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Std. Deviation	0.9	0.8	0.9	0.9	0.9	0.9	0.9
Minimum	1	2	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #3

	CA21	CA22	CA23	CA24	CA25	CA26	CA27
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.9	3.9	3.8	4.0	3.6	3.4	3.9
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Std. Deviation	0.9	0.9	1.0	0.9	0.9	0.9	0.9
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Table B-2 Statistical Summary of Response *(Continued)*

Question #4

	CA21	CA22	CA23	CA24	CA25	CA26	CA27
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.9	3.9	3.8	4.0	3.6	3.4	3.9
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Std. Deviation	0.9	0.9	1.0	0.9	0.9	0.9	0.9
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #5

	VC11	VC12	VC13	VC14	VC15	VC16	VC17
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.9	3.9	3.8	3.7	3.5	3.3	3.7
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Std. Deviation	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #6

	VA11	VA12	VA13	VA14	VA15	VA16	VA17
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	4.0	4.0	3.8	3.7	3.5	3.4	3.7
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Std. Deviation	0.9	0.9	0.9	1.0	1.0	0.9	1.0
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Table B-2 Statistical Summary of Response *(Continued)*

Question #7

	VC21	VC22	VC23	VC24	VC25	VC26	VC27
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	4.1	4.0	3.9	3.9	3.6	3.5	3.9
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Std. Deviation	0.9	0.9	0.9	0.9	0.9	0.9	1.0
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #8

	VA21	VA22	VA23	VA24	VA25	VA26	VA27
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	4.1	4.1	4.0	4.1	3.7	3.6	4.0
Median	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Mode	4.0	5.0	4.0	4.0	4.0	3.0	4.0
Std. Deviation	1.0	1.0	0.9	0.9	0.9	0.9	1.0
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #9

	VC31	VC32	VC33	VC34	VC35	VC36	VC37
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	4.0	4.1	4.0	4.0	3.6	3.5	3.9
Median	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Mode *)	4.0	5.0	4.0	4.0	4.0	3.0	4.0
Std. Deviation	1.0	1.0	0.9	1.0	1.0	1.0	1.0
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5

*) Multiple modes exist. The smallest value is shown

Table B-2 Statistical Summary of Response *(Continued)*

Question #10

	VA31	VA32	VA33	VA34	VA35	VA36	VA37
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	4.1	4.1	4.0	4.0	3.6	3.6	3.9
Median	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Mode	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Std. Deviation	0.9	0.9	0.9	0.9	0.9	1.0	0.9
Minimum	1	1	2	1	1	1	1
Maximum	5	5	5	5	5	5	5

Question #11

	RA1	RA2	RA3	RA4	RA5	RA6	RA7
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.9	4.0	3.8	3.9	3.4	3.3	3.8
Median	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Std. Deviation	0.9	0.9	0.9	0.9	0.9	1.0	1.0
Minimum	2	2	1	2	1	1	1
Maximum	5	5	5	5	5	5	5

Question #12

	RC1	RC2	RC3	RC4	RC5	RC6	RC7
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.9	4.0	3.8	3.9	3.6	3.4	3.8
Median	4.0	4.0	4.0	4.0	4.0	3.0	4.0
Mode	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Std. Deviation	0.8	0.9	0.9	0.9	0.9	0.9	1.0
Minimum	2	1	1	2	1	1	1
Maximum	5	5	5	5	5	5	5

Table B-2 Statistical Summary of Response *(Continued)*

Question #13

	R1	R2	R3	R4	R5	R6	R7
Valid	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0
Mean	3.8	3.8	3.7	3.8	3.5	3.3	3.8
Median	4.0	4.0	4.0	4.0	3.0	3.0	4.0
Mode	4.0	4.0	3.0	4.0	3.0	3.0	4.0
Std. Deviation	0.9	0.9	1.0	0.9	0.9	1.0	1.0
Minimum	1	2	1	2	1	1	1
Maximum	5	5	5	5	5	5	5

Question #14

	E1	E2	E3
Valid	120	120	120
Missing	0	0	0
Mean	3.8	3.3	3.4
Median	4.0	3.0	4.0
Mode	4.0	3.0	4.0
Std. Deviation	1.5	1.3	1.4
Minimum	1	1	1
Maximum	7	7	6

Table B-2 Statistical Summary of Response *(Continued)*

Question #15

	DC1	DC2	DC3	DC4
Valid	114	114	114	114
Missing	6	6	6	6
Mean	3.6	3.6	3.8	4.0
Median	4.0	4.0	4.0	4.0
Mode	4.0	3.0	4.0	5.0
Std. Deviation	1.0	0.9	0.9	0.9
Minimum	1	1	2	1
Maximum	5	5	5	5

	DC5	DC6	DC7	DC8
Valid	114	114	114	114
Missing	6	6	6	6
Mean	3.9	3.7	4.3	3.7
Median	4.0	4.0	4.0	4.0
Mode	4.0	4.0	5.0	4.0
Std. Deviation	0.9	0.8	0.8	0.8
Minimum	1	2	2	2
Maximum	5	5	5	5

	DC9	DC10	DC11	DC12
Valid	114	114	114	114
Missing	6	6	6	6
Mean	3.8	3.9	3.8	4.1
Median	4.0	4.0	4.0	4.0
Mode	4.0	4.0	4.0	4.0
Std. Deviation	0.8	0.9	0.9	0.9
Minimum	1	2	2	2
Maximum	5	5	5	5

APPENDIX B-3 CONSTRUCTS SUMMARY

Table B-3 Statistical Summary of Constructs

Construct #1 Performance

Valid	120
Missing	0
Mean	11.70
Std. Error of Mean	0.21
Median	12.00
Mode	12.00
Std. Deviation	2.30
Variance	5.29
Skewness	-0.13
Std. Error of Skewness	0.22
Kurtosis	0.02
Std. Error of Kurtosis	0.44
Range	10.00
Minimum	6
Maximum	16

Table B-3 Statistical Summary of Constructs *(Continued)*

Construct #2 Competitive Advantages

	CA-1	CA-2	CA-3	CA-4	CA-5	CA-6	CA-7	CA-8
Valid	120	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0	0
Mean	11.66	11.82	11.34	11.95	10.88	10.13	11.37	11.31
Std. Error of Mean	0.22	0.20	0.24	0.21	0.22	0.22	0.23	0.16
Median	12.00	12.00	12.00	12.00	11.00	10.00	12.00	11.43
Mode	12.00	12.00	12.00	12.00	12.00	9.00	12.00	12.00
Std. Deviation	2.36	2.22	2.57	2.26	2.36	2.44	2.48	1.80
Variance	5.55	4.94	6.63	5.11	5.57	5.97	6.15	3.26
Skewness	-0.67	-0.56	-0.69	-0.70	-0.43	-0.36	-0.49	-0.33
Std. Error of Skewness	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Kurtosis	0.66	0.08	0.47	1.11	0.37	0.34	0.06	0.40
Std. Error of Kurtosis	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Range	11.00	9.00	12.00	12.00	11.00	12.00	11.00	9.00
Minimum	4	6	3	3	4	3	4	6
Maximum	15	15	15	15	15	15	15	15
Sum	1399	1418	1361	1434	1306	1216	1364	1357

Table B-3 Statistical Summary of Constructs *(Continued)*

Construct #3 Value of Asset-capabilities

	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8
Valid	120	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0	0
Mean	24.08	24.17	23.44	23.33	21.48	20.79	23.06	22.91
Std. Error of Mean	0.43	0.43	0.42	0.42	0.45	0.46	0.46	0.36
Median	24.00	24.00	24.00	24.00	21.50	21.00	24.00	23.14
Mode *)	24.00	30.00	24.00	24.00	18.00	24.00	24.00	23.14
Std. Deviation	4.67	4.68	4.64	4.65	4.97	5.05	5.01	3.90
Variance	21.82	21.89	21.49	21.62	24.67	25.51	25.10	15.22
Skewness	-0.86	-0.79	-0.55	-0.59	-0.62	-0.33	-0.67	-0.25
Std. Error of Skewness	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Kurtosis	1.11	0.95	0.13	0.59	1.22	0.17	0.46	0.01
Std. Error of Kurtosis	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Range	24.00	24.00	22.00	23.00	24.00	24.00	23.00	18.00
Minimum	6	6	8	7	6	6	7	12
Maximum	30	30	30	30	30	30	30	30
Sum	2889	2900	2813	2799	2578	2495	2767	2749

*) Multiple modes exist. The smallest value is shown

Table B-3 Statistical Summary of Constructs *(Continued)*

Construct #4 Rarity of Asset-capabilities

	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8
Valid	120	120	120	120	120	120	120	120
Missing	0	0	0	0	0	0	0	0
Mean	11.58	11.74	11.24	11.65	10.48	10.03	11.31	11.15
Std. Error of Mean	0.21	0.22	0.24	0.23	0.22	0.24	0.25	0.18
Median	12.00	12.00	12.00	12.00	10.00	10.00	11.50	11.14
Mode	12.00	12.00	12.00	15.00	9.00	9.00	12.00	9.00
Std. Deviation	2.33	2.36	2.60	2.48	2.46	2.61	2.71	2.01
Variance	5.44	5.57	6.77	6.16	6.05	6.81	7.32	4.03
Skewness	-0.35	-0.28	-0.17	-0.07	-0.23	-0.19	-0.31	0.08
Std. Error of Skewness	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Kurtosis	-0.45	-0.67	-0.69	-1.04	0.63	0.00	-0.35	-0.69
Std. Error of Kurtosis	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Range	9.00	9.00	11.00	9.00	12.00	12.00	12.00	8.57
Minimum	6	6	4	6	3	3	3	6.4286
Maximum	15	15	15	15	15	15	15	15
Sum	1389	1409	1349	1398	1257	1204	1357	1338

*) Multiple modes exist. The smallest value is shown

Table B-3 Statistical Summary of Constructs *(Continued)*

Construct #5 Environmental Hostility

Valid	120
Missing	0
Mean	10.48
Std. Error of Mean	0.32
Median	11.00
Mode	12.00
Std. Deviation	3.47
Variance	12.05
Skewness	-0.12
Std. Error of Skewness	0.22
Kurtosis	-0.32
Std. Error of Kurtosis	0.44
Range	17.00
Minimum	3
Maximum	20
Sum	1258

Table B-3 Statistical Summary of Constructs *(Continued)*

Construct #6 Foundations of Dynamic Capabilities

	DC SENSE	DC SEIZING	DC CONFIG
Valid	120	120	120
Missing	0	0	0
Mean	14.24	14.86	14.78
Std. Error of Mean	0.38	0.39	0.40
Median	15.00	16.00	16.00
Mode	14.00	16.00	16.00
Std. Deviation	4.11	4.25	4.38
Variance	16.91	18.06	19.18
Skewness	-2.00	-2.10	-1.81
Std. Error of Skewness	0.22	0.22	0.22
Kurtosis	5.00	5.24	4.25
Std. Error of Kurtosis	0.44	0.44	0.44
Range	20.00	20.00	20.00
Minimum	0	0	0
Maximum	20	20	20
Sum	1709	1783	1773

APPENDIX B-4 RESIDUAL ANALYSIS

Residual analysis provides a test of assumptions of normality, linearity and homoscedasticity and absence of outliers.
Rule of Thumb
Standardized residuals : $-3.3 < x < 3.3$ (Mean = 0 and Std.Dev = 1)
Outliers : Mahalanobis Critical Value = 13.82 (2 IV); 16.27 (3 IV); 18.47 (4 IV)
Cook's Critical Value = $x \leq 1$

Table B-4.1 Residual Statistics – Hypothesis 1/2 Model

Hierarchical Regression Model #1

	Min.	Max	Mean	Std. Dev	N
Residual	-4.56	3.24	0.00	1.39	114
Std. Residual	-3.23	2.30	0.00	0.99	114
Stud. Residual	-3.31	2.46	0.00	1.01	114
Deleted Residual	-4.78	3.70	0.01	1.46	114
Stud. Deleted Residual	-3.48	2.52	0.00	1.02	114
Mahal. Distance	0.04	14.00	2.97	2.63	114
Cook's Distance	0.00	0.21	0.01	0.03	114
Centered Leverage Value	0.00	0.12	0.03	0.02	114

a. Dependent Variable: CA TEC

Hierarchical Regression Model #2

	Min.	Max	Mean	Std. Dev	N
Residual	-4.93	4.82	0.00	1.55	115
Std. Residual	-3.14	3.07	0.00	0.99	115
Stud. Residual	-3.20	3.22	0.00	1.02	115
Deleted Residual	-5.12	5.30	0.01	1.64	115
Stud. Deleted Residual	-3.34	3.36	0.00	1.03	115
Mahal. Distance	0.03	13.87	2.97	2.60	115
Cook's Distance	0.00	0.26	0.02	0.04	115
Centered Leverage Value	0.00	0.12	0.03	0.02	115

a. Dependent Variable: CA COM

Table B-4.1 Residual Statistics – Hypothesis 1/2 Model *(Continued)*

Hierarchical Regression Model #3

	Min.	Max	Mean	Std. Dev	N
Residual	-5.30	3.81	0.00	1.68	116
Std. Residual	-3.12	2.24	0.00	0.99	116
Stud. Residual	-3.14	2.26	0.00	1.00	116
Deleted Residual	-5.38	3.88	0.00	1.74	116
Stud. Deleted Residual	-3.27	2.30	0.00	1.02	116
Mahal. Distance	0.09	12.96	2.97	2.50	116
Cook's Distance	0.00	0.08	0.01	0.02	116
Centered Leverage Value	0.00	0.11	0.03	0.02	116

a. Dependent Variable: CA FIN

Hierarchical Regression Model #4

	Min.	Max	Mean	Std. Dev	N
Residual	-4.02	3.22	0.00	1.48	116
Std. Residual	-2.69	2.15	0.00	0.99	116
Stud. Residual	-2.74	2.25	0.00	1.01	116
Deleted Residual	-4.17	3.50	0.01	1.54	116
Stud. Deleted Residual	-2.82	2.29	0.00	1.02	116
Mahal. Distance	0.03	12.40	2.97	2.36	116
Cook's Distance	0.00	0.12	0.01	0.02	116
Centered Leverage Value	0.00	0.11	0.03	0.02	116

a. Dependent Variable: CA REP

Hierarchical Regression Model #5

	Min.	Max	Mean	Std. Dev	N
Residual	-4.69	4.77	0.00	1.67	115
Std. Residual	-2.77	2.82	0.00	0.99	115
Stud. Residual	-2.95	2.91	0.00	1.01	115
Deleted Residual	-5.30	5.06	-0.01	1.74	115
Stud. Deleted Residual	-3.06	3.01	0.00	1.02	115
Mahal. Distance	0.21	12.96	2.97	2.48	115
Cook's Distance	0.00	0.28	0.01	0.03	115
Centered Leverage Value	0.00	0.11	0.03	0.02	115

a. Dependent Variable: CA STR

Table B-4.1 Residual Statistics – Hypothesis 1/2 Model *(Continued)*

Hierarchical Regression Model #6

	Min.	Max	Mean	Std. Dev	N
Residual	-4.37	5.22	0.00	1.56	116
Std. Residual	-2.77	3.30	0.00	0.99	116
Stud. Residual	-2.84	3.38	0.00	1.01	116
Deleted Residual	-4.59	5.46	0.00	1.62	116
Stud. Deleted Residual	-2.93	3.55	0.00	1.02	116
Mahal. Distance	0.03	14.64	2.97	2.67	116
Cook's Distance	0.00	0.15	0.01	0.02	116
Centered Leverage Value	0.00	0.13	0.03	0.02	116

a. Dependent Variable: CA PUB

Hierarchical Regression Model #7

	Min.	Max	Mean	Std. Dev	N
Residual	-4.90	6.41	0.00	1.63	115
Std. Residual	-2.96	3.87	0.00	0.99	115
Stud. Residual	-3.03	4.00	0.00	1.01	115
Deleted Residual	-5.13	6.83	0.00	1.71	115
Stud. Deleted Residual	-3.15	4.30	0.00	1.03	115
Mahal. Distance	0.03	15.26	2.97	2.52	115
Cook's Distance	0.00	0.26	0.01	0.03	115
Centered Leverage Value	0.00	0.13	0.03	0.02	115

a. Dependent Variable: CA MAR

Hierarchical Regression Model #8

	Min.	Max	Mean	Std. Dev	N
Residual	-3.55	2.65	0.00	1.07	113
Std. Residual	-3.28	2.45	0.00	0.99	113
Stud. Residual	-3.50	2.48	0.00	1.01	113
Deleted Residual	-4.05	2.72	0.00	1.13	113
Stud. Deleted Residual	-3.70	2.54	0.00	1.03	113
Mahal. Distance	0.04	13.01	2.97	2.71	113
Cook's Distance	0.00	0.42	0.01	0.05	113
Centered Leverage Value	0.00	0.12	0.03	0.02	113

a. Dependent Variable: CA AVERAGE

Table B-4.2 Residual Statistics – Hypotheses 3 Model

Hierarchical Regression Model #1

	Min.	Max	Mean	Std. Dev	N
Residual	-5.46	4.34	0.00	2.09	116
Std. Residual	-2.59	2.06	0.00	0.99	116
Stud. Residual	-2.61	2.07	0.00	1.00	116
Deleted Residual	-5.54	4.42	0.00	2.15	116
Stud. Deleted Residual	-2.68	2.10	0.00	1.01	116
Mahal. Distance	0.02	8.59	1.98	1.80	116
Cook's Distance	0.00	0.08	0.01	0.02	116
Centered Leverage Value	0.00	0.07	0.02	0.02	116

a. Dependent Variable: Performance

Hierarchical Regression Model #2

	Min.	Max	Mean	Std. Dev	N
Residual	-5.19	4.42	0.00	2.12	117
Std. Residual	-2.43	2.07	0.00	0.99	117
Stud. Residual	-2.45	2.10	0.00	1.01	117
Deleted Residual	-5.35	4.54	-0.01	2.18	117
Stud. Deleted Residual	-2.51	2.13	0.00	1.02	117
Mahal. Distance	0.01	8.19	1.98	1.85	117
Cook's Distance	0.00	0.16	0.01	0.02	117
Centered Leverage Value	0.00	0.07	0.02	0.02	117

a. Dependent Variable: Performance

Hierarchical Regression Model #3

	Min.	Max	Mean	Std. Dev	N
Residual	-5.89	4.73	0.00	2.05	118
Std. Residual	-2.84	2.28	0.00	0.99	118
Stud. Residual	-2.86	2.30	0.00	1.00	118
Deleted Residual	-5.95	4.79	0.00	2.11	118
Stud. Deleted Residual	-2.95	2.34	0.00	1.01	118
Mahal. Distance	0.07	7.70	1.98	1.61	118
Cook's Distance	0.00	0.12	0.01	0.01	118
Centered Leverage Value	0.00	0.07	0.02	0.01	118

Table B-4.2 Residual Statistics – Hypothesis 3 Model *(Continued)*

Hierarchical Regression Model #4

	Min.	Max	Mean	Std. Dev	N
Residual	-5.82	5.01	0.00	2.01	119
Std. Residual	-2.86	2.47	0.00	0.99	119
Stud. Residual	-2.88	2.56	0.00	1.00	119
Deleted Residual	-5.87	5.41	0.00	2.07	119
Stud. Deleted Residual	-2.97	2.63	0.00	1.01	119
Mahal. Distance	0.02	9.05	1.98	1.87	119
Cook's Distance	0.00	0.17	0.01	0.02	119
Centered Leverage Value	0.00	0.08	0.02	0.02	119

a. Dependent Variable: Performance

Hierarchical Regression Model #5

	Min.	Max	Mean	Std. Dev	N
Residual	-6.05	4.83	0.00	2.14	119
Std. Residual	-2.81	2.24	0.00	0.99	119
Stud. Residual	-2.82	2.29	0.00	1.01	119
Deleted Residual	-6.12	5.06	0.00	2.20	119
Stud. Deleted Residual	-2.91	2.34	0.00	1.02	119
Mahal. Distance	0.02	11.46	1.98	2.03	119
Cook's Distance	0.00	0.13	0.01	0.02	119
Centered Leverage Value	0.00	0.10	0.02	0.02	119

a. Dependent Variable: Performance

Hierarchical Regression Model #6

	Min.	Max	Mean	Std. Dev	N
Residual	-6.71	4.78	0.00	2.15	118
Std. Residual	-3.10	2.21	0.00	0.99	118
Stud. Residual	-3.14	2.22	0.00	1.00	118
Deleted Residual	-6.89	4.86	0.00	2.20	118
Stud. Deleted Residual	-3.27	2.26	0.00	1.01	118
Mahal. Distance	0.03	9.05	1.98	1.89	118
Cook's Distance	0.00	0.09	0.01	0.01	118
Centered Leverage Value	0.00	0.08	0.02	0.02	118

a. Dependent Variable: Performance

Table B-4.2 Residual Statistics – Hypothesis 3 Model *(Continued)*

Hierarchical Regression Model #7

	Min.	Max	Mean	Std. Dev	N
Residual	-5.02	4.66	0.00	1.99	119
Std. Residual	-2.50	2.32	0.00	0.99	119
Stud. Residual	-2.52	2.33	0.00	1.00	119
Deleted Residual	-5.10	4.71	0.00	2.04	119
Stud. Deleted Residual	-2.58	2.38	0.00	1.01	119
Mahal. Distance	0.04	7.75	1.98	1.73	119
Cook's Distance	0.00	0.04	0.01	0.01	119
Centered Leverage Value	0.00	0.07	0.02	0.01	119

a. Dependent Variable: Performance

Hierarchical Regression Model #8

Predicted Value	8.93	14.04	11.75	0.97	119
Residual	-5.57	5.07	0.00	2.03	119
Std. Residual	-2.72	2.48	0.00	0.99	119
Stud. Residual	-2.74	2.58	0.00	1.01	119
Deleted Residual	-5.63	5.51	0.00	2.09	119
Stud. Deleted Residual	-2.82	2.65	0.00	1.01	119
Mahal. Distance	0.02	9.57	1.98	1.96	119
Cook's Distance	0.00	0.19	0.01	0.02	119
Centered Leverage Value	0.00	0.08	0.02	0.02	119

a. Dependent Variable: Performance

Table B-4.3 Residual Statistics – Hypotheses 4 Model

Hierarchical Regression Model #1

	Min.	Max	Mean	Std. Dev	N
Residual	-5.09	4.53	0.00	2.04	118
Std. Residual	-2.45	2.18	0.00	0.98	118
Stud. Residual	-2.48	2.21	0.00	1.00	118
Deleted Residual	-5.21	4.64	0.00	2.12	118
Stud. Deleted Residual	-2.54	2.25	0.00	1.01	118
Mahal. Distance	0.05	21.22	3.97	3.78	118
Cook's Distance	0.00	0.07	0.01	0.01	118
Centered Leverage Value	0.00	0.18	0.03	0.03	118

Table B-4.3 Residual Statistics – Hypothesis 4 Model *(Continued)*

Hierarchical Regression Model #2

	Min.	Max	Mean	Std. Dev	N
Residual	-5.09	4.39	0.00	1.95	118
Std. Residual	-2.56	2.21	0.00	0.98	118
Stud. Residual	-2.58	2.24	0.00	1.00	118
Deleted Residual	-5.15	4.52	-0.01	2.02	118
Stud. Deleted Residual	-2.64	2.28	0.00	1.01	118
Mahal. Distance	0.04	18.93	3.97	3.86	118
Cook's Distance	0.00	0.06	0.01	0.01	118
Centered Leverage Value	0.00	0.16	0.03	0.03	118

Hierarchical Regression Model #3

	Min.	Max	Mean	Std. Dev	N
Residual	-5.21	4.45	0.00	1.93	116
Std. Residual	-2.65	2.26	0.00	0.98	116
Stud. Residual	-2.69	2.30	0.00	1.00	116
Deleted Residual	-5.35	4.60	0.00	2.02	116
Stud. Deleted Residual	-2.77	2.35	0.00	1.01	116
Mahal. Distance	0.10	14.58	3.97	2.95	116
Cook's Distance	0.00	0.06	0.01	0.01	116
Centered Leverage Value	0.00	0.13	0.03	0.03	116

Hierarchical Regression Model #4

	Min.	Max	Mean	Std. Dev	N
Residual	-5.01	5.13	0.00	1.96	117
Std. Residual	-2.52	2.58	0.00	0.98	117
Stud. Residual	-2.55	2.78	0.00	1.01	117
Deleted Residual	-5.16	5.99	0.00	2.05	117
Stud. Deleted Residual	-2.62	2.87	0.00	1.02	117
Mahal. Distance	0.04	15.80	3.97	3.08	117
Cook's Distance	0.00	0.26	0.01	0.03	117
Centered Leverage Value	0.00	0.14	0.03	0.03	117

Table B-4.3 Residual Statistics – Hypothesis 4 Model *(Continued)*

Hierarchical Regression Model #5

	Min.	Max	Mean	Std. Dev	N
Residual	-5.27	5.09	0.00	1.98	117
Std. Residual	-2.61	2.52	0.00	0.98	117
Stud. Residual	-2.64	2.78	0.00	1.01	117
Deleted Residual	-5.39	6.21	0.01	2.09	117
Stud. Deleted Residual	-2.71	2.87	0.00	1.02	117
Mahal. Distance	0.29	19.93	3.97	3.56	117
Cook's Distance	0.00	0.34	0.01	0.03	117
Centered Leverage Value	0.00	0.17	0.03	0.03	117

Hierarchical Regression Model #6

	Min.	Max	Mean	Std. Dev	N
Residual	-6.79	5.41	0.00	2.11	116
Std. Residual	-3.16	2.52	0.00	0.98	116
Stud. Residual	-3.20	2.57	0.00	1.00	116
Deleted Residual	-6.97	5.63	0.00	2.21	116
Stud. Deleted Residual	-3.35	2.64	0.00	1.02	116
Mahal. Distance	0.39	17.16	3.97	3.35	116
Cook's Distance	0.00	0.09	0.01	0.02	116
Centered Leverage Value	0.00	0.15	0.03	0.03	116

Hierarchical Regression Model #7

	Min.	Max	Mean	Std. Dev	N
Residual	-5.20	5.17	0.00	1.96	113
Std. Residual	-2.61	2.60	0.00	0.98	113
Stud. Residual	-2.64	2.66	0.00	1.01	113
Deleted Residual	-5.31	5.42	-0.01	2.05	113
Stud. Deleted Residual	-2.71	2.74	0.00	1.02	113
Mahal. Distance	0.18	19.73	3.96	3.14	113
Cook's Distance	0.00	0.07	0.01	0.01	113
Centered Leverage Value	0.00	0.18	0.04	0.03	113

Table B-4.3 Residual Statistics – Hypothesis 4 Model *(Continued)*

Hierarchical Regression Model #8

	Min.	Max	Mean	Std. Dev	N
Residual	-4.91	5.35	0.00	1.94	116
Std. Residual	-2.49	2.72	0.00	0.98	116
Stud. Residual	-2.52	3.01	0.00	1.01	116
Deleted Residual	-5.03	6.58	0.00	2.04	116
Stud. Deleted Residual	-2.59	3.13	0.00	1.02	116
Mahal. Distance	0.15	23.08	3.97	4.19	116
Cook's Distance	0.00	0.42	0.01	0.04	116
Centered Leverage Value	0.00	0.20	0.03	0.04	116

Table B-4.4 Residual Statistics – Hypotheses 5 Model

Hierarchical Regression Model #1

	Min.	Max	Mean	Std. Dev	N
Residual	-5.59	5.30	0.00	2.09	114
Std. Residual	-2.62	2.48	0.00	0.98	114
Stud. Residual	-2.76	2.53	0.00	1.01	114
Deleted Residual	-6.56	5.52	-0.01	2.23	114
Stud. Deleted Residual	-2.85	2.60	0.00	1.02	114
Mahal. Distance	0.07	25.76	4.96	4.35	114
Cook's Distance	0.00	0.30	0.01	0.03	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Hierarchical Regression Model #2

	Min.	Max	Mean	Std. Dev	N
Residual	-5.82	5.16	0.00	2.10	114
Std. Residual	-2.71	2.41	0.00	0.98	114
Stud. Residual	-2.88	2.46	0.00	1.01	114
Deleted Residual	-6.58	5.40	-0.01	2.23	114
Stud. Deleted Residual	-2.99	2.52	0.00	1.02	114
Mahal. Distance	0.06	26.09	4.96	4.22	114
Cook's Distance	0.00	0.18	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Table B-4.4 Residual Statistics – Hypothesis 5 Model *(Continued)*

Hierarchical Regression Model #3

	Min.	Max	Mean	Std. Dev	N
Residual	-6.13	5.45	0.00	2.10	114
Std. Residual	-2.86	2.54	0.00	0.98	114
Stud. Residual	-2.96	2.59	0.00	1.01	114
Deleted Residual	-6.59	5.81	0.00	2.23	114
Stud. Deleted Residual	-3.08	2.66	0.00	1.02	114
Mahal. Distance	0.11	25.99	4.96	4.20	114
Cook's Distance	0.00	0.16	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Hierarchical Regression Model #4

	Min.	Max	Mean	Std. Dev	N
Residual	-5.83	5.06	0.00	2.00	114
Std. Residual	-2.86	2.47	0.00	0.98	114
Stud. Residual	-2.88	2.53	0.00	1.01	114
Deleted Residual	-5.94	5.27	-0.01	2.12	114
Stud. Deleted Residual	-2.99	2.59	0.00	1.02	114
Mahal. Distance	0.07	26.52	4.96	4.35	114
Cook's Distance	0.00	0.18	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Hierarchical Regression Model #5

	Min.	Max	Mean	Std. Dev	N
Residual	-5.94	5.25	0.00	2.08	114
Std. Residual	-2.79	2.46	0.00	0.98	114
Stud. Residual	-2.83	2.52	0.00	1.00	114
Deleted Residual	-6.32	5.47	-0.01	2.20	114
Stud. Deleted Residual	-2.93	2.58	0.00	1.02	114
Mahal. Distance	0.25	25.74	4.96	4.06	114
Cook's Distance	0.00	0.13	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Table B-4.4 Residual Statistics – Hypothesis 5 Model *(Continued)*

Hierarchical Regression Model #6

	Min.	Max	Mean	Std. Dev	N
Residual	-6.79	5.58	0.00	2.08	114
Std. Residual	-3.19	2.62	0.00	0.98	114
Stud. Residual	-3.26	2.68	0.00	1.00	114
Deleted Residual	-7.11	5.83	-0.01	2.19	114
Stud. Deleted Residual	-3.42	2.76	0.00	1.02	114
Mahal. Distance	0.56	25.69	4.96	3.83	114
Cook's Distance	0.00	0.08	0.01	0.01	114
Centered Leverage Value	0.00	0.23	0.04	0.03	114

Hierarchical Regression Model #7

	Min.	Max	Mean	Std. Dev	N
Residual	-5.07	5.34	0.00	1.99	114
Std. Residual	-2.49	2.63	0.00	0.98	114
Stud. Residual	-2.53	2.68	0.00	1.01	114
Deleted Residual	-5.22	5.56	-0.01	2.11	114
Stud. Deleted Residual	-2.60	2.76	0.00	1.02	114
Mahal. Distance	0.09	26.08	4.96	4.05	114
Cook's Distance	0.00	0.15	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

Hierarchical Regression Model #8

	Min.	Max	Mean	Std. Dev	N
Residual	-5.60	5.30	0.00	2.03	114
Std. Residual	-2.69	2.55	0.00	0.98	114
Stud. Residual	-2.72	2.60	0.00	1.01	114
Deleted Residual	-5.71	5.51	-0.01	2.16	114
Stud. Deleted Residual	-2.81	2.67	0.00	1.02	114
Mahal. Distance	0.16	25.84	4.96	4.11	114
Cook's Distance	0.00	0.17	0.01	0.02	114
Centered Leverage Value	0.00	0.23	0.04	0.04	114

APPENDIX B-5 AUTO CORRELATION

Rule of thumb:
Durbin-Watson statistic = 1.5 – 2.5 (There is no autocorrelation)

Table B-5.1 Auto Correlation Test for Hypothesis 1/2

	Durbin-Watson
Regression Model 1	2.181
Regression Model 2	2.091
Regression Model 3	1.839
Regression Model 4	1.950
Regression Model 5	1.957
Regression Model 6	1.862
Regression Model 7	1.765
Regression Model 8	1.884

Table B-5.2 Auto Correlation Test for Hypotheses 3

	Durbin-Watson
Regression Model 1	1.792
Regression Model 2	1.775
Regression Model 3	1.699
Regression Model 4	1.756
Regression Model 5	1.778
Regression Model 6	1.726
Regression Model 7	1.827
Regression Model 8	1.793

Table B-5.3 Auto Correlation Test for Hypotheses 4

	Durbin-Watson
Regression Model 1	1.876
Regression Model 2	1.779
Regression Model 3	1.826
Regression Model 4	1.836
Regression Model 5	1.735
Regression Model 6	1.749
Regression Model 7	1.848
Regression Model 8	1.717

Table B-5.4 Auto Correlation Test for Hypotheses 5

	Durbin-Watson
Regression Model 1	1.791
Regression Model 2	1.821
Regression Model 3	1.812
Regression Model 4	1.801
Regression Model 5	1.837
Regression Model 6	1.867
Regression Model 7	1.850
Regression Model 8	1.812

APPENDIX B-6 MULTICOLLINEARITY

Rule of thumb for multicollinearity indicators:
Tolerance value (TOL) of less than 0.10
Variance Inflation Factor (VIF) value of above 10
Condition Index (CI) over 30

Table B-6.1 Multicollinearity Test for Hypothesis 1/2

	TOL	VIF	CI
Regression Model 1	0.58 – 0.93	1.07 – 1.71	1.00 – 18.26
Regression Model 2	0.69 – 0.96	1.10 – 1.44	1.00 – 17.79
Regression Model 3	0.49 – 0.97	1.03 – 2.02	1.00 – 18.67
Regression Model 4	0.47 – 0.91	1.09 – 2.13	1.00 – 20.23
Regression Model 5	0.47 – 0.93	1.07 – 2.13	1.00 – 19.94
Regression Model 6	0.36 – 0.90	1.11 – 2.75	1.00 – 19.72
Regression Model 7	0.33 – 0.90	1.11 – 2.99	1.00 – 22.85
Regression Model 8	0.38 – 0.91	1.10 – 2.61	1.00 – 26.16

Table B-6.2 Multicollinearity Test for Hypotheses 3

	TOL	VIF	CI
Regression Model 1	0.99 – 0.99	1.01 – 1.01	1.00 – 14.97
Regression Model 2	0.98 – 0.96	1.02 – 1.02	1.00 – 15.34
Regression Model 3	0.99 – 0.99	1.00 – 1.00	1.00 – 12.49
Regression Model 4	0.96 – 0.96	1.05 – 1.05	1.00 – 15.78
Regression Model 5	0.96 – 0.96	1.05 – 1.05	1.00 – 13.49
Regression Model 6	0.95 – 0.95	1.05 – 1.05	1.00 – 12.69
Regression Model 7	0.96 – 0.96	1.04 – 1.04	1.00 – 13.62
Regression Model 8	0.96 – 0.96	1.04 – 104	1.00 – 17.58

Table B-6.3 Multicollinearity Test for Hypotheses 4

	TOL	VIF	CI
Regression Model 1	0.49 – 0.95	1.06 – 2.05	1.00 – 20.98
Regression Model 2	0.53 – 0.97	1.03 – 1.89	1.00 – 20.78
Regression Model 3	0.42 – 0.96	1.04 – 2.37	1.00 – 21.54
Regression Model 4	0.41 – 0.89	1.11 – 2.44	1.00 – 22.27
Regression Model 5	0.38 – 0.91	1.10 – 2.61	1.00 – 22.69
Regression Model 6	0.31 – 0.89	1.11 – 3.22	1.00 – 23.15
Regression Model 7	0.29 – 0.89	1.11 – 3.45	1.00 – 27.43
Regression Model 8	0.45 – 0.92	1.09 – 2.21	1.00 – 24.97

Table B-6.4 Multicollinearity Test for Hypotheses 5

	TOL	VIF	CI
Regression Model 1	0.47 – 0.94	1.06 – 2.15	1.00 – 26.51
Regression Model 2	0.47 – 0.94	1.07 – 2.15	1.00 – 23.64
Regression Model 3	0.45 – 0.94	1.07 – 2.24	1.00 – 25.99
Regression Model 4	0.46 – 0.93	1.08 – 2.19	1.00 – 26.04
Regression Model 5	0.46 – 0.91	1.09 – 2.17	1.00 – 27.52
Regression Model 6	0.46 – 0.92	1.09 – 2.17	1.00 – 25.91
Regression Model 7	0.46 – 0.93	1.08 – 2.17	1.00 – 26.01
Regression Model 8	0.46 – 0.93	1.08 – 2.17	1.00 – 26.96

APPENDIX B-7 SUMMARY OF MEDIATION TEST

Statistical summary for mediation role of competitive advantage between value/rareness of asset-capabilities combination or dynamic capabilities and performance

Table B-7.1 Mediation Test for Hypotheses 4

Mediation Model 1

	Test Statistic	*p*-value
Sobel test	0.33729773	0.73589247
Aroian test	0.32349283	0.74632204
Goodman test	0.35303559	0.72406176

Mediation Model 2

	Test Statistic	*p*-value
Sobel test	0.44645486	0.65526871
Aroian test	0.43444033	0.66396872
Goodman test	0.45952469	0.64585743

Mediation Model 3

	Test Statistic	*p*-value
Sobel test	0.646771	0.51778
Aroian test	0.630763	0.528195
Goodman test	0.664063	0.50665

Mediation Model 4

	Test Statistic	*p*-value
Sobel test	1.744646	0.081047
Aroian test	1.717519	0.085884
Goodman test	1.773099	0.076212

Mediation Model 5

	Test Statistic	*p*-value
Sobel test	0.498240	0.618315
Aroian test	0.487679	0.625777
Goodman test	0.509518	0.610389

Mediation Model 6

	Test Statistic	*p*-value
Sobel test	1.050406	0.293532
Aroian test	1.003848	0.315452
Goodman test	1.104107	0.269547

Mediation Model 7

	Test Statistic	*p*-value
Sobel test	2.452203	0.014198
Aroian test	2.403097	0.016257
Goodman test	2.504448	0.012264

Mediation Model 8

	Test Statistic	*p*-value
Sobel test	1.486053	0.137265
Aroian test	1.462638	0.143567
Goodman test	1.510631	0.130882

Table B-7.2 Mediation Test for Hypotheses 5

Mediation Model 1

	Test Statistic	*p*-value
Sobel test	1.276477	0.201787
Aroian test	1.239067	0.215321
Goodman test	1.317495	0.187673

Mediation Model 2

	Test Statistic	*p*-value
Sobel test	1.206376	0.227673
Aroian test	1.170562	0.241775
Goodman test	1.245692	0.212877

Mediation Model 3

	Test Statistic	*p*-value
Sobel test	1.328731	0.183937
Aroian test	1.290184	0.196987
Goodman test	1.370953	0.170389

Mediation Model 4

	Test Statistic	*p*-value
Sobel test	2.664357	0.007714
Aroian test	2.618662	0.008828
Goodman test	2.712531	0.006677

Mediation Model 5

	Test Statistic	*p*-value
Sobel test	1.592155	0.111350
Aroian test	1.548647	0.121467
Goodman test	1.639548	0.101099

Mediation Model 6

	Test Statistic	*p*-value
Sobel test	1.742418	0.081435
Aroian test	1.696725	0.089749
Goodman test	1.792014	0.073131

Mediation Model 7

	Test Statistic	*p*-value
Sobel test	2.691601	0.007111
Aroian test	2.646329	0.008137
Goodman test	2.739280	0.006157

Mediation Model 8

	Test Statistic	*p*-value
Sobel test	2.354868	0.018529
Aroian test	2.306240	0.021097
Goodman test	2.406707	0.016097

APPENDIX B-8 DETERMINANTS OF FOUNDATIONAL DYNAMIC CAPABILITIES

Foundational Dynamic Capabilities	CA Cost (β)	CA Oppt. (β)	CA Threat (β)
Sensing capability 1	0.1648ns	0.1615ns	0.0920ns
Sensing capability 2	0.0795ns	0.0398ns	0.0370ns
Sensing capability 3	0.0025ns	0.1238ns	0.1333ns
Sensing capability 4	0.0927ns	0.0449ns	0.1834+
Seizing capability 1	-0.0662ns	-0.0206ns	0.0282ns
Seizing capability 2	0.1347ns	0.0751ns	0.1583ns
Seizing capability 3	0.2067+	0.0609ns	0.0472
Seizing capability 4	0.1658ns	0.2644*	0.3669***
Transforming capability 1	0.1255ns	0.1338ns	0.1620
Transforming capability 2	-0.0696ns	-0.0263ns	-0.0080
Transforming capability 3	0.0958ns	0.1936ns	0.2241+
Transforming capability 4	0.3256**	0.1597ns	0.1754ns
N	114	113	112

ns Not sig., + p<0.1, * p<0.05, ** p<0.01, *** p<0.001

APPENDIX B-9 PERFORMANCE DETERMINANTS OF BETTER vs. WORSE PERFORMER

Table B-9 Regression Results

	Technological Asset-Capabilities		Complementary Asset-Capabilities		Financial Asset-Capabilities	
Stage-2 Model	Better	Worse	Better	Worse	Better	Worse
Environment (β)	-.071^{ns}	-.246^{+}	-.068 ^{ns}	-.142^{ns}	-.149 ^{ns}	-.216^{ns}
Competitive Advantage(β)	.246*	.058^{ns}	.256*	.193 ^{ns}	.215^{+}	.174 ^{ns}
R	.268	.249	.282	.226	.253	.249
R Sq	.072	.062	.079	.051	.064	.062
Adjusted R Sq	.044	.020	.052	.009	.035	.022
R Sq (Change)	.058	.003	.061	.037	.046	.029
F Stat (ANOVA)	2.524^{+}	1.485^{ns}	2.848^{+}	1.206 ^{ns}	2.220^{ns}	1.557 ^{ns}
F Stat (Change)	4.084*	.160^{ns}	4.361*	1.737 ^{ns}	3.194^{+}	1.463 ^{ns}
N	68	48	69	48	68	50

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

	Reputational Asset-Capabilities		Structural Asset-Capabilities		Institutional Asset-Capabilities	
Stage-2 Model	Better	Worse	Better	Worse	Better	Worse
Environment (β)	-.028^{ns}	-.289*	-.050^{ns}	-.183 ^{ns}	-.082^{ns}	-.122 ^{ns}
Competitive Advantage(β)	.291*	.251^{+}	.214^{+}	.191 ^{ns}	.160 ^{ns}	.145 ^{ns}
R	.300	.380	.235	.263	.196	.199
R Sq	.090	.144	.055	.069	.038	.039
Adjusted R Sq	.063	.107	.027	.030	.009	.022
R Sq (Change)	.077	.063	.041	.036	.024	.021
F Stat (ANOVA)	3.319*	1.485^{ns}	1.933 ^{ns}	1.751 ^{ns}	1.317 ^{ns}	.945 ^{ns}
F Stat (Change)	5.683*	3.374^{+}	2.886^{+}	1.838 ^{ns}	1.672 ^{ns}	1.004 ^{ns}
N	70	49	69	50	68	49

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

	Market Asset-Capabilities		Average Asset-Capabilities	
Stage-2 Model	Better	Worse	Better	Worse
Environment (β)	-.056 ^{ns}	-.281 *	-.035^{ns}	-.302*
Competitive Advantage(β)	.248 *	.350 *	.257*	.224^{ns}
R	.267	.452	.270	.362
R Sq	.071	.204	.073	.131
Adjusted R Sq	.044	.170	.045	.094
R Sq (Change)	.058	.123	.060	.050
F Stat (ANOVA)	2.571 $^{+}$	5.905 **	2.628^{+}	3.477*
F Stat (Change)	4.206 *	7.093 *	4.318*	2.633^{ns}
N	70	49	70	49

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001

APPENDIX B-10 PERFORMANCE DETERMINANTS OF ASSETS vs. CAPABILITIES

Table B-10 Regression Results

	Technological Assets		Technological Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.102+	-.013^{ns}	-.102^{ns}	-.035^{ns}
Value (β)		.483***		.550***
Rarity (β)		.229**		.168*
R	.102	.641	.102	.661
R Sq	.010	.405	.010	.437
Adjusted R Sq	.002	.389	.002	.422
R Sq (Change)		.394		.426
F Stat (ANOVA)	1.237^{ns}	26.291***	1.237^{ns}	29.975***
F Stat (Change)		38.425***		43.894***

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001, N=120

	Complementary Assets		Complementary Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.120^{ns}	-.072^{ns}	-.120^{ns}	-.068^{ns}
Value (β)		.453***		.504***
Rarity (β)		.199 *		.178*
R	.120	.595	.120	.620
R Sq	.014	.354	.014	.385
Adjusted R Sq	.006	.337	.006	.369
R Sq (Change)		.339		.370
F Stat (ANOVA)	1.729^{ns}	21.157***	1.729^{ns}	24.187***
F Stat (Change)		30.439***		34.919***

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001, N=120

Table B-10 Regression Results *(Continued)*

	Financial Assets		Financial Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	.015^{ns}	.079^{ns}	.015^{ns}	.048^{ns}
Value (β)		.398***		.468***
Rarity (β)		.303***		.308*
R	.015	.619	.015	.690
R Sq	.000	.383	.000	.477
Adjusted R Sq	-.008	.367	-.008	.463
R Sq (Change)		.383		.476
F Stat (ANOVA)	.027^{ns}	23.991***	.027^{ns}	35.196***
F Stat (Change)		35.965***		52.768***

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001, N=120

	Reputational Assets		Reputational Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.148^{ns}	.008^{ns}	-.148^{ns}	.013 ^{ns}
Value (β)		.233*		.274***
Rarity (β)		.446***		.502***
R	.148	.613	.148	.660
R Sq	.022	.375	.022	.436
Adjusted R Sq	.014	.359	.014	.421
R Sq (Change)		.353		.414
F Stat (ANOVA)	2.636^{ns}	23.228***	2.636^{ns}	29.848***
F Stat (Change)		32.812***		42.527***

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001, N=120

Table B-10 Regression Results *(Continued)*

	Structural Assets		Structural Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.193 *	-.186 **	-.193 *	-.141 *
Value (β)		.615 ***		.597 ***
Rarity (β)		.049 ns		.089 ns
R	.193	.679	.193	.685
R Sq	.037	.461	.037	.469
Adjusted R Sq	.029	.447	.029	.455
R Sq (Change)		.424		.431
F Stat (ANOVA)	4.572*	33.109 ***	4.572*	34.099 ***
F Stat (Change)		45.648 ***		47.078 ***

ns Not sig., +p<0.1, * p<0.05, ** p<0.01, *** p<0.001, N=120

	Institutional Assets		Institutional Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.183 *	-.057ns	-.183 *	-.066ns
Value (β)		.576*		.679***
Rarity (β)		.200+		. .087ns
R	.183	.752	.183	.757
R Sq	.034	.566	.034	.573
Adjusted R Sq	.025	.554	.025	.562
R Sq (Change)		.532		.540
F Stat (ANOVA)	4.091*	50.331***	4.091*	51.917***
F Stat (Change)		71.023***		73.323***

ns Not sig., +p<0.1, * p<0.05, ** p<0.01, *** p<0.001, N=120

Table B-10 Regression Results *(Continued)*

	Market Assets		Market Capabilities	
Regression Model	Stage 1	Stage 2	Stage 1	Stage 2
Environment (β)	-.151^{+}	-.017^{ns}	-.151^{+}	-.032^{ns}
Value (β)		.369***		.297***
Rarity (β)		.340***		.430***
R	.151	.657	.151	.655
R Sq	.023	.432	.023	.429
Adjusted R Sq	.015	.417	.015	.415
R Sq (Change)		.409		.406
F Stat (ANOVA)	2.771^{+}	29.416***	2.771^{+}	29.095***
F Stat (Change)		41.781***		41.311***

^{ns} Not sig., $^{+}$p<0.1, * p<0.05, **p<0.01, ***p<0.001, N=120

APPENDIX C - CHECKLIST FOR REGRESSION ANALYSIS (Tabachnick & Fidell, 2007)

1. Issues

a. Ratio of cases to IVs and missing data
b. Normality, linearity, and homoscedasticity of residuals
c. Outliers d Multicollinearity and singularity
d. Outliers in the solution

2. Major analyses

a. Multiple R^2, and its confidence limits, F ratio
b. Adjusted R^2, proportion of variance accounted for
c. Squared semipal1ial correlations
d. Significance of regression coefficients
e. Incremental F

3. Additional analyses

a. Unstandardized *(B)* weights, confidence limits
b. Standardized *(β)* weights
c. Prediction equation from stepwise analysis
d. Post hoc significance of correlations
e. Suppressor variables
f. Cross-validation (stepwise)