DEGREE OF VERTICAL INTEGRATION AND ITS BUFFERING EFFECTS ON POLITCAL UNCERTAINTY

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Doctor of Philosophy

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THESIS SUMMARY

The focus of this study is on the governance decisions in a concurrent channels context, in the case of uncertainty. The study examines how a firm chooses to deploy its sales force in times of uncertainty, and the subsequent performance outcome of those deployment choices. The theoretical framework is based on multiple theories of governance, including transaction cost analysis (TCA), agency theory, and institutional economics.

Three uncertainty variables are investigated in this study. The first two are demand and competitive uncertainty which are considered to be industry-level market uncertainty forms. The third uncertainty, political uncertainty, is chosen as it is an important dimension of institutional environments, capturing non-economic circumstances such as regulations and political systemic issues.

The study employs longitudinal secondary data from a Thai hotel chain, comprising monthly observations from January 2007 – December 2012. This hotel chain has its operations in 4 countries, Thailand, the Philippines, United Arab Emirates – Dubai, and Egypt, all of which experienced substantial demand, competitive, and political uncertainty during the study period. This makes them ideal contexts for this study. Two econometric models, both deploying Newey-West estimations, are employed to test 13 hypotheses. The first model considers the relationship between uncertainty and governance. The second model is a version of Newey-West, using an Instrumental Variables (IV) estimator and a Two-Stage Least Squares model (2SLS), to test the direct effect of uncertainty on performance and the moderating effect of governance on the relationship between uncertainty and performance.

The observed relationship between uncertainty and governance observed follows a core prediction of TCA; that vertical integration is the preferred choice of governance when uncertainty rises. As for the subsequent performance outcomes, the results corroborate that uncertainty has a negative effect on performance. Importantly, the findings show that becoming more vertically integrated cannot help moderate the effect of demand and competitive uncertainty, but can significantly moderate the effect of political uncertainty. These findings have significant theoretical and practical implications, and extend our knowledge of the impact on uncertainty significantly, as well as bringing an institutional perspective to TCA. Further, they offer managers novel insight into the nature of different types of uncertainty, their impact on performance, and how channel decisions can mitigate these impacts.

Keywords: Concurrent Channels, Transaction Cost, Political Uncertainty, Secondary Data, Institutional Environment

DEDICATION

To My Parents

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CHAPTER 1

INTRODUCTION

1.1 Background

Uncertainty has long been a principal interest of a number of theories in organization, marketing and strategic management (Sutcliffe and Zaheer 1998). Studies have shown that environmental uncertainty has substantial influence on organization structures and processes (Huber, O'Connell and Cummings 1975). One of the reasons that contribute to the ongoing debate amongst scholars is that uncertainty is a broad concept and has been conceptualized in many ways.

In the marketing channel literature, uncertainty is a key construct in agency theory and transaction cost analysis (TCA). For agency theory, uncertainty is one of the factors that make it impossible for the principal to monitor the agent with complete certainty (Bergen, Dutta and Walker 1992). In TCA, uncertainty is regarded as the major determinant in defining the firm's choice of governance and ultimately its performance. Under TCA, uncertainty is the second most analyzed independent variable, and was, as early as 2004 examined in 87 statistical tests (David and Han 2004) as it plays a key role in inter-organization relationships (Ganesan 1994). TCA posits that uncertainty, especially behavioral uncertainty, increases transaction cost. In addition, the role of uncertainty also has been of interest in institutional environment literature (Enders, Sandler and Parise 1992; Grewal and Tansuhaj 2001). Literature on governance mostly focuses on the dichotomous choice of governance mode (market vs. hierarchy) in time of uncertainty (cf. Gatignon and Anderson 1988; Folta 1998). However, empirical investigation about the impact of uncertainty on performance is still limited. The limitation of works in

this area led to the motivation for this study to understand how uncertainty impacts governance and the subsequent performance outcomes of that governance decision.

Three types of uncertainty are investigated in this study. The first two are demand and competitive uncertainty which are the industry-level market uncertainties. The third uncertainty, political uncertainty, is an important dimension of institutional environments that captures a political system and set of regulations in different locations (Demirbag, Glaister and Tatoglu 2007). Although political uncertainty represents non-economic circumstances and is exogenous to governance, it is a crucial type of uncertainty that is institutional and fundamental as it impacts businesses and thereby possibly governance. How governance is impacted – in terms of direction and strength – is, however, unknown.

The study employs the longitudinal secondary data from a Thai hotel chain which has its operations in Thailand, United Arab Emirates (UAE) – Dubai, the Philippines, and Egypt. Each of these countries experienced a high degree of uncertainty in challenging ways during the period of this study. The recent 2007 global financial crisis, which greatly affected United Arab Emirates – Dubai, together with ongoing political turmoil in Thailand, the Philippines and Egypt during 2007- 2012 provide a unique opportunity to investigate and compare the impact of different types of uncertainty on performance. The hotel industry is suitable as it provides a unique setting to the study because most hotel operations are standardized which makes the data comparable across hotels. The industry operates as an open system, is strongly affected by the external environment, and is usually quite adaptive (Coulter 2002; Jogaratnam and Wong 2009). These characteristics allow a study to clearly understand the performance impact of uncertainty (Coulter 2002).

1.2 Theoretical framework

The theoretical framework is based on multiple theories in the area of governance, such as transaction cost analysis (TCA), agency theory, and institutional economics, to lay out relationships among key variables; namely, mode of governance, uncertainty, and performance. The relationship between uncertainty and performance is addressed through the lens of TCA, which suggests that firms that align their mode of governance with transaction dimensions will economize on transaction costs. This alignment should result into greater competitive performance relative to those who do not (Williamson 1985; Klein, Frazier and Roth 1990; Geyskens, Steenkamp and Kumar 2006).

However, TCA emphasizes the choice between "make" vs. "buy" (market vs. hierarchy), rather than considering the use of both simultaneously. Although TCA does consider the possibility of a firm sourcing both internally and externally of two different products (cf.Dutta, et al. 1995), it does not address why the balance of using both channels for the same product shifts. (Sa Vinhas and Anderson (2005) and Parmigiani (2007) focus on the simultaneous reliance on both firm and third party sales forces concurrently. Such concurrent use is typical in practice but uncommon in research (Heide, Kumar and Wathne 2014). The term "concurrent channels" means using both direct and indirect channels to transact in the same geographical region and sell the same products. These direct and indirect channels may serve different market segments or compete for some or all customers or customer segments in the market (Cespedes and Corey 1990). "Concurrent channels are better for customers because customers can choose the channel that can better suit their needs. Concurrent channels might also be better for firms because suppliers can increase coverage and thus performance" (Sa Vinhas and Anderson 2005, p.507). Building on the cross-sectional foundations laid by Sa Vinhas and Anderson (2005) and Parmigiani (2007), this study extends their work

by considering dynamic shifts between these two channels when they are employed simultaneously. The choice of uncertainty variable is based on both market factors and the institutional environment (a set of political, social, and legal elements) that are fundamental for exchange. This choice follows the suggestion by Oxley (1999) that the combination of governance mechanisms and institutional environment will improve understanding of inter-firm relationships. The study also considers that the employment of multiple theories will help shape channel structures and processes as a whole system, rather than relying on only one theory (Oxley 1999).

1.3 Objectives of the study

Extensive research has been carried out to better understand TCA, especially the relationship between transaction dimensions and mode of governance. A series of theoretical reviews (cf. Rindfleisch and Heide 1997; David and Han 2004; Geyskens, Steenkamp and Kumar 2006; Palmatier, Dant and Grewal 2007; Macher and Richman 2008) share suggestions on the research gaps which future studies should address. First, future studies should find more evidence to support TCA propositions regarding relative performance of governance forms. Second, dynamics in governance forms should be considered. Third, the "institutional" variables which shed light on the underlying circumstances that TCA framework does or does not work should be included.

As for the first research gap, governance choices are often categorized into make, buy, or hybrid and rarely as a continuous measure of governance. In addition, most of the studies are cross-sectional. The lack of continuous measurement and longitudinal design limits our understanding of the dynamic impact of transaction factors on other constructs, especially in a concurrent channels setting. In particular, how the deployment of direct and indirect channels may change

according to the changes in transaction factors. More longitudinal studies in this area are needed (Rindfleisch and Heide 1997; Geyskens, Steenkamp and Kumar 2006).

The second research gap addresses the performance implications of governance choices which make it difficult to offer a complete view of theory (Rindfleisch and Heide 1997). The most common applications of TCA focus on the antecedent that leads to governance decisions but research that focuses on the performance outcome of aligned and misaligned governance decisions is still limited. Future research should pay more attention to the influence of governance choice on performance (Rindfleisch and Heide 1997; David and Han 2004; Heide, Kumar and Wathne 2014) and identify those factors that are revelant for performance in a particular context (Macher and Richman 2008).

The third gap focuses on the potential causes behind the mixed findings on empirical works relating to TCA's prediction of the impact of uncertainty on governance. David and Han (2004) suggest that the variation of findings might result from the exclusion of the institutional or contextual variables that are the underlying condition when transactions occur. Including these contextual variables would allow future empirical works to have a deeper understanding of the conditions under which TCA works and does not work.

Understanding the gaps in the current literature, there are three primary objectives this study aims to achieve.

1. To understand the role of TCA in a dynamic concurrent channels context and how firms adapt their channel deployment in response to the environmental uncertainty.
2. To examine the impact of governance choice on performance.

3. To deepen the understanding of uncertainty, especially the role of political uncertainty on governance and performance.

The first objective of this study addresses the first literature gap. The motivation for this objective is awareness that the majority of the studies in this area have mostly focused on the relationship between transaction dimensions and a discrete mode of governance choice (make, buy, or hybrid). Little attention has been paid to a concurrent channels context. The focus here is on how the change in demand, competitive, and political uncertainty affects how firms adapt their channel structures in a concurrent channels context, using their own or an independent sales force as a simultaneous "make" and "buy" decision to respond to these various types of uncertainty. This is done by observing the change in "degree of vertical integration", which is the percentage of total sales that customers place directly (without going through channel intermediaries) with the firm. A higher percentage of degree of vertical integration means a higher proportion of sales placed through direct channels.

The second research objective concerns the subsequent performance effect of governance choices. The principle of TCA suggests that organizational performance is enhanced when the governance structure of the transaction aligns with the underlying dimensions of the exchange (which is known as the discriminating alignment hypothesis) (Williamson 1975). When uncertainties increase, a hierarchical form of governance is preferred to a market-based form. When such a choice for hierarchy is indeed made, higher performance results compared to when the opposite choice of market is made. Therefore, in this concurrent channel context, a higher degree of vertical integration should translate into better performance when uncertainty rises.

The third objective, which corresponds to the third gap, is derived from the notion that uncertainty is a broad concept (Klein, Frazier and Roth 1990; Harrington 2001; Santoro and McGill 2005), that different types of uncertainty impact governance choices differently (Folta 1998; Beckman, Haunschild and Phillips 2004), and that institutional variables need to be included in the study. The multidimensional aspect of uncertainty is explored by having a separate conceptualization and measures for each uncertainty variable, not just an overall measure of uncertainty as one aggregated concept. In addition, the study considers the third research gap by extending TCA investigation to include political uncertainty which is an institutional variable. Political uncertainty is important for the fact that it is exogenous, but is fundamental to the transaction.

1.4 Research questions and hypothesis

In particular, three main research questions will be examined in this study:

- What is the impact of demand, competitive, and political uncertainty on governance?
- What is the impact of demand, competitive, and political uncertainty on performance?
- Does vertical integration buffer or amplify the effect of uncertainty on performance?

The first research question focuses on how dynamic changes in demand, competitive, and political uncertainty trigger how firms shift their channel structure towards direct or indirect sales forces. This is done by looking at the relationship between each type of uncertainty and the degree of vertical integration. The second question looks into the different impact of each uncertainty on performance and whether or not they affect performance in the same direction. The last question

sets out to understand the performance effects of such choices, accounting for the fact that these types of uncertainty may impact the governance-performance link.

According to TCA's discriminating alignment hypothesis, Williamson (1975) suggests that "internalization is seen to allow the absorption of external uncertainty through specialization of decision making and saving in communication expenses, facilitating adaptive, sequential decision process, which is argued to have optimal properties under such conditions. Furthermore, high integration economizes on transactions by harmonizing interests and permitting a wider variety of sensitive incentive and control processes to be activated" (Williamson 1975, p.23). However, there is another theoretical position which argues that looser structures (i.e. less vertically integrated) are more effective under conditions of high external uncertainty (Tosi, Aldag and Storey 1973; Salancik and Pfeffer 1978). A flexible organization may be better able to adapt to changing circumstances. Highly integrated organizations are to some extent separated from the environment and might be slow to react. Hence, firms that choose an integrated governance structure in an uncertain environment may find it difficult to manage and adjust to the environment (Klein, Frazier and Roth 1990). Empirical evidence that supports both sides of the argument is extant but inconclusive; different types of uncertainty seem to react to a particular mode of governance differently. By answering the research questions, the study seeks to understand factors that cause these differences.

1.5 Data and research method

The approach to empirical research adopted for this study is a quantitative, longitudinal design. The context of this study is the hotel industry in 4 countries: Thailand, the Philippines, United Arab Emirates - Dubai, and Egypt. All of these countries faced considerable uncertainty during the study period (2007 – 2012),

which creates an outstanding opportunity to study the impact of political uncertainty under both normal and unusual circumstances. The operationalization of all variables uses objective measurement to enhance understanding of the true performance outcome of different market characteristics. Specifically, fine-grained data at the monthly level are employed for all variables. The longitudinal nature of the data is crucial as it allows the study to investigate this transaction dimensions-governance-performance linkage dynamically as opposed to the cross-sectional design in previous empirical analysis (cf. Brouthers 2002; Mooi and Ghosh 2010; Castañer, et al. 2014) Longitudinal data, due to its primary advantage in measuring changes and ability to establish causations (Rindfleisch, et al. 2008), allows the study to investigate performance changes due to the changes in uncertainty level without having to be concerned about between subject variations if cross-sectional data is employed.

The research data in this study is either obtained or constructed from three main sources: 1) sales and financial data from the focal firm, 2) government authorities, and 3) a risk rating agency, covering the span of 5 years from January 2007 to December 2012 (72 monthly periods). Sales and financial data from a hotel chain are used as measurements for channel deployment, performance competitive uncertainty, and firm level control variables. Government authorities, specifically the tourism authority and national banks of each country provide information on tourism demand and economic indicators. The data obtained from the risk rating agency represents a measure of political uncertainty.

Two econometric models deploying Newey-West estimations are deployed to test 13 hypotheses. The first model is an Ordinary Least Squares (OLS) estimator and the second is an Instrumental Variables (IV) Estimator using a Two-Stage Least Squares model (2SLS). Both models are estimated with Newey-West (1987)

standard errors, which produce consistent estimates when autocorrelation and heteroskedasticity errors are detected in the residuals. The first model, which corresponds to the first research question, estimates the relationship between channel deployment and the three uncertainties. The second model tests hypotheses 6-13 which are set up to answer research questions 2 and 3. The focus of this model is the relationship between channel deployment, uncertainty, and performance, specifically on the moderating role of channel deployment. As endogeneity is detected, an Instrumental Variables (IV) estimator using Two-Stage Least Squares (2SLS) is employed as the estimation method.

1.6 Theoretical implications

Considering the aforementioned gaps in the current literature, there are three theoretical contributions from this study. The first implication is to extend knowledge about the effect of uncertainty beyond the original discrete choices of governance "make, buy and hybrid" in an attempt to explain how uncertainty will affect the channel deployment in a concurrent channels context. The second implication is to bring performance into the relationship and to investigate the performance effects of a particular governance decision. The third contribution focuses on the extension of TCA to include institutions, here in terms of politics and the inherent uncertainty of it. The unique situation and timeline provide the opportunity to truly understand different types of uncertainty, both market and non-market.

The first implication focuses on extending evidence on the effect of uncertainty beyond the original choice of governance, make, buy and hybrid, in an attempt to explain how uncertainty will affect the deployment of channels in a concurrent channels context. This is done by investigating the extent to which firms choose to vertically integrate (degree of vertical integration), taking a dynamic and

longitudinal view, and their subsequent performance implications. Although the relationship between uncertainty and choice of governance is one of the most tested relationships in TCA, the evidence is inconclusive and mainly focuses on discrete governance choices. For example, Russo (1992) found that uncertainty was negatively related to backward integration in the electricity generating industry, which is contrary to the theory (assuming the presence of asset specificity). The TCA review by David and Han (2004) shows that among the 37 tests on relationship between uncertainty and vertical integration, only 9 show the positive relationship, while 6 tests show the opposite relationship. Only 52 percent of the 21 tests on the effects of the interaction between asset specificity and uncertainty on the hierarchy-market choice were supportive.

The second contribution this study makes to the TCA literature is to bring performance into the relationship to investigate how uncertainty affects governance decisions and the subsequent performance outcome of those decisions. Most TCA research focuses on the relationship between transaction factors, typically asset specificity and uncertainty, and choice of governance and seeks a choice of governance that minimizes transaction cost under those particular circumstances. However, the level of empirical support for uncertainty and performance, which is TCA's core area, is still low and a more thorough empirical investigation of the theory's foundation is vital to advance the theoretical development (David and Han 2004). This study adds to the literature in this area by including a comprehensive model that contains multiple types of uncertainty to exhibit their impacts on performance and interaction effects.

The final implication focuses on the extension of TCA to include political uncertainty – a key institutional variable. This is done to determine if the institutional variable also affects governance decision and performance and, in particular, if

TCA's discriminating alignment hypothesis can be applied if the institutional variable were to be considered as one of the transaction attributes. As different uncertainties seem to have different impact on performance, the result of this study suggests that uncertainty must be disaggregated. This also indicates that the TCA prediction must be applied with caution. TCA's prediction that vertical integration is an appropriate response when uncertainty rises may not be applied in all cases involving uncertainty. The result shows that becoming more vertically integrated neither buffers nor amplifies the negative impact of the two market uncertainties, demand and competitive, on performance. On the contrary, the moderating effect of vertical integration on the relationship between political uncertainty and performance is the only relationship that follows TCA's prediction. The result shows that vertical integration can significantly buffer the negative impact of political uncertainty on performance which is consistent with TCA's view that vertical integration allows firms to smoothly adapt to unforeseen contingencies as authority structures allow firms to have a better information flow, thus they can better respond to the uncertainty (John and Weitz 1988). It also provides a firm the opportunity to develop specific capabilities to cope with the situation (Novak and Stern 2008).

In addition to the theoretical contribution, the lack of longitudinal research stated in the major TCA reviews (Rindfleisch and Heide 1997; David and Han 2004; Palmatier, Dant and Grewal 2007) are also addressed in this study through its longitudinal design based on secondary panel data at a fine-grained (monthly) level.

1.7 Management implications

As uncertainty is a difficult topic to deal with, but this study hopes to provide an in-depth understanding of different types of uncertainty and the magnitude of their

impact on performance. Managers have to face various types of uncertainty in their business operations ranging from regular changes in demand or competitors to extreme turmoil, for example, the political unrest caused by the red-shirts during 2008-2010 in Thailand, and the Egyptian uprising in 2011. Some can be extremely hard to deal with for hotel managers because many traditional instruments, such as lowering the price or increasing advertising, are very costly and may even be counterproductive. This leaves channel deployment as one of the few remaining instruments.

Our first contribution is to provide management with an understanding of how political uncertainty affects business operations, so it can prepare to deal with the situations arising. In practice, management usually makes business forecasts based on historical performance and market factors without taking the non-market factors into consideration. As a result, business operations are conducted without a proper plan to deal with those institutional factors. When these institutional factors arise, managers do whatever it takes to secure the business without giving a thorough consideration of the most efficient governance structure. This creates opportunity cost because those resources have not been spent on the "right" activities. The result of this study shows that the effects of political uncertainty on performance are significant and channel deployment can play a role in buffering that effect.

The second contribution is to provide management with an understanding of the nature of different types of uncertainty, their effects and the interactions among them. As this study uses real market evidence, managers can benefit from this insight by considering how each uncertainty present in the marketplace influences concurrent channel deployment and the performance impacts. Management can use this as a guideline to handle each specific type of uncertainty.

1.8 Outline of the thesis

This thesis is organized into seven chapters, including this introduction chapter. Chapter 2 begins by reviewing the literature in the area of governance. Chapter 3 focuses on the literature on uncertainty, its disaggregation and impact on other constructs. Chapter 4 presents the hypotheses and conceptual model of the study. Chapter 5 is concerned with the research method used for this study. Chapter 6 presents the findings of this research, focusing on the empirical results. Finally, Chapter 7 integrates the entire study, providing a summary of the findings, discussing implications of the study, and presenting suggestions for future research.

CHAPTER 2

LITERATURE REVIEW
GOVERNANCE THEORY

2.1 Introduction

This chapter provides a literature review of multiple theories in the areas which cover the business models of governance such as transaction cost analysis (TCA), agency theory, and institutional economics. While the discussion will mainly focus on the transaction cost analysis framework, other theoretical frameworks, specifically agency theory and institutional economics, will be discussed to provide complementary theoretical perspectives on the key variables of this study which are governance, uncertainty, and performance.

Following this introduction section (2.1), section 2.2 presents an overview of transaction cost analysis which is the theoretical backbone of this study. TCA development is discussed in sub-section 2.2.1. Next, sub-section 2.2.2 provides the overview for TCA's definition and applications. The central question and structure of TCA are discussed in sub-section 2.2.3 and 2.2.4, respectively. Sub-section 2.2.5 discusses the relevancy of TCA to other governance theories. Mode of governance and performance are discussed in section 2.3. Specifically, section 2.3.1 focuses on concurrent channels. The subsequent sections in this chapter will focus on the key elements of TCA. The next three sections focus on each transaction dimension. Asset specificity is discussed in section 2.4. Uncertainty is reviewed in section 2.5. The last dimension, frequency is explained in section 2.6. Each section contains sub-sections which focus on definition and empirical evidence. Section 2.7 focuses on the outcome variable which is performance. TCA

limitations and criticisms are briefly discussed in section 2.8. Finally, section 2.9 concludes this chapter.

2.2 Transaction cost analysis

Transaction cost analysis (TCA) is an interdisciplinary approach to the study of organizations that joins economics, organization theory, and aspects of contract law and is probably the most widely discussed theory on how firms can gain competitive advantage through efficient organization of their economic transactions (Steenkamp and Geysken 2012). According to Williamson (2010), the progress of TCA since its origin by Ronald Coase in 1937 can be grouped into 3 stages: informal (1930 – 1970), pre-formal (1970s), semi-formal (1980's and beyond) (Williamson 2010). These three stages are discussed in the following sub-section (2.2.1).

2.2.1 Development of TCA from Ronald Coase to Williamson

Informal (1930 – 1970)

As described by Williamson (2010, p.675), the concept of transaction cost originated with Ronald Coase in his classic 1937 paper on "The Nature of the Firm" which was the first study to apply the concept of transaction costs to the study of firm and market organization. Upon considering the theory that *firm* (*hierarchy*) and *market* are alternative methods of coordinating production, Coase observed that the decision to adopt one or the other should not be taken as given, but should be derived. Coase explained that the standard economic theory at that time omitted the basis on which governance mode should be selected and that the missing concept is transaction cost (Williamson 2010). The original work by Coase (1937) includes only two forms of governance, *market* (buy) and *hierarchy* (*make* or *firm* or *vertical integration*), and proposed that *market* and *hierarchy* are alternative governance structures that differ in their transaction cost, and (under some

conditions) the costs of conducting economic exchange in a market may exceed the costs of organizing the exchange within a firm (Bensaou and Anderson 1999).

Transaction cost analysis derived from the combination of ideas from Ronald Coase (1937) and John R. Commons (1932) (Williamson 2010). TCA includes Coase's premise that the standard assumption of zero transaction cost needs to be replaced by the concept of positive transaction costs. Later, the notion of positive transaction costs is combined with John Commons's (1932) concept on governance from the institutional economics which states that "The ultimate unit of activity… must in itself include three principles; conflict, mutuality; and order. This unit is a transaction" (Commons 1932, p.4). Specifically, governance is viewed as "the means by which to infuse order, thereby to mitigate conflict and realize mutual gain" and states that a transaction is the unit that contains these three principles (Williamson 2010).

Pre-formal (1970s)

In this stage, transaction cost analysis becomes more developed and structured through the work of Williamson and others. TCA's concept by the end of this stage includes its dependent variables, mode of governance, and the three transaction dimensions. The focus of the study has been expanded to include other transaction dimensions, for example, uncertainty that may affect the choice of governance. The competing theory is a neo-classical view of channels as a production function which has two streams of work. The first stream is from Bucklin (1967, 1972) and the other from Stern 1969 (John and Reve 2010). As summarized by John and Reve (2010), Bucklin's proposition of this theory is that "competitive pressures would select for efficient channel structures that balanced supply costs against end customers' willingness to pay. However, this line of inquiry was not particularly promising with respect to empirical work as refutable conjectures were largely

absent. Given the empirical bent of the field of marketing, these frameworks lay largely unutilized" (John and Reve 2010, p.249). The second stream was originated by Stern (1969). This stream focuses on the utility of applying social psychological and sociological theories of structuring human interaction to understand inter-firm interactions in channels. As these theories accentuate social processes like power and conflict to explain how firms within channels might interact with each other in recurring exchanges, the empirical work in this line expanded rapidly as it is useful to firms in developing tactics to motivate and manage suppliers, dealers and other channel members. However, subjects of channel structure such as *market* or *hierarchy* and vertical restraints remained outside the scope of inquiry (John and Reve 2010). The narrower focus of this competing theory has made the TCA framework a more widely-applied theory.

The work that puts the closure to this stage of TCA is Williamson's paper in 1979 that identifies the 3 transactional dimensions; specific investments, frequency and uncertainty, as independent variables and governance structure, market, bilateral, trilateral and unified governance modes, as the dependent variables. A relatively structured TCA framework presented in this paper helped grow TCA empirics (John and Reve 2010).

In an effort to clarify the main premise of TCA, that firms organize their exchange relationships to minimize transaction costs that arise when it is difficult to value the goods or services exchanged and the mechanism to do it is through governance structure, opportunism and the limited capability of individuals in processing information are added (Levy 1985). Market and hierarchies are the conventional modes that Coase refers to in his paper and are still the two main governance structures considered (Williamson 2010). Williamson defines them as:

Markets: Transactions are governed through competitive pressures that assure that the qualitative and quantitative value of a good or service being exchanged is accurately reflected in its price

Hierarchies: Transactions are governed through voluntary associations of individuals or organizations that use agreed-upon rules to equitably divide the rewards of joint activities (Williamson 1991; Menard 1996)

Each mode of governance, identified by Williamson (1985) is described by the two main attributes: incentive intensity and administrative authority. The effect on efficiency of each attribute is opposite. In market governance both buyer and suppliers face high-powered incentives in that they each receive their own net receipts. The power of incentive will be low in hierarchical governance in that both parties only get their costs reimbursed. As for administrative authority and control, parties in market governance maintain administrative control over their own production process. In hierarchical governance, parties relinquish administrative control over processes to form an "interface-coordinator" (Tadelis and Williamson 2010).

Semi-formal (1980s and beyond)

TCA at this stage is formed and developed to include a fairly complete set of transaction dimensions and elaborates on the underlying behavioral assumptions of opportunism, bounded rationality, and risk neutrality in order to make predictions of the appropriate mode of governance under different circumstances. The highlight study in this period is Williamson's 1985 book, titled "The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting." This book expands the modes of governance to recognize in-between forms of organization, hybrid modes, such as relational contracting (Robicheaux and Coleman 1994). The

expansion of TCA to include other variables was necessary at this point as criticisms were directed toward TCA for being overly simplistic on its opportunism assumption. For example, Heide and John (1992) highlight TCA's limitation for the reason that the theory provides incomplete explanations as a number of underlying conditions that might be crucial to governance decisions are excluded. This study discovered that the positive effect of asset specificity is only contingent upon the presence of relational norms and recommends the potential value of theoretical integration in the area of governance for future studies (Heide and John 1992).The majority of empirical research in this semi-formal stage still centered on the discriminating alignment hypothesis (Williamson 1991) which holds that "transactions, which differ in their attributes, are aligned with governance structures, which differ in their costs and competencies, in a discriminating (mainly, transaction-cost-economizing) way" and the differences in mode of governance have already been indicated as factors that contribute to the different costs and competencies (Williamson 1991, p277). This means transactions that align mode of governance with transaction dimensions will minimize the total transaction cost, the sum of the two counterbalancing costs which are *ex ante* contracting and *ex post* transaction problem, which can be translated into superior competitive performance relative to those who do not (Williamson 1985; Mooi and Ghosh 2010). For example, Mooi and Gilliland (2013) test this premise in the context of contract enforcement and satisfaction of problem resolution by comparing the satisfaction with the problem of aligned and misaligned contract enforcement. The results show that alignment can enhance satisfaction with problem resolution which supports TCA's discriminating alignment hypothesis. Castañer, et al. (2014) investigates if innovation alignment increases performance in the aircraft industry. The findings show that firms that align their innovation with transaction dimensions have higher unit sales and shorter time-to market.

In more recent studies, governance is usually conceptualized as one of three broad discrete types; market, hierarchy, or hybrid. Typically transactional properties(plus controls) serve as independent variables to explain these governance types (Macher and Richman 2008). The empirical work moves beyond its initial focus of governance mode, market or hierarchy, to interpret a wider range of empirical phenomena i.e. the organization of labor, dominant firms, contracting for natural monopolies, non-standard contracting (including franchising, exchange relations and take-or pay agreements), corporate governance, pubic bureaus, reputation, and even marriages. More recently, researchers have utilized TCA in exploring the organization of firm innovation, economic and political reform, privatization, and the performance effects of organizational choice in public policy (Macher and Richman 2008; Williamson 2010).

To date, TCA propositions have been substantially investigated and validated (Macher and Richman 2008) and "despite what almost 30 years ago may have appeared to be insurmountable obstacles to acquiring the relevant data [which are often primary data of a micro analytic kind], today transaction cost economics stands on a remarkably broad empirical foundation" (Geyskens, Steenkamp and Kumar 2006). There is no gainsaying that transaction cost economics has been much more influential because of the empirical work that it has engendered" (Williamson 2010, p.221).

2.2.2 Definition and application

Although Williamson (2010) states that TCA still has not yet reached its full formalization, the advancement of this theory is rapid. The theory has been used as a framework to study a variety of aspects related to efficiency in transactions. One reason for its wide application, as Williamson (1985) claims, is that it can be used to examine any problem that can be framed as a contracting problem, it can

provide a superior theoretical foundation than that of previous work, which mostly focuses on mechanistic processes of increasing commitment, and it relies on realistic behavioral assumptions and firm-specific factors (Klein 1989). The evidence to support this claim are the findings from major TCA empirical assessments (cf. Shelanski and Klein 1995; Rindfleisch and Heide 1997; David and Han 2004; Macher and Richman 2008; Steenkamp and Geyskens 2012) which show the breadth of TCA applications and which agree that the theory has been used to explore beyond the initial focus on governance choice. Specifically, empirical assessment by Macher and Richman (2008) makes two conclusions regarding TCA's application. First, TCA has been used as a theoretical lens to explore the range of phenomena, i.e. organization of labor, dominant firms, contracting for natural monopoly, non-standard contracting (including franchising, exchange relations and take-or-pay agreements), corporate governance, public bureaus, and reputation. More recent studies include the area of organization of firm innovation, economic and political reform, privatization, and the performance effects of organizational choice, and public policy. Second, TCA has become more interdisciplinary. Not only can it be applied to study a broad range of phenomena, it also has compatibility and complementarity with other social science theories (Macher and Richman 2008).

TCA plays an important role in understanding the relationship between buyers and sellers. Its unit of analysis, as in other economic approaches to the study of organization, focuses on the efficiency of transaction which provides "a unified interpretation for a disparate set of organizational phenomena" (Williamson 1981, p.573). The core of TCA focuses on "transactions and the costs related in completing transactions by one institutional mode rather than another" (Williamson 1975). As all contracts are effectively incomplete, transaction costs incur for 3 reasons. First, individuals lack the knowledge and skill to accurately predict and

plan for future contingencies that may rise. Second, even if perfect planning can be achieved, it is hard for transaction partners to negotiate and carry out the plan. Lastly, although the planning and negotiating are successful, it is difficult for parties to communicate their plans in a way that an less informed third-party (i.e. a court) could reasonably enforce them (Macher and Richman 2008).

TCA regards firm as a governance structure and the transaction, a transfer of a good or service, as the unit of analysis. The central claim of the theory is that transactions will be managed in such a way that transaction cost or the total cost involved in carrying the transaction is minimized (Rindfleisch and Heide 1997). Therefore, transaction costs refer to "the costs of running the system which include the sum of the two counterbalancing costs, *ex ante* and *ex post* costs. *Ex ante* cost contains activities such as drafting and negotiating contracts and *ex post* cost involves items such as monitoring and enforcing agreement" (Rindfleisch and Heide, p.31). The early works only focus on the binary choice because the middle-range solutions were thought to be unusual, inferior and unstable (Bensaou and Anderson 1999). Over time, TCA has been revised to reflect empirical reality on the middle range solutions, i.e. the *hybrid* governance form, which is in practice the more common choice (Williamson 1981). Each form of governance is supported by a different application of contract law, and each employs its own coordination and control systems (David and Han 2004).

2.2.3 Core/central questions

The objective of transaction cost analysis is to describe contracting arrangements on efficiency grounds (Shelanski and Klein 1995). It focuses on "transactions and the costs that attend completing transactions by one institutional mode rather than another" (Williamson 1975). The key question is whether a transaction is more efficiently performed within a firm (vertical integration) or outside it by third parties

(market governance) (Williamson 1985). Therefore, the majority of empirical research in transaction cost economics centers on this "*make* or *buy*" question. Macher and Richman (2008) found that most studies using TCA consider organizational mode as the dependent variable and transactional attributes as the independent variables. The most common empirical approach is to explore whether the difference in the degree of transactional attributes will result in a different choice of governance according to TCA's predictions.

2.2.4 Dimensions/predictions/assumptions

The structure of TCA consists of 4 main parts. The first part is the underlying behavioral assumptions of *bounded rationality* and *opportunism,* and transaction cost minimization. The second part involves the so-called transaction dimensions which are *transaction-specific assets*, *uncertainty,* and *frequency*. The third part is the variety of transaction costs. The fourth part is the different mode of governance, *market*, *hierarchy*, and *hybrid*.

Regarding the underlying behavioral assumptions, which include two perspectives on human decision making, *bounded rationality* is the behavior that is "intendedly rationale but limited" (Williamson 1981, p571). It is an inability and/or unwillingness to process all available information as individuals find it difficult to plan, predict and solve for the various problems that may rise. Consequently, transaction costs are incurred to acquire and interpret information (Slater and Spencer 2000; Leiblein 2003). The assumption of *opportunism* suggests economic actors are "self-seeking interest with guile" (Slater and Olson 2000, p.67), which refers to the risk that the other transaction partner seeks only self-interest through withholding information or cheating (Ghosh and John 1999; Mooi and Ghosh 2010).

The second part refers to transaction dimensions which are the principal dimensions in which significant transaction cost consequences accrue. *Transaction-specific assets* refer to the assets that are tailored to a particular transaction and have no use outside this particular transaction. *Uncertainty* is the disturbances to which transactions are subjected to, and *frequency* refers to the recurrence of the transactions (Williamson 1999).

As for variety of transaction costs, its classification tends to be different from study to study but to essentially refer to the same basic elements.

Initially, Coase's (1937) broadly classify the cost into ex ante and ex post based on whether the cost incurs pre or post transaction (Rindfleisch and Heide 1997). Williamson (1985) and Dyer (1997) use (1) search costs, (2) contracting costs, (3) monitoring costs, and (4) enforcement costs (Williamson 1985). *Search costs* involve the costs of collecting information to identify and evaluate potential transaction partners (Dyer 1997). *Contracting costs* can be both *ex ante* and *ex post* and the balance of the two helps determine the level of contract specificity. The *ex ante* cost includes the cost associated with negotiating and writing an agreement and the ex post cost are the costs associated with the problems firms face in the execution stage due to non-performance (Mooi and Ghosh 2010). *Monitoring costs* are the costs associated with monitoring the contract to ensure that each transaction partner fulfills the predetermined responsibilities. *Enforcement costs* include the costs related to ex post bargaining and sanctioning a trading partner that does not perform according to the predetermined responsibilities (Dyer 1997). Monitoring costs refer to the costs associated with monitoring the agreement to ensure that each party fulfills the predetermined set of obligations. Enforcement costs refer to the costs associated with ex post bargaining and sanctioning a trading partner that does not perform according to the agreement (Dyer 1997). The decision to enforce

should depend on the balance of cost and benefit of taking these corrective actions (Mooi and Gilliland 2013). Mooi and Gilliland (2013) defined enforcement according to Antia et al. (2006) as corrective actions aimed to alleviate transaction problems and found that although enforcement may result in poor performance, the result of not enforcing might be worse.

The last part of the TCA structure is the different mode of governance, market, *hierarchy*, and *hybrid*. The early works only focus on the binary choice of market or hierarchy because the middle-range solutions were thought to be uncommon and unstable (Williamson 1991; Bensaou and Anderson 1999). Over time, TCA has been reviewed to include the middle range solution, hybrid, which is a more common practice (Williamson 1991). This is evident by an empirical review done by Shelanski and Klein (1995) which identifies that hybrid contracting modes are among the five major categories of empirical works explained by TCA.

The framework to answer this central question of "make or buy" rests on the interplay between two main assumptions of human behavior, *bounded rationality* and o*pportunism*, and three key dimensions of transactions; (1) *asset specificity*, the extent to which transaction-specific investments are needed to facilitate an exchange, (2) *uncertainty*, the unpredictability of relevant circumstances surrounding an exchange, and (3) *frequency*, the extent to which transactions recur (Williamson 1985; Klein, Frazier and Roth 1990). According to transaction cost theory's discriminating alignment hypothesis, economic organization is an effort to "align transactions, which differ in their attributes, with governance structures, which differ in their costs and competencies, in an economizing way" (Williamson 1991, p.277). Therefore, firms that follow TCA's prescription and align their mode of governance with transaction dimensions will economize on transaction costs, which should result in superior subsequent performance relative to firms who do not (Williamson

1985; Klein, Frazier and Roth 1990; Geyskens, Steenkamp and Kumar 2006). The assumption is that *market* governance is more efficient in production costs than *hierarchical* governance because of the benefits of competition in the market. Transactions within integrated companies may be free of competitive pressure and also be subject to bureaucratic complications which make them less efficient. However, when asset specificity is involved, the rise of transaction dimensions will raise the costs of market governance in safeguarding, adapting and evaluating, to minimize the subsequent risk of exploitation due to the three behavioral assumptions, *bounded rationality*, *risk neutrality*, and *opportunism* to the point that market governance becomes inefficient since its cost will be higher than that of hierarchical governance. Hierarchical form of governance is a more efficient option since it can minimize these unnecessary transaction costs (Williamson 1975, 1985; Heide 1994; Robicheaux and Coleman 1994).

The original TCA framework suggests that the interaction between external uncertainty and asset specificity, rather than the individual transaction dimension, is the key determining factor of a firm's governance decision (Anderson and Schmittlein 1984). As a consequent, later empirical works on TCA expand their focus to each individual transaction dimension (Heide 1994). The rationale is that each transaction dimension is distinct and impactful on its own, different processes and costs to handle each of them regardless the presence of asset specificity (Heide 1994). Recently, empirical applications of TCA have diversified its focus to other TCA elements that might also affect transaction cost (Anderson and Schmittlein 1984). For example, Dyer (1997) discovered that transaction costs do not necessarily increase with the increase in asset specificity. Other factors such as commitment, information sharing, or mixture of safeguard, may contribute to a rise of transaction costs.

2.2.5 Transaction cost analysis and other governance literature

Prior to TCA, the answer to “make or buy” decisions in the marketing literature was based on production-cost arguments. The basic assumption of that argument is that all firms desire more control, hence, integration is preferred. This arrangement will work if there is a large enough volume that firms can enjoy economies of scale and of the learning curve. While this perspective provides a good explanation in terms of efficiency, it does not address “control” which is better explained using TCA (Klein, Frazier and Roth 1990). It could be said that TCA provides a superior explanation because by addressing “control”, TCA also supports the “efficiency” aspect as the mechanisms of control under the right circumstances can also reduce costs, hence, “efficiency” is improved. Nonetheless, applying TCA solely as a framework to understand governance might be inadequate as TCA focuses only on the efficiency of transaction in its original conceptualization by Coase (1937) which states that the appropriate governance mode is the one that has the lowest combination of transaction and product costs. This conceptualization neglected other underlying conditions that might play a role in shaping governance decisions. The explanation to the issue in governance should be more prolific if TCA is joined with other complementary theories in governance (Mooi 2014). Heide and John (1992) state that the applicability of TCA is limited since TCA does not account for the mechanisms that allow firms to implement the desired governance structure, and integration with other governance theories should offer a more complete view on the influential factors (Heide and John 1992). Using multiple frameworks should increase robustness in the finding of a particular phenomenon as the focus can be on other facets beyond the scope of a specific theory (Eisenhardt 1988).

Besides TCA, another economic model that focuses on similar issues and can be used to provide complimentarily perspective to extend knowledge regarding governance decisions is agency theory (Bergen, Dutta and Walker 1992). Agency

theory is developed in information economics literature and is an economic governance model that focuses on determining the most efficient contract that governs the relationship between one party (the principal) who delegates work to another (the agent). This relationship is presented whenever the principal depends on the agent to undertake some action on the principal's behalf given that it is difficult for the principal to have the complete information to monitor the behavior of the agents thoroughly due to exogenous factors such as environmental uncertainty (Eisenhardt 1989; Bergen, Dutta and Walker 1992; Williamson 1998; Kunz and Pfaff 2002).

The heart of agency theory is the goal conflict between principal and agent that may rise due to assumptions regarding humans (self-interest, bounded rationality, risk aversion), organizations (conflicts among members, information asymmetry between principal and agents), and information (information is a commodity that can be purchased) (Eisenhardt 1989). How the standard agency model works as described by Kunz and Pfaff (2002) is that the relationship starts with a risk-neutral principal employing a risk-averse agent to act on his behalf. However, the agents usually retain some information from the principal, i.e., how the agents allocate their efforts is unattainable, creating information asymmetry between the parties. Therefore, information asymmetry and differences in risk preferences together with assumption of the agent's self-interest lead to the likelihood that the agent may not act as agreed in the contract (Kunz and Pfaff 2002). These problems can occur both in pre- and post-contractual periods and are often mentioned in agency literature as *adverse selection* and *moral hazard* (Bergen, Dutta and Walker 1992). *Adverse selection* is an agent's misrepresentation of his or her own ability which is a pre-contractual problem and *moral hazard,* a post-contractual problem, refers to the agent's lack of effort to conform to the contract (Eisenhardt 1989; Bergen, Dutta and Walker 1992). To summarize the above, the focus of agency theory is to find the most efficient

contract for the principal that governs the principal-agent relationship, i.e., to minimize goal conflicts, given the conditions of information asymmetry and changing environment (Bergen, Dutta and Walker 1992). Empirical investigations often include the comparison of contract design that is optimum in terms of efficiency (Kunz and Pfaff 2002). Given that agency theory's emphasis is on risk and reward, the term "efficiency" is viewed as not in either one of those aspects but as the optimum risk-reward tradeoff (Eisenhardt 1988).

Eisenhardt (1989) summarizes that the development of agency theory is progressing in 2 branches, *positivist agency theory* and *principal-agent research*. Both branches have a contract as the unit of analysis and share common assumptions about humans, organizations, and information. The differences between these two branches are in their focus and method to derive the answer. The *positivist agency theory* attempts to identify the situations in which conflicts are likely to rise and mostly focuses on the special cases, while the *principal-agent research* is more concerned with finding the most efficient contract for any given agency situations (Eisenhardt 1989). The differences between positivist and principal-agent branches are summarized in table 2.1 below.

	Positivist	Principal-Agent
Key focus	Situations in which conflict between principal and agent are likely to rise	General theory of principal-agent relationship. Testing theoretical assumptions
Theoretical perspective	Describing various governance mechanism/contract alternatives that solve agency problem	Determining the most efficient contract, specially behavior vs. outcome based contract
Research Method	Less mathematical	Logical deduction, abstract ,mathematical proof
Empirical works	Focus on special case	Broader focus. General theoretical implications

Source: Eisenhardt 1989

Table 2.1: Positivist vs. Principal-Agent Agency Theory

Similar to TCA, agency theory is a useful framework in studying issues regarding governance and efficiency. Both theories share a number of similarities regarding their goals and assumptions. Eisenhardt (1989) found that among 5 perspectives in organizational literature, the most similar ones are TCA and agency theory as TCA shares 5 out of agency theory's 7 assumptions. Nonetheless, TCA and agency theory differ in their focus. While the goal of TCA is to design the most efficient mode of governance (i.e. direct or indirect sales force) that will minimize the total transaction cost for the firms, agency theory's objective is to understand the relationship between principal and agent (i.e. firm and employees) in order to design the most efficient compensation plan to motivate employees to work in a way that yields optimum efficiency to the firm (Kraft, Albers and Lal 2004). Agency theory is suitable for investigating situations which involved factors that are unique to the theory i.e. factors that create difficulty in contracting and controlling the performance of agents. Hence, the theory might be most useful to investigate situations involving 1) considerable goal conflicts between a principal and its agents 2) sufficient environmental uncertainty to trigger the risk sharing implication of the theory, 3) extensive information asymmetries, or 4) difficulties in performance evaluation (Bergen, Dutta and Walker 1992).

Among those similarities and differences, one commonality in TCA and agency theory is the assumption of exogenous variables beyond the scope of both theories which is assumed to be the reason for the variances in empirical results (Kunz and Pfaff 2002). For example, recent research in agency theory has started to pay more attention to environmental uncertainty, which is exogenous to the exchange, but is the underlying reason for the assumption that the principal-agent contract is incomplete due to the state of nature (Nilakant and Rao 1994). These exogenous variables are known as the institutional environment that shapes the organizational structure. This is supported by Grewal and Dharwadkar (2002, p.82) which stated

that “marketing channels literature predominantly has used an efficiently based task environment perspective and largely overlooked a legitimacy-based institutional environment approach in studying channel attitudes, behaviors, processes, and structures. Therefore, it is important that firms develop a comprehensive conceptual framework that incorporates the institutional environment into current marketing channel research.”

The institutional environment variables are the factors that capture the non-economic circumstances that are relevant and crucial for any business to take into consideration in addition to market factors (Delios and Beamish 1999; Brouthers 2002). Empirical evidence in both TCA and agency theory confirm that these institutional variables are impactful to the governance decisions. For example, several studies in choices of entry modes in foreign markets (cf. Gatignon and Anderson 1988; Roberts and Greenwood 1997; Chatterjee and Singh 1999; Davis, Desai and Francis 2000; Brouthers 2002) suggest that the institutional context has a significant influence on entry mode choice and performance because of the type and use of organizational capabilities and the connection with entry mode choices. Henisz (2000) found that the interaction of contractual and political hazards has a significant effect on governance which emphasizes the importance of institutional variables. Findings from Kabadayi, Eyuboglu and Thomas (2007) shows firms that align their channel system, strategy, and the environment have a superior performance to firms that do not.

“The institutional theory then focuses on the necessity of organizational legitimacy which concerns social fitness leading to the development of processes that result in the formation of institutions and the emergence of corresponding institutional mechanisms that influence the internal polity and economy of marketing channels” (Grewal and Dharwadkar 2002, p.84). This viewpoint suggests that organization

practices, structure, and processes reflect patterns of doing things that evolve over time and these patterns become a legitimate way of doing things within the organizations. These patterns are shaped by industry practice, organizational culture and management traditions (Eisenhardt 1988). Unlike TCA and agency theory which view efficiency as the basis of organization, institutional environment focuses on the necessity of organizational legitimacy. As summarized by Grewal and Dhawadkar (2002), there are 3 primacies that influence the legitimacy of channel members: 1) regulatory institutions, 2) normative institutions, 3) and cognitive institutions. Each primacy has its own underlying process and mechanism that governs channel attitudes, behaviors and structures of channel members (Grewal and Dharwadkar 2002). Regulatory institutions refer to the legal system which is represented by government at any level, and influence channel members through the process of regulating. Normative institutions are the associations or agencies that can use a social obligation requirement to induce and regenerate patterns within channels. These institutions concerned with procedural legitimacy require channel members to embrace socially accepted norm, and behaviors (Selznick 1984), and influence the channel members through the process of validation. Cognitive institutions focus on culturally supported habits which subtly influence channel behaviors through the process of habitualizing (Grewal and Dharwadkar 2002). Empirical studies in this area focus on how these institutional elements, namely; industry traditions, legislation, and social and political belief, shape organizational structure. In particular, some facet of these elements contains environmental factors that are adequately influential to impose form and structure on subordinate organizational units (Scott 1987). Therefore, extending a governance theory such as TCA with institutional and cultural context variables would enhance understanding in the area as these variables are the underlying conditions of exchange (Brouthers 2002).

Williamson summarizes in his recent paper in (2010) that transaction cost economics advanced the understanding of governance by describing the firm not only in technological terms (as a production function) or prices and output, supply and demand, but in organizational terms as a governance structure through the lens of contract/governance (Williamson 2010). TCA provides concrete operationalization of governance as an economizing response to the Commons' (1932) pronouncement of transaction, (also known as the "Commons triple") which states that "The ultimate unit of activity … must contain in itself the three principles of conflict, mutuality and order. This unit is a transaction." (p.4), in that "governance is a means by which to infuse order, thereby to mitigate conflict and realize mutual gains" (Williamson 1999, page 1090) Although it is sufficient to examine governance issues based on TCA solely, more insightful explanations could be obtained if TCA is coupled with other perspectives in governance, agency theory and institutional environment in particular. As suggested by Bergen, Dutta and Walker (1992, p.8) "given that TCA and agency are concerned with similar issues and appear to be moving toward even more common conceptual ground, blending constructs and propsitions from the two theories may further improve our understanding of marketing phenomemon." While TCA focuses on the efficiency of transactions, agency theory concentrates on principal-agent conflict which would be substantially useful in explaining opportunism, which is also one of TCA's underlying assumptions. The institutional environment adds an explanation of how environmental circumstances shape the organizational structure, practices, and value, which provides thorough perspectives on uncertainty, which is one of TCA's transaction dimensions.

2.3 Mode of governance

The definition of governance in TCA starts with a combination of the definition from Commons (1932) which emphasizes conflict and Coase (1937) which views

governance as the way to coordinate production. Later, although there seems to be no formal governance definition, the definitions become more established by Williamson in the pre-formal stage to TCA to focus on efficiency as the goal of governance. Scholars in the semi-formal stage then add precision and dimensions to the construct.

In transaction cost theory, the mode of governance is “the mechanism that facilitates transaction partners to achieve the most efficient and effective transaction, when a good or service is transferred across a separable interface” (Anderson and Weitz 1986). Broadly, the term governance traditionally has been defined as a "mode of organizing transactions" (Williamson and Ouchi 1981). A more precise concept is offered by Palay (1984, p.265) who states that governance is “a shorthand expression for the institutional framework in which contracts are initiated, negotiated, monitored, adapted, and terminated.” Heide 1994 restates the definition offered by Palay (1984) and defines governance as a multi-dimensional construct that looks into the relationship between contract partners from the beginning of the relationship until the end. This includes the elements of control, relationship maintenance, monitoring, and enforcement (Heide 1994). Defined in response to the Commons triple, governance is “a means by which to infuse order in a relation where potential conflict threatens to undo or upset opportunities to realize mutual gains” (Williamson 1999, p.1090). Table 2.2 presents various governance definitions.

Author	Year	Governance Definition
Commons	1932	The means by which order is accomplished in a relation in which potential conflict threatens to undo or upset the opportunities to realize mutual gains
Coase	1937	Methods of coordinating production
Williamson	1975	A unified authority structure that leads to efficiency
Williamson	1979	The mechanism that firms use to organize their exchange relationship to minimize transaction costs that arise when it is difficult to value the goods or services exchanged
Williamson, Ouchi	1984	Mode of organizing transactions
Palay	1984	A shorthand expression for the institutional framework in which contracts are initiated, negotiated, adapted, and terminated
Anderson, Weitz	1986	The mechanism that facilitates transaction partners to achieve the most efficient and effective transaction, when a good or service is transferred across a separable interface
Heide	1994	A mechanism that looks into the relationship between contract partners from the beginning of the relationship till the end. This includes elements of control, relationship maintenance, monitoring and enforcement
Williamson	1999	A means by which to infuse order in a relation where potential conflict threatens to undo or upset opportunities to realize mutual gains

Table 2.2: Governance definitions

TCA states that market and hierarchy are alternative mechanisms for managing transactions, and that the choice of one or the other is based on the costs associated with the transaction which includes bargaining, assembling information, and monitoring compliance (Williamson 1975; Cespedes 1988). What raises these costs is the presence of transactional hazards i.e. dependence on the owner of a specific asset, small numbers of potential contractors, and imperfect information.

The cost involved with these hazards can be both *ex ante* i.e. managerial time in drafting a contract and *ex post* cost i.e. the costs occurred during the execution stage due to nonperformance (Mooi and Ghosh 2010). The theory predicts that firms will expand the scope of their own activities (through vertical integration) when opportunistic potential is significant and will transact with third parties when threats due to asset specificity, small numbers, and imperfect information are not significant (Teece 1986; Macher and Richman 2008). More recent works include a series of "hybrid" modes which are the intermediate mode between market and hierarchy. This mode features a range of internal organization that runs along the continuum of market and hierarchy which a firm can set up without complete ownership or vertical integration (Williamson 1985; Dutta, et al. 1995; Rindfleisch and Heide 1997).

Under these hybrid modes, transaction partners are independent but are bilaterally reliant to a non-trivial degree (Williamson 1991a). The individuality of each partner matters in the sense that each could not be replaced without cost to the other (David and Han 2004; Williamson 1991). The movement from market to hierarchy, hence, involves a trade-off between the high-powered incentives and adaptive properties of the market, and the safeguards and central coordinating properties of the firm (Shelanski and Klein 1995). For example, Folta's (1998) study on how uncertainty affects governance decisions uses the governance choice, minority investment, joint venture, and acquisition which reflect the choice that a firm used to access new R&D projects as a dependent variable. The choices are operationalized through the equity position of the focal firm in the biotechnology firm. If the focal company's equity position is less than 50%, it is categorized as minority investment. A joint venture is the formation of a new firm by two parent firms. If a focal firm owns 50 percent or more in a new firm, it is categorized as an acquisition. In summary, governance structure is no longer the discrete choice

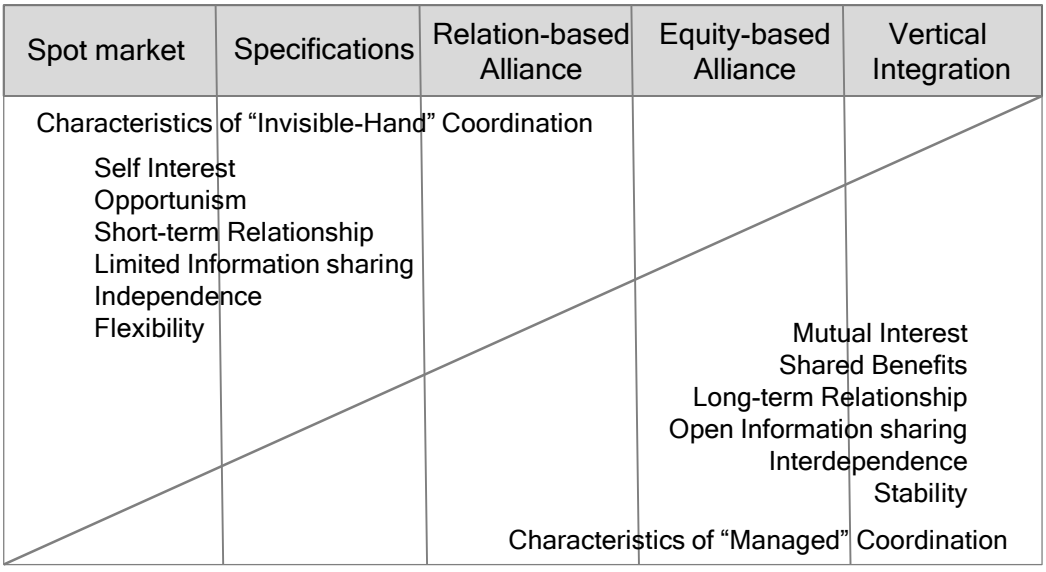
between market and hierarchy, but the continuum between these two extremes (Folta 1998).

Williamson (1985) argued that each mode of governance is described based on the two main attributes, incentive intensity and administrative authority, with a distinction of their strength and weakness. Incentive intensity is the extent to which a technologically separable stage of economic activity appropriates its net profits. Administrative authority and control is the autonomy in both operating and investment respects as well as on procedural controls i.e. routines such as accounting procedures. In a market, transaction partners face high-powered cost incentive and maintain control over their own production process, and adaptations must be renegotiated. For hierarchy, both parties are in low-powered cost incentives and relinquish administrative control over processes to form an interface-coordinator relationship (Williamson 1985; Tadelis and Williamson 2010). Therefore, hierarchy mode offers greater protection for specific investments and provides relatively efficient mechanisms for responding to change where coordinated adaptation is necessary. Compared to market governance, hierarchy provides managers weaker incentives to maximize profits and normally incurs additional bureaucratic costs as well. Between these two choices are a variety of hybrid modes i.e. complex contracts, reciprocal trading, partial ownership, or franchises which can be relational based or equity based (Williamson 1991).

The elaborations of how these two attributes work are also present in channel and sales management literature. For example, the agency literature indicates that control and reward systems are the crucial elements for a firm to achieve optimal utilization of its direct sales force (Kraft, Albers and Lal 2004). Incentive is a tool to align the interests of the firm and its sales people to motivate salespeople to act in the firm's interest. Supervision is needed to the monitoring of salespeople to

ensure that they perform the activities according to the firm's requirements. To some degree, these control mechanisms are substitutable, suggesting that the firm can reduce the level of supervision if more incentive compensation is used (John and Weitz 1989).

Figure 2.1 "the continuum of relationship" based on Peterson, Wysocki and Harsh (2001) displays the continuum of relationship from a spot market which is the most extreme governance structure on the market side to a full vertical integration. In "spot market transactions", there is no presence of asset specificity and relationship continuity is not taken into account. The transaction, therefore, fully depends on the market price mechanism. When asset specificity is present, another extreme is the full vertical integration. Under this mode, transaction partners are under joint ownership and control (Macher and Richman 2008).



Source: Peterson et al.(2001)

Figure 2.1: Continuum of relationship

2.3.1 Concurrent channels

The recent literature on TCA does not only introduce a series of "hybrid" modes, but also the concept of "plural governance" or "concurrent channels." Concurrent channels refer to the use of two or more forms of governances, such as markets and

hierarchies, simultaneously (Bradach and Eccles 1989). The expansion to TCA to include the intermediate mode of governance, hybrid, has also brought scholar's attentions to the study of "plural governance" or "concurrent channels" which is, in fact, a more common practice than the dichotomous choice of "make or buy." Bradach and Eccles's (1989) suggests TCA research should not only pay attention to individual modes of governance but consider combinations of mixed governance mode or plural governance that enable economic actors to minimize transaction costs (Bradach and Eccles 1989). Rindfleisch, et al. (2010) views that plural governance will be particularly useful when the transactions are exposed to multiple exchange hazards (i.e. Safeguarding, evaluation, and adaptation) or when single governance might be insufficient to control for these hazards. For example, to adapt to changing markets, IBM in the 1980's went from exclusively direct channels to a system including various types of intermediaries i.e. distributors, retail computer dealers, and value-added dealers when it shifted its focus to include lower price products i.e. personal computers. These channels accounted for increasing proportions of IBM's revenues and intermediaries have become important channels for other IBM products as well (Cespedes, 1988). The study of three networks in the packing industry by Lorenzoni and Lipparini (1999) shows that using multiple channels, both formal and informal, as a mean for organizing, accessing and transferring knowledge, will strengthen the position of the firm. Firms should collaborate to improve and expand their core competencies rather than employing third party for capabilities which firms have not yet acquired. Rothaermel, Hitt and Jobe (2006) found that using concurrent channels is beneficial to a firm's product development and the success of new products as it allows firm to access external knowledge while enjoying the benefit of efficiency and lower cost from vertical integration. A more recent example can be witnessed in the travel industry. Shifts in technology have changed the way tourists make decisions about their trip. In the

past, tourists depended on travel agencies to provide various services i.e. information provision, consulting, transaction, ticketing, etc. However, the arrival of online sites i.e. Expedia and Tripadvisor, allows users to book a plane ticket, filter and sort out hotel based on their preference (Van Bruggen, et al. 2010). Hence, hotels and airlines can no longer depend on travel agencies solely on their selling function. Empirical evidence also suggests using concurrent channels or simultaneous reliance on a mixture of various governance modes in the presence of multiple exchange hazards i.e. adaption, performance evaluation, and safeguarding problems will put firms in an advantageous position i.e. lower transaction costs, than firms that rely on a single governance (Heide and Wathne 2006; Rindfleisch, et al. 2010).

Single channel strategies are being increasingly replaced by multiple channel or concurrent channel strategies - when a firm makes a product available to the market through two or more channels of distribution - for most or all of their products (Frazier 1999). Concurrent channels are better for both customers and firms. Customers can choose to buy from the channel that fits with their needs while firms can increase their coverage and sales and gradually adjust their cost and capability structures to suit customer (Sa Vinhas and Anderson 2005). This is particularly important if firms want to expand their businesses through exporting. Findings from Bello and Gilliland (1997) suggest that, by not depending solely on one mode of governance such as vertical integration, firms can use multiple governances when expanding their business overseas by managing their foreign markets through foreign subsidiaries. The utilization of multiple channel structures enables companies to reduce business risks by allowing them to serve additional segments. This can be predominantly vital in the case of volatile environments. In these circumstances, the needs and preferences of consumers, and the composition and size of market segments change swiftly (Bello and Gilliland 1997). Therefore, firms

focused on a single channel will be in a risky position, while those firms relying on a multiple channels will be in a safer position, because their revenue sources are diversified (Coelho and Easingwood 2004). In addition to business expansion, concurrent channel structure is beneficial to a firm's governance mechanism in monitoring and relational norms. "Monitoring is better in suppressing opportunism as the direct sales force can provide relevant performance benchmark and undermine the effect of relational norms due to a threat of backward integration" (Heide, Kumar and Wathne 2014, p.1165).

Concurrent channels typically create channel conflict. As channel structure becomes more dependent on intermediaries, these intermediaries may choose to follow their own agenda instead of viewing themselves as part of the larger channel (Van Bruggen et al. 2010). It is impossible for manufacturers to prevent channel types from competing with each other, either because both channel types contact the same customer or because the customer sets them in competition against each other. (Sa Vinhas and Anderson 2005). Nevertheless, despite some conflicts, concurrent channels approach does appear to lead to a stable, long-term equilibrium (Van Bruggen et al. 2010).

TRANSACTION DIMENSIONS

This section discusses the three transaction dimensions: asset specificity, uncertainty, and frequency. The perspective from other governance theories will be discussed where relevant.

2.4 Asset specificity

"One of the key initiatives of early transaction cost analysis was to define the relatively ignored condition of asset specificity as an important attribute of transactions" (Tadelis and Williamson 2010, p.11). Among the three transaction

dimensions identified by TCA, asset specificity receives the most attention as the effect of asset specificity on the choice of governance is the most tested relationship in TCA (Macher and Richman 2008) as it is the critical determining factor of vertical integration decisions particularly when examined together with other transaction dimensions i.e. uncertainty and product complexity (Anderson and Schmittlein 1984; Masten 1984; Shelanski and Klein 1995). Six different types of asset specificity are addressed in TCA empirical analysis. Regardless of type, asset specificity has the effect of placing transaction partners in a bilateral dependency relation, which creates bargaining problems as transaction partners attempt to appropriate the quasi rents generated from relationship specific investments (Macher and Richman 2008).

2.4.1 Definition of asset specificity

Transaction-specific assets are assets that are tailored to a particular transaction and have no alternative use outside of the particular transaction which gives rise to a safeguarding problem (Williamson 1985). Asset specificity can sometimes arise spontaneously, without conscious and costly investments, as occurs with knowledge and skills that are incidentally acquired by the parties while working together (Klein 1989; Tadelis and Williamson 2010; Steenkamp and Geyskens 2012). Williamson (1983) first identified that there were four main types of asset specificity and added two more in his later work in 1991. The first type is *site specificity*, in which transaction partners decide upon a specific location to build their immobile assets to minimize costs of transportation and inventory. The second type is *physical asset specificity* which refers to relationship-specific equipment and machinery. The third type is *human asset specificity* which refers to transaction-specific knowledge or human capital, achieved through specialized training or firm-specific skills and knowledge. The fourth type is *dedicated assets* which refers to additional investments that would not have been made outside a

particular transaction in order to sell increased output to that particular customers (Shelanski and Klein 1995). The fifth and sixth types, *brand name capital* and *temporal specificity* (sometimes call episodic specificity), were added subsequently. *Brand name capital specificity* refers to investment in reputation i.e. advertising. *Temporal specificity* refers to investments made to enable the timely response of human assets (Leiblein 2003). Whatever form, these assets cannot be redeployed outside of the relationship without loss of productive value (Williamson 1985).

The increase in asset specificity is problematic because it might increase transaction costs due to opportunism (Dyer 1997). Without the presence of specific assets, TCA favors market governance because of its cost efficiency and strong performance incentives relative to that of vertical integration. However, the presence of specific assets will cause market governance to fail as it increases the cost of partner replacement thus creating bilateral monopoly in which transaction partners may feel that they can act opportunistically without being replaced (Carson, Madhok and Wu 2006). In summary, although specific assets can improve productivity, the incentive to make these specific investments is mitigated by the idea that the more specific the asset becomes, the lower its value in other use. Hence, the owner of these specific assets is exposed to great risk (Dyer 1997). Hence, TCA fundamentally states that the response to alleviate this problem and safeguard the relationship is hierarchical governance or vertical integration because the relationship and control process authority available through vertical integration embody greater safeguarding capability (Williamson 1985). The scenario described by Williamson (1985) is that the projected cost of the transaction will increase if the transaction must be supported by transaction-specific assets. This is because specific investments by transaction partner create scope for the other transaction partner to renegotiate the contract opportunistically when the surrounding conditions change as the asset has no use outside of the relationship. By organizing such transactions under

hierarchical governance, both transaction partners face low-powered cost incentives, enhanced monitoring, and the threat of sanctions that can limit opportunistic behavior and facilitate cooperative adaptation (Williamson 1985). In conclusion, TCA predicts that if asset specificity is high, firms are more likely to use vertical integration.

2.4.2 Empirical evidence on asset aspecificity

The number of empirical studies on the effect of asset specificity is vast. Many of these studies have made distinctions between different types of asset specificity i.e. site, physical, and human asset specificity as suggested by Williamson (1985) (Shelanski and Klein 1995). For example, Klein (1989) and Klein, Frazier and Roth (1990) found a positive effect of asset specificity on vertical control. Coles and Hesterly (1998) found strong evidence that asset specificity, both physical and human, is an important factor in the decision to vertically integrate transactions for hospitals. Kraft, Albers, and Lal (2004) found that a direct sales force is more likely to be employed with increasing transaction specific assets, decreasing amount of time devoted to selling, decreasing selling requirements, increasing uncertainty in the selling environment, decreasing number of customers per salesperson and decreasing effectiveness of salespeople.

However, the empirical evidence on the effect of asset specificity on the choice of governance, market or hierarchy, is not consistent in the research findings. The empirical review by David and Han (2004) found that only 58% percent aligns with TCA's prediction that firms tend to choose hierarchical form of governance as their mode of governance when transaction dimensions rise. Dyer (1997) suggested that there are situations in which an identical level of asset specificity may result in a different level of transaction costs. The reason is that transaction cost might differ because of other factors i.e. commitment, scale and scope of exchange, inter-firm

information sharing, mix of safeguard, and level of investment in co-specialized assets. The study on governance and uncertainty by Folta (1998) also found that integration may not be an ideal mode of governance when asset specificity rises. The argument underlying this position is that under some specific conditions, there might be significant cost in acquisition which offsets the benefits of superior administrative control.

2.5 Uncertainty

The second important transaction dimension in determining the appropriate governance form is uncertainty. In TCA, uncertainty is one of the primary exchange characteristics that facilitates opportunism which will give rise to transaction difficulties i.e. frequent reassessments and redefinitions of selling activities (John and Weitz 1989), and subsequently, higher transaction cost. When markets experience problems as a result of human factors; bounded rationality and opportunism, the problems will be more severe if the level of uncertainty is high. This will eventually create "market failure" because the market governance becomes a costly and inefficient mechanism to govern the exchange (Williamson 1975; Heide 1994; Carson, Madhok and Wu 2006). For example, Williamson (1975) elaborates that uncertainty in the foreign market provides the potential for outside intermediaries to behave opportunistically and it will be difficult to both write and enforce complex contingent claims contracts. Therefore, transaction costs of market governance are increased and firms will have more incentives to vertically integrate so as to have more capability to absorb uncertainty through specialization of decision-making and savings in communication expenses (Williamson 1975).

Nonetheless, Williamson (1985) states that the effect of uncertainty on the choice of governance is conditional and not uncontroversial. The conditional effect is due to the notion that uncertainty only favors vertical integration (and hybrid) under

conditions of high asset specificity because both the cost and the possibilities of hold-up from opportunistic behavior are higher. The continuity between the transaction partners becomes important, and adaptive capabilities become necessary. Failure to support uncertainty under conditions of high asset specificity with protective governance structures will result in costly haggling and mal-adaptation. Without the presence of asset specificity, the rationale for vertical integration would not be legitimate as market governance will hold across standardized transactions of all kinds, regardless the degree of uncertainty (Williamson 1985). Under this condition, there would be no assets at risk or that need protection by means of vertical integration from possible opportunism. The continuity of the relationship matters little and new transaction arrangements can easily be arranged by both parties if necessary. It will be less costly for a firm to contract on the market for goods and services in an uncertain environment than to assume the risk of producing them internally. Therefore, the effect of uncertainty will instead depend on other factors such as competitive conditions. For example, Walker and Weber (1987) test the interactive effects of uncertainty and competition, and show that sales volume uncertainty increases the probability of vertical integration when the competitive condition is low. If firms face the issue of demand uncertainty without the presence of asset specificity, it may be cheaper to buy the component than to make it internally and there are many potential suppliers in the market (Walker and Weber 1987). Therefore, uncertainty increases the likelihood of integration for asset-specific transactions; non-asset specific transactions will not be integrated, even in the context of highly uncertain environments. These statements suggest a main effect for asset specificity alone, while uncertainty is more appropriately examined as an interaction effect with asset specificity (Shelandski and Klein 1995). However, since it is unlikely for firms to have zero asset specificity, especially with regard to human assets, it should be appropriate

to say that the effect is unidirectional. The concept of zero asset specificity may only exist in the most basic commodity market (Klein 1989).

Moving beyond the conventional governance form of “make or buy”, another noteworthy question is where hybrid governance stands in this conditional effect of uncertainty. David and Han (2004) suggests that in times of high uncertainty, market governance and hierarchy are preferable to hybrids (David and Han 2004) as hybrid forms, due to their 'intermediate range' of asset specificity which tends to shrink, and may even disappear (Williamson 1991). This is because hybrid adaptations cannot be made separately (as with market governance), or by authority (as with hierarchy), but require mutual agreement (Williamson 1991). For example, in alliances (a form of hybrid), contracting under uncertainty requires partners to specify, monitor, and control numerous contract contingencies, including the quality of partner resource contributions and the control of know-how (Oxley 1997). Given the high costs of using contracts to control uncertainty, TCA argues that firms will prefer the superior incentive alignment and control of hierarchical governance, especially when there is uncertainty about partner intentions, task requirements, or the need to rewrite contracts as external disturbances arise (Pisano 1989). Therefore, when considering the efficient governance forms that minimize the combined costs of opportunism and administration arising from uncertainty and asset specificity (Williamson 1985; Shelanski and Klein 1995), a hybrid form of governance may not be the right solution

As for the controversy aspect, certain organization theorists argue that firms should try to maintain their flexibility in times of high uncertainty as a flexible organization is seen to be better able to adapt to changing circumstances. Therefore, a less vertically integrated choice of governance should be more appropriate (Salancik

and Pfeffer 1978; Klein, Frazier and Roth 1990). Highly integrated organizations may neglect the environmental effect and hence be slow to respond. Firms that choose integrated governance structure in an uncertain environment may encounter management complications in addition to the uncertainty. Overall, uncertainty is a broad concept and different aspects of it lead to both a desire for flexibility and cost reduction (Klein 1989; Klein, Frazier and Roth 1990).

2.5.1 Definition of uncertainty

Although uncertainty has long been studied in many areas, the adopted definitions and operationalization differ between empirical applications. In the early days, some studies operationalized uncertainty as a uni-dimensional construct (cf. Knight 1921; Pfeffer and Salancik 1978; Levy 1985). Increasingly, researchers question that uni-dimensional assumption (Sutcliffe and Zaheer 1998) and adopt a multiple dimensions approach to measure uncertainty.

Broadly, uncertainty is defined as the disturbances to which transaction is subject to both internal and external to the firm (Williamson 1999; Klein, Frazier and Roth 1990). TCA literature theorizes uncertainty into behavioral and environmental uncertainty based on Williamson's (1975) work, which identifies that human and environment are the two key uncertainty factors that affect transaction cost. Behavioral uncertainty (also called internal uncertainty) is viewed as the difficulties associated with monitoring the ex post contractual performance of transaction partners (Slater and Spencer 2000). Behavioral uncertainty can be reduced once firms create contractual and governance safeguards that align with the risk they face (Williamson 1991). This construct also receives attention in the agency literature as it involves control problems between principal and agents. The empirical work on behavioral uncertainty and its operationalization is much less than that of environmental uncertainty (Heide and John 1990) and is relatively

straightforward as the construct has fewer operationalization issues. Gatignon and Anderson's (1988) study on degree of control over foreign subsidiaries defines internal uncertainty as a firm's inability to assess its agent's performance. Santoro and McGill (2005) studied the impact of behavioral uncertainty, partner and task uncertainty, on asset co-specialization. The study conceptualizes partner uncertainty as partner-specific experiences. The higher the mutual partner-specific experience, the lower the partner uncertainty. Task uncertainty is conceptualized as the uncertainty related to tasks in each development stage. The higher the task uncertainty, the higher the contracting cost, which makes vertically integration a more efficient mode of governance relative to market governance. The results show that alliances choose governance structure i.e. bilateral cross licensing, minority equity, based on the type of uncertainty confronted. The result is consistent with TCA's prediction that firms choose hierarchical forms of governance when partner and task uncertainty rise. Bello and Gilliland (1997) focus on internal uncertainty and operationalize as psychic distance which is the environment which focal firm has a direct stage on.

Environment uncertainty (also called external uncertainty), is a property of the decision environment within which exchange takes place. It creates adaptation problems on account of bounded rationality to the relevant circumstances surrounding the exchange being too numerous or unpredictable to be specified *ex ante* in a contract. The empirical findings on the effect of environmental uncertainty on choice of governance are mixed (David and Han 2004; Santoro and McGill 2005; Fink, et al. 2006; Geysken, Steenkamp and Kumar 2006). The explanation for these findings' inconsistency is the varying operationalization (Klein 1989). Although the construct of uncertainty has been disaggregated in more recent transaction cost, strategic management, and organizational theory research

(Milliken 1987), there is still no agreement in the literature on the meaning of uncertainty, which causes the result to be quite heterogeneous (Fink, et al. 2006).

2.5.2 Empirical findings on uncertainty

The empirical assessment by David and Han (2004) shows that only 9 of the 37 studies are in the same direction as TCA's prediction that hierarchy is preferred to market governance when uncertainty increases. The meta analysis by Geyskens, Steenkamp and Kumar (2006) also supports the notion that the effect of uncertainty on the choice of governance is heterogeneous. Their study found that asset specificity, volume uncertainty, and behavioral uncertainty favor hierarchy over market. In contrast, when technological uncertainty is present, market is preferred over hierarchy.

The first explanation for these inconsistencies is the varying operationalization of this uncertainty (Klein 1989). For example, Duncan (1972) classifies perceived uncertainty into 4 types based on simple-complex and dynamic-static dimension. The result shows that decision units with dynamic environments always experience significantly more uncertainty in decision making regardless of whether their environment is simple or complex. The result from Levy (1985) supports a positive relationship between unanticipated events and vertical integration and negative relationship between anticipated events and vertical integration. Klein's (1989) study shows a positive effect of complexity on vertical control, but a negative effect for dynamism. Hu and Chen (1993) discovered that socio-cultural factors and uncertainty (economic risk) are the factors that influence the percent of foreign ownership. Sutcliffe and Zaheer's (1998) study shows that three sources of uncertainty act independently of each other on vertical integration and emphasize the need to treat uncertainty as a distinct set of constructs rather than as an undifferentiated concept. Beckman, Haunschild and Phillips's (2004) study on the

impact of uncertainty on partner selection identifies two types of uncertainty based on whether it is specific to the focal firm only or affects the entire market. Firms that experience high market uncertainty may have a low firm-specific uncertainty. The result of the study shows that firms choose different actions in response to different types of uncertainty. Carson, Madhok and Wu (2006) differentiate uncertainty as having two aspects, volatility and ambiguity, in their study about the impact of uncertainty on the effectiveness of relationship governance. This distinction follows the general definition of empirical work in governance branch of transaction cost economics based on Williamson's (1985) conceptualization. The result from the study shows volatility and ambiguity have different impact on the governance regime.

The second possible explanation might be due to the fact that TCA only prescribes the effect of uncertainty under the presence of asset specificity; therefore, the variation in results might be due to the type and degree of asset specificity examined (David and Han 2004). Coles and Hesterly (1998) found that increasing levels of uncertainty, including complexity and technological change, have an important role in the decision to integrate transactions, but only with the presence of asset specificity. Anderson (1985) found that environmental uncertainty alone has no impact on decisions to vertically integrate. However, the decision to integrate depends upon the combination of transaction specific assets and environmental unpredictability. Joshi and Stump (1999) find that the main effect of asset specificity is strengthened under conditions of high uncertainty.

In summary, it seems that the expected choice of governance depends upon various factors outside TCA variables. For example, agency theory focuses on the tradeoff between cost and control. Folta (1998) suggests vertical integration is appropriate in dealing with uncertainty in general. The increase in uncertainty will

increase the cost of drafting and monitoring to a point where vertical integration is a more efficient and less costly option. However, when it comes to a specific situation like technological uncertainty, firms will be better off using market governance as the cost of administrative control is less than the loss that will incur from investing in obsolete technology (Folta 1998). A more complete explanation of uncertainty will be provided in Chapter 3.

2.6 Frequency

Just like uncertainty, frequency only affects choice of governance in the presence of asset specificity. Transaction frequency which is the recurring of the transaction (Williamson 1999) has received far less attention in the empirical literature in comparison to asset specificity and uncertainty (Rindfleisch and Heide 1997). Due to the underlying assumption of opportunism, transactions involving asset specificity that occur frequently will generate higher administrative and monitoring cost. Therefore, vertical integration is preferred. Those that occur only occasionally need not be attended to continuously and do not require the bureaucratic costs of establishing a hierarchy (Klein 1989; David and Han 2004).

The TCA review by Macher and Richman (2008) summarized that researchers have been unsuccessful confirming this hypothesis. Several empirical studies however reveal no positive relationship between transaction frequency and mode of governance (cf. Anderson and Schmittlein 1984; Anderson 1985). Some studies categorize transaction frequency into one-time versus recurring transactions and do find a significant relationship with governance mode (John and Weitz 1988; Klein, Frazier and Roth 1990).

2.7 Performance

The studies about performance are extant and the conceptualizations are varied i.e. inventory turnover (cf.Noordewier, John and Nevin 1990), profitability and market performance (cf. Slater and Olson 2000), and firm survival chance (cf. Bigelow 2006; Luo, Sivakumar and Liu 2005). Measurement of performance includes secondary measures i.e. return on assets (cf.Beckman, Haunschild and Phillips 2004), unit sales and time to market (cf.Castañer, et al. 2014), and scale measures (cf.Slater and Olson 2000). Investigations relating to organizational study seem to focus on what drives the differences between high quality (effective) and poor quality (ineffective) performance which makes effectiveness the ultimate variable in research on organization (Cameron 1986). Therefore, the various conceptualization of "performance" in empirical studies is actually a different facet of "organizational effectiveness."

Although organizational theorists seem to agree that organizational effectiveness is multidimensional and the key concept in organizational study, the construct has not been well developed as there has been little agreement on the criteria to its definition. A variety of models have been employed. The debates about the superiority of each model can be found in the literature prior to 1980 (Angle and Perry 1981). The breakthrough on this topic came from Quinn and Rohrbaugh's (1981) framework of the three underlying dimensions in which individuals evaluate the effectiveness of organizations which are 1) concern for flexibility vs. control, 2) internal-external focus, and 3) concerns for ends vs. means. Based on these three dimensions, Quinn and Rohrbaugh (1981) came up with the Competing Value Framework Model (CVF) that identifies 8 objectives in which organizational effectiveness can be assessed (Quinn and Cameron 1983; Quinn and Rohrbaugh 1983; Kumar, Stern and Achrol 1992).

2.7.1 Performance in governance theory

TCA's discriminating alignment hypothesis which states that transactions that align mode of governance with transaction dimensions will minimize the total transaction cost, the sum of the two counterbalancing cost which are *ex ante* contracting and *ex post* transaction problem, in carry them out which can be translated into superior competitive performance relative to those who do not (Williamson 1985; Mooi and Ghosh 2010) shows that the focus of the theory on aligning transactions with the proper modes of governance is to economize cost rather than maximize profit. In particular, Williamson (1985) states that the way to organize transactions is to economize on bounded rationality and safeguard on opportunism (Slater and Spencer 2000). Therefore, transaction cost theory's prescription for superior financial performance emphasizes economizing rather than strategizing (Williamson 1991).

Though supports for the central claim that transactions with highly asset-specific are more likely to be vertically integrated than using a third party are strong and numerous (Shelanski and Klein 1995; Rindfleisch and Heide 1997; Macher and Richman 2008), the empirical support for TCA predictions regarding the relationship between choices of governance and relative performance outcome is still underdeveloped (Leiblein, Reuer and Dalsace 2002, David and Han 2004, Bigelow 2006). The empirical assessment by David and Han (2004) found that there are only a small number of tests that have performance as the dependent variable and they could not find any tests that compare the performance of market and hierarchy when the degree of transactional dimensions is similar. The study also states that this insufficient empirical support is troubling because, while there is sufficient evidence that asset specificity favors to the choice of hierarchy over markets, there is no evidence to proof that that choice is efficient. Therefore, the central claim of the TCA prediction that vertical integration is the efficient choice

when transaction dimensions rise has not been fully validated (David and Han 2004).

There are two streams of thought regarding the effect of governance on performance, the equilibrium and disequilibrium views. The equilibrium view suggests that when a firm is at its equilibrium, cost advantages and disadvantages are balanced out. The choice of governance is an endogenous outcome of competitive selections. Performance is explained by other transaction dimensions according to TCA rather than choice of governance (Demsetz 1983). This is somewhat similar to the institutional environment which suggests "some institutional sectors or fields contain environmental agents that are sufficiently powerful to impose structural forms and/or practices on subordinate organizational units"(Scott 1987, p.501). However, the disequilibrium stream views that a firm is in disequilibrium meaning that the choice of governance is not endogenously derived from market conditions, but a managerial decision. The choice of governance will affect the level of the firm's resource deployment i.e. scale of operation and monitoring cost. Therefore, performance is the result of choice of governance because it shows whether that particular choice can maximize the firm's efficiency or not (Demsetz 1983). This view is consistent with TCA's discriminating alignment hypothesis which suggests that performance can be improved if the modes of governance and transaction dimensions are aligned. The study on alliance shows that the performance assessment of any collaborative ventures has to evaluate both advantages and disadvantages of collaboration relative to the autonomous alternative (Castañer, et al. 2014).

Although the empirical investigations of performance in channel literature are extant and a number of relationships between performance and other variables have been explored, the theoretical rationale for the selection criteria seems to be

underdeveloped as the investigation is often done separately or in ad-hoc combinations which may raise issues about the generalizability of the findings (Kumar, Stern and Achrol 1992; Duarte and Davies 2003). In this regard, Kumar, Stern and Achrol (1992) offered a conceptual framework which is a systematic approach based on the CVF model discussed in the previous section for assessing a reseller's performance (table 2.3). The 8 objectives (table 2.3) which the suppliers can use to assess reseller's performance are profits, sales, competence, loyalty, compliance, growth, adaptability, and customer satisfaction (Kumar, Stern and Achrol 1992). Kumar, Stern and Achrol (1992) also summarize that three different approaches are commonly used to construct performance scales: uni-dimensional, multiple dimensions-individually investigated and composite scale.

Effectiveness Model	Functional Imperative	Suppliers' Objective	Reseller's Contribution
Relational goal model	Goal attainment	Efficiency	Contribution to profits
Human relations model	Pattern maintenance	Productivity	Contribution to sales
Internal Process model	Integration	Stability Control	Reseller loyalty Reseller compliance
Open systems model	Adaptation	Growth Adaptation External legitimacy	Contribution to growth Reseller adaptability Customer satisfaction

Source: Kumar, Stern, and Achrol, 1992

Table 2.3: Conceptual framework for assessing reseller's performance from the supplier's perspective

Although the above framework was inititially constructed for scale measures, the systematic approach from the model provides a good framework in understanding the multi-dimensional aspect of performance in general, specifically on what are the right performance measures for each research objective.

2.7.2 Empirical findings on performance

The conceptualizations of performance and the linkage transaction dimensions in empirical investigations are varying. Based on the discriminating alignment hypotheses, most empirical works focus on examining if alignment does improve subsequent performance outcomes. Table 2.4 displays literature that investigate the relationship between governance and performance. For example, Bello and Gilliland (1997) examine if three nonmarket forms of governance, output control, process control, and flexiblity, can enhance performance. Three aspects of performance, strategic, selling, and economic, are of interest in this study and are operationalized using scale items. The result shows that output control and flexibility can enhance performance, but found no support for the relationship between process control and performance. Slater and Olson (2000) investigated the relationship between strategy type and performance. The study focuses on the most important indicators of financial performance, profitability and market performance, and measure them using scale measurement. The study found that different strategy type required different profiles of sales force management practice for optimal effectiveness. Mooi and Ghosh (2010) explore the performance implications of contract specificity. Instead of examining the direct relationship between governance and performance, the study addressed this linkage by investigating the relationship between both ex ante and ex post contracting costs and contract specificity. The result suggested that there is a trade-off between ex ante and ex post contracting costs and these two costs must be considered jointly when choosing a governance mode. Steenkamp and Geyskens' (2012) meta-analysis tests of governance decisions shows strong support for TCA's normative direction which is associated with superior performance. The study found strong positive governance-choice performance relationship, for both hierarchical and relational governance, which indicates that selecting hierarchical or relational

governance in response to transaction hazards improves performance. Castañer, et al.'s (2014) study on the relationship between governance mode and governance fit on firm performance measures performance using two variables, unit sales and time to market. The study found that there is a relationship between choice of governance and performance outcome. The study also shows that the alignment of choice of governance with surrounding conditions will increase performance. Mooi and Gilliland (2013) directly test TCA's discriminating alignment hypothesis by testing the subsequent performance of aligned and misaligned enforcement. The study conceptualizes performance as satisfaction with problem resolutions and finds support for TCA's discriminating alignment hypotheses that satisfaction of misaligned enforcement is worse than that of aligned enforcement.The study also concludes that misaligned enforcement has a greater impact on performance relative to transactions that enforcement is not expected.

Author	Year	Topics	Variables	Measures P = Perceptual Measure O = Objective Measure	Key Findings
D'Aveni and Ravencraft	1994	Economies of integration versus bureaucracy costs: does vertical integration improve performance?	Vertical Integration Performance	Degree of forward integration (O) Profit (O)	Vertical integration allows firm to lower costs in certain areas, but has higher bureaucracy costs. Firms should try to keep benefits of vertical integration without incurring higher bureaucracy to achieve superior performance

Table 2.4: Literature on performance

Author	Year	Topics	Variables	Measures P = Perceptual Measure O = Objective Measure	Key Findings
Bello and Gilliland	1997	The effect of output controls, process controls, and flexibility on export channel performance	Control Performance (strategic, Selling, and economic)	Psychic distance (P) Operational performance (P) Strategic performance (P) Selling performance (P)	Non-market governance, output control and flexibility, can enhance performance
Slater and Olson	2000	Strategy type and performance: the influence of sales force management	Strategy Type Performance (market and profitability)	Self-typing paragraph Sales (P) Market share (P) Profitability (P)	Different strategy types require different individualized profiles of sales force management for optimal effectiveness
Brouthers	2002	Institutional, cultural and transaction cost influences on entry mode choice and performance	Mode choice Performance Institutional environment	Entry mode (P) Financial measure (P) Mon-financial measure (P) Investment risk (P) Legal restriction (P)	Firms that perceived higher mode of investment risks tend to use join-venture as a mode of entry. Firms that utilized the entry mode predicted by the extended TCA model reported a higher performance
Duarte and Davies	2003	Testing the conflict-performance assumption in business-to-business relationship	Conflict Performance (Effectiveness and efficiency)	Latent conflict (P) Perceived conflict (P) Affective Conflict (P) Sales growth (O) Error (O)	Effectiveness declines as perceived and affective conflicts increase. The relationship between conflict and efficiency follows U-shape. Manager should consider whether effectiveness or efficiency is more important

Table 2.4: Literature on performance (Continued)

Author	Year	Topics	Variables	Measures P = Perceptual Measure O = Objective Measure	Key Findings
Olson, Stanley, Slater, and Hult	2005	The performance implications of fit among business strategy, marketing organization structure, and strategic behavior	Governance Alignment Performance	Self-typing paragraph for each strategy type (P) Firm's objectives (P) Strategy (P) Market Structure (P)	Firm performance is influenced by the marketing organization's structural characteristics, and strategic behavior
Rothermel, Hitt, and Jobe	2006	Balancing vertical integration and strategic outsourcing: effects on product portfolio, product success, and firm performance	Vertical Integration Performance (Product success and Revenue)	Degree of vertical integration (O) Revenue (O) New product success (O) Size of product portfolio (O)	Using concurrent channels is beneficial to product development and the success of new products as it allows firms to access external knowledge and enjoy the benefit of vertical integration
Lu and Tao	2008	Vertical integration and firm performance	Vertical integration Performance	Degree of vertical integration (O) Labor productivity (O) Sales (O) Market share (O) Price (O)	Degree of vertical integration causes a negative impact on firm sales, market share and productivity but positive impact on product prices
Mooi and Ghosh	2010	Contract specificity and its performance implications	Contract Specificity Performance	Contract specificity (P) *Ex ante* costs (P) *Ex post* problems (P)	Transaction partners should jointly consider the trade-off between *ex ante* and *ex post* contracting cost when determining the governance form

Table 2.4: Literature on performance (Continued)

Author	Year	Topics	Variables	Measures P = Perceptual Measure O = Objective Measure	Key Findings
Castañer, Mulotte, Garrette, Dussage	2013	Governance mode vs. governance fit: performance implications of make-or-ally choices for production innovation in the worldwide aircraft industry, 1942-2000	Governance Alignment Performance	Governance choice (O) Unit sales (O) Time to market (O)	Alignment enhances performance
Mooi and Gilliland	2013	How contracts and enforcement explain transaction outcomes	Governance Alignment Performance	Enforcement/ non-enforcement (P) Satisfaction with problem resolution (P)	Alignment of enforcement with transactional attributes and contractual components enhances satisfaction with problem resolution
Heide, Kumar, and Wathne	2014	Concurrent sourcing, governance mechanisms, and performance outcomes in industrial value chains	Governance Performance	Concurrent channel dummy (P) Contract's supply chain performance (P)	The effect of governance mechanisms on relationship outcomes i.e. opportunism and performance is contextual

Table 2.4: Literature on performance (Continued)

2.8 Summary

Although TCA has been developed for 40 years, the theory is still under criticism. Gathering views from major TCA reviews (cf. Shelanski and Klein 1995; David and Han 2004; Macher and Richman 2008), the criticisms of TCA are as follows.

First, transaction costs are difficult to measure because they present outcome of alternative decisions and this is why most of the studies focus on whether the choice of governance and transaction attributes follows the prediction of TCA's discriminating alignment hypothesis rather than attempting to measure transaction

cost directly (Klein, Frazier and Roth 1990). Second, “the existence of this governance selection mechanism is usually assumed rather than explained” (Shelanski and Klein 1995, p.338). Third, most of the studies use cross-sectional data. Therefore, the effect of time i.e. lags structure that represent cause and effect cannot be measured. Finally, the operationalization of some key constructs is still diverse. Although there are common measures, it seems that these variables are unspecific and include a wide variety of transaction characteristics. While this may allow for flexible application of the theory, it also indicates the lack of agreement on how these variables should be operationalized and may contribute to the misinterpretation regarding its empirical standing (David and Han 2004; Macher and Richman 2008).

This chapter has reviewed the literature in the area of governance, mainly on transaction cost analysis. The development of the theory was discussed in the beginning of the chapter. The next section provided the details of the definition and structure of transaction cost analysis together with its synergy with other governance theory. Each element of TCA; namely governance, transaction dimensions, and performance, respectively, was discussed in the following sections.

CHAPTER 3

LITERATURE REVIEW
ENVIRONMENTAL UNCERTAINTY IN GOVERNANCE THEORY

3.1 Introduction

This chapter will continue the discussion on the environmental uncertainty variable which is briefly discussed in chapter 2. The focus will be on its various conceptualizations. The discussion will start with defining uncertainty in section 3.2. Then, the classification criteria of environmental uncertainty will be discussed further in section 3.3. The classification focuses on 3 specific criteria: domain of environment, type, and measurements. Section 3.4 provides explanation on what might be the underlying conditions that differentiate the impact of uncertainty on other constructs, in particular governance and performance. Finally, section 3.5 concludes this chapter.

3.2 Overview about uncertainty in governance theory

Uncertainty is one of the key concepts in organization behavior theory and is the key variable that impacts channel conflict, coordination, and power balances (Achrol and Stern 1988). Uncertainty arises because it is difficult to anticipate what is going to happen in the future and exists because of our inadequate ability to forecast (Shelly 1991). Generally, uncertainty is referred to as the difficulty firms have in predicting the future, which arises from inadequate knowledge (Beckman, Haunchild and Phillips 2004) and bounded rationality (March 1978). Organizations strive to reduce uncertainty because "certainty renders existence meaningful and

confers confidence in how to behave and what to expect from the physical and social environment" (Hogg and Terry 2000, p. 133).

In TCA, it is a generally accepted premise that uncertainty is one of the primary exchanged characteristics that facilitates opportunism and this is why uncertainty is an important attribute in all aspects of marketing (John and Weitz 1989; Carson, Madhok and Wu 2006) as it can influence important marketing decisions i.e. the scope of the firm, mode of governance (Sutcliffe and Zaheer 1998). High uncertainty can lead to adaptation problems and difficulties in performance evaluation, both of which may motivate the firm to vertically integrate, since vertical integration can better enable coordination and monitoring, as well as protection against supplier opportunism (Rindfleisch and Heide 1997).

The uncertainty construct is not without problems. Empirical findings related to uncertainty are diverse. The recent analysis from Carter and Hodgson (2006) reveals that uncertainty in the TCA framework should be operationalized with greater precision with regards to its role. The diversity in the findings is mainly due to 2 reasons. First, it is because of the multitude of uncertainty types examined (Rindfleisch and Heide 1997; Slater and Spencer 2000). Uncertainty consists of a number of distinct constructs, such as demand unpredictability, environmental volatility, and measurement difficulty, and different types of uncertainty may have opposite influences on governance mode (Sutcliffe and Zaheer 1998; Leiblein and Miller 2003; David and Han 2004). Recent studies tend to disaggregate uncertainty into different forms. This trend is also consistent with the development in closely related theories such as organizational theory (Williamson 1985; Sutcliffe and Zaheer 1998). Systematic reviews by David and Han (2004) and Carter and Hodgson (2006) also corroborate that the empirical inconsistency is due to its different form, definition, and operationalization of uncertainty variables.

Second, and specifically for TCA, uncertainty has to be examined in conjunction with asset specificity (Harrigan 1986). TCA predicts that high degree of uncertainty in conjunction with a non-trivial level of asset specificity will lead to increased vertical integration (Rindfleisch and Heide 1997). Absent asset specificity, TCA does not predict that uncertainty leads to vertical integration. In this case, market will be a more efficient choice of governance (Williamson 1985). However, since it is unlikely for firms to have zero asset specificity, especially with regard to human assets, it should be appropriate to say that the effect is unidirectional. The concept of zero asset specificity may only exist in the most basic commodity market (Klein 1989).

Generally, the term uncertainty refers to both behavioral and environmental uncertainty. Behavioral uncertainty, sometimes called internal uncertainty, is viewed by Williamson (1975) as is the key form of uncertainty relevant to the transaction context as it arises from the difficulty in predicting the actions and monitoring the contractual performance of transaction partners, particularly in view of the potential for opportunistic behavior (Sutcliffe and Zaheer 1998

Behavioral uncertainty is the deliberate nondisclosure of information or the strategic misrepresentation of information by economic agents. It creates an evaluation problem in connection with contractual compliance (Alchian and Demsetz 1972). TCA predicts that behavioral uncertainty will be reduced once firms create contractual and governance safeguards suited to the risk they face. Firms tend to use more hierarchical governance to control higher levels of uncertainty about partners' intentions or capabilities (Williamson 1991; Santoro and McGill 2005) since it is difficult for firms to evaluate their agents' performance based on the available output measures. (Anderson and Gatignon 1986). Support is found for the idea that internal uncertainty reduces a firm's flexibility. Bello and

Gilliland (1997) define the internal environment as the domain in which the focal firm has a direct stake that is measured by psychic distances which are the manufacturer's perception of the differences in culture, language, customers and value of the targeted export country is from the firm's home country. The study shows that internal environment (psychic distances) reduces output controls because different language and value make it difficult to process the performance document to verify the outcomes. Studies that also found support for this prediction are John and Weitz(1988), Santoro and McGill(2005).

The second form of uncertainty which is of interest in this chapter is environmental or external uncertainty. It is generally referred to as unanticipated changes in the environment (Anderson 1985; Noordewier, John and Nevin 1990) or changes that result from exogenous sources outside the scope of the firm, which are beyond their control and hard to anticipate (Krishnan, Martin and Noorderhaven 2006). This form of uncertainty creates adaptation problems because there are too many possible incidents to be specified pre-contractually (Heide 1994) and produces inconsistency in information that is necessary to identify and understand cause-and-effect relationships (Keats and Hitt 1988; Sirmon, Hitt and Ireland 2007). Environmental uncertainty itself is a very broad concept which can be disaggregated into different dimensions i.e. technological, complexity, volume, etc., and, as previously discussed; empirical evidence shows that different dimensions will have different impact on other variables. For example, Leblebici and Salancik (1981) posit that different dimensions of environmental uncertainty have opposing effects on routinization and formalization of decision-making. Balakrishnan and Wernerfelt (1986) show that while uncertainty in general makes vertical integration more effective, the possibility of technological obsolescence has the opposite effect. Klein (1989) finds a positive effect of complexity on vertical control, but the effect of dynamism is negative.

In summary, uncertainty is a broad concept that has various conceptualizations. Different facets of it will impact other constructs in different ways. The effects of uncertainty are diverse and it is necessary to break it up into components (Klein 1989). Sutcliffe and Zaheer (1998) disaggregate uncertainty into primary, supplier, and global and found that their effects on vertical integration are independent. The results from Sutcliffe and Zaheer (1998) are important as they pinpoint the necessity to treat uncertainty as a distinct set of constructs, rather than as an general concept. Therefore, it is important to make a conclusion about the impact of uncertainty based on a specific facet of interest, not as a general concept.

The in-depth discussion about the different ways environment uncertainty is conceptualized in literature will be in the next section. This will include classification criteria, specifically the development of a common definition under different classification.

3.3 Conceptualization of environmental uncertainty

The review of literature in in governance and organization area reveals that uncertainty is usually classified based on these three criteria: 1) domain of environment, 2) type, and 3) measurement.

Some may focus on the same type of uncertainty, but different domains of environment i.e. demand, economic, competitive, etc. Some studies assess the overall rather than a specific domain of environment, but focus their examination on different types of overall environment i.e. dynamism, complexity, etc. Last but not least, the effect of a particular domain of environment and a specific type of uncertainty also differ based on how it is measured. The operationalization of this construct contains both perceptive and objective measures. Therefore, it is important to choose the measurement that matches the research question. If the

study intends to determine if uncertainty will lead to a particular decision, for example, a management decision to use market or hierarchy, then a perceptual scale would be more appropriate. However, if the study wants to measure a characteristic of the market and its impact on other market characteristics, an objective measure would be a better proxy as it is the measure of the states of the environment at that time.

Although uncertainty is usually named to reflect the main interest of the study, which may seem like it is classified based on only a particular criterion, it is important to mention that, explicitly or not, it is operationalized using all these criteria. The original definition of primary uncertainty by Koopman (1957) provides a good example. Koopman (1957) defines primary uncertainty as "a lack of knowledge about states of nature, such as the uncertainty regarding natural events" (Sutcliffe and Zaheer 1998, p.3). The term primary may suggest that this uncertainty is classified based on the domain of environment, but the inclusion of "lack of knowledge" suggests that the type of this uncertainty arises from the ambiguity/unknown aspect of information and that it is measured by using a perceptual scale which reflects the perception of the focal firm's manager toward the environment, not the actual states of the environment.

Thus, the fact that the uncertainty construct can be operationalized based on multiple criteria means it is important that one truly understand not just the term or definition, but its operationalization to understand the logic behind the empirical result. Table 3.1 presents key literature on uncertainty, including its classification and key findings.

Author	Year	Topics	Uncertainty Classification	Key Findings
Anderson Schmittlein	1984	Integration of the sales force: an empirical examination	Internal Uncertainty Environmental unpredictability	Internal uncertainty is the most important determinant of vertical integration.
Levy	1985	The transaction cost approach to vertical integration: an empirical investigation	Unanticipated event	Strong positive relationship between unanticipated event and vertical relationship
Balakkrish-nan Wernerfelt	1986	Technical change, competition and vertical integration	Technological uncertainty Competitive Intensity	Technological uncertainty reduces the positive relationship (less vertically integrated) between competitive intensity and vertical integration
Harrigan	1986	Matching vertical integration strategies to competitive conditions	Demand and infrastructure uncertainty Competitive/ Industry volatility	No pattern of the vertical integration strategy dimensions that can be distinguished among the successful and unsuccessful firms under all circumstances
Keats Hitt	1988	A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance	Munificence Instability	Firms that have unstable environments reacted by creating a simpler organization. Instability has significant effects on both performance dimensions
Anderson	1988	Transaction costs as determinants of opportunism in integrated and independent sales forces	Instability Unknown	Environmental unpredictability has no effect on opportunism. Integrated sales force shows less opportunism than outside sales force
Eisenhardt	1988	Agency - and institutional - theory explanations: the case of retail sales compensation	Outcome uncertainty (volatility)	Outcome uncertainty is the significant predictor of compensation in agency theory but not in institutional theory
Klein	1989	A transaction cost explanation of vertical control in international markets	Complexity Dynamism	Complexity has positive effect on vertical integration while the result for dynamism is opposite.
John Weitz	1989	Sales force compensation: an empirical investigation of factors related to use of salary vs. incentive compensation	Environmental Uncertainty	Uncertainty has no main effect on the likelihood to use salary

Table 3.1: Literature on uncertainty

Author	Year	Topics	Uncertainty Classification	Key Findings
Klein Frazier Roth	1990	A Transaction cost analysis model of channel integration in international markets	Volatility Diversity	Volatility increases the probability of using hierarchy-subsidiary while dynamism inversely related to the use of hierarchy-subsidiary option
Hu Chen	1993	Foreign ownership in Chinese joint ventures: a transaction cost analysis	Economic risks	Sociocultural factors and economic risk are the factors that influence the percent of foreign ownership
D'Aveni Ravencraft	1994	Economies of integration versus bureaucracy costs: does vertical integration improve performance	Demand Uncertainty	In time of demand uncertainty, the potential for reducing overhead via vertical integration may differ from industry to industry
Bello Gilliland	1997	The effect of output controls, process controls, and flexibility on export channel performance	Internal - Psychic Distance External - Market Volatility	Psychic distance reduces the use of output controls. Market volatility reduced flexibility.
Coles Hesterly	1998	The impact of firm-specific assets and the interaction of uncertainty: an examination of make or buy decisions in public and private hospitals	Complexity Technological change	In the presence of asset specificity, increased uncertainty will increase integration. TCE are contextual factors i.e. efficiency is the moderator
Haunschild Miner	1997	Modes of interogranizational imitation: the effects of outcome salience and uncertainty	Transaction uncertainty Partner uncertainty	Transaction and partner uncertainty have similar effects for social imitation, but different effects for outcome imitation
Folta	1998	Governance and uncertainty: the trade-off between administrative control and commitment	Endogenous Exogenous	Tradeoff between commitment cost and control. Under some conditions, i.e. high technological uncertainty, firms may choose hybrid mode of governance rather than full administrative control

Table 3.1: Literature on uncertainty (Continued)

Author	Year	Topics	Uncertainty Classification	Key Findings
Brouthers	2002	Institutional, cultural and transaction cost influences on entry mode choice and performance	Investment risks	Firms that perceived higher mode of investment risks tend to use join-venture as a mode of entry. Firms that utilized the entry mode predicted by the extended transaction cost model reported a higher performance
Beckman, Haunschild Phillips	2004	Friends or strangers? Firm-specific uncertainty, market uncertainty, and network partner selection	Firm-Specific Uncertainty Market Uncertainty	Firms reinforce with their current partners in times of market uncertainty and broaden their alliance net when faced with firm-specific uncertainty.
Harrington	2004	The environment involvement, and performance: implications for the strategic process of food service firms	Complexity Munificence Dynamism	A fit between a complexity and involvement leads to higher performance. Three types of uncertainty have different effects on performance
Gulati, Lawrence Puranam	2005	Adaptation in vertical relationship: beyond incentive conflict	Volume uncertainty Technological uncertainty	The observed levels of differentiation and integration vary systematically with the type of procurement mode.
Santoro McGill	2005	The effect of uncertainty and asset co-specialization on governance in biotechnology alliances	Partner uncertainty Task uncertainty Technological uncertainty	Partner and task uncertainty increase the likelihood of hierarchical governance when asset co-specialization is present
Santos Eisenhardt	2005	Organizational boundaries and theories of organization	Market Dynamism	More dynamic environments suggest the need for smaller and less coupled business units in order to enhance adaptability
Geyskens Steenkamp Kumar	2006	Make, buy, or ally: a transaction cost theory meta-analysis	Volume uncertainty Technological uncertainty Behavioral uncertainty	All types of uncertainty lead to hierarchical governance. Choosing hierarchical or relational governance in response to transaction hazards increases performance.
Carter and Hodgson	2006	The impact of empirical tests of transaction cost economics on the debate on nature of the firm	Reviews from previous literature	Empirical evidence does not decisively support Williamson's TCE

Table 3.1: Literature on uncertainty (Continued)

Author	Year	Topics	Uncertainty Classification	Key Findings
Carson Madhok Wu	2006	Uncertainty, Opportunism, and Governance: The Effect of Volatility and Ambiguity on Formal and Relational Contracting	Volatility Ambiguity	Formal and relational contracts are advantageous under different situations
Parmigiani	2007	Why do firms both make and buy? An Investigation of Concurrent Sourcing	Volume uncertainty Technological uncertainty Performance Uncertainty	TCA's logic was supported. Firms were less likely to buy if markets were thin and more likely to make if performance uncertainty was great
Palmatier Dant Grewal	2007	A comparative longitudinal analysis of theoretical perspectives of interorganizational relationship performance	Environmental Dynamism Market Diversity	Mixed findings on the effect on uncertainty
Shervani Frazier Challagalla	2007	The moderating influence of firm market power on the transaction cost economies model: an empirical test in a forward channel integration context	Internal uncertainty External uncertainty	External uncertainty is negatively related to channel integration which is contradictory to TCA's prediction. TCA's prediction may hold only in certainty channel contexts
Kor Mahoney Watson	2008	The effects of demand, competitive, and technological uncertainty on board monitoring and institutional ownership of IPO firms	Demand uncertainty Competitive uncertainty Technological uncertainty	Empirical result varies based on the type of uncertainty
Gilliland Kim	2013	When do incentives work in channels of distributions	Industry volatility	Industry volatility mitigates the positive relationship between congruence evaluation and compliance but not that of congruence evaluation and representation

Table 3.1: Literature on uncertainty (Continued)

3.3.1 Domain of environment

The domain of the environment is the aspect of the environment that each study focuses on. Some studies take broader perspectives by disaggregating uncertainty in a way that it covers the entire transaction environment or major parts of it such as firm-specific vs. market uncertainty. Some are quite specific by choosing only the specific domain of their interest such as political or economic uncertainty.

The origin of this classification scheme in governance theory comes from Koopmans (1957) who disaggregates uncertainty into primary and secondary uncertainty based on which sectors of the environment give rise to it and the importance of their impact on firm decisions (Sutcliffe and Zaheer 1998). Primary uncertainty is the uncertainty arising from exogenous factors i.e. natural events or regulatory and policy changes. While secondary uncertainty refers to the insufficient knowledge about the actions of other relevant economic actors. Koopmans argues that both forms of uncertainty impact a firm's investment decisions (Sutcliffe and Zaheer 1998).

Sutcliffe and Zaheer's (1998) study on the relationship between uncertainty and decision to vertically integrate follow Williamson (1985)'s approach by disaggregating uncertainty into primary, competitive, and supplier. Primary uncertainty refers to uncertainty associated with exogenous sources (1985). Competitive uncertainty is defined as the uncertainty developing from the actions of potential or actual competitors which can be either innocent or strategic. Supplier uncertainty is the behavioral uncertainty emerging from the strategic actions of the transaction partners. These three types of uncertainty are measured using perceptive measures (Sutcliffe and Zaheer 1998).

Besides the classification based on Williamson's typology, another common classification is to use relevancy to the focal firm. The first set is endogenous and exogenous uncertainty which classify uncertainty based on whether it can be changed by actions of the firm or not (Folta 1998). Endogenous uncertainty is the uncertainty that can be decreased by actions of the firm through learning from undertaking the project. Exogenous uncertainty is the uncertainty that is unaffected by firm actions and can be resolved over time. Comparing between these two, project which has a greater degree of endogenous uncertainty is relatively more attractive as this uncertainty can be reduced once investors have more information about this uncertainty after undertaking the project. Project which has greater degree of exogenous uncertainty, on the other hand, would influence firm to delay commitment to "wait and see" if the uncertainty can be resolved over time (Folta 1998).

The second set, which is slightly different, is offered by Beckman, Haunschild and Phillips (2004). This study classifies uncertainty into firm-specific and market based on whether that uncertainty affects only the focal firm or the entire market. Firm-specific uncertainty is mainly internal, manageable, and unique. Although, firm-specific uncertainty is unique to that firm, it is not always the case that a firm can always control its firm-specific uncertainty. However, it is more likely to be manageable than market uncertainty. Market uncertainty, on the other hand, is external and common across a set of firms. Both uncertainties act independently. Firms experiencing high firm-specific uncertainty may operate in the market in which market uncertainty is low. The result of the study shows that these two types of uncertainty require different adaptation strategies (Beckman, Haunschild and Phillips 2004).

Consistent with the firm-specific and market based classification, Miller (1992) offers more detailed uncertainty classification based on the treatments of risk in international businesses. He classifies a number of interrelated uncertainties into 3 levels based on their relevancy to the focal firm: 1) firm-specific, 2) industry, and 3) general environment. Firm-specific uncertainties apply to a set of uncertainties that is specific to that firm which include operating, liability, and behavioral uncertainties. Industry uncertainties refer to the uncertainties that are relevant to all firms within the same industry which are demand, product-market and competitive uncertainties. The general environment uncertainties denote the uncertainties that affect the business across industries which cover political, macro-economic, policy, social development, and natural uncertainties (Miller 1992).

In addition to the relevancy to the firm criterion, uncertainty is sometimes viewed as a general concept. For example, Anderson and Gatignon (1986) view external uncertainty as the unpredictability of the firm's external environment and uses country risk which is an aggregated concept based on a number of factors as a proxy for environmental uncertainty. The study sorted countries into three groups, low, moderate, and high, based on their risk levels using cluster analysis (Anderson and Gatignon 1986). Hu and Chen's (1993) study on foreign ownership in Chinese joint ventures extends Gatignon and Anderson's (1988) study by using the percentage ownership instead of wholly owned or joint ventures and focuses on only one country. This study conceptualizes uncertainty very specifically. It views uncertainty as economic risk involved in doing business in a foreign country and then disaggregates economic risk into three types 1) geographic area, 2) duration of joint venture, and 3) amount of investment in the joint venture. The study found support for transaction cost economics in that the higher the economic risks, the higher the percent ownership (Hu and Chen 1993).

However, the review of literature shows that recent studies tend to be specific about the domain of environment they aim to investigate. The common concepts that frequently appeared in the literature are: *volume uncertainty* (Gulati, Lawrence, Puranam 2005; Geyskens, Steenkampt, Kumar 2006; Parmigiani 2007), and *technological uncertainty* (Gulati, Lawrence, Puranam 2005; Olson, Slater, Hult 2005; Parmigiani 2007). *Volume uncertainty* refers to the unpredictability of demand and inability to accurately forecast and schedule production. *Technological uncertainty* means the uncertainty in the future of technology (Parmigiani 2007). For example, Balakrishnan and Wernerfelt (1986) found a negative relationship between technological uncertainty and vertical integration which is in contrast to that of TCA. Folta (1998) found that the amount of technological uncertainty increases the likelihood of choosing equity collaboration (joint venture or minority investment) because it gives firms an option to defer internal development that might become obsolete or have little value. This option gives management more flexibility to adapt future action when there is more information about new technology. Also, this option economizes on the cost associated with investment. However, without the condition of uncertainty, firms prefer acquisition (vertical integration) as the degree of asset specificity rises. Others uncertainty constructs such as performance uncertainty (cf. Parmigiani 2007), political uncertainty (cf. Henisz 2000), competitive uncertainty (cf. Kor, Mahoney and Watson 2008), are usually specific to the topic of the study.

Some studies may name uncertainty in a different fashion. For example, market turbulence, which is similar to the construct competitive uncertainty, is used as a control variable in Slater and Olson (2000). The result shows that this type of uncertainty has a significant impact on market and profitability performance of two of Miles and Snow's (1978) strategy types, analyzers and differentiated defenders (Slater and Olson 2000). Henisz (2000) investigates the effect of institution

environment, and contractual and political hazards, on the choice of market entry mode and found support for the hypotheses that firms are more likely to be vertically integrated (choose majority-owned plant) when facing the contractual hazards. However, on the event of political hazards, which is operationalized as policy change and corruption, firms are more likely to use market (minority-owned joint venture) as the market entry mode. The rationale is that as political hazards increase, firms will face increasing threat of opportunistic acts from governments i.e. tax change and regulations change. Partnering with a local firm will provide more advantage in interactions with local government which acts as a safeguard for this hazard. The interaction effect between political and contractual hazards are also investigated, the result shows that the interaction promotes market as the local partner may manipulate the political uncertainty for their own interest. The result of this interaction effect emphasizes that, in addition to the transaction factors, institutional environments also affect governance (Henisz 2000).

3.3.2 Type

Type refers the nature of uncertainty defined in the study. This seems to be a source of confusion because, unlike the domain of environment which connects the name of the domain to the word uncertainty, some studies do not explicitly specify the type of uncertainty they are discussing until the operationalization section.

Based on the literature in governance and organization behavior, common definitions of uncertainty usually include the following types: 1) ambiguity/unknown, 2) complexity, 3) volatility/dynamism/change, 4) others such as diversity or munificence. Although these types are different in terms of definitions and operationalization, they all are the proxy of uncertainty in the way that they provide the reasons why the state of environments is unknown. Is it because there is no clarity of the current situation? Or is it because the situation is too complex to

predict? Some studies use combined and overlapped definitions which make it difficult to pinpoint the exact type of uncertainty. For example, although the terms dynamism, volatility, and unpredictability seem to share similar properties, they are not entirely identical in nature. Carson, Madhok and Wu (2006), based on Williamson's (1985) conceptualization, clearly distinguish uncertainty into two aspects, ambiguity and volatility, based on whether it reflects present or future states of an environment. Ambiguity refers to the degree of uncertainty inherent in perceptions of the environmental state irrespective of its change over time and is less about an uncertain future than about uncertainty regarding present and past experience. Volatility refers to the rate and unpredictability of change in an environment over time, which creates uncertainty about future conditions (Carson, Madhok and Wu 2006). The result from the study shows ambiguity and volatility have different impacts on governance regime.

Ambiguity/Unknown

The conceptualization of this type dates back to the two original ones by Knight (1921) and Pfeffer and Salancik (1978) and is, therefore, the early conceptualization of uncertainty. Knight (1921) conceptualizes uncertainty into known, unknown, and unknowable distributions. He also suggests that uncertainty removes the assumption that phenomena can be modeled and predictions can be accurately made based on historical data (Foss 1993). Pfeffer and Salancik (1978, p.67) state that "uncertainty is the degree to which future states of the world cannot be anticipated and accurately predicted."

More recently, Milliken (1987) defines uncertainty as ignorance about the three stages of the cause-effect chain. It is interesting because Milliken (1987) not only grouped the common definitions cited by organizations theorists under the umbrella of inability to predict the future or unknown; he also systematizes this definition along the continuum of cause and effect; *state*, *effect*, and *response*

uncertainty. *State uncertainty* refers uncertainty regarding the state of environment and is the type that is the closest to Williamson's primary uncertainty as both refer to the lack of knowledge about the state of environment when a transaction takes place. This type of uncertainty principally reflects the definitions given by early organization theorists (cf. Duncan 1972; Pennings 1981) who view uncertainty as 'the inability to assign probability to the likelihood of future events.' *Effect uncertainty* is a lack of information about cause-effect relationships. It is an absence of information concerning what would be the impact specific phenomenon on other variables. Therefore, it is an inability to predict accurately what the outcomes of a decision might be. *Response Uncertainty* means an inability to determine the appropriate response to uncertainty (Milliken 1987).

Complexity and Dynamism

When assessing the level of environmental uncertainty between industries, the two main dimensions that are often mentioned together, despite their differences, are complexity and dynamism. These dimensions come from Dess and Beard's (1984) exploratory work that combines previous theoretical models. These variables provide reasonably good proxies when used to compare the differences between industries, but seem not to be a good indicator in determining differences of environmental uncertainty between segments within the same industry (Harrington 2001).

The theoretical model that Dess and Beard (1984) base their dimension on is that of Duncan (1972) who dimensionalized his uncertainty based on the three early concepts of uncertainty. The first concept is that of Knight (1921) who defines uncertainty as those situations where the probability of the outcome of events is unknown as opposed to risk situations where each outcome has a known probability. The second concept belongs to Attneave (1959) and Garner (1962, p.19) who

defines the concept in a narrow fashion – "The logarithm of the number of possible outcomes the event can have." The last concept is from Lawrence and Lorsch (1967, p.27) who state that "uncertainty consists of three components: 1) The lack of clarity of information, 2) the long timespan of definitive feedback, 3) the general uncertainty of causal relationship", and grouped these concepts as perceived uncertainty). However, early scholars (cf.Duncan 1972; Miles and Snow, 1978; Tosi and Slocum consider them to be too broad and might create operationalization difficulty, hence, they might not be useful ones. The suggestion is that uncertainty should be studied based on the environmental domain of interest (Milliken 1987). Based on those concepts, Dess and Beard (1984) categorized the state of environment into 2 dimensions along the continuum of static-dynamic and simple-complex resulting in 4 typologies of the states of environment. The findings from their study show that the decision unit in more extreme environments, complex-dynamic, will have the highest level of perceived uncertainty. Decision units with dynamic environments always experience significantly more uncertainty in decision making regardless whether their environment is simple or complex (Dess and Beard 1984). Dess and Beard (1984) is regarded as the first systematic conceptualization and empirical analysis of the environment that leads to different degrees of perceived uncertainty (Milliken 1987). As complexity and dynamism are different in terms of concept and operationalization, they will be discussed separately in the next section.

Complexity

Environmental complexity has been defined using two different dimensions: 1) the variety of an organization's activities and 2) the concentration-dispersion level of firms within an industry or segment (Duncan 1972; Dess and Beard 1984)). The second dimension of a complex environment is concerned with the number, size, and distribution of firms within an industry or segment. Typically, firms that operate in a complex environment have low monopoly power and are "infused with

entrepreneurial newcomers" (Keats and Hitt 1988, p. 579). Measures of complexity in the operations dimension include amount of diversification, breadth of product or service line, and geographical dispersion. Measures of complexity in the concentration-dispersion dimension include movement to or from higher levels of concentration of firms within an industry segment, the number of firms within a segment, the diversity of firms within a segment, and their distribution (Keat and Hitt 1988).

Dynamism/Volatility

The essence of this type of uncertainty is the 'change which leads to unpredictability.' This unpredictability is troublesome because it is too obscure for the manager to plan for (Keat and Hitt 1988) which may result in inefficiency. Achrol and Stern (1988. p.38) define environmental dynamism as "environments that are dynamic or shifting and which present greater contingencies to the organization." Generally, environmental dynamism is defined as unexpected change that is hard to predict. Firms that operate in this type of environment face increased risk because change is hard to predict (Achrol and Stern 1988). Dynamism is usually operationalized as volatility and, often, these two terms are substitutable (Keat and Hitt 1988). The exact definitions of these terms largely depend on how they are operationalized, specifically if it is measured using perceptual scale items or objective measures. Typical measures of dynamism using secondary or objective data include the volatility of the variable of interest i.e. operating income of the focal firm, net sales of the industry, R&D budget, etc. (Keats and Hitt, 1988; Harrington 2001).

Dess and Beard (1984) review key characterizations of the environment by organizational theorists and note a principal feature in uncertainty, commonly conceptualized as a combination of instability and turbulence. Klein (1989) found

that uncertainty related to environment turbulence, which can include both complexity and volatility, will result in more integrated governance structures, while uncertainty related to unpredictability – such as new technologies and volume will result in more market-like governance structures (Klein 1989). Bello and Gilliland (1997) conceptualize uncertainty as psychic distance and market volatility in their study on the impact of control and flexibility on performance. The result shows that firms will try to be less flexible when the market is highly volatile because the unpredictability circumstance provides an opportunity for transaction partners to act opportunistically since each partner may interpret this obscure situation in their own favors (Klein, Frazier and Roth 1990, Bello and Gilliland 1997). Gilliland and Kim (2014) examine if the volatility condition affects the relationship between evaluation and agent's response. The study used industry volatility to represent uncertainty and measured it by using industry stock beta. The result shows that industry volatility can moderate the relationship between evaluation and agent's response.

However, it is important to emphasize that it is not "change" or "fast rate of change", that makes the environment become uncertain; rather, it is the unpredictable aspect of change that creates uncertainty (Milliken 1987). Also, it is important to point out, as suggested by early scholars (cf. Lawrence and Lorsch, 1973; Miles, Snow and Pfeffer 1974; Salancik and Pfeffer 1978) that dynamism or volatility is not always unpredictable; the highly volatile but predictable environment is not regarded as uncertainty (Milliken 1987). For example, Harrington (2001) adopts this notion by elaborating that if a particular industry experiences a higher level of dynamism as a result of past levels of volatility, then the change being measured is not an unexpected but rather an expected change.

Other types

Besides the frequently examined concepts discussed above, there are a few other concepts i.e. munificence, diversity, turbulence, etc. For example, Klein, Frazier and Roth (1990) divide environmental uncertainty into two types: volatility and diversity and define diversity as the extent to which there are multiple sources of uncertainty. The study discovered that each type has different effects on the degree of integration (Klein, Frazier and Roth 1990). The munificence construct or the availability or scarcity of critical resources within the environment to support sustained growth (Dess and Origer 1987; Sirmon, Hitt and Ireland 2007) is usually seen together with complexity and instability. Keats and Hitt's (1988) study on the linkages among environmental dimensions, organization characteristics, and performance using the framework of organization theory conceptualizes uncertainty into 3 constructs; munificence, complexity, and instability. The result shows that instability has significant negative effects on both performance dimensions, but neither munificence nor complexity has a significant relationship with both performance outcomes.

3.3.3 Measurement

While it is common to mainly define uncertainty by domain of environment and type, early scholars tend to define uncertainty as an overall concept by its measurement. For example, Knight (1921) defines uncertainty as those situations where the probability of outcome of events is unknown as opposed to risk situations where each outcome has a known probability. Attneave (1959) and Garner (1962, p.62) have defined the concept in a narrow fashion as "The logarithm of the number of possible outcomes the event can have" (Duncan 1972). Eisenhardt (1988) defined outcome uncertainty as volatility, as it is most germane to the risk dimension in agency theory and is measured by failure rate and competition, to determine its level.

Careful consideration must be made in choosing the appropriate measurement of uncertainty. First, although both perceptual scale and objective measurement can be used as proxies for uncertainty, the objective and interpretation of these measures is different. Perceptual scale measurement (i.e. subjective reporting by key informants) is an executive interpretation of the environment, and is normally used if the uncertainty can influence the manager's decisions toward any particular dimension. Conversely, objective measurement is generally secondary data, such as net sales, expenditures, and the like. Such information indicates the current state of the environment of interest, which is used to measure the impact of uncertainty on other variables. Importantly, although perceptual measures are the most commonly deployed, it has been well documented that such perceptual scales could be biased. For example, there is evidence in the literature (cf. Harrington 2001; Harrington and Kendall 2005) which indicates that archival measures are more useful as they have the benefit of greater precision in measurement and reduced threat of bias. As such, it has been suggested that uncertainty should be operationalized using objective measures, and / or to use such measures to validate perceptual measures.

Therefore, the appropriateness of both perceptual scale and objective measures depends on the objective of the research. If the intention is to measure whether uncertainty will lead to particular decisions i.e. integration decision, managers' perceptions measured by perceptual scale might be a suitable measure. If the study's objective is to understand the effect of uncertainty on other constructs i.e. performance or failure rate, the objective measures are likely the better proxy as they reflect the state of the environment.

3.4 Underlying conditions

TCA-based studies seem to agree that the diverse effects of uncertainty are mainly due to two reasons: 1) its various conceptualizations and 2) its conjunction with asset specificity (Harrigan 1986; Rindfleisch and Heide 1997; Carter and Hodgson 2006). Empirical evidence that shows substantial variation in conceptualizations is extant. For example, Klein (1989) discovers the effect of dynamism is not as strong as other types of uncertainty, which supports the view to disaggregate uncertainty into components. Klein, Frazier and Roth (1990) find mixed support for complexity and diversity. Firms are likely to integrate in a highly volatile environment and tend to use markets in highly diversified environments. However, the support does not hold for all channel types investigated in Klein, Frazier and Roth's (1990) study. Sutcliffe and Zaheer (1998) state that the three sources of uncertainty; primary, competitive, and supplier, act independently and emphasize the need to treat them differently. Empirical evidence from Kor, Mahoney and Watson (2008) finds strong support that the impact of demand, competitive, and technological uncertainty on the percentage of outsiders on IPO firm's boards differ dramatically based on different uncertainty.

In addition to the different findings due to the different way uncertainty is operationalized, the impact of uncertainty is also contingent upon asset specificity. Anderson and Gatignon (1986) find that the effect of external uncertainty (measured by country risk) on entering a new country as a wholly owned subsidiary varies according to level of asset-specificity. When asset specificity is high, the effect of external uncertainty on entering a new country as a whole owned subsidiary is positive, and vice versa when asset specificity is low (Gatignon and Gatignon 2010). The panel study by Coles and Hesterly (1998), assesses the interaction of asset specificity and uncertainty, supports TCA's prediction that with the presence of asset specificity, increased uncertainty will lead to the decision to integrate. However, the study also discovers that TCA's explanation is subject to context. While TCA's

prediction holds in private hospitals where there is a high efficiency pressure, its explanatory power is low in public hospitals where efficiency pressures are low. Parmigiani (2007) found no evidence that volume and performance uncertainty leads to the decision to vertically integrate when a multinomial logit model is used and only found support for performance uncertainty when an ordered logit model is deployed. Besides the two notions stated above, strategy, risk, and uncertainty literature are also criticized for their approach in investigating uncertainty in isolation rather than interrelated constructs that jointly form the context that shapes organizational structure and strategy (Miller 1992).

Although the reasons for uncertainty's diverse empirical results are established, the underlying conditions that are responsible for the direction of uncertainty's impact on other constructs, specifically mode of governance, are still missing. As there seem to be too many uncontrollable factors, there is insufficient evidence to make specific predictions about uncertainty on governance based on the current literature. The plausible explanation for the underlying conditions that determine the effect of uncertainty on governance might depend upon the strategic trade-off between cost and benefit. This is consistent with agency theory which proposes that the most appropriate mode of governance is a function of tradeoff between control and cost of resource commitment which covers all the possible costs incurred if a firm decided to use hierachical governance, namely cost of opportunism, cost of obligation, opportunity cost (Anderson and Gatignon 1986). This is supported by Folta (1998) who suggests that vertical integration might be appropriate in dealing with uncertainty as the increase in uncertainty will increase the cost of drafting and monitoring to a point where vertical integration is a more efficient and less costly option (Folta 1998). Brown and Potoski (2003) studied how government agencies make their decisions on how to commission their service and found that the selection is the tradeoff between the cost and benefit of risks and controls. The

factors that are incorporated into the decision process vary across type of services, market factors and institutional environments (Brown and Potoski 2003). Novak and Stern (2008) suggest that vertical integration will have differential impacts on different performance margins that are realized over the product lifecycle. Using indirect channels will facilitate access to cutting-edge technology and the use of high-powered performance contracts. On the other hand, vertical integration allows firms to adapt to unforeseen contingencies and customer feedback, to maintain more balanced incentives, and to develop firm-specific capabilities (Novak and Stern 2008). Overall, the findings highlight a strategic governance tradeoff between short-term performance and the evolution of firm's capability.

Based on the review of uncertainty literature and the plausible explanation of strategic trade-off discussed in the above paragraph, the possible governance structures under different cost- uncertainty level are proposed below in figure 3.1[1]. The x-axis represents the uncertainty and the y-axis shows the cost of resource commitment[2].

The framework adopts the broad and traditional conceptualization of uncertainty by Knight (1921) and Pfeffer and Salancik (1978) in which uncertainty is based on known/predictability aspect as "the degree to which future states of the world cannot be anticipated or accurately predicted" (Pfeffer and Salancik 1978, p.67). Therefore, uncertainty (the x-axis) represents degree of unpredictability from low to high. The low degree of unpredictability on the left means that uncertainty situation is known to firms. Therefore, firms should be relatively familiar with the situations and are likely

[1] Evidence from previous literature suggest that the impacts of uncertainty on vertical integration are mixed and contextual and its effect might depend upon a number of uncontrollable factors (cf. Harrigan 1986;Coles and Hesterly 1998; Carter and Hodgeson 2006; Palmatier, Dant, Grewal 2007). However, this framework represents the plausible key assessment in which firms use to evaluate the governance choices in light of uncertainty situation based on the notion of strategic-trade off

[2] Although TCA prescribes that uncertainty favors hierarchy only in the presence of asset specificity, this figure focuses only on the framework of trade-off between cost and uncertainty. Any cost incurred as a result of asset specificity should be considered as part of the cost of resource commitment.

to be able to identify the root cause, impact, and mitigation of that particular uncertainty situation. If the uncertainty situation is regarded as high degree of unpredictability, it means that it is unclear which would make it difficult for firms to have a vivid perspective about it.

The rationale for favoring the unpredictability aspect of uncertainty is that it is the general definition. What is interesting about this known/predictability aspect of uncertainty as emphasized by Milliken (1987) is that "it is not the change or fast rate of change that makes the environment become uncertainty, but it is the unpredictability aspect of change that creates uncertainty" (Milliken 1987, p135). For example, if demand is highly volatile in an expecting pattern i.e. due to special events in a certain period, should not be regarded as high uncertainty because this volatility is predictable. This unpredictability aspect is the key component of "uncertainty" regardless of the categorization or operationalization of uncertainty. In other words, all kinds of uncertainty can be placed on this unpredictability continuum. For example, if uncertainty were to be classified based on its domain of environment, the market factors such as demand and competitor, which firms are more likely to have market capability on the situation are likely to be more predictable relative to the non-market uncertainty such as political, natural disasters, or technological changes, which are ad-hoc and highly unpredictable. If the volatility/dynamism aspect is considered, higher volatility implies that the circumstances are more unknown than in the case of low volatility. Similar logic applies to other categorizations i.e. complexity. High complexity suggests that the diversification of competition is too dispersed and beyond the firm's ability to predict the situation with confidence. If uncertainty were to be considered based on both domain of environment and types, firms would have to assess whether the overall situation is rather known or unknown. This rationale is consistent with the approach taken by

Achrol and Stern (1992) in which seven types of uncertainty are operationalized according to this general definition of unpredictability (Achrol and Stern 1992).

The cost of resource commitment represented by the y-axis follows Anderson and Gatignon(1986) and Folta (1998) which propose that the governance mode is the function of strategic trade-off between control and the cost of resource commitment, which is all the possible costs incurred i.e. opportunism, obligation, and opportunity cost, if the firm decided to use hierarchical governance (Anderson and Gatignon 1986; Folta 1998; Brouthers 2002). Fundamentally, the cost of commitment is the cost that firms have to pay in order to have full administrative control, which is the purpose of hierarchical governance. This cost of commitment can include high overhead cost from having full-time employees that can result in high switching costs to other modes of governance and possible exposures to other risks (Anderson and Gatignon 1986; Brouthers 2002). The scope of cost of resource commitment depends upon the business objective of each firm. If a firm were to decide on the choice of governance on its backward integration, the cost of resource commitment would include the relevant production costs. If a firm were to decide on its forward integration only, the cost of resource commitment would include the relevant cost of administrative controls as well as opportunity and opportunism cost for its sales force management.

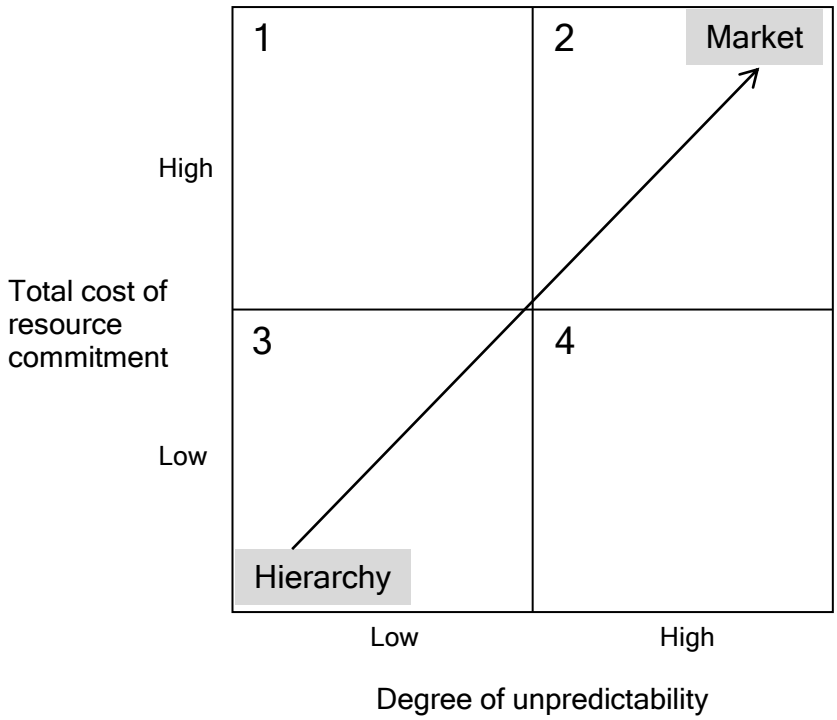


Figure 3.1: Uncertainty-cost-governance framework

When both unpredictability and cost dimensions are considered, we propose that the choice of governance will progress diagonally upward from hierarchy to market (Figure 3.1). In Cell 3, where the degree of unpredictability is low (the uncertainty is rather known) and the cost of resource commitment is low, firms are likely to use a hierarchical mode of governance as they can enjoy the benefit of a high level of administrative control at low cost. For example, in the situation of market uncertainty, demand and competitive, which is regarded as having a low degree of unpredictability, firms may feel more confident in handling the situation as they have market intelligence even if the costs of resource commitment are not considered. The low cost of resource commitment i.e. likelihood of opportunism, and low cost of drafting and monitoring contracts, provides justification for using hierarchy. In this case, the strategic trade-off between cost and control will be in favor of hierarchical governance. Opposite to Cell 1 is Cell 2 which presents the situation in which the degree of unpredictability is high and cost of resource commitment is high. The situation is unknown to the firm, so it would be very difficult to assess the magnitude of the issue. The high cost of resource commitment will increase the firm's exposure

to risk i.e. create high switching cost and reduce flexibility (Anderson and Gatignon 1986). Having administrative control comes with a high cost of commitment in the situation where management may not feel completely confident. Therefore, the market governance i.e. third party is a justified choice, as it would allow firms to avoid making risky commitments. For example, when a firm encounters technological uncertainty, which is a non-market factor and mostly unfamiliar to the firm, the firm will tend to choose a third party to handle the situation to avoid making a commitment to technology that might become obsolete (Folta 1998). Along the diagonal line from hierarchy to market where the degree of unpredictability and cost are not extreme, a firm may choose different hybrid modes or shift its degree of vertical integration.

The other areas which are not discussed above i.e. cell 1 and 4 represent the unclear situation in which the benefit of particular governance is difficult to assess as it may depend on other non-controllable factors which are excluded.

3.5 Summary

This chapter emphasizes that uncertainty should be treated as a disaggregated construct. The effect of any particular uncertainty on other constructs should not be generalized for all uncertainties. The following example of empirical works related to uncertainty which focus on its impact on choice of governance below will provide a good basis for the above disaggregated notion. Anderson (1985) found that unpredictability is unrelated to integration. Therefore, it is important not only to understand what the particular source of environmental uncertainty is, but also its type. While specifying the source of uncertainty identifies the domain of the environment (i.e. competitors or suppliers), specifying the type of uncertainty focuses on delineating the nature of the uncertainty being experienced (Milliken 1987). Last but not least, it is important to understand how it is measured to help improve understanding and result interpretation.

CHAPTER 4

HYPOTHESES

4.1 Introduction

In the preceding chapters we discussed governance theory, the adopted theoretical framework for this study. Chapter 2 reviewed the relevant literature in the area of governance while chapter 3 focused on uncertainty. The aim of this chapter is to develop a conceptual framework, research questions, and hypotheses to answer the research questions introduced in chapter 1. This chapter is organized in the following way. First, section 4.2 restates research objectives and research questions of this study. Our research questions represent 3 main relationships. The first relationship discusses the relationship between uncertainty and governance. The second relationship emphasizes the relationship between uncertainty and performance. The third relationship explores if the degree of vertical integration can moderate the impact of uncertainty on performance. Next, the conceptual model is presented in section 4.3 to provide the overall background of the study and display the relationship among our key constructs. Section 4.4 provides justification for choice of hotel variables. The 13 hypotheses of this study are discussed in section 4.5 with 3 sub-sections for each main relationship. Finally, section 4.6 summarizes the chapter.

4.2 Research objectives and questions

As stated in chapter 1, there are three primary objectives of this study. The first objective is to validate the role of TCA's proposition in concurrent channel context. The second one is to examine the impact of governance on performance. The last objective is to deepen understanding on various types of uncertainty, especially the

institutional variable, and their impacts of governance and performance. Based on these objectives, the central question in this dissertation investigates a discriminating alignment hypothesis which predicts that firms that align their mode of governance with transaction dimensions will result in superior performance (Williamson 1985; Mooi and Ghosh 2010). Specifically, there are 3 research questions. The first question focuses on the impact of each uncertainty on governance. The second question looks into the direct effect of each uncertainty on performance. The last and crucial question explores the role of vertical integration and whether or not it can buffer the impact of uncertainty on performance. The hypotheses in this study are based on governance theory, which is a broad term that includes TCA, agency theory, and institutional environment. The hypotheses are constructed based on TCA's prediction on how a firm responds to uncertainty with supporting rationale from other governance theories as stated above.

The first research question which corresponds to the first objective considers the impact of uncertainty in the context of deployment of the direct and indirect channels to extend the traditional TCA which only focuses on the governance choice between make or buy (market vs. hierarchy), rather than both making *and* buying. Although TCA does consider the possibility of using multiple channels concurrently, this form has often fallen under a hybrid mode of governance which is the middle range between market and hierarchy (Dutta, et al. 1995). However, studies on hybrid governance often do not address the case of why the balance of using both channels for the same product shifts (Parmigiani 2007). Recent research has paid more attention to the simultaneous reliance on both direct and indirect channels "concurrently" (Sa Vinhas and Anderson 2005; Parmigiani 2007) as it has become more common in practice for firms to use both direct and indirect channels to conduct their business in the same area for different market segments or even to compete for similar customer segments (Cespedes and Corey 1990).

Concurrent channels are also better for customers because customers can select the channel that fits with their buying behavior, and better for firms because they can increase coverage and performance (Sa Vinhas and Anderson 2005).

Research questions 2 and 3, which correspond to the second objective, focus on examining the impact of uncertainty variables on performance. Question 2 explores the direct effects of uncertainty on performance. Question 3 asks about the subsequent performance effect of governance choices which is central to this study as it is the direct investigation of TCA's discriminating alignment hypothesis.

By disaggregating the uncertainty construct into demand, competitive and political when examining their relationship with governance and performance, the last objective in deepening the understanding on various types of uncertainty of this study is achieved. The disaggreation is crucial as previous empirical evidence shows that uncertainty's effect on governance can be both congruent and contradictory to TCA's prediction. For example, the effect of complexity on vertical integration is positive, while that of dynamism is negative (Klein 1989). The view that agrees with TCA's position suggests that vertical integration, a direct sales force, should result in lower transaction cost, and subsequently, better performance outcome. The opposite proposition to TCA is that the flexible organization can better adapt itself with the situation. Therefore, an indirect sales force should be able to respond to the situation more quickly since this type of sales force works independently and can reach a larger customer base (Klein, Frazier and Roth 1990). For example, a travel agency can easily create or adjust the offer without having to get approval from the hotel. These different positions are the reason for our research question concerning the investigation of different types of uncertainty and hypotheses. The reason why the study has to treat uncertainty as a disaggregated concept is important because if the effect of each uncertanty on vertical integration is

different, its subsequent performance should be different. Although TCA prescribes that vertical integration is the preferred mode of governance when transaction complexity increases only if there is a presence of asset specificity in the relationship, due to data availability, this variable is not included in this study. However, we view that the absence of this variable should not compromise the findings for two reasons. First, the degree of asset specificity is assumed to be stable through the period of study as data is drawn from the same hotels over time. Second, the effect of asset specificity on the choice of governance is still inconclusive. Among empirical studies reviewed by David and Han (2004), only approximately 50% of the studies on effect of asset specificity and its interaction on uncertainty align with TCA's prediction that hierarchical governance is preferred when transaction complexity increases. For example Anderson and Schmittlein (1984) found no effect of the interaction between uncertainty and asset specificity on the decision to vertically integrate. Dyer (1997) suggested that there are situations in which same level of asset specificity will result in different transaction costs because other transaction factors i.e. commitment, mix of safeguard, are also play in an important role. Recent studies in TCA tend to favor the view that firms choose their mode of governance based on the weighting of direct and opportunity costs (Ghosh and John 2005). As a consequence, it is not unusual for empirical works in this area to exclude this variable when investigating other transaction dimensions – governance –performance relationships (cf. Sa Vinhas and Anderson 2005; Kim, et al. 2011).

4.3 Conceptual model

The conceptual model is based on governance theory, which prescribes that firms that align their mode of governance with transaction dimensions will economize on transaction cost. This alignment is expected to result in superior performance relative to firms who do not organize their governance as prescribed (Williamson

1985; Klein 1989; Geysken, Steenkamp, Kurmar 2006). Figure 4.1 presents the conceptual model which illustrates the relationship between uncertainty, governance, and performance. Three key relationships can be drawn from the model: 1) the impact of uncertainty on governance, 2) the impact of uncertainty on performance, and 3) the moderating impact of governance on performance.

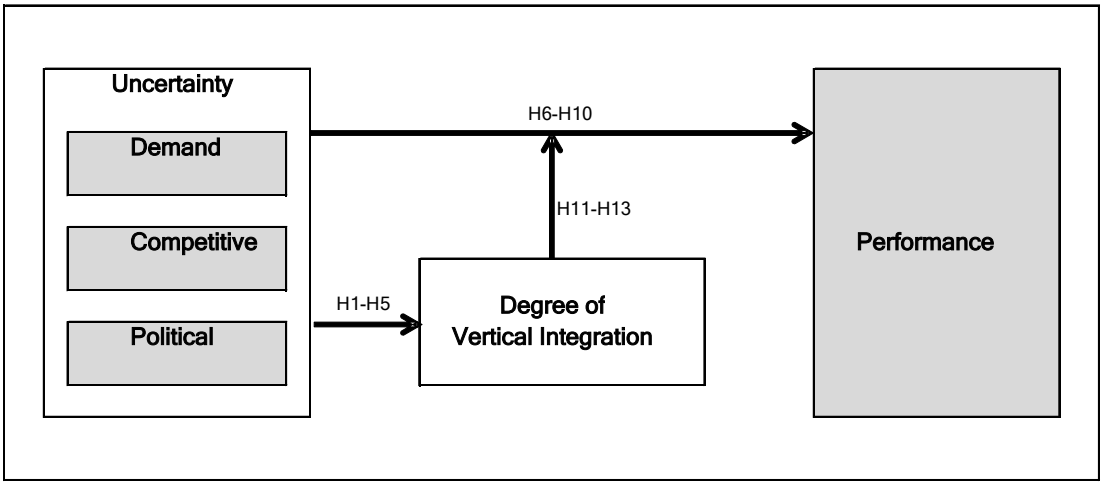


Figure 4.1: Conceptual model

4.4 Justification for choice of model variables

The study's choice of dependent variables, *governance* and *performance*, was driven by the interest in linking TCA with a more current practice. As for *governance* which is discussed in section 4.2, the study extends the traditional focus of TCA which only emphasizes the discrete choice of "make, buy, or hybrid", by bringing "concurrent" channels which is usually addressed in neoclassical and organizational capabilities literature into consideration. Concurrent channels refer to the use of two or more forms of governances simultaneously (Bradach and Eccles 1989). The study's interest is not on the choice of governance that the focal firm chooses to employ under different uncertainty levels, but the simultaneous deployment of these channels as the level of uncertainty changes or *channel deployment*. Specifically, our interest is to investigate if the focal firm tries to use more or less of its direct sales force when each of the uncertainty rises. While it might be argued that the choice of governance is partially determined by the

consumer themselves and is not fully controlled by the management, the choice of governance is viewed as, to some extent, a managerially choice in this study. The rationale is that consumer's channel selection is a result of the firm's marketing efforts i.e. promotional emails, price reduction (Neslin, et al. 2006) which is driven by the firm's channel strategy on which channels it would like to focus on. The firm will then allocate its resources accordingly (Mallapragada, et al. 2014). For example, based on our discussion with management, the hotel may choose to have a secret deal promotion with online travel agent if the sales in direct channels might go below budget. The hotel will usually allocate higher marketing expenditure with its direct channels during the beginning to get more group bookings from company's incentive trip or annual plan meeting. Management allocates and adjusts its marketing expenditures based on which channels it would like to generate sales in particular period. *Degree of vertical integration* which refers to the continuum degree of proportion of sales placed through direct channels to total sales to represent the shift of governance within concurrent channels is employed as the measure for this variable.

In regards to *performance*, what brings the study's interest into the area is the notion of scarcity of empirical evidence that link the selected choices of governance with relative performance outcomes (Leiblein, Reuer and Dalsace 2002, David and Han 2004, Bigelow 2006). The study chooses to focus on the financial aspect of the performance as it is the utmost objective of all firms. Monthly revenue is chosen as our measure as it directly links to a firm's success in the marketplace and is more accessible than other financial measures such as net profit or return on investment (Rothaermel, Hitt and Jobe 2006). In addition, revenue is not affected by accounting practices i.e. different methods of valuations and does not take other non-sales factors such as depreciation, tax, and interest into consideration (Demsetz and Villalonga 2001).

Our focus is on how different uncertainties affect the dependent variables, governance and performance. In this regard, previous literature in the area of governance (Chapter 2) and uncertainty (Chapter 3) were reviewed. The study agrees with those literature that it is crucial to disaggregate uncertainty into different facets for the reason that different facets of uncertainty lead to different conclusions. The disaggregation is consistent with the study's third objective in testing whether or not TCA's prediction that vertical integration is the preferred mode of governance when uncertainty rises can be applied to all uncertainty. Based on the uncertainty literature review in chapter 3, the study disaggregates uncertainty based on its domain of environment. The study follows Miller (1992) which categorizes the domain of environment along a continuum of relevancy to the firm from 1) firm specific, 2) industry, and 3) general environment and focuses its attention on industry-level market uncertainty and general non-market uncertainty (institutional variable) based on the objective in applying TCA's prediction to include institutional variables. As the interest of this study is how the change in environmental factors affects governance and performance, the dynamism/volatility aspect of uncertainty will be the focus. Hence, each uncertainty is conceptualized as the dynamism/volatility of the domain of environment of interest.

As for market industry-level uncertainty, Miller (1992) identifies that there are three major classes of firm-specific uncertainties: input (demand), product market, and competitive uncertainty. The study selects demand and competitive uncertainty for the reason that they are the key determinants of performance in any industry in general. The higher the degree of these uncertainties, the higher the challenges for a firm to evaluate whether poor performance is due to the industry instabilty, managerial incompetency or opportunism (Kor, Mahoney and Watson 2008). For example, hotels in Dubai have suffered from a weak economy in Russia and

Europe which cause the number of in-bound Russian and European tourists to be significantly lower than the forecast number. In order to make up for this loss, travel agents may suggest hotels to come up with promotions such as lowering room rates or offering free breakfast to get more business and to match offers from competitors. However, some of this might be unnecessary or the travel agents may act opportunistically by only passing on the free breakfast to the tourists and charging them for the same room rate. Therefore, the agents enjoy extra benefit from the uncertainty situation. Under this scenario, it would be difficult to assess whether the real problem is from the weak Russian and European economy, competitor's actions, opportunistic travel agents, or incompetent managers who follow the agent's advice. A firm might be in a better position using more of its direct sales force under this situation because firms are knowledgeable about the industry and emphasizing direct sales would allow them to have a better access to the information.

When assessing demand in the tourism industry, the number of tourist arrivals or receipts from tourism are usually considered. Therefore, demand uncertainty can either be the volatility of number of tourists (Neumayer 2004) or the instability of overall industry sales which makes it hard for firms to evaluate the situation with confidence (Kor, Mahoney and Watson 2008). In this study, we prefer Neumayer's (2004) conceptualization of *demand uncertainty* as the volatility of number of tourists (Neumayer 2004) as tourism receipts are typically taken from the balance-of-payment statistics, are known to be inaccurate (Sinclair 1998), and are varied according to other economic factors.

"Competitive uncertainty is a broad category covering the uncertainty associated with the rivalry among existing firms and potential entrants into the industry which covers the inability to predict the amount of goods in the market" (Miller 1992,

p.317), the intensity of the competition, and innovations. In the context of this study, competitive uncertainty can include new direct competitors which usually come with interesting price point and position. For example, a newly built hotel which focuses on the meeting and convention business may offer lower room rates than existing hotels in the same area. The uncertainty of a competitive situation makes it more difficult for firms to formulate the right strategic action, which can weaken the firm's economic performance (Kor, Mahoney and Watson 2008). In the context of our study, the most appropriate conceptualization of competitive uncertainty is the unpredictability of competitive intensity which is defined as the volatility of the degree of competition that our focal firm is facing (Grewal and Tansuhaj 2001) and is one of the factors that is predicted to directly affect the firm's operations and performance.

General environment or external uncertainty which represents non-market uncertainty is often labeled "country risk" which can take the form of political uncertainty, economic fluctuation, social norms, or natural disasters (Anderson and Gatignon 1986; Miller 1992). *Political uncertainty* is chosen as it is an important dimension of institutional environments that captures the political system and set of regulations in each particular locations (Demirbag, Glaister and Tatoglu 2007) which are the non-economic circumstances that are relevant and crucial for any business to take into consideration in addition to those market factors. *"Political uncertainty* refers to the stability or instability in government policies that impact the business community" (Miller 1992, p.314). In this study, *political uncertainty* includes both uncertainties in the political situation and policy changes as the changes in policy can be impactful to business even though the political situation is stable. The construct represents overall political events that may have major impact on other constructs. Unlike the *demand* and *competitive* uncertainty which refers to the volatility of industry-related situations, *political uncertainty* refers to the

change in circumstances in the general environment which firms may not be familiar with. Therefore, firms may need to be more dependent on an indirect sales force to maintain their flexibility in accessing the market.

In summary, three uncertainties in three domains of environment; *demand, competitive*, and *political uncertainty* are chosen for their commonality and inevitability in any business operations regardless of industry or geography. Demand and competitive uncertainty are two key usual and on-going industry-level uncertainties (Miller 1992) while political uncertainty characterizes the more infrequent and extreme type of general environment uncertainty.

4.5 Hypotheses[3]

4.5.1 The impact of uncertainty on governance

Following the first objective, the first research question focuses on governance which is addressed through the deployment of different channels in a concurrent channels context. *Channel deployment* refers to a continuum degree of a proportion of sales generated by direct or indirect sales by total sales and is measured by degree of vertical integration. The study aims to answer this question using 5 hypotheses which test the effect of three different uncertainties and their interaction effects on the degree of vertical integration. Besides the main effect of uncertainty variables, the study also aims to investigate if one uncertainty can moderate the effect of another, specifically on how the non-market uncertainty such as political uncertainty moderates the industry-level market uncertainty by interacting with demand uncertainty and competitive uncertainty.

Hypothesis 1

[3] All of the hypotheses follow ceteris paribus law which refers to " all else being equal" (Schiffer 1991)

As for the effects of demand uncertainty on channel deployment, the study suggests, consistent with TCA's predictions, that when uncertainty rises, vertical integration is the preferred mode of governance. If demand uncertainty is low, TCA assumes that market governance is a more efficient mode because of the benefits of competition. Firms will be in a better position to use market (indirect or third party sales force) which is the more economizing mode of governance to recruit customers. Opportunism will not pose problems since it is not difficult to verify performance.

When demand uncertainty, which is the uncertainty of overall industry demand and is exogenous to governance choice, is high, firms can either have unusually low or high business. In both cases, firms may feel insecure to rely on a third party since they also serve competitors. Third parties will be more opportunistic since the performance is difficult to verify. A third party can use the demand uncertainty as an excuse for not delivering the target even though the performance shortfalls are caused from their opportunistic acts or inefficiency. If relying on third parties, the focal firm may face opportunity losses when business is high and will be in a riskier situation when business is low. As summarized by John and Weitz (1988), TCA prescribes that an appropriate response to increased environmental uncertainty is to adopt vertical integration. First, vertically integrated structures permit sequential, adaptive decision making to proceed more smoothly because of administrative mechanisms. Authority structures allow firms to have a better information flow, thus they can better respond to the uncertainty (John and Weitz 1988). Firms tend to use their own sales force under this situation as it is the type of channel firms can directly put their emphasis on. Using the firm's own sales force allows manager to decide on marketing schemes to cope with the situation and act spontaneously. Firms may perceive that third parties may act opportunistically to protect their own interest. For example, a third party may convince its customers to stay at a

competitor's hotel or may delay payments to the focal firm. Under these circumstances, the focal firm may view a direct sales force to be a safer choice. Therefore, in the context of concurrent channels, the study hypothesizes that when demand uncertainty is high, the degree of vertical integration will be higher.

H1: The higher the demand uncertainty, the higher the degree of vertical integration, *ceteris paribus*

Hypothesis 2

High competitive uncertainty means the intensity of competition is highly volatile. In this situation, response to the market situation will change swiftly to cope with this volatility. Therefore, it is difficult for the focal firm to formulate a solid plan to deal with the changing competitive situation. Firms will have to work harder either to secure their own business or to gain from competitors. For example, third party agents who serve both the focal firm and competitors may feel that the focal firm's credit terms or commissions are not flexible enough relative to those of competitors. This may allow a third party to act opportunistically (a passive form of opportunism, defined as the refusal to adapt) (Wathne and Heide 2000). Third parties may give the business to competitors, who offer higher incentives, have flexible cancellation policy or flexible credit terms. Thus, firms cannot fully rely on a third party under these circumstances. Focal firms will suffer from forgone revenue due to maladaptation. As there is a potential likelihood of opportunistic behavior from a third party, the study hypothesizes that when competitive uncertainty is high, focal firms should rely on their own sales force to secure the business.

H2: The higher the competitive uncertainty, the higher the degree of vertical integration, *ceteris paribus*

Hypothesis 3

Unlike demand and competitive uncertainty which are industry-level market uncertainties that a firm has its market orientation capability to handle, political uncertainty addresses circumstantial changes in the political environment and reflects the threats and opportunity associated with potential or actual changes in the political system which can range from regular policy change to general election, war, revolution, coup d'état or other political incident (Miller 1992). The higher political uncertainty often signals negative effects to the general environment, not just the volatility of the situation, even though those changes are non-violent.

The generalizability of much published research on political uncertainty is still unclear. The TCA framework suggests that when political uncertainty is high firms should maintain their flexibility to avoid resource commitment. Relying more on market will allow firms to benefit from market mechanisms which are cost advantage, wider customer base, and distribution of risk. This suggestion is valid only when there is no presence of asset specificity. If asset specificity is present, a firm needs to exert control for that specificity to manage the uncertainty and resolve disputes (Anderson and Gatignon 1986) and, to the extent possible, avoid opportunism such as free riding on the focal firm's reputation.

However, whether or not asset specificity is taken into consideration, empirical evidence that is contradictory to TCA's prediction exists. For example, Anderson and Gatignon (1986) shows that firms are more likely to use partnership than vertical integration as a mode of entry into high political risk foreign markets. Henisz and Williamson (1999) found that in time of political uncertainty, firms may prefer a less hierarchical governance structure to reduce the hazard of political expropriation. Oxley (1999) states that in the case of organization of inter-firm alliances, political uncertainty increases the risk of public appropriation; therefore, firms should try to be less vertically integrated to avoid the risk i.e. subsequent incremental cost. Though, the security of contracts with local firms is also likely to

be negatively affected by increased political risk due to lack of confidence in the enforcement powers of the courts which will make vertical integration a more attractive option. Nickerson, Hamilton, Wada (2001) suggests that firms operate in highly uncertainty environment are less likely to make specific investments for fear of public expropriation and the result shows that a weak institutional environment discourages vertical integration. Demirbag, Glaister and Tatoglu (2007) find that firms prefer joint-venture to wholly owned subsidiaries in high political risk countries to avoid the risk of intervention or expropriation.

The volatility of the political situation will also result in customers 'demand for flexibility to counter lock-in. Booking through a third party will allow them to change their choice of hotels or completely change their destinations to other cities or countries. This is the kind of flexibility that they will not have if the customer books direct with the focal firm. The awareness of customers 'demand for flexibility together with insufficient capability to handle the situation leave firms no choice but to depend more on third party to reach out to a wider customer base even though this may result in a lower margin. For example, an exclusive promotional price through the hotel's website or group booking in which firms can be more selective and spontaneous at a higher profit margin may not generate sufficient volume for the business. In this regards, to generate a satisfactory number of bookings, firms may have to allocate higher than usual marketing expenditures to create stronger promotional activities with travel agent, which will result in lower profit margin and higher potential costs of opportunism i.e. the agents will take these higher than usual promotional budget as reference points for future collaboration. Therefore, the study hypothesizes the effect of political uncertainty on governance differently from those of demand and competitive uncertainty. The study views that the focal firm will have to maintain its flexibility in time of political uncertainty.

H3: The higher the political uncertainty, the lower the degree of vertical integration, *ceteris paribus*

Hypothesis 4

For the interaction effect between uncertainty variables, our objective is to explore whether political uncertainty, which is extreme and infrequent, can moderate the effect of a more general uncertainty. As hypothesis 3 indicates that a focal firm should try to maintain its flexibility in times of political uncertainty, political uncertainty should lessen the positive relationship between the industry-level uncertainty and the degree of vertical integration.

H4 examines whether political uncertainty moderates the impact of demand uncertainty on the degree of vertical integration. The study expects that the relationship between demand uncertainty and the degree of vertical integration will vary according the level of political uncertainty.

In the case of low political uncertainty, a focal firm does not have to consider the effect of political uncertainty on demand uncertainty. The focal firm will opt for the best possible performance outcome by trying to be more vertically integrated since the risk of opportunism should be lower than when relying more on a third party. However, when political uncertainty is high, the focal firm faces both lower demand and higher demand uncertainty which causes the business opportunity to become smaller and highly volatile. This volatility can be caused by last minute decisions and cancellations. In addition, as indicated in H3, the focal firm's customers may want to maintain flexibility in time of high political uncertainty and start to rely more on third party channels. In order to maintain the business, the focal firm must consider the tradeoffs between cost of opportunism and business gains from using third party channel, which might be necessary since political uncertainty alters the effect of demand uncertainty to be more complex. In this case, the business gains

from relying more on third party channels are expected to offset the cost of opportunism which is an immediate efficiency gain required under this circumstance. Therefore, high political uncertainty will lessen the positive relationship between demand uncertainty and degree of vertical integration.

H4: The higher the political uncertainty, the weaker the positive effect (less positive) of demand uncertainty on degree of vertical integration, *ceteris paribus*

Hypothesis 5

H5 investigates the moderating impact of political uncertainty on the relationship between competitive uncertainty and degree of vertical integration. If political uncertainty is low, a firm may want to become more vertically integrated in response to competitive uncertainty since it is the most economizing choice and one which will lead to subsequent superior performance. However, when political uncertainty is high, players in the market may want to become more flexible and start using more of a third party in response to customer's demand for flexibility. Similar to that of H4, although the focal firm may suffer from a third party's opportunism, the business gains that result from relying more on third party channels should offset the cost of opportunism. The focal firm will lose business from customers who prefer booking through a third party to competitors if the focal firm only focuses on its own sales force (vertical integration). Therefore, the study hypothesizes that high political uncertainty will lessen the positive relationship between competitive uncertainty and the degree of vertical integration

H5: The higher the political uncertainty, the weaker the positive effect (less positive) of competitive uncertainty on degree of vertical integration, *ceteris paribus*

4.5.2 The impact of uncertainty on performance

Based on the second objective, a set of hypotheses is constructed to answer whether or not different types of uncertainty have a different impact on

performance. TCA predicts that an increase in any of the transaction dimensions, asset specificity, uncertainty, or frequency, will result in a higher transaction cost; hence, the subsequent performance should be lower (Williamson 1985). Besides TCA, another popular theoretical lens that is used to explore this direct vs. indirect sales force phenomenon is agency theory which focuses on the principal-agent relationship. However, both theories address this linkage indirectly. TCA states that uncertainty will increase cost, resulting in lower performance, while agency theory addresses this linkage through opportunism; uncertainty will increase opportunism cost which will result in a lower performance outcome (Eisenhardt 1989; Dutta, et al. 1995; Kraft, Albers and Lal 2004).

According to the above governance theories, this study expects that performance should be lower when uncertainty rises and expects that all types of uncertainty should have the same effect on performance. Similar to section 4.3.1, the study intends to provide empirical evidence in this area by testing the impact of three uncertainties and their interactions on performance. The study focuses on financial performance. *Performance* refers to revenue generated by the room department only as the measure since it is the direct performance measurement that excludes the effect of other factors that are irrelevant to sales effort.

Hypothesis 6

H6 tests the main effect of demand uncertainty on performance. The impact of demand uncertainty on performance is not necessarily negative to performance. It could be the case that the demand (number of tourists) is unusually high. However, the study expects that high demand uncertainty should have negative effects on performance as it causes difficulty in business operation. Although demand is high, the focal firm may not properly prepare itself to cope with it. Also, high demand uncertainty is likely to increase the chance of opportunism from a third party. On

the contrary, if demand uncertainty is low and predictable, the firm can plan out the right marketing scheme and resources that will result in optimal performance. Therefore, the study hypothesizes that:

H6: The higher the demand uncertainty, the lower the performance, *ceteris paribus*

Hypothesis 7

Similar to H6, competitive uncertainty is not necessarily negative. When competitive uncertainty is low, firms can fully benefit from their market orientation capability or knowledge in which has been captured from the operating environment such as competitors and customers in their business operation (Grewal and Tansuhaj 2001). However, in a highly volatile market, the market situation is unique, unclear, shifting, and cannot be modeled in advance; therefore, firms are less likely to have market orientation capability under this high uncertainty condition (Eisenhardt and Martin 2000; Grewal and Tansuhaj 2001). As a result, the firm has to adjust the strategy and operation on an ongoing basis, which may disrupt the operations and incur unforeseen cost. High competitive uncertainty will also increase the chance of opportunism from a third party which the firm may have to put a considerable amount of resources in for control and monitoring, resources that could be used for other productive purposes (Calfee and Rubin 1993). Therefore, the study hypothesizes that when competitive uncertainty is high, the performance of the firm should be less than when competitive uncertainty is low.

H7: The higher the competitive uncertainty, the lower the performance, *ceteris paribus*

Hypothesis 8

As previously discussed, political uncertainty signals a negative notion as the factors that drive the change in the political situation affect stability, and produce conflicts and tension. The focal firm's customers who are often regarded as

relaxing holiday makers are, therefore, sensitive to the political situation and will easily switch to another destination that has similar characteristics since tourists select their destination based upon certain characteristics rather than a particular destination (Neumayer 2004). In addition, unlike the uncertainty in demand and competition which are part of the market dynamic, the uncertainty in politics can be much more circumstantial. For example, the lifting of martial law in Thailand in May 2014 signaled to travellers that there might be violence in the country, even though there was none. In addition to the perception of violence, the lifting of martial law also triggered the exclusion clause in the travel insurance policy of certain companies (www.wttc.org) which might have prevented both holiday makers and business travellers from coming to the country due to fears of insecurity. Firms will suffer the revenue loss from cancellations and may also have to reduce their price to make their products look more competitive. As third parties will also get affected by the situation, they may incline to be more opportunistic as transaction partners who are faced with political hazards are likely to recourse to illegitimate behaviors (Henisz and Williamson 1999) which will also post a threat to the firm's performance. A third party may suffer from a shortage of revenue or have insufficient cash flow to make the payment. The obscurity of the situation makes it difficult to evaluate whether the shortfalls are due to the political situation, inefficiency of management or opportunistic behavior of third parties. Therefore, when political uncertainty is high, the performance of the firm should be lower than when political uncertainty is low.

H8: The higher the political uncertainty, the lower the performance, *ceteris paribus*

Hypothesis 9

Similar to H4 and H5 (discussed in section 4.5.1), our interest is to explore whether the non-market uncertainty such as political uncertainty can moderate the effect of the market uncertainty on performance.

As political uncertainty is a vital dimension of institutional environments which captures political system and set of regulations in particular locations (Demirbag, Glaister and Tatoglu 2007), the change in political situation will result in the change in underlying conditions that is a basis for a market. If the political uncertainty is high, demand uncertainty is also expected to be higher than its usual level because travellers tend to make last minute decisions. The higher the political uncertainty, the more likely there will be a downward trend as travellers will fear that the situation will aggravate. Therefore, when political uncertainty is high, the focal firm will face both lower demand and higher demand uncertainty. Consequently, the negative effects of demand uncertainty on performance due to lower demand, improper planning, and opportunism from a third party (as stated in H8) are likely to be more negative.

Hence, when political uncertainty is high, the negative impact of demand uncertainty on performance will be stronger than when political uncertainty is low.

H9: The higher the political uncertainty, the stronger the negative effect (more negative) of demand uncertainty on performance*, ceteris paribus*

Hypothesis 10

The high political uncertainty will increase a number of unforeseen contingencies that players in the market must react to. Some players may cope with these unforeseen contingencies better than others which will cause the competitive set's performance and actions to become not so volatile. If competitive uncertainty is high, the focal firm will have to adjust the strategy and operation on an ongoing basis. This may disrupt the operations and incur unforeseen cost to the focal firm.

Similar to the rationale discussed in H9, it is likely that when political uncertainty is high, the focal firm may have to start to follow competitor's moves by relying more on a third party to serve customer's needs for flexibility. This will result in an incremental cost of opportunism due to a higher portion of sales generated from third party channels which would not be the case if the focal firm did not need to deal with the customer's flexibility issue which is a consequence of political uncertainty. Therefore, when political uncertainty is high, the focal firm will face higher negative effects of competitive uncertainty on performance due to improper planning, and opportunism from a third party.

H10: The higher the political uncertainty, the stronger the negative effect of competitive uncertainty on performance, *ceteris paribus*

4.5.3 The impact of governance on performance

The main aim of this section is to provide empirical evidence for TCA's discriminating alignment hypothesis. The following hypotheses are designed to test the subsequent effect of the focal firm's choice of governance on performance outcome which will provide empirical evidence on 1) whether or not transaction alignment will lead to superior performance and 2) whether or not TCA's prediction is valid with all uncertainty including the institutional variable which is a non-market uncertainty.

Hypothesis 11

H10 suggests a buffering effect of degree of vertical integration on the relationship between demand uncertainty and performance. When demand uncertainty is low and predictable, TCA predicts that the market is the most efficient mode of governance because the focal firm can get benefits from competition. However, when demand uncertainty is high, a third party will be more likely to be opportunistic since the performance is difficult to verify. Firms may face opportunity

loss when business is high and will even be in a risker situation when business is low. Using the firm's own sales force in accordance with TCA's prediction should result in a better subsequent performance than using a third party since the focal firm can utilize its market orientation to estimate the demand and come up with proper directions and control for the third party. On the contrary, using a third party will place the firm in a less advantageous position than using its own sales force since the focal firm will suffer the risk of opportunism from the third party.

Based on the above scenarios, this hypothesis considers if the choice of governance can moderate the relationship between demand uncertainty and performance, specifically if a higher degree of vertical integration can lessen the negative impact of demand uncertainty on performance.

H11: The higher the degree of vertical integration, the weaker the negative effect of demand uncertainty on performance, *ceteris paribus*

Hypothesis 12

Competitive uncertainty is a market industry-level uncertainty which the focal firm normally focuses their attention on. Thus, the focal firm is expected to have better intelligence about its direct competitors than third parties do.

Similar to that of demand uncertainty, when competitive uncertainty is low, relying more on a third party sales force should result in a better performance outcome. Under this situation, the competitive situation is quite predictable. It is more difficult for a third party to act opportunistically since performance is not difficult to verify. Market orientation capability may not be that advantageous since the dynamic of competition is quite stable. In that case, a high degree of vertical integration might hurt rather than improve the focal firm's performance. Therefore, when competitive uncertainty is low, a high degree of vertical integration will worsen the negative

effect of competitive uncertainty on performance than a low degree of vertical integration, which is in line with TCA's prediction.

On the contrary, when competitive uncertainty is high, being more vertically integrated will allow focal firms to benefit from their market orientation capability. Firms can utilize their market orientation to predict their competitor's direction and see how they can gain a competitor's business. A high degree of vertical integration will lessen the negative effect of competitive uncertainty on performance. The more a firm relies on a third party, the higher the risk of opportunism the firm is facing. Therefore, if a firm depends more on their sales force than on a third party, its performance is expected to be better.

H12: The higher the degree of vertical integration, the weaker the negative effect (less negative) of competitive uncertainty on performance, *ceteris paribus*

Hypothesis 13

If political uncertainty is low, there is no negative or extreme incident in the general environment and it is expected that it would be difficult for a third party to act opportunistically. However, business gains from relying more on third party channels should offset the cost of opportunism. We view that relying more on third parties will allow firms to benefit from a third party's market capability on their knowledge about target customers without bearing additional cost.

When political uncertainty is high, a firm's market orientation capability may not bear fruits under this situation since firms do not have knowledge about this type of uncertainty. Relying more on market will allow firms to benefit from market mechanisms such as cost advantage, wider customer base, and spreading out the risk. In addition, political uncertainty increases the risk of public appropriation. Therefore, in a high political uncertainty situation, the study views that the focal firm

should try to be less vertically integrated to avoid the risk i.e. subsequent incremental cost (Nickerson, Hamilton and Wada 2001).

H13: The higher the degree of vertical integration, the stronger the negative effect (more negative) of political uncertainty on performance, *ceteris paribus*

4.6 Summary

This chapter discusses 13 hypotheses that will be tested in order to answer our research questions regarding the effect of uncertainty on channel deployment and performance. Prior to the hypotheses, the research questions are restated and the conceptual approach is presented in the subsequent section. The justification for our model choice variables is discussed after the model.

The first five hypotheses (H1-H5) focus on the effect of uncertainty on channel deployment. We view that, when facing industry-level market uncertainty, firms will be more likely to vertically integrate and vice versa for the non-market uncertainty. However, the interactions among uncertainty variables will cause the firm to be less vertically integrated since firms have to depend more on third parties.

The impact of uncertainty on performance is tested in the next 8 hypotheses (H6 – H13), and the study views that all types of uncertainty and their interactions will negatively affect performance. The moderating effects of the degree of vertical integration on the relationship between uncertainty and performance are hypothesized by integrating the view on TCA and organizational capability. The rationale is that vertical integration can lessen the negative effect of market uncertainty for firms which have market capability on that specific uncertainty. However, for non-market uncertainty such as political uncertainty, becoming less vertically integrated might be more advantageous since the market capability of

firms and third parties on the situation is equal. Relying on a third party will allow the firm to bear less risk and gain immediate efficiency.

CHAPTER 5

METHOD

5.1 Introduction

Chapter 4 provided details on the study's conceptual framework and explanation for each of the hypotheses. The main focus of this chapter is to present the research method to carry out this study. First, the philosophical view of this study is discussed in section 5.2. The research design is presented in section 5.3 to give an overview of the nature of our data. Section 5.4 provides the context of this study. Next, section 5.5 provides the measurement details of each construct. Section 5.6 presents the characteristics of the sample. The estimation method is discussed in section 5.7. The econometric models, including the rationale for including each of the variables, are discussed in section 5.8. Section 5.9 includes alternative models which provide justification for our preferred model. Finally, section 5.10 concludes this chapter.

5.2 Philosophical worldview

This section discusses the philosophical worldview which is often addressed as the "research paradigm" or "epistemology" that governs each study. The philosophical worldview is defined as "a set of linked assumptions about the world which is shared by a community of scientists investigating the world" (Deshpande 1983, p.101) and is, generally in social science, divided into two different approaches: positivism and interpretivism. Positivism is an epistemological position that advocates the applications of the methods of natural science to the study of social reality and beyond with the objective of seeking ultimately causal explanations. It emphasizes that knowledge must be generated only through direct observations

and mainly (although not necessarily exclusively) uses quantitative methods to verify hypotheses. On the contrary, interpretivism is taken to denote an alternative to the positivist orthodoxy. It is predicated upon the view that a strategy is required that respects the differences between people and the objects of the natural sciences, and therefore requires the social scientist to grasp the subjective meaning of social action (Bryman and Bell 2007, p.17; Lee and Lings 2008). The methods employed by interpretivism are chiefly qualitative, although quantitative data is sometimes used (often for example in descriptive analyses).

To decide the appropriate research paradigm for the present study, the philosophical goal and belief of this study are first considered. The goal or the "axiology" of this study is not to explain the impact of uncertainty in any particular context, but to try to understand the causal relationships between uncertainty and other variables based on the governance theory. The belief about the nature of reality or the "ontology" of this research is that reality is objective. The study aims to understand the phenomenon through a deductive process. The model specification and measurements are carefully considered with the intention to generalize the findings. Taking these above notions into consideration, it seems that positivism should be the appropriate paradigm for this study for two reasons. First, positivism views reality as objectively measurable and not context specific. Second, contrary to the interpretivism approach that aims to describe and understand one particular issue through induction, positivism focuses on deductive explanations and aims for generalizability of the findings which is consistent with our intention to test the applicability of TCA's prediction to create circumstances where TCA's predictions can be applied.

Nonetheless, the positivism paradigm may not best fit this project. True positivism suggests that knowledge can only be generated through direct observation (Lee

and Lings 2008), which is not possible in this study. For example, how can one directly observe competitive uncertainty or the volatility of competitive intensity? Uncertainty or volatility can never be directly observed, it could only be measured through proxies. In a similar fashion, political uncertainty represents a number of different circumstances in the political environment ranging from the usual change in administration to the extremity of *coup d'etat* and war, but while those circumstances can directly observed, they are simply proxies for an overall concept of political risk, combined through a political risk score. As mentioned in the above paragraph, the axiology of this study is to understand the causal relationships based on governance theory. The fact that direct observation cannot be achieved in this study also leads to the issue with the axiology of this study. In summary, if positivism is adopted as the research paradigm for this study, no knowledge can be generated since the phenomena cannot be directly observed.

With the aforementioned issues in positivism, the more appropriate paradigm to guide this study would be realism. "Realism shares two features with positivism; a belief that the natural and social sciences can and should apply the same kinds of approach to the collection of data and to explanation, meaning reality should be objectively measured, and a commitment to the view that there is an external reality to which scientists direct their attention (in other words, there is a reality that is separate from our descriptions of it" (Bryman and Bell 2007, p.18). What makes realism a suitable paradigm for this study is its view about the observation of reality. While positivism suggests that knowledge must be generated through direct observation only, realism views that the unobservable can be measured through proxies (Lee and Lings 2008). As the unobservable can be measured through proxies, causal relationships between variables can be drawn. This fits with the study's axiology to understand the causal relationships between uncertainty and other variables based on the governance theory.

5.3 Research design

As the objective of this study is to investigate the continuous shifts within the concurrent channels, from lower to higher degrees of vertical integration, and to view the subsequent performance outcomes of the shift, the most appropriate research design is through a longitudinal study using secondary panel data. This design has the advantage in understanding organizations as a way of providing data on the mechanisms and processes through which changes are created. This involves drawing on "phenomena at vertical and horizontal levels of analysis and interconnections between those levels through time" (Pettigrew 1990, p.269). Longitudinal study's drawbacks on time and cost issues in data collection are overcome by the use of secondary data. There are two key benefits of employing secondary data. First, secondary data represent the reality of the situation. The data represent the real decisions not just attitudes or behavioral intention (Houston 2004). Second, it is economical in both time and cost which is particularly favorable for this study as sufficient numbers of observations covering adequate periods can be collected in shorter time at lower cost (Houston 2004; Mooi and Sarstedt, 2014) which allows the study to investigate this phenomenon dynamically and measure changes without having to be concerned about errors from between subject variations. As a consequence, this large number of observations increases the statistical power which can enhance the efficiency of the estimation (Rothaermel, Hitt and Jobe 2006).

Although secondary data is known to have the drawback in the matter of construct validity and a few disadvantages in the area of relevancy, accuracy, dependability and timeliness, the data used in this study is not affected by those issues. The data used in this study is not single-sourced and is objectively verifiable. Concerning construct validity, the study adopts the three-step method established by Houston (2004) to assess construct validity. First, each of the constructs is clearly defined

both theoretically and conceptually. Second, the selected measurements of the constructs follow the definitions and lie within the domain of the research context. Third, the measures are assessed for their nomological validity. If more than one measure is available for any construct, those measures are evaluated based on theoretical fit and consistency with other measures of the same construct. Finally, once the appropriate measure is selected, all the measures are evaluated to see if the relationships among intended measures are in line with the expectation (Houston 2004; Mooi and Sarstedt 2014).

As for relevancy, the internal secondary data from the company which provides the information on the company and competitor's performance are the sales and financial reports that the company used for its own operations. Thus, it provides relevant information on sales by channel types, revenue performance, and competitive performance. In terms of accuracy and dependability, the internal data must be audited by a Certified Public Account (CPA) since this company is listed on the Stock Exchange of Thailand. Its way of working strictly complies with rules and regulations set up by the Stock Exchange Committee which is of international standard. Published external data from each country are sourced from the authorities who are responsible for publishing those data. Demand information is provided by the tourism authority of each country. The economic indicators which are used as country level control variables are obtained from each country's national bank. Political uncertainty scores are purchased from International Country Risk Guide (ICRG) which is one of the databases that the World Bank uses as part of its political report. Most of the data are raw and, therefore, suffer from less statistical errors. The data is current and suitable for observing the change in variables. The data are measured at one-month intervals over a long period of 72 months from January 2008 to December 2012. In addition, the standard data collecting method allows the study to observe changes across time

and analyze the differences across geography which helps strengthen the generalizability of the study. Finally, unlike survey data, the secondary data is unlikely to suffer from the issue of response bias. In conclusion, longitudinal data is appropriate since it reduces concerns of common method variance and causal inference that would have existed with cross-sectional data (Rindfleisch, et al. 2008). Hence, it should provide more empirical insights.

5.4 Research context

The context of this study is the hotel industry in 4 different countries, namely Thailand, United Arab Emirates (UAE) - Dubai, the Philippines, and Egypt. The data employed in this study belongs to a leading Thai-based hotel management company founded in 1948 which owns, develops and operates 24 hotels in 9 countries under four distinct brands (as of October 2014). The company has been listed on the Stock Exchange of Thailand since 1975 and currently has USD 273 million in total assets (as of June 2014). During the period of this study, there were significant developments in the general environment of each country. Thailand, the Philippines, and Egypt were faced with considerable political turmoil during the study period. Although the political situation in UAE-Dubai has been stable, the country has faced a serious debt crisis. These factors offer a unique opportunity to study the impact of both 1) non-market uncertainty under both usual and unusual circumstances and 2) industry-level market uncertainty namely, demand and competitive uncertainty. Brief summaries regarding the general environment of each country and the hotel industry are presented in the following sub-sections 5.4.1 and 5.4.2.

5.4.1 General development in each country

Thailand

Thailand has had a series of political unrest since 2006 in the form of conflict between the opponent and supporters of former Prime Minister Thaksin Shinnawatra whose popular policy won a landslide election in 2001. The opponents of Thaksin, mainly the elite, had accused PM Thaksin and his party of massive corruption and started to rally against his government in April 2006. Finally, the military stepped in and staged a bloodless coup in September 2006 while PM Thaksin was in the U.S. Ever since, the political situation in Thailand has escalated. Although there was a general election in December 2007, both opponents and supporters of Thaksin have taken turns in blockades of the nation's government houses, roads, and central business district. The country seemed to return to normalcy after a general election in July 2011. The Thaksin party won the majority of the votes and his sister, Yingluck Shinnawatra, was appointed as the new prime minister. However, the conflict between these two groups continues in forms of demonstration, blockades, and some degree of violence. The military had to stage another bloodless coup in May 2014 in order to control the situation.

Dubai

Dubai is one, and the most populous, of the seven emirates that make up the United Arab of Emirates (UAE). Oil is its major economic driver. The UAE held its first election in December 2006 and has gradually been reforming itself with an aim to become the world economic leader. Dubai has been making substantial investment in its infrastructure, construction, and portfolio of businesses through its investment company "Dubai World." In 2009, Dubai World faced a serious debt crisis which dampened its economic atmosphere. Abu Dhabi had to provide Dubai World with a rescue package to ease the situation.

The Philippines

The political situation in the Philippines can also be considered as not fully stable. In addition to the irregular administration changes on the ground of corruption and vote-rigging, the country has also experienced a series of violence caused by Islamic communist groups namely Abu Sayyaf- an Islamic militant organization, MILF- Moro Islamic Liberation Front, and NPA- New People's Army. The nature of events caused by these groups can be described a regional, separate, but violent. Some events are rooted in the conflicts between Christians and Islamic communities.

Egypt

During 2007 – 2012, the political unrest in Egypt can be divided into 2 phases. The first phase started in 2010 with a series of movements in an attempt to overthrow President Hosni Mubarak who was appointed as president of Egypt in 1981. The political uprising first took place on January 25, 2011, mainly in the city of Cairo. The situation escalated from demonstrations into clashes between security forces and protesters resulting in a total of 846 deaths and over 6,000 casualties which forced President Mubarak to finally step down on Feb 11, 2011. President Mubarak was charged with corruption and sentenced to life imprisonment in June 2012 (www.bbc.co.uk 2011).

The second phase of protest started in 2012 with a series of protests against the newly elected President Mohammed Morsi. The main event that triggered the violence of this phase was President Morsi's issuance of a decree that granted his government unlimited power. Although the decree was finally withdrawn, the political movement has continued.

The key developments of political situations of each country are presented in table 5.1 below.

Year	Q	Thailand	Dubai	The Philippines	Egypt
2007	Q 1			Jan - Death of Abu Sayyaf (Islamic Militant Organization) leader, Khaddafy Janjalani	Mar - Referendum for constitutional amendments. Changes approved by 76% of voters, but the result is skeptical
	Q 2		Apr - UAE announces its national development strategy	Apr - Abu Sayyaf decapitated 7 Christian hostages	Jun - General election. Government National Democratic Party (NDP) wins most votes
	Q 3		Sep - Dubai and Qatar become the two biggest shareholders of the London Stock Exchange	Nov - Rebel soldiers fail to make coup in Peninsular Hotel, Manila	
	Q 4	Dec - General Election after military power seized in Sep 2006. Although former PM Thaksin is ousted, his party wins the most votes			

Table 5.1: Key development of political situations

Year	Q	Thailand	Dubai	The Philippines	Egypt
2008	Q 1				
	Q 2				
	Q 3	**Sep** - Government House seized by Anti-Thaksin protesters (Yellow shirts). This marks a beginning of Anti-Thaksin protests		**Jul** - Government reaches agreement with Moro Islamic Liberation Front (MLIF) rebels, but deal collapses after being objected to by Christian communities. This causes a new series of fighting in the southern islands	
	Q 4	**Nov** - Airport seized by Anti-Thaksin protestors to make their final battle. **Dec** - Court disbanding Thaksin's party for electoral fraud. Opposition leader becomes the new PM		**Dec** - New People's Army (NPA) attacks army patrol on Mindanao	

Table 5.1: Key development of political situations (Continued)

Year	Q	Thailand	Dubai	The Philippines	Egypt
2009	Q 1	**Mar** - Thaksin supporters holds weekly mass protests	**Feb**- Dubai sold $10bn in bonds to the UAE to ease liquidity problem		**Feb** - Bomb attack in popular tourist area kills 1 French student and injures 24 people
	Q 2	**Apr** - Thaksin supporters invade Asean Summit. Clashes between soldiers and protesters		**Sep** - Army captures leading MLIF figure	
	Q 3				
	Q 4	**Dec** - Thaksin supporters protest to demand for new election	**Nov** - Dubai requests a moratorium on debt repayments. Abu Dhabi gives Dubai $10 bn handout	**Nov** - Attack on Mindanao, 57 dead **Dec** - Peace talk between Manila and MLIF resumes	**Nov** - Row between Egypt and Algeria following violence at football matches **Dec** - Foreign activists protest in Cairo against Egypt's refusal to let aid convoys into Gaza
2010	Q 1	**Feb** - Supreme court withholds half of Thaksin's wealth resulting in a new round of protests. Thaksin supporters start occupying central Bangkok	**Jan** - Tallest building in the world opened in Dubai	**Feb** - Army captures Abu Sayyaf leader Mujibar Alih Amon	

Table 5.1: Key development of political situations (Continued)

Year	Q	Thailand	Dubai	The Philippines	Egypt
2010	Q 2	May - Clashes between soldiers and protesters (Thaksin supporters) to end the protests, death toll is 91		Jun - Benigno Aquino becomes president	
	Q 3				Nov - Coptic Christians clash with police in Gaza over construction of church
	Q 4				
2011	Q 1			Feb - Peace deal with communist NPA (New People's Army)	Jan - Bomb at church in Alexandra, 21 killed. Anti-government demonstrations Feb - President Mubarak steps down and hands power to the army council
	Q 2				Apr - President Mubarak and his sons are arrested for suspicion of corruption. Protests continue in Cairo. Army disbands the protesters in August

Table 5.1: Key development of political situations (Continued)

Year	Q	Thailand	Dubai	The Philippines	Egypt
2011	Q 3	Jul - General election. Thaksin's new party wins most votes. Thaksin's sister, Yingluck Shinnawatra, becomes the new PM			
	Q 4	Oct - Biggest flood in Thailand's history		Nov- Former President Gloria Arroyo is arrested on vote-fraud. She denies the charge and is bailed	Oct - Clashes between Coptic Christians and security force, 24 killed Nov - Violence in Cairo. Clashes between protesters and security forces. PM Essam Sharaf resigns Dec -National unity Government headed by PM Kamal al-Ganzouri takes the office
2012	Q 1				
	Q 2	Jun - Anti-Thaksin protesters rally in Bangkok to overthrow PM Yingluck		May - Confrontation between the Philippines and Chinese ships on the shoal reef which may have reserves of oil and gas	May - Military leader ends the state of emergency in place since 1981

Table 5.1: Key development of political situations (Continued)

Year	Q	Thailand	Dubai	The Philippines	Egypt
2012	Q 2				Jun - Presidential election. Mohammed Morsi wins. President Mubrak is sentenced to life imprisonment for killing of protesters in 2011
	Q 3				Aug - New PM appoints cabinets. Islamist fighters kills 16 soldiers in Sinai Sep - Egypt kills 32 militants and destroys 31 smuggling tunnels in Gaza
	Q 4			Oct - Former President Gloria Arroyo is arrested on charges of plundering state funds	Nov- Protests against President Morsi's decree stripping the judiciary right to challenge his decisions. Decree withdrawn

Table 5.1: Key development of political situations (Continued)

Corresponding to the key events shown in Table 5.1, figure 5.1 below shows the change in political uncertainty score which is used as a proxy for political uncertainty; the higher the score, the higher the instability. Among the four countries, UAE –Dubai is the most politically stable. Egypt on the other hand, is

fundamentally unstable. The situation was worsened at the beginning of 2011 when the clash between security forces and Anti-Mubark demonstrators took place. The situations in Thailand and the Philippines are quite similar due to the fact that both seem to have a few small waves of changes. As for Thailand, the score shows the country gradually became more unstable and sharply dropped in July 2011 when the general election took place. Unlike Thailand and Egypt, the changes in the Philippines seem to be connected with separate terrorists groups rather than one major continuous movement.

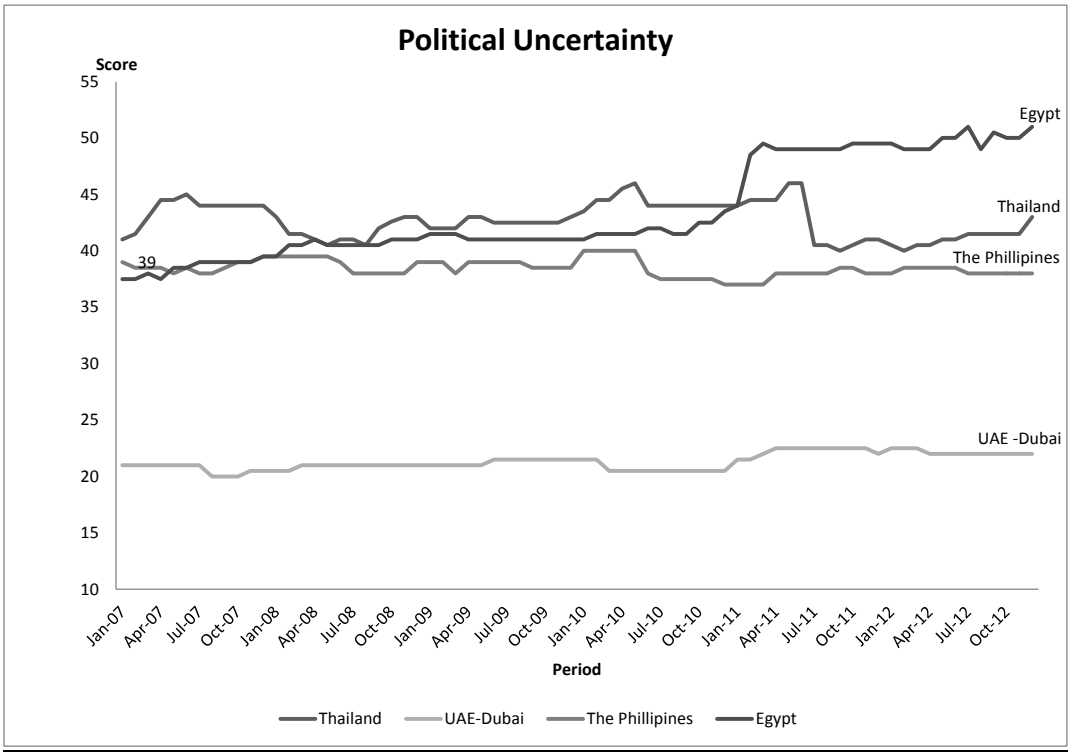


Figure 5.1: The level of political uncertainty in each country from Jan 2007 – December 2012

The next figure (Figure 5.2) shows the relationship between demand uncertainty and political uncertainty. The left Y-axis represents scale for demand uncertainty, while the right Y-axis represents the scale for Political risk score. It is noticeable that the demand and political uncertainty move in opposite directions.

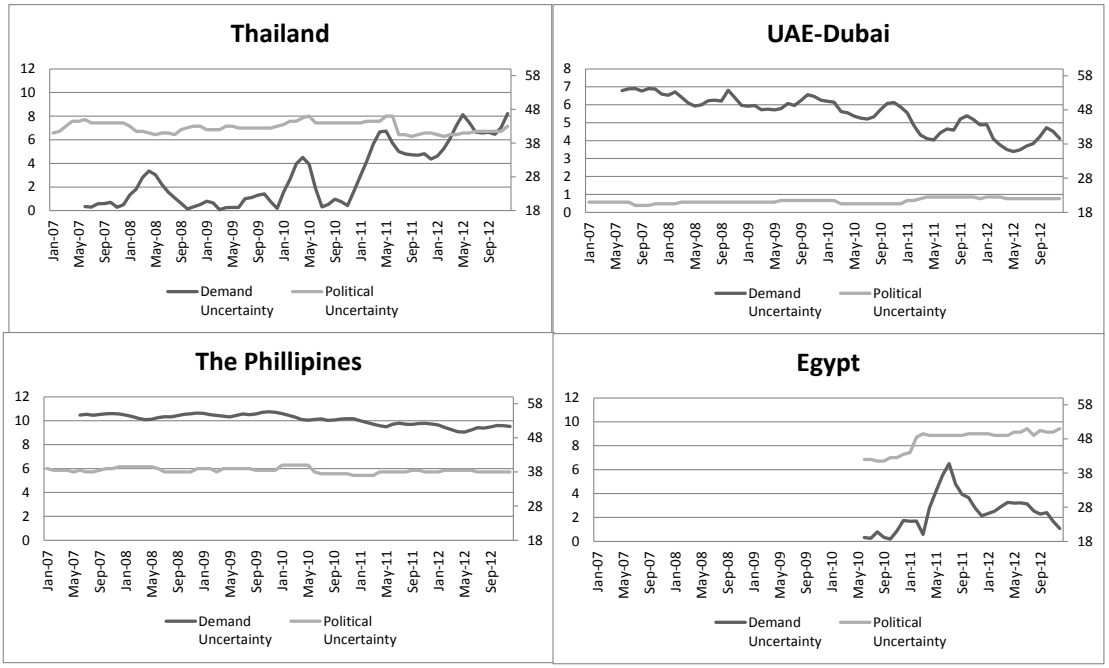


Figure 5.2: The relationship between demand uncertainty and political uncertainty

5.4.2 Hotel industry

In regards to the industry, the hotel industry provides a suitable context to the study for at least 4 reasons. First, most hotel operations are standardized which makes the data comparable across hotels. Second, tourism entities i.e. hotels, tour operators, and travel agencies, operate as an open system and are strongly affected by the external environment (Coulter 2002; Jogaratnam and Wong 2009) providing a good opportunity to observe the environmental effect. Third, hotels usually keep their records using standard software, which provides high quality data for longitudinal analysis. Finally, similar to other business-to-business companies, it is a general practice in the hotel industry to use multiple forms of sales force (concurrent channels) to serve different channels depending on the type, size, and amount of service required by those channels. For example, a hotel's own (direct) sales force is assigned to serve their key account customers and the travel agency (indirect or third party sales force) functions as the hotel's route to market for those individuals who are beyond the access of the hotel's own sales force. The hotel's own sales force allows the hotel to build a relationship with

it key account customers who have potential to generate recurring business, while the travel agency offers advantages in reaching a wider customer base and in cost saving as travel agencies are compensated on commissions tied to sales outcomes. Having both direct and indirect sales force reduces the cost of bureaucratic monitoring and control (Dutta, et al. 1995).

Although the study uses the data from a single hotel chain company to assure consistency and comparability, this hotel chain company is a good representative and would provide an appropriate context for testing the generalizability of the findings for the following reasons. First, all of the hotels in this chain, regardless whether they are owned or managed by the company, are managed using the same standard. Second, data from all hotels are kept using the same method and criteria and thus creates consistency across periods as well as consistency between hotels and countries. The operations are run according to international standards using standard hotel software. Hence, the data between hotels are comparable. Third, this hotel chain company is a listed company in Thailand. Its financial information must follow International Accounting Standards (IAS) and must be audited by an independent Certified Public Accountant (CPA). Thus, it is transparent and verified. Fourth, although the focal firm is a Thailand-based company, its hotels are situated in 4 different countries with clearly different sets of cultural values. The senior executives are both Thai and foreign and are experienced individuals who previously worked in many countries. Therefore, their views and values are not biased toward any context in particular.

5.5 Measurement

5.5.1 Dependent variables

Degree of vertical integration

Governance in this study refers to the shift between direct and indirect channels in a plural distribution or concurrent channels context. Concurrent channels refer to the use of two or more forms of distribution simultaneously, for example, the use of both direct channel (house account) and indirect channel (independent manufacturers 'representatives) to distribute a firm's products. Although this concurrent channels distribution is a common practice in firms, the empirical TCA research on this subject is still limited (Bradach and Eccles 1989) and often treats concurrent channels in one of the following ways: discarding the observations with plural distributions, changing the unit of analysis to the outlet level, or adopting the hybrid form perspective. None of the above explains the simultaneous use of two or more forms of distribution (Dutta, et al. 1995).

The simultaneous deployment of direct and indirect sales forces addressed in this study is captured through degree of vertical integration which will be used as a dependent variable in model 1 and an independent variable in model 2. The study follows Sa Vinhas and Anderson (2005) which defines degree of vertical integration as "the percentage of total sales that customers place directly (without going through channel intermediaries) to the manufacturer or to an entity in which the manufacturer has majority equity" (Sa Vinhas and Anderson 2005, p.511). Therefore, the higher the degree of vertical integration, the higher the proportion of sales placed through direct channels. Degree of vertical integration is directly measured by the actual percentage of total room nights that customers booked directly with the hotel (without going through intermediaries i.e. travel agency) by the total room nights that the hotel sells each month.

Performance

The performance measurement in this study is objective financial measures -sales performance which is measured by room revenue (in million baht) or the revenue

generated by the room department only (excluding revenue generated by other departments such as food and beverage, laundry, etc.). Revenue is the appropriate measure for the reasons that it is the direct performance measurement that excludes the effect of other factors that are irrelevant to sales effort such as depreciation, interest, expenses, efficiency, etc. In addition, high revenue is an indicator of a successful business regardless of which strategy the firm has pursued (Brouthers 2002). As our concern is whether being more or less integrated will yield a superior sales performance in times of uncertainty, only room revenue is relevant. Including revenue from other departments is irrelevant and would compromise rather than improve our result.

5.5.2 Independent variables

Uncertainty

Based on how uncertainty variables are operationalized in governance and hospitality literature (as discussed in chapter 3), the study focuses on uncertainty in 3 domains of environment: demand, competitive and political. All are objectively measured using secondary data.

Demand and competitive uncertainty are industry-level uncertainty variables that capture industry dynamics that our focal firm operates within, while political uncertainty reflects the major changes in the general environment, and specifically the opportunities and threats related to the changes in the political system—the stability/instability of political situation in the country which includes revolution, *coup d'état*, change of administration, etc. (Miller 1992).

Demand and competitive uncertainty are usually conceptualized as dynamism, which is one of the frequent conceptualizations of uncertainty in literature. Dynamism is defined as unexpected change or change that is hard to predict (Dess

and Beard 1984) which makes it difficult for firms to anticipate and adjust to these changing circumstances (Anderson 1988). Typical measures of dynamism using secondary data include the volatility of interest (Boyd 1995; Simerly and Li 2000; Harrington 2005). Hence, demand and competitive uncertainty are operationalized as the volatility of demand and of the competitive situation, respectively. Political uncertainty is measured by the Political Risk Score (PRS), which captures the changes in the political situation. This score is well recognized and has been included in studies related to political uncertainty (cf.Knack and Keefer 1995; Enders, Sandler and Parise 1992; Heinz 2000; Olson, Sarna and Swamy 2000). The following sections will discuss in detail the measurement of each uncertainty variable.

Demand uncertainty

Demand in this study refers to "tourism demand which can be measured from number of tourists or receipts from tourism" (Neumayer 2004, p.267). However, the study prefers number of tourists to tourism receipts, as tourism receipts are typically taken from the balance-of-payment statistics, which are known to be inaccurate (Sinclair 1998) and varied according to other economic factors.

In transforming the "demand" data into "demand uncertainty", the study conceptualizes uncertainty as dynamism and follows the widely-implemented secondary measure (cf.Dess and Beard 1984; Boyd 1995; Simerly and Li, 2000; Harrington and Kenadall 2005) by using the standardized measures of the volatility of the demand over five preceding periods. This is done by regressing the current number of tourist arrivals in each country on its average of 5 preceding months (this is a rolling window) and using the standard error as a measure of demand uncertainty. A 5-month period is used because it reflects recent conditions of volatility in the industry, which is suitable for the hotel industry as the players can

adjust to changing circumstances fairly quickly. Therefore, demand uncertainty is the standard errors of volatility of demand over five preceding months.

Competitive uncertainty

"Competitive uncertainty is a broad category covering the uncertainty assoicated with the rivalry among exsitng firms and potential entrants into the industry" (Miller 1992, p317) which covers the inability to predict amount of goods in the market, the intensity of the competition, and innovations.

In the context of our study, the most appropriate conceptualization of competitive uncertainty is the uncertainty relating to competitve intensity. "Competitive intensity is defined as the degree of competition that our focal firm is facing" (Grewal and Tansuhaj 2001, p.71). In this context, hotels measure competitive intensity by using an "occupancy index", which is the ratio of the focal firm's relative performance to that of their competitive set, and is used as one of the management's key performance indicators (KPI). The index is calculated by using average occupancy rate (in percent) of the hotel's competitive set, normally 3 - 5 hotels of the same standards in similar locations, and dividing it by our focal hotel's occupancy rate. The higher the index, the better the direct competitors perform relative to our firm.

As the study focuses on the unpredictability aspect of uncertainty, competitive uncertainty is conceptualized as the volatility of competitive intensity. Similar to the operationalization of demand uncertainty, the study converted competitive intensity information into competitive uncertainty by regressing current competitive intensity on its average of 5 preceding months and using the standard error as a measure of competitive uncertainty. Therefore, demand uncertainty is the standard errors of volatility of occupancy index over five preceding months.

Political uncertainty

This variable measures the stability in the political environment. Political uncertainty refers to instability in general political situations that impact the firms and includes both uncertainties in the political situation and policy changes, as changes in policy can be impactful to business even though the political situation is stable (Miller 1992). The construct represents overall political events that may have major impacts on other constructs. Exploring the literature, there are 3 common secondary measures for political risks: risk rating/institutional indices, dummy variable, and event counting. The study decided to rule out the third option, event counting, as it does not reflect the intensity or the true instability in the political environment. Most of the time, it only considers non-constitutional political events, i.e. revolutions, or recognizes newsworthy incidents, therefore, it is not without bias and could be misleading (Knack and Keefer 1995; Enders and Sandler 2000). The study is left with two options, dummy variable and risk rating. We choose risk rating as the preferred measure for the reason that it allows us to study the different degree of uncertainty. While the dummy variable also captures the uncertainty, its result is only binary. Therefore, using the continuous scales such as risk rating or risk score should provide a better reflection of the political events.

The study follows the World Bank's political risk rating score, which comprises the score from 6 rating agencies, also known as institutional indicators. However, an institutional indicator is only available for an annual interval. Therefore, the study looks into the score of each of the 6 rating agencies. Four of them are only available at annual intervals. The two that are available in monthly format are the Beri Index and Political Risk Score. However, the Beri Index does not provide a score for the United Arab Emirates where two of our hotels are located. The Political Risk Score is the only risk rating score that is available in monthly format

and covers all the countries under investigation. Due to this limitation, the study adopts the Political Risk Score (PRS) as our political uncertainty measurement.

PRS is a part of International Country Risk Guide (ICRG) created in 1980 (www.prsgroup.com). The aim of the political risk rating is to provide a means of assigning risk points to a preset group of factors, termed political risk components. Prior studies have indicated that "this measure is reassuringly correlated with other measures of the quality of governance and also is related to both economic outcomes and political regime" (Olson, Sarna, Swamy 2000, p.344). Knack and Keefer (1995) assessed the explanatory power of ICRG/Beri indices relative to the traditional political violence indicators. The result shows that in all cases the economic impact of the ICRG score is significant and greater than that of political violence indicators (Knack and Keefer 1995, p.15). Henisz (2000) uses this score as a measurement for political hazard in his study on how institution environment affects the mode of entry in a foreign market. Olson, Sarna, Swamy (2000) uses this score to compare the productivity growth among countries. The above reasons support our belief that this score would be a good measurement for the political uncertainty variable.

As PRS represents political stability, the study inverted this score into political uncertainty by using 100 – PRS. For example, if the PRS for period 1 is 55 and this represents the level of political stability, the different between the maximum score (100) and 55 is the level of political uncertainty. Therefore, political uncertainty for period 1 is 100 – 55 = 45. Due to the transformation, interpretation is facilitated as the higher the score, the higher the level of uncertainty.

Instrumental variable

Percentage of F&B revenue

The study uses the percentage of food and beverage revenue to total revenue (FB revenue) as the instrument variable for degree of vertical integration in the first stage of model 2. This is our preferred instrument variable based on the assumption that guests who booked directly with the hotel tend to dine in the hotel more than guests who booked as a package through a travel agency. For example, leisure guests who booked with a package tour tend to have other activities outside the hotel as part of their package while business guests tend to organize corporate functions within the hotel. This makes the proportion of revenue from food and beverage revenue vary according to the degree of vertical integration, the proportion of guests who book directly with the hotel sales force, which makes it a good instrumental variable. This rationale is supported by Novak and Stern (2008) which "employs instruments correlated with vertical integration for a given system but exogenous to the performance of that system (p.1965). In this case, the performance of FB revenue is related to the overall performance of the hotel but exogenous to the dependent variable, the performance of the room department. This variable is measured by the percentage of revenue generated by the food and beverage department by total revenue in each month.

Control variables

Average room rate

The study uses average room rate as a firm-level control variable to remove the effect of price, which is typically a key variable in explaining performance. The average room rate is calculated by using the hotel's room revenue divided by total occupied room nights in each monthly period.

Gross domestic product

Gross domestic product (GDP) is an indicator of the overall economic health of the country which reflects the overall standard of living. The study uses real GDP (in

billion baht) because it measures the real changes in the economy without factoring in the inflation.

5.6 Characteristics of the sample

The sample used in this study is monthly financial data covering the span of 5 years from January 2007 to December 2012 (72-monthly periods) of 16 hotels in 4 countries, 11 in Thailand, 3 in Dubai, 1 in the Philippines, and 1 in Egypt, which are owned and managed by the focal firm. In principle, there should be a total of 72 periods x 16 hotels = 1,152 observations. However, only 11 out of 16 hotels were in operation over the entire 72 operating periods, which reduced the number of observations to 996. In addition, certain values are missing for some hotels. Accounting for these incomplete observations, the study is left with 815 observations for the empirical analysis. Table 5.2 presents the number of usable observations by hotels. The differences in number of observations between hotels, even though they share similar operating periods, are due to missing values.

Hotel	Country	Operating Periods	Date of Observations	Missing Values	Number of Observations
1	Thailand	72	Jan 2007 - Dec 2012	24	48
2	Thailand	72	Jan 2007 - Dec 2012	6	66
3	Thailand	72	Jan 2007 - Dec 2012	29	43
4	Thailand	72	Jan 2007 - Dec 2012	5	67
5	Thailand	72	Jan 2007 - Dec 2012	5	67
6	Thailand	42	Jan 2008 - Nov 2011	13	29
7	Thailand	48	Jan 2009 - Dec 2012	5	43
8	Thailand	72	Jan 2007 - Dec 2012	5	67
9	Thailand	72	Jan 2007 - Dec 2012	5	67
10	Thailand	72	Jan 2007 - Dec 2012	24	48
11	Thailand	72	Jan 2007 - Dec 2012	5	67
12	UAE - Dubai	72	Jan 2007 - Dec 2012	11	61
13	UAE - Dubai	18	Jan 2010 - Jul 2011	5	13
14	UAE - Dubai	60	Jan 2008 - Dec 2012	29	31
15	The Philippines	72	Jan 2007 - Dec 2012	5	67
16	Egypt	36	Jan 2010 - Dec 2011	5	31
Total		**996**		**181**	**815**

Table 5.2: Number of observations

Table 5.3 shows the summary of descriptive statistics which includes number of observations, mean values, standard deviation, minimum and maximum of the variables in the sample. The two dependent variables are room revenue and degree of vertical integration. Demand, competitive, and political uncertainty are the three independent variables. Control variables include average room rate and Gross Domestic Products. Percent of FB Revenue is included as the instrumental variable. The next sub-sections discuss the diagnostics performed prior to our estimations, which are used for the detection of outliers in sub-section 5.5.1 and stationary tests in sub-section 5.5.2.

	Variable	Obs	Mean	Std. Dev.	Min	Max
1	Room Revenue (million baht)	932	13.68	16.30	0.33	78.26
2	Degree of Vertical Integration	958	0.57	0.20	0.04	1.00
3	Demand Uncertainty	1036	3.85	2.93	0.09	10.74
4	Competitive Uncertainty	829	0.02	0.02	0.00	0.12
5	Political Uncertainty	1152	38.46	8.50	20.00	51.00
6	Average Room Rate	931	2368.66	1656.82	233.88	11008.00
7	Gross Domestic Products (billion baht)	1128	311.32	19.29	65.30	568.52
8	Percent of FB Revenue	950	0.35	0.10	0.12	0.66

Table 5.3: Descriptive statistics among variables

Table 5.4 below presents the correlations among variables. Correlations that exceed |.07| are significant at $p < .05$, two-sided and correlations that exceed |.06| are significant at $p < .05$, one-sided. The strongest correlation is between the Average Room Rate and Room Revenue. The marked medium correlation includes the relationship between Demand Uncertainty and Room Revenue (0.36), percentage of FB Revenue and Degree of Vertical Integration (0.38), Demand and Political Uncertainty (0.33), and Political Uncertainty and percentage of F&B Revenue (0.38).

	Variable	1	2	3	4	5	6	7	8
1	Room Revenue (million baht)	1.00							
2	Degree of Vertical Integration	-0.16	1.00						
3	Demand Uncertainty	0.37	0.12	1.00					
4	Competitive Uncertainty	-0.08	0.27	0.05	1.00				
5	Political Uncertainty	0.05	0.09	-0.33	0.16	1.00			
6	Average Room Rate	0.79	-0.31	0.12	-0.10	0.25	1.00		
7	Gross Domestic Products (billion baht)	0.13	-0.05	-0.04	-0.03	0.01	0.10	1.00	
8	Percent of F&B Revenue	-0.05	0.38	-0.17	0.28	0.39	-0.22	-0.01	1.00

Table 5.4: Correlation matrix among variables

5.6.1 Outliers

Several diagnostics are performed to ensure that each of the variables does not possess any property that will cause the estimation result to be inefficient and biased. First, inspections for possible outliers for each variable are done graphically and numerically both before (variables inspection), through listing out the extremes value of each variable, and after model estimations (residuals inspection). The study detected a few outliers but did not remove the observations that contain those outliers for the following two reasons. First, these outliers are not the result of incorrect entries. Second, and related, these outliers are not random (Woolridge 2006, p.328). These outliers represent the phenomenon that this study aims to investigate. All of the outliers are in Egypt, where there were extreme political outrages. Including these outlying observations will increase variation in the explanatory variables (Woolridge 2006, p.328). In sum, these outlying observations are crucial in providing valuable information, and by including them, the true nature of the phenomenon will be better reflected rather than distorted. However, the models were run both with and without outliers and no statistical differences were found.

5.6.2 Stationary test

The second diagnostic is stationary test. As panel data sets are time series or "a sequence of random variables indexed by time", it is common practice to test for unit roots in panel data (Maddala 1999; Woolridge 2006, p.343). Stationary or unit roots tests are performed for each variable to ensure that its property does not violate the stationary concept.

Stationary or unit roots play an important role in the analysis of time-series. A stationary process means the probability distribution of that variable is stable over time. This means any set of values (or ensemble) will have the same joint distribution as any other set of values measured at a different point in time. The mean and variance will have to be identically distributed or constant over time which is often not the case for financial time series data such as GDP or Inflation. Any process exhibiting a drift or trend will fail to meet that requirement in that its mean and variance are changing over time are said to be non-stationary. The consequences non-stationary data is that the result might be spurious and inconsistent which violates the OLS assumption (Woolridge 2006, p.381). Therefore, the Phillips-Perron Unit-root test which is used to inspect the stationary property of the data is employed to inspect each variable. This Phillips-Perron Unit-root test uses Newey-West (1987) standard errors that account for both heteroskedasticity and serial correlation, which makes it a proper test for panel data setting. To properly perform this test, one of the requirements is that the number of lags for calculating standard errors must be specified. The study follows the default calculation by Newey and West's (1994) plug-in estimator which is a "procedure that delivers the optimum number of lags according to an asymptotic mean squared error criterion" (Hoechle 2007, p.289). The plug-in procedure states that lag length is equal to the round up integer of $\{4(T/100)^{2/9}\}$ lags, where T is the time dimension. When applying the formula to the values from the study, the lag

length is equal to the roundup of integer of $4(72/100)^{2/9}\}$ = 3.71, which is 4. Therefore, 4-lag is specified in calculating the standard errors in this study (www.stata.com/manuals13/tspperron). Table 5.4 reports the result for 3 tests performed by the Phillips-Perron Unit root test 1) inverse normal (Z) statistics, 2) invesre chi-squared (P), and 3) invest logit (L). The Null hypothesis of all three tests is that all the panels contains unit root.

	Variable	Inverse Normal Z		Inverse Chi-squared P		Inverse Logit L	
		Statistic	**p-value**	**Statistic**	**p-value**	**Statistic**	**p-value**
1	Room Revenue (million baht)	-9.84	0.00	184.96	0.00	-9.84	0.00
2	Degree of Vertical Integration	-8.95	0.00	155.08	0.00	-10.61	0.00
3	Demand Uncertainty	-2.13	0.01	54.36	0.00	-2.07	0.02
4	Competitive Uncertainty	-13.58	0.00	275.25	0.00	-19.07	0.00
5	Political Uncertainty	-4.83	0.00	80.32	0.00	-4.85	0.00
6	Average Room Rate	-9.12	0.00	158.16	0.00	-10.80	0.00
7	Gross Domestic Products (billion baht)	0.78	0.78	21.04	0.93	0.67	0.75
8	Percent of FB Revenue	-17.69	0.00	429.38	0.00	-30.71	0.00

Table 5.5: Unit root test result

The three statistics reported by Phillips-Perron Unit-root are consistent and show that Gross Domestic Product (GDP) is the only variable that contains unit roots. This is not unexpected since economic data such as GDP is known to be non-stationary. Therefore, GDP is transformed using first differences as suggested by Wooldridge (2006), page 397. The transformed GDP variable is stationary following a repeat of the Phillips-Perron Unit-root test that has just been described.

5.7 Estimation method

Our 13 hypotheses which represented two key relationships, the impact of uncertainty on governance and the impact of governance on the relationship between uncertainty and performance, will be tested in two econometric models. Model 1 tests the relationship between uncertainty and governance while model 2

focuses on the uncertainty-governance-performance relationship. The in-depth discussion about each model will be included in section 5.8.

The results from previous estimations (to be discussed in section 5.9) show that the residuals of our analysis were heteroskedastic and autocorrelated. It is known that OLS standard errors are correct only when the residuals are independent and identically distributed. However, when the residuals are correlated across observations, OLS standard errors can be biased and either over or under estimate the true variability of the coefficient estimates. Standard errors must be adjusted to deal with these biases. Therefore, the Newey-West (1987) standard error which produces standard errors that are robust to both heteroskedasticity and auto correlations is employed to correct for the biases in both models.

The Newey-West (1987) standard error is an extension of Huber/White/sandwich robust variance estimator which produces consistent standard errors for OLS regression coefficient estimates in the presence of heteroskedasticity only. Newey-West standard errors assume that the error terms is heteroskedastic autocorrelated for a certain period of time (StataCorp 2013). Therefore, a number of lag must be specified. The study follows a rule of thumb for chosen number of lag from Stock and Watson (2007, p.607) which is "number of lag = $\{0.75*n^{1/3}\}$, where n is the number of observations used in the regression". When applying the formula to the values from the study, which are 815 for model 1 and 784 for model 2, the results are 7.00 for model 1 and 6.91 for model 2 which can be rounded to 7. Therefore, 7-lag is specified for all models.

For our first model which corresponds to hypotheses 1-5, an OLS estimator using New-West (1987) standard error is used as the estimator for the relationship between governance and three types of uncertainty. As for model 2, which focuses

on the relationship between governance, uncertainty, and performance, attention is paid to the interdependency between governance and performance which will introduce the possibility of endogeneity. “Endogeneity is one of the major complications in econometrics and will result in a biased OLS coefficient” (Cameron and Trivedi 2005, p.35). Endogeneity exists when the changes in endogenous variable *x* are associated not only with the changes in exogenous variable *y*, but also with changes in the error terms *u*. This issue may rise from the problem of time-varying omitted variables which cannot be solved with a panel data method, measurement error and simultaneity (Woolridge 2006, p.510). In the context of this study, we are interested in seeing the effect of the change of governance on the change of performance. However, it is likely that what drives the change in performance might be another omitted variable in error terms which will cause the result to be biased.

In summary, endogeneity is unlikely to be an issue in model 1 as it is a single equation in which the independent variables are completely exogenous. However, model 2 involves simultaneity of two equations as we are interested in how the selected choice of governance will affect subsequent performance. As endogeneity is likely to be an issue in model 2, the Durbin-Wu-Hausman (DWH) Test for endogeneity was conducted in preliminary models (to be discussed in section 5.9). The test rejected the null hypothesis that OLS was consistent (p=0.0296), indicating that endogeneity is likely to exist. Hence, this study employs an Instrumental Variables (IV) Estimator using a Two-Stage Least Squares model (2SLS) as the second econometric model to test hypotheses 6-13 in order to correct for endogeneity.

The IV Estimator is a remedy to the inconsistency of the OLS estimator caused from an endogenous explanatory variable. The IV estimator introduces an

instrumental variable z that is exogenous in the equation; this variable z associates with the change in x but not the change in y (Cameron and Trivedi 2005, p.37). The 2SLS estimator is a type of IV estimator that delivers its result in two consecutive OLS regressions. The first stage regresses x on z to get the predicted value of x. Therefore, the first stage purges the correlation of x and the error terms u before running the second stage. The second stage regresses y on the predicted value of x which gives the result of the 2SLS estimator (Cameron and Trivedi 2005, p.42; Woolridge 2006, p.526).

Besides the main effect of three uncertainty variables, the independent variables in both models also include pairwise product terms among uncertainty variables. For interpretation purposes, all the independent variables are mean-centered. The interaction terms are created after the mean centering process (Jaccard and Turrisi 2003).

Both country and firm control variables are included in both models. These control variables are chosen from theoretical and statistical approaches. For country level, the study considered the major key economic indicators and then used stepwise regression to select the ones that are significant. First, a number of volatility measurements; Consumer Price Index, Consumer Confidence Index, Inflation, Foreign Direct Investment, Stock Market Variance, and Gross Domestic Product, were loaded into the models to establish that the overall economic conditions are controlled for, ensuring that the changes in the dependent variables of both models are truly from the effect of explanatory variables. The study excluded a few variables namely Consumer Price Index, Consumer Confidence Index, and Foreign Direct Investment that are redundant or had a lot of missing values. In a final model, Gross Domestic Product (GDP) is chosen as the country level control variable for two reasons. First, it is one of the most fundamental indicators for the overall

economy of any country. Second, as the consequence of GDP being the most fundamental indicator, its information is available for all countries.

At the firm level, the variables that can influence degree of vertical integration and performance include marketing expenditures and average room rate. However, these two variables are highly correlated with each other (r=0.61) which can induce collinearity[4]. The study finally selected "average room rate" as the firm level control variable as it is the key factor that could influence performance outcome; thus, this variable could potentially mask the true impact of uncertainty.

5.8 Model specification

5.8.1 Model 1: The relationship between uncertainty and governance

The specification for model 1 is presented in equation 1 below. The dependent variable in this model (degree of vertical integration) captures how the focal firm shifts its degree of vertical integration in response to uncertainty. The model is displayed below in equation 5.1.

$$\begin{aligned}\text{Degree of vertical integration}_{it} = {} & \beta_0 + \beta_1 \text{ Demand uncertainty}_{it} \\ & + \beta_2 \text{ Competitive uncertainty}_{it} \\ & + \beta_3 \text{ Political uncertainty}_{it} \\ & + \beta_4 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it} \\ & + \beta_5 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_6 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_7 \text{ Gross domestic products}_{it} \\ & + \beta_8 \text{ Average room rate}_{it} + e_{it} \qquad \text{(Equation 5.1)}\end{aligned}$$

[4] Equation 5.1 is re-estimated using marketing expenditure as a control variable instead of average room rate. All of the results are identical in both significance level and direction of the relationship. However, the F-value of the model estimated with marketing expenditures is lower than that of average room rate.

5.8.2 Model 2: The effect of governance on the relationship between uncertainty and performance

The second model estimates the moderating effect of the degree of vertical integration on the relationship between uncertainty and performance (H6 – H13). To correct for the potential issue of endogeneity, as the degree of vertical integration is endogenous to the changes in uncertainty, and due to the potential interdependency between the degree of vertical integration and performance, 2SLS is employed as our choice of estimation. For both theoretical and model specification consistency, the study maintains the same set of independent variables from model 1 in this model.

The first stage of the 2SLS estimation (equation 2-1 presented below) estimates the relationship between uncertainty and the degree of vertical integration. The proportion of Food and Beverage Revenue to Total Revenue (FB Revenue) is added as the instrument variable. As shown in table 5.3, the correlation among FB, Room Revenue, and Degree of Vertical Integration confirms our assumption. FB Revenue is 38% correlated with Degree of Vertical Integration and only negative 5% related to room revenue, which confirms that FB Revenue is a proper instrument for the study. Equation 5.2-1 below presents the specification for the first stage of the 2SLS model:

$$\begin{aligned}\text{Degree of Vertical Integration}_{it} &= \beta_0 + \beta_1 \text{ Demand uncertainty}_{it} \\ &+ \beta_2 \text{ Competitive uncertainty}_{it} \\ &+ \beta_3 \text{ Political uncertainty}_{it} \\ &+ \beta_4 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it} \\ &+ \beta_5 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ &+ \beta_6 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ &+ \beta_7 \text{ FB revenue}_{it} \\ &+ \beta_8 \text{ Gross domestic products}_{it} \\ &+ \beta_9 \text{ Average room rate}_{it} + e_{it} \qquad \text{(Equation 5.2-1)}\end{aligned}$$

Derived from equation 5.2-1 is the predicted value of the degree of vertical integration which is the predicted value of the firm's governance in the presence of uncertainty. This predicted degree of vertical integration is included in the second stage to estimate the relationship between uncertainty and performance. The predicted degree of vertical integration (mean-centered) is interacted with each of the uncertainty variables to see if it can moderate the relationship between uncertainty and performance and to which direction. Below is the specification for the second stage of the 2SLS model (equation 5.2-2):

$$\begin{aligned}\text{Room revenue}_{it} = {} & \beta_0 + \beta_1 \text{ Predicted degree of vertical integration}_{it} \\ & + \beta_2 \text{ Demand uncertainty}_{it} \\ & + \beta_3 \text{ Competitive uncertainty}_{it} \\ & + \beta_4 \text{ Political uncertainty}_{it} \\ & + \beta_5 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it} \\ & + \beta_6 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_7 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_8 \text{ Predicted degree of vertical integration}_{it} \text{ x Demand uncertainty}_{it} \\ & + \beta_9 \text{ Predicted degree of vertical integration}_{it} \text{ x Competitive uncertainty}_{it} \\ & + \beta_{10} \text{ Predicted degree of vertical integration}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_{11} \text{ Gross domestic products}_{it} \\ & + \beta_{12} \text{ Average room rate}_{it} + e_{it} \qquad \text{(Equation 5.2-2)}\end{aligned}$$

5.9 Robustness test

Variations of model estimations that are not presented here were performed to ensure that the final estimation does not violate any OLS assumption and is the Best Linear Unbiased Estimation (BLUE). As discussed in section 5.5, all the variables were inspected for the property that might violate the OLS assumptions. Once there was no issue with any of the variables, the study conducted the empirical analysis with the preferred choice of estimation and conducted post estimation analysis to ascertain that error terms did not violate any OLS

assumptions. If the violations were identified, the study would correct for each of the violations until it was established that the choice of estimation and model specification produced the result that would not compromise the findings and would answer the central research questions. The following presents the key steps in deriving the choice of estimation for this study.

The first preferred choice of estimation is the panel estimation using a fixed effect model since it has unique properties that control for idiosyncratic effects of individual hotels (such as superior management) that are time-invariant (Allison 2009). Therefore, it is well suited to capture the "pure" channel effect of vertical integration on performance, which improves the estimation and test hypotheses that are impossible to study in cross-sectional design (Macher and Richman 2008). Two models were developed to answer the research question. The first model estimated the relationship between uncertainty and the degree of vertical integration. The second model estimated the moderating effect of the degree of vertical integration on the relationship between uncertainty and performance.

A fixed effect model used our preferred control variables which included Consumer Price Index, Consumer Confidence Index, Inflations, Foreign Direct Investment, Stock Market Variance, Gross Domestics Product, to control for the overall economic condition. Next, stepwise regression was brought in to select the control variables that were significant. A few variables, namely Consumer Price Index, Consumer Confidence Index, and Foreign Direct Investment had to be excluded from the model for the reason that they were highly correlated or had a lot of missing values. As discussed in section 5.3, after a careful inspection, only GDP was included in the final model for the reason that it is one of the most fundamental indicators for the overall economy of any country. For firm level control variables, the preference was to control for both the hotel's marketing expense and average

room rate. The rationale for including the hotel's marketing expense was that, as with the average room rate, the higher marketing expense tended to result in a higher performance. However, the hotel's marketing expense and average room rate are highly correlated. As average room rate is the obvious factor that can drive the performance, it was selected as the firm level control variable.

The next consideration was whether or not lagged effect needed to be included. Although some may view that there might be a lagged effect on the relationship between political uncertainty and performance, the study did not include the lagged effect based on our knowledge that a cancellation was normally not done until 48 hours prior to check-in. Therefore, the cancellation would be done only if the political uncertainty was still present during the very same period. This assumption is in accordance with an adaptive expectation model by Harvey (1990) which states that "an event of violence is likely to deter tourism most in the period of occurrence and less over time because the media report less and less about it" (Neumayer 2004, p.266).

Up to this point, the study was able to finalize our model specification by establishing that fixed effect estimation was the preferred estimation method, GDP and Average Room Rate were the choice of control variables, and lagged effect would not be included into the model. The next step was to test if this preferred model was indeed the most appropriate. As control variables were carefully selected and the decision not to include lagged was clearly made, attention was next paid to the choice of estimation.

Post-estimation tests were conducted to detect for potential issues of multicollinearity, heteroskedasticity, and autocorrelation. The result showed that the residuals were autocorrelated, heteroskedastic and not normally distributed.

Therefore, the models were run again using robust standard errors to control for those issues. The Variance Inflation Factor was used to test for multicollinearity. The result showed that the none of the variables had a VIF value higher than the threshold value of 10 suggested by Hair et al. (2006, p.230). Therefore, multicollinearity was not an issue. However, the issue of autocorrelation remains since robust standard errors only correct for heteroskedasticity.

Given the concern in the issue of autocorrelation, other panel estimators that can potentially correct for autocorrelation issue were considered. The panel estimator that seems to fit with our dataset is the Feasible Generalized Least Squares (FGLS) which is suitable with panel data that has a smaller time dimension (T) than its cross-sectional dimension (N) and is feasible in the presence of autocorrelation and heteroskedasticity (Hoechle 2007). However, the autocorrelation specified in FGLS is only restricted for the maximum of 1 period for an autoregressive (AR) model or the model in which the independent variables include a lagged dependent variable. In addition, the standard errors from FGLS are likely to be optimistic (Hoechle 2007)[5]. Hence, the result from FGLS might still be biased and cannot remedy the autocorrelation issue. The choices of estimators are then expanded beyond the scope of panel estimators to consider other models that can handle heteroskedasticity and autocorrelation. Finally, an OLS estimator with Newey-West standard errors which are robust to the disturbances being heteroskedastic and autocorrelated was chosen as it provides a more flexible remedy both to heteroskedasticity and autocorrelation for a panel dataset. The post-estimations process for multicollinearity was repeated and the VIF showed that multicollinearity was not an issue.

[5] Arrellano and Bond's (1991) consistent generalized method of moments (GMM) estimator which is a type of panel estimators that can produce robust standard errors for heteroskedasticity and autocorrelations was also reviewed. However, this estimator is suitable for datasets with N >T which is the opposite case of our dataset.

Once the model specification and choice of estimation were confirmed, the study also tested if the effect of degree of vertical integration was non-linear by adding its squared terms and its interaction terms with each of the three uncertainty variables. The relationship between the squared terms and dependent variables were all insignificant, suggesting no presence of non-linear effect. Lastly, the study also considered a three-way effect between degree of vertical integration and two types of uncertainty variables, but the results were also insignificant.

The final diagnostic focused on the issue of endogeneity. The study performed the Durbin-Wu-Hausman for endogeneity. The study viewed that endogeneity might be an issue as there might be an interdependency between the degree of vertical integration and performance. The test rejected the null hypothesis that OLS was consistent ($p = 0.0296$); hence, endogeneity is likely to exist. The study approached the endogeneity issue by using both the Control Function (CF) Approach (Petrin and Train 2010) and 2SLS. The results from both models were consistent. Finally, the study decided to use the 2SLS model as our choice of estimation for the reason that CF approaches required extra assumptions not imposed by the 2SLS approach. The result from the CF approach can be less robust and inconsistent where the result from 2SLS is consistent (Woolridge 2006). The 2SLS has a clear method of controlling for endogeneity and serves the study's objective which is to extend the investigation on uncertainty-performance linkage – if the firm's preferred choices of governance will indeed lead to superior performance.

5.10 Summary

In this chapter, philosophical view, research design, method, and measurement are discussed. The beginning of the chapter presents the rationale why realism is selected as the philosophical world view. The next section focuses on our research

which is longitudinal using secondary panel data. The advantages and disadvantages of using this design are discussed. Then, the context of this study is presented, especially the overall political conditions in each country as well as the justification for using data from a single hotel chain. Following the research context are the characteristics of the sample which includes the number of observations and variable diagnostics. The rest of the chapter emphasizes subjects that relate to estimation method and econometric models. As our choice of estimation is challenged with the issues of heteroskedasticity, autocorrelation, and endogeneity, two-Stage Least Square estimation with Newey-west standard error is employed to correct for those issues. The last section of this chapter provides various tests that were conducted prior to the final models.

CHAPTER 6

RESULTS

6.1 Introduction

This chapter presents the findings of the analysis of the samples. The measurements of each construct as well as the rationale behind the selected estimation technique that were discussed in the previous chapters (Chapter 5) are summarized in section 6.2. Section 6.3 restates the hypotheses. Next, section 6.4 presents the results from the hypotheses testing. The results for H1 to H5 which explore the relationship between uncertainty and governance are presented in section 6.4.1. Section 6.4.2 shows the results for H6 – H10 which investigate the relationship between uncertainty and performance. Section 6.4.3 focuses on the estimation result for the moderating impact of governance on the relationship between uncertainty and performance. Section 6.5 presents the result summary table. Finally, section 6.6 summarizes and concludes this chapter.

6.2 Research method

This section provides a brief summary of the research method discussed in Chapter 5. The two relationships of interest in this study, the impact of uncertainty on governance and the impact of governance on the relationship between uncertainty and performance, are investigated using longitudinal secondary panel data which covers 72 monthly periods (January 2007- December 2012) from a hotel company which operates 16 hotels in 4 countries – Thailand, The Philippines, United Arab Emirates, and Egypt. Two econometric models are employed to test 13 hypotheses. The first model which focuses on the relationship between uncertainty and performance is an Ordinary Least Squares (OLS) estimator. The second model which focuses on the impact of governance on the relationship

between uncertainty and performance is estimated with an Instrumental Variables (IV) Estimator using Two-Stage Least Squares. Both models use Newey-West standard errors as it is the standard errors that are robust to the residuals being heteroskedastic and autocorrelated. The specifications for each model are presented below:

Model 1: The relationship between uncertainty and governance

$$\begin{aligned}\text{Degree of vertical integration}_{it} = {} & \beta_0 + \beta_1 \text{ Demand uncertainty}_{it} \\ & + \beta_2 \text{ Competitive uncertainty}_{it} \\ & + \beta_3 \text{ Political uncertainty}_{it} \\ & + \beta_4 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it} \\ & + \beta_5 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_6 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_7 \text{ Gross domestic products}_{it} \\ & + \beta_8 \text{ Average room rate}_{it} + e_{it} \end{aligned} \quad \text{(Equation 5.1)}$$

Model 2: The effect of governance on the relationship between uncertainty and performance

Equation 5.2-1 below presents the specification for first stage of 2SLS model:

$$\begin{aligned}\text{Degree of Vertical Integration}_{it} = {} & \beta_0 + \beta_1 \text{ Demand uncertainty}_{it} \\ & + \beta_2 \text{ Competitive uncertainty}_{it} \\ & + \beta_3 \text{ Political uncertainty}_{it} \\ & + \beta_4 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it} \\ & + \beta_5 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_6 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it} \\ & + \beta_7 \text{ FB revenue}_{it} \\ & + \beta_8 \text{ Gross domestic products}_{it} \\ & + \beta_9 \text{ Average room rate}_{it} + e_{it} \end{aligned} \quad \text{(Equation 5.2-1)}$$

Below is the specification for the second stage of 2SLS model (equation 5.2-2):

$$\text{Room revenue}_{it} = \beta_0 + \beta_1 \text{ Predicted degree of vertical integration}_{it}$$
$$+ \beta_2 \text{ Demand uncertainty}_{it}$$
$$+ \beta_3 \text{ Competitive uncertainty}_{it}$$
$$+ \beta_4 \text{ Political uncertainty}_{it}$$
$$+ \beta_5 \text{ Demand uncertainty}_{it} \text{ x Competitive uncertainty}_{it}$$
$$+ \beta_6 \text{ Demand uncertainty}_{it} \text{ x Political uncertainty}_{it}$$
$$+ \beta_7 \text{ Competitive uncertainty}_{it} \text{ x Political uncertainty}_{it}$$
$$+ \beta_8 \text{ Predicted degree of vertical integration}_{it} \text{ x Demand uncertainty}_{it}$$
$$+ \beta_9 \text{ Predicted degree of vertical integration}_{it} \text{ x Competitive uncertainty}_{it}$$
$$+ \beta_{10} \text{ Predicted degree of vertical integration}_{it} \text{ x Political uncertainty}_{it}$$
$$+ \beta_{11} \text{ Gross domestic products}_{it}$$
$$+ \beta_{12} \text{ Average room rate}_{it} + e_{it} \qquad \text{(Equation 5.2-2)}$$

6.3 Hypotheses

The 13 testing hypotheses are

The impact of uncertainty on governance

H1: The higher the demand uncertainty, the higher the degree of vertical integration, *ceteris paribus.*

H2: The higher the competitive uncertainty, the higher the degree of vertical integration, *ceteris paribus.*

H3: The higher the political uncertainty, the lower the degree of vertical integration, *ceteris paribus.*

H4: The higher the political uncertainty, the weaker the positive effect (less positive) of demand uncertainty on degree of vertical integration, *ceteris paribus.*

H5: The higher the political uncertainty, the weaker the positive effect (less positive) of competitive uncertainty on degree of vertical integration, *ceteris paribus.*

The impact of uncertainty on performance

H6: The higher the demand uncertainty, the lower the performance, *ceteris paribus.*

H7: The higher the competitive uncertainty, the lower the performance, *ceteris paribus.*

H8: The higher the political uncertainty, the lower the performance, *ceteris paribus.*

H9: The higher the political uncertainty, the stronger the negative effect (more negative) of demand uncertainty on performance*, ceteris paribus.*

H10: The higher the political uncertainty, the stronger the negative effect (more negative) of competitive uncertainty on performance, *ceteris paribus.*

The impact of governance on the relationship between uncertainty and performance

H11: The higher the degree of vertical integration, the weaker the negative effect (less negative) of demand uncertainty on performance, *ceteris paribus.*

H12: The higher the degree of vertical integration, the weaker the negative effect (less negative) of competitive uncertainty on performance, *ceteris paribus.*

H13: The higher the degree of vertical integration, the stronger the negative effect (more negative) of political uncertainty on performance, *ceteris paribus.*

6.4 Results

Table 6.1 and 6.2 present the results of econometric model 1 and 2 respectively. In each model, the results are presented in two steps. First, the dependent variable is regressed on independent and control variables in baseline model to investigate the main effects of each variable. Next, the interaction terms are added in the interaction effects model to examine the effects of these terms. Although OLS with Newey-West Standard Errors is the selected and most suitable choice of estimator as the standard errors are correctly calculated, the result (interaction effects model only) using panel estimator Feasible Generalized Least Squares (FGLS) is also presented as panel data estimators reflect the traditional ways of calculating standard errors[6]. The rationale for including both results is to compare whether or not the parameters of both models are consistent.

6.4.1 The relationship between uncertainty and governance

This section discusses results of Model 1 presented in Table 6.1 which investigates hypotheses 1 – 5. Hypotheses 1-3 test the main effects of each uncertainty on

[6] The standard errors from FGLS only accounted for heteroskedasticity but not autocorrelations

governance while hypotheses 4-5 test the interaction effect between industry-level market uncertainty, demand and competitive uncertainty, and non-market uncertainty, political uncertainty.

The effect of demand uncertainty (H1) and competitive uncertainty (H2) on performance are hypothesized to follow transaction cost analysis (TCA)'s prediction that firms will try to become more vertically integrated when there is a presence of industry-level market uncertainty (positive relationship). The effect of political uncertainty (H3) is hypothesized to have an opposite effect on the degree of vertical integration (negative relationship).

The dependent variable – governance - is a continuous value indicating the degree of vertical integration. The higher the value means the higher the degree of vertical integration – the more sales go through the firm's own sales force. The independent variables are the three uncertainty variables, demand, competitive, political, and the pairwise interaction terms. Control variables include a firm-level variable, average room rate, and a country-level variable, gross domestic product. As our hypotheses are directional, the *p-values* for direct effects and interaction effects are one-tailed.

In the Baseline OLS model, the results under the main effects section indicates that there are significant positive relationships between demand uncertainty and degree of vertical integration (H1, b=0.01, $p<0.05$), competitive uncertainty and degree of vertical integration (H2, b=2.09, $p<0.05$). Hence, H1 and H2 are supported. Interestingly, the result for H3 also shows positive relationship between political uncertainty and performance at merely 90% confidence (b=0.01, $p<0.05$), but it is in the opposite direction to the hypothesis. Hence, support is not for our

hypothesis that firms are less likely to vertically integrate when there is a presence of political uncertainty.

	Model 1: The Effect of Uncertainty on Degree of Vertical Integration								
	Estimator	OLS Newey-West Standard Errors			OLS Newey-West Standard Errors			FGLS Heterokedastcity robust Standard Errors		
		Baseline Model			Interaction Effects Model			Interaction Effects Model		
	Dependent Variabile	Degree of Vertical Integration			Degree of Vertical Integration			Degree of Vertical Integration		
H		Coef.	t	p-value	Coef.	t	p-value	Coef.	t	p-value
	Direct Effects									
H1	Demand Uncertainty	0.01	2.80	0.003 *	0.02	4.13	0.000 *	0.03	12.34	0.000 *
H2	Competiive Uncertainty	2.09	3.47	0.001 *	2.33	2.94	0.001 *	2.09	6.16	0.001 *
H3	Political Uncertainty	0.00	1.18	0.119	0.01	2.43	0.007 *	0.01	7.43	0.007 *
	Interaction Effects - Uncertainty variables									
	Demand x Competitive				-0.11	-0.78	0.218	-0.19	-3.01	0.003 *
H4	Demand x Political				-0.00	-2.35	0.009 *	-0.01	-5.66	0.000 *
H5	Competitive x Political				-0.09	-0.89	0.181	-0.14	-3.39	0.001 *
	Control									
	Average Room Rate	0.00	-6.68	0.000 *	-0.00	-7.12	0.000 *	0.00	-11.87	0.000 *
	Gross Domestic Product	0.00	-0.18	0.856	-0.00	-0.48	0.633	0.00	0.67	0.501
	(Constant)	-0.01	-0.32	0.749	-0.03	-1.52	0.120	-0.03	-3.31	0.001 *
	F-Value	(5, 809) = 14.04			(8, 806) = 12.97					
	Wald Chi-Square							331.33 *		
	Number of Observations	815			815			815		

The p-value fro the main interaction, and moderating effects variables are the directional
The p-value for the ocntrol variable are two tailed
*Indicates p<0.05

Table 6.1: Model 1 The Impact of uncertainty of governance

In the interaction effects model, interaction effects between two uncertainties are inserted to assess the simultaneous effect of market and non-market uncertainty on governance. Therefore, the study only postulates the interaction between political and demand uncertainty (H4) and political and competitive uncertainty (H5).

The relationships of the interactions terms in both hypotheses under this section are all negative in both OLS and FGLS models. The direction of the relationship is consistent with the rationale that firms tend to be less vertically integrated under

this situation. However, the finding from OLS shows that the only significant effect is that of H4 which is relationship between the interaction of demand and political uncertainty and degree of vertical integration (*b*=-0.00, *p<0.05*)[7]. Hence, H4 is supported. There does not appear to be a significant relationship between the interaction of competitive and political uncertainty and degree of vertical integration (H5) at *p<0.05* level. Thus, H5 is not supported. The result from FGLS suggests H4 and H5 are significant.

Though the main effect of political uncertainty on governance (H3) differs from the baseline model, this relationship becomes positively strong in the interaction effects model (b=0.01, p<0.05) which includes all the specified variables.

6.4.2 The relationship between uncertainty and performance

Table 6.2 below presents the result from 2SLS model (model 2), which estimates 1) the relationship between uncertainty on performance and 2) the moderating effect of governance on the relationship between uncertainty and performance. In addition to model 1, the first stage model adds the proportion of food and beverage revenue to total revenue (FB Revenue) as an instrument variable to compute the predicted value of the degree of vertical integration. This predicted value of the degree of vertical integration from the first stage is then used as an independent variable in the second stage to estimate the relationship between uncertainty, degree of vertical integration, and performance. This predicted degree of vertical integration is also used to construct the interaction terms with uncertainty variables to see if the degree of vertical integration can amplify or buffer uncertainty effects on performance. The dependent variable in the second stage is performance and is measured by room revenue. As our hypotheses are directional, the *p-value* shown for main effects and interaction effects is one-tailed.

[7] The beta coefficient of 0.000 effect is due to the scaling of the independent variable relative to the dependent variable

H6 – H8 represent the main effect of each uncertainty variable on performance. Based on the baseline model in table 6.2, the result of H6 shows insignificant relationship between demand uncertainty and performance (b=0.47, $p>0.05$). The study cannot reject the null hypothesis that the relationship between demand uncertainty and performance is zero at 95% confidence. Hence, H6 is not supported.

In regards to H7, the effect of competitive uncertainty on performance is negative as hypothesized and the relationship is significant (b= -165.41, $p<0.05$). Therefore, support is found for H7. Support is also found for H8 (b=-0.73, $p<0.05$) which suggests that political uncertainty reduces performance.

The Interaction Effects model in table 6.2 aims to present the results from the addition of interaction and moderating effects. As for pairwise interactions among uncertainty variables (H9 and H10), the impact of the interaction of demand and political uncertainty H9 is negative as hypothesized but unsupported at 95% confidence (b=-0.13, $p>0.05$). Therefore, the null hypothesis that the effect of interaction of demand and political uncertainty on performance is zero cannot be rejected. However, this relationship would be supported at 90% confidence level. The FGLS model reported negatively significant result for H9 of (b=-0.007, $p<0.05$).

Support is found for H10. The impact of the interaction of competitive and political uncertainty is negative and significant at 95% confidence (b = -12.54, $p<0.05$) which agrees with the hypothesis that political uncertainty will amplify the magnitude of competitive uncertainty. The result estimated by the FGLS model is also negatively significant (b = -5.39, $p<0.05$).

Table 6.2: Model 2 The impact of uncertainty on performance

	Model 2: The Effect of Uncertainty on Performance (2 SLS Model)																	
	Estimator	OLS Newey-West Standard Errors												FGLS Heterokedastcity robust Standard Errors					
		Baseline Model						Interaction Effects Model						Interaction Effects Model					
		First Stage			Second Stage			First Stage			Second Stage			First Stage			Second Stage		
H	Dependent Variabile	Degree of Vertical Integration			Peformance			Degree of Vertical Integration			Performance			Degree of Vertical Integration			Performance		
		Coef.	t	p-value	Coef.	t	p-value	Coef.	t	p-value	Coef.	t	p-value	Coef.	t	p-value	Coef.	t	p-value
	Direct Effects																		
	Degree of Vertical Integration (DV)[a]				83.22	6.36	0.000 *				64.12	5.16	0.000 *				38.96	8.53	0.000 *
H6	Demand Uncertainty	0.01	3.13	0.001 *	0.16	0.47	0.321	0.02	5.47	0.000 *	0.64	1.33	0.090	0.03	13	0.000 *	0.32	1.9	0.028 *
H7	Competiive Uncertainty	1.37	2.28	0.011 *	-165.41	-4.55	0.000 *	1.46	2.09	0.018 *	-124.43	-3.23	0.000 *	0.78	2.58	0.005 *	-45.44	-2.88	0.002 *
H8	Political Uncertainty	0.01	1.62	0.053	-0.73	-6.13	0.000 *	0.01	3.65	0.000 *	-0.54	-2.83	0.002 *	0.01	6.93	0.000 *	-0.37	-5	0.000 *
	Interaction Effects - Uncertainty variables																		
	Demand x Competitive							-0.09	-0.71	0.238	-10.27	-1.07	0.142	-0.04	-0.68	0.248	-11.36	-2.2	0.014 *
H9	Demand x Political							0.00	-3.00	0.001 *	-0.13	-1.44	0.070	-0.01	-5.71	0.000 *	-0.07	-2.37	0.009 *
H10	Competitive x Political							-0.03	-0.42	0.337	-12.54	-2.38	0.009 *	-0.03	-0.96	0.169	-5.35	-2.69	0.003 *
	Moderating Effects - Degree of Vertical Integration																		
H11	DV*Demand Uncertainty										-0.82	-0.25	0.400				-0.59	-0.52	0.301
H12	DV*Competitive Uncertainty										42.83	0.16	0.436				-48.35	-0.34	0.367
H13	DV*Political Uncertainty										4.98	3.68	0.000 *				3.32	7.6	0.000 *
	Others																		
	Instrument Variable - F&B	0.54	4.04	0.000 *				0.52	3.97	0.000 *				0.56	9.68	0.000 *			
	Control																		
	Average Room Rate	-0.00	-4.39	0.000 *	0.01	14.44	0.000 *	-0.00	-4.78	0.000 *	0.01	14.96	0.000 *	-0.00	-7.78	0.000 *	0.01	33.95	0.000 *
	Gross Domestic Product	-0.00	-0.19	0.852	0.05	2.38	0.009 *	-0.00	-0.50	0.614	0.04	2.59	0.010 *	0.00	0.36	0.715	0.01	1.59	0.119
	(Constant)	-0.01	-1.03	0.153	14.83	22.20	0.000 *	-0.05	-2.35	0.019 *	13.28	11.50	0.000 *	-0.03	-0.03	0.000 *	12.24	31.19	0.000 *
	F-Value	(6, 777 = 17.95)			(6, 785 = 64.00)			(9, 774) = 16.76			(12, 779) = 51.90								
	Wald Chi-Square													455.55 *			2485.80 *		
	Number of Observations	784			792			784			792			784			792		

The p-value fro the direct effects, interaction effects and moderating effects variables shown in the table are the directional p-value

The p-value for the ocntrol variable are two tailed

*Indicates p<0.05

[a]Degree of vertical integration and their interactions in the 2SLS column is its predicted value derived from the first stage.

6.4.3 The moderating impact of governance on the relationship between uncertainty and performance[8]

The results for three hypotheses (H11 – H13) regarding the moderating impact of governance, which is operationalized as the degree of vertical integration, and whether it can buffer or amplify the effect of uncertainty on performance are presented in this section. Support is not found for H11 which suggests that the degree of vertical integration has no effect in buffering the relationship between demand uncertainty and performance (*b* =-0.82, *p>0.05*). Nonetheless, even though H11 is significant, the relationship would be meaningless since the main effect, demand uncertainty, is insignificant. The result estimated by the FGLS model is also unsupported (*b* =-0.59, *p>0.05*). Support is also not found for H12, the buffering effect of the degree of vertical integration on competitive uncertainty (*b* = 42.83, *p > 0.05*). FGLS also reported an insignificant result (*b* = -48.35, *p > 0.05*).

The attention-grabbing relationship is found for H13. The degree of vertical integration is found to moderate the relationship between political uncertainty and performance (*b* = 4.98, *p < 0.05*) which suggests that the higher degree to which the firm can vertically integrate its operation, the better the subsequent performance outcome. However, the direction of the relationship is positive which is opposite to the hypothesis. Therefore, H13 is not supported. Figure 6.1 below demonstrates the performance in low and high political uncertainty situation. This shows that, when political uncertainty is high, the firm's performance is remarkably

[8]To ensure that sound conclusion can also be drawn from our equation 2-2 which employed predicted degree of vertical integration instead of actual degree of vertical integration as an explanatory variable due to the issue of endogeneity, several tests are performed. First, the correlation coefficient of actual degree of vertical Integration variable and predicted degree of vertical Integration variable (used in model 2) is 0.53 and is significant (t = 17.47, p<0.01). Two models based on equation 2-2 are also run with panel estimator using fixed effect, one using actual degree of vertical integration and another one using predicted degree of vertical integration as their dependent variables. Both models have the same R^2 (within) = 0.73 and similar R^2 (overall) of 0.66-0.67. Finally, equation 2-2 employing an OLS estimator using Newey-West standard errors is also run using actual instead of predicted degree of vertical integration. The result shows that, albeit some differences due to the presence of endogeneity, degree of vertical integration can positively moderate the relationship between political uncertainty and performance at 95% confidence

better when the degree of vertical integration is high than when the degree of vertical integration is low. FGLS also reports consistent findings ($b = 7.60$, $p<0.05$)[9].

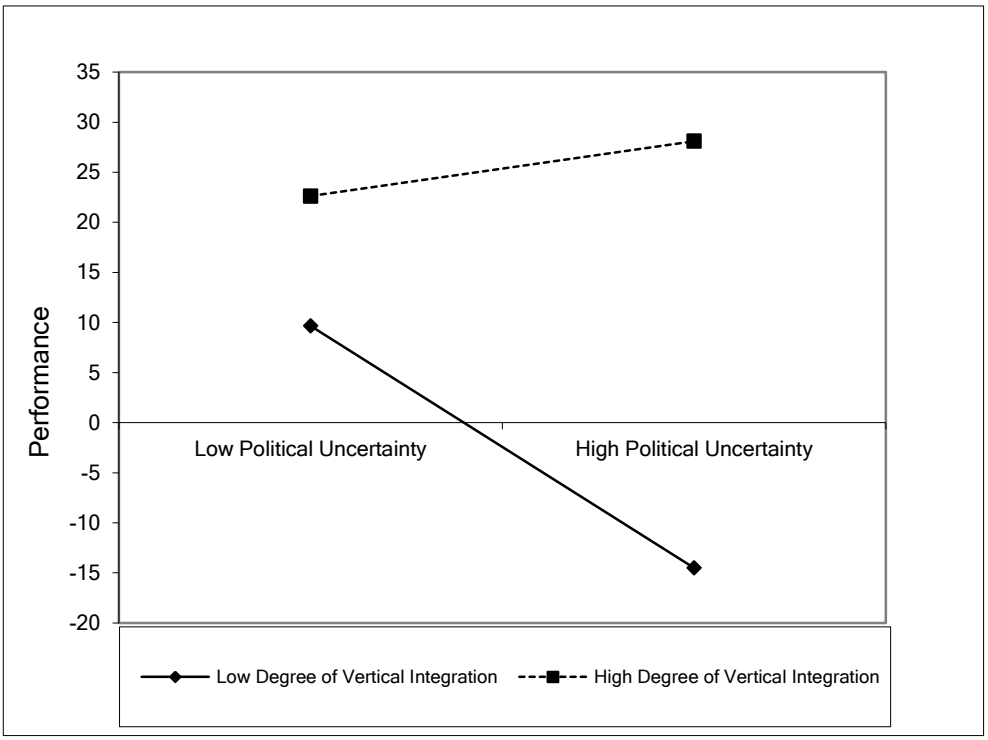


Figure 6.1: The moderating impact of governance

6.5 Summary of results

Although OLS is selected as our estimator because it can correct both heteroskedasticity and autocorrelations issues, the result from FGLS is also presented to represent the parameters from the panel estimator. Although the findings from both models are not identical, they are in the same directions.

Table 6.3 summarizes the result from both estimators. Among 13 hypotheses, 6 hypotheses are supported when estimated with OLS. Among the unsupported hypotheses, five of them are due to insignificant relationships. The other two

[9] As Thailand's sample account for approximately 75% of our total sample size, additional models with Thailand's sample only are run. These models provide the opportunity to investigate the effect of political uncertainty in a country which has a more balanced trend and control for country variance. Albeit few differences, the result shows that degree of vertical integration can buffer the negative effect of political uncertainty at 90% confidence (p = 0.058, one-tailed).

unsupported hypotheses showed significant relationship but the direction of the relationships are opposite to the hypothesized direction.

The results reported by FGLS estimator, which only account for heteroskedasticity but not autocorrelations, are slightly more optimistic. Only two unsupported hypotheses are caused by insignificant relationships. The reason for three unsupported hypotheses is due to the direction of the relationship being opposite to the hypothesized direction.

Hypothesis	Independent Variables	Hypothesized Direction	OLS Newey-West Standard Errors			FGLS Heterokedastcity robust Standard Errors		
			Significant 0.05%	Result	Support	Significant 0.05%	Result	Support
Relationship between main effects of uncertainty and governance								
H1	DU	+	Yes	+	Support	Yes	+	Support
H2	CU	+	Yes	+	Support	Yes	+	Support
H3	PU	-	Yes	+	No	Yes	+	No
Relationship between interaction effect of uncertainty and governance								
H4	DU x PU	-	Yes	-	Support	Yes	-	Support
H5	CU x PU	-	No	-	No	Yes	-	Support
Relationship between main effect of uncertainty and performance								
H6	DU	-	No	+	No	Yes	+	No
H7	CU	-	Yes	-	Support	Yes	-	Support
H8	PU	-	Yes	-	Support	Yes	-	Support
Relationship between interaction effect of uncertainty and performance								
H9	DU x PU	-	No	-	No	Yes	-	Support
H10	CU x PU	-	Yes	-	Support	Yes	-	Support
Moderating effect of governance on the relationship between uncertainty and performance								
H11	DV x DU	+	No	-	No	No	-	No
H12	DV x CU	+	No	+	No	No	-	No
H13	DV x PU	-	Yes	+	No	Yes	+	No

Table 6.3: Summary of results

6.6 Summary

The results of the 13 hypotheses are presented in this chapter. Among 13 hypotheses, 6 hypotheses are supported at 95% confidence. The result supports TCA's proposition that when uncertainty rises, firms are likely to become more vertically integrated. Although it is conclusive that uncertainty impacts a firm's performance, the directions of the relationship are varied. The answer to TCA's prediction on whether degree of vertical integration can alleviate the negative impact of uncertainty on performance is found in section 6.3.3. The result shows that the degree of vertical integration can reduce the negative impact of political uncertainty on performance, but cannot reduce those of demand and competitive uncertainty.

CHAPTER 7

DISCUSSION

7.1 Introduction

The focus of this study is on the transaction cost analysis (TCA) framework which prescribes that firms that align mode of governance with transaction dimensions will have a superior performance (Williamson 1991). However, the traditional view of TCA only conceptualized governance as the dichotomous “make or buy” which is unlikely to be the current practice.

This study advances the knowledge in this area by investigation of the relationship between uncertainty, governance and performance in a concurrent channels context which is a more consistent approach with current practice (Heide, Kumar and Wathne 2014; Parmigiani 2007) than the dichotomous “make or buy” from the traditional view of transaction cost analysis (TCA). Employing Instrument Variable (IV) Estimator using Two-Stage-Least Squares (2SLS) model, compelling evidence is found on governance and performance linkage which answer the question as to whether firms should try to be more or less vertically integrated when dealing with uncertainty. Central to our findings is that being more vertically integrated can buffer the negative effect of non-market uncertainty on performance, but cannot buffer that of market uncertainty. Specifically, when political uncertainty is high, being more vertically integrated helps buffer the negative effect of political uncertainty on performance. On the contrary, being more vertically integrated cannot moderate the effect of two market uncertainties, demand and competitive uncertainty, on performance. Our rationale for this finding is that firms usually factored industry-level market uncertainty in their channel deployment decisions

and, often, non-market factors are neglected. This finding suggests that non-market factors also play an important role in shaping a firm's performance and that the choice of governance matters when non-market uncertainty rises.

Generally, the findings yield insights on how firms should deal with uncertainty, both industry-level market and non-market uncertainty. This study hypothesizes that when dealing with industry-level market uncertainties; namely demand uncertainty and competitive uncertainty, firms will respond to these uncertainties by becoming more vertically integrated as suggested by TCA's prediction. However, when dealing with non-market uncertainty such as political uncertainty, a firm may prefer to maintain its flexibility by becoming less vertically integrated. Support is found for the effect of demand and competitive uncertainty on vertical integration. Contradictory evidence to our hypothesis is found for the relationship between political uncertainty and vertical integration.

As for performance effect, evidence to answer the key TCA question on whether a higher degree of vertical integration would lead to superior performance outcome in times of high uncertainty is derived. First, the direct effects of the three uncertainties on performance are tested. Supports are found only for the effect of competitive and political uncertainty on performance.

The result for the moderating effect of vertical integration shows that when political uncertainty is high, being more vertically integrated helps buffer the negative effect of political uncertainty on performance. Although the relationship is unsupported as the direction of the relationship is contradictory to the hypothesis, this demonstrates that non-market uncertainty also plays an important role in shaping a firm's performance and firms should incorporate these factors when making business decisions.

Important findings of this study are presented in the previous chapters. The principal focus of this chapter will be the discussion of those findings and the highlighting of the theoretical as well as managerial implications from this study. Section 7.2 discusses the theoretical implications of this study. Empirical evidence from previous research related to unsupported hypotheses is explored in section 7.3. Management implications of this research are discussed in section 7.4. Section 7.5 addresses the limitations of this study and provide suggestions how further research should overcome these issues. Finally, section 7.6 summarizes and concludes this thesis.

7.2 Theoretical implications

The key contributions of this study lie in the area of governance and performance linkage. Generally, this study is able to extend the theoretical contribution from Heide, Kumar and Wathne (2014) which provide arguments on whether a concurrent channels context is better than “make or buy” in terms of performance. This study gives insight by looking into the shifts between the “make and buy” decision within the concurrent channels setting and investigating the subsequent performance effects of the shifts. There are three key theoretical implications this study contributes to the area of governance. First, the knowledge about the effect of uncertainty on governance is extended beyond the choices of the make, buy, and hybrid situations. Our second contribution is the investigation of uncertainty effect on the subsequent performance effect of that particular governance decision. The third implication focuses on the extension of the TCA to include an institutional variable, political uncertainty, as the non-market uncertainty. The details of each of these implications will be discussed in the following sub-sections.

7.2.1 The effect of uncertainty in concurrent channels context

The first contribution is to extend the knowledge about the effect of uncertainty beyond the original choices of make, buy, and hybrid, to a concurrent channels context which is consistent with current practice as firms usually rely simultaneously on both direct and indirect channels for the same products as the traditional "make or buy" decision is too restrictive (Bradach and Eccles 1989; Mols 2000). Several studies have provided a view on concurrent channels in comparison to the traditional "make or buy" decision. For example, Sa Vinhas and Anderson's (2005) study on conflicts and channel structure discusses the situations in which a concurrent channel is likely to be employed. Parmigiani (2007) shows that concurrent channel is the distinct choice, not the linear combination of "make and buy." Heide, Kumar and Wathne (2014) focus on the benefit of concurrent channel in that it helps a firm in improving its governance mechanism in monitoring and relational norms. As for monitoring, the direct sales force can provide relevant performance benchmarks. The effect of relational norms would be undermined due to a threat of backward integration. However, a concurrent channels context is usually conceptualized as discrete mode of governance (i.e., concurrent channels vs. indirect channels) (Heide, Kumar and Wathne 2014). Heide, Kumar and Wathne (2014) suggest that evidence on whether or not firms should try to be more or less vertically integrated is scarce. Hence, investigation should focus on the dynamic of the firm's governance choices (Heide, Kumar and Wathne 2014).

By focusing on the concurrent channels context, particularly on the change in the degree of vertical integration, this study is able to fill the literature gaps mentioned in previous literature. With the longitudinal design, this study also fills the gap for scholars who suggested that examining the changes overtime will improve our understanding of the impact of institutional changes (Demirbag, Glaister and Tatoglu 2007). Our results show that the focal firm follows TCA's discriminating

alignment hypothesis in response to the increment of each uncertainty tested in this study by becoming more vertically integrated. This extends the knowledge that TCA's prediction can be applied in a concurrent channel context.

As for the interaction effect of uncertainty on governance, the study focuses on how the non-market uncertainty will moderate the market uncertainty. Specifically, we view that the presence of political uncertainty will cause demand and competitive uncertainty to become more volatile. As a result, firms may have to rely more on third parties to deal with the situation which will result in a lower degree of vertical integration. The interaction effect of uncertainty is tested in two hypotheses, H4 (the interaction between political and demand uncertainty) and H5 (political and competitive uncertainty). The significant relationship in H4 supports the rationale that high political uncertainty will lessen the positive relationship between demand uncertainty and the degree of vertical integration as political uncertainty amplifies the magnitude of demand uncertainty in a way that a firm tends to rely more on a third party to secure its business.

7.2.2 The effect of uncertainty on performance

Our focus on the investigation of uncertainty effects on the subsequent performance outcomes of governance follows the notion that most research in concurrent channels focuses on the antecedent conditions that lead to the use of concurrent sourcing, but not the subsequent performance outcomes (Heide, Kumar and Wathne 2014). The theoretical implication on performance focuses on both the direct effect of uncertainty on performance and whether vertical integration plays a role in moderating the effect of uncertainty on performance. We are able to report three key findings which contribute to the area of uncertainty and performance linkage. First, as different types of uncertainty affect performance differently, the findings agree with the notion that the effect of uncertainty is contextual. Second,

there are interaction effects between market and non-market uncertainty. Last and most important, the result presents the subsequent performance effect of governance decisions which indicates that governance choice matters. Overall, our findings extend the notions from Heide, Kumar and Wathne (2014) that the effect of governance form on performance might be contextual.

The conclusion about contextual effect of uncertainty is drawn from the investigation of the direct relationship between uncertainty and performance. The study found that not all relationships have the expected directions. The effects of competitive and political uncertainty on performance are negative as hypothesized. Interestingly, the effect of demand uncertainty is positive which is opposite to the hypothesis. Although the relationship is insignificant, the positive relationship between demand uncertainty and performance suggests that although uncertainty signals a negative notion, its effect is not always negative. Therefore, caution must be applied when concluding the effect of uncertainty on other constructs.

Second, the interaction of the two uncertainty variables also shows that non-market uncertainty worsens the impact of market uncertainty on performance. This sheds light on the impact of different uncertainty variables on performance and supports our rationale that the change in non-market uncertainty will cause the market uncertainty to become more volatile. As a consequence, firms will have to adjust strategy and operations on an ongoing basis which may disrupt the operation and incur unforeseen cost. In addition, the firm will also suffer from higher cost of opportunism as it will have more reliance on third parties.

As for the last finding regarding the moderating effect of vertical integration, the study found evidence that among the three uncertainties investigated, vertical integration cannot moderate the negative effect of market uncertainty demand

(H11) and competitive uncertainty (H12), on performance, but can buffer the negative effect of non-market uncertainty, political uncertainty, on performance (H13). Although the result shows that vertical integration can buffer the effect of political uncertainty at 95% confidence, the relationship is insignificant as its direction is opposite to the direction of our hypothesis. Nonetheless, the result is thought-provoking. Our rationale on why vertical integration can only moderate the effect of non-market uncertainty is that the focal firm has already taken the two market uncertainties, but not the non-market uncertainty, into account when planning its governance structure. As the non-market uncertainty is usually unaccounted for, the change in degree of vertical integration from the usual circumstance is, therefore, impactful. Moreover, according to TCA's underlying assumption that opportunism is likely to be higher in times of uncertainty, the expenses such as advertising cost, commissions, and incentives, of using a third party would be higher than if the same activities were conducted internally as third parties are like to take advantage of the volatile situation. We agreed with D'Aveni and Ravenscraft (1994, p.1167) which suggests that "vertical integration results in economies of integration, even after industry effects and economies of scope and scale are controlled for." Firms can expect to economize on general and administrative, other selling, and advertising expenditures. These cost savings are likely to result in increased profitability. In addition, integration implies lack of market pressure on captive suppliers and results in efficiency. Although vertical integration will increase bureaucracy cost, we view that these costs are rather fixed, and the tradeoff between these costs and savings from other expenses such as commissions, incentives, and advertising, are likely to be beneficial to the firm's performance.

7.2.3 The extension of transaction cost theory

The third implication focuses on the extension of TCA to include an institutional variable which is consistent with suggestions from several previous studies in this area (cf. Brown and Potoski 2003; McCann, et al. 2005; Cadeux and Ng 2012). Institutional context variables provide a valuable extension to transaction cost theory because they refer to the fundamental circumstances of the exchange (Delios and Beamish 1999; Brouthers 2002). However, one of the areas to investigate is that studies in TCA often lack the systematic treatment of these fundamental factors (McCann, et al. 2005). McCann, et al. (2005) suggests that transaction cost will also depend on the broader institutional environment, and changes in the environment will affect transaction cost (McCann, et al. 2005). The institutional variable or non-market factor that is added in this study is political uncertainty. Our finding shows that this type of uncertainty is particularly important for firms that have to operate in high non-market uncertainty as it can amplify the magnitude of the market uncertainty.

Several studies in choices of entry modes in foreign markets (cf. Gatignon and Anderson 1988; Roberts and Greenwood 1997; Chatterjee and Singh, 1999; Davis, Desai and Francis 2000; Brouthers 2002) suggest that the institutional context may have a significant influence on entry mode performance because of the type and use of organizational capabilities and the connection with entry mode choices. For example, firms that consider both institutional and cultural contexts in choosing their entry modes, as well as transaction cost efficiencies, perform better than firms that do not (Brouthers 2002). The study by Brown and Potoski (2005) which investigates how government makes their decisions in contracting services shows that institutional factors affect how government chooses its service mechanism and suggests that the institutional environment is valuable in complementing TCA (Brown and Potoski 2005). The reason is that the organizational rules and norms

that are shaped from these institutional factors may influence organizational members to behave in a certain way (March and Simon 1993) which will be different from organization to organization. Makino, Isobe and Chan (2004) explore if country effects can explain the differences in performance of multinational firms that operate in various countries. The study found that country effects do affect a firm's performance which supports the view that institutional environment, which is a non-market factor, should be taken into consideration when performance is considered. McCann, et al. (2005) attempts to measure transaction costs in different environmental policies and suggests that transaction cost of the same subject vary according to environmental policy. The comprehensive investigation of the effect of institutional variable in TCA is the meta-analysis of environmental uncertainty and forward integration by Cadeaux and Ng (2012). The result suggests that firms that operate in domestic environments tend to respond to environmental uncertainty by being more vertically integrated, while firms that operate in international markets tend to be less vertically integrated. The explanation for these differences is that firms feel more comfortable to vertically integrate in the context that they are familiar with (Cadeux and Ng 2012). Overall, the result from our study provides consistent evidence with the aforementioned study that non-market factors do matter and emphasizes the need to incorporate institutional environments in TCA's framework.

7.3 Empirical evidence from previous research for unsupported hypotheses

Further to the preceding section (7.2), which dealt with the central theoretical implications of this study, additional important implications can be derived from 7 unsupported hypotheses. The lack of supported hypotheses might due to the nature of longitudinal and factual data which are collected from different sources for different purposes. In such data, common survey biases that might inflate the results are highly unlikely. In particular, the unsupported hypotheses regarding the

relationship between political uncertainty and governance (H3) and the moderating impact of governance on the relationship between political uncertainty and performance (H13) are thought-provoking. The result suggests that firms should try to become more vertically integrated when facing political uncertainty which seems to contradict previous literature (cf. Gatignon and Anderson 1988; Oxley 1999; Nickerson, Hamilton and Wada 2001) and that vertical integration is the right decision as it can buffer the negative effect of this uncertainty on performance. This provides support that TCA's discriminating alignment hypothesis can be applied with the institutional variable and in a concurrent channels context. Therefore, the reason H3 and H13 are unsupported is not that the relationships are not meaningful (although H3 is not meaningful in the baseline model, but its positive relationship is strong in the interaction effects model in which all the variables are specified), but because these hypotheses are based on the view point that favors flexibility which may need to be redefined and extended.

The rest of the hypotheses are all concerned with industry-level market uncertainty and performance relationships. H6 and H9 deal with the effect demand uncertainty and its interactions with political uncertainty. H11 and H12 concerns the moderating effect of degree of vertical integration on the relationship between the two market uncertainties, demand and competitive on performance. All of these hypotheses are unsupported because none of the relationship is meaningful at 95% confidence. Our rationale for these insignificant relationships (which will be discussed in details in section 7.3.2) is that firms are familiar with these market uncertainties and already account them their budget planning; therefore, the changes in those uncertainties do not have substantial impact on performance. Overall, these unsupported hypotheses give the impression (which will be discussed in section 7.5) that variables from other relevant theoretical perspectives

should be included when transaction dimensions and performance relationships are investigated.

The discussion in this section is divided into 2 sub-sections. Section 7.3.1 discusses the unsupported hypotheses on the relationship between uncertainty and governance which are H3 and H5. Section 7.3.2 focuses on the unsupported hypotheses on the relationship between uncertainty and performance which are H6, H9, H11, and H12.

7.3.1 Unsupported uncertainty-governance hypotheses

The unsupported H3 which shows a positive political uncertainty-degree of vertical integration relationship provides rationale for the argument on whether flexibility or structured organizations are preferred. Although H3 is insignificant as the direction of the relationship is opposite to our hypothesis, the result reveals some interesting aspects of the uncertainty-governance relationship that might not be thoroughly explained under TCA.

The result from this study demonstrates that firms deal with political uncertainty the same way in which they deal with the other two market uncertainties. The significant relationship provides support for TCA's discriminating alignment hypothesis that vertical integration is the approach that a firm uses to deal with political uncertainty. However, the empirical supports on how a firm should shift its governance, specifically channel deployment and its subsequent performance effect, in response to the change in the level of political uncertainty on the same country over time is not well established. We could only find evidence from Henisz and Williamson (1999) and Cadeux and Ng (2012). A rationale provided by Henisz and Williamson (1999) is that the increase in direct political hazards will lead a firm to increase its transaction-specific assets which will make vertical integration a

more economizing choice (Henisz and Williamson 1999). A thorough explanation is provided by the environmental uncertainty meta-analysis by Cadeux and Ng (2012) which suggests that when encountering enviornmental uncertainty in the domestic market, firms may choose to vertically integrate as they are familiar with the market and competitiors. Thus, they feel more confident in their ability to manage a sales force on their own. On the contrary, if the uncertainty is in the international market, the benefit of becoming more vertically integarated may not off-set the risk from the uncertainty. Due to context unfamiliarity, firms may prefer to use a third party (Cadeux and Ng 2012). As each hotel in our study is separately managed in each market, our findings are consistent with the explanation provided by Cadeux and Ng (2012).

The second unsupported hypothesis is H5, which shows an insignificant effect of the interaction between political and competitive uncertainty on governance calls for further investigation in strategy literature, specifically on competitive strategy. We view that the explanation in competitive strategy literature could be applied in this case. Competitive strategy literature suggests that firms usually mimic the strategies and behaviors of their successful rivals to reduce uncertainty (Dickson 1992; Grewal and Dhawadkar 2002). As governance structure is one of the key strategies, both the focal firm and its competitive set have already mimicked one another's strategy. Therefore, both the focal firm and its competitors are likely to adjust their governance structure in the same fashion for the given political situation. The change in the competitive set's governance structure is reflected in competitive set's performance which is the basis for constructing the competitive uncertainty measure. Hence, the reason why the interaction between political and competitive uncertainty has no effect on the degree of vertical integration is that the focal firm has already accounted for the changes in governance structure through its mimicking strategies.

7.3.2 Unsupported uncertainty-performance hypotheses

The third unsupported hypothesis, H6, set precautious notion on the interpretation of uncertainty construct. Although the demand uncertainty positively affects performance at 95% confidence, the relationship is insignificant as the direction of the relationship is opposite to our directional hypothesis. This indicates that uncertainty is not always negative and careful consideration must be given to the conceptualization and operationalization of uncertainty. The unpredictability of demand might be on the upward trend which is actually beneficial to the focal firm.

The fourth, fifth, and sixth unsupported hypotheses (H11, H12, H13) are three hypotheses regarding the moderating impact of the degree of vertical integration on the relationship between demand uncertainty (H11), competitive uncertainty (H12), and political uncertainty (H13) on performance. We view that the rationale behind the result of the moderating impact of the degree of vertical integration on the relationship between demand uncertainty (H11) and competitive uncertainty (H12) on performance might be similar. The result shows that becoming more vertically integrated in both high demand and competitive uncertainty cannot moderate the performance outcomes. The finding for H13 suggests that the degree of vertical integration can mitigate the negative effect of political uncertainty on performance at 95% confidence in an opposite direction to our hypothesis.

A possible explanation behind the unsupported H11 and H12 could be that these two uncertainties are industry-level market uncertainties which firms have already taken into account. Focal firms usually have the information on those market factors such as the expected demand for each month and number of new direct competitors. Therefore, this information is already reflected in how the firm will plan its channel deployment. Hence, the change in channel deployment has no effect on performance since these changes have already been factored in. On the other

hand, political uncertainty is usually unforeseen. Therefore, it is unlikely that firms can factor those incidents in. Hence, the shift in channel deployment can result in the change in performance outcome.

This view is consistent with the concept of dynamics capabilities from a resource-based view (RBV). Dynamic capabilities are “specific organizational and strategic processes by which managers alter their resource base” (Eisenhardt and Martin 2000, p.1111). The concept of dynamics capabilities as provided in Eisenhardt and Martin (2000) is summarized as follows. Dynamics capability is the routine or best practice that an organization employed to deal with different levels of market dynamism. A moderately dynamic market is one that has frequent changes, but the industry structures are stable, such as the boundaries are clear, and the players and customers are known. Managers usually have knowledge about the situation and allocate the firm’s resources according to the existing implicit knowledge. If the market becomes more dynamic, market boundaries, industry structures and players are ambiguous. As uncertainty cannot be modeled in advance because it is not possible to predict what will happen in the future, a firm does not have knowledge about the situation and has to create situation specific knowledge that is mostly simple and has only a little structure. Therefore, this knowledge will be easily forgotten which is why dynamic capabilities are difficult to sustain in highly dynamic markets (Eisenhardt and Martin 2000).

The concept of dynamic capabilities is similar to the findings for the reason that demand and competitive uncertainty are market factors. The changes in these two uncertainties are similar to the moderately dynamic market in that they are clear and quite predictable. Therefore, firms usually have dynamic capabilities to deal with the situation meaning they have already factored this into their sales force deployment. Hence, the change in channel deployment does not affect

performance. On the other hand, political uncertainty is similar to a highly dynamic market in which firms have no existing knowledge and therefore, is unaccounted for in their sales force deployment. That is why changing the level of sales force deployment has a significant impact on performance outcomes.

As for the direction of the relationship, following Rothaermel, Hitt and Jobe (2006), we view that performance outcomes might depend on the tradeoff of cost and gains between strategic flexibility and vertical integration. The rationale is that the higher the degree of vertical integration, the lower the flexibility and the greater the bureaucratic costs associated with it. Overemployment of indirect sales force to complete value chain activities could lead to opportunism and incur unnecessary transaction costs. It also limits the firm's ability to absorb external knowledge, therefore, lessening learning opportunities.

While using indirect sales force is likely to increase the firm's flexibility in the short run, it also increases its path dependence in the use of partners. As the firm loses its internal capability to perform certain activities, it becomes increasingly reliant on its external partners. If the loss in strategic flexibility and the increase in bureaucratic costs offset the benefits gained through vertical integration, the performance outcome will be lower (Rothaermel, Hitt and Jobe 2006).

7.4 Managerial implications arising from the research

This study hopes to provide an in-depth understanding of different types of uncertainty, their impact and magnitude on channel deployment and performance. Managers have to face various types of industry-level market uncertainty i.e. usual changes in level of demand, increasing number of competitors, and the emerging of alternative destinations. In addition to those market uncertainties, managers have to cope with unforeseen non-market uncertainty such as natural disasters

and political unrest. Often, the plan to deal with these non-market uncertainties or institutional factors is a contingency and spontaneous and without sufficient knowledge about the situations. Some of these non-market uncertainties can be extremely hard for hotel managers to deal with because many traditional instruments, such as lowering the price or increasing advertising, are costly and time consuming, leaving shifts in the balance of channel deployment as one of the few remaining instruments. Often, due to unfamiliarity, management predicts the magnitude of these uncertainties inaccurately resulting in improper planning and poor business forecast. As a consequence, they cannot achieve their target performance level.

We had the opportunity to discuss the quantitative findings with the General Manager (GM) of our focal firm and also learnt about the management's view on uncertainty. The feedback was that among the three types of uncertainty, demand and competitive uncertainty are volatile but take place over time in which management can prepare for the situation. Political uncertainty, on the other hand, is an unfamiliar territory. As for demand, tourists usually plan their vacation and made a booking in advance. The uncertainty in demand is due to unplanned trips or sudden cancellations. For example, a weak Russian economy results in a lower number of Russian tourists, but the short-term bookings are not very much affected. The hotel observes the trend in medium cancellations and long-term low booking. This uncertain demand will cause the revenue to be lower than forecast. However, the circumstances are known. The management can create a promotion plan that targets guests from other nationalities to make up for the loss from Russian tourists. For competitive uncertainty, marketing staffs always keep an eye on and record their competitors' activity. Each hotel also has very good information of its competitors such as average room rate, occupancy, and the number of new hotel rooms coming in a specific period. Therefore, when competition is intense,

management can promptly come up with sales and marketing activity to cope with competitive actions.

Political uncertainty, on the other hand, is different from the above uncertainties. It is difficult for firms to have a clear strategic direction. The company has a business contingency plan in place to handle extreme situations, but those plans only deal with infrastructure of the company such as information systems. However, there are no sales and marketing plans in place. For example, sales and market activities to handle the recent political movements in Thailand were initiated swiftly on an ad-hoc basis without proper project record and evaluation. As a consequence, the capability on how to handle these events will often be lost when the responsible staffs leave the company. The company has never had solid “best practice” from the event in 2007 to deal with the similar event in 2010. Often, the hotel has to work with limited resources such as tighter market expenditures or fewer personnel in accordance to the potential downward income shortfalls. This leaves its own sales force as the best resource to depend on. Although the hotel also tries to generate their sales from third parties, the result is rather disappointing. Those third party agents will work only on aggressive incentives under which the hotel cannot compete with its competitors and do not want to offer as a third party might use this low rate as a benchmark to negotiate future transactions. The GM suggests that it would be ideal if there is a way to incorporate the degree of political uncertainty in the budget revision in time of uncertainty. This way, the hotel can have a more accurate view of how the political uncertainty will affect its performance.

Based on our quantitative findings and discussion with management, the first managerial implication is to provide management the understanding on how non-market uncertainty or institutional environment affects business operations. In

practice, management usually makes business forecasts based on historical performance and market factors only. The non-market factors are often neglected. However, the result of this study shows that the effects of non-market uncertainty or institutional environment on performance are major and the negative impact can be mitigated. Therefore, it is crucial that management takes into account the non-market factors in their business forecast to ascertain the sales organization will be set up in the most efficient way.

The second implication aims to help management with overviews on how different types of uncertainty interact with one another. Managers can use this as a guideline to prepare a course of action that will yield optimum performance results under adverse conditions. Typically, managers do whatever it takes to secure the business in times of uncertainty without giving a thorough consideration to the most efficient way to allocate time and resources, which creates opportunity cost because those resources have not been spent on the "right" activities. As this study uses real market evidence, managers can benefit from this insight by considering how each uncertainty present in the marketplace influences concurrent channel deployment and use this as a guideline to handle each specific type of uncertainty.

7.5 Study's limitations and direction for future research

The findings from this study have three key limitations. The first one concerns the exclusion of other transaction factors which allows this study to test only part of TCA and agency theory. The second limitation is the limited number of uncertainty variables. Our last limitation is the generalizability of the database as the data are obtained from a single firm.

The first limitation is the exclusion of a number of factors such as transaction-specific assets, frequency, and cost factors that would give the study a more

complete view on the antecedents and subsequent performance of governance. This is consistent with the suggestions from several studies. D'Aveni and Ravenscraft (1994) summarized the literature in strategy and industrial organization economies which indicated that “the decision to vertically integrate might also depend on the type of production involved, the extent of transaction costs, the amount of specialized assets, the degree of market power at each stage of production, the activities, and the amount of uncertainty concerning prices and costs”(p.1168), and suggested that future study should establish a causal link between integration decisions and associate bureaucracy costs (D'Aveni and Ravenscraft 1994). Rothaermel, Hitt and Jobe (2006) found that vertical integration results in higher performance and viewed that the positive performance effect might be due to cost saving from internal value chain activities. However, internalizing will limit access to new knowledge that would be essential in developing future successful new products and would put a firm’s operations in a closed system. Therefore, while vertical integration reduces transaction costs, it also creates opportunity costs with potential negative performance implications (Rothaermel, Hitt and Jobe 2006). Heide, Kumar and Wathne (2014) also suggested that the trade-off between incremental performance benefits (that is a result of monitoring without the risk of promoting opportunism) and the direct cost of realignment might be another crucial factor in determining the choice of governance. The findings from our study which show that firms are likely to vertically integrate when facing uncertainty also reveals that vertical integration does not always result in subsequent performance effects. These findings give rise to the question “if vertical integration is not the answer to deal with uncertainty, what else do we need to consider?”

The examples above seem to agree that there is no exact prescription on how a firm should deal with any uncertainty in particular. It is likely that a governance decision

and the performance result depends on a tradeoff of cost and benefits among various transaction factors. Another plausible explanation could be that studies usually concern testing the predictive power of a theory in a particular relationship rather than trying to include all the potential factors from all relevant theories that would explain that relationship. Empirical insights on how these factors interact among themselves might be the answer on the antecedents of governance. Although, this study extends TCA to include institutional environment variable and curbs the aggregated effect of these potential factors on performance through Instrumental Variables (IV) Estimator using a Two-Stage Least Square (2SLS) in model 2, however, due to our preference in using secondary panel data as it is superior to cross-sectional data in measuring change, it is difficult to find the suitable measure for each potential variable. The inclusion of other relevant variables, both within and beyond the scope of TCA, should be reasonably achievable in other research designs such as cross-sectional data from scale-items questionnaire.

Within the scope of TCA, the opportunism construct should be a good addition to our study as a number of the hypotheses are based on this variable. Had this variable been included, it would have allowed the study to rule out their effect on the dependent variable and make a stronger conclusion, especially on the question whether performance depends on the trade-off between choice of governance and opportunism.

Beyond the scope of TCA, there are number of theories in sales, organization and governance i.e. Resource-Based View (RBV), Contingency theory, that focus on the factors that explain governance and variance in performance. The RBV perspective which views firms as bundles of resources (Eisenhardt and Martin 2000) would provide a complementary perspective on internal organization factors in addition to general environment suggested by TCA and the Institutional

environment, specifically, on how organizational capabilities i.e. market orientation will influence governance decision and performance outcomes. Contingency theory which focuses on the most effective coordination and control tasks or practice in a given situation also suggests a number of useful variables i.e. firm size, the nature fo the task (Gupta, Dirsmith and Fogarty 1994). Even the growing popularity of electronics market itself can be considered as an antecedent of governance decision as firms may opt for market governance rather than hierarchy due to its lower coordination cost (Mallapragada, et al. 2014). Consumers may prefer making their purchases through online vendors due to convenience and familiarity.

Future studies are recommended to investigate of these potential factors both within and beyond the scope of TCA individually to understand the individual effect of each variable in order to have the complete perspective on what drives governance decisions and subsequent performance outcomes.

The second limitation is the number and choice of uncertainty variables, especially the non-market uncertainty. Although we are able to include three key uncertainties which are crucial to any business, having a greater number along any dimension of classification would enhance the perspective. For example, if uncertainty is to be considered based on domain of environment, there are a few interesting domains along the continuum of firm-specific to general environment such as partners, availability of substitute products, technology, and cultures that would yield interesting insights on uncertainty and governance relationship. If uncertainty were to be classified based on its type, it would be fruitful to focus on how different types of uncertainty such as complexity, volatility, or unpredictability interact in the same domain environment, and compare the effect of different types within the same research context. Our emphasis is on the inclusion of non-market uncertainty which, based on our findings, shows strong effect on other variables. However,

based on our uncertainty literature review (table 3.1 in chapter 3), when non-market factors are considered, most study only central technological uncertainty (cf. Coles and Hesterly 1998; Santoro and McGill 2005; Geyskens, Steenkamp, and Kumar 2006; Parmigiani 2007; Kor, Mahoney, Watson 2008). Therefore, future research should try to be more systematic in selecting uncertainty variables in its study. In particular, future research should try to include more domains of non-market uncertainty and investigate the interaction of market and non-market uncertainty on other outcome variables.

The last limitation falls into the issue of generalizability. Our study is based on one company from one industry and may have the issue of contextual influences constraints. This limitation is partly due to the need for fine-grained level monthly financial data such as revenue, gross operating profit, average room rate, and sales by segmentations, to ensure that the issue for construct validity is limited. This kind of financial information is mostly treated as highly confidential as it reveals the firm's entire operations. Hence, firms are unlikely to participate. We are deeply grateful to have one firm participate in our study. In our opinion, our focal firm is a good representative and provides good context for generalizability of the context as it operates a total of 16 hotels in 4 countries. The operations are run according to standards and managed by a group of executives both Thai and foreign. Nevertheless, generalizability might have to be exercised with caution. Future studies in this area are, therefore, encouraged to have more than one focal firm within the same industry in their research. In addition, we also suggest future study to test both primary and secondary data sources in the same study to see if there is any result discrepancy between primary and secondary data.

7.6 Conclusions

This study focuses on choice of governance decisions in concurrent channels context in times of uncertainty. The study examines how a firm chooses to deploy its sales force in times of uncertainty and the subsequent performance outcome of that deployment. The theoretical framework is based on multiple theories in the area of governance. We extend the knowledge in this area by examining the relationship between governance decision and institutional environment variables. The relationship between uncertainty and choice of governance in a concurrent channel context follows TCA's prediction that vertical integration is the preferred choice of governance when uncertainty rises. As for the subsequent performance outcomes, the results show that although uncertainty seems to have a negative impact on performance, the result is subjective. This diversified result provides directions for future research opportunity to find the underlying assumption of this phenomenon. The findings for the central question of this research on whether vertical integration can lead to superior performance in times of uncertainty shows that becoming more vertically integrated cannot help moderate the effect of demand and competitive uncertainty which are the industry-level market uncertainty on performance, but can significantly moderate the effect of political uncertainty, which is the non-market uncertainty. Theoretically, this calls for examination of other variables from relevant governance theories in conjunction with TCA. Managerially this result provides insight to managers that non-market factors are crucial and that the shift in governance structure can play an important role in alleviating its impact.

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