The impact of corporate venturing on firms' innovation and organisational learning

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A study of large manufacturing firms in Thailand

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This thesis is submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy

Declaration of originality

I declare that the work contained in this research is my own, unless otherwise stated. This thesis has not been submitted in support of an application for another higher degree or qualification of this, or any other university or other institution of learning.

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Abstract

Research on corporate entrepreneurship suggests that corporate venturing is the most influential determinant to facilitate entrepreneurial performance among established corporations. Particularly, corporate venturing's strategic use has been viewed as a crucial tool in achieving sustained competitive advantage through the acquisition of innovation and organisational learning. However, understanding the influences of a firm's external and internal business environments on strategic corporate venturing (SCV) is still limited. This study addresses this issue by investigating the effects of three environmental and organisational mechanisms (i.e., market turbulence, cross-functional interfaces, and shared-organisational vision) on the relationship between SCV and firms' product innovation and knowledge acquisition. The research incorporated resource-based and knowledge-based views of firms to explain the adoption of innovation and organisational learning for sustained competitive advantage. This study's sample is composed of two primary groups of key respondents: general managers and CEOs, from 190 large manufacturing firms in Thailand. The findings indicate that the use of SCV positively affects product innovation. Additionally, the results reveal that shared-organisational vision has a positive moderating effect on this observed relationship. Further, the study indicates that cross-functional interfaces have a negative moderating effect on the use of SCV in acquiring new knowledge. Overall, this study's findings enrich the limited understanding of the potential impacts of market turbulence, cross-functional interfaces, and shared-organisational vision to enhance product innovation and knowledge acquisition when the firm conducts SCV. It also introduces a four-item scale to statistically measure SCV and provides evidence to the policy makers that they can use SCV to enhance their entrepreneurial performance.

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List of abbreviations

AMJ	Academy of Management Journal
AMLE	Academy of Management Learning and Education
AMP	Academy of Management Perspectives
AMR	Academy of Management Review
ASEAN	Association of South-east Asian Nations
ASQ	Administrative Science Quarterly
AVE	Average Variance Extracted
CEOs	Chief Executive Officers
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMB	Common Method Bias
CMV	Common Method Variance
CR	Composite Reliability
EFA	Exploratory Factor Analysis
ETP	Entrepreneurship: Theory & Practice
FASS-LUMS REC	Faculty of Arts and Social Sciences and Lancaster Management School's Research Ethics Committee
GEM	Global Entrepreneurship Monitor
GMs	General Managers
HBR	Harvard Business Review
IFI	Incremental Fit Index
JBV	Journal of Business Venturing
JMS	Journal of Management Studies

JOM	Journal of Management
JPIM	Journal of Product Innovation Management
KMO	Kaiser-Meyer-Olkin
MNCs	Multi-national Corporations
MS	Management Science
MSV	Maximum Shared Variance
OS	Organization Science
RMSEA	Root-Mean-Square Error of Approximation
SBE	Small Business Economics
SCV	Strategic Corporate Venturing
SEJ	Strategic Entrepreneurship Journal
SMEs	Small and Medium-sized Enterprises
SMJ	Strategic Management Journal
SMR	MIT Sloan Management Review
TSIC	Thailand Standard Industrial Classification
VIF	Variance Inflation Factor

CHAPTER ONE: INTRODUCTION

This chapter offers an introduction to the research background and motivation and provides an overview of the research project. The introduction explains the theoretical frameworks that support the understanding of strategic corporate venturing (SCV) to pursue sustained competitive advantages. Besides, this current chapter briefly identifies the research gaps, which determine the research questions. After that, the research context in correspondence to the research focus will be discussed. Next, the research methodology will be illustrated, followed by the elucidation of the thesis's outline.

1.1 Research background and motivation

Globalisation has transformed the nature of management and how existing firms achieve sustained competitive advantages over the past decades (Kuratko and Morris, 2018; Minola *et al.*, 2021). In an organisational context, sustained competitive advantages are critical to firms' success as it is a core competency that they exploit to outperform other competitors in the industry (Barney, 1991; Bruyat and Julien, 2001). Its significant effects have threatened organisations of all shapes and sizes to strive for new ways of doing business to survive in the era of uncertainty as the rate of change in trends, demands, and preferences of customers is unpredictable (Covin *et al*., 2020; Hamel, 2000; Hughes and Mustafa, 2017). Modern companies are thereby forced to continuously exploit new business opportunities by acquiring new innovative ideas to develop new entrepreneurial outcomes (Bowman and Ambrosini, 2003; Prugl and Spitzley, 2021; Titus *et al.,* 2017). Entrepreneurship is one of the most effective means to revitalise strategic planning and corporate strategy in dealing with turbulent markets,

which influence new forms of organisations (Covin and Miles, 2007; Covin *et al*., 2020; Kuratko and Morris, 2018; Priem and Butler, 2001). As entrepreneurial actions within established corporations are recognised as an essential source of sustained competitive advantage, the empirical research on corporate entrepreneurship has significantly grown over the past decades (Randolph *et al.,* 2019; Prugl and Spitzley, 2021; Teng, 2007).

In the literature, corporate venturing is an essential entrepreneurial effort that generates new business ideas to enable innovation and knowledge, founded within or beyond the firm boundaries (Sharma and Chrisman, 1999). Furthermore, corporate venturing tends to provide more significant entrepreneurial outcomes when the firms implement this concept at a strategic level (Covin and Miles, 2007). Although several studies have been conducted to examine the impacts of corporate venturing on performance, only a few studies focused on the use of SCV that can facilitate more substantial entrepreneurial outcomes (see, for example, Biniari *et al*., 2015; Covin and Miles, 2007; Kuratko *et al*., 2015; Maula and Stam, 2020; Zahra, 2015). SCV refers to a situation when firms align corporate venturing with their corporate strategies to harmonise the strategic plans to achieve sustained competitive advantages (Covin and Miles, 2007). Through SCV, established corporations can adopt an innovation-based strategy to simultaneously enhance innovation and organisational learning (Kuratko and Morris, 2018; Miles *et al*., 2015). Innovation is a critical source of sustained competitive advantages that enables the firms to outperform their competitors in the industry through new technologies, product features, operational processes, and so forth. (Cometto *et al*., 2016; Covin *et al*., 2020). Organisational learning is a strategic tool that empowers the

firm in gaining competitive advantages by acquiring new knowledge to update its knowledge stocks (Basu *et al*., 2015; Gupta and Govindarajan, 2000).

However, many firms have failed to manage their corporate venturing in maintaining positive outcomes from new corporate ventures (Covin and Miles, 2007; Covin *et al*., 2020). Narayanan *et al.* (2009) emphasised that environmental and organisational contexts play an essential role in successfully launching new corporate ventures and bringing about effective firm performance from their venturing efforts. Thus, there is a need to increase the understanding of different external and internal business environments that may affect SCV. This research focuses specifically on three external and internal business contexts: market turbulence, cross-functional interfaces, and shared-organisational vision. These three business contexts play a crucial role in helping firms to adapt their strategies and management plans in a competitive industry (Bodlaj and Cater, 2019; Kuratko and Morris, 2018).

The first is the influence of market turbulence on SCV in boosting product innovation and organisational learning. Market turbulence refers to the degree of the predictability of changes in customers' desires, preferences, and buying behaviour (Wilden and Gudergan, 2015). Firms that experience unstable market conditions are likely to acquire greater opportunities as customers often change their buying trends (Bodlaj and Cater, 2019; Danneels and Sethi, 2011). In addition, when the market is unpredictable, companies tend to engage in both innovation and learning (Wang *et al*., 2015).

The second is the effect of cross-functional interfaces on the observed relationships. Within an organisation, cross-functional interfaces are typically applied to exchange

organisational knowledge across units (Gupta and Govindarajan, 2000; LeMeunier-Fitzhugh and Massey, 2019). The firm can conduct cross-functional interfaces through liaison personnel, task forces, cross-unit teams, and teamwork (Enz and Lambert, 2012). These methods may also diminish organisational boundaries in sharing the new innovative idea, which leads to free-flowing communication (Jansen *et al*., 2009).

The third is the impact of shared-organisational vision on the observed relationships. A shared-organisational vision refers to the extent to which an organisation has a common purpose that its employees commit to achieving together (Burgers *et al*., 2009; Eldor, 2020). It can encourage all organisational members to share collective goals, interests, and objectives toward the company's vision (Burgers and Covin, 2016) and is critical, especially when the firm involves an inter-organisational relationship such as corporate venturing because it can facilitate the alignment of a common understanding among employees (Fey and Furu, 2008).

Therefore, it is significant to explore the influence of external and internal business environments on the use of SCV to enhance product innovation and knowledge acquisition. This notion is critical as some aspects of this phenomenon have been neglected in the current literature on corporate entrepreneurship and corporate venturing (see, for example, Bloodgood *et al.,* 2015; Bodlaj and Cater, 2019; Brumana *et al*., 2017; Narayanan *et al*., 2009). Hence, this research project intends to depict a complete aspect of the practice of SCV. This study aims to incorporate two firm-level theories: the resource-based view and knowledge-based view of the firm, and exclusively examine the influences of market turbulence, cross-functional interfaces, and shared-organisational vision, the main moderating effects of the use of SCV in promoting

product innovation and knowledge acquisition. The purpose of this study is to explore how SCV enables established corporations to achieve greater product innovation and knowledge acquisition. Furthermore, this research investigates the aforementioned moderating effects upon the observed relationships.

1.2 Theoretical frameworks

This study proposes an incorporative theoretical framework to examine the effects of SCV and its interactions with environmental and organisational contexts. Combining two streams of theories provides a complete overview of the understanding of SCV to create sustained competitive advantages through innovation and organisational learning. The first stream relies on a resource-based view of the firm in explaining the need to adopt SCV by the existing corporations to achieve sustained competitive advantages from an innovative performance (Barney, 1991). The second stream aligns a knowledge-based perspective in justifying the importance of organisational learning that plays a crucial role in continually updating the firm's existing knowledge and information about the external market, leading to the new source of sustained competitive advantages (Basu *et al*., 2015; Gupta and Govindarajan, 2000; Yang *et al*., 2013; Yli-Renko *et al*., 2020). As a result, incorporating resource-based and knowledge-based theories clarifies the use of SCV to simultaneously enhance the firm's innovation and organisational learning to increase its sustained competitive advantages.

1.3 Research questions

The main research focus of this study is, therefore, to draw on the incorporation of a resource-based and knowledge-based perspective to advance the understanding of SCV in boosting innovation and organisational learning. Additionally, this current study examines potential influences of the external and internal business environments on the relationships between SCV and product innovation and knowledge acquisition. Notably, Bloodgood *et al*. (2015) have pointed out that most existing articles in the corporate entrepreneurship literature on entrepreneurial performance have not clearly explained their theoretical frameworks to support the arguments. Nason *et al.* (2015) also reported no study on corporate venturing in top management journals has previously used an incorporative theoretical framework of resource-based and knowledge-based views in explaining the use of SCV to promote innovation and organisational learning. Incorporating these theoretical perspectives advances the understanding of SCV that can facilitate both innovation and learning (Morris *et al*., 2011). This is because the primary focus of resource-based view is on maximising profits based on the firm's existing resources (Barney *et al*., 2011). Still, the critical point of creating new knowledge in new ventures has not been identified, so the need to incorporate the knowledge-based view of the firm is significant to demonstrate that learning new knowledge can generate ideas for innovation (Eldor, 2020; Turner and Pennington, 2015). Zahra (2015) also supported the notion that knowledge is the foundation of innovation, which often leads to an organisation's success.

Previous studies on corporate venturing have tended to focus on the adoption of SCV as the appropriate path by which established corporations can facilitate their innovation

and learning of new knowledge in gaining sustained competitive advantages (Covin and Miles, 2007; Minola *et al*., 2016; Prugl and Spitzley, 2021; Shu *et al*., 2020). Even though corporate venturing has grown dramatically in recent decades, previous studies have often insufficiently presented the strategic linkage of corporate strategy on corporate venturing activities (Packard, 2017). In the current literature, market turbulence, cross-functional interfaces, and shared-organisational vision are critical components that may affect SCV in enhancing product innovation and knowledge acquisition, but existing studies have not yet investigated their moderating effects (see, for example, Burgers *et al*., 2009; Garg *et al*., 2003; Jansen *et al*., 2009; Lichtenthaler, 2009; Yang *et al*., 2013). Accordingly, this research proposes the following research question:

"How does market turbulence, cross-functional interfaces, and shared-organisational vision affect the relationship between the use of SCV and product innovation and knowledge acquisition?"

1.4 Research context

This section aims to provide an overview of the study context and discuss the Thai manufacturing sector and entrepreneurial opportunity that positively enhance entrepreneurial performance. The research context generates a better understanding of the choice of empirical location in addressing the research questions of the influence of external and internal business environments on the use of SCV to enhance innovation and organisational learning on the Thai manufacturing sector. This section is divided

into two main parts: an overview of Thailand; and an overview of the Thai manufacturing sector and entrepreneurship.

1.4.1 An overview of Thailand

Thailand is a country located in South-east Asia that comprises six significant regions: Northern Thailand, North-eastern Thailand, Western Thailand, Central Thailand, Eastern Thailand, and Southern Thailand, divided into 76 provinces in total. The current population of Thailand is approximately 69 million people, and the constitutional monarchy and military of the Kingdom of Thailand have facilitated the society and economic activity. Thailand's military has seized power in politics several the end of absolute monarchy in 1932. General Prayuth Chan-Ocha took over in the recent military coup in May 2014 and won the elections in March 2019 as the 29th head of Thailand's government (BBC 2019).

Over the past four decades, Thailand has achieved significant progress in moving from a low-income country to an upper-middle-income country through the development of the domestic economy in several sectors, including agriculture, manufacturing, and tourism (Thailand Investment Review, 2017). Throughout the globe, Thailand has been recognised as one of the most prosperous countries that have dramatically reduced the degree of poverty from 67% in 1986 to 7.8% in 2017 due to its strong economic growth as reported by the World Bank (2019a). Significantly, the Asian Development Bank (2019) revealed that Thailand is projected to move from an upper-middle-income country to a higher-income country within the next decade. In general, Thailand’s economy had an annual growth rate of at least 7.5% from 1960 to 1996 and slowed

down to 5% from 1999 to 2005 when facing the Asian Financial Crisis. After the crisis, the economy has continuously grown over the past five years (World Bank, 2019a). More importantly, Thailand is regarded as the second-largest economy in the Association of South-east Asian Nations (ASEAN), after Singapore, due to its strategic geopolitical position and regional cooperation (Asian Development Bank, 2019).

1.4.2 An overview of the Thai manufacturing sector and entrepreneurship

Over the past few years, Thailand's economic growth has been facilitated by the Thailand 4.0 development plan of the Thai government that is targeted to enhance the country's competitiveness through the development of domestic logistics and transport networks. In particular, this strategic plan was approved to promote long-term infrastructure development by General Prayuth Chan-Ocha after the military coup in 2014 (Asian Development Bank, 2019). As a result, Thailand's markets and industries have been given various opportunities, which include support for innovation and entrepreneurship. The manufacturing sector, which includes food, beverage, textile, clothing, footwear and leather, wood, paper, chemical, rubber and plastic, computing and electronics, electrical device, machinery and equipment, automotive, and furniture industries, is a second key component that plays a major role in economic growth (Thailand Investment Review, 2017).

Together with the current ongoing the nation's development plan, the Thai government is focusing on the transformation from being a commodity producer to become an innovation-driven economy in creating new innovative products by promoting technology, creativity, and innovation. Tremendous entrepreneurial opportunities have

been generated as the government encourages investment through new policies (Thailand Investment Review, 2017). According to the Global Entrepreneurship Monitor (GEM), the largest data source of entrepreneurship studies globally, the GEM Thailand Report (2018) indicates that government policies in Thailand continuously support entrepreneurial opportunities, the creation of new networks, communities, and platforms that facilitate collaborations as well as the establishment of new incentive policies such as special interest rates for new ventures and growing businesses. Apart from that, the Thai government has also assisted innovative startups by initiating an 'Angel fund' in 2016, providing a maximum of 1 million Thai Baht (THB) (US$28,000) each for up to 50 Thai entrepreneurs who have innovative business ideas. Overall, the Thai government's new development plans and policies have potentially boosted innovation and entrepreneurship domestically.

In addition, empirical studies conducted to explore corporate venturing in emerging economies in Asia are still limited so additional evidence is needed to better understand how corporate venturing contributes to the success of corporations and the economy (see, for example, Hsu *et al*., 2014; Kim and Bruton, 2012; Shu *et al.,* 2020; Yang *et al*., 2013). Therefore, Thailand is an ideal context for exploring the research questions for this study, by using raw data from the Thai manufacturing sector.

1.5 Research methodology

In this research project, a quantitative research method is employed as a means to collect data for statistical analysis to examine the influences of market turbulence, cross-

functional interfaces, and shared-organisational vision on the relationships between the use of SCV and a firm's product innovation and knowledge acquisition.

This research conducts a self-administered questionnaire through Qualtrics, a web-based survey instrument. In this study, two primary groups of key respondents: general managers (GMs) and chief executive officers (CEOs), who are the full-time employees of large manufacturing firms in Thailand. Surveys were collected in Thailand from October 2017 to February 2018. There are two sets of questionnaires for the two groups of participating respondents designed to address the research questions, based on their knowledge and work experience (Ucbasaran *et al*., 2010). The questionnaires were initially created in English and translated into Thai to assure that the respondents fully understood the contexts. To avoid problems associated with the translation, a back-translation technique was utilised to validate the questionnaires (Charoensukmongkol, 2016). In addition, this research project uses existing multi-item scales that were previously tested and used by various studies in top management journals, to ensure construct reliability (Kustova *et al*., 2011). However, the measurement items to investigate the use of SCV of an established corporation are currently unavailable in corporate entrepreneurship and corporate venturing literature. Therefore, this study has conducted several steps and procedures suggested by past literature to develop the measurement items for this variable (see, for example, DeVellis, 2012; Gunday *et al*., 2011; Hornsby *et al*., 2002; Hornsby *et al*., 2013; Jansen *et al*., 2005; Jaworski and Kohli, 1993; Lages and Lages, 2004; Lumpkin and Dess, 1996).

A total of 190 responses were used for the statistical analysis, which is equivalent to 20.7% of 915 large Thai manufacturing firms, classified according to the Thailand

Standard Industrial Classification (TSIC) from the Business Data Warehouse database, regulated by the Department of Business Development of Thailand. This study adopts several statistical techniques to test the reliability and validity of all measures as well as potential biases that may threaten the quality of empirical findings (see, for example, Chen *et al*., 2014; Hornsby *et al*., 2013; Huang and Gamble, 2015; Liu *et al*., 2017; Thanos *et al*., 2017). Based on the statistical results, the measures are reliable, and the potential biases are not a major concern in this study. Overall, the survey responses have sufficient data analysis quality for testing the proposed hypotheses (Hair *et al*., 2014).

1.6 Research implications

This research contributes to prior literature by its: theoretical, methodological, and managerial implications. Theoretically, the concept of corporate venturing has existed for decades, and its impact on managerial components have been examined by several studies (see, for example, Burgers and Covin, 2016; Yang *et al*., 2013). Coin and Miles (2007) pointed out that the use of SCV could facilitate entrepreneurial performance effectively. The present study confirms the previous research and contributes additional evidence to suggest that SCV has potential effects on both innovation and organisational learning. In addition, Narayanan *et al*. (2009) remarked that environmental and organisational contexts can stimulate corporate venturing performance. However, there are still several environmental and organisational contexts that the researchers have never investigated (see, for example, Bodlaj and Cater, 2019; Burgers *et al*., 2009; Garg *et al*., 2003; Jansen *et al*., 2009; Lichtenthaler, 2009; Yang *et al*., 2013). Thus, the literature needs more studies conducted to diagnose the possible effects of environmental and organisational context on corporate venturing. This study's empirical

findings provide a new understanding of the influences of market turbulence, cross-functional interfaces, and shared-organisational vision on the relationships between SCV and product innovation and knowledge acquisition. For methodological implications, as there are no available measurement items to examine SCV in the current literature, establishing a four-item scale will serve as a base for future quantitative studies. Apart from that, the findings suggest that the practitioners such as managers, top management teams, and policymakers can apply SCV to promote their innovation and learning. However, they should consider that cross-functional interfaces and shared-organisational vision may affect the outcome while using SCV.

1.7 Outline of the thesis

Overall, this research project comprises of six major chapters that are outlined as follows:

Chapter 1: Introduction

The current chapter provides a brief overview of the research background and motivation, theoretical frameworks, research gaps and questions, research context, research methodology, and research contributions of this study.

Chapter 2: Literature review

The second chapter generates a critical review of the literature in the fields of corporate entrepreneurship and corporate venturing in top

journals, discusses the theoretical foundation, identifies research gaps and questions, and formulates the hypotheses of this research.

Chapter 3: Research methodology

The third chapter offers a detailed explanation of the philosophical assumptions, research settings and data collection processes, and data analysis methods of this research project. Additionally, it demonstrates several techniques to examine potential biases and test the reliability and validity of all measures before data analysis, to assure that the results are reliable.

Chapter 4: Data analysis

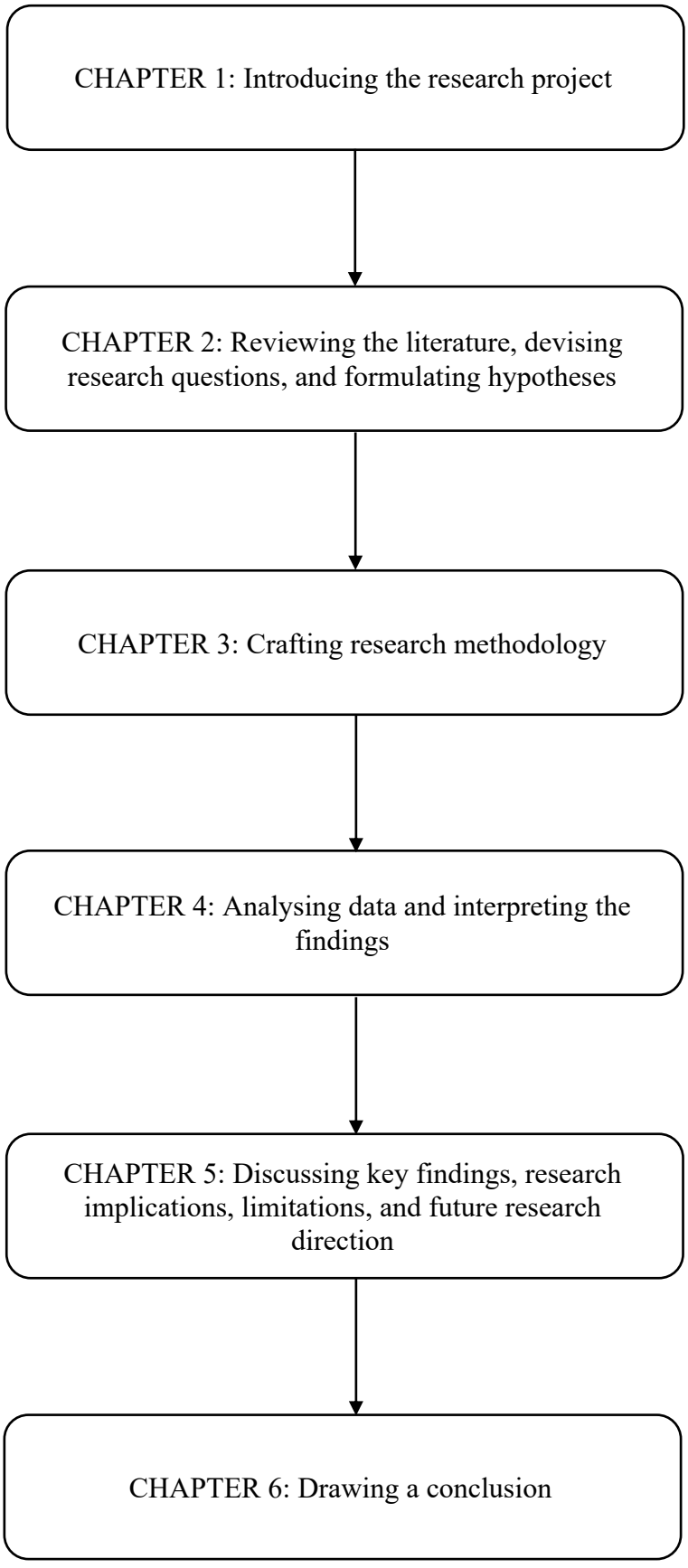
The fourth chapter presents and interprets statistical analysis results such as the descriptive statistics, correlation coefficients, multicollinearity test, and hierarchical multiple regression analysis.

Chapter 5: Discussion

The fifth chapter illustrates a comprehensive discussion of the empirical findings, research implications, and limitations and future research directions of this study.

Chapter 6: Conclusion

The sixth chapter gives a summary of this research project.


CHAPTER 1: Introducing the research project
CHAPTER 2: Reviewing the literature, devising research questions, and formulating hypotheses
CHAPTER 3: Crafting research methodology
CHAPTER 4: Analysing data and interpreting the findings
CHAPTER 5: Discussing key findings, research implications, limitations, and future research direction
CHAPTER 6: Drawing a conclusion

CHAPTER TWO: LITERATURE REVIEW

This literature review chapter offers insights into the state of current knowledge in entrepreneurship literature concerning the study's research focus. This chapter's primary goal is to identify relevant studies in top journals and discuss how their theoretical frameworks form and shape the research questions and hypotheses. The structure of the literature review chapter begins with the elucidation of the nature of the concepts of entrepreneurship, corporate entrepreneurship, corporate venturing, and SCV in a profound way. Subsequently, two firm-level theories, the resource-based view and knowledge-based view of the firm will be discussed as the research gaps have derived from integrating these two theories. Next, the potential influences of both external and internal business environments on entrepreneurial performance will be illustrated, which leads to the justification of the research gaps, questions, and hypotheses of this study. In the last section of this chapter, a chapter summary provides an overall aspect of the review of the previous research in the literature, theoretical foundation of an integrative theory of the resource-based view and knowledge-based view, and the research focus, gaps, and questions.

2.1 The entrepreneurial revolution

Although the concept of entrepreneurship has been established over two centuries, and the study on this matter has steadily grown in the literature, the definition of entrepreneurship remains inconclusive (Parker, 2018). Typically, the term ‘entrepreneurship’ has its roots in French, which is translated as ‘one who takes between’ and originated from economics according to Cantillon (1755) who was the

first scholar to recognise the importance of entrepreneurship. Cantillon (1755) defined an entrepreneur as an individual agent who is keen to face uncertainty in exchange for profits from his or her new business venture.

Since the first introduction of the concept of entrepreneurship to the literature, a large number of scholars have attempted to identify and explore its definitions in different ways. For instance, Say (1819) regarded entrepreneurship as a rare phenomenon that requires an individual who can coordinate resources from various sources and convert them into the production of new products and services. Schumpeter (1934) enhanced the understanding of entrepreneurship by describing an entrepreneur as an innovator who responds to new ideas, engages in innovation, creates new business, and captures new sources of required resources. Schultz (1975) perceived an entrepreneur as someone who can reallocate different resources into new innovative activities in response to disequilibria. Schultz illustrated the meaning of entrepreneurship with the example of a home cooking activity that involves the purchase of fresh groceries and the inventive transformation of those goods into innovative meals to create new values and nutrition.

This definition is consistent with Casson (1982) study that noted that an entrepreneur refers to an individual agent capable of carrying a new combination of resources to build his or her recent business activity through innovations. Drucker (1985) asserted that innovation is a useful tool for entrepreneurs as it helps them to exploit business opportunities by producing a new product, process, or service to acquire strategic advantages from their new business activities.

Not only that, Morris (1998) summarised seven distinctive perspectives on the nature of entrepreneurship, which are the most prevalent meanings of entrepreneurship in the literature (see Table 2.1).

Table 2.1: Seven perspectives on the nature of entrepreneurship

Themes	Definitions
Creation of wealth	Entrepreneurship involves assuming the risks associated with the facilitation of production in exchange for profit.
Creation of enterprise	Entrepreneurship entails the founding of a new business venture where none existed before.
Creation of innovation	Entrepreneurship is concerned with unique combinations of resources that make existing methods or product obsolete.
Creation of change	Entrepreneurship involves creating change by adjusting, adapting, and modifying one's personal repertoire, approaches, and skills to meet different opportunities available in the environment.
Creation of employment	Entrepreneurship is concerned with employing, managing, and developing the factors of production, including the labour force.
Creation of value	Entrepreneurship is a process of creating value for customers by exploiting untapped opportunities.
Creation of growth	Entrepreneurship is defined as a strong and positive orientation towards growth in sales, income, assets, and employment.

Source: Morris (1998)

In modern entrepreneurship research, entrepreneurship's core activity is usually involved with the "discovery and exploitation of profitable opportunities" (Shane and Venkataraman, 2000, p. 217). In general, entrepreneurship has been viewed as an individual-level activity that creates new organisations. An entrepreneur refers to any individual who actively seeks to launch business activity by identifying a unique

opportunity in the market and then exploiting it by creating new products, processes, or needs (Shane and Eckhardt, 2003). Interestingly, Sobel (2008) considered an entrepreneur as a person with several faces and roles, such as innovator, decision maker, and initiator that are varied according to business situations in incorporating innovation into new business ideas. Similarly, Packard (2017) suggested that entrepreneurship refers to individuals' actions in pursuing new value for themselves through creative and productive ways to gain higher economic returns and improve living standards. On the other hand, McKeever *et al.* (2015) revealed that the outcomes of entrepreneurship could go beyond financial returns as "entrepreneurship clearly has a social value, not only is entrepreneurship real to the communities in which it takes place, it can also vitalise communities" (p.62). As the definition of entrepreneurship in the literature has been amended and altered over time to align with the evolution of the business world, this study defines the term 'entrepreneurship' as human actions with the vision to exploit new business opportunities in the market and capability to transform innovative ideas into reality.

In the current era, the nature of how to operate, manage, and develop a business venture has been changed and transformed as globalisation has a significant impact on management and business practice (Bowman and Ambrosini, 2003; Lahti *et al.,* 2019). More importantly, there have been high rates of uncertainty and change in the market regarding technology and industry boundaries over the past decades. These transformations have brought innovation into the business world (Calabro *et al.*, 2016; Harrison and Leitch, 2006). As a result, entrepreneurial management has become one of the most potent drivers that firms throughout the globe can apply to encourage opportunity seeking and create an entrepreneurial architecture in responding to new

opportunities or changes in the current market (Burns, 2013; Kuratko *et al*., 2015; Prugl and Spitzley, 2021).

Besides, an organisation that encourages opportunity-seeking behaviours as one of its entrepreneurial activities tends to produce innovative products and services that are new to the current market in attracting new customers (Ireland *et al.*, 2003). These entrepreneurial behaviours help a company identify a new marketplace that has not yet been served. Hence, entrepreneurial management has its unique characteristics that differ from traditional management (Burns, 2008). Table 2.2 reports a summary of the differences between the elements of entrepreneurial and traditional management.

Table 2.2: The characteristics of traditional and entrepreneurial management

Traditional management	**Entrepreneurial management**
• Encouraging control • Encouraging discipline • Encouraging uniformity • Encouraging conformity • Encouraging efficiency • Encouraging effectiveness • Encouraging contractual relationships only • Encouraging long-term planning • Encouraging training • Encouraging functional management • Compartmentalising knowledge and information • Trying to create certainty and clarify ambiguity	• Encouraging opportunity seeking • Encouraging innovation • Encouraging questioning of the status quo • Encouraging vision • Encouraging drive • Encouraging relationships within and outside the organization • Encouraging strategising at all levels in the organisation • Encouraging learning • Encouraging the rapid transfer of knowledge and information • Encouraging co-operation • Tolerating uncertainty and ambiguity

• Avoiding risk • Discouraging failure • See change as a threat	• Taking risks • Allowing failure • Accepting and embracing change • Not controlling too strongly

Source: Burns (2008)

Significantly, firms of all shapes and sizes can develop new capabilities to overcome their potential competitors by being innovative, identifying new ways of operating a business, creating new technologies, and moving into new markets in a new form of organisations (Calabro *et al*., 2016; Teng, 2007). The advice derives from when corporations are struggling with the challenges to cope with uncertainty in the market and their traditional management strategies to cut budgets, and close plants are not likely to provide the right solution. Likewise, the existing companies can no longer remain stable as other competitors are continually adapting and redefining themselves (Basu *et al*., 2015; Morris *et al.*, 2011; Prugl and Spitzley, 2021). Therefore, to gain more market share and competitive advantage often involves 'corporate entrepreneurship' in which an entrepreneurial strategy is used within an established organisation. Corporate entrepreneurship is a term used to explain entrepreneurial performance and behaviour, bringing innovation and new knowledge into the existing corporations (Kuratko *et al*., 2015). In critical situations, firms find corporate entrepreneurship useful in helping them survive and stay competitive in the current market (Covin and Miles, 2007; Gerschewshi *et al.,* 2018; Minola *et al*., 2021). Accordingly, it is important to explore different aspects of corporate entrepreneurship that keep businesses afloat and stable in today's business world.

2.1.1 The concept of corporate entrepreneurship in an organisational context

Research on corporate entrepreneurship has risen extensively over the past decades, and several scholars have viewed this concept as an organisational process that is crucial to firm survival (Dess *et al.*, 2003; Minola *et al*., 2021). The research of Hornsby *et al.* (2013, p. 937) also pointed out that "many organisations today rely on corporate entrepreneurship to develop and differentiate their products and services". Despite an increasing recognition of corporate entrepreneurship activities in the literature, there is no widely agreed definition of the term. In Table 2.3, the definitions of corporate entrepreneurship or intrapreneurship are listed and quoted, based on a review of the definitional issues in corporate entrepreneurship literature by Sharman and Chrisman (1999).

Table 2.3: Examples of the existing definitions of corporate entrepreneurship

Author/s & Year	**Definition suggested**
Burgelman (1983)	Corporate entrepreneurship refers to the process whereby a firm engages in diversification through internal development. Such diversification requires new resource combinations to extend a firm's activities in areas unrelated, or marginally related, to its current domain of competence and corresponding opportunity set (p. 1349).
Chung and Gibbon (1997)	Corporate entrepreneurship is an organisational process for transforming individual ideas into collective actions through the management of uncertainties (p. 14).
Guth and Ginsberg (1990)	Corporate entrepreneurship encompasses two types of phenomena and the processes surrounding them: (1) the birth of new businesses within an existing organisation (i.e. internal innovation or venturing) and (2) the transformation of organisations through

	renewal of the key ideas on which they are built (i.e. strategic renewal) (p.5).
Jennings and Lumpkin (1989)	Corporate entrepreneurship is defined as the extent to which new products and/or new markets are developed. An organisation is entrepreneurial if it develops a higher than average number of new products and/or new markets (p. 489).
Schendel (1990)	Corporate entrepreneurship involves the notion of birth of new businesses within in-going business, and […] the transformation of stagnant, on-going businesses in need of revival or transformation (p. 2).
Spann, Adams, and Wortman, (1988)	Corporate entrepreneurship is the establishment of a separate corporate organisation (often in the form of a profit centre, strategic business unit, division, or subsidiary) to introduce a new product, serve or create a new market, or utilise a new technology (p. 149).
Vesper (1984)	Corporate entrepreneurship involves employee initiative from below in the organisation to undertake something new. It is an innovation which is created by subordinates without being asked, expected, or perhaps even given permission by higher management to do so (p. 295).
Zahra (1993)	Corporate entrepreneurship is a process of organisational renewal that has two distinct but related dimensions: innovation and venturing, and strategic renewal (p. 321).
Zahra (1995)	Corporate entrepreneurship – the sum of a company's innovation, renewal, and venturing efforts. Innovation involves creating and introducing products, production processes, and organisational systems. Renewal means revitalising the company's operations by changing the scope of its business, its competitive approaches or both. It also means building or acquiring new capabilities and then creatively leveraging them to add value for shareholders. Venturing means that the firm will enter new businesses by expanding operations in existing or new markets (p. 227).

Source: Sharman and Chrisman (1999)

Table 2.3 shows that some authors have used the term ‘corporate entrepreneurship’ in different ways, and some have applied different terminologies to define the same phenomenon. Notably, according to Sharman and Chrisman (1999, p. 16)

> the most widely accepted definition of corporate entrepreneurship was proposed by Guth and Ginsberg (1990) [who] say that corporate entrepreneurship encompasses two types of phenomena and the processes surrounding them: (1) the birth of new businesses within [an] existing organization and (2) the transformation of organisations through renewal of the key ideas on which they are built.

This definition introduced a new context of corporate entrepreneurship in terms of the idea of new businesses and the transformation of existing organisations. Furthermore, several corporate entrepreneurship studies in the literature have used Guth and Ginsberg (1990) definition (see, for example, Hornsby *et al*., 2013; Nason *et al*., 2015; Phan *et al.*, 2009; Teng, 2007; Turner and Pennington, 2015; Zahra, 2015). Therefore, this research project uses it to describe corporate entrepreneurship.

In some circumstances, the term ‘corporate entrepreneurship’ has been replaced with the word ‘entrepreneurship’ as these two concepts share the same necessary foundations that involve opportunity recognition, and require sufficient resources as well as business strategies to support new innovative ideas (Hornsby *et al*., 2013). However, there are several unique characteristics that differentiate the context of corporate entrepreneurship from entrepreneurship. For instance, one of the most significant differences is that corporate entrepreneurship activity can only occur within an established corporation (Dess *et al*., 2003). Table 2.4 summarises the major differences between the two concepts (Morris *et al*., 2011).

Table 2.4: Major differences between corporate entrepreneurship and entrepreneurship

Entrepreneurship	Corporate entrepreneurship
• Entrepreneur takes the risk	• Company assumes the risks, other than career-related risk
• Entrepreneur 'owns' the concept or innovative idea	• Company owns the concept, and typically the intellectual rights surrounding the concept
• Entrepreneur owns all or much of the business	• Entrepreneur may have no equity in the company, or a very small percentage
• Potential rewards for the entrepreneur are theoretically unlimited	• Clear limits are placed on the financial rewards entrepreneurs can receive
• One misstep can mean failure	• More room for errors; company can absorb failure
• Vulnerable to outside influence	• More insulated from outside influence
• Independence of the entrepreneur, although the successful entrepreneur is typically backed by a strong team	• Interdependence of the champion with many others; may have to share credit with any number of people
• Flexibility in changing course, experimenting, or trying new directions	• Rules, procedures, and bureaucracy hinder the entrepreneur's ability to manoeuvre
• Speed of decision making	• Longer approval cycles
• Little security	• Job security
• No safety net	• Dependable benefit package
• Few people to talk to	• Extensive network for bouncing around ideas
• Limited scale and scope initially	• Potential for sizeable scale and scope fairly quickly
• Severe resource limitations	• Access to finances, R&D, production facilities for trial runs, an established sales force, an existing brand, distribution channels that are in place, existing databases and market research resources, and an established customer base

Source: Morris *et al*. (2011)

In established organisations, corporate entrepreneurship is often viewed as an essential driver to enhance productivity, develop innovation, and rejuvenate their internal systems (Minola *et al*., 2021; Zahra, 2015). Many previous studies in the corporate entrepreneurship literature have firmly found that corporate entrepreneurship activities can stimulate a firm's performance by improving its pro-activeness and willingness to accept uncertainties and by developing new products, processes, and services (Covin and Miles, 2007; Hornsby *et al*., 2013; Kuratko *et al*., 2015; Lumpkin and Dess, 1996). As such, corporate entrepreneurship activity provides a mechanism at the firm level to deal with dynamic environments. The advancement of technology and customers' preferences change radically to acquire sustained competitive advantages and create new values (Basu *et al*., 2015; Goodale *et al.,* 2011). To clarify, entrepreneurial firms can create their competitive advantages from scarce, valuable, and limited resources, competencies, and capabilities that are impossible for the potential competitors to imitate (Barney, 1991). As a result, a firm needs to build its distinctive source of competitive advantages such as learning know-how and superior knowledge, owning patents and valuable intellectual properties, and developing an energised corporate culture or the sense of strong commitment among organisational members (Block *et al.*, 2015; Prugl and Spitzley, 2021). Furthermore, entrepreneurial activities can help companies of all shapes and sizes create their value propositions in sustaining the current position in the market as "there is no business without a defined value proposition, and the creation of value provides a justification for the business entity" (Morris *et al.,* 2005, p. 729).

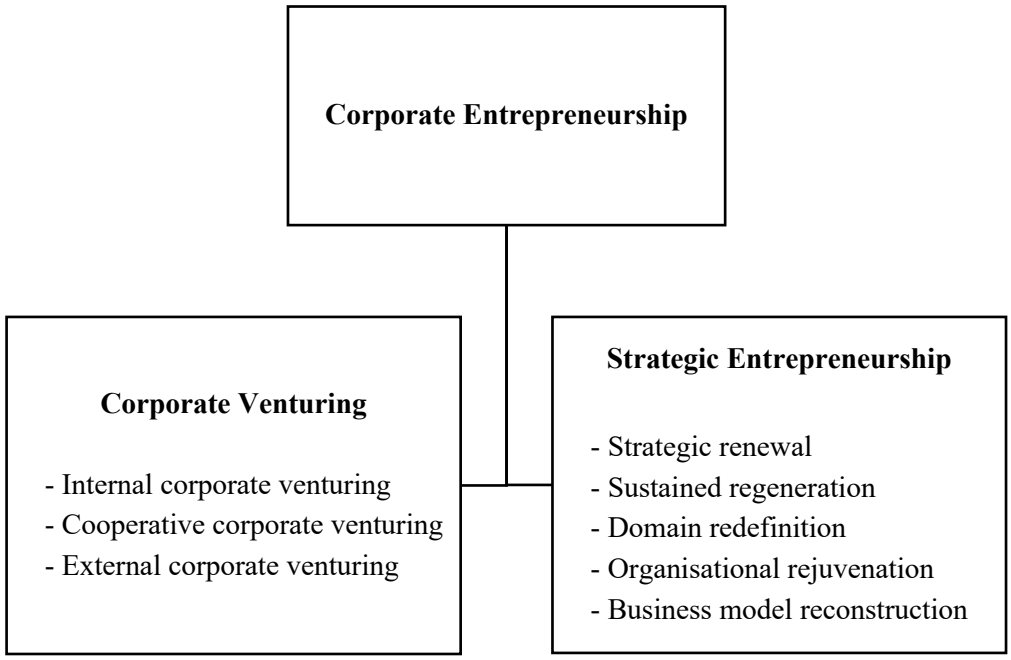
Interestingly, it is not only for-profit corporations that engage in the concept of corporate entrepreneurship, but also not-for-profit organisations such as universities

and other social entities which have increasingly become more entrepreneurial over the past few years (see, for example, Clarysse *et al.,* 2011; Rasmussen *et al.,* 2011). Narayanan *et al*. (2009) underlined that the outcomes of corporate entrepreneurship are highly heterogeneous and varied across different organisational configurations including small startups (Fini *et al.,* 2012), small and medium-sized enterprises (SMEs) (Ling *et al.,* 2008), and large public organisations (Wadhwa and Kotha, 2006). Besides this, corporate entrepreneurship encompasses different types of phenomena, so the established corporations can choose various forms of corporate entrepreneurship activity in coping with their business situations and strategies (Dess *et al*., 2003; Prugl and Spitzley, 2021).

2.1.2 The taxonomy of corporate entrepreneurship

According to Guth and Ginsberg (1990, p. 5) "corporate entrepreneurship encompasses two types of phenomena and the processes surrounding them: (1) the birth of new businesses within [an] existing organisation (i.e. internal innovation or venturing) and (2) the transformation of organisations through renewal of the key ideas on which they are built (i.e. strategic renewal)". The existing literature also classifies this concept into two phenomena: corporate venturing and strategic entrepreneurship (see, for example, Covin *et al*., 2020; Hornsby *et al*., 2013; Kuratko *et al*., 2015; Morris *et al*., 2011; Teng, 2007; Shankar and Shepherd, 2019). Figure 2.1 shows two different forms of corporate entrepreneurship conducted by established firms: corporate venturing and strategic entrepreneurship.

Figure 2.1: Different forms of corporate entrepreneurship



Source: Morris *et al*. (2011)

The corporate venturing approach includes activities that involve creating, adding to, or investing in new businesses. In other words, corporate venturing refers to the creation of new businesses that add to the corporation's primary operations or its mainstream business. This approach can be implemented through three entrepreneurial modes: internal corporate venturing, cooperative corporate venturing, and external corporate venturing (Morris *et al*., 2011). Internal corporate venturing is defined as the creation of new businesses that are launched and owned by the established corporations through their employee efforts (Miles and Covin, 2002). Next, cooperative corporate venturing, also known as joint corporate venturing and collaborative corporate venturing refers to the creation of new businesses that are launched and owned by established corporations together with their development partners through business relationships (Covin and Miles, 2007). External corporate venturing is the creation of new businesses launched

by other parties outside the organisational boundaries but owned by the established corporations through their equity investments in young ventures or newly founded firms (Wadhwa and Kotha, 2006).

As established corporations have continuously expanded new ways to engage in entrepreneurial activities, there is a new form of corporate venturing that large firms conduct to support new ventures (Kohler, 2016). Corporate accelerators are "company-supported programs of limited duration that support cohorts of startups during the new venture process via mentoring, education, and company-specific resources" (Kohler, 2016, p. 348). Interestingly, Shankar and Shepherd (2019) have recently examined this new corporate venturing mode, which has specific characteristics that differ from external corporate venturing activity. Their study reported that existing firms could use corporate accelerators to sustain their innovativeness in preventing potential threats from disruptions in the market. The significant difference between corporate accelerators and external corporate venturing is their primary goal (Shankar and Shepherd, 2019). The goal of external corporate venturing is to create new businesses outside the organisational boundaries (Covin and Miles, 2007), but corporate accelerators only support or accelerate established ventures. They do not officially require a common goal and contract between the established corporation and its venture. In contrast, external corporate venturing is based on agreements made by the established corporation and its business partners (Schildt *et al.,* 2005).

The second approach of corporate entrepreneurship is strategic entrepreneurship, often known as strategic renewal, which refers to the entrepreneurial initiatives that involve innovation within established corporations that do not create, launch, or own new

businesses, to acquire competitive advantages (Hornsby *et al*., 2013). With this form of corporate entrepreneurship, firms can adopt through five business strategies: strategic renewal, sustained regeneration, domain redefinition, organisational rejuvenation, and business model reconstruction (Covin and Miles, 1999). Strategic entrepreneurship perceives innovation as a tool to encourage opportunity-seeking behaviour and spot available opportunities in the market simultaneously (Ireland *et al*., 2003). These innovations can reflect the firm's fundamental changes from their past business strategies, product, market, organisation structures, processes, capabilities, and business models that distinctively differentiate the firm from competitors in the same industry (Dess *et al*., 2003). Thus, these five forms of strategic entrepreneurship can be found in diverse parts of the firms that focus on different areas to pursue competitive advantages as summarised in Table 2.5.

Table 2.5: Forms of strategic entrepreneurship

Form of strategic entrepreneurship	**Focus of the entrepreneurial initiative**	**The entrepreneurial event**
Strategic renewal	Strategy of the firm	Adoption of a new strategy
Sustained regeneration	Products offered by the firm or markets served by the firm	Introduction of a new product into a pre-existing product category or introduction of an existing product into a new (to the firm) but pre-existing market
Domain redefinition	New competitive space	Creation of new or reconfiguration of existing product categories or market space

Organisational rejuvenation	Organisation structure, processes, and/or capabilities of the firm	Enactment of a major internally focused innovation aimed at improving strategy implementation
Business model reconstruction	Business model of the firm	Design of a new or redesign of an existing business model

Source: Adapted from Morris *et al*. (2011)

In general, both corporate venturing and strategic entrepreneurship relate to entrepreneurial activities that bring innovation as a bridge in capturing more significant competitive advantages for established corporations (Teng, 2007). Although these two forms of corporate entrepreneurship share some similarities, the significant difference between them is that "corporate venturing involves the creation of new businesses whereas strategic renewal leads to the reconfiguration of existing businesses within a corporate setting" (Sharma and Chrisman, 1999, p. 19).

To remain in the industry's current market position, several established firms continuously identify new ways to serve their customers. They often try to create new business units forming inter-organisational relationships to develop new products or services and enter new market areas (Goodale *et al*., 2011; Kuratko and Morris, 2018). This entrepreneurial approach often involves corporate venturing, enhancing the firm's profits and growth in domestic and international markets (Minola *et al*., 2016; Zahra and Hayton, 2008). Participating in corporate venturing can also generate quicker financial returns and exploit new business opportunities faster than other corporate entrepreneurship modes because it expands the current scope of the firm's competencies into new strategic areas (Miles and Covin, 2002; Prugl and Spitzley, 2021). 3M, a US consumer and industrial goods producer, is one of the companies that has performed

corporate venturing at a strategic level. 3M has launched an innovation centre, where technologists, management teams, and other stakeholders can exchange ideas for new venture creation. As a result, they have created several innovative projects from this creative interaction (Covin and Miles, 2007). The following section will explain the importance of corporate venturing based on a growing body of literature on this matter.

2.2 An overview of corporate venturing literature

Research interest in corporate venturing has increased dramatically over the past few decades, and has contributed to the generation of a large pool of empirical studies on its antecedents, forms, and performance (Brumana *et al.,* 2017; Minola *et al.,* 2016; Narayanan *et al*., 2009; Prugl and Spitzley, 2021; Shu *et al*., 2020). Several authors believe in the benefits of corporate venturing to facilitate the firm in enhancing its corporate strategy (Covin and Miles, 2007; Hornsby *et al*., 2013; Ireland *et al.*, 2001; Kuratko and Morris, 2018). The dynamics of an unstable economy have challenged existing corporations worldwide to continually adapt their strict management practices in dealing with these environmental changes in the current market. Several corporate venturing studies reported that corporate venturing could help corporations recognise and exploit business opportunities to improve their performance (Randolph *et al*., 2019; Zahra, 2008).

Based on three major forms of corporate venturing, the existing firms can utilise both internal and external sources to access new technologies, innovations, businesses, and knowledge in encouraging growth and profitability (Hughes and Mustafa, 2017; Keil, 2004). Likewise, a review by Narayanan *et al*. (2009, p. 59) has proposed a definition

of corporate venturing as "the set of organisational systems, processes and practices that focus on creating businesses in existing or new fields, markets or industries – using internal and external means". The internal means include innovation and new business incubation, while external means include licensing, joint venturing, acquisitions, and corporate venture capital (Narayanan *et al*., 2009).

Interestingly, investing in any form of corporate venturing activities (i.e. internal corporate venturing, cooperative corporate venturing, and external corporate venturing) can provide tremendous outcomes to the existing firms beyond their financial returns (Prugl and Spitzley, 2021; Schildt *et al*., 2005). In other words, corporate venturing can contribute to the firm's success in many ways, as suggested by several scholars in the literature. Lin and Lee (2011) also pointed out that using corporate venturing generates several strategic benefits in stimulating corporate growth by facilitating organisational learning and innovation at the same time. Similarly, this is consistent with the findings of Tidds and Taurins' (1999) study. The authors concluded that there are two main reasons why firms invest their resources in corporate venturing: to exploit the current corporate competencies in the new product or market areas and to acquire new knowledge and skills that might be useful in improving existing products or markets. Furthermore, Covin and Miles (2007) noted that corporate venturing can be used to create new competencies in expanding the firm's core operations, and for the purpose of learning to explore new business streams that might become a potential business opportunity in the future (Basu *et al*., 2015; Miles and Covin, 2002; Minola *et al*., 2016).

More importantly, corporate venturing is often seen as an entrepreneurial effort that "is said to be the most productive path to superior corporate performance when practiced

in a strategic manner" (Covin and Miles, 2007, p. 183). Biniari *et al.* (2015) also highlighted that corporate venturing is a strategic option that enables established corporations to enhance their strategic and overall performance by exploiting new market opportunities. The relationship between corporate venturing and corporate strategy can be observed, as corporate venturing activities have a significant impact on the strategic level. Therefore, existing firms need to understand what it means by practicing corporate venturing strategically because putting SCV as a critical priority on their agenda can provide a clear strategic direction. These corporations might fail to achieve greater competitive advantages if they do not fully leverage corporate venturing activities for strategic purposes (Covin and Miles, 2007; Covin *et al*., 2020; Prugl and Spitzley, 2021; Shankar and Shepherd, 2019). In addition, Covin and Mile (2007, p. 184) underlined that "many firms employing corporate venturing never achieve nor sustain positive overall results through their venturing efforts". For example, Proctor & Gamble (P&G) invested in new ventures that were not strategically relevant to its mainstream business, which led to severe financial loss (Jorvis, 2000).

Still, few studies in the literature have examined the crucial effects of the use of SCV on firm performance (Brumana *et al*., 2017; Covin and Miles, 2007; Minola *et al*., 2016; Narayanan *et al*., 2009; Ramirez-Pasillas *et al*., 2021; Shu *et al*., 2020). Thus, this research project focuses on the practice of SCV within established corporations to create and gain new competitive advantages by pursuing innovation and organisational learning.

2.2.1 The need for strategic use of corporate venturing within an established corporation

As noted previously, SCV should be practiced to generate the most effective performance to support firms' innovation and organisational learning (Covin and Miles, 2007; Minola *et al*., 2016). It is then essential to recognise how to apply this concept in an administrative sense appropriately. Essentially, the study of Covin and Miles (2007) has provided compelling evidence to demonstrate of the relationship between corporate venturing and corporate strategy, and its wide use by several corporations. For instance, this study's findings revealed that Unilever Corporation offers corporate support for entrepreneurial activities that align with its corporate strategy. Similarly, the entrepreneurs who seek funding in new ventures at Chevron Corporation must plan to implement the venturing projects that conform to its top management's concept of strategy. As a result, corporate venturing activity can be used as a strategic tool to achieve corporate goals in gaining competitive advantages and building new values (Covin *et al*., 2020; Minola *et al*., 2016; Shankar and Shepherd, 2019).

Furthermore, as highlighted, corporate venturing is often used as a strategy-level scheme to pursue competitive advantages (Basu *et al*., 2015; Biniari *et al*., 2015); this notion also supported by Narayanan and colleagues (2009, p. 63) who pointed out that companies “usually change their goals and strategy, and this change, in turn, promotes the role of corporate venturing in building and assembling new capabilities that stimulate growth and improve profitability”. Therefore, SCV plays a significant role in enhancing the firm’s value creation and competitive advantages, leading to its overall effectiveness and profitability.

Although the use of SCV has been examined in the literature by many scholars, there is no universally accepted definition of this concept (see, for example, Biniari *et al*., 2015; Covin and Miles, 2007; Covin and Slevin, 2002; Kuratko *et al*., 2015; Miles *et al.,* 2015; Morris *et al*., 2011; Prugl and Spitzley, 2021). In recent years, a study of corporate venturing in family businesses has defined corporate venturing as "a strategic entrepreneurial activity that results in creating a new business within an existing corporate entity" (Minola *et al*., 2016, p. 395). It can be seen that corporate venturing has often been regarded as a strategy-level component and an innovation-based strategy in helping firms survive in turbulent environments. Based upon existing definitions in the literature, SCV is defined as a phenomenon when an established corporation aligns corporate venturing with its corporate strategy and supports the corporate venturing ideas that fundamentally promote the core concept of the corporate strategy in building sustained competitive advantages and achieving corporate goals (Covin and Miles, 2007; Covin and Slevin, 2002; Kuratko *et al*., 2015; Miles *et al*., 2015; Minola *et al*., 2016; Morris *et al*., 2011). In short, SCV refers to a situation when a company makes corporate venturing a critical strategic priority on its agenda. The incorporation of corporate strategy and corporate venturing guides all organisational members because when the corporate strategy embraces the main goals of corporate venturing, the members of the organisation can have a clear understanding that directs them to achieve the corporate goals and objectives more effectively (Covin and Miles, 2007; Covin *et al*., 2020; Shankar and Shepherd, 2019).

Firms engage in corporate venturing for two primary reasons: to enhance innovation and learn new knowledge (Covin and Miles, 2007; Minola *et al*., 2016; Ramirez-Pasillas *et al*., 2021; Shu *et al*., 2020; Tidds and Taurins, 1999). It is crucial to

understand the importance of innovation and organisational learning in an organisational context. It can help corporations plan how to adopt SCV to acquire new competitive advantages through inter-organisational relationships, which will be explained in the following section.

2.2.2 The nature of innovation in creating competitive advantages

As corporate venturing can be used as a strategic tool to enhance the firm's innovation, it is essential to understand why innovation matters in building new competitive advantages (Covin and Miles, 2007). In the corporate entrepreneurship literature, several authors have clearly linked corporate entrepreneurship with innovation (see Table 2.3). By definition, the term 'innovation' refers to the firm's ability to create, integrate, and build internal and external competencies to bring new value (Teece, 2007). Significantly, the findings of the study by Rosenbusch *et al.* (2011) reported that innovation has a positive impact on the overall performance of the existing corporations worldwide, especially for SMEs. Innovation is, therefore, an essential key driver to a firm's success through the creation of new sustained competitive advantages that are difficult to be imitated by other competitors (Cometto *et al*., 2016; Covin *et al*., 2020; Dess *et al*., 2003; Shankar and Shepherd, 2019).

In recent years, there have been two main types of innovation that scholars in management research have focused on: product innovation and process innovation (Krzeminska and Eckert, 2016). These are often considered as one of the most potent criteria to evaluate the established corporations' competitiveness (Li, 2018). Typically,

specific characteristics differentiate product and process innovations as summarised in Table 2.6.

Table 2.6: Different characteristics of product versus process innovations

Characteristic	**Product innovation**	**Process innovation**
Definition	New products or services to meet the needs of an external customer or market demand (Utterback and Abernathy, 1975; Damanpour and Gopalakrishnan, 2001; Wong, Lee, and Foo, 2008)	New or substantially improved process through new equipment, material, or reengineering of operational processes (Utterback and Abernathy, 1975; He and Wong, 2004; Wong *et al*., 2008)
Innovation target	External customers or users (Utterback and Abernathy, 1975)	End-users within the organisations who work with the new process (Damanpour and Gopalakrishnan, 2001)
Success measure	Revenue generation through sales increase or patents (Utterback and Abernathy, 1975; Cassiman and Veugelers, 2006; Schmiedeberg, 2008; Wong *et al*., 2008)	Mainly cost reductions through efficiency improvements (Utterback and Abernathy, 1975; Damanpour and Gopalakrishnan, 2001; Lager, 2002; Wong *et al*., 2008; Tsai and Wang, 2009)

Source: Adapted from Li (2008)

In brief, product innovation is defined as creating new products and services or improving existing ones through new components, materials, technologies, and features to serve customers' needs (Jayaram *et al.,* 2014). For process innovation, the main focus is on improving the reliability, speed and efficiency, and technologies of the firm's

production processes in keeping its operational processes ahead of the direct competitors (Gunday *et al.,* 2011).

Interestingly, product innovation tends to be more beneficial to the firms in the current market's dynamic environments as the life cycles are likely to be shorter than process innovation (Slater *et al.,* 2014). As a result, these corporations can use product innovation as a strategic priority to compete with their potential competitors in capturing more market share. Thus, this research project emphasises the concept of product innovation as a means to achieve new competitive advantages by the firms that engage in entrepreneurial activities. Therefore, it follows the definition of product innovation as "the use of new components, new materials, new technologies, and new product features in the development of a product" (Jayaram *et al*., 2014, p. 4425).

2.2.3 The importance of acquiring organisational learning for developing the firm's competencies

Creating new knowledge stocks to explore new business domains that might be a new business opportunity to the existing firms can be accomplished by implementing corporate venturing activities (Fliaster and Sperber, 2020; Yang *et al.,* 2013). In the literature, an increasing number of scholars regard organisational learning as one of the most critical topics, as this concept can become the knowledge base of a new source of competitive advantages (Gupta and Govindarajan, 2000). In addition, corporate venturing is often seen as a potential source of new knowledge that facilitates the existing corporation to gain new competitive advantages and create new value through new corporate ventures (Schildt *et al*., 2005).

In general, knowledge stocks can be defined as accumulated knowledge assets that companies possess; it is suggested they update these continuously by creating new knowledge inflows through the use of corporate venturing activities (Argote and Ingram, 2000; Basu *et al*., 2015). In particular, the new knowledge that corporate ventures gain is from the knowledge streams that they have experienced in a different business environment (Keil *et al*., 2009). Indeed, corporate venturing involves an inter-organisational relationship between a parent company or an existing company and its new corporate venture (Covin *et al*., 2020; Hughes and Mustafa, 2017; Narayanan *et al*., 2009; Shankar and Shepherd, 2019).

More importantly, the process of knowledge transfer from corporate venturing to the parent firm is sensitive to organisational mechanisms, which affect the degree of knowledge acquisition (Basu *et al*., 2015; Yang *et al*., 2013). Thus, knowledge acquisition is a crucial determinant of an important source of the firm's competitive advantages and new values as it can identify the level of valuable and rare resources that are difficult for competitors to follow (Bojica and Fuentes, 2012). This notion is consistent with the recent study of Minbaeva *et al.* (2018), that revealed that the extent of knowledge acquisition is crucial to the overall performance, and it can be influenced by several mechanisms.

For this reason, this research project focuses on the concept of knowledge acquisition as it is one of the most critical drivers in identifying new competitive advantages to the parent or existing corporations that adopt corporate venturing. This study defines the term 'knowledge acquisition' as the extent of new knowledge and useful information about the markets, customers' necessities and tendencies, technologies and essential

know-how, and management (Bojica and Fuentes, 2012). The acquisition of new knowledge in terms of markets, customers' needs and preferences, technologies, and management can generate several benefits to the parent corporations. For example, the acquisition of knowledge about markets and customers' trends or tendencies helps existing firms spot new market opportunities and provide guidance about serving new markets and customers (Fliaster and Sperber, 2020; Wiklund and Shepherd, 2003). The acquisition of new technological knowledge and know-how facilitates needed knowledge for optimising processes and costs in manufacturing new or existing products. Firms can then exploit new market and business opportunities more efficiently for wealth creation and sustained competitive advantages (Wiklund and Shepherd, 2003).

To conclude, entrepreneurial firms that participate in corporate venturing activities can enhance their product innovation and knowledge acquisition more effectively, both of which are significant for value creation and competitive advantages. In short, when the company uses SCV, it can profoundly enrich the effectiveness of the corporate venturing activities in facilitating innovation and learning. The following section will provide a detailed explanation of the theoretical frameworks that this research project relies on, to offer a better understanding of the use of SCV in promoting a firm's product innovation and knowledge acquisition as well as potential influences that may affect the observed relationship.

2.3 The theoretical lenses in the field of strategic corporate venturing

In the past few years, “the question of how parent companies should approach corporate venturing to achieve higher performance, particularly in times of economic crisis when resources are constrained, continues to puzzle scholars and practitioners alike” (Biniari *et al*., 2015, p. 351). Most existing literature in entrepreneurship lacks an explanation of theoretical frameworks to support the argument in understanding the research questions' complete aspects (Bloodgood *et al*., 2015; Maula and Stam, 2020; Nason *et al*., 2015). This study finds an incorporative resource-based and knowledge-based perspective useful for examining SCV in escalating the parent firm's product innovation and knowledge acquisition. The first stream of the theoretical framework follows the resource-based view of the firm. The second stream focuses on the knowledge-based view of the firm.

This incorporation of the resource-based view and knowledge-based view generates a complete overview of the use of SCV as there are few studies conducted to investigate its effects on both innovations and organisational learning perspective. A recent meta-analysis of Nason *et al*. (2015), reviewed previous studies on corporate entrepreneurship in top management journals including the *Academy of Management Review (AMR), Academy of Management Journal (AMJ), Administrative Science Quarterly (ASQ), Journal of Management (JOM), Organization Science (OS), Strategic Management Journal (SMJ), Journal of Management Studies (JMS), Journal of Business Venturing (JBV), Entrepreneurship: Theory & Practice (ETP), Strategic Entrepreneurship Journal (SEJ), Small Business Economics (SBE), Journal of Product Innovation Management (JPIM), and Management Science (MS)* as well as other

practitioner-oriented journals such as *Academy of Management Learning and Education (AMLE), Academy of Management Perspectives (AMP), Harvard Business Review (HBR), and MIT Sloan Management Review (SMR)*. Consequently, this research project employs the literature search of the study of Nason *et al*. (2015) in identifying the theoretical framework used by other relevant literature on corporate venturing (see Table 2.7).

Table 2.7: Information on relevant studies in corporate venturing literature

Year	Journal	Authors	Theory	Method	Firm size
2001	*SMJ*	Reuer	Transaction cost economics	Quantitative	Large
2001	*JBV*	Thornhill and Amit	Grounded	Mixed	Large
2002	*HBR*	Chesbrough	Practitioner	Conceptual	Large
2002	*ETP*	Miles and Covin	Diverse	Qualitative	Large
2003	*SMJ*	Dushnitsky and Lenox	Diverse	Quantitative	Large
2004	*AMJ*	Agarwal, Echambadi, Franco, and Sarkar	Knowledge	Quantitative	Diverse
2004	*JMS*	Keil	Dynamic capabilities and organisational learning	Qualitative	Large
2005	*SMR*	Burgelman and Valikangas	Practitioner	Conceptual	Large
2005	*AMJ*	Hoang and Rothaermel	Organisational learning	Quantitative	Large
2005	*ETP*	Schildt, Maula, and Keil	Organisational learning	Quantitative	Large
2006	*ETP*	Hoy	Life cycle theory	Conceptual	-
2006	*ETP*	Neergaard and Ulhoi	Trust, networks	Qualitative	Small

2006	*AMJ*	Wadhwa and Kotha	Knowledge and behavioural theory	Quantitative	Large
2007	*ETP*	Covin and Miles	Diverse	Qualitative	Large
2007	*SMJ*	Reuer and Arino	Transaction cost economics	Quantitative	Medium
2008	*MS*	Bettignies and Chemla	Agency	Conceptual	-
2008	*JBV*	Hill and Birkinshaw	Diverse	Quantitative	Large
2008	*SMJ*	Keil, Maula, Schildt, and Zahra	Organisational learning	Quantitative	Large
2008	*JBV*	Patzelt, Shepherd, Deeds, and Bradley	Capabilities and resource dependence	Quantitative	Medium
2008	*JPIM*	Van Bur, Romme, Gilsing, and Reymen	Diverse	Qualitative	Large
2008	*JBV*	Zahra and Hayton	Organisational learning	Quantitative	Large
2009	*OS*	Benson and Ziedonis	Absorptive capacity and knowledge	Quantitative	Large
2009	*JBV*	Burgers, Jansen, Van den Bosch, and Volberda	Diverse, organisational learning, and role conflict	Quantitative	Large
2009	*SMJ*	Dushnitsky and Shaver	Diverse	Quantitative	Small
2009	*SEJ*	Hill, Maula, Birkinshaw, and Murray	Agency	Quantitative	Large
2009	*OS*	Keil, McGrath, and Tukiainen	Dynamic capabilities	Qualitative	Large
2009	*ETP*	Meuleman, Amess, Wright, and Scholes	Agency	Quantitative	Diverse
2009	*AMJ*	Ozcan and Eisenhardt	Diverse	Qualitative	Large

2009	*JBV*	Van de Vrande, Vanhaverbeke, and Duysters	Uncertainty and knowledge	Quantitative	Large
2010	*AMJ*	Dobrev and Gotsopoulos	Identity	Quantitative	Large
2010	*SEJ*	Dushnitsky and Lavie	Resource-based theory	Quantitative	Large
2010	*ETP*	Iacobucci and Rosa	Entrepreneurial teams and systems	Qualitative	Medium
2010	*ETP*	Monsen, Patzelt, and Saxton	Utility maximisation	Quantitative	Large
2010	*JBV*	Sahaym, Steensma, and Barden	Capabilities and absorptive capacity	Quantitative	Diverse
2011	*SEJ*	Berchicci, King, and Tucci	Evolutionary economics	Quantitative	Diverse
2011	*JBV*	Lin and Lee	Real options theory	Quantitative	Large
2012	*ETP*	Biniari	Network theory – embeddedness	Qualitative	Large
2012	*ASQ*	Kacperczyk	Organisational theory	Quantitative	Large
2012	*AMJ*	Souitaris, Zerbinati, and Liu	Institutional theory	Qualitative	Large
2013	*JPIM*	Crockett, McGee, and Payne	Innovation	Quantitative	Diverse
2013	*SBE*	Douglas and Fitzsimmons	Motivation	Quantitative	-
2013	*JPIM*	Garett and Neubaum	Resource-based theory and resource dependence	Quantitative	Medium
2013	*SBE*	Martiarena	Occupational choice	Quantitative	Diverse
2013	*JPIM*	Wadhwa and Basu	Real options and inter-organisational learning	Quantitative	Large

Source: Adapted from Nason *et al*. (2015)

Apart from Nason *et al*. (2015) meta-analysis, this study has reviewed other relevant studies in corporate venturing literature from 2014 to examine the theoretical frameworks employed by other articles in top management journals (see Table 2.8).

Table 2.8: Information on relevant studies in corporate venturing literature from 2014 to the present

Year	Journal	Authors	Theory	Method	Firm size
2014	*JPIM*	Chen, Tang, Jin, Xie, and Li	Resource-based view	Quantitative	Diverse
2015	*SBE*	Biniari, Simmons, Monse, and Moreno	Resource dependence and institutional perspective	Conceptual	Diverse
2015	*JBV*	Covin, Garrett, Kuratko, and Shepherd	Absorptive capacity	Quantitative	Diverse
2015	*JBV*	Basu, Sahaym, Howard, and Boeker	Genealogical theory	Quantitative	Large
2016	*SEJ*	Minola, Brumana, Campopiano, Garrett, and Cassia	Family development theory	Conceptual	-
2016	*SMJ*	Burgers and Covin	Structural contingency theory	Quantitative	Diverse
2017	*ASQ*	Chen and Nadkarni	Trait theory of leadership	Quantitative	SMEs
2018	*JPIM*	An, Zhao, Cao, Zhang, and Liu	Subjectivist theory	Quantitative	Diverse
2018	*JBV*	Belderbos, Jacob, and Lokshin	Substantive theory	Quantitative	Large

2018	*SMJ*	Boone, Lokshin, Guenter, and Belderbos	Upper echelon theory	Quantitative	Large
2019	*JBV*	Shankar and Shepherd	Grounded	Mixed	Diverse
2019	*ETP*	Hunt, Townsend, Asgari, and Lerner	Efficient organizing theory	Quantitative	Diverse
2019	*ETP*	Soleimanof, Sigh, and Holt	Institution-based perspective	Conceptual	-
2020	*ETP*	Titus, Parker, and Covin	Behavioural theory	Quantitative	Large
2020	*JBV*	Covin, Garrett, Kuratko, and Shepherd	Parenting theory	Quantitative	Large
2021	*JMS*	Minola, Kammerlander, Kellermanns, and Hoy	Diverse	Conceptual	-
2021	*JMS*	Prugl and Spitzley	Socio-emotional wealth theory and organizational behaviour theory	Quantitative	Diverse
2021	*JMS*	Ramirez-Pasillas, Lundberg, and Nordqvist	Michel de Certean's practice theory	Qualitative	Diverse

Source: The author

Based on Tables 2.7 and 2.8, it can be seen that there is no study on corporate venturing in top management journals that has previously used a combined perspective of resource-based and knowledge-based views to understand the nature of corporate venturing activities in enhancing a firm's innovation and learning simultaneously. The underpinning reasons for this combined framework derive from the resource-based view's primary goal, which is insufficient to cover the core values of organisational

learning. The resource-based view focuses on maximising profits by exploiting a firm's existing resources (Barney *et al*., 2011). Within an organisation, acquiring new knowledge often leads to its business success and sustained growth (Basu *et al*., 2015; Zahra, 2015). As a result, it is crucial to incorporate the knowledge-based view in describing the importance of organisational learning to provide fresh ideas for innovation (Turner and Pennington, 2015). In the next section, there will be an elucidation of two theoretical frameworks in detail.

2.3.1 The resource-based view in strategic corporate venturing

The resource-based view or the resource-based theory are terms that are used interchangeably, and this approach is among one of the most influential theories which have been used widely by several scholars in the management literature and other related areas over the past decades (Barney *et al*., 2011; Newbert, 2007), to the extent that it has become a prominent theory that a large number of academic journals and textbooks have commonly applied in creating new findings, implications, and contributions to the literature (Bloodgood *et al*., 2015; Priem and Butler, 2001).

Resource-based theory was initially developed in the field of strategic management, which "deals with the major intended and emergent initiates taken by GMs on behalf of owners, involving utilisation of resources to enhance the performance of firms in the external environment" (Nag *et al.*, 2007, p. 944). As there is an overlap between strategic management and entrepreneurship, strategic entrepreneurship is established as a bridge between the two concepts in explaining the creation of sustained competitive advantage and the exploitation of new business opportunities to survive in turbulent

environments (Wright and Hitt, 2017). While strategic management focuses on managers' perspectives, entrepreneurship attempts to highlight the role of "individuals or groups of individuals, acting independently, or as a part of a corporate system, who create new organisations, or instigate renewal within an existing organisation" (Sharma and Chrisman, 1999, p. 17).

The resource-based view of a firm has its original root in the research of Penrose (1959), who concentrated on the importance of resources that can affect a firm's growth. By definition, resources are defined as "the physical things a firm buys, leases, or produces for its own use, and the people hired on terms that make them effectively part of the firm" (Penrose, 1959, p. 60).

As this resource-based approach has grown and evolved over the past fifty years, scholars increasingly focused on understanding the role of strategic resources in an organisational context (Kellermanns, Walter, Crook, Kemmerer, and Narayanan, 2016). To further explain, strategic resources have three significant characteristics: (1) value that can enhance customer's value; (2) they are rare and limited so other competitors cannot have or find the same or similar resources; and (3) they are difficult to imitate, which actively boosts the firm in gaining more market shares and performing better than the competitors (Barney, 1991). Thus, the literature in this area focuses on the competitive advantages that established corporations can increase by identifying, creating, and possessing the strategic resources in order to remain competitive in the current market (Crook *et al.,* 2008).

Although the resource-based perspective has been applied widely in the literature, there is no universally agreed definition of the term. Several previous studies defined its determinants similarly, based primarily on Barney (1991 cited by Priem and Butler, 2001). Table 2.9 provides sample definitions of the resource-based view that have relied on Barney (1991) and other relevant studies in the literature.

Table 2.9: Sample definitions of the resource-based approach

Authors	**Definitions**
Powell (1992, p. 552)	"The resource view holds that, in order to generate sustainable competitive advantage, a resource must provide economic value and must be presently scarce, difficult to imitate, nonsubstitutable, and not readily obtainable in factor markets (Barney, 1991; Dierickx and Cool, 1989; Peteraf, 1993)."
Bates and Flynn (1995, p. 235)	"This theory rests on two key points. First, that resources are the determinants of firm performance (Barney, 1991; Schulze, 1992), and second that researches must be rare, valuable, difficult to imitate and nonsubstitutable by other rare resources. When the latter occurs, a competitive advantage has been created (Barney, 1991)."
Litz (1996, p. 1356)	"Barney's (1991) conceptual work on resource characteristics was especially helpful. He proposed that resources be characterised as simultaneously valuable, rare, nonsubstitutable, and inimitable. To the extent that an organisation's physical assets, infrastructure, and workforce satisfy these criteria, they qualify as resources."
Michalisin, Smith, and Kline (1997, p. 360)	"Such resources, coined strategic assets, are simultaneously valuable, rare, imperfectly imitable and nonsubstitutable (Barney, 1991). Resource-based view's proponents assert that ownership or control of strategic assets determine which firms can earn superior profits and which firms do not. Unfortunately, there is little empirical resource to support that prescription (Miller and Shamsie, 1996)."

Bowen and Wiersema (1999, pp. 628-629)	"…as the strategy literature argues, a firm's performance depends fundamentally on its ability to have a distinctive, sustainable competitive advantage which derives from the possession and unitisation of unique, non-imitable, non-transferable, and firm-specific resources (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984)."
Brush and Artz (1999, p. 223)	"…some gaps in the available theories raise new challenges. Barney's (1991) four criteria for resources to confer a competitive advantage – value, rarity, imitability, and substitutability – are limited in their practical usefulness for this problem because they are context insensitive (i.e. noncontingent)."
Combs and Ketchen (1999, p. 869)	"To be a source of sustained above-average performance, resources must meet three criteria. They must be: (1) valuable, meaning buyers are willing to purchase the resources' outputs at prices significantly above their costs; (2) rare, so that buyers cannot turn to competitors with the same or substitute resources; and (3) imperfectly imitable, meaning it is difficult for competitors to either imitate or purchase the resources (Barney, 1991; Peteraf, 1993)."
Rindova and Fombrun (1999, p. 694)	"Resource-based theory (Penrose, 1959; Barney, 1991) attributes advantage in an industry to a firm's control over bundles of unique material, human, organisational and locational resources and skills that enable unique value-creating strategies. Heterogeneous resources create distinct strategic options for a firm that, over time, enable its managers to exploit different levels of economic rent (Peteraf, 1993). A firm's resources are said to be a source of competitive advantage to the degree that they are scarce, specialised, appropriable (Amit and Schoemaker, 1993), valuable, rare, difficult to imitate or substitute (Barney, 1991)".

Source: Priem and Butler (2001)

According to the recent literature, the resource-based view has evolved into a theory in exploring a specific phenomenon (Barney *et al.,* 2011), this research project, therefore, follows the particular logic to regard the resource-based approach as a theory to provide a better understanding of use of SCV in the pursuit of competitive advantages. As the

field of entrepreneurship has expanded dramatically in the past few years, several researchers in entrepreneurship literature have built their compelling insights from this resource-based theory to understand different characteristics and determinants of entrepreneurial performance (Barney *et al.,* 2001). In particular, Robbins and Wiersema (1995) noted that the research topics in entrepreneurship and new ventures regularly rely on the resource-based view to understanding the role of resources and performance of established corporations.

Indeed, the resource-based view has often been used to recognise why established corporations are keen to acquire new competitive advantages to outperform the potential competitors in the field of corporate entrepreneurship (Teng, 2007). As such, firms need a new combination of resources, which are difficult to imitate by other competitors in building innovations to survive in dynamic environments. According to Barney (1991), strategic resources are rare, valuable, and inimitable. Besides, these resources are frequently seen as the key criterion to differentiate between existing companies that own the competitive advantage and other entities that do not have such advantages (Barney *et al*., 2001). Also, Kozlenkova *et al.* (2014) remarked that resource-based theory suggests that existing firms should pay great attention to an accumulation of strategic resources that are 'VRIO' – valuable, rare, imperfectly imitable, and assisted by organisational capabilities in creating sustained competitive advantages. More importantly, Barney (1991, p. 102) defined a competitive advantage as a situation in which a firm is "implementing a value creating strategy not simultaneously being implemented by any current or potential competitors". Interestingly, most research in corporate entrepreneurship literature has supported this

matter regarding strategic resources as a source of competitive advantage that is difficult for the potential competitors to find substitutes simultaneously (Crook *et al*., 2008).

Drawing on the resource-based view in this research project helps understand that established corporations are profit-maximising entities and regard their strategic resources as an essential component in generating competitive advantages (Barney *et al*., 2011; Kuratko and Morris, 2018).To be precise, this logic of the resource-based view aligns with the perspective of SCV because firms aim to enhance overall performance and remain competitive in the current market by adopting innovation and learning to bring about sustained competitive advantages (Morris *et al*., 2011; Prugl and Spitzley, 2021). This resource-based theory is pertinent to understanding corporate entrepreneurship's nature because leveraging current strategic resources of an existing firm to exploit additional sources of opportunity is the crucial concept of entrepreneurship (Chen *et al*., 2014; Teng, 2007).

On the other hand, the resource-based approach only focuses on the bundle of resources that existing firms currently possess and how they transform or recombine these into a new form of innovation and creativity to sustain themselves in a turbulent market (Miller, 2003). Static resources are not sufficient to help firms survive in dynamic environments, where the change of customers' needs and preferences is unpredictable. It is then significant for these existing companies to acquire a new source of valuable resources beyond their boundaries to achieve new market opportunities (Bodlaj and Cater, 2019; Eisenhardt and Market, 2000). This notion is consistent with the view of Kraaijenbrink *et al.* (2010, p. 353), who indicated that "in unpredictable environments, in which new technologies and/or new markets emerge, and the value of resources can

drastically change, we need to go beyond the resource-based view to explain a firm's sustained competitive advantage". Furthermore, the next critique of the resource-based approach is that this firm-level theory does not emphasise the role of external business environments (Peteraf and Barney, 2003). Hence, the logic of the resource-based view mainly highlights the internal capabilities and resources of a company, which can be a limited condition for responding to emerging new opportunities in the current or new markets.

As a result of this matter, this research project needs to incorporate other firm-level theory in explaining SCV to stimulate innovation and organisational learning from external entities, and possible influences of the external and internal business environments that can affect the observed relationships. Doing this provides a complete overview of the use of SCV to enhance both innovation and organisational learning through the relationship with a firm's new ventures to achieve new competitive advantages in a rapidly changing environment.

2.3.2 The knowledge-based view in strategic corporate venturing

Resource-based theory is a potential theoretical lens to explore the use of SCV to create new competitive advantages, however, there is a need to incorporate another firm-level theory to cover some limitations of this approach as discussed previously. Since the main focus of corporate entrepreneurship and the use of SCV is on the achievement of competitive advantage through innovation and learning (see, for example, Covin and Miles, 2007; Covin *et al*., 2020; Morris *et al*., 2011; Narayanan *et al*., 2009; Phan *et al*.,

2009; Prugl and Spitzley, 2021; Shankar and Shepherd, 2019), it is essential to use a different theory that emphasises this as well.

Organisational knowledge is often regarded as a bundle of intangible resources, which can be a significant source of new firms' new competitive advantages (Fliaster and Sperber, 2020; McEvily and Chakravarthy, 2002). Knowledge enables corporations to predict the trends and changes of the external market environments more accurately (Minbaeva *et al*., 2018; Wiklund and Sheperd, 2003), so they have more information and knowledge to discover new markets and exploit new business opportunities (Gupta and Govindarajan, 2000). Furthermore, learned knowledge has several distinctive characteristics that positively influence the established corporations to access sustained competitive advantages, as knowledge is a strategic source of intangible resources about the markets, customers, technologies and management that are nontradeable and difficult for other direct competitors to imitate and substitute (Yli-Renko *et al.,* 2001; Yli-Renko *et al*., 2020). Knowledge-based resources can help a firm become more innovative and entrepreneurial and improve its performance (Turner and Pennington, 2015). Indeed, “knowledge, in particular, is an important asset in today's global economy; it is the fuel of innovation and discovery that renews companies and their operations” (Zahra 2015, pp. 728-729).

Knowledge-based theory seems to be the most appropriate perspective to extend the resource-based approach in exploring the practice of SCV as an essential driver to exploit new competitive advantages among existing firms. This perspective has been used widely in the literature to describe the source of competitive advantage in the past decades (Garrett and Covin, 2015; Minbaeva *et al*., 2018; Yli-Renko *et al*., 2020). It

also has its root in strategic management literature as does the resource-based view (Grant, 1996). Several previous studies in corporate entrepreneurship literature were conducted to explain the importance of knowledge to firms (McEvily and Chakravarthy, 2002). As such, Grant's (1996) study established five foundations of the characteristics of knowledge that are: (1) transferability; (2) capacity for aggregation; (3) appropriability; (4) specialisation in knowledge acquisition; and (5) the knowledge requirements of production. First, transferability is one of the most important components of knowledge as firms need to effectively manage the knowledge transfer within and between organisations through inter-organisation relationships. Second, knowledge aggregation capacity refers to a firm's ability to acquire new information efficiently, which can be enhanced by using common language in the knowledge transfer processes. Third, appropriability is defined as "the ability of the owner of a source to receive a return equal to the value created by that resource" (Grant, 1996, p. 111). Next, the specialisation in knowledge acquisition depends primarily on acquiring and storing knowledge, because individuals who are the experts in a specific area have specialised knowledge that can recognise new information in a similar or relevant field more accurately. Knowledge requirements of production refers to "the assumption that the critical input in production and primary source of value is knowledge" (Grant, 1996, p. 121). Also, the machanisms used for the transformation of inputs into new outputs are the embodiments of knowledge.

According to Dierickx and Cool (1989), knowledge can be seen as a valuable asset stock that helps the corporation understand the changes in markets, customers' preferences, and technologies. Interestingly, the stocks of knowledge are accumulated internally within organisations, and can be built and developed by acquiring more knowledge

flows into the firms (Hitt and Ireland, 2000; Yli-Renko *et al*., 2020). In addition, Dierickx and Cool (1989) explained knowledge stocks and knowledge flows by using a 'bathtub' as a metaphor: the stock of water in the bathtub is based on the level of water, and can be refilled by the flow of water through the tap. In the nature of corporate venturing, the level of water in the tub represents the stock of knowledge that the established firms currently possess and the extent to which they have learned new knowledge through the relationships with their corporate venturing activities represents the flows of water filling the tub (cited in Garrett and Covin, 2015).

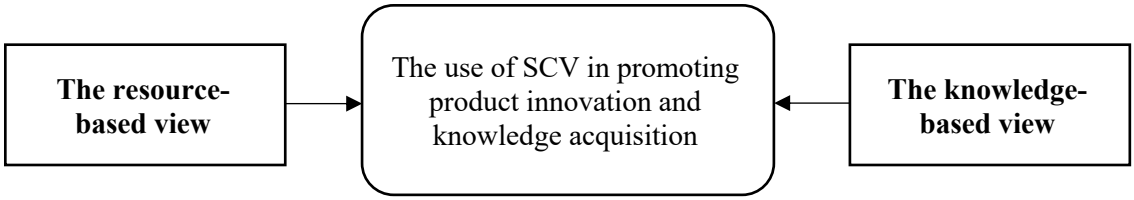
As a result, the existing organisations can acquire new knowledge by participating in corporate venturing activities and transferring that useful information about the markets, customers, and technologies back to the parent firms (Covin *et al.,* 2015; Prugl and Spitzley, 2021). Several studies have confirmed that parent firms could build new opportunities for knowledge acquisition and exploitation through the inter-organisational relationships (see, for example, Dyer and Singh, 1998; Lane and Lubatkin, 1998).

In the context of a knowledge-based view of the firm, knowledge acquisition is one of the most significant determinants as well as knowledge transfer to strengthen a firm's competitiveness as it reflects the degree of new knowledge acquired by the parent organisations when knowledge resources are derived from external sources such the inter-organisational relationships (Minbaeva *et al*., 2018; Yli-Renko *et al*., 2020). Undoubtedly, there are a large number of studies in corporate venturing and corporate entrepreneurship literature that have been conducted to investigate the importance of new knowledge, knowledge transfer, and knowledge acquisition on the practice of

entrepreneurial activities to increase firm performance through a knowledge-based theoretical lens (see, for example, Bojica and Fuentes, 2012; Gupta and Govindarajan, 2000; Minbaeva *et al*., 2018; Yang *et al*., 2013; Yli-Renko *et al*., 2001).

Building on the knowledge-based and resource-based view of the firm, this research project explores the effect of the use of SCV and its potential influences to promote new competitive advantages through the firm's innovation and organisational learning (see Figure 2.2).

Figure 2.2: The integrative theoretical foundation of this research project



Source: The author

Consequently, a theoretical framework that combines a resource-based view and knowledge-based view provides a better understanding of a complete overview of the core benefits of the use of SCV in facilitating product innovation and knowledge acquisition among entrepreneurial firms. More importantly, as underlined by Narayanan *et al*. (2009, p. 64) "both environmental and organisational contexts influence the corporate venturing's formation and implementation, as well as the potential for future corporate venturing's actions"; this research project aligns with this notion. This study proposes that the influences of both external and internal business environments have a crucial impact on the use of SCV to enhance product innovation and knowledge acquisition as a means for the achievement of competitive advantages.

In addition, the following section will offer a thorough explanation of the potential effects of external and internal business environments on the observed relationships.

2.4 The role of external business environments on entrepreneurial performance

The importance of external business environments or environmental contexts on entrepreneurial and firm performance have been discussed and studied in the literature (see, for example, Bodlaj and Cater, 2019; Garg *et al.,* 2003; Jansen *et al.,* 2009; Lichtenthaler, 2009). A firm's external environments are all about change, significantly since the business world has dramatically evolved due to the effects of globalization (Morris *et al*., 2011).

2.4.1 The concept of turbulent environments

A firm's innovativeness is typically influenced by an environmental context, which includes the changes in the advancement of technologies, preferences of existing and new customers, and product demand or supply of materials used for production (Jansen *et al.,* 2006). In particular, it is difficult for established corporations to exploit innovation, as "managing innovation in turbulent environments is a major challenge in theory and in practice" (Buganza *et al.,* 2009, p. 308). Also, firms of all shapes and sizes are advised to continually strive for new innovative ways to establish more competitive advantages than competitors in the current market, especially in an increasingly competitive business environment (Kuratko and Morris, 2018; Teng, 2007). It is then

essential to explore the role of environmental turbulence on firm performance to remain competitive in the current market.

In the past decades, the environmental changes in the industries worldwide are often viewed as in an unstable condition, and existing organisations need to carefully adapt their strategies, policies, corporate structures, and internal systems as they might experience the turbulence in the external environments at different levels (Bodlaj and Cater, 2019; Calantone *et al.,* 2003; Prugl and Spitzley, 2021). In this context, turbulent environments can be defined as a high degree of change in the external environments of established corporations, which leads to a crucial state of uncertainty, volatility, and unpredictability (Dess and Beard, 1984). It also includes the dynamic conditions that may positively or negatively affect the demand and growth rates in the market.

There are two major types of environmental turbulence in management literature that the scholars have widely explored – namely technological turbulence and market turbulence (see, for example, Bodlaj and Cater, 2019; Calantone *et al*., 2003; Danneels and Sethi, 2011; Lichtenthaler, 2009; Wilden and Gudergan, 2015). Indeed, there are several distinct differences between technological turbulence and market turbulence. To start with, technological turbulence can be referred to as the rate of technological change in the current industry (Jaworski and Kohli, 1993). This includes the change in new product technology, the transformation process, and the technological development of a product within the industry (Tsai and Hung, 2016). Market turbulence is considered as the pace of change in customers' composition and preferences, which relates to the degree of uncertainty in the existing firm's market (Jaworski and Kohli, 1993).

This research project focuses specifically on the role of market turbulence as the rates of change in customers' trends and preferences exceedingly force organisations to modify, adapt, and amend their existing products and services to meet customer's changing desires (Lichtenthaler, 2009; Prajogo and McDermott, 2014). Thus, understanding the effect of market turbulence helps the firms prepare and enhance their capabilities to satisfy new customers' tastes (Bodlaj and Cater, 2019). Also, market turbulence is likely to be associated with the need of established corporations to acquire new knowledge about the changes in market trends and customers' preferences, which eventually lead to the achievement of sustained competitive advantages and value creation (Bojica and Fuentes, 2012). The following section will provide a detailed explanation of the influence of market turbulence as it is one of the most powerful external factors affecting the use of SCV to enhance firms' product innovation and knowledge acquisition.

2.4.2 The nature of market turbulence in an organisational context

As illustrated previously, this research project focuses on the influence of market turbulence; it is then vital to understand this construct's nature in detail. In general, market turbulence can be used to describe the degree of predictability of changes in trends, desires, and preferences of both current and new customers toward a company's products and services (Bodlaj and Cater, 2019; Wilden and Gudergan, 2015). Notably, this study defines market turbulence as the rate of change in customers' composition and their desires and preferences toward the firm's products and services (Jaworski and Kohli, 1993).

In stable market environments or low market turbulence, the rate of changes in customers' values and preferences of the company's products and services is steady because the customers and markets are static and simple (Lichtenthaler, 2009). The rate of changes in customers' demands, trends, and preferences fluctuates in high market turbulence as the external markets are complex, dynamic, and unpredictable (Hanvanich *et al.,* 2006). These two degrees of market turbulence can significantly affect organizational performance in different ways.

Firms may access more significant market opportunities in dynamic markets or high market turbulence where there are high uncertainties, especially on the trends, behaviour, and preferences of customers in choosing their products and services (Danneels and Sethi, 2011; Prajogo and McDermott, 2014). New customers' demands and desires that other business players have not yet served in the current industry due to a high level of changes in customers' behaviour and expectations might occur (Song *et al.,* 2005).

In contrast, with low market turbulence, it might be less complex to predict and anticipate the tendency of customers' preferences and behaviour toward their products and services as well as other relevant competitors. As a result, there is a high possibility that other potential competitors can serve the same targeted customers' demands and desires so the proportion of market shares must be distributed throughout the industry (Song *et al*., 2005). Thus, when there is high market turbulence, compared with stable markets or low market turbulence, more business opportunities are available for firms to exploit in creating sustained competitive advantages and building new value creation (Hanvanich *et al*., 2006).

2.5 The role of internal business environments on entrepreneurial performance

In general, the important impacts of internal business environments or organisational contexts on firm performance and entrepreneurial actions have been discussed extensively by several authors over the past decades (Burgers *et al*., 2009; Eldor, 2020; Jansen *et al*., 2009; Yang *et al*., 2013). Typically, internal business environments can influence the effects of potential drivers that the existing corporations employ as a means to stimulate their performance.

In addition, exploring the nature of different internal business environments or organisational contexts is a crucial approach for an established company of all shapes and sizes to participate in (Narayanan *et al*., 2009). Understanding how to manage these internal determinants can help a firm enhance their entrepreneurial performance and financial returns (Burgers *et al*., 2009; Prajogo and McDermott, 2014). In particular, some organisational contexts might hinder the firms' abilities and capabilities to generate new innovative ideas, while the other internal mechanisms enable them to improve their business outcomes more efficiently (LeMeunier-Fitzhugh and Massey, 2019; Phan *et al*., 2009). There are various types of internal business environments or organisational contexts discussed in management and entrepreneurship literature that can affect firm performance and organisational learning (Burgers and Covin, 2016).

The role of autonomy can have a significant impact on entrepreneurial success and firm performance. In the context of entrepreneurship, the term 'autonomy' refers to "the freedom and flexibility to develop and enact entrepreneurial initiatives" (Lumpkin *et*

al., 2009, p. 47). Autonomy is often used as a strategic attribute among family firms in shaping their strategic behaviour and it is a salient dimension that significantly affects the overall performance of the firm (Yu *et al.,* 2019). However, these scholars also pointed out that national culture and environmental dynamism play an essential role in the relationship between autonomy and performance as they noted "in a more socially supportive culture, autonomy seems to have a negative association with performance under conditions of high environmental dynamism" (Yu *et al*., 2019, pp. 176). Autonomy can influence the overall performance of the existing firm, but it is also one of the most important factors to engage in organisational learning. Yang *et al*. (2013), found that autonomy is an essential control mechanism that affects the knowledge flows within an existing corporation as well as the knowledge transfer between the parent firms and their corporate venturing activities.

Since there are several internal business environments or organisational contexts that recent studies have examined (Burgers and Covin, 2016; Eldor, 2020), this research project focuses on the role of cross-functional interfaces and shared-organisational vision that can influence the use of SCV to enhance firms' product innovation and knowledge acquisition. Although many scholars have explored the importance of some internal determinants that have an essential effect on firm performance and organisational learning, few studies are conducted to investigate these two internal mechanisms on the practice of SCV in the literature (Narayanan *et al*., 2009; Prajogo and McDermott, 2014). Furthermore, cross-functional interfaces can assist the organizational members in promoting learning and generating a broader understanding of their jobs, which stimulate entrepreneurial outcomes (Thongpapanl *et al*., 2018). Additionally, a shared-organisational vision encourages all employees to have a mutual

commitment towards the corporate goals, which helps the firm achieve entrepreneurial plans effectively (LeMeunier-Fitzhugh and Massey, 2019). Therefore, examining these two internal business environments provides a deep understanding of their effects on a firm's innovation and organisational learning.

2.5.1 The nature of cross-functional interfaces in organisations

It is suggested that established corporations improve their ability and capability in developing new innovative products and services as these can improve firm performance and organisational advantages in today's global economy (Hamel, 2000; Kuratko and Morris, 2018). As firms experience much pressure to strive for sustained competitive advantages in a competitive market, there is a likelihood that they need to fundamentally acquire a new internal principle for the exploitation of the new business opportunities and value creation (Kuratko *et al*., 2015). Consequently, all firms need to understand the importance of internal business environments to achieve sustained competitive advantage (Hitt *et al.,* 2011).

In particular, a firm can use cross-functional interfaces as an internal mechanism to enable knowledge and information exchange across different organisational units and departments, through liaison personnel, task forces, within- and cross-unit teams (LeMeunier-Fitzhugh and Massey, 2019; Gupta and Govindarajan, 2000). The implementation of cross-functional interfaces and teams helps the corporation share creative and innovative ideas by bringing assigned employees from different parts of the organisation together, especially those who are skilful and have expertise or know-how in a specific area (Jansen *et al*., 2009). Cross-functional interfaces can remove

organisational boundaries within the existing corporation because they connect the members from diverse divisions to collaborate in effectively achieving business goals (Carlile, 2004).

Furthermore, cross-functional interfaces can be a direct integration that the firms employ to internally establish mutual understanding and common agreements among their employees across their organisation (Enz and Lambert, 2012; LeMeunier-Fitzhugh and Massey, 2019). As such, this internal mechanism enhances the flows of knowledge and information between units, which can reduce the conflicts from misinterpretation and misunderstanding of issues when different organisational departments communicate with each other (Burgers and Covin, 2016). An example of cross-functional interfaces is from a newspaper company that applied them to diminish the differences between organisational functions, especially between exploratory and exploitative units and simultaneously built agreed understanding among employees (Gilbert, 2006).

Cross-functional interfaces operate as a platform that integrates multiple innovative divisions through liaison personnel, task forces, and cross-unit teams to exchange knowledge in creating innovations and finding new ways to solve problems within an organisation (De Clercq *et al.,* 2011; LeMeunier-Fitzhugh and Massey, 2019). Thus, cross-functional interfaces can enhance innovativeness by using liaison personnel, task forces, and cross-unit teams to bridge different organisational units and establish a mutual understanding of corporate goals and objectives (Gupta and Govindarajan, 2000).

Although cross-functional interfaces can indeed promote the flow of knowledge and information within existing firms, as it allows them to access a formal communication channel, cross-functional interfaces may create complexity in learning to process information mechanisms (Burgers *et al*., 2009). It is also difficult for the company to encourage its organisational units that have low levels of interdependence to work in teams with other departments (Repenning and Sterman, 2002). As such, the complexity and costs associated with cross-functional interfaces can become a burden to the established corporations in practicing SCV.

In addition to this formal collaboration across different organisational functions, a company can also form an informal integration mechanism to encourage the sense of mutual interests among organisational members, referred to as 'shared-organisational vision' (see, for example, Burgers and Covin, 2016; Burgers *et al*., 2009; Gupta and Govindarajan, 2000). This important determinant of internal business environments or organisational contexts will be explained in detail in the following section.

2.5.2 The nature of shared-organisational vision in organisations

As highlighted previously, there are several internal mechanisms that existing firms can interact with to control or manage their internal business environments to achieve sustained competitive advantage. A shared-organisational vision is also essential for this (Eldor, 2020; Gupta and Govindarajan, 2000). It is vital to establish a joint base of interests and understandings toward the firm's goals and aims. The diversity of background, experience, and knowledge among organisational members can negatively affect new ideas and knowledge transfer within the firm (Hansen, 2002).

Typically, the term ‘shared-organisational vision’ refers to the extent to which established firms have a common purpose and shared goals that all organisational members commit to and follow (Burgers *et al*., 2009; Tsai and Ghoshal, 1998). A shared-organisational vision has a crucial role to help existing companies generate the alignment of collective goals, values, interests, and aspirations, especially when they are involved with inter-organisational relationships such as a corporate venturing (Burgers and Covin, 2016; Eldor, 2020). In addition, a shared-organisational vision can effectively facilitate the exchange of knowledge and information as it creates the shared meaning of mutual interests in the pursuit of firm performance when the firm encourages all organisational members to have a common understanding towards corporate goals, values, and objectives (Fey and Furu, 2008).

Not only that, but a shared-organisational vision also indicates the extent to which the organisational members agree on a common identity that mitigates conflicts when there is a process of knowledge transfer across organisational boundaries through inter-organisational relationships (Voss *et al.,* 2006). Furthermore, a shared-organisational vision provides a common lexicon that can contribute to the success of knowledge sharing as well as the creation of new innovative ideas because communication is more effective when everyone has a common language (Burgers *et al*., 2009). In particular, when knowledge flows are effectively managed, innovative performance and the level of creativity tends to increase dramatically as different organisational divisions have a common channel through which to share and exchange crucial knowledge (Voss *et al*., 2006).

Overall, a shared-organisational vision is often seen as a common language that can facilitate the communication of knowledge and information across organisational functions and simultaneously enhance innovation and firm performance through the utilisation of a common purpose, shared goals, and mutual interests that all organisational members commit to in the pursuit of corporate goals, values, and objectives (Burgers and Covin, 2016; Eldor, 2020). Thus, a shared-organisational vision enables the firms to achieve corporate goals and entrepreneurial outcomes efficiently (Burgers *et al*., 2009; Tsai and Ghoshal, 1998).

To conclude, the previous sections have reviewed relevant literature in the field of entrepreneurship, corporate entrepreneurship, and corporate venturing and introduced all key concepts, theoretical frameworks, and potential variables. The following part will explicate the research gaps and questions that are the foundations of this research project and set out the research hypotheses for this study.

2.6 Research gaps and questions

Specifically, this section aims to identify the research gaps, devise research questions, and formulate the hypotheses of this research project. To start with, two critical research gaps in corporate entrepreneurship and corporate venturing literature are identified.

Although there are several studies conducted to explore the importance of the concepts of corporate entrepreneurship and corporate venturing in the literature throughout the globe, many of them have neglected the effects of the use of SCV to enhance firm's product innovation and knowledge acquisition (Kuratko and Morris, 2018; Narayanan

et al., 2009; Phan *et al*., 2009). In particular, entrepreneurship is often viewed as a human action that can exploit new business opportunities in the market that tends to experience a rapid change in technologies, customers' trends and demands, as well as competitors' ability to launch new products and services. It is then crucial for existing corporations to redefine themselves to remain competitive and create sustained competitive advantage (Packard, 2017). They can conduct corporate venturing as a driver to exploit new business opportunities and retain the level of competitiveness to survive in the era of globalisation and turbulent environments (Minola *et al*., 2021; Morris *et al*., 2011). To further demonstrate, the use of corporate venturing by existing firms can simultaneously promote innovation and organisational learning, as explained in the overview of corporate venturing literature that introduced the importance of SCV (see, for example, Covin and Mile, 2007; Dess *et al*., 2003; Minola *et al*., 2016). Significantly, Covin and Miles (2007) highlighted that established firms could achieve or further improve their venturing outcomes by designing and utilising SCV. However, many firms have failed to successfully sustain their ventures as they may not fully understand the influences of different business environments (Narayanan *et al*., 2009).

Thus, this current research examines the effect of SCV to facilitate firms' product innovation and knowledge acquisition. As a large number of studies have relied on a single theoretical perspective to explain their research phenomena, especially for the adoption of corporate venturing (Nason *et al*., 2015), this current research fundamentally draws on a combined perspective of two firm-level theories: the resource-based view and knowledge-based view (see Table 2.7). In relation to this, Bloodgood *et al*. (2015, p. 384) argued that although there are insightful findings of entrepreneurial performance discussed by several scholars in the fields of corporate

entrepreneurship, “they lack a comprehensive theoretical framework that sufficiently explains and connects the critical ongoing themes within corporate entrepreneurship”.

Notably, drawing on a single theory might not provide a complete understanding of the use of SCV. Conducting SCV to facilitate corporate entrepreneurship can help firms become more innovative and knowledgeable through their business ties and networks and inter-organisational relationships with their new corporate ventures (Biniari *et al*., 2015). However, previous studies in the literature have never entirely focused on the potential impact of SCV on innovation and organisational learning, by integrating firm-level theories to elucidate the benefits associated with corporate venturing (see, for example, Chen *et al*., 2014; Minola *et al*., 2016; Nason *et al*., 2015; Ramirez-Pasillas *et al*., 2021). The resource-based view only focuses on the current capabilities and resources within established firms, which prevents them from acquiring a new source of strategic resources from the inter-organisational relationships, such as different forms of corporate venturing, in the unpredictable environments (Kraaijenbrink *et al*., 2010). On the other hand, the knowledge-based approach helps existing firms realise the importance of new knowledge as an essential intangible resource that can be developed and obtained beyond organisational boundaries, to drive innovation and creativity in bringing about sustained competitive advantage (Zahra, 2015). Therefore, this research project aims to fill this research gap by drawing on both theories to understand a complete view of the use of SCV in the pursuit of innovation and organisational learning for the achievement of sustained competitive advantage.

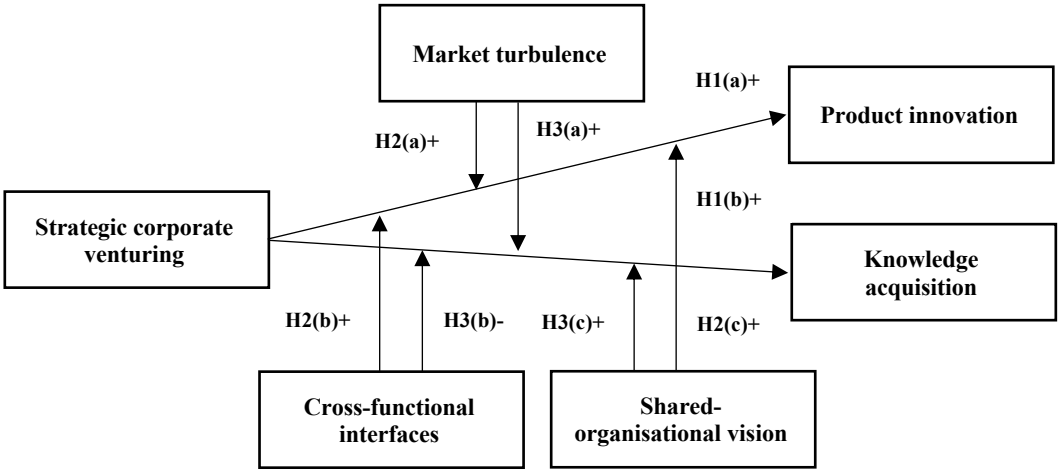
A second critical research gap is on the need to unfold other essential elements that can influence SCV on the company’s product innovation and knowledge acquisition. More

importantly, Narayanan *et al*. (2009) reported that both environmental and organisational contexts play a significant role in determining the formation and implementation as well as the actions of corporate venturing. Besides, Biniari *et al*. (2015) emphasised that other researchers in corporate entrepreneurship and corporate venturing should further develop an understanding of how parent firms conduct corporate venturing to achieve greater firm performance, especially in a dynamic environment. Hence, this research project is in line with previous studies in the literature to explore the potential impacts of environmental and organisational contexts that may influence the effects of the use of SCV on firms' product innovation and knowledge acquisition. Even though there are many determinants of environmental and organisational contexts that previous studies in management literature have examined (see, for example, Bodlaj and Cater, 2019; Burgers *et al*., 2009; Garg *et al*., 2003; Jansen *et al*., 2009; Lichtenthaler, 2009; Prajogo and McDermott, 2014; Yang *et al*., 2013), limited studies have clearly illustrated the influences of market turbulence, cross-functional interfaces, and shared-organisational vision on SCV. SCV can enhance product innovation and knowledge acquisition, on firm and entrepreneurial performance, as explained earlier in section 2.2.

Based primarily on the discussion of these two critical research gaps, it brings us to the key research question: "How does market turbulence, cross-functional interfaces, and shared-organisational vision affect the relationship between the use of SCV and product innovation and knowledge acquisition?". To conclude, this research project draws on the combination of two theories: the resource-based view and knowledge-based view of the firm, to look into three elements of external and internal business environments that can influence the effects of the use of SCV to promote innovation and

organisational learning. Building on the theoretical underpinnings of the relevant literature on corporate entrepreneurship and corporate venturing, together with the research gaps as well as the key research question identified above, it fundamentally leads to the conceptual model presented in Figure 2.3.

Figure 2.3: A conceptual model of this research project



Source: The author

Drawing on both the resource-based view and knowledge-based view, this research project's conceptual model proposes that the use of SCV enhances firms' product innovation and knowledge acquisition, which enables sustained competitive advantage and value creation. There are three environmental and organisational contexts: market turbulence, cross-functional interfaces, and shared-organisational vision that moderate the observed relationships. Based on the proposed conceptual model, the following section will formulate this research's hypotheses in addressing the critical research gaps and research question in detail. This research project aims to provide an empirical analysis of three main sets of interactions to illustrate more. The first interaction is the

main effect of the use of SCV on product innovation and knowledge acquisition. The second interaction is the moderating effects of external and internal business environments on the relationship between the use of SCV and product innovation. The third interaction is the moderating effects of external and internal business environments on the relationship between the use of SCV and knowledge acquisition.

2.6.1 The main effect of strategic corporate venturing on product innovation and knowledge acquisition

Strategic corporate venturing and product innovation:

As discussed previously in the overview of corporate venturing literature on section 2.2, the adoption of corporate venturing can provide a new source of strategic resources to extend a firm's existing abilities and capabilities (Kuratko and Morris, 2018; Ramirez-Pasillas *et al*., 2021; Schildt *et al*., 2005). These new strategic resources are the fuel for innovation in established corporations that successfully manage the formation of their corporate venturing activities. Corporate venturing can also help companies discover new potential markets outside the current scope of their business operations (Miles and Covin, 2002; Prugl and Spitzley, 2021). It builds a new platform for the firms to create new and relevant business ideas, and explores a new source of competitive advantage (Sharma and Christman, 1999).

Thus, corporate venturing is a strategic tool that facilitates existing firms' innovations, enabling them to achieve sustained competitive advantage (Morris *et al*., 2011). In this dynamic environment resulting from globalisation, existing firms of all shapes and sizes

have experienced a challenge to find new ways of doing business to stay competitive in the current market position (Randolph *et al*., 2019; Teng, 2007). Innovation is an essential key driver to success as it creates new abilities and capabilities to establish new competencies in the pursuit of sustained competitive advantages that are rare and difficult for the potential competitors to imitate or substitute (Ramirez-Pasillas *et al*., 2021; Seidel *et al.,* 2020; Dess *et al*., 2003). Product innovation can be used as a strategic priority to compete with competitors due to its short life cycle, meaning that the established corporations are likely to gain benefits associated with it quicker than other types of innovation (Slater *et al*., 2014). In this context, product innovation includes the development of new components, materials, technologies, and product features of a new or existing product (Jayaram *et al*., 2014).

More importantly, in the literature on corporate entrepreneurship and corporate venturing, corporate venturing is seen as the most productive means to superior corporate and firm performance, mostly when established corporations conduct their new venture strategically (Covin and Miles, 2007; Minola *et al*., 2016). Following previous literature, this research project defines the use of SCV as the alignment of a firm's corporate venturing and corporate strategy to support corporate venturing activities that meet with the corporate strategy in creating sustained competitive advantage (Biniari *et al*., 2015; Narayanan *et al*., 2009). Therefore, this study attempts to broaden this line of research into the context of corporate venturing in a strategic manner and investigate whether it can help a company enhance its product innovation more efficiently to strive for sustained competitive advantage. Following the above discussion, this research project proposes that:

Hypothesis 1(a): The use of SCV will be positively related to the firm's product innovation.

Strategic corporate venturing and knowledge acquisition:

Corporate venturing also contributes to organisational learning and knowledge creation, which is a crucial source of new knowledge for the development of organisational capabilities (Narayanan *et al*., 2009). Organisational learning is one of the most significant sources of sustained competitive advantage that firms of all shapes and sizes can achieve because new knowledge is a valuable, rare, and inimitable resource (Fliaster and Sperber, 2020; Gupta and Govindarajan, 2000). Learning new knowledge and essential know-how is at the heart of the strategic process that can enable existing firms to adapt themselves in a changing environment (Zahra *et al.,* 1999). Likewise, learning is crucial for establishing and exploiting new knowledge that is an important driver for the product, process, and organisational innovation (Keil, 2004). This research project is in line with previous literature in using the term 'knowledge acquisition' to define the extent of new knowledge that corporations learn from external sources, as noted by Dess *et al*. (2003, p. 352) "learning means the acquisition of information and knowledge that is new for a firm". In this context, knowledge acquisition refers to the extent of new knowledge and useful information about the markets, customers' necessities and tendencies, technologies and important know-how, and management that existing firms acquire from their inter-organisational relationships with different forms of corporate venturing (Bojica and Fuentes, 2012). In addition, this knowledge-based resource can help identify new entrepreneurial opportunities as new knowledge provide updated information about the customers, markets, and industries (Prajogo and McDermott,

2014; Wiklund and Shepherd, 2003). Hence, the acquisition of knowledge about markets and customers' preferences toward firms' products and services can support entrepreneurial activities by helping them determine the value of new opportunities and demonstrate the most appropriate ways to serve the new market opportunities (Yli-Renko *et al*., 2001).

Apart from that, Teng (2007) highlights that a firm's relationships with other organisations or inter-organisational relationships can be an essential source of strategic resources that are significant for their entrepreneurial outcomes. This notion is also consistent with Bojica and Fuentes's (2012) research that emphasised that "a firm that does not acquire knowledge from its peer relationships may miss the identification of important entrepreneurial opportunities and the chance to exploit them for wealth creation" (p. 400). As mentioned earlier, organisations that adopt corporate venturing to improve performance and organisational learning are typically involved with the inter-organisational relationships from various forms of their new corporate ventures (Phan *et al*., 2009). As a result, the firm that implements corporate venturing can acquire new knowledge from its inter-organisational relationships (Minbaeva *et al*., 2018). Therefore, the capacity of knowledge acquisition through inter-relationships with new corporate ventures can be enriched, especially when established corporations practice SCV as it promotes entrepreneurial performance more effectively (Covin and Miles, 2007). Accordingly, this research project proposes that:

Hypothesis 1(b): The use of SCV will be positively related to the firm's knowledge acquisition.

2.6.2 The moderating effects of external and internal business environments on the relationship between strategic corporate venturing and product innovation

Market turbulence:

Although various kinds of environmental contexts can have a substantial impact on organisational performance (see, for example, Bodlaj and Cater, 2019; Garg *et al.*, 2003; Jansen *et al.,* 2009; Lichtenthaler, 2009), this study focuses specifically on market turbulence as indicated earlier. Market turbulence which is associated with the level of uncertainty in the current market, and describes the rate of change in customers' composition and their preferences for a company's products and services (Jaworski and Kohli, 1993). The external business environment increases the uncertainty that can lead to unpredictability in a firm's markets and industries, especially in terms of customers' desires and demands (Wilden and Gudergan, 2015). In fact, the effect of different degrees of change in the external environment and entrepreneurial performance is varied (Prajogo and McDermott, 2014; Song *et al*., 2005). Apart from this, a firm's innovation and creativity in developing new product offerings can be driven by environmental forces in external settings (Bodlaj and Cater, 2019; Jansen *et al*., 2006). The change in trends, preferences, and demands of existing and new customers in the market can create new business opportunities to exploit (Danneels and Sethi, 2011).

In this sense, dynamic market turbulence allows existing corporations to access more market opportunities as there are new and available customers' desires and preferences that might be their new potential targeted groups of customers to serve (Engelen *et al*.,

2015). Therefore, firms view the changing environmental contexts in the external surroundings as a new source of market and business opportunities. Consequently, these established firms tend to encourage their organisational members to generate more innovative and creative ideas in producing new products and services to meet the new trends and demands of customers in time. Furthermore, turbulent environments, especially changes in customers' preferences and compositions, provide greater latitude for the development of new products and services that the firm can introduce into a new market. This notion is consistent with the view of Wang *et al*. (2015, p. 1931) that "as market gets more dynamic, collaborations will be centered more on innovation". Together with the use of SCV in a turbulent market, firms can launch new corporate venturing activities to support their product innovation more efficiently in facilitating the new trends and preferences of customers as well as being one step ahead of direct competitors. For this reason, this research project proposes that:

Hypothesis 2(a): Market turbulence will positively moderate the effect of strategic corporate venturing on the firm's product innovation.

Cross-functional interfaces:

Not only external business environments can affect organisational outcomes, but several organisational contexts also play an important role as noted earlier (see, for example, Bloodgood *et al*., 2015; Burgers and Covin, 2016; Burgers *et al*., 2009; Gupta and Govindarajan, 2000; Jansen *et al*., 2006). In general, established corporations need to redesign and redefine their internal mechanisms in preparation for the exploitation of new market opportunities and the development of sustained competitive advantages

(Cometto *et al*., 2016; Hitt *et al*., 2011). Although there are various organisational contexts that existing scholars in the corporate entrepreneurship and corporate venturing literature have investigated, in terms of their effects on firm and entrepreneurial performance, cross-functional interfaces are among the most effective organisational integration mechanisms (Burgers *et al*., 2009). In addition, Gupta and Govindarajan (2000) argued that cross-functional interfaces are the key components that provide horizontal connections between organisational units. As such, existing companies that participate in cross-functional interfaces to temporarily rotate their employees' roles and employ cross-functional teams, task forces, and liaison positions can access a formal channel of communication (Galbraith, 1973). Specifically, cross-functional interfaces generate internal linkages across different departments in exchanging and integrating the flow of knowledge through the practice of liaison personnel, task forces, and cross-unit teams for the development of innovations and competitive advantages (De Clercq *et al*., 2011; LeMeunier-Fitzhugh and Massey, 2019).

From this perspective, cross-functional interfaces bring about a new internal platform for the exchange of knowledge and essential information by using a short-term oriented mainstream unit and gathering organisational members from different parts of the firm to share their experience, innovative ideas, and opinions in achieving corporate goals (Gupta and Govindarajan, 2000; Seidel *et al*., 2020). As a result, the use of cross-functional interfaces can lessen organisational boundaries that may hinder knowledge flows between organisational units, which in turn leads to the creation of new innovative ideas that facilitate corporate venturing activities (Burgers *et al*., 2009). As the main objective of corporate venturing contributes to the establishment of innovation for the

corporation's sustained competitive advantage (Narayanan *et al*., 2009), this internal mechanism can improve the effectiveness of communication in sharing and exchanging innovative ideas and creating ones that might be a new potential business opportunity. Hence, the firm that conducts SCV to support its innovative projects and strategies together with the cooperation of cross-functional teams, task forces, and liaison personnel might enhance product innovation more effectively. In other words, cross-functional interfaces increase the positive effect of SCV on the firm's product innovation. Therefore, this current study proposes that:

Hypothesis 2(b): Cross-functional interfaces will positively moderate the effect of SCV on the firm's product innovation.

A shared-organisational vision:

Apart from the concept of cross-functional interfaces that may affect the performance of the firm, shared-organisational vision is also one of the most important determinants to facilitate the exploitation of sustained competitive advantage, as noted earlier on section 2.5 (see, for example, Burgers *et al*., 2009; Burgers and Covin, 2016; Hansen, 2002; Voss *et al*., 2006). In particular, a shared-organisational vision involves the commitment of everyday purposes and shared goals among all organisational members toward achieving corporate goals and objectives (Burgers *et al*., 2009; Eldor, 2020). As established corporations have experienced the diversity of employees' backgrounds in this era of globalisation, it is crucial to develop a joint base of interests and understandings to minimise possible conflicts associated with the flow of knowledge exchange and communication (Burgers and Covin, 2016; Hansen, 2002). Besides, a

shared vision can increase employees' willingness to consider opposing views and opinions from others across organisational units to develop new business ideas and accomplish the corporate goals (Eldor, 2020; Subramaniam and Youndt, 2005). A shared-organisational vision supports the firm to overcome organisational boundaries between the mainstream business and its corporate venturing activity by creating a common language and understanding (Tsai and Ghoshal, 1998), the key elements to support effective communication (Cohen and Levinthal, 1990). Consequently, a shared-organisational vision helps companies exchange knowledge and integrate important information from their corporate venturing into the existing knowledge stocks (Nahapiet and Ghoshal, 1998).

Thus, a shared-organisational vision helps the firm recognise the importance of potential organisational knowledge sources, bringing forward innovations and boosting creativity in generating new business projects in its corporate ventures (Burgers *et al*., 2009; Eldor, 2020). Furthermore, the firm tends to launch new innovative projects more frequently to establish new products and services when all organisational members have adequate communication to share new knowledge and update the knowledge flows (Voss *et al*., 2006). As the use of SCV is seen as a path to superior entrepreneurial performance, the firm that conducts it and simultaneously promotes a shared-organisational vision can increase its product innovation. In short, increasing the commitment of collective goals and interests among organisational employees can strengthen the effect of SCV on the firm's product innovation. This research project, therefore, proposes the following hypothesis:

Hypothesis 2(c): A shared-organisational vision will positively moderate the effect of SCV on the firm's product innovation.

2.6.3 The moderating effects of external and internal business environments on the relationship between strategic corporate venturing and knowledge acquisition

Market turbulence:

As indicated earlier, environmental and organisational contexts can affect both innovation and organisational performance of the existing firms (Bodlaj and Cater, 2019; Narayanan *et al*., 2009), this research project is also in line with the literature to investigate the influences of external and internal business environments on the use of SCV and knowledge acquisition. The literature has suggested that the rate of change in customers' composition can motivate existing firms to reallocate opportunities, modify their products and services, and acquire new knowledge from external sources to meet the customers' changing preferences (Wang *et al*., 2015). Market turbulence does not only influence the corporations to continually produce new innovative products and services before their direct competitors, but they also require more data and information to update their current knowledge stocks (Jaworski and Kohli, 1993). Similarly, the need for new insights arises, especially when the firm's external market is challenging to predict because the knowledge-based resources are one of the most significant determinants to support entrepreneurial activities (Walter *et al.,* 2005). In this context, market turbulence can create a situation when the existing corporation is faced with uncertainties about the desires, behaviour, and preferences of the customers, which may

stimulate the organisation to demand more knowledge to apply to the identification of new entrepreneurial opportunities (Wiklund and Shepherd, 2003). This is due to a fast-changing trend of customer's value propositions towards products and services that can become a major concern as existing firms may lose their capacity to match the current needs and preferences of customers if they do not update the stocks of knowledge-based resources effectively (Clerq *et al*., 2018). Thus, efficient knowledge acquisition from the external sources plays a vital role in helping the firms detect new market opportunities because new knowledge provides up-to-date information about the new trends, preferences, and demands of the customers (Yli-Renko *et al*., 2001).

Additionally, Covin *et al.* (2006) also identified market knowledge as an essential contingency in achieving the outcomes of corporate entrepreneurship activities, which helps the firm enhance its overall performance as well. Besides, in the context of corporate venturing activity, established companies can use their business networks and inter-organisational relationships with corporate ventures to explore new knowledge and transfer it back into the mainstream business, which leads to the creation of new knowledge inflows (Prugl and Spitzley, 2021; Yang *et al*., 2013). These firms' relationships with other organisations or their corporate ventures are the potential source of resources that can facilitate entrepreneurial performance (Cometto *et al*., 2016; Teng, 2007). As discussed previously, the corporations that use their SCV may have important implications for knowledge acquisition. This research project proposes that as the external market becomes more dynamic and unstable, the observed relationship will become more assertive in a positive direction. Therefore, the above discussion leads to the following hypothesis:

Hypothesis 3(a): Market turbulence will positively moderate the effect of SCV on the firm's knowledge acquisition.

Cross-functional interfaces:

Apart from the environmental contexts that can affect entrepreneurial activities' outcomes, cross-functional interfaces are one of the most critical organisational integration mechanisms that generate a linkage between organisational units, to facilitate the flows of knowledge within the existing firm (LeMeunier-Fitzhugh and Massey, 2019; Gupta and Govindarajan, 2000). Cross-functional interfaces can also be regarded as a formal organisational integration mechanism that provides a horizontal connection across different parts of the company (Burgers *et al*., 2009). Besides, it helps the firms enhance their communication and information processing systems by using cross-functional teams, task forces, and liaison positions (Burgers and Covin, 2016). Cross-functional interfaces such as cross-functional teams and task forces can enable knowledge exchange across organisational units because they bring employees from different divisions who have differentiated expertise and specialities to share their distinct ideas, experience, and opinions (LeMeunier-Fitzhugh and Massey, 2019; Repenning and Sterman, 2002). In particular, this formal integration mechanism helps the firms enrich their knowledge sources as cross-functional interfaces can diminish organisational boundaries between units in sharing new ideas and views (Prabhu *et al., 2005*). Thus, established firms can manage the flows of new knowledge more effectively when using cross-functional interfaces such as liaison personnel, task forces, and teams. All organisational members from different departments have a typical frame of reference to shape their understanding agreement (Gilbert, 2006).

Although using formal communication channels is useful for exchanging and integrating new knowledge (Gupta and Govindarajan, 1991), the implementation of cross-functional interfaces may increase complexity (Tushman and Nadler, 1978). The costs and complexity of the practice of cross-functional interfaces can create a burden to corporate venturing that hinders the development of self-interested behaviours among employees to learn diverse bodies of knowledge when they are not familiar with the contexts (LeMeunier-Fitzhugh and Massey, 2019; Shimizu, 2012). Consistent with this point, Burgers and Covin (2016, p. 525) revealed that "cross-functional interfaces can transfer a large amount of knowledge across units but are also associated with high costs". In the context of corporate venturing, when the existing firm applies cross-functional teams, task forces, and liaison personnel to stimulate knowledge sharing among organisational members from different units, it is likely to cause such disturbing effects. The firm's knowledge acquisition may be negatively affected because the employees might not have capabilities to absorb new knowledge that is complex and unfamiliar from the corporate ventures. In other words, cross-functional interfaces reduce the positive effect of SCV on the firm's knowledge acquisition. This guides to the following hypothesis:

Hypothesis 3(b): Cross-functional interfaces will negatively moderate the effect of SCV on the firm's knowledge acquisition.

A shared-organisational vision:

Besides cross-functional interfaces, a shared-organisational vision is also an important factor that can influence entrepreneurial outcomes and organisational learning (Eldor, 2020; Nahapiet and Ghoshal, 1998). In addition to a formal integration mechanism such as cross-functional interfaces, existing corporations can also establish informal integration mechanisms to enhance a common understanding, agreement, and mutual interests among all organisational members to successfully achieve corporate goals and objectives (Nohria and Ghoshal, 1994). As previously discussed, a shared-organisational vision creates an alignment of collective goals and values by building a common language and mutual understanding among organisational members (Tsai and Ghoshal, 1998). A shared and common language is essential for communication in stimulating knowledge sharing and integration (Cohen and Levinthal, 1990). Consequently, a shared-organisational vision helps corporations encourage their employees to increase their level of willingness to learn and absorb new knowledge from other sources (Hansen, 2002). In particular, a joint base of understanding through which the employees with shared goals and visions can overcome their self-interests to achieve corporate goals and objectives, brings about effective integration of new ideas and information (Burgers *et al*., 2009). Hence, a shared-organisational vision is an essential informal mechanism that serves as a driver to motivate the organisational members to recombine and integrate new knowledge from external sources (Nahapiet and Ghoshal, 1998).

Thus, a shared-organisational vision enables the firms that participate in corporate venturing activity to promote their employees' commitment to fulfilling the

accomplishments beyond the individual aims of learning new knowledge, to superior firm performance (Voss *et al*., 2006). As corporate venturing activity needs to collaborate with new corporate ventures through the firm's inter-organisational relationships, it requires a shared language and purpose to boost knowledge transfer and integration (Burgers and Covin, 2016). Similarly, in the context of corporate venturing to support an innovation-based strategy for organisational learning, a shared language and commitment are vital for establishing typical desires and aspirations to assist the existing corporations in attaining their entrepreneurial outcomes by facilitating inter-organisational knowledge sharing (Covin and Miles, 2007; Minola *et al*., 2016). Therefore, this research project proposes that the use of SCV and a shared-organisational vision significantly increases the firm's knowledge acquisition. In short, a shared-organisational vision increases the positive effect of SCV on the firm's knowledge acquisition.

Hypothesis 3(c): A shared-organisational vision will positively moderate the effect of SCV on the firm's knowledge acquisition.

2.7 Chapter summary

This chapter has presented a literature review of articles from top journals in corporate entrepreneurship and corporate venturing, by exploring the entrepreneurial revolution to better understand the concept and taxonomy of corporate entrepreneurship in an organisational context. This literature review chapter has also generated an overview of corporate venturing literature that led to the identifications of the importance of the

practice of corporate venturing in a strategic manner, a firm's innovation, and organisational learning.

This chapter has also demonstrated the foundation of two firm-level theories in explaining the effects of the use of SCV on the existing firm's innovation and organisation. Incorporating the firm's resource-based view and knowledge-based view strengthened the illustration of SCV to promote both product innovation and knowledge acquisition of the organisation. Drawing on this integrative theoretical foundation has offered a better understanding of adopting SCV to facilitate product innovation and knowledge acquisition, which also uncovered the influence of both environmental and organisational contexts on the observed phenomenon. This research project focused specifically on the role of market turbulence, cross-functional interfaces, and shared-organisational vision on the use of SCV to enhance product innovation and knowledge acquisition of the firm.

Equally important, this literature review chapter has identified research gaps to devise the research question and formulate the hypotheses. Overall, there are three main sets of interactions in the conceptual model. The first interaction is the main effect of the use of SCV on product innovation and knowledge acquisition. The second interaction is the moderating effects of market turbulence, cross-functional interfaces, and shared-organisational vision on the relationship between the use of SCV and product innovation. The third interaction is the moderating effects of market turbulence, cross-functional interfaces, and shared-organisational vision on the relationship between the use of SCV and knowledge acquisition. Furthermore, Table 2.10 presents a summary

of the definitions of key concepts and keywords. In Table 2.11, there is a summary of all the proposed hypotheses of this research project.

Table 2.10: Definitions of key concepts and keywords of this research project

Key concepts and keywords	**Definitions**
Entrepreneurship (the author)	Entrepreneurship refers to a human action with the vision to exploit new business opportunities that are available in the market, and the capability to realise creative and innovative ideas, such as new product, process, and services, through the creation of new independent business ventures where the business outcomes are uncertain.
Corporate entrepreneurship (Guth and Ginsberg, p. 5)	"Corporate entrepreneurship encompasses two types of phenomena and the processes surrounding them: (1) the birth of new businesses within existing organisation (i.e. internal innovation or venturing) and (2) the transformation of organisations through renewal of the key ideas on which they are built (i.e. strategic renewal)".
Corporate venturing (Morris *et al*., 2011)	Corporate venturing refers to the creation of new businesses that add to the corporation's main operations. There are three distinctive form of corporate venturing: internal, cooperative, and external corporate venturing.
Strategic use of corporate venturing (the author)	SCV is defined as a phenomenon when an established corporation aligns corporate venturing with its corporate strategy and often supports corporate venturing ideas that do not conflict with the core concept of the corporate strategy in building new competitive advantages and values through innovation and organisational learning.
Product innovation (Jayaram, Oke, and Prajogo, 2014)	Product innovation is defined as the creation of new products and services or the improvement of existing products and services through new components,

	materials, technologies, and features in order to serve customers' needs.
Knowledge acquisition (Bojica and Fuentes, 2012)	Knowledge acquisition refers to the extent of new knowledge and useful information about the markets, customers' necessities and tendencies, technologies and important know-how, and management that established corporations have learned from external sources.
Market turbulence (Jaworski and Kohli, 1993)	Market turbulence can be defined as the rate of change in the composition of customers and their desires, demands, and preferences toward the firm's products and services, which leads to the unpredictability of the external markets.
Cross-functional interfaces (Gupta and Govindarajan, 2000)	Cross-functional interfaces refer to an internal mechanism to enable knowledge and information exchange across different organisational units and departments through liaison personnel, task forces, cross-unit teams, and working in teams.
Shared-organisational vision (Burgers *et al*., 2009)	Shared-organisational vision is defined as the extent to which the established firms have a common purpose and shared goals that all organisational members commit and follow.
The resource-based view of the firm (Barney, 1991)	The resource-based view regards the existing firm as a bundle of resources that are valuable, rare, inimitable, and non-substitutable in creating a new source of the sustained competitive advantages through the recombination and transformation of these internal resources.
The knowledge-based view of the firm (Grant, 1996)	The knowledge-based view regards knowledge as a strategic source of the sustained competitive advantages of the existing firm, as knowledge is an intangible resource that is non-tradable and difficult to be imitated by other potential competitors; and the firm can acquire new knowledge from the external sources through inter-organisational relationships.

Sustained competitive advantage (Barney, 1991, p. 102)	Sustained competitive advantage refers to a situation that a firm is "implementing a value creating strategy not simultaneously being implemented by any current or potential competitors". Also, it can be a core competency that the existing company possesses to outperform other potential competitors, which derives from the internal resources as well as the firm's ability to transform strategic resources into a new core competency.

Table 2.11: A summary of all proposed hypotheses of this research project

Hypothesis	
H1(a)+	The use of SCV will be positively related to the firm's product innovation.
H1(b)+	The use of SCV will be positively related to the firm's knowledge acquisition.
H2(a)+	Market turbulence will positively moderate the effects of SCV on the firm's product innovation.
H2(b)+	Cross-functional interfaces will positively moderate the effects of SCV on the firm's product innovation.
H2(c)+	Shared-organisational vision will positively moderate the effects of SCV on the firm's product innovation.
H3(a)+	Market turbulence will positively moderate the effects of SCV on the firm's knowledge acquisition.
H3(b)-	Cross-functional interfaces will negatively moderate the effects of SCV on the firm's knowledge acquisition.
H3(c)+	Shared-organisational vision will positively moderate the effects of SCV on the firm's knowledge acquisition.

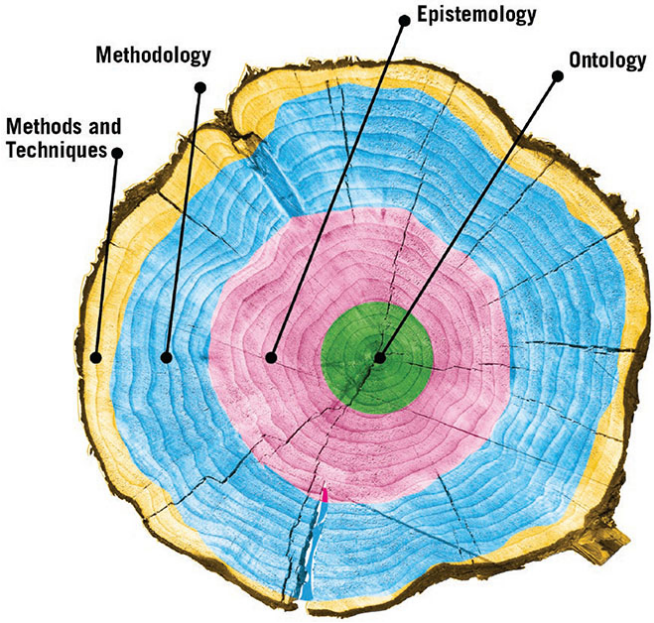
CHAPTER THREE: RESEARCH METHODOLOGY

After an attempt to review the previous literature in corporate entrepreneurship, corporate venturing, and related areas, explicate the establishment of research interests, and identify research hypotheses in chapter two, a detailed explanation of the research methodology is demonstrated in the present chapter. The main purposes of this chapter are to elucidate philosophical assumptions underpinning this research project, illustrate the research design, unfold the processes of data collection, and justify methods and techniques used for the statistical analysis of obtained data.

3.1 Philosophical assumptions

Easterby-Smith *et al.* (2018) illustrate a linkage between ontology, epistemology, methodology, and methods and techniques using four rings of a tree trunk as a metaphor to represent these four key features of the research philosophy (see Figure 3.1). The three inner rings of the trunk represent ontology, epistemology, and methodology are hidden, while the outer ring or the bark that represents methods and techniques are the most visible parts of the research project. Although three inner rings of the trunk are less visible, the decisions and assumptions about these features contribute to the coherence of the study (Easterby-Smith *et al*., 2018). The following section will specifically clarify the four philosophical components that have been employed in this research project.

Figure 3.1: The four rings model of research philosophy



Source: Easterby-Smith *et al*. (2018)

3.1.1 Ontology

The trunk's central core or heartwood symbolises *ontology*, which refers to "philosophical assumptions about the nature of reality" (Easterby-Smith *et al*., 2018, p. 63). Among the four ontological positions introduced by Easterby-Smith *et al*. (2018) in Table 3.1, internal realism tends to be the most appropriate one in addressing the research gaps, questions and objectives of this study.

An internal realist assumes that there is an existence of truth, but it is obscure and impossible to gather data or knowledge directly from the experiments (Putnam, 1987). Likewise, an internal realism researcher focuses on explaining the meaning of what

happens in reality, rather than only describing its truth and accuracy (Easterby-Smith *et al*., 2018).

As the main goal of this research project is to examine the influences of potential business environments that may impact the relationship between the use of SCV and firms' innovation and organisational learning, there seems to be more than a single factor that can affect the observed relationships. As a result, this study has to carefully consider, review, and investigate several variables before constructing the research hypotheses. Additionally, it is not possible to directly measure and detect the impact of SCV on innovation and organisational learning from the experiments. This is also consistent with a suggestion that a scholar in entrepreneurship literature should "ground social mechanisms in conceptions of human action that explicitly go beyond utilitarian rational choice accounts" (Burglund and Korsgaard, 2017, p. 733). Therefore, the philosophical perspective of internal realism is the most suitable ontology to understand the nature of how environmental and organisational contexts (i.e. market turbulence, cross-functional interfaces, and shared-organisational vision) influence the effects of SCV on firms' innovation and knowledge acquisition in gaining competitive advantages in the modern world.

Table 3.1: Four ontological positions

Ontologies	Descriptions
Realism	The world is real and exists independently of perception. Science is based on observations of real phenomena, observable behaviour, and facts that are considered to be "hard facts".
Internal realism	The world is real and causally independent of the human mind, but it is impossible to observe it directly as our understanding of its structure (types, kind, categories, etc.) is a function of the human mind. Scientific laws, once discovered, are absolute.
Relativism	Scientific laws are created by people who are embedded in a context (so it's in the eye of the beholder).
Nominalism	Reality is created by us and as such does not exist independently of our perception.

Source: Easterby-Smith *et al*. (2018)

3.1.2 Epistemology

The second ring of the trunk represents *epistemology*, which refers to "a general set of assumptions about ways of inquiring into the nature of the world" (Easterby-Smith *et al*., 2018, p. 63). In the literature, positivism and social constructionism are the two main contrasting views of how social science studies should be performed (see Table 3.2).

In this study, the research topic is principally related to the use of SCV, innovation performance, organisational learning, and external and internal business environments of the existing firms, which can be examined through objective criteria (see, for example, Bierwerth *et al*., 2015; Narayanan *et al*., 2009; Phan *et al*., 2009). Interestingly, the research focus of this research project is consistent with the review of

the positivist mode of entrepreneurship, noted by Burg and Romme (2014), who argued that entrepreneurship research normally starts from an overview of existing knowledge and regards entrepreneurial phenomena as empirical objects with descriptive explanations that can be observed externally. In addition, this research project is progressed through a set of research hypotheses, meaning that the theories of research interests have been defined clearly before data collection and can be measured statistically. Based on these reasons, the positivist perspective is the most appropriate epistemology to adopt and most entrepreneurship research published in top journals also relies on positivism to build and test hypotheses statistically (see, for example, Haber and Reichel, 2007; Welter, 2011).

Table 3.2: Contrasting implications of positivism and social constructionism

	Positivism	**Social constructionism**
Researchers	must be independent	is part of what is being observed
Human interests	should be irrelevant	are the main drivers of science
Explanations	must demonstrate causality	aim to increase general understanding of the situation
Research progresses through	hypotheses and deductions	gathering rich data from which ideas are induced
Concepts	need to be defined so that they can be measured	should incorporate stakeholder perspectives
Units of analysis	should be reduced to the simplest terms	may include the complexity of the 'whole' situation
Generalisation through	statistical probability	theoretical abstraction
Sampling requires	large numbers selected randomly	small numbers of cases chosen for specific reasons

Source: Easterby-Smith *et al*. (2018)

3.1.3 Methodology

The third ring of the trunk exemplifies *methodology*, which refers to "a combination of methods used to enquire into a specific situation" (Easterby-Smith *et al*., 2018, p. 63). In this study, a positivist perspective has been employed based on the summary of methodological implications of positivism proposed by Easterby-Smith *et al*. (2015) (see Table 3.3). To further clarify, this study aims to expose the influences of external and internal business environments that can affect the relationship between the use of SCV and firms' innovation and organisational learning by testing the hypotheses, analysing data statistically from the survey responses, and interpreting the results to generate theoretical, methodological, and managerial contributions.

Table 3.3: Methodological implications of different epistemologies

Epistemology / Methodology	**Positivism**	**Constructionism**
Research aims	Exposure	Convergence
Starting points	Propositions or questions	Focal issues or questions
Designs	Large surveys; multi-cases	Cases and surveys
Data types	Mainly numbers with some words	Mainly words with some numbers
Analysis	Correlation and regression	Triangulation and comparison
Outcomes	Theory-testing and generation	Theory generation

Source: Easterby-Smith *et al*. (2015)

3.1.4 Methods and techniques

The fourth or outer ring of the trunk demonstrates *methods and techniques*, which refers to "individual techniques for data collection, analysis, etc." (Easterby-Smith *et al*.,

2018, p. 63). In practice, qualitative and quantitative methods are the two dominant research methods that are well-known among researchers in the management and social sciences (Alasuutari *et al*., 2008). Although these two research methods have fundamental differences in their features and characteristics, they are equally accepted worldwide in the literature (Yin, 2013).

Simply put, the quantitative method has been described "as entailing the collection of numerical data, as exhibiting a view of the relationship between theory and research as deductive and a predilection for a natural science approach (and of positivism in particular), and as having an objectivist conception of social reality" (Bryman, 2012, p. 160). Adopting this research method provides several advantages to the quantitative researchers as suggested by Cresswell (2003). As such, the collection of large surveys supplies wide coverage of data as well as it is less time-consuming, inexpensive, and well-structured to obtain primary data. Also, the findings are likely to be reliable and generalisable due to the use of large data sets and statistical analysis (Easterby-Smith *et al*., 2018).

The qualitative method, on the other hand, tends to emphasise words and textual information rather than numerical data as it conforms with an inductive view of the relationship between theory and research and concerns the understanding of the social world through a study of interaction between individuals (Bryman, 2012). However, the interpretations of data are time-consuming, and it can be difficult to understand the meanings of individuals if cultural differences are associated with the study (Yin, 2013).

Notably, a mixed method is another option for scholars who are keen to triangulate their collected data for greater validity, offset the weaknesses of both methods, and gather a more comprehensive area of their research topic (Teddlie and Tashakkori, 2009).

In choosing the research method, an individual researcher should consider his or her choices of philosophical assumptions and preferences to obtain data and operate corresponding data analysis procedures in answering the research questions and achieving research objectives meticulously (Creswell, 2003; Miller and Salkind, 2002; Waters, 2011). Therefore, a quantitative research method was applied in this research project in accordance with the ontology, epistemology, methodology, research questions and objectives that were clearly explained earlier.

Unsurprisingly, research strategy plays a significant role to ensure the completeness of data collection in order to achieve all research questions and objectives as it refers to "a general plan of how the researcher will go about answering the research question(s)" (Saunders *et al*., 2009, p. 600). In the literature, there are seven research strategies (i.e. experiment, survey, case study, action research, grounded theory, etc.) that are widely accepted among management scholars as summarised in Table 3.4 (Bryman, 2012; Easterby-Smith *et al*., 2018; Punch, 2014; Saunders *et al*., 2009).

Table 3.4: Research strategies

	Characteristics	**Advantages**	**Disadvantages**
Experiment	The main purpose of the experiment strategy is to study whether there is a relationship between two variables where a change in one dependent variable can/cannot increase the likelihood to affect a change to the other variable under the controlled conditions in an experimental group.	It helps to develop a cause-and-effect relationship between two variables.	It can be time-consuming to obtain and analyse data. And, it is difficult to generalise the result from a small, controlled data collection.
Survey	This research strategy is often related to the deductive approach and it is popular in business and management research as it allows the researchers to collect structured quantitative data and analyse the result in a statistical way.	Collected data can be used to examine patterns of the relationship between variables and produce a model for these relationships. Also, the data can be generalised from a large collection of samples with less time and fewer resources consumed.	The quality of data collected from the respondents can be a problem if they do not complete the structured questionnaire carefully. Also, low response rates can occur if the respondents delay filling in the survey.
Case study	The case study is a strategy to entail a detailed analysis of a single case and intensively investigate a contemporary phenomenon	Data collected from a case study provides a rich and in-depth understanding of	The result might not be representative of other phenomena and it is time-

	within a real-life context that has been studied but does not provide enough clear and sufficient evidence.	the inquiry. Also, it can generate a new theory from its detailed descriptive data.	consuming to collect and examine the data.
Action research	This research strategy focuses on actions under investigation that can promote changes for further improvements within an organisation. This strategy requires the involvement of employees who are currently working with that organisation to diagnose the situations or problems, produce plans to seek solutions, take actions, and evaluate the whole research process.	It gives the benefits to an organisation that realises a need for change as the action research can generate a practical guide and solution to solve its organisational issues.	As the findings are genuinely derived from an organisation that has specific situations or problems, the repeatability can be restricted. The bias to identify organisational members for collaboration can be an issue.
Grounded theory	Grounded theory is an open research strategy to predict and explain behaviour that helps to establish new theories from the core theme emerging from the respondents under the study through the use of observations or interviews.	This strategy can help the researcher to generate and develop new theories out of research data in understanding the nature of knowledge and practice.	It requires a skilful researcher to examine the data as there is no prior definitional code and category for identification and interpretation.
Ethnography	This strategy aims to describe and interpret a particular setting of the social worlds through first-hand field study as the	Ethnography is useful to increase a rich understanding of human reactions and behaviour	It is time-intensive to collect data. As the quality of data depends on the

	researcher will immerse him/herself within that social group for a certain period of time to observe, interview, and participate in activities.	toward a particular situation, especially for those who have different traditions, norms, values, and cultural backgrounds.	openness of people in the community, it can cause problems if the researcher cannot build good relationships to gain trust.
Archival research	Archival research is a research strategy that analyses administrative records and documents as the main source of data. The data are based on day-to-day activities as a part of the reality that is being studied in an organisation.	The costs to access the archival database are inexpensive. Also, this strategy is suitable for comparisons between contexts and longitudinal studies as the research can be inclusive of long periods of time.	Data from the database might not meet with the researcher's standard and his or her research question(s).

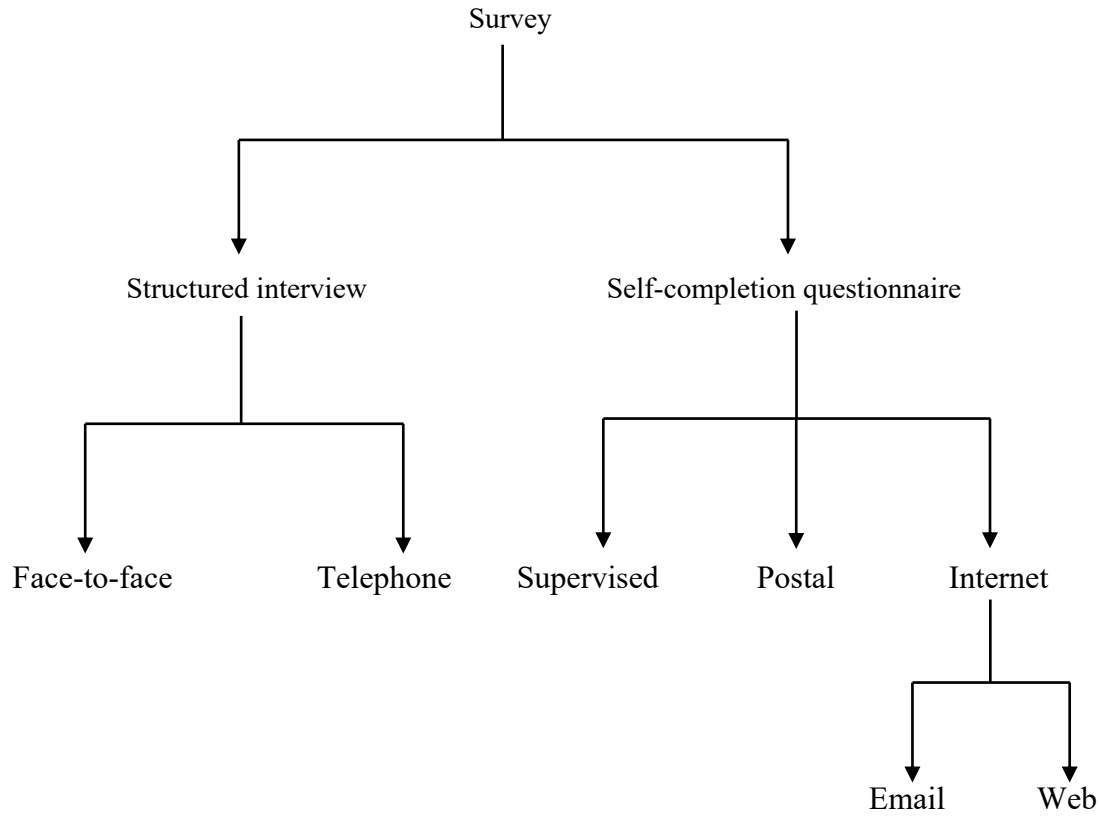
Source: Bryman (2012); Easterby-Smith *et al*. (2018); Punch (2014); Saunders *et al*. (2009)

To select an appropriate research strategy for addressing the research question(s) after the research method is chosen, there are four major components that researchers should take into consideration: the research question(s) and objectives, the extent of existing knowledge, the amount of time and other resources available, and philosophical underpinnings (Saunders *et al*., 2009). Thus, a survey is the most suitable research strategy to adopt in this research project, based on those four criteria and this research strategy has been used extensively in other studies (see, for example, Bojica and Fuentes, 2012; Jayaram *et al*., 2014; Yli-Renko *et al*., 2001).

A further matter to consider in using a survey as the research strategy is the research instrument. Survey research can be administered through a structured interview or self-completion questionnaire. Figure 3.2 outlines two main modes that are highly recommended for survey research (Bryman, 2012).

As the research questions and hypotheses of this research project have been developed from previous studies in the existing literature within a limited time frame, budget, and useful resources; a self-completion questionnaire through a web-based channel was more appropriate to employ for data collection. By using the web-based survey, the researcher can design the questionnaire, set filters and functions to each question, store the respondents' answers in an online database, and export the data into a statistical software and analysis program for data analysis (Callegaro *et al*., 2015).

Figure 3.2: Two main modes of a survey research instrument



Source: Bryman (2012)

3.1.5 Ethical implications

Inevitably, it is essential to address ethical concerns related to this research project to prevent conflicts and reduce the risk of harm to all respondents. Therefore, four key ethical principles were conducted before carrying out data collection, as suggested by the Faculty of Arts and Social Sciences and Lancaster Management School's Research Ethics Committee (FASS-LUMS REC).

First, the participant information sheets (see Appendix 1), which contain brief information about the research project, its primary purposes, guidelines to the questionnaires, data protection principles, and contact details of the researcher, supervisors, and head of department were given to all respondents in order for them to decide whether or not to take part in the survey. Second, before all participating respondents could begin the first question, they were requested to confirm that they had already read and understood all data protection principles, and give their consent for the use of responses, by ticking given boxes on the questionnaire's front page. Third, this study's data collection is designed to protect the anonymity and confidentiality of all participating respondents, and all collected data are kept securely in a private laptop computer with a passcode and fingerprint entry security. Also, no participating corporations and respondents can be identified under any circumstances. Fourth, this research provides all participating respondents with the right to withdraw their will in completing the questionnaire at any time by closing the browser to exit the survey page. Most importantly, this research project's questionnaires have been reviewed and approved by FASS-LUMS REC before conducting the collection of data in Thailand.

3.2 Research settings and data collection

Once a means for data collection has been chosen, the following step are needed to justify what data is to be collected and where from. It is a commonplace principle that when the researchers are about to gather data, identifying a group of the respondents is the beginning process of data collection (Bryman, 2012).

3.2.1 Population and sample

The development of new technologies in the globalisation era, has resulted in countries, specifically in South-east Asia becoming major manufacturers and emerging markets as the region is not only more integrated but also low-cost of production is available. (Hsu *et al*., 2014). In the past few years, there has been a growing market in Thailand where entrepreneurship and innovation strategies are utilised to increase firms' competitiveness, due to the Thailand 4.0 development plan of the Thai government in stimulating domestic industries (Thailand Investment Review, 2017).

Together with the World Bank Report (2017), Thailand's economic growth for the full year was projected to be 3.5% in 2017 and expected to grow further to 3.6% in 2018. In 2019, the Thai economy grew by 3.8% and was anticipated to rise to 3.9% by 2020 (World Bank, 2019b). The manufacturing industry is a second to the agriculture sector in the Thai economy according to the Thailand Investment Review (2017), which is an impressive data source filled with fruitful information and resources in examining the research interests for this project.

This research project focuses primarily on large organisations. According to a study of the critical antecedents to facilitate corporate entrepreneurship, the availability of crucial resources such as human, social, and financial capital are likely to impact the firm's decision to engage in new corporate ventures (Wiklund and Shepherd, 2008). These resource stocks affect the firm's entrepreneurial outcomes, and larger organisations tend to possess more resources than smaller enterprises (Nason *et al*., 2015). Furthermore, based on a summary of important information of previous articles

in corporate venturing literature reviewed by Nason *et al*. (2015), this research project is in line with other corporate venturing studies, as more than 50% of listed research studies have focused on firm size (see Table 2.7).

Besides, there are three main sampling criteria used in this study. First, the participating firms should employ more than 200 full-time employees to ensure that the sample falls in the category of large manufacturing entities based on TSIC. Although the European Union has recommended that SMEs' upper limit of numbers of full-time employees is 250 employees, there are no standard regulations on defining SMEs, as each country regards SMEs' size differently (OECD, 2002). For example, the maximum number of full-time employees in US SMEs is 500 (Rosenbusch *et al.,* 2011), while SMEs in China can employ up to 2,000 employees (Tang and Tang, 2012). This study defines large enterprises as an existing firm with more than 200 full-time employees, following the definition of large manufacturing firms in Thailand, followed by other studies (Rujirawanich, Addison and Smallman, 2011). Second, the participating firms should be domestically owned rather than subsidised by foreign corporations to confirm that they have full authority on strategic decision-making (De Clercq *et al.,* 2015). Third, they should have previously invested in corporate venturing activities because it is essential to examine their corporate venturing experience (Yang *et al*., 2013).

In corporate entrepreneurship and corporate venturing literature, several studies received a 15% to 25% response rate and employed more than 100 usable surveys for their data analysis (Bojica and Fuentes, 2012; Yli-Renko *et al*., 2001). By considering the quantity of returned responses from surveys by other relevant studies, a total sample of 1,000 large manufacturing firms that were registered as limited companies were

randomly selected by applying those three sampling criteria from the Business Data Warehouse database of the Department of Business Development of Thailand. This database is regulated by the Ministry of Commerce of Thailand, which has full and direct authority to control the registration of businesses and affirm official documents for businesses in Thailand, and it has been used previously in management research by Ussahawanitchakit (2017).

3.2.2 Questionnaire design

A key-informant technique was utilised to collect data due to the fact that they are the most comprehensive source of knowledge who can provide accurate and valid information about their working experience, organisations' characteristics, strategies, and performance (Ucbasaran *et al*., 2010). In this research project, CEOs and GMs are the key respondents as they are the most knowledgeable informants who have direct responsibilities for strategic planning, decision-making, performance monitoring, and other related roles within the firm (Chen *et al*., 2014; Thanos *et al.,* 2017).

Two separate questionnaires were then developed for CEOs (see Appendix 2) and GMs (see Appendix 3) based on their unique expertise, insights, and experience of different assigned tasks in organisations. Specifically, the questionnaire for CEOs was about business environments and the strategic use of corporate venturing; while GMs were asked questions relating to product innovation, shared-organisational vision, cross-functional interface, and knowledge acquisition.

Both questionnaires were categorised in three parts: a cover letter, which described the purposes of the research project, guidelines to the questionnaire, data protection principles, and contact details of the researcher; questions about the company background and respondent profile; and specific questions for CEOs and GMs to examine the research questions.

The questionnaires were initially developed in English and translated into the Thai language by the researcher, a native Thai speaker, to facilitate the understanding and comprehensibility of the respondents in completing the questionnaire (Lengler *et al.,* 2016). To prevent translation problems, two additional Thai PhD students in Linguistics at Lancaster University were requested to carry out back-translation (Huang and Gamble, 2015; Thanos *et al*., 2017. This version was then compared to the original English questionnaire and no major differences were found (Charoensukmongkol, 2016; Chen *et al*., 2014).

To assure that the wording, structure, and format of questions were designed correctly, the two questionnaires for CEOs and GMs were pre-tested through pilot surveys from ten different firms in October 2017, within one month, and these respondents were excluded from the sample (Liu *et al*., 2017). Doing this helps prevent respondents from developing idiosyncratic meanings caused by ambiguous questions (Cardon *et al*., 2013; Gunday *et al*., 2011). The pilot study's feedback led to minor changes in terms of phrasing and wording of items in the Thai language for the final version of the questionnaire in discussion with two Thai PhD students in Linguistics.

3.2.3 Data collection

In this research project, two rounds of data collection were conducted by using a self-administered questionnaire through the web-based platform. The first round was implemented to obtain data for the investigation of the research questions. The second was purposefully for the test of a single-informant bias, which will be explained in detail on section 3.2.6, an examination of potential biases.

After randomly selecting 1,000 large manufacturing firms in different industries from the Business Data Warehouse database from the Department of Business Development of Thailand, based on the TSIC, phone calls to each firm were made by the researcher in Thailand to elucidate three main subjects. First, to explain the importance and main purposes of this research project, clarify data protection principles, and firmly guarantee that their names would not be identified under any circumstances in the thesis. Second, to inquire about the internet accessibility at the firms and check if the key informants could access an external web-based URL to complete the questionnaire online in their offices. Third, to ask for their confidential participation and confirm their contact details if they would like to cooperate with the researcher to complete the questionnaire. This resulted in a random sample of 915 Thai manufacturing firms as 85 firms were excluded due to the lack of qualifications mentioned above.

This research gathered data through the use of the web-based survey instrument provided by Lancaster University called Qualtrics, which has been used in diverse fields (e.g. Albliwi *et al*., 2017; Ozdemir *et al*., 2017; Yoon and Chapman, 2016). This software tool allows the respondents to complete surveys online by smartphones,

tablets, and laptops; and their responses are also directly stored in an online database for statistical analysis (Sakshaug *et al*., 2010).

After the first telephone contact, the participant information sheet and the URL for the Qualitrics survey were attached to the invitation emails and sent to the firms' given email addresses. A follow-up phone call was conducted to ensure that the organisations correctly received and forwarded emails to their CEOs and GMs when the invitation emails were sent to the firms. The first email reminder was sent four weeks after the initial distribution to the firms. The second email reminder was sent four weeks after the first email reminder had been performed. The total number of responses received based on the email reminders is shown in Table 3.5.

Table 3.5: Responses received based on the email reminders

Received responses from GMs		
	Time frame	**Responses**
Initial email distribution	Late November 2017	145
First email reminder	Early January 2018	46
Second email reminder	Early February 2018	14
	Total	**205**

Received responses from CEOs		
	Time frame	**Responses**
Initial email distribution	Late November 2017	126
First email reminder	Early January 2018	56
Second email reminder	Early February 2018	17
	Total	**199**

The sample for analysis after deleting unmatched, unengaged, and missing cases comprised of 190 useable questionnaires, for an effective response rate of 20.7%. The sample size corresponds with other studies in corporate entrepreneurship and venturing literature (e.g. Bojica and Fuentes, 2012, *n*=215; Burgers *et al*., 2009, *n*=240; Chen *et al*., 2014, *n*=151; Haar and White, 2013, *n*=158). The sample distribution of participating respondents and firms is shown in Tables 3.6 and 3.7(A-B) respectively.

Table 3.6: Sample distribution of the participating respondents – by gender, work experience (in years), and level of education

	Frequency		**%**	
	GMs	CEOs	GMs	CEOs
Gender				
Male	105	118	55.3	62.1
Female	85	72	44.7	37.9
Work experience (in years)				
1-10	23	9	12.1	4.7
11-20	114	79	60.0	41.6
21-30	51	70	26.8	36.9
31-40	2	32	1.1	16.8
Level of education				
No formal qualifications	0	17	0	8.9
Diploma lower than bachelor's degree	0	21	0	11.1
Bachelor's degree	96	73	50.5	38.4
Master's degree	94	79	49.5	41.6
***n* = 190**				

Table 3.7(A): Sample distribution of the participating firms – by firm age (in years)

Firm age (in years)	Frequency	%
0-20	29	15.3
21-40	92	48.4
41-60	59	31.1
61-80	10	5.2
***n* =190**		

Table 3.7(B): Sample distribution of the participating firms – by the classification of primary product line based on TSIC

Manufacturing sectors	Frequency	%
Food	21	11.1
Beverage	24	12.6
Textile	15	7.9
Clothing	18	9.5
Footwear and Leather	7	3.7
Wood	11	5.8
Paper	15	7.9
Chemical	3	1.6
Rubber and Plastic	10	5.3
Computing and electronics	24	12.6
Electrical device	17	8.9
Machinery and equipment	13	6.8
Automotive	3	1.6
Furniture	9	4.7
***n* =190**		

In total, the first round of data collection was conducted in 2017/2018 within a period of five months from October 2017 to February 2018. The second round of data collection to test for a single-informant bias was performed from May 2018 to July 2018.

3.2.4 Measures

This research project employed previously tested, and established scales from top management and business journals, used widely in the literature as "the use of valid and reliable scales reduces measurement error and, therefore, increases the probability of researchers identifying significant relationships (that indeed exist) in their studies" (Kustova *et al*., 2011, p. 17). However, an appropriate measurement scale for the use of SCV is not available in existing literature currently. Therefore, several steps were taken for the development of measurement items for this construct, which have been previously performed by several scholars (see, for example, DeVellis, 2012; Gunday *et al*., 2011; Hornsby *et al*., 2002; Hornsby *et al*., 2013; Jansen *et al*., 2005; Jaworski and Kohli, 1993; Lages and Lages, 2004; Lumpkin and Dess, 1996). A summary of the measures and items used in this study is shown in Appendix 4. The reliability and validity test of this study is presented on section 3.2.5, reliability and validity of constructs.

Dependent variables

Product innovation (Cronbach's alpha = 0.87): The scale to measure the extent to which the firm has achieved its product innovation was taken from the study of Jayaram *et al*. (2014). The measurement scale consisted of four items which were developed by Akgun *et al*. (2009), Gunday *et al*. (2011), Yamin *et al*. (1997) and adapted by Jayaram *et al*. (2014). The respondents were asked to provide answers regarding four main characteristics of the firm's product innovation in the past three years: (1) new components, (2) new materials, (3) new technologies in the products, and (4) new product features. This four-item scale was rated by using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha value of this four-item scale is above 0.80, indicating high internal reliability (Jayaram *et al*., 2014).

Knowledge acquisition (Cronbach's alpha = 0.84): This scale measures the firm's degree of knowledge through the relationship with its new corporate venturing activities. A four-item scale developed by Yli-Renko *et al*. (2001) and adapted by Bojica and Fuentes (2012) was used in this research project to measure this construct. The respondents filled in the questionnaire using a 5-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". An example of one the items included was, "Through the relationship with new businesses, we access more knowledge about the market and obtain information about our client's necessities and tendencies". Cronbach's alpha coefficient of this scale is reliable as the values calculated are above 0.80 from both studies (Yli-Renko *et al*., 2001; Bojica and Fuentes, 2012).

Independent variable

SCV (Cronbach's alpha = 0.84): As there is no existing scale for assessing the use of SCV, this study has conducted several steps to develop the measurement items. It relied on a comprehensive review of the use of SCV in the corporate entrepreneurship and corporate venturing literature (see, for example, Burgelman and Grove, 1996; Covin and Miles, 2007; Eisenhardt and Brown, 1999; Hitt *et al*., 2002; Lovas and Ghoshal, 2000; Meyer and Heppard, 2000; Miles and Covin, 2002; Thornhill and Amit, 2001).

First of all, the researcher independently reviewed existing literature in the use of SCV and relevant fields and generated a large pool of measurement items to tap the domain of the construct (Covin and Miles, 2007). The unique items that were built to correspond to other items were then selected for inclusion from the pool of items (Thornhill and Amit, 2001). At the second step, the initial measurement scales were discussed with the researcher's supervisors and academic colleagues for further improvements. Next, the researcher conducted a pre-test survey with ten CEOs, whose roles and responsibilities are to make major business decisions, set strategic plans and goals, formulate corporate strategy, and support the whole organisation to achieve its vision and mission from different manufacturing firms in Thailand. The pre-test surveys asked all CEOs to complete the questionnaire and indicate any ambiguity or other difficulties they experienced in responding to the items as well as offer advice for improvement on the quality that they deem appropriate (Cardon *et al*., 2013; Miles and Covin, 2002). At the fourth step, the researcher modified the items based on the feedback received from the CEOs. Most CEOs commented that the wording and sentence structure of some questions were difficult to understand as they were not familiar with some vocabulary.

Then, all feedback received from the CEOs was carefully used to improve the questionnaire. Specifically, the questionnaire items were re-worded to make them clear and easy to understand by the respondents. Lastly, a revised version of the questionnaire was discussed with the researcher's supervisors to finalise the measurement items.

To measure the strategic use of corporate venturing, the respondents were asked to indicate the extent to which the firm has engaged in the use of SCV within the past three years: (1) the company aligns corporate venturing with its corporate strategy; (2) the company uses corporate strategy to specify corporate venturing activities; (3) the company has a fairly clear corporate strategy to promote corporate venturing activities; and (4) the company often supports corporate venturing activity that conforms to corporate strategy. These items were measured using the aforementioned five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Moderating variables

Market turbulence (Cronbach's alpha = 0.88): A six-item scale to measure market turbulence was developed by Jaworski and Kohli (1993), captured the extent to which a firm experiences the change of customers' trends and preferences in the current market. The examples of the scales are: in their kind of business, customers' product preferences change quite a bit over time; their customers tend to look for new products all the time; and sometimes their customers are very price-sensitive, but on other occasions, price is relatively unimportant. This scale for an examination of market turbulence was assessed by using a five-point Likert scale, anchored by 1 = strongly disagree and 5 = strongly agree. These six items have been adopted previously by many

scholars in measuring market turbulence with similar Cronbach's alpha values greater than 0.70 (see, for example, Calantone *et al*., 2003; Danneels and Sethi, 2011; Engelen *et al*., 2015; Lichtenthaler, 2009; Wilden and Gudergan, 2015).

Cross-functional interfaces (Cronbach's alpha = 0.90): This scale taps into the extent to which the firm adopts cross-functional teams and temporary work groups in coordinating knowledge flows internally. The respondents were asked to indicate on a five-point rating scale from 1 = strongly disagree to 5 = strongly agree in relation to seven items, for example, employees are regularly rotated between different functions; there is regular talk about possibilities for collaboration between units; and our organisation coordinates information sharing between units through a knowledge network. This variable was assessed by the use of a seven-item scale from Jansen *et al*. (2009), which has been employed in several studies with similar Cronbach's alpha values (see, for example, Burgers and Covin, 2016; Burgers *et al*., 2009).

Shared-organisational vision (Cronbach's alpha = 0.85): A five-item scale captures the extent to which the firm has a common purpose and shared goals that all organisational members commit to and follow. This scale was taken from Burgers *et al*. (2009) and used previously in the literature with a high level of reliability (above 0.80) (see, for example, Burgers and Covin, 2016). This variable was measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree for five questions in the survey, for example, there is commonality of purpose in my organisation; there is total agreement on our organisational vision; and all organisational members are committed to the goals of this organisation.

Control variable

This research project controlled for potential influences of a firm's age as, based on previous studies, an older firm may have inertia within its organisational systems than a younger firm, which discourages it from developing or participating in new corporate ventures (see, for example, Burgers and Covin, 2016; Burgers *et al*., 2009; Zahra and Hayton, 2008). Firm age was measured by the log of the number of years since its founding (Jansen *et al*., 2006). Although a firm size is widely used as a control variable in management studies, this study focuses specifically on large corporations due to the sufficient resources for corporate venturing, which is explained earlier in section 3.2.1 population and sample (Nason *et al.,* 2015; Wiklund and Shepherd, 2008). Additionally, this research examines the manufacturing industry, which is technology-based, to explore a firm's product innovation and organisational learning. Therefore, the impacts of firm size and industry on the research model are not controlled in this study.

3.2.5 Reliability and validity of constructs

Because research analysis is the most significant and challenging stage in completing the research project, a method used to produce research findings is therefore recommended to adopt from a widely accepted statistical software programme among quantitative researchers (Easterby-Smith *et al*., 2018).

Notably, IBM SPSS Statistics is a comprehensive combination of statistical tools, which provides a wide range of advanced statistics features and techniques in managing data, performing analysis as well as testing hypotheses. In addition, this statistical software

has been used frequently by various management and business researchers (see, for example, Chen *et al*., 2014; Hornsby *et al*., 2013; Huang and Gamble, 2015; Liu *et al*., 2017; Thanos *et al*., 2017). Thus, this research used several key attributes of SPSS Statistics software in exhibiting different tests and analysis of collected data in this research project.

The level of construct reliability and validity can determine the quality of quantitative studies as they are key indicators of the measures' effectiveness in testing hypotheses and analysing data (Jansen *et al*., 2005). Even though these two terminologies are often used interchangeably and tend to share similar features and characteristics, reliability and validity have their own specific meanings to reflect the evaluation of measures and constructs (Saunders *et al*., 2009).

Reliability is basically concerned with the stability of measures to yield consistent findings; it is, "the consistency of measurement in a composite variable formed by combining scores on a set of items and can be measured by Cronbach's alpha coefficient" (Easterby-Smith *et al*., 2018, p. 110). Cronbach's alpha coefficient is the most common test of internal reliability in quantitative research to examine the internal consistency of the measurement scales used in the research, which can range from 0.0 (denoting no internal reliability) to 1.0 (denoting perfect internal reliability) (Bryman, 2012; Hair *et al*., 2014). Several quantitative papers recommended the values 0.70 as a generally agreed Cronbach's alpha coefficient to represent an acceptable level of internal reliability, which can be tested by using SPSS software (Hair *et al*., 2014; Kline, 1999; Sekaran, 2003).

The Cronbach's alpha values for all measurement scales employed in this research project ranged from 0.84 to 0.90 (see, Table 3.8), which exceeded the widely used cut-off of 0.70 suggesting that they are sufficiently reliable and acceptable.

Table 3.8: A summary of construct reliability and validity

Variable name	Numbers of items	Cronbach's alpha values	Composite reliability	Average variance extracted	Maximum shared variance
Product innovation	4	0.87	0.88	0.65	0.06
SCV	4	0.84	0.84	0.57	0.07
Market turbulence	6	0.88	0.88	0.56	0.07
Knowledge acquisition	4	0.84	0.85	0.58	0.02
Cross-functional interfaces	7	0.90	0.90	0.57	0.02
Shared-organisational vision	4	0.85	0.85	0.54	0.02

Validity, on the other hand, refers to "the extent to which a scale or set of measures accurately represents the concept of interest" (Hair *et al*., 2014, p. 124). To assess the construct validity of all items, this research conducted exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) as often used by several authors (e.g. Burgers *et al*., 2009; Chen *et al*., 2014; Gunday *et al*., 2011; Jayaram *et al*., 2014; Souitaris and Maestro, 2010).

EFA was carried out in SPSS to investigate factor structure and internal consistency of all measurement items. From EFA analysis, each item was loaded only on its intended factor (see Appendix 7). In addition, it is important to ensure that the factor loading for

each item exceeds the suggested cut-off point. Based on this study's sample, the factor loading of 0.40 and above are considered practical for the sample size of 200 (MacCallum *et al*., 1999). In this study (n=190), all factor loadings are greater than 0.65, indicating a significant level of convergent validity.

In addition, the Kaiser-Meyer-Olkin (KMO) test, a measure of sampling adequacy is above 0.70 and the result of the Bartlett's Test of Sphericity is significant ($p < 0.05$), reporting that the factors meaningfully correlate to one another (Kaiser and Rice, 1974), as shown in Appendix 8.

Next, the communalities, a measure of the extent to which each item correlates with all measurement items in the model, are greater than 0.50, an accepted value to load and yield significantly (Field, 2018) (see Appendix 9).

Furthermore, the total variance explained is above the recommended value of 60%, and all factors also have eigenvalues greater than one, which is considered as significant (see Appendix 10) (Hair *et al*., 2006).

After that, CFA was practiced to confirm the EFA's factor structure by using AMOS 24. The result of CFA on all measurement items illustrated that all factors of the research model fitted the data well (x^2/df = 1.50; IFI (incremental fit index) = 0.93; comparative fit index = 0.93; RMSEA (root-mean-square error of approximation) = 0.05) by using the thresholds suggested by Hair *et al*. (2010). These fit indices are the key evaluation to reflect model fit as previously performed by several scholars (see, for example, Burgers *et al*., 2009; Jansen *et al*., 2006; Jansen *et al*., 2009)

To further evaluate construct validity and reliability, this research calculated composite reliability (CR), average variance extracted (AVE), and maximum shared variance (MSV), which have been widely used in the literature (see, for example, Gunday *et al*., 2011; Liu *et al*., 2017; Souitaris and Maestro, 2010; Tang *et al*., 2015; Walter *et al*., 2015).

Similar to an examination of Cronbach's alpha coefficient, CR is a measure of internal consistency and it also indicates the degree of convergent validity. The result of CR ranges from 0.84 to 0.90, which is greater than an accepted reliable value of 0.70, high CR explains that the items consistently represent the latent construct (Hair *et al*., 2010).

In addition, this research followed Fornell and Larcker's (1981) method to compute convergent and discriminant validity, which have been used previously in the literature (see, for example, De Clercq *et al*., 2018). For convergent validity, AVE should be greater than 0.5 and lower than CR. The result of AVE ranges from 0.54 to 0.65 and is lower than CR. For discriminant validity, AVE should be greater than MSV and the result of MSV ranges from 0.02 to 0.07, which is much lower than AVE in this study (see Table 3.8).

3.2.6 Examination of potential biases

As the quality of research findings in quantitative studies is heavily based on how to eliminate possible biases, an examination of potential biases is then needed to practice in the early phase before data analysis (Elbanna and Child, 2007; Thanos *et al*., 2017). In management literature, non-response bias, single-informant bias, and common-

method bias (CMB) are the most prominent issues that quantitative scholars put great effort to restrain (see, for example, Burgers and Covin, 2016; Jansen *et al*., 2009). Hence, this study demonstrated an examination of all three potential biases as follows:

3.2.6.1 Non-response bias

Unquestionably, non-response bias is a typical concern among quantitative researchers who rely on self-completion surveys to obtain data, due to its negative effect on the representativeness of the sample of data and quality of data (Goor and Goor, 2007). A commonly used assessment by several quantitative authors to examine non-response bias is to compare the mean of demographic characteristics of early and late waves of returned responses (see, for example, Jayaram *et al*., 2014; Thanos *et al*., 2017, Yang *et al*., 2013).

Similarly, this research project evaluated non-response bias by testing the differences between respondents (early respondents) and non-respondents (late respondents) through the comparison of early (responses received without reminder) and late respondents (responses received after the first email reminder) in terms of firm age. This approach aligns with the assumption that the respondents who required more time and reminders to complete the questionnaire are similar to non-respondents (Armstrong and Overton, 1977). A *T*-test of firm age showed no statistically significant difference between early-wave and late-wave groups of respondents ($p > 0.05$), indicating that non-response bias was not an issue in this study (T-values = 0.41; Sig. (2-tailed) = 0.67; df = 188).

3.2.6.2 Single-informant bias

It is important to ensure that the perspectives of participating respondents in survey-based research do not drive the responses, a single-informant bias should be properly examined (Burgers *et al*., 2009; Thanos *et al*., 2017). Although the collection of predictor and criterion measures was from different respondents (CEOs and GMs) in this study, gathering information from a single rater for both questionnaires in each firm can cause a single-informant bias explained above. Therefore, the researcher attempted to request a second respondent from participating firms to fill in the same questionnaire as the second round of data collection in Thailand in order to examine single-informant bias (Elbanna and Child, 2007).

The second round of data collection took place from May 2018 to July 2018. Phone calls were made to 190 firms, which were used as the sample for data analysis after deleting unmatched, unengaged, and uncompleted cases. These phone calls were made to explain the importance and the main purpose of data collection from a second respondent of each responding firm: members of an executive team and senior managers, to stress that the participants' cooperation would contribute to the completeness of this research project, and to ask for the firms' willingness to participate in the survey. After the discussion with 190 firms, 180 kindly agreed to take part in the second round of data collection. At the next step, an invitation email with the attachment of the participant information sheet and the URL for the Qualitrics survey was sent to the firms' email addresses. Together with the invitation emails, for the second round of data collection, the researcher noted that the questionnaires were specifically for a member of an executive team and senior manager because they are the most

knowledgeable employees who deal with management decision-making, strategic management, and strategic planning on a daily basis (Chang *et al*., 2010).

After the invitation emails were sent to the firms, the researcher conducted a follow-up phone call to check if they had received it and passed it to the right targeted respondents. The first email reminder was sent three weeks after the first invitation emails and the second email reminder was delivered three weeks after the first email reminder. The number of questionnaires returned by the email reminders for the second round of data collection is shown in Table 3.9.

Table 3.9: Responses received for the second round of data collection

Received responses from senior managers		
	Time frame	**Responses**
Initial email distribution	Early May 2018	115
First email reminder	Early June 2018	45
Second email reminder	Early July 2018	15
	Total	**175**

Received responses from members of an executive team		
	Time frame	**Responses**
Initial email distribution	Early May 2018	95
First email reminder	Early June 2018	64
Second email reminder	Early July 2018	14
	Total	**173**

In total, the sample used for the test of a single-informant bias consisted of 154 useable questionnaires, which accounted for an 85.6% effective response rate after removing unmatched, unqualified, and uncompleted responses.

Accordingly, this research compared the responses from two groups of the respondents (CEOs versus members of an executive team and GMs versus senior managers) according to the independent and dependent variables. The comparisons between the two groups of the responses from different rounds of data collection indicated that the views of CEOs and GMs did not influence the results as there were no statistically significant differences between the mean of the dependent and independent variables among the two groups of the participating respondents ($p > 0.05$). Therefore, a single-informant bias is not a problem in this study as confirmed by the tests presented in Table 3.10(A-B).

Table 3.10(A): Single-informant bias test for the independent variable (CEOs versus members of an executive team)

Variable name	T-values	df	Sig. (2-tailed)
Strategic corporate venturing	-1.83	153	0.06

Table 3.10(B): Single-informant bias test for dependent variables (GMs versus senior managers)

Variable name	T-values	df	Sig. (2-tailed)
Product innovation	-1.63	153	0.10
Knowledge acquisition	1.82	153	0.07

3.2.6.3 Common-method bias

CMB or common-method variance (CMV) refers to "variance that is attributable to the measurement method rather than to the constructs the measures represent" (Podsakoff *et al*., 2003, p. 879). The influences of CMB may threaten the trustworthiness of the result if there is no efficient procedure conducted to cope with this issue (Babin and Zikmund, 2016). Potential problems might occur because CMB can cause a systematic measurement error to inflate or deflate the main observed relationship and create a false internal consistency in shaping correlations among variables (Chang *et al*., 2010).

According to the existing management literature, two major approaches are widely applied to control this CMB, namely procedural and statistical remedies (Chang *et al*., 2010; Fuller *et al*., 2016; Podsakoff *et al*., 2003; Podsakoff *et al*., 2012; Williams *et al*., 2010). Therefore, this research adopts several techniques from both approaches, but mostly relies on procedural remedies in this research project due to their true features in eliminating the source of potential threats of CMB as recommended by many scholars in the literature (Chang *et al*., 2010; Podsakoff *et al*., 2012; Williams *et al*., 2010).

The first approach is procedural remedies, which are supposed to be implemented in the research design stage before data collection. The most appropriate way to avoid CMB is to collect responses for the measures of the predictor (independent) and criterion (dependent) variables from different sources or raters (Chang *et al*., 2010). This is because the potential threat of CMB is strongest when the researcher obtains responses for dependent and independent variables from the same respondent (Podsakoff and Organ, 1986). This is because the respondents can predict the observed relationship and

edit their answers while filling in the questionnaire to meet with the perception of their own concepts (Podsakoff *et al*., 2003).

In this research project, different groups of respondents were asked to obtain data for dependent and independent variables because two versions of questionnaires were purposefully designed for CEOs and GMs to separate those variables in order to minimise the likelihood that the respondents could forecast the main observed relationship. To further explain, CEOs were asked to provide responses for the independent variable, while GMs were asked to provide responses for dependent variables.

In this research project, the purposes, guidelines to the questionnaire, and data protection principles were clearly explained, and respondents were informed that all received responses would be used for research purposes only, no other parties could view recorded responses and no participating firm's name could be identified under any circumstances. In addition, they were informed that there were no right or wrong answers for each question in the cover letter. By implementing these techniques, they could minimise the problem of respondents overrating their answers for the sake of social desirability (Podsakoff *et al*., 2012).

Together, a clear explanation of complex terms was given on the front page of the questionnaire to ensure that the respondents would not create their own interpretations (Fuller *et al*., 2016). Furthermore, all respondents were asked to provide information based on the most important business activities in the past three years in order to avoid

memory and distortion problems, as it was essential for the respondents to recall relevant situations in completing the questionnaire (Miller *et al*., 1997).

Although several techniques had been implemented before collecting data based on the procedural remedies (Chang *et al*., 2010; Fuller *et al*., 2016), providing statistical evidence can strengthen the conclusion that CMB is not a problem in the study. The second approach to deal with CMB is through statistical remedies, which are particularly used after the collection of data. Because this research project intentionally collected data from different respondents for dependent and independent variables to overcome potential problems associated with CMB, it does not specifically require the use of complex statistical corrections as suggested by previous studies (Chang *et al*., 2010; Fuller *et al*., 2016; Podsakoff *et al*., 2003; Podsakoff *et al*., 2012; Williams *et al*., 2010). Thus, Harman's one-factory analysis, the most commonly used technique to address CMB was used to investigate whether variance in the data attributed to a single factor, as Fuller *et al*. (2016) indicated that this post-hoc statistical technique can detect CMB under conditions "for typical reliabilities, CMV would need to be on the order of 70% or more before substantial concern about inflated relationships would arise" (Fuller *et al*., 2016, p. 3197). The result indicated that the total variance for a single factor is less than 50% (see Appendix 5). Hence, it suggests that CMB will not create negative effects on the findings of this research project.

Interestingly, providing the evidence of multiple statistical remedies is recommended as there is no universal agreement in the literature on which statistical approach is the best way to identify the CMB issue (Chang *et al*., 2010). With the use of AMOS 24, the researcher applied a common latent method factor to observe the common variance

among all model variables, connecting it to other variables in the model, calculating the standardised regression weights, and then comparing the model with a latent factor and the model without a latent factor. If the differences are large, it suggests that the authors should be concerned about the potential impacts of CMB on the findings (Johnson *et al*., 2011; Podsakoff *et al*., 2003). The result indicated that the largest difference between the standardised regression weights of the model with a latent factor and the model without a latent factor is 0.10, which is relatively lower than the cut-off point of 0.20 (see Appendix 6). The conclusion can be drawn that there is no serious sign of the negative effects of CMB on the findings of this research project based on both statistical remedies demonstrated and explained above.

3.3 Chapter summary

This chapter has explained three main elements of the research methodology. In the first section, there is a discussion about why internal realism, positivism, a quantitative method as well as a self-completion questionnaire online were employed as the ontology, epistemology, research method, and means for data collection of this study. Second, the selection of population and sample, measures, design of the questionnaires, and processes of data collection in Thailand have been thoroughly clarified. 1,000 large manufacturing firms were randomly selected from the Business Data Warehouse database from the Department of Business Development of Thailand for data collection. After data screening to remove unmatched, unqualified, and unengaged responses, 190 questionnaires were useable for data analysis, for an effective response rate of 20.7%.

Third, the justification of the data analysis method has been made, together with the test of construct reliability and validity and an examination of potential bias such as non-response bias, single-information bias, and CMB through SPSS Statistics and AMOS 24. Several techniques were operated to control and minimise possible confounding effects of these potential biases on the result. Overall, all measures and scales are ready for analysis in the following chapter based on the tests and assessments conducted and presented in this chapter.

CHAPTER FOUR: DATA ANALYSIS AND RESULTS

The examinations of reliability and validity through SPSS and AMOS 24 presented in chapter three provide supportive evidence to assert that the model variables are well fitted and ready for hypothesis testing. Hence, the primary purpose of chapter four is to demonstrate statistical analysis methods and techniques in testing the proposed hypotheses and report findings with interpretations concurrently. This chapter shows the findings of the descriptive statistics, correlation coefficients, and multicollinearity test. Then, the last section of the chapter presents the results of the statistical analysis for the proposed hypotheses.

4.1 Descriptive statistics and correlation coefficients

Table 4.1 presents the descriptive statistics (means and standard deviations) and correlations among the model variables. In this study, Pearson's correlation coefficients are used to examine the relationship between two variables. According to Field (2018), the correlation coefficients are varied from -1 (when one variable changes, the other variable changes in the opposite direction) to +1 (when one variable changes, the other variable changes in the same direction). However, this does not indicate that the changes in one variable cause the other variable to change. A coefficient of +1 reveals that the variables are positively correlated, while a coefficient of -1 presents a negative relationship, and a coefficient of zero represents no linear relationship.

The table of descriptive statistics below provides a basic understanding of the data in this study. It gives a simple summary of the centre of a distribution of scores and estimates of the average variation of a set of data. The values of means in Table 4.1 are close to the means reported in the existing literature. For example, the result of the mean of knowledge acquisition is 4.74, as shown by Bojica and Fuentes (2012). The value of the mean of shared-organisational vision is 5.73, as reported by Burgers *et al*. (2009). Additionally, the mean of cross-functional interfaces is 4.21, as presented by Jansen *et al*. (2009).

The correlation matrix (see Table 4.1) shows the results of correlation coefficients between the model variables, and each matrix's cell demonstrates whether the two variables are correlated. Table 4.1 uncovers that the independent variable (SCV) is positively related to the dependent variable (product innovation) at the significance level of 0.01. The independent variable also positively correlates to the moderating variable (market turbulence) at the significance level of 0.01.

Table 4.1: Means, standard deviations (SD), and correlations

	Mean	**SD**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
(1) Firm age (log)	3.51	0.41	1						
(2) Strategic corporate venturing	3.87	0.86	0.13*	1					
(3) Product innovation	3.93	0.85	0.09	0.24**	1				
(4) Knowledge acquisition	3.92	0.81	-0.08	-0.03	0.09	1			
(5) Market turbulence	3.99	0.78	0.00	0.23**	0.13*	0.08	1		
(6) Shared-organisational vision	4.01	0.75	-0.03	-0.11	-0.05	0.14*	-0.01	1	
(7) Cross-functional interfaces	3.91	0.79	-0.03	0.13*	0.06	0.06	0.10	-0.03	1

N = 190

*$p < 0.10$; **$p < 0.01$ (all two-tailed test)

4.2 Multicollinearity test

Equally importantly, it is significant to examine the model variables' multicollinearity before testing the proposed hypotheses. The multicollinearity test helps to identify the extent to which one variable can be explained by other variables or closely related, which leads to the problems of the interpretation of relationships (Field, 2018). In short, multicollinearity can create shared variance between variables, diminishing the ability to forecast the dependent measures and discover the relative roles of independent variables (Hair *et al*., 2014).

Two statistical techniques, the construction of the correlation matrix and the computation of variance inflation factor (VIF) and tolerance statistics, are employed in this research project as suggested by Hair *et al*. (2014) and used widely in the literature to investigate potential effects of multicollinearity on the results (see, for example, Burgers and Covin, 2016; Chen *et al*., 2014; Huang and Gamble, 2015).

To begin with, the simplest way to detect the problems of multicollinearity can be diagnosed through the correlation matrix on the independent variables by using a common cut-off threshold of 0.90 and higher, which indicates high collinearity (Hair *et al*., 2014). In table 4.1, the highest correlation coefficient is 0.14 from the relationship between shared-organisational vision and knowledge acquisition. It, therefore, can be concluded that there is no sign of the significant collinearity concerns due to the lack of high correlation values in the correlation matrix.

The next methods used to assess multicollinearity are VIF and tolerance statistic, which are computed to provide additional evidence in detecting multicollinearity issues, and have been employed previously in management research (see, for example, Jansen *et al*., 2006; Thanos *et al*., 2017; Yang *et al*., 2013). VIF and tolerance statistic are the direct measures of multicollinearity, which are used to explain whether the selected variable has a strong linear relationship with other independent variables (Hair *et al*., 2014). A rule of thumb to identify multicollinearity problems by using VIF and tolerance statistic indicates that if the value of VIF exceeds 10, and the tolerance value is lower than 0.10, a severe problem of multicollinearity exists (Field, 2018). In general, the results of these two methods can be reviewed when performing a regression analysis. This research then reports the values of both methods in Table 4.2, the results of hierarchical regression analysis.

According to the results shown in Table 4.2, the model variables are not highly correlated, as the highest value of VIF is 0.98, which is relatively lower than the common cut-off point of 10. Besides, the result of the tolerance statistic in Table 4.2 reveals that the lowest value is 1.02, which is considerably higher than 0.10, a standard cut-off threshold (Field, 2018; Hair *et al*., 2014). As a result, multicollinearity is not a critical concern in this study based on the results of both statistical techniques (correlation matrix, and VIF and tolerance statistic).

4.3 Hierarchical multiple regression analysis

In the literature of entrepreneurship, hierarchical regression is an appropriate statistical analysis to evaluate and estimate contextual research models, as Rauch *et al*. (2009) suggested. Hierarchical regression analysis is a form of multiple regression that allows researchers to enter the variables into each regression model orderly, based on their predetermined conceptual models or previous research, to produce the most appropriate analysis for the study (Field, 2018). As such, this research project employs a hierarchical moderated regression analysis to test the proposed hypotheses. Furthermore, this analysis method has been used by several researchers in the literature (see, for example, Burgers *et al*., 2009; Chen *et al*., 2014; Jansen *et al*., 2006; Thanos *et al*., 2017; Yang *et al*., 2013).

Table 4.2 presents the results of the hierarchical moderated regression analysis and all model variables were mean centred prior to the establishment of interaction terms in the regressions in order to minimise multicollinearity issues (Aiken and West, 1991). This research project employed product innovation and knowledge acquisition as dependent variables, respectively. For each dependent variable, Model 1 contained the control variable and Model 2 demonstrated the main effects of all independent variables on the dependent variable. Finally, Model 3 reported the full model with interaction effects.

Regarding the control variable, it can be observed that firm age does not seem to have any relationships with other model variables as no pair relationship of the variables is significant (see Table 4.2). Besides, the control variable explains 1% of the variation in product innovation. The addition of SCV, market turbulence, cross-functional

interfaces, and shared-organisational vision in Model 2 increases an additional 6% of the variation in product innovation. The full model with interactions in Model 3 shows 11% of the variation in product innovation. Additionally, the control variable explains 1% of the variation in knowledge acquisition, as shown in Model 1. In Model 2, the variables of SCV, market turbulence, cross-functional interfaces, and shared-organisational vision are added, improving the explanation of knowledge acquisition by 3%. Finally, Model 3 incorporates all interactions, which provides an additional 4% of the knowledge acquisition variable. Hypothesis 1(a) proposed that SCV will be positively related to product innovation. As shown in Table 4.2, this relationship is statistically confirmed ($b = 0.15, p < 0.05$, Model 3 of product innovation as the dependent variable), and hence Hypothesis 1(a) is supported. Hypothesis 1(b) proposed that SCV will be positively related to knowledge acquisition. The result from regression analysis indicates that Hypothesis 1(b) is not supported, as the direct interaction is non-significant ($p > 0.05$).

Table 4.2: Results of hierarchical regression analysis

	Product innovation			Knowledge acquisition			VIF	Tolerance
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3		
Firm age	0.21(0.15)	0.14(0.15)	0.15(0.15)	-0.16(0.15)	-0.14(0.15)	-0.14(0.14)	0.98	1.02
Strategic corporate venturing (SCV)		0.22***(0.07)	0.15**(0.07)		-0.03(0.07)	-0.03(0.07)	0.86	1.17
Market turbulence		0.09(0.08)	0.07(0.08)		0.09(0.08)	0.06(0.08)	0.87	1.15
Cross-functional interfaces		0.02 (0.07)	-0.02(0.08)		0.06(0.07)	0.03(0.08)	0.88	1.13
Shared-organisational vision		-0.02 (0.08)	-0.05(0.08)		0.15*(0.08)	0.17**(0.08)	0.96	1.04
SCV * market turbulence			-0.06(0.08)			-0.08(0.08)	0.66	1.52
SCV * cross-functional interfaces			-0.08(0.08)			-0.17**(0.08)	0.64	1.56
SCV * shared-organisational vision			0.20**(0.09)			-0.13(0.09)	0.94	1.06
R^2	0.01	0.07	0.11	0.01	0.04	0.08		
ΔR^2		0.04	0.07		0.03	0.04		
F	1.80	2.67**	2.78**	1.23	1.07	1.29*		

N = 190; Unstandardised beta coefficients are reported with standard errors shown in parentheses; *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Hypothesis 2(a) predicted a positive moderating effect of market turbulence on the relationship between the use of SCV or SCV and product innovation, yet the result shown in Model 3 of product innovation as the dependent variable suggests that the prediction of this moderating effect is non-significant ($p > 0.05$). Thus, Hypothesis 2(a) is not supported. Hypothesis 2(b) predicted a positive moderating effect of cross-functional interfaces on the relationship between SCV and product innovation. The result in Table 4.2 reports that this two-way interaction is non-significant ($p > 0.05$), and hence Hypothesis 2(b) is not supported. Hypothesis 2(c) that predicted a positive moderating effect of shared-organisational vision on the relationship between the SCV and product innovation is supported ($\beta = 0.20$, $p < 0.05$, Model 3 of product innovation as the dependent variable). To further demonstrate a significant interaction of the moderating effect, a simple slop analysis is plotted as it can provide a clear illustration of the interactions (Aiken and West, 1991). This research followed the method used by Bojica and Fuentes (2012), Burgers *et al*. (2009), Chen *et al*. (2014), and Yang *et al*. (2013) and created a plot of the interacting effects of each relationship. Figure 4.1 represents an interaction of SCV and shared-organisational vision on product innovation, which shows a positive relationship between SCV and product innovation when shared-organisational vision is high.

Hypothesis 3(a) predicted a positive moderating effect of market turbulence on the relationship between SCV and knowledge acquisition. The result demonstrates that its interacting effect is not significant ($p > 0.05$), consequently not providing support for Hypothesis 3(a). Hypothesis 3(b) that predicted a negative moderating effect of cross-functional interfaces on the relationship between the use of SCV and knowledge acquisition is supported ($\beta = -0.17$, $p < 0.05$, Model 3 of knowledge acquisition as the

dependent variable). As plotted an interaction of SCV and cross-functional interfaces on knowledge acquisition in Figure 4.2, there is a negative relationship between the practice of SCV and knowledge acquisition when cross-functional interfaces are high.

Figure 4.1: The moderating effect of shared-organisational vision on the relationship between strategic corporate venturing and product innovation

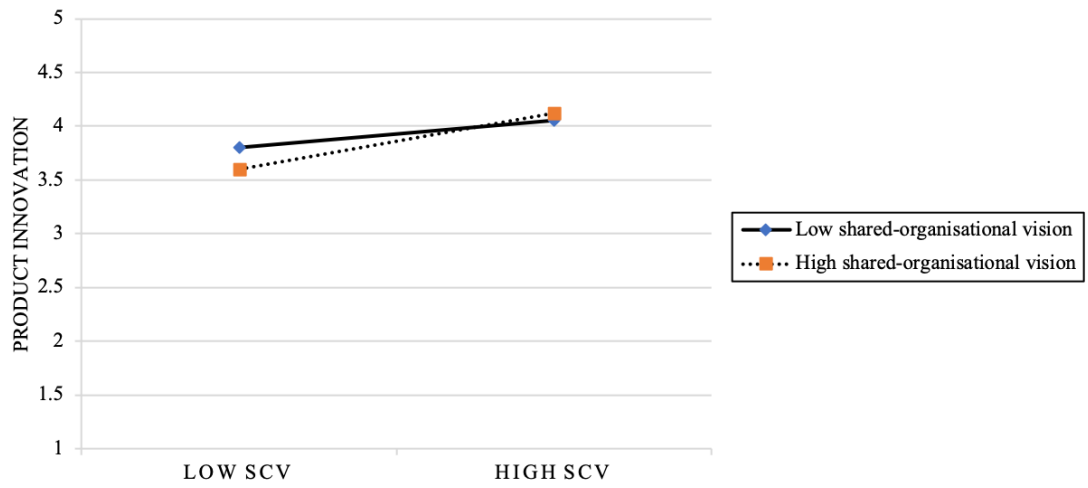
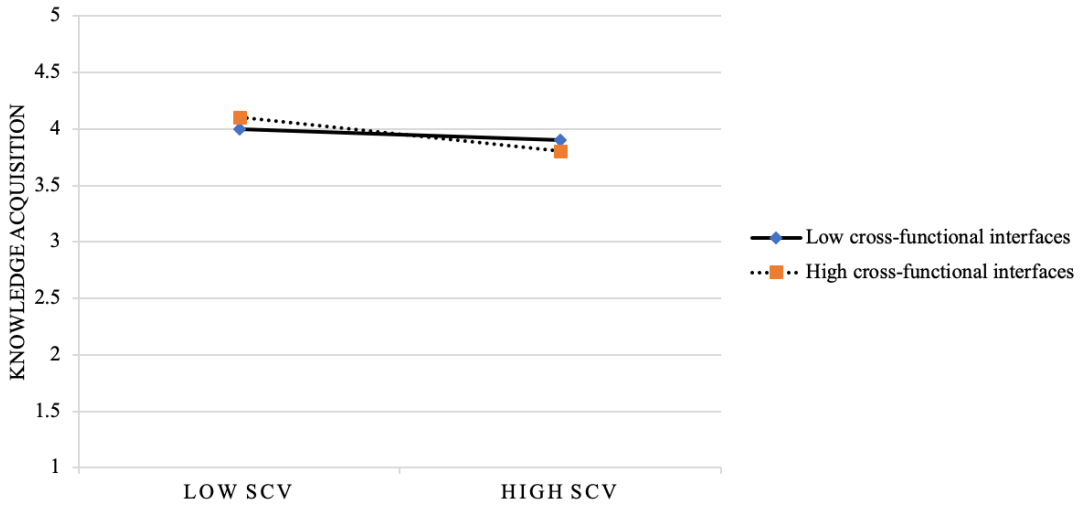


Figure 4.2: The moderating effect of cross-functional interfaces on the relationship between strategic corporate venturing and knowledge acquisition



Hypothesis 3(c) predicted a positive moderating effect of shared-organisational vision on the relationship between the use of SCV and knowledge acquisition. The results show that this interacting effect is not significant ($p > 0.05$), and Hypothesis 3(c) is then not supported.

Furthermore, this study followed Burgers *et al*. (2009) to confirm that the results of the moderating effects of each interaction did not overlap. Then, the research ran additional regressions with one interacting effect at a time to examine whether other interactions had already explained the moderating effects of market turbulence and cross-functional interfaces on the relationship between SCV and product innovation. In the same way, additional regression models were conducted to specifically observe the moderating effects of market turbulence and shared-organisational vision on the relationship between SCV and knowledge acquisition. The findings of additional regressions revealed exactly the same results as those generated by the hierarchical multiple regression analysis shown previously.

For the robustness checks of the findings besides additional regressions, the examination of CMB should be tested, as suggested by Anderson and Eshima (2013), and this study previously presented in chapter three. To briefly explain, the first step to examine the influence of CMB was conducted by using Harman's one-factory technique (Fuller *et al*., 2016). The result reported that CMB is not a concern in this study as the total variance for a single factor accounts for less than 50% (see Appendix 5).

More importantly, the second step was approached by comparing standardised regression weights of the model with a latent factor, to the model without a latent factor,

in order to identify any significant difference in each pair of the relationship among all model variables (Podsakoff *et al*., 2003). The result demonstrated that the largest difference between standardised regression weights of the model with a latent factor and the model without a latent factor is lower than a common cut-off point (see Appendix 6).

As a result, the results of both techniques to evaluate the influence of CMB indicate that the findings of this research project are not materially affected by CMB that might overestimate or underestimate the observed relationships across the research model. It is then plausible to affirm that the statistical analysis and findings of this study denote high credibility.

4.4 Chapter summary

Overall, this chapter has presented the statistical methods in testing all proposed hypotheses. Firstly, this chapter presented descriptive statistics and correlation coefficients. From the correlation matrix, the relationship between SCV and product innovation was found. In the second section, multicollinearity has been tested by using the correlation matrix, and VIF and tolerance statistic to detect this issue. The results reported that multicollinearity was not a serious concern in this study. Last but not least, the hierarchical multiple regression analysis was illustrated to test the proposed hypotheses in this research project. Accordingly, the results reported that there is a positive moderating effect of shared-organisational vision on the relationship between the practice of SCV and product innovation. Furthermore, the hypothesis that predicted a negative moderating effect of cross-functional interfaces on the relationship between

SCV and knowledge acquisition is supported. The summary of the results of hypothesis testing can be viewed in Table 4.3 below.

Table 4.3: A summary of hypothesis testing results

Hypothesis	**Proposed effects**	**Results**
H1(a): SCV → product innovation	+	Hypothesis is supported
H1(b): SCV → knowledge acquisition	+	Hypothesis is not supported
H2(a): SCV*market turbulence → product innovation	+	Hypothesis is not supported
H2(b): SCV*cross-functional interfaces → product innovation	+	Hypothesis is not supported
H2(c): SCV*shared-organisational vision → product innovation	+	Hypothesis is supported
H3(a): SCV*market turbulence → knowledge acquisition	+	Hypothesis is not supported
H3(b): SCV*cross-functional interfaces → knowledge acquisition	-	Hypothesis is supported
H3(c): SCV*shared-organisational vision → knowledge acquisition	+	Hypothesis is not supported

CHAPTER FIVE: DISCUSSION

This chapter aims to provide a detailed discussion of the results presented in chapter four by firstly revisiting the research focus to draw attention to the significance of this study before answering all the research questions. Secondly, there is an illustration of the critical findings. The discussion of findings emphasises on the importance of the research results, with theoretical evidence from previous studies in related fields in supporting the explanations. Then, the following section elucidates the theoretical, methodological, and managerial implications of this study. Lastly, this chapter addresses the limitations to determine the suggestions and opportunities for future research.

5.1 Recapitulation of the research focus

The age of globalisation has had an increasing effect on entrepreneurial processes over the past few decades (Kuratko *et al*., 2015; Ramirez-Pasillas *et al*., 2021; Randolph *et al*., 2019). Its potential impact has changed the nature of how firms create value to achieve a sustained competitive advantage in a new era of uncertainty and opportunity (Bruyat and Julien, 2001; Prugl and Spitzley, 2021). Consequently, firms of all shapes and sizes in every industry are challenged to survive, as the rate of new products and services introduced to the markets is at a breathtaking pace (Covin *et al*., 2015; Hamel, 2000; Kuratko and Morris, 2018). Likewise, there are new forms of organisations occurring and entering the market almost every day (Brumana *et al*., 2017; Chaston and Sadler-Smith, 2012; Priem and Butler, 2001; Shankar and Shepherd, 2019). Recent research has highlighted that entrepreneurial learning and cognitive style are crucial to

the success and failure of the firm to create competitive advantages through innovation (Covin *et al*., 2020).

Entrepreneurship is redefining the development of new products and services, the processes to bring them about, the markets to sell them, and the methods to distribute them (Heavey and Simsek, 2013; Hughes and Mustafa, 2017; Minola *et al*., 2021). Established firms are then forced to strive for innovation and exploit new business opportunities in order to maintain their current market position (Covin *et al*., 2020; LeMeunier-Fitzhugh and Massey, 2019). In addition, several studies suggested that existing companies in a turbulent market environment should not be too inflexible and stubborn to internally adapt themselves (see, for example, Amit and Zott, 2001; Hoy, 2006; Shepherd *et al*., 2017). Otherwise, these organisations can no longer stay in the current industry, if they fail to continually renew themselves and improve their innovative capabilities (Blomkvist *et al.,* 2017).

The field of strategic entrepreneurship plays a major role in achieving economic goals of firms by bridging the creation of new sustained competitive advantages through strategic management with the exploitation of new business opportunities through entrepreneurship (Wright and Hitt, 2017). Simply put, strategic entrepreneurship often occurs when established corporations act strategically and entrepreneurially at the same time. The concept of strategic entrepreneurship is derived from the incorporation of strategic and entrepreneurial knowledge to create new value in this entrepreneurial age (Ireland *et al*., 2003; Minola *et al*., 2016; Shankar and Shepherd, 2019).

A study by Ireland *et al*. (2003) pointed out that companies that are able to recognise new opportunities but cannot exploit them will not achieve their business goals and objectives effectively in creating competitive advantages, which has a negative effect on wealth creation. The researchers suggested that firms should employ an entrepreneurial mind-set to maximise their critical resources in order to acquire innovation that leads to the establishment of sustained competitive advantages and value creation (Hughes and Mustafa, 2017; Ireland *et al.,* 2003; Ramirez-Pasillas *et al.*, 2021).

Although there is no universally agreed form of entrepreneurial activity that best helps firms create competitive advantages in practice, prior studies in entrepreneurship literature demonstrated that corporate entrepreneurship is often seen as a firm-level entrepreneurial activity that focuses on pursuing new business opportunities to sustain innovativeness (Bierwerth *et al.*, 2015; Covin *et al.*, 2020; Kuratko and Morris, 2018). In particular, corporate venturing is seen as the most productive way to enhance entrepreneurial performance in creating new competitive advantages and it is widely used among large corporations throughout the world (Narayanan *et al.*, 2009; Prugl and Spitzley, 2021; Randolph *et al.*, 2019; Shankar and Shepherd, 2019).

To explain in greater depth, corporate venturing activities are usually employed to build new innovative capabilities and create a new platform to learn new knowledge through knowledge acquisition that new business ventures have explored (Covin *et al.*, 2020; Dess *et al.*, 2003; Prugl and Spitzley, 2021; Shankar and Shepherd, 2019). Corporate venturing is reported to enhance better firm performance when the firm strategically practices their entrepreneurial activities (Covin and Miles, 2007; Minola *et al.*, 2016; Shankar and Shepherd, 2019). However, many firms have failed to successfully manage

corporate venturing activities in gaining competitive advantages and consequently left their current market due to severe financial loss (Kuratko and Morris, 2018; Minola *et al.*, 2016). It is then essential to explore a better understanding of potential influences that affect the use of SCV. Thus, the main focus of this study was on how external and internal business environments affect the relationship between SCV and product innovation and knowledge acquisition. This study drew on two firm-level theoretical frameworks by incorporating the resource-based view with the knowledge-based view. Therefore, there are two significant mainstreams that this study contributes to the literature in the field of corporate entrepreneurship.

First, this research is guided by the two aforementioned primary theories to investigate how external and internal business environments influence the effects of SCV on firms' innovation and knowledge acquisition. This is due to the main benefits associated with the use of SCV that can encourage the firms to simultaneously be more innovative by exploiting their limited resources and more knowledgeable by learning new insights from their new ventures (see, for example, Covin and Mile, 2007; Covin *et al.*, 2020; Dess *et al.*, 2003; Narayanan *et al.*, 2009; Shankar and Shepherd, 2019). However, most previous studies have concentrated on a single theoretical perspective to explain this phenomenon (see, for example, Bierwerth *et al.*, 2015; Chen *et al.*, 2014; Minola *et al.*, 2016; Nason *et al.*, 2015; Prugl and Spitzley, 2021; Shankar and Shepherd, 2019). Thereby, this study finds a linkage between the resource based-view and knowledge-based view in order to understand a more complete view of the practice of SCV in achieving firm performance effectively.

Second, the need to discover potential influences that might affect established firms' entrepreneurial performance arises as several existing corporations have experienced a difficult situation to attain the goals of SCV in successfully creating new competitive advantages (Covin and Mile, 2007; Minola *et al.*, 2016; Prugl and Spitzley, 2021). Thus, this study focuses on both environmental and organisational contexts because they are the most important indicators to refine overall performance of the existing firms in this era (Prajogo and McDermott, 2014; Shephard and Ahmed, 2000).

In a turbulent market, where the remaining customers frequently change their demands and preferences, firm performance tends to increase (see, for example, Bodlaj and Cater, 2019; Calantone *et al.*, 2003; Engelen *et al.*, 2015; Wilden and Gudergan, 2015). Apart from that, existing companies that often employ temporary work groups and cross-functional teams to rotate their employees' roles for a specific period of time are likely to better coordinate with different departments, which leads to greater business performance as well as entrepreneurial outcomes (Jansen *et al.*, 2009; LeMeunier-Fitzhugh and Massey, 2019). In addition, the rise of firm performance can result from a high commitment of common purposes and shared goals among employees within the corporation as they have mutual understanding and interests in regard to corporate goals and objectives (Burgers *et al.*, 2009; Eldor, 2020).

This research project contributes a more well-refined understanding of how market turbulence, cross-functional interfaces, and shared-organisational vision influence the effects of the use of SCV on product innovation and knowledge acquisition by drawing on an integration of the resource-based view and knowledge-based view to explicate the above phenomenon. The empirical analysis of this study relies on primary data

collected from large manufacturing firms in Thailand by individually testing three core associations. Firstly, the main effects of the use of SCV on product innovation and knowledge acquisition. Secondly, the moderating effects of external and internal business environments on the relationship between SCV and product innovation. Thirdly, the moderating effects of external and internal business environments on the relationship between SCV and knowledge acquisition.

5.2 Discussion of key findings

This study has statistically tested the moderating effects of market turbulence, cross-functional interfaces, and shared-organisational vision to provide insights on potential influences of SCV on the firm's competitiveness. Based on the received responses from surveys completed by CEOs and GMs of large manufacturing companies in Thailand, empirical evidence has supported some hypotheses of this study.

The first section of the discussion of key findings focuses on the main effect of the use of SCV on the firms' product innovation and knowledge acquisition. After that, the moderating effects of both external and internal business environments on the two main relationships will be individually discussed.

5.2.1 The main effect of strategic corporate venturing on product innovation and knowledge acquisition

This study posited that the use of SCV has an important impact on product innovation among large established corporations. The result provides additional evidence to

support that firms' product innovation is positively driven by SCV, as the study of Chen *et al.* (2014) asserted that corporate entrepreneurship has a significant impact on product innovation performance of the existing firms. Similarly, a recent study by Boone *et al.,* (2019) highlights that corporate entrepreneurship plays an important role to promote innovation among multi-national corporations (MNCs). Thus, the findings of this study are in line with the previous studies that support the view that there is a positive relationship between the firm's entrepreneurial activities and its innovation (Boone *et al.*, 2019; Chen *et al.*, 2014).

This result extends existing knowledge in the sense that the firm that participates in corporate venturing and possesses well-designed corporate strategies to support new venturing activities is likely to enhance its product innovation (Covin and Miles, 2007; Covin *et al.*, 2020; Minola *et al.*, 2016; Shankar and Shepherd, 2019). Furthermore, this study affirms that SCV enables the firms to employ innovation-oriented corporate strategies. When the firms clearly define their goals for innovation and pursuing business venturing projects, it helps them develop new components, features, and technologies of the product, and new materials used to produce the product. As a result, the first key finding of this empirical research suggests that large corporations with the use of SCV have a clearer corporate vision and strategy to promote innovation actions, which will potentially increase their product innovation.

From the resource-based perspective, corporate entrepreneurship acts as one of the most important drivers to accumulate, convert, and leverage valuable resources into competitive advantages (Covin *et al.*, 2020; Hitt and Ireland, 2002; Kuratko and Morris, 2018; Ramirez-Pasillas *et al.*, 2021; Simsek and Heavey, 2011). Notably, the use of

SCV can assist established organisations to gain greater competitive advantages through the pursuit of the firms' new corporate ventures in order to enlarge their current business scopes into a more innovative market (Bierwerth *et al.*, 2015; Covin and Miles, 2007; Heavey and Simsek, 2013; Minola *et al.*, 2016; Priem and Butler, 2001).

Although new business venturing is often claimed to develop additional channels to access information about new markets, technologies, and important know-how (Boone *et al.*, 2019; Keil *et al.*, 2009; Randolph *et al.*, 2019; Schildt *et al.*, 2005), the pursuit of innovation-based strategies has no direct impact on the degree of knowledge acquired by the corporation from its inter-organisational relationships with corporate ventures. Interestingly, Yang *et al.* (2013) found that the objective of corporate venturing has a significant influence on the process of knowledge transfer. It might be possible that the objective of new ventures needs to concentrate on identifying and establishing new knowledge in order to find the main effect of the use of SCV on knowledge acquisition. In addition, De Clercq *et al.* (2015) pointed out that higher levels of internal knowledge-sharing stimulate higher entrepreneurial outcomes among SMEs. Therefore, it is recommended that the firms promote a solid knowledge-sharing mechanism across diverse organizational functions to ease knowledge flows and encourage knowledge acquisition. The second key finding of this study suggests that a firm with an innovation-based strategy cannot enhance higher levels of knowledge acquisition. However, relevant studies request that these corporations have to ensure that their ventures' objectives and internal mechanisms support the knowledge transfer, which facilitates the knowledge flows (De Clercq *et al*., 2015; Thongpapanl *et al.,* 2018; Yang *et al*., 2013).

5.2.2 The moderating effects of external and internal business environments on the relationship between strategic corporate venturing and product innovation

This study examines the influence of market turbulence on the relationship between the use of SCV and product innovation as market turbulence is one of the most powerful changes and uncertainties in the external environments of the existing firm (Bodlaj and Cater, 2019; Jansen *et al.*, 2006; Lichtenthaler, 2009; Prajogo and McDermott, 2014; Song *et al.*, 2005).

In particular, it was found in this research that market turbulence does not moderate the impact of the use of SCV on firms' product innovation. The third key result, thus, suggests that turbulent market conditions may not stimulate the firm to create innovative products. This result contributes to previous studies that theorised the influence of dynamic change on external markets, customers, and innovation (Bodlaj and Cater, 2019; Lichtenthaler, 2009; Wilden and Gudergan, 2015). This study leads to suggest that although the firms' need to strive for the development of new products may rise in dynamic market environments (Danneels and Sethi, 2011), market turbulence does not contribute to affecting the use of SCV on product innovation. A possible explanation for this could be that the creation of product innovation during turbulent markets requires innovation capacity as it helps the firms promote innovative performance among employees (Prajogo and Ahmed, 2006; Prajogo and McDermott, 2014). From this explanation, it suggests that entrepreneurial firms should also pay attention to develop their capacity to promote innovation in dynamic markets.

Interestingly, the empirical findings of the influence of market turbulence on firm performance were mixed and not consistent in the literature (Bodlaj and Cater, 2019; Calantone *et al.*, 2003; Jansen *et al.*, 2006; Jaworski and Kohli, 1993; Lichtenthaler, 2009; Song *et al.*, 2005). This study is in part to investigate the effect of market turbulence on entrepreneurial activities and innovation performance to add insights into the literature. For example, Jaworski and Kohli (1993) found that market turbulence does not have an impact on market orientation and overall business performance. In a similar way, Lichtenthaler (2009) reported a nonsignificant effect of market turbulence on the relationship between absorptive capacity and innovation of the firms. On the other hand, there is a significant impact of market turbulence on the relationship between innovativeness and corporate planning activities (Calantone *et al.*, 2003).

Regarding the role of internal business environments, this study contributes to prior literature concerning the importance of cross-functional interfaces and shared-organisational vision in entrepreneurial firms (Eldor, 2020; Gupta and Govindarajan, 2000; Jansen *et al.*, 2009; LeMeunier-Fitzhugh and Massey, 2019). Its findings indicate that innovative performance is not effective when encouraging the organisational members to rotate their tasks across units and establish a formal communication through this horizontal connection. A possible explanation could be that a sense of freedom and ownership of the entrepreneurial activities among employees are essential when conducting cross-functional interfaces (Burgers *et al.*, 2009). Thus, the fourth key finding of this study suggests that creating cross-functional teams does not assist a firm using an innovation-based strategy to enhance product innovation. On the other hand, the previous study points out that a sense of freedom and ownership of the ventures can promote firm performance when conducting job rotation (Burgers *et al.*, 2009). When

employees perceive a sense of freedom over their corporate venturing, they are likely to produce creative outcomes (Burgers *et al.*, 2009). Therefore, entrepreneurial firms may need to consider providing autonomy to their ventures when conducting cross-functional interfaces. This might increase innovative performance.

In addition to internal mechanisms of the corporations, a well-designed shared-organisational vision is crucial as it helps the firm align its mutual interests and collective goals and values among organisational members (Eldor, 2020; Gupta and Govindarajan, 2000; Subramaniam and Youndt, 2005). The findings of this study suggest that the firms with an innovation-based strategy that aims to promote product innovation should establish a shared-organisational vision among employees. This study contributes to the conceptual assertions that shared-organisational vision is essential to innovation because it helps the firm overcomes organisational boundaries (Burgers *et al.*, 2009; Eldor, 2020; Voss *et al.*, 2006). Hence, the fifth key finding of this study indicates that the existing firm should motivate all organisational members to share common goals and simultaneously use SCV in facilitating product innovation. This finding is also consistent with Burger *et al.* (2009) who recommended a shared sense of organisational vision in creating a mutual direction that the organisational members possess, to enable the firm to share innovative ideas and knowledge with its new ventures more effectively.

5.2.3 The moderating effects of external and internal business environments on the relationship between strategic corporate venturing and knowledge acquisition

In this era, established firms are increasingly interested in learning new knowledge from external sources such as inter-organisational relationships, to enlarge their current knowledge stocks because it can foster the firms' innovation and overall performance (Covin *et al.*, 2020; Boone *et al.*, 2019; Hult, *et al.*, 2007; Kuratko and Morris, 2018; Zollo *et al.*, 2002). The finding of this study indicates that using an innovation-based strategy for knowledge acquisition in a turbulent market is not an effective strategic plan. This implies that the firm with SCV is not likely to acquire more knowledge about the markets, customers, new technologies, and know-know when market turbulence occurs.

Although this study revealed that market turbulence does not affect the use of SCV to promote knowledge acquisition, this knowledge contributes additional evidence as there is an inconclusive agreement on the effect of market turbulence on entrepreneurial performance as well as organisational learning (Calantone *et al.*, 2003; Jansen *et al.*, 2006; Jaworski and Kohli, 1993; Lichtenthaler, 2009; Song *et al.*, 2005; Wang *et al.*, 2015). The sixth key finding of this research project suggests that market turbulence does not influence the use of SCV to access greater new knowledge from new corporate ventures. A possible explanation could be that it is becoming more challenging to receive knowledge transfer from the inter-organisational relationships of the firms when their information capability and collaboration effectiveness are not in place (Wang *et al.*, 2015). It may be the case that the speed of knowledge transfer is intense during dynamic markets, and there is a large pool of information and knowledge to absorb (Jansen *et al.*, 2009). Therefore, it is useful for the firms to develop information capability and effective collaboration before engaging in SCV for knowledge acquisition (Jansen *et al.*, 2009; Wang *et al.*, 2015).

Regarding the influence of organisational contexts, the finding of this study suggests that cross-functional interfaces play a significant role in the use of SCV to acquire new knowledge. At a corporate level, when providing formal communication (i.e. liaison personnel, task forces, etc.), the corporations with an innovation-based strategy is less likely to absorb new knowledge from their ventures. Thereby, the seventh key finding of this empirical research indicates that if the firms want to increase their level of knowledge acquisition, they should provide a relaxed and flexible communication channel when operating SCV. Similarly, Burgers *et al.* (2009) found the effect of structural differentiation on corporate venturing becomes ineffective when managers apply cross-functional interfaces as a formal communication channel to bridge different units. Conflicts between individuals can occur during the process of knowledge transfer, especially in a situation when some organisational units have a low level of interdependence (Repenning and Sterman, 2002). Therefore, the finding of this study is consistent with the previous research in such a way that cross-functional interfaces have a substantial effect on organisational learning.

Next, the findings of this study indicate that a shared-organisational vision does not affect the use of SCV for knowledge acquisition. Hence, it is suggested that the firm with an innovation-based strategy would not learn more knowledge about the markets, customers, and technologies by emphasising employees' commitment to corporate goals. A possible explanation could be that connectedness is needed when the firm aims to achieve entrepreneurial goals as, when the social network is strong internally, it creates a common platform for knowledge sharing (Jansen *et al.*, 2009). Not only that, but it also helps the existing organisation to reduce the likelihood of conflicts associated with employees' understanding (Eldor, 2020; Hansen, 2002). Thus, entrepreneurial

corporations should increase internal interactions and social relations among organisational members before motivating them to have mutual goals and interests. Therefore, the eighth key finding of this study suggests that the firm that applies SCV should not only focus on shared-organisational vision, but connectedness also plays an essential role in stimulating knowledge flows for knowledge acquisition.

In addition, the findings of this study indicate that firm age does not affect the influences of external and internal business environments on the use of SCV to stimulate product innovation and knowledge acquisition. A possible explanation could be that the number of years firms have been established may not indicate the accumulated experience of their entrepreneurial activity (Yang *et al.*, 2013).

In summary, this empirical study applied a quantitative research method to collect data from large manufacturing firms in Thailand and used several statistical techniques for data analysis. Based on this, it further develops the originality and rigorousness of the empirical findings to provide eight significant insights into the main research question about "how the influences of external and internal business environments affect the relationship between the use of SCV and product innovation and knowledge acquisition to gain and achieve sustained competitive advantages among established corporations".

5.3 Research implications for scholars

This current section is divided into two categories addressing research implications for scholars: contributions to the context of theory and research methodology.

5.3.1 Theoretical implications

This study has offered compelling evidence that enhances the understanding of knowledge in the corporate entrepreneurship and corporate venturing literature. In the existing literature, there were few studies conducted to investigate possible influences of both external and internal business environments on the use of SCV in stimulating performance (see, for example, Covin and Miles, 2007, Minola *et al.*, 2016; Narayanan *et al.*, 2009; Phan *et al.*, 2009; Ramirez-Pasillas *et al.*, 2021). The findings of this research have answered how external and internal business environments affect the relationship between SCV and product innovation and knowledge acquisition.

Pursuing innovation and acquiring new knowledge is critical to the effectiveness of the firm's ability in achieving competitive advantages more efficiently (Boone *et al.*, 2019; Covin *et al.*, 2020; Narayanan *et al.*, 2009; Prugl and Spitzley, 2021; Randolph *et al.*, 2019). Examining the effects of external and internal business environments on the relationship between the use of SCV and product innovation and knowledge acquisition among large manufacturing organisations in Thailand has generated several implications for both corporate entrepreneurship and corporate venturing literature.

Importantly, this study confirms the importance of SCV in helping established corporations achieve innovation and organisational learning. This research contributes to the current literature on corporate entrepreneurship and corporate venturing by demonstrating that employing SCV further enhances the existing firm's product innovation and knowledge acquisition, as previous researchers have considerably focused on innovation and ignored the importance of organisational learning (see, for

example, Burgers and Covin, 2016; Burgers *et al.*, 2009; Chen *et al.*, 2014; Covin and Miles, 2007; Jansen *et al.*, 2009; Prugl and Spitzley, 2021). Although this study found no direct effect of SCV on knowledge acquisition, firms can acquire new knowledge more effectively when they use low levels of cross-functional interfaces. As noted by Dess *et al.* (2003), existing firms can use corporate venturing to develop organisational learning through the relationship with their new ventures that can generate new knowledge and update current knowledge stocks. In this research, the exposition of the use of SCV to increase the firms' product innovation and organisational learning has been extended to cover a complete aspect of the advantages of corporate venturing when corporate strategy and corporate venturing activity is integrated.

Therefore, the findings of this study have strived to enrich further explanation on the practice of SCV by examining the direct effects of the use of SCV on both innovation and organisational learning perspectives. By considering these two aspects, it provides a complete overview of the use of SCV among established corporations that extends the knowledge of corporate venturing (Boone *et al.*, 2019; Covin and Miles, 2007; Covin *et al.*, 2020; Minola *et al.*, 2016).

Furthermore, this study draws on the incorporation of two firm-level theories: the resource-based view and knowledge-based view of the firm to investigate possible influences of external and internal business environments on the practice of SCV. It supports the argument of the resource-based view that the firm needs to exploit and transform limited organisational resources to accomplish its business goals and objectives, as this theory regards existing organisations as a bundle of resources and capabilities (Branco and Rodrigues, 2006). In particular, the finding suggests that the

existing firm can employ SCV by integrating its corporate strategy and corporate venturing activity as it positively affects product innovation, which helps to achieve sustained competitive advantages. Thus, consistent with resource-based theory, the analysis of this study depicts a positive effect of the use of SCV on product innovation as a means to increase the exploitation of sustained competitive advantage.

The finding of this study also extends the knowledge-based theory, by providing insights that cross-functional interfaces play a significant role in new knowledge acquisition. Although the analysis does not find a significant direct effect of the use of SCV on knowledge acquisition, it illustrates how to implement SCV in acquiring new knowledge from new ventures. This supports the view that knowledge is the primary resource for new value creation in building sustained competitive advantages (Cometto *et al.*, 2016; Felin and Hesterly, 2007; Fliaster and Sperber, 2020; Ramirez-Pasillas *et al.*, 2021). Significantly, the finding substantiates the need for the existing firms to use low levels of cross-functional interfaces with the use of SCV to enhance knowledge acquisition. There is a significant negative moderating effect of cross-functional interfaces on the relationship between SCV and knowledge acquisition. It is therefore meaningful to be aware of possible influences that may increase or decrease the effectiveness of the use of SCV in exploring new knowledge as the path to gain greater competitive advantages.

As such, the integration of the resource-based view and knowledge-based view provides a more complete overview of the use of SCV to develop innovation and organisational learning. Consequently, the findings of this research project actively corroborate the argument of both theories as explained in the previous paragraphs.

Next, this study sheds light on the importance of potential influences of external and internal business environments in the use of SCV (Bodlaj and Cater, 2019; Prugl and Spitzley, 2021; Shephard and Ahmed, 2000). It contributes to research on corporate entrepreneurship literature in a corporate venturing scheme by elaborating on the influences of both external and internal business environments on the relationship between the use of SCV and product innovation and knowledge acquisition. Apart from that, the findings help explicate when and how to implement SCV for the pursuit of new innovations and organisational learning so that the existing corporations can achieve sustained competitive advantages.

For instance, the finding of this research provides additional evidence in regard to the moderating effect of market turbulence on the relationship between entrepreneurial activities and innovation performance of the firm because the results of previous empirical studies do not conclude in the same direction (see, for example, Bodlaj and Cater, 2019; Calantone *et al.*, 2003; Jaworski and Kohli, 1993; Lichtenthaler, 2009). Thus, the finding reveals the insignificant moderating effect of market turbulence on entrepreneurship and firm performance. Also, the results of this research project suggest that the established corporations should encourage all organisational members to share mutual goals and understandings with the use of SCV in stimulating their product innovation. This is because high shared-organisational vision among employees can strengthen the relationship between SCV and product innovation. When the employees have similar goals to achieve the firm's business objectives, they are likely to perform effectively in creating new innovative ideas. This finding is in line with the study of Burger *et al.* (2009).

Equally important, this research project has added further questions to the literature to examine other potential factors such as the objective of corporate venturing activity, connectedness, and autonomy that may influence the relationship between SCV and product innovation and knowledge acquisition (see, for example, Jansen *et al.*, 2009; Wang *et al.*, 2015; Yang *et al.*, 2013). Thereupon, theories pertaining to how external and internal business environments affect the use of SCV activity to increase entrepreneurial performance should consider these variables in order to broaden the view of the relationship between SCV and product innovation and knowledge acquisition.

As noted previously "the bulk of corporate venturing research lacks theoretical grounding and fails to contribute to our understanding of organisational capability building that enables firm evolution" (Narayanan *et al.*, 2009, p. 58). However, the findings of this research project, through the theoretical lens of the resource-based view and knowledge-based view of the firm, highlight the understanding of how firms can be more innovative and knowledgeable simultaneously in order to build new capabilities and gain sustained competitive advantages.

In addition, Hoy (2006) showed that several established firms have unfortunately failed to manage their corporate venturing activity, it is therefore important to comprehend when and how to employ SCV in creating new organisational capability through product innovation and knowledge acquisition. For this reason, it is plausible to infer that the findings of this research project contribute to corporate entrepreneurship and corporate venturing literature on the mechanisms through which the external and

internal business environments affect the relationship between the strategic practice of corporate venturing and product innovation and knowledge acquisition.

5.3.2 Methodological implications

Apart from the theoretical contributions explained above, the findings of this research project have generated methodological implications in a profound way, by advancing previously established knowledge of the use of SCV (Covin and Miles, 2007; Covin *et al.*, 2020; Minola *et al.*, 2016; Shankar and Shepherd, 2019). Likewise, this study confirms the importance of the practice of SCV as a useful tool to accomplish the firm's competitive advantages. Furthermore, this study has developed measurement items for statistical analysis from a reasonable sample size, as there are no existing measurement items to examine the use of SCV in the literature. By following several steps that were taken previously by many researchers in the literature, a four-item scale to measure the effects of SCV has been introduced (see, for example, DeVellis, 2012; Gunday *et al.*, 2011; Hornsby *et al.*, 2002; Hornsby *et al.*, 2013; Jansen *et al.*, 2005; Maula and Stam, 2020).

Also, this research project rigorously pre-tested the measurement items of the use of SCV with CEOs of large manufacturing firms in Thailand before conducting data collection for data analysis. According to the reliability and validity tests reported in chapter three, these measurement items have high reliability and validity so that future research can use this four-item scale to explore the impact of the use of SCV in different settings. As a result, this research project proposes a compelling example of how to test and measure the use of SCV by drawing on established theories in the SCV literature

and demonstrating the distinctive context statistically through the adoption of survey responses from large manufacturing firms in Thailand.

5.4 Research implications for practitioners

Besides the theoretical and methodological implications, there are also several implications for practitioners arising from the findings of this research project for managers, top management teams, CEOs, corporate entrepreneurs, and policy makers. First, the finding indicates that large business sectors can enhance their product innovation by employing SCV. As such, CEOs, top management teams, and policy makers of large corporations should devise and initiate their corporate strategies to emphasise corporate venturing activity. This is because when they have a clear vision towards innovative ideas, plans, and projects, it is likely that product innovation will increase dramatically.

Second, this study suggests that managers and management teams should also recognise the importance of learning new knowledge by being involved in SCV actively with low levels of cross-functional interfaces as it typically helps them update their knowledge stocks in achieving sustained competitive advantages. Although the analysis shows that market turbulence does not have significant impact on the use of SCV and knowledge acquisition, they should not ignore other determinants of environmental turbulence.

The third important point for CEOs, managers, and top management teams to be aware of is that both external and internal business environments can increase and decrease the effects of the use of SCV on product innovation and knowledge acquisition. The

managers of large established firms should also take into consideration that the use of high cross-functional interfaces as a means for exploiting the most advantage from SCV can affect knowledge acquisition negatively. In effect, they must be careful not to enforce too much on cross-functional interfaces or formal communication channels (i.e. liaison personnel, task forces, cross-departmental teams, etc.) with the practice of SCV to promote knowledge acquisition.

Overall, this research project points out that large firms can rely on the use of SCV to enrich their competitiveness. In addition, the development of conclusive findings illustrate that it is vital for managers, CEOs, top management teams, and policy makers of large organisations to recognise the potentiality of external and internal business environments in order to become enlightened in how should they plan to circulate the most beneficial features of the use of SCV in the pursuit of new innovation and organisational learning. Therefore, managers and top management teams should realise when is the most appropriate period and build a balanced internal business environment to practice SCV for further improving their product innovation and knowledge acquisition.

In conclusion, the empirical findings of this research project have generated several theoretical, methodological, and managerial contributions by drawing on a strong grounding of two theoretical frameworks (i.e. resource-based view and knowledge-based view of the firm) in the literature to study the influence of external and internal business environments on the relationship between SCV and product innovation and knowledge acquisition. In brief, key implications for scholars and practitioners of this research are summarised in Table 5.1 below.

Table 5.1: A summary of key implications for scholars and practitioners

Theoretical implications • It advances the literature on corporate entrepreneurship by integrating two firm-level theories (i.e. resource-based view and knowledge-based view of the firm) to explore a complete view of the use of SCV. • It provides substantial evidence to confirm the potential effect of the use of SCV on product innovation. • It enhances the understanding of how external and internal business environments moderate the relationship between the use of SCV and product innovation and knowledge acquisition. • It helps explain how to manage cross-functional interfaces and shared-organisational vision with the use of SCV in stimulating product innovation and knowledge acquisition as well as when to use it. • It furthers the literature on corporate entrepreneurship and corporate venturing to study other relevant factors (i.e., corporate venturing's objectives, connectedness, internal knowledge-sharing and autonomy) that might affect the relationship between the use of SCV and product innovation and knowledge acquisition.
Methodological implications • It adds an example of how survey responses from large manufacturing firms in Thailand can be applied to investigate the influences of external and internal business environments on the relationship between the use of SCV and product innovation and knowledge acquisition. • It enriches the concept of SCV by introducing a four-item scale to measure its context in a statistical way, which can be useful for other quantitative studies to explore the effect of SCV in different settings.
Managerial implications • It provides compelling evidence to managers, top management teams, CEOs, and policy makers of large firms that they can conduct SCV to improve their competitive advantages. • It increases managers' awareness to realise the influence of external and internal business environments that can affect the relationship between SCV and product innovation and knowledge acquisition. • It suggests that managers should encourage their organisational members to share the same goals and use SCV together to increase product innovation. • It recommends that the managers and management teams of the firm should combine low levels of cross-functional interfaces with the use of SCV to stimulate their knowledge acquisition.

Source: The author

5.5 Limitations and future research directions

Although this study has been carefully conducted, it is impossible to produce a piece of research without drawbacks and limitations that can suggest the need for additional research in the future. To begin with, the empirical findings of this study are based on large manufacturing sectors in Thailand that represent an emerging economy and developing country. Specifically, cultural, contextual, and national differences may affect the observed relationship due to the research setting of this research project (Yang *et al.*, 2013). This is because the important impacts of national culture can potentially affect entrepreneurial actions, strategic directions, and decision-making made by the management teams (Yu *et al.*, 2019). As such, the effect of the use of SCV on innovation and organisational learning and the influence of external and internal business environments on the observed relationships might vary from country to country. Thus, future research could validate these findings from other developing country's contexts. Also, it would be an interesting topic for future research to examine the effects of national culture on the use of SCV to acquire new competitive advantages.

Second, although the survey responses generate first-hand information to this study, response bias might negatively affect the findings when the self-completion questionnaire is being used. According to the two rounds of data collection in Thailand, this study inspected the differences between data received from the first and second round of data collection, there was no significant difference between the two groups of the responding firms. However, the low response rate may cause the problem of limiting generalisability from the non-response bias (Rogelberg and Stanton, 2007). Although the final sample in this research received responses from 190 large manufacturing

corporations, which was considered as a sufficiently reasonable sample size for management research in the corporate entrepreneurship and corporate venturing literature, there is still a concern for generalisability. Even though there was no significant difference between early-wave (represents respondents) and late-wave response (represents non-respondents) for non-response bias, future research should gather more primary data from the established firms to generalise the results.

Third, as the main research focus of this study has relied on the influence of some external (market turbulence) and internal business environments (cross-functional interfaces and shared-organisational vision) on the relationship between the use of SCV and product innovation and knowledge acquisition, future research should investigate other relevant variables. There is a possibility that the objective of corporate venturing activity, innovation capacity, information capability and collaboration effectiveness, the level of connectedness, internal knowledge-sharing, autonomy, and firm experience may affect the relationship between the use of SCV and firms' innovation and their organizational learning (see, for example, Jansen *et al.*, 2009; Prajogo and Ahmed, 2006; Wang *et al.*, 2015; Yang *et al.*, 2013), so it would be worthwhile to study these mechanisms in future research in order to extend the current understanding of this study.

Lastly, future studies should enrich the understanding of the effect of the use of SCV on firms' innovation and organizational learning and possible influences of the business environments on the observed relationships by investigating these research interests in the service industry. Therefore, it would be useful to learn if the results are varied across different industries as industrial conditions might have an important role on entrepreneurial performance and outcomes (Narayanan *et al.*, 2009).

5.6 Chapter summary

In general, this discussion has explicated four distinctive matters in detail, which are the recapitulation of the research focus, discussion of key research findings, research implications, and limitations and future research directions of this research project. This chapter has extended the understanding of statistical analysis by drawing on existing literature to portray the influence of external (market turbulence) and internal business environments (cross-functional interfaces and shared-organisational vision) on the relationship between SCV and product innovation and knowledge acquisition based on large manufacturing firms in Thailand.

The first part, the recapitulation of the research focus has demonstrated the significance of this research project and how SCV matters to established corporations. Also, there was a clear explanation of the theoretical foundation that this research has built on, namely the resource-based and knowledge-based views of the firm. In addition, the conceptual framework was exhibited to provide an overview of the research interests and model variables.

The second part, the discussion of key research findings has provided meaningful results that were categorised into three subsections. Firstly, the main effects of the use of SCV on product innovation and knowledge acquisition were explored. Secondly, the moderating effects of both external and internal business environments on the relationship between the use of SCV and product innovation were clarified. Thirdly, there was an illustration of the moderating effects of both external and internal business environments on the relationship between the use of SCV and knowledge acquisition.

The third part, the research implications were elucidated, and this research project has generated several implications for scholars and practitioners that were summarised in Table 5.1. The final part of this chapter, the limitations and future research directions were carefully identified as this research project is not without its limitations, which can suggest possible interests and areas for future studies.

CHAPTER SIX: CONCLUSION

This chapter provides a comprehensive summary of the research by summarising key concepts of each of the six chapters presented previously: the introduction, literature review, research methodology, data analysis, discussion, and conclusion chapters, respectively.

Typically, corporate entrepreneurship is necessary for established firms of all shapes and sizes as there is a dramatic pace of the external business environments globally, where customers often change their preferences for products and services' (Boone *et al.*, 2019; Kuratko and Morris, 2018; Wilden and Gudergan, 2015). The turbulent environments have forced the corporations to adopt new business and management practices in achieving sustained competitive advantages for survival (Bodlaj and Cater, 2019; Buganza *et al.*, 2009; LeMeunier-Fitzhugh and Massey, 2019). Corporate venturing is a widely employed approach by several existing firms to improve their growth and value creation through innovation and learning new knowledge from the external sources (Brumana *et al.*, 2016; Covin *et al.*, 2020; Prugl and Spitzley, 2021; Shankar and Shepherd, 2019). Although a large number of established corporations rely on corporate venturing as a means to accomplish their corporate entrepreneurship's goals, they have been challenged to understand the influences of both environmental and organisational contexts that might affect firm performance (Narayanan *et al.*, 2009; Prajogo and McDermott, 2014).

In corporate entrepreneurship and corporate venturing literature, there is no empirical evidence that investigates the practice of SCV by drawing on resource-based and

knowledge-based views of the firm (Nason *et al.*, 2015) (see Table 2.7 and 2.8). Therefore, this study set out to examine the effect of SCV on firm's innovation and organisational learning through the two aforementioned theoretical lenses. Not only that, but the research also explicated the potential influences of market turbulence, cross-functional interfaces, and shared-organisational vision on the observed relationships. In addition, this study explored the main research focus through a positivist perspective as it is possible to measure the model variables statistically and form a set of research hypotheses in addressing the research phenomena (Bierwerth *et al.*, 2015; Maula and Stam, 2020). This aspect of the research suggested that survey responses tend to be the most valuable source of data for statistical analysis, and have been used widely in research papers published in top management and business journals (see, for example, Huang and Gamble, 2015; Liu *et al.*, 2017; Thanos *et al.*, 2017).

Using a total sample of 190 large manufacturing companies in Thailand through a self-administered questionnaire from GMs and CEOs from October 2017 to February 2018, this study found that SCV has a significant positive impact on the firm's product innovation. With this data set, the findings also revealed that the effect of SCV on knowledge acquisition is significant when the firm employs a low level of cross-functional interfaces. Hence, this finding suggests that companies should simultaneously conduct SCV and rotate their organisational members between units, but not too regularly to enhance new knowledge. Furthermore, it reported that a high level of shared-organisational vision has a significant positive effect on SCV to facilitate an established firm's product innovation. Thus, the finding highlights that SCV performs better with a high commitment among organisational members toward the firm's vision and strategic direction in increasing product innovation. However, the

results pointed out that the interaction between SCV and market turbulence is insignificant for the firm's product innovation and knowledge acquisition.

The findings of this study have made several contributions to the literature in the fields of corporate entrepreneurship and corporate venturing as well as the practitioners in the industry. First, the findings provided empirical evidence to confirm that the concept of SCV has potential impacts on firms' competitive advantages. The statistical results of this research assert the discussion of Covin and Miles (2007)'s study in the way that established corporations can conduct their SCV activities to enhance innovation and learning. However, the findings of this study also remarked that cross-functional interfaces play an important role to boost the effect of SCV on knowledge acquisition. This research extends the work of Burgers and Covin (2016) that pointed out that cross-functional interfaces can help firms to transfer knowledge and new information across units, but they need to bear the costs associated with the transferring process. The findings contributed to the knowledge that firms need to assign their employees to work and take parts in different departments for a certain period, but not too often when they apply SCV to increase the degree of knowledge acquisition. Furthermore, the findings of this study increase the understanding of the use of shared-organisational vision to promote creativity and innovation as noted by Burgers *et al.* (2009). This research found that high commitment of organisational goals and objectives among employees can stimulate the effect of SCV on product innovation. As a result, managers, CEOs, top management teams, and policy makers should pay attention to encourage their employees to share similar goals and interests while implementing SCV to amplify product innovation. In addition, one of the most interesting findings of the analysis related to the influence of external environment on the observed relationships, is the

contribution to an understanding of when firms should conduct SCV to pursue product innovation and knowledge acquisition. The importance of this finding is that although several researchers indicated that environment contexts have high power to affect firm performance (see, for example, Bodlaj and Cater, 2019; Jansen *et al.*, 2009; Lichtenthaler, 2009; Wilden and Gudergan, 2015), the relationships between SCV and product innovation and knowledge acquisition are not strengthened when the rate of change in the composition of customers and their preferences toward the company's products and services is unpredictable. This argument provide additional findings to the literature that discussed the moderating effect of market turbulence in different directions (see, for example, Bodlaj and Cater, 2019; Calantone *et al.*, 2003; Jaworski and Kohli, 1993; Lichtenthaler, 2009).

To conclude, this study has shed light on the importance of the use of SCV in facilitating an established corporation's innovation and organisational learning as well as potential influences of both environmental and organisational mechanisms that may affect the observed relationships. Overall, this study has set the foundation to advance the understanding of corporate venturing in an emerging economy in Asia. Emerging economies in Asia are increasingly taking part in driving the world's economy (Kim and Bruton 2012; Shu *et al.*, 2020; Yang *et al.*, 2013). This study has provided insights into the use of SCV to promote firms' competitive advantages by using the context of an emerging country, Thailand. The results obtained were found consistent with those of other studies. Future studies which expand their geographic areas by collecting empirical data from other cultural groups in emerging economies could be essential to provide more evidence for the literature and conduct cross-cultural comparison. Besides, it would be interesting to investigate other external and internal business

environments such as the objective of corporate venturing activity, the level of connectedness, and autonomy. Other than that, future research can adopt a four-item scale introduced by this study to statistically examine how SCV affects other management components. In doing so, it broadens the findings of the effect of corporate venturing in different perspectives in the literature.

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APPENDIX 1: Participant information sheet

I am Thitiporn Na Nakorn, a PhD student in Management at Lancaster University, UK and I would like to invite you to take part in a research study about the impact of corporate venturing on manufacturing firms' innovation and organisational learning in Thailand.

Please take time to read the following information carefully before you decide whether or not you wish to take part.

What is the study about? This study aims to contribute as follows:

1. To offer a fresh and more balanced perspective on how manufacturing firms' innovation and organisational learning are influenced by corporate venturing.
2. To provide a more comprehensive view of how to measure the relationship between corporate venturing and corporate strategy.
3. To examine the importance of national and organisational contexts in affecting corporate venturing outcomes.

Why have I been invited?

I have approached you because I am interested in understanding how corporate venturing influences different types of innovation and organisational learning among manufacturing firms in Thailand and you are currently working in the industry that I would like to explore.

I would be very grateful if you would agree to take part in this study.

What will I be asked to do if I take part? If you decided to take part, this would involve the following:

1. You will receive an e-mail asking to fill the questionnaire from t.nanakorn@lancaster.ac.uk where an online survey link is attached.
2. You need to complete the questionnaire online by clicking the link sent to your e-mail address.
3. You are required to answer each question by choosing a number, ticking a box, or providing a simple answer.
4. This questionnaire is anonymous and can be completed in 10-15 minutes.
5. While filling the questionnaire, please try to answer each question carefully and honestly because there is no back button for you to edit your responses and also there is no right or wrong answer.
6. Before you begin the first question, you will be requested to give consent to the use of your responses for research by ticking two boxes where instructions are given.

What are the possible benefits from taking part?

By taking part in this study and sharing firm's experience, your insights will contribute to our understanding of how corporate venturing affects innovation and organisational learning in manufacturing firm. It also helps to discover useful implications for both literature and practice.

Do I have to take part?

No, it is completely up to you to decide whether or not you take part. Your participation is voluntary. If you decide not to take part in this study, this will not affect your position in the company and your relations with your employer.

What if I change my mind?

You are free to withdraw at any time while filling the questionnaire by closing the browser to exit.

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any major disadvantages by taking part in this survey, except participating in this survey requires you to contribute 10-15 minutes of your time to complete the questionnaire.

Will my data be identifiable?

After the completion of survey, only I, the researcher conducting this study and my two supervisors (Dr Qihai Huang and Dr Ioannis Thanos) will have access to the ideas you share with me. My supervisors and I will keep all personal data about you confidentially that is we will not share it with others and the questionnaire is anonymous, so your data will not be identifiable under any circumstances.

How will we use the information you have shared with us and what will happen to the results of the research study?

I will use the information you have shared with me only for research purposes only, which includes PhD thesis and other publications in academic journals.

How my data will be stored

Your data will be stored in encrypted files (that is no-one other than me, the researcher will be able to access them) and on password-protected computers. I will store hard copies of any data securely in locked cabinets in my office. In accordance with University guidelines, I will keep the data securely for a minimum of ten years.

Who has reviewed the project?

This study has been reviewed and approved by the Faculty of Arts and Social Sciences and Lancaster Management School's Research Ethics Committee.

What if I have a question or concern?

If you have any queries or if you are unhappy with anything that happens concerning your participation in the study, please contact myself at t.nanakorn@lancaster.ac.uk, or my supervisors at qihai.huang@lancaster.ac.uk (Dr Qihai Huang) and ioannis.thanos@lancaster.ac.uk (Dr Ioannis Thanos).

If you have any concerns or complaints that you wish to discuss with a person who is not directly involved in the research, you can also contact Professor Duncan Angwinn, Head of Department at e-mail address: d.n.angwin@lancaster.ac.uk; postal address: Lancaster University Management School, Lancaster, United Kingdom, LA1 4YX; or telephone: +44 (0) 1524595167.

Thank you for considering your participation in this project.

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

APPENDIX 2: Questionnaire for CEOs

A SURVEY ASSESSING THE IMPACT OF CORPORATE VENTURING ON FIRMS' INNOVATION AND ORGANISATIONAL LEARNING

A STUDY OF LARGE MANUFACTURING FIRMS IN THAILAND

Purposes of the research:

1. To offer a fresh and more balanced perspective on how manufacturing firms' innovation and organisational learning are influenced by corporate venturing.
2. To provide a more comprehensive view of how to measure the relationship between corporate venturing and corporate strategy.
3. To contribute to the importance of national and organisational contexts in affecting corporate venturing outcomes.

Guidelines to the questionnaire:

1. The term 'corporate venturing' refers to an investment in and/or creation of new businesses. It can be a new business created and owned by the firm, a new business created and owned together with business partners, and/or a new business created by others but owned by the firm.
2. This survey is designed for 'CEO' of the firm.
3. All questions can be answered by choosing a number, ticking a box, or providing a simple answer.
4. This questionnaire can be completed in 15 minutes.
5. Please answer each question carefully because there is no back button for you to edit your responses, but you are allowed to save and continue the questionnaire later.
6. There is no right or wrong answer, please answer each question based on your firm's experience.

Data protection principles:

1. The data will be kept according to University's guidelines for a minimum of 10 years after the end of this study and all responses will only be used for research.
2. There is no other party, except academic supervisors to view the results of this survey.
3. Data collected in this survey will be kept securely and participating firms will not be identified under any circumstances.
4. This survey is designed to be anonymous.
5. The only person with access to this survey is Thitiporn Na Nakorn, a PhD student in Management at Lancaster University, UK. If you have any queries, please do not hesitate to contact at t.nanakorn@lancaster.ac.uk

***Please confirm below that you have read all data protection principles and consent to the data being used for research. However, if you do not feel comfortable to give consent, please close the browser to exit this survey now or while filling the survey.

Please choose both blocks to begin the survey:

☐ I have read and understand all data protection principles

☐ I voluntarily consent to the use of my data for research

MANY THANKS FOR YOUR PARTICIPATIONS

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

SECTION 1: Company background and respondent profile

1. When was this firm founded? _____

2. Is your business a:

☐ Sole proprietorship ☐ Partnership
☐ Limited liability company ☐ Others_____

3. What is your gender?

☐ Male
☐ Female

4. What is your age? _____

5. What is your highest level of education?

☐ No formal qualifications
☐ Diploma lower than Bachelor's degree
☐ Bachelor's Degree
☐ Master's degree
☐ PhD Degree

6. How many years have you been working with this company? _____

7. Please choose one of the following business sectors in which you would classify your primary product line:

☐ Food, beverage, and tobacco
☐ Textile, clothing, footwear, and leather products
☐ Wood and paper products ☐ Printing and publishing
☐ Computing and electronics ☐ Petroleum, coal, and chemical
☐ Non-metallic mineral ☐ Metal
☐ Machinery and equipment ☐ Vehicles
☐ Prefabricated building and furniture ☐ Construction

8. Has your business undertaken any of the following investment since its establishment? (Please choose as many as appropriate)

☐An investment in a new business created an owned by the firm

☐An investment in a new business created and owned together with business partners

☐An investment in a new business created by others but owned by the firm

9. How many new businesses have the firm owned?

☐ 3 or fewer
☐ 4 or more

SECTION 2: Business environment

To what extent do you agree with the following statements in relation to market turbulence?	Strongly disagree ◄► Strongly agree				
In our kind of business, customers' product preferences change quite a bit over time	1	2	3	4	5
Our customers tend to look for new product all the time	1	2	3	4	5
Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant	1	2	3	4	5
We are witnessing demand for our products and services from customers who never bought them before	1	2	3	4	5
New customers tend to have product-related needs that are different from those of our existing customers	1	2	3	4	5
We cater to many of the same customers that we used to in the past	1	2	3	4	5

To what extent do you agree with the following statements in relation to technological turbulence?	Strongly disagree ◄► Strongly agree				
The technology in our industry is changing rapidly	1	2	3	4	5
Technological changes provide big opportunities in our industry	1	2	3	4	5
It is very difficult to forecast where the technology in our industry will be in the next 2 to 3 years	1	2	3	4	5
A large number of new product ideas have been made possible through technological breakthroughs in our industry	1	2	3	4	5
Technological developments in our industry are rather minor	1	2	3	4	5

SECTION 3: Past performance

In comparison with your major competitors, to what extent do you agree with the following statements in the past three years?	Strongly disagree ↔ Strongly agree				
We have higher return on investment (ROI)	1	2	3	4	5
We have higher sales growth	1	2	3	4	5
We have higher profit growth	1	2	3	4	5
We have more new customers	1	2	3	4	5
We have higher market share growth	1	2	3	4	5

SECTION 4: Strategic corporate venturing

To what extent do you agree with the following statements in relation to the use of corporate venturing and corporate strategy in your firm?	Strongly disagree ↔ Strongly agree				
Our company aligns corporate venturing with corporate strategy	1	2	3	4	5
Our company uses corporate strategy to specify corporate venturing	1	2	3	4	5
Our company has a fairly clear corporate strategy to promote corporate venturing	1	2	3	4	5
Our company often supports corporate venturing that conforms to corporate strategy	1	2	3	4	5
Our company views corporate venturing as an important shared value	1	2	3	4	5

SECTION 5: Formalisation

To what extent do you agree with the following statements in relation to the degree of formalisation of your firm?	Strongly disagree ↔ Strongly agree				
Whatever situation arises, written procedures are available for dealing with it	1	2	3	4	5
Rules and procedures occupy a central place in the organisational unit	1	2	3	4	5
Written records are kept for everyone's performance	1	2	3	4	5
Employees in our organisational unit are often checked for rule violations	1	2	3	4	5
Written job descriptions are formulated for positions at all levels in the organisational unit	1	2	3	4	5

Would you like you receive the findings of this study? Yes / No

If yes, please provide your e-mail address below:

Email address:_____

THANK YOU FOR YOUR TIME AND KIND COOPERATIONS

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

APPENDIX 3: Questionnaire for GMs

A SURVEY ASSESSING THE IMPACT OF CORPORATE VENTURING ON FIRMS' INNOVATION AND ORGANISATIONAL LEARNING

A STUDY OF LARGE MANUFACTURING FIRMS IN THAILAND

Purposes of the research:

1. To offer a fresh and more balanced perspective on how manufacturing firms' innovation and organisational learning are influenced by corporate venturing.
2. To provide a more comprehensive view of how to measure the relationship between corporate venturing and corporate strategy.
3. To contribute to the importance of national and organisational contexts in affecting corporate venturing outcomes.

Guidelines to the questionnaire:

1. The term 'corporate venturing' refers to an investment in and/or creation of new businesses. It can be a new business created and owned by the firm, a new business created and owned together with business partners, and/or a new business created by others but owned by the firm.
2. This survey is designed for 'General Manager' of the firm.
3. All questions can be answered by choosing a number, ticking a box, or providing a simple answer.
4. This questionnaire can be completed in 15 minutes.
5. Please answer each question carefully because there is no back button for you to edit your responses, but you are allowed to save and continue the questionnaire later.
6. There is no right or wrong answer, please answer each question based on your firm's experience.

Data protection principles:

1. The data will be kept according to University's guidelines for a minimum of 10 years after the end of this study and all responses will only be used for research.
2. There is no other party, except academic supervisors to view the results of this survey.
3. Data collected in this survey will be kept securely and participating firms will not be identified under any circumstances.
4. This survey is designed to be anonymous.
5. The only person with access to this survey is Thitiporn Na Nakorn, a PhD student in Management at Lancaster University, UK. If you have any queries, please do not hesitate to contact at t.nanakorn@lancaster.ac.uk

***Please confirm below that you have read all data protection principles and consent to the data being used for research. However, if you do not feel comfortable to give consent, please close the browser to exit this survey now or while filling the survey.

Please choose both blocks to begin the survey:

☐ I have read and understand all data protection principles

☐ I voluntarily consent to the use of my data for research

MANY THANKS FOR YOUR PARTICIPATIONS

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

SECTION 1: Company background and respondent profile

1. When was this firm founded? _____

2. Is your business a:

☐ Sole proprietorship ☐ Partnership
☐ Limited liability company ☐ Other_____

3. What is your gender?

☐ Male

☐ Female

4. What is your age? _____

5. What is your highest level of education?

☐ No formal qualifications

☐ Diploma lower than Bachelor's degree

☐ Bachelor's Degree

☐ Master's degree

☐ PhD Degree

6. How many years have you been working with this company? _____

7. Please choose one of the following business sectors in which you would classify your primary product line:

☐ Food, beverage, and tobacco

☐ Textile, clothing, footwear, and leather products

☐ Wood and paper products ☐ Printing and publishing

☐ Computing and electronics ☐ Petroleum, coal, and chemical

☐ Non-metallic mineral ☐ Metal

☐ Machinery and equipment ☐ Vehicles

☐ Prefabricated building and furniture ☐ Construction

8. Has your business undertaken any of the following investment since its establishment? (Please choose as many as appropriate)

☐An investment in a new business created an owned by the firm
☐An investment in a new business created and owned together with business partners
☐An investment in a new business created by others but owned by the firm

9. How many new businesses have the firm owned?

☐ 3 or fewer ☐ 4 or more

SECTION 2: Cross-functional interfaces

To what extent do you agree with the following statements in relation to cross-functional interface within the firm?	Strongly disagree ↔ Strongly agree				
Employees are regularly rotated between different functions	1	2	3	4	5
There is regular talk about possibilities for collaboration between units	1	2	3	4	5
Our organisation coordinates information sharing between units through a knowledge network	1	2	3	4	5
We have cross-functional teams to exchange knowledge between departments	1	2	3	4	5
We have standardised work processes for cooperation between units	1	2	3	4	5
We often involve multiple organisational units in strategic decision-making	1	2	3	4	5
Our organisation uses temporary workgroups for collaboration between units on a regular basis	1	2	3	4	5

SECTION 3: Shared-organisation vision

To what extent do you agree with the following statements in relation to shared-organisation vision?	Strongly disagree ↔ Strongly agree				
There is commonality of purpose in my organisation	1	2	3	4	5
There is total agreement on our organisational vision	1	2	3	4	5
All organisational members are committed to the goals of this organisation	1	2	3	4	5
People are enthusiastic about the collective goals and mission of the whole organisation	1	2	3	4	5
Our unit shares the same ambitions and vision with other units at work	1	2	3	4	5

SECTION 4: Knowledge acquisition

To what extent do you agree with the following statements in relation to knowledge acquisition of your firm?	Strongly disagree ◄► Strongly agree				
Through the relationship with new businesses we access more knowledge about the market	1	2	3	4	5
Through the relationship with new businesses we generally obtain information about our client's necessities and tendencies	1	2	3	4	5
Through the relationship with new businesses we obtain technological knowledge and important know-how	1	2	3	4	5
Through the relationship with new businesses we obtain knowledge useful for the management of our firm	1	2	3	4	5

SECTION 5: Product innovation

To what extent do you agree with the following statements in relation to product innovation of your firm in the past three years?	Strongly disagree ◄► Strongly agree				
We develop or use new components	1	2	3	4	5
We develop or use new materials	1	2	3	4	5
We develop or use new technologies in our products	1	2	3	4	5
We develop or use new product features	1	2	3	4	5

SECTION 6: Process innovation

To what extent do you agree with the following statements in relation to process innovation of your firm in the past three years?	Strongly disagree ◄► Strongly agree				
We improve the reliability of our production processes and technologies	1	2	3	4	5
We improve the speed and efficiency of our production processes	1	2	3	4	5
We use advanced technologies in our production processes	1	2	3	4	5
We strive to keep our production processes ahead of competitors	1	2	3	4	5

SECTION 7: Past performance

In comparison with your major competitors, to what extent do you agree with the following statements in the past three years?	Strongly disagree ⟷ Strongly agree				
We have higher return on investment (ROI)	1	2	3	4	5
We have higher sales growth	1	2	3	4	5
We have higher profit growth	1	2	3	4	5
We have more new customers	1	2	3	4	5
We have higher market share growth	1	2	3	4	5

Would you like you receive the findings of this study? Yes / No

If yes, please provide your e-mail address below:

Email address:_____

THANK YOU FOR YOUR TIME AND KIND COOPERATIONS

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

APPENDIX 4: A summary of measures and items used in the study*

Product innovation (Jayaram *et al.*, 2014)

Product_1: We develop or use new components

Product_2: We develop or use new materials

Product_3: We develop or use new technologies in our products

Product_4: We develop or use new product features

Strategic use of corporate venturing (the author)

SCV_1: The company aligns corporate venturing with its corporate strategy

SCV_2: The company uses corporate strategy to specify corporate venturing activity

SCV_3: The company has a fairly clear corporate strategy to promote corporate venturing activity

SCV_4: The company often supports corporate venturing activity that conforms to corporate strategy

Market turbulence (Jaworski and Kohli, 1993)

Market_1: In our kind of business, customers' product preferences change quite a bit over time

Market_2: Our customers tend to look for new product all the time

Market_3: Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant

Market_4: We are witnessing demand for our products and services from customers who never bought them before

Market_5: New customers tend to have product-related needs that are different from those of our existing customers

Market_6: We cater to many of the same customers that we used to in the past

Knowledge acquisition (Bojica and Fuentes, 2012)

KA_1: Through the relationship with new businesses we access more knowledge about the market

KA_2: Through the relationship with new businesses we generally obtain information about our client's necessities and tendencies

KA_3: Through the relationship with new businesses we obtain technological knowledge and important know-how

KA_4: Through the relationship with new businesses we obtain knowledge useful for the management of our firm

Shared-organisational vision (Burgers *et al.*, 2009)

SO_1: There is commonality of purpose in my organisation

SO_2: There is total agreement on our organisational vision

SO_3: All organisational members are committed to the goals of this organisation

SO_4: People are enthusiastic about the collective goals and mission of the whole organisation

SO_5: Our unit shares the same ambitions and vision with other units at work

Cross-functional interfaces (Jansen *et al.*, 2009)

CF_1: Employees are regularly rotated between different functions

CF_2: There is regular talk about possibilities for collaboration between units

CF_3: Our organisation coordinates information sharing between units through a knowledge network

CF_4: We have cross-functional teams to exchange knowledge between departments

CF_5: We have standardised work processes for cooperation between units

CF_6: We often involve multiple organisational units in strategic decision-making

CF_7: Our organisation uses temporary workgroups for collaboration between units on a regular basis

*All items were measured on a five-point scale, anchored by 1 = "strongly disagree" and 5 = "strongly agree"

APPENDIX 5: Harman's one-factor analysis

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.195	17.316	17.316	4.426	14.755	14.755
2	3.878	12.926	30.241			
3	3.509	11.697	41.938			
4	2.946	9.821	51.759			
5	2.504	8.346	60.105			
6	2.026	6.752	66.857			
7	.795	2.650	69.507			
8	.747	2.491	71.998			
9	.702	2.340	74.338			
10	.691	2.304	76.642			
11	.622	2.072	78.714			
12	.541	1.804	80.517			
13	.512	1.706	82.223			
14	.503	1.676	83.899			
15	.469	1.563	85.462			
16	.459	1.531	86.993			
17	.420	1.401	88.395			
18	.397	1.322	89.717			
19	.389	1.296	91.013			
20	.362	1.208	92.221			
21	.352	1.172	93.393			
22	.297	.990	94.383			
23	.290	.968	95.351			
24	.259	.863	96.214			
25	.230	.768	96.983			
26	.215	.716	97.698			
27	.194	.648	98.347			
28	.188	.627	98.974			
29	.158	.525	99.499			
30	.150	.501	100.000			
Extraction Method: Principal Axis Factoring.						

APPENDIX 6: A comparison of standardised regression weights

Standardised Regression Weights: (with a common latent factor)				Standardised Regression Weights: (without a common latent factor)				Differences*
			Estimate				Estimate	
Market_6	←	Market turbulence	0.73	**Market_6**	←	Market turbulence	0.76	0.03
Market_5	←	Market turbulence	0.76	**Market_5**	←	Market turbulence	0.78	0.02
Market_4	←	Market turbulence	0.70	**Market_4**	←	Market turbulence	0.70	0.00
Market_3	←	Market turbulence	0.68	**Market_3**	←	Market turbulence	0.71	0.03
Market_2	←	Market turbulence	0.79	**Market_2**	←	Market turbulence	0.81	0.02
Market_1	←	Market turbulence	0.75	**Market_1**	←	Market turbulence	0.75	0.00
KA_4	←	Knowledge acquisition	0.63	**KA_4**	←	Knowledge acquisition	0.70	0.07
KA_3	←	Knowledge acquisition	0.66	**KA_3**	←	Knowledge acquisition	0.75	0.09
KA_2	←	Knowledge acquisition	0.86	**KA_2**	←	Knowledge acquisition	0.83	-0.03
KA_1	←	Knowledge acquisition	0.66	**KA_1**	←	Knowledge acquisition	0.76	0.10
SCV_1	←	Strategic corporate venturing	0.64	**SCV_1**	←	Strategic corporate venturing	0.65	0.01
SCV_2	←	Strategic corporate venturing	0.81	**SCV_2**	←	Strategic corporate venturing	0.84	0.03
SCV_3	←	Strategic corporate venturing	0.72	**SCV_3**	←	Strategic corporate venturing	0.76	0.04
SCV_4	←	Strategic corporate venturing	0.76	**SCV_4**	←	Strategic corporate venturing	0.76	0.00
SO_5	←	Shared-organisational vision	0.58	**SO_5**	←	Shared-organisational vision	0.58	0.00
SO_4	←	Shared-organisational vision	0.76	**SO_4**	←	Shared-organisational vision	0.76	0.00
SO_3	←	Shared-organisational vision	0.76	**SO_3**	←	Shared-organisational vision	0.77	0.01
SO_2	←	Shared-organisational vision	0.80	**SO_2**	←	Shared-organisational vision	0.80	0.00
SO_1	←	Shared-organisational vision	0.77	**SO_1**	←	Shared-organisational vision	0.77	0.00
CF_1	←	Cross-functional interfaces	0.66	**CF_1**	←	Cross-functional interfaces	0.75	0.09
CF_2	←	Cross-functional interfaces	0.78	**CF_2**	←	Cross-functional interfaces	0.79	0.01
CF_3	←	Cross-functional interfaces	0.73	**CF_3**	←	Cross-functional interfaces	0.73	0.00
CF_4	←	Cross-functional interfaces	0.74	**CF_4**	←	Cross-functional interfaces	0.74	0.00

CF_5	←	Cross-functional interfaces	0.74	**CF_5**	←	Cross-functional interfaces	0.75	0.01
CF_6	←	Cross-functional interfaces	0.75	**CF_6**	←	Cross-functional interfaces	0.77	0.02
CF_7	←	Cross-functional interfaces	0.73	**CF_7**	←	Cross-functional interfaces	0.76	0.03
Product_4	←	Product innovation	0.78	**Product_4**	←	Product innovation	0.79	0.01
Product_3	←	Product innovation	0.81	**Product_3**	←	Product innovation	0.81	0.00
Product_2	←	Product innovation	0.90	**Product_2**	←	Product innovation	0.90	0.00
Product_1	←	Product innovation	0.73	**Product_1**	←	Product innovation	0.73	0.00

* Standardised Regression Weights: (without a common latent factor) minus standardised Regression Weights: (with a common latent factor).

APPENDIX 7: A summary of EFA

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
Market_1		.789				
Market_2		.828				
Market_3		.765				
Market_4		.738				
Market_5		.822				
Market_6		.787				
SCV_1						.767
SCV_2						.833
SCV_3						.785
SCV_4						.817
Product_1				.777		
Product_2				.904		
Product_3				.855		
Product_4				.845		
KA_1					.827	
KA_2					.840	
KA_3					.816	
KA_4					.793	
CF_1	.771					
CF_2	.817					
CF_3	.777					
CF_4	.775					
CF_5	.791					
CF_6	.801					
CF_7	.799					
SO_1			.820			
SO_2			.832			
SO_3			.815			
SO_4			.809			
SO_5			.656			
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 5 iterations.						

APPENDIX 8: KMO and Bartlett's Test of Sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.785
Bartlett's Test of Sphericity	Approx. Chi-Square	3014.287
	df	435
	Sig.	.000

APPENDIX 9: A summary of the communalities

Communalities		
	Initial	Extraction
Market_1	1.000	.633
Market_2	1.000	.718
Market_3	1.000	.609
Market_4	1.000	.573
Market_5	1.000	.690
Market_6	1.000	.641
SCV_1	1.000	.607
SCV_2	1.000	.736
SCV_3	1.000	.678
SCV_4	1.000	.702
Product_1	1.000	.647
Product_2	1.000	.824
Product_3	1.000	.747
Product_4	1.000	.733
KA_1	1.000	.706
KA_2	1.000	.727
KA_3	1.000	.686
KA_4	1.000	.643
CF_1	1.000	.663
CF_2	1.000	.669
CF_3	1.000	.616
CF_4	1.000	.602
CF_5	1.000	.635
CF_6	1.000	.649
CF_7	1.000	.647
SO_1	1.000	.715
SO_2	1.000	.696
SO_3	1.000	.676
SO_4	1.000	.679
SO_5	1.000	.511
Extraction Method: Principal Component Analysis.		

APPENDIX 10: A summary of total variance and eigenvalues

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.195	17.316	17.316	5.195	17.316	17.316	4.439	14.797	14.797
2	3.878	12.926	30.241	3.878	12.926	30.241	3.866	12.885	27.682
3	3.509	11.697	41.938	3.509	11.697	41.938	3.172	10.573	38.255
4	2.946	9.821	51.759	2.946	9.821	51.759	3.010	10.034	48.289
5	2.504	8.346	60.105	2.504	8.346	60.105	2.817	9.390	57.679
6	2.026	6.752	66.857	2.026	6.752	66.857	2.753	9.178	66.857
7	.795	2.650	69.507						
8	.747	2.491	71.998						
9	.702	2.340	74.338						
10	.691	2.304	76.642						
11	.622	2.072	78.714						
12	.541	1.804	80.517						
13	.512	1.706	82.223						
14	.503	1.676	83.899						
15	.469	1.563	85.462						
16	.459	1.531	86.993						
17	.420	1.401	88.395						
18	.397	1.322	89.717						
19	.389	1.296	91.013						
20	.362	1.208	92.221						
21	.352	1.172	93.393						
22	.297	.990	94.383						
23	.290	.968	95.351						
24	.259	.863	96.214						
25	.230	.768	96.983						
26	.215	.716	97.698						
27	.194	.648	98.347						
28	.188	.627	98.974						
29	.158	.525	99.499						
30	.150	.501	100.000						

Extraction Method: Principal Component Analysis.