



THE DETERMINANTS OF CORE COMPETITIVENESS TOWARD FIRM
PERFORMANCE OF CONSTRUCTION ENTERPRISES IN KUNMING,
THE PEOPLE'S REPUBLIC OF CHINA

By
Miss Haoyue DENG

A Thesis Submitted in Partial Fulfillment of the Requirements
for Master of Engineering ENGINEERING MANAGEMENT
Department of INDUSTRIAL ENGINEERING AND MANAGEMENT

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Title The Determinants of Core Competitiveness Toward Firm
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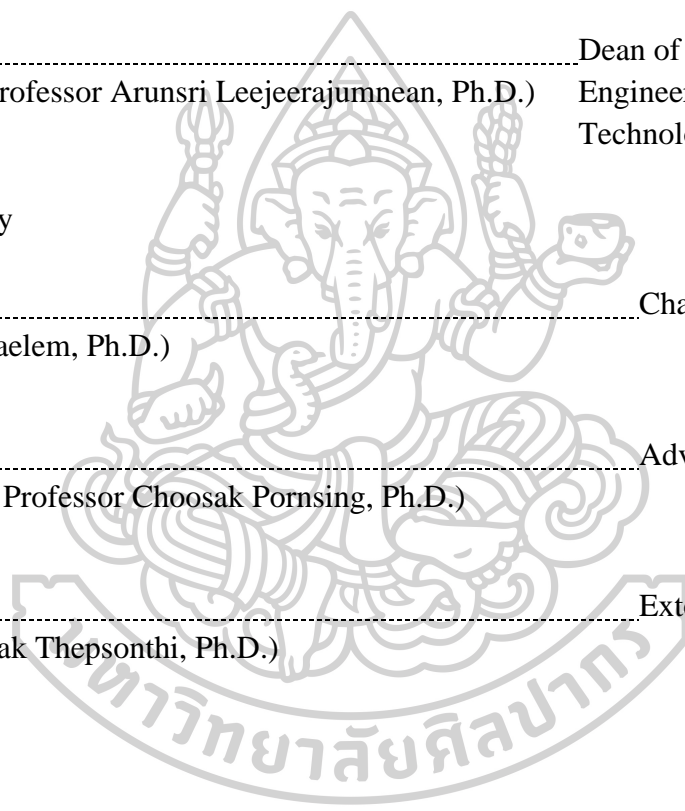
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Miss Haoyue DENG : The Determinants of Core Competitiveness Toward Firm Performance of Construction Enterprises in Kunming, the People's Republic of China Thesis advisor : Associate Professor Choosak Pornsing, Ph.D.

The purpose of this study was 1) To study the importance level of factor conditions, demand conditions, government, firm strategy, structure, rivalry, related and supporting industries, and chance events of construction enterprises in Kunming, and 2) To analyze determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, The People's Republic of China. It is quantitative research. The sample consisted of 400 enterprise owners registered with the Kunming City Commercial Office, China, in 2023. The research tool is an online questionnaire. Collect data through websites, WeChat, and applications. Data were analyzed by descriptive statistics, including mean and standard deviation. Inferential statistics were analyzed with Multiple Regression by Enter Selection.

The results showed that all factors were very high important. It should be arranged from the very high important to the least important. including supplier power (3.90), threat of new entry (3.88), buyer power (3.87), firm performance (3.85), competitive rivalry (3.80) and threat of substitution (3.78). The result of the effect of supplier power had a direct effect on firm performance, with a path coefficient equal to 0.509, followed by the threat of new entry had a direct effect on firm performance, with a path coefficient equal to 0.297, competitive rivalry had a direct effect on firm performance, with a path coefficient equal to 0.089, threat of substitution had a direct effect on firm performance, with a path coefficient equal to 0.079, and Lastly, buyer power entry had a direct effect on firm performance, with a path coefficient equal to 0.071. Except for the threat of new entry, which had a direct effect on firm performance with a path coefficient equal to 0.297, none of the other variables were statistically significant at the 0.10 level.

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The research title was the determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, the People's Republic of China. After carefully analyzing the data, the researcher followed their study plan to successfully complete the studies as previously outlined. Thanks to the invaluable support and guidance provided by Associate Professor Dr. Choosak Pornsing, the advisor, who generously shared their insights, knowledge, and useful suggestions, this research was completed with great success. The researcher is immensely grateful for their invaluable help and support.

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Haoyue DENG

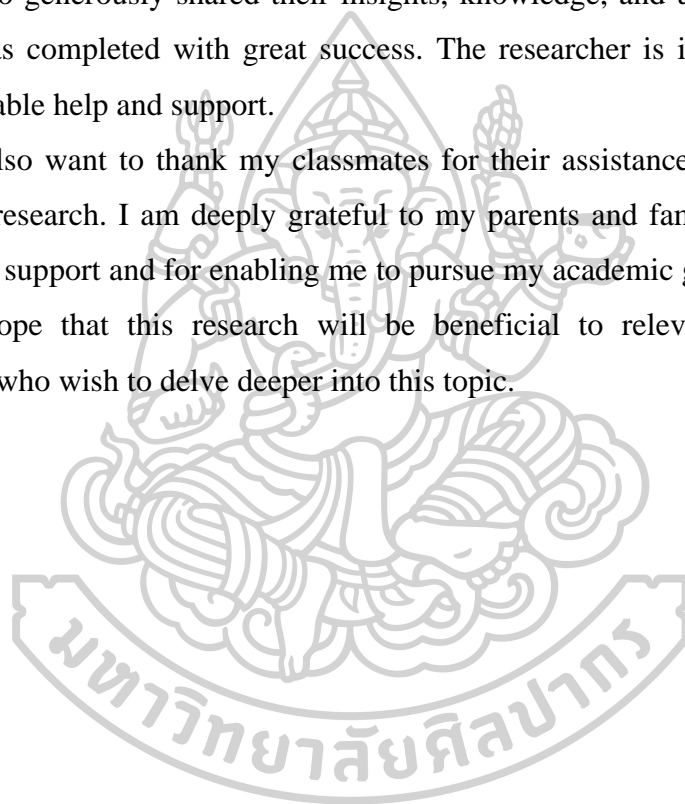
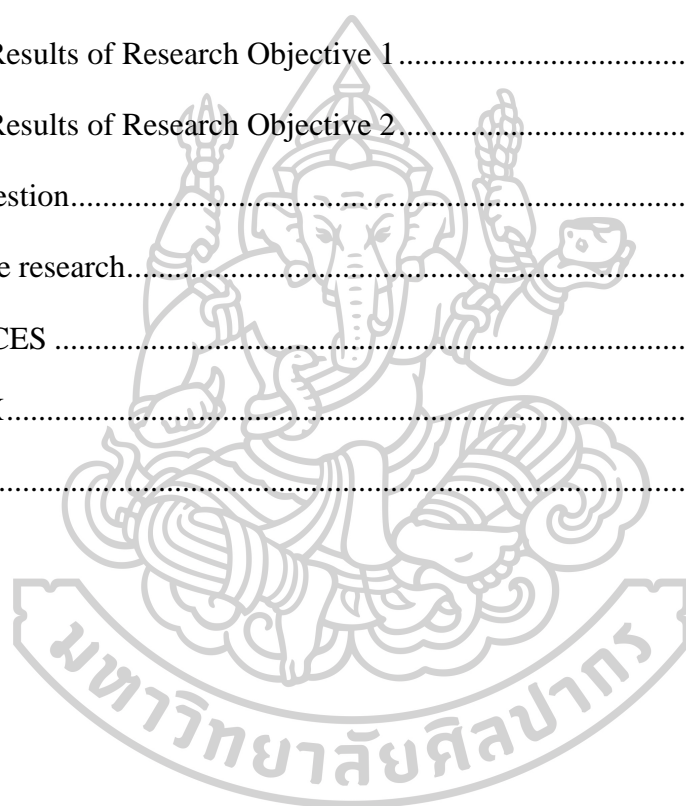


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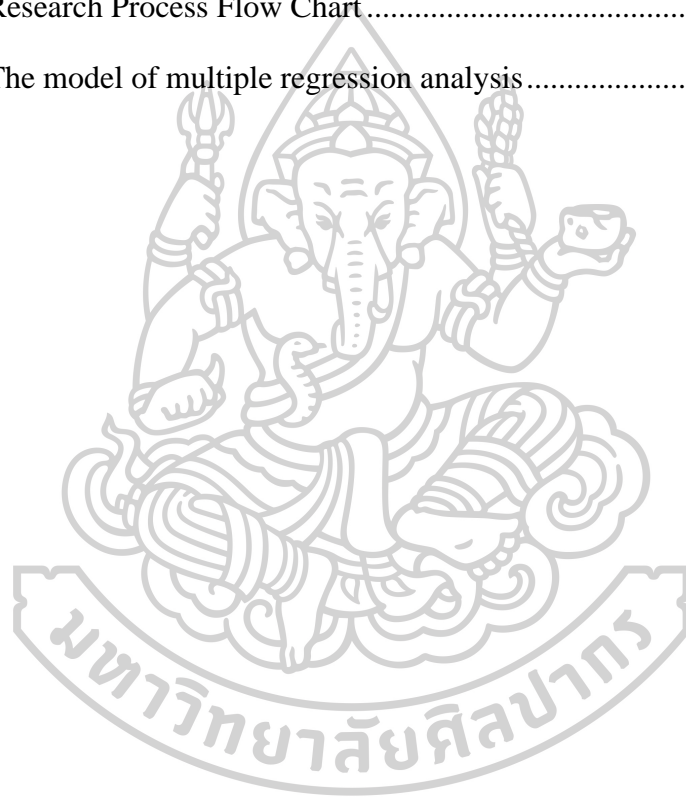
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CHAPTER 1

INTRODUCTION

1.1 Motivation

The construction enterprise is crucial in shaping modern communities and involves constructing residential, commercial, industrial, and public buildings, as well as infrastructure that supports economic and social growth. As the industry is responsible for building critical infrastructure, it is essential for both the community and the country's long-term economic growth and sustainable development. Therefore, the construction enterprise can be considered a key contributor to the overall development of the country (Arthur-Aidoo, Aigbavboa & Thwala, 2018). This approach can aid the Chinese government's policies in various sectors of the economy, such as health, public health, transportation, education, manufacturing, service industries, electricity systems, telecommunications, roads, bridges, sports science, housing, and other public utilities. Furthermore, the construction business is a significant contributor to the country's gross domestic product (GDP). Employment has been universally acknowledged as a crucial aspect of most global economies (Atuahene & Baiden, 2018; Claver et al. 2003).

The construction enterprise's connection to other sectors of a country's economy is crucial for achieving sustainable economic growth. This unbreakable link is a hallmark and key position (Anaman & Osei-Amponsah, 2007). According to economic indicators, China's economy has been steadily recovering from the impact of COVID-19 in the first half of 2023. The GDP growth rate for the first six months has surpassed the annual target, with particularly strong growth in the services and consumption sectors in the second quarter. Additionally, industrial and manufacturing output saw accelerated growth in June compared to the previous month.

Although China's GDP grew at a healthy rate of 5.5 percent year-on-year in the first half of 2023, it has slowed down in the last two months, indicating the need for economic stimulus to maintain momentum in the latter half of the year. The total GDP reached RMB 59.3 trillion (approx. US\$8.3 trillion) in this period, which is one percentage point faster than the first quarter. The GDP grew by 6.3 percent

year-on-year in the second quarter, compared to 4.5 percent year-on-year growth in the first quarter (Arendse Huld, 2023).

The construction enterprise is currently facing many challenges due to the emergence of new techniques and technologies. To maintain a competitive edge, construction companies must address critical concerns related to environmental changes, changing customer needs, construction innovation, and the globalization of the market, among other aspects (Badawy et al. 2022).

The construction enterprise in China has experienced significant growth in recent years, thanks to the government's policies and development plans aimed at supporting the expansion of cities and regions throughout the country. The construction enterprise in China was a significant contributor to the country's economy and urban development. Some key points about the industry include urbanization and infrastructure development, China has been undergoing rapid urbanization, with millions of people moving from rural to urban areas. This led to a considerable demand for new infrastructure, including residential buildings, commercial spaces, transportation networks (roads, railways, airports), and utilities.

The Chinese government has historically invested heavily in infrastructure projects as part of its economic growth strategy. Initiatives like the "Belt and Road Initiative" aimed to enhance connectivity between China and other countries through massive infrastructure projects, boosting construction activities. As a result, construction enterprise owners have the chance to grow and advance their businesses by collaborating with the network to contribute to the development of the country's economy.

China experienced a significant real estate boom, with property development being a major driver of construction. This led to the construction of numerous high-rise buildings, housing complexes, and commercial spaces, including the Chinese government, which implemented various policies to manage the real estate market and curb speculation. These policies included restrictions on property purchases and lending practices to prevent housing bubbles and promote sustainable development.

With the rapid construction and urbanization, environmental concerns have become more pronounced. The government started emphasizing green and sustainable

building practices, encouraging the use of energy-efficient materials and designs. The construction enterprises heavily relied on both skilled and migrant labor. The availability of skilled workers and labor conditions played a role in the industry's dynamics (Osman et al. 2023). China was also incorporating technology and innovation into its construction practices. This included the use of prefabricated building components, advanced construction equipment, and even experiments with 3D-printed buildings in some areas.

COVID-19 Impact, like many other countries, China's construction enterprises were affected by the COVID-19 pandemic. Construction projects were temporarily halted or delayed due to lockdowns and supply chain disruptions. However, the industry showed signs of recovery as the pandemic situation improved. Remember that the situation may have changed significantly since 2021. It's essential to consult recent and reliable sources for the most accurate and current information about the construction enterprises in China.

As a contractor, one may encounter various challenges from both internal and external environments. Internal issues may arise from low competitiveness within the business, while external problems may include the effects of globalization, disruptive trends, financial crises, political situations, regional self-government, and a lack of financial support from the government for construction businesses. In order to succeed in the construction industry, it's important to understand competitiveness and develop effective strategies. This has become a major focus among researchers in the field. Keep in mind that each region has unique characteristics that impact competition in construction projects, and local contractors with diverse backgrounds, networks, and experiences may have varying levels of negotiating power and competitiveness in different areas, but still have potential to conduct business. Therefore, it's crucial to recognize your competitive advantage and develop effective strategies to succeed (Nurisra et al. 2017).

Furthermore, the industry has become less innovative, relying more on manual labor and experiencing lower productivity. These declines can be attributed to a variety of industry-specific factors, Businesses face challenges such as an unfavorable environment, lack of government support, and the impact of tax, financial policy, and minimum wage on operating costs (Gyadu-Asiedu et al. 2013), The industry is highly

competitive due to the presence of numerous companies with the potential to operate in it, including foreign companies investing through joint ventures or direct investment from international investors. This has led to intensified competition (Ofori-Kuragu et al. 2016); (Assibey-Mensah, 2015), and changing needs and priorities of employers and owners (Osman & Liu Yi Sheng, 2023).

Kunming City has experienced significant growth in recent years. This has led to the development of many large enterprises, including construction. Unfortunately, this growth has also resulted in some negative consequences, such as pollution and environmental damage caused by improper disposal of waste and chemicals. One major issue is the lack of environmental management during the construction process. This can lead to long-term destruction and risks to the environment, such as improper disposal of construction materials. Additionally, large construction projects often require a significant amount of labor, which can be problematic if workers' rights and safety are not adequately protected. Without proper safety measures, accidents and non-compliance with standards can occur, leading to delays and increased costs. Furthermore, poor project management and inadequate operational guidelines can cause delays and conflicts, reducing overall efficiency. Environmental changes like heavy rain can also delay work and lead to missed goals.

To address these challenges, it is important for the public and private sectors to work together to find sustainable and efficient solutions for the construction enterprises in Kunming. This will require identifying appropriate measures to manage waste, protect workers' rights and safety, and maintain compliance with standards. By working together, we can develop a more efficient and sustainable construction enterprise for the future. The development of construction enterprises is marked by various competitiveness issues that need to be addressed.

A study will be conducted to identify the factors that can affect a business's competitive advantage, both positively and negatively. The study will analyze situations that have an impact and gather resources and information related to the construction enterprise operations. The necessary information, including the required data type and range, will be collected. Any relevant obstacles will be considered to plan operational strategies that provide the business with continuous operating guidelines (Osman and Liu Yi Sheng, 2023).

The findings of the research can aid local contractors in developing their competitive edge and provide international construction enterprises with valuable insights into the construction enterprises in Kunming, The People's Republic of China.

1.2 Research Objectives

1. To study the importance level of competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution of construction enterprises in Kunming, the People's Republic of China.

2. To analyze determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, The People's Republic of China.

1.3 Research Scope

The studies on the determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, the People's Republic of China. The study can be classified into 4 aspects as follows:

1. The scope of the population is the people who are the owner operators of construction enterprises in Kunming, the People's Republic of China.

2. The scope of content is to focus on elements of the core competitiveness of construction enterprises and factors affecting firm performance in Kunming, the People's Republic of China.

3. The area boundaries of research defined the area in this study as construction enterprises in Kunming, the People's Republic of China.

4. Scope of time data collection between October 2023 and January 2024.

1.4 Expected Results

In this study, the researcher classifies the results expected to receive 2 issues as follows:

1. To know the importance level of factor conditions, demand conditions, government, firm strategy, structure, rivalry, related and supporting industries, and chance events of construction enterprises in Kunming, the People's Republic of China.

2. To know the results of the determinants of core competitiveness on construction enterprises and factors affecting firm performance in Kunming, the People's Republic of China.

3. To know the model of core competitiveness of construction enterprises in Kunming, the People's Republic of China.

1.5 Research Contributions

1. Entrepreneurs in the construction enterprises should utilize the findings of this research to assess their level of core competitiveness. This can be achieved by focusing on industry-specific stakeholders, including contractors, architectural and engineering consultants, real estate companies, raw material suppliers, and facility managers.

2. Governments may offer subsidies or grants for construction enterprises to encourage certain types of projects, such as affordable housing or renewable energy installations. These incentives can help offset some of the costs and risks associated with these projects.

3. Governments often support training and education programs to develop a skilled construction workforce. This can involve funding vocational schools, apprenticeship programs, and initiatives to attract young people to the enterprise delivery.

1.6 Definition of Terms

Construction Enterprise refers to a company or organization that is involved in the business of constructing buildings, infrastructure, and various types of projects. This can include residential, commercial, industrial, and public works construction. Construction enterprises typically engage in activities such as designing, planning, building, and managing construction projects.

The concept of competitiveness is multifaceted and can be examined from various angles. While there is no agreed-upon definition of competitiveness among researchers (Lu, Shen, & Yam, 2008), there is some consensus among scholars regarding its meaning and scope. In this article, we define competitiveness as an entity's capacity to be the top choice for stakeholders when it comes to goods, services, and investment, surpassing its rivals. Therefore, The construction enterprise

has a significant impact on the country's GDP. It has to operate with maximum efficiency, producing high-quality products, and generating wealth for its stakeholders, including investors, workers, and the government through tax revenue. Furthermore, a competitive construction enterprise must attract and retain more investment and talent than other sectors of the economy and uphold sustainable construction practices for the greater good of society.

Two prominent theories in business strategy are Porter's Diamond Model (Porter, 1980; 1981) and the resource-based view (RBV) of a firm (Barney, 1991). The Diamond Model proposes that a firm's strategy and performance are influenced by industry factors and market structure. It identifies four critical factors that contribute to a country's competitiveness in international markets: (1) Competitive rivalry, (2) Supplier power, (3) Buyer power, (4) the threat of new entry, and (5) The threat of substitution. Some models include government policy and chance events as additional factors.

Firm performance refers to the assessment of how well an enterprise is achieving its goals and objectives over a specific period of time. It is a comprehensive evaluation of a company's overall health, efficiency, and effectiveness in various areas. Firm performance is often measured using a combination of financial (revenue, profit margins, return on investment, return on assets, return on equity, cash flow, and other financial ratios) and non-financial (stakeholder relations, health, and safety, governance, and transparency, employee satisfaction and engagement) indicators to provide a holistic view of the enterprise operations and outcomes.

CHAPTER 2

LITERATURE REVIEW

The research focuses on the determinants of core competitiveness toward firm performance of construction enterprises in Kunming, China. The related literature will be reviewed carefully. The remainder of this chapter is structured in the following manner. Section 2.1 describes the Chinese context for construction enterprises. Section 2.2 explains the Theories and measurement of competitiveness. Section 2.3 describes the analysis Five Forces Model. Section 2.4 describes firm performance theory. The conclusions of this chapter are drawn in Section 2.5.

2.1. Chinese context for construction enterprises

In the context of a construction enterprise in China, there are some specific aspects to consider due to the country's unique economic, regulatory, and cultural environment. In Yunnan Province, there are industrial estates at both provincial and district/city levels. Almost every district, city, and district has industrial zones located in major industrial estates, including Kunming National High-Tech Industrial Development Zone, Kunming Economic and Technological Development Zone, and Wuhua Science and Technology Industrial Park.

Here are some key points to consider within this context:

2.1.1 Urbanization and Infrastructure Development

China has been undergoing rapid urbanization, leading to a huge demand for infrastructure and real estate. Construction enterprises are involved in building not only residential and commercial properties but also modern transportation systems, utilities, and public facilities.

2.1.2 Government Initiatives

The Chinese government has launched major initiatives like the "Belt and Road Initiative" and "Made in China 2025." These initiatives drive significant construction projects, both domestically and internationally, creating opportunities for construction enterprises.

2.1.3 Supply Chain Management

Construction involves complex supply chains for materials, equipment, and labor. Efficient supply chain management is vital for project timelines and cost control.

2.1.4. Skyscrapers and Mega-Projects

China is home to some of the world's tallest skyscrapers and large-scale infrastructure projects. Enterprises are involved in constructing these iconic structures, showcasing their engineering and architectural expertise.

2.1.5. Market Competition

China's construction market is competitive, with both domestic and international players vying for projects. Enterprises need a strong value proposition and a clear differentiation strategy.

2.1.6. Sustainable Construction

With environmental concerns gaining importance, green and sustainable construction practices are encouraged. Construction enterprises are expected to incorporate energy-efficient designs and materials.

2.1.7 Foreign Investment and Collaboration

China welcomes foreign investment and collaboration in its construction industry. Joint ventures with local partners are common, providing international enterprises with access to local knowledge and networks.

2.1.8 Digital Transformation

Chinese construction enterprises are adopting digital technologies such as BIM, drones, and AI for various purposes, including project management, design, and quality control.

2.1.9 Regulatory Landscape

Navigating China's regulatory framework is crucial. Construction enterprises need to be well-versed in local laws, building codes, and permit processes.

2.1.10 Cultural Sensitivity

Understanding and respecting Chinese cultural norms is important in business interactions. Building strong relationships through face-to-face meetings and networking events can be valuable.

Therefore, based on a review of the data. The research summarized the key points of Chinese context for construction enterprises see Figure 2.1



Figure 2.1 The context for construction enterprises

Source: Developed by researcher

2.2 Theories and Measurement of Competitiveness

This review delves into various theoretical and empirical literature regarding competitiveness in the business world. A central question in this field is how companies and industries within a country can become competitive. Previous research has examined two main theoretical perspectives to answer this question: Porter's Diamond Model (Porter, 1980; 1981) Proposed by Michael Porter, this theory emphasizes the role of multiple interconnected factors that influence a country's or region's competitiveness. These factors include factor conditions (i.e., resources and skills), The competitive advantage of businesses within a specific location is

influenced by various factors, such as demand conditions, related industries and business support, structural strategies, and competitive situation. It is important to consider the interaction of these factors and the limited resources of the company (Barney, 1991). The theory of resource-based view (RBV) proposes that a company's distinctive resources and abilities can drive competitiveness. Firms possessing valuable and rare resources that other companies cannot copy or replace can attain a lasting competitive advantage.

According to the Diamond framework, a company's strategy and performance determinants are influenced by market structure and industry factors. This approach also highlights how countries can improve their industries to succeed in global competition by emphasizing four key factors: (1) factor conditions, (2) demand conditions, (3) firm strategy, structure, and rivalry, and (4) related and supporting industries. Additionally, government policies and chance events are often considered to make this model more comprehensive, resulting in a total of six factors.

In 1994, Cho expanded on Porter's framework by creating a theory that classified the factors into two categories: physical and human. Cho acknowledged the crucial role of these factors in gaining a competitive edge and contended that human factors can proficiently oversee the physical components to attain success. However, Rugman and D'Cruz (1993) had already introduced the Double Diamond Model, which highlighted the importance of corporate strategy and processes in establishing a global competitive advantage.

There are other frameworks available for measuring competitiveness, such as the Asset-Potential Performance (APP) framework developed by Ambastha and Momaya (2004), as well as the Competitiveness Triangle introduced by Lall (2001). However, according to Rugman and D'Cruz (1993), Today, a company's competitive advantage depends on several crucial factors specific to its local or regional context.

By utilizing an outside-in approach, a company can evaluate the factors that impact competition in their enterprises and identify the root causes. This enables them to create effective strategies for maintaining competitiveness. In analyzing various enterprises, including construction, many have relied on Porter's Diamond Model. According to Ericsson et al (2005), this framework is the most established and widely used in assessing competitiveness, despite some criticisms. It has been effectively

applied in other industries like hospitality (Wu, Lin, and Chen, 2007), education (Curran, 2000), and tourism (Bobirca and Cristureanu, 2008).

Deng, Liu, and Jin (2013) even used this framework to assess Chinese construction companies. Betts and Ofori (1994) discovered that strategic planning was beneficial in construction, and Öz (2001) employed the same model to evaluate Turkish construction firms. Hence, we chose this research framework as a conceptual approach to identify the determinants affecting the competitiveness of the construction enterprise in Kunming.

Competitiveness can be measured on different levels, with the national level being one of the most important. Esteemed institutions like the International Institute of Management Development (IMD) and The World Economic Forum (WEF) publish their reports annually to gauge the competitiveness of construction enterprises. These reports define competitiveness and analyze various factors that influence it at a national level. To accurately measure and assess their competitiveness levels, construction enterprise must process their data thoroughly and systematically (Matyja, 2016; Ling, and Gui, 2019).

Tan (2009) created a model that can help construction businesses assess their competitiveness. Tan identified 10 critical success factors that can enhance performance such as organizational structure, political environment, employee development, process benchmarking, technical applications, evaluation and feedback, competitive strategy, inter-organizational relationships, management skills, and environmental factors. This model emphasizes the significance of organizational levels in managing construction enterprises efficiently. Tan suggests that businesses concentrate on eight areas to improve their competitiveness and adapt to changing competitor and customer conditions. These areas include mission, vision, goals, knowledge, core competencies, finance, competition, and markets.

2.3 The Analysis Five Forces Model

Porter's Five Forces is an effective method to determine the primary sources of competition in a business or industry. Porter identifies five forces that create the most significant competitive pressure within a business (Porter, 1980; 1981),

(1) Competitive rivalry, (2) Supplier power, (3) Buyer power, (4) the threat of new entry, and (5) The threat of substitution are as follow:

2.3.1 Competitive rivalry

The purpose of this analysis is to evaluate the amount of competition in a given market by considering both the number of competitors and their abilities. When there are only a few businesses offering a particular product or service, it can result in increased rivalry and competition. This is especially true if the business is unique and difficult to imitate, as it can have a significant impact on the industry's overall growth. or if customers can easily switch to a competitor's product without facing significant expenses. In such cases, businesses may engage in advertising and price wars.

2.3.2 Supplier power

This concept evaluates the level of influence that a company's suppliers possess and their ability to increase prices, ultimately affecting the business's profits. Additionally, it examines the availability of raw materials and other resources from various suppliers. The more suppliers there are, the less power each individual supplier holds. On the other hand, a company benefits from having multiple suppliers.

2.3.3. Buyer power

This concept examines the impact of consumers on price and quality. When there are more sellers than buyers. it's easy to switch between options, consumers have considerable influence.

In contrast, buying power dwindles for consumers who make infrequent purchases or choose products that vary greatly from those of other sellers.

2.3.4. The threat of new entry

The level of competition in a marketplace is influenced by the ease or difficulty of new competitors entering the market. If it's easy for new players to enter, the existing businesses risk losing their market share. The barriers to entry include cost advantages, accessibility of inputs, economies of scale, and brand recognition.

2.3.5. The threat of substitution

This concept evaluates how simple it is for customers to move from a company's offering to a competitor's. It considers the amount of competition, how their prices and quality match up to the company being evaluated, and the competitors' earnings to determine if they can lower costs further. The possibility of

substitutes is based on immediate and long-term switching costs and consumers' willingness to change. Discover how to conduct a competitive analysis to stay ahead of competitors in the market, see [Figure 2.2](#)



Figure 2.2 Porter's Five Forces Model

Source: Porter (1980)

These theories and measurements provide frameworks and tools for understanding and evaluating competitiveness. However, it's important to note that competitiveness is a complex and multifaceted concept that can vary across industries, regions, and contexts. As such, a combination of theories and measurements is often needed to gain a comprehensive understanding of competitiveness.

According to Lu et al. (2008), there are eight key factors that determine competitiveness in China, based on their research. They identified 35 factors that contribute to success in this area. This study offers valuable guidance to contractors who want to improve their competitive advantage by managing their resources more

effectively. Additionally, it provides valuable insights to professional contractors who are planning to compete in the Chinese construction enterprise (Johari, 2019). as follows:

1. Project management involves managing various aspects such as location, cost, quality, time, contracts, risk, logistics, and supply chain.
2. Organizational structure should conform to appropriate functions for different departments, with clear communication and coordination between them. The interaction between management and general staff should prioritize motivation and job satisfaction, as well as the leader's personality and ability.
3. The human resources organization's current capacity, sustainability, financial resources, financing ability, and stability are important factors.
4. Competitive strategy, It is strategic alignment with company goals, effective implementation, and awareness of market factors.
5. Building relationships is crucial for success in business. This includes relationships with clients, owners, subcontractors, suppliers, government departments, and the public.
6. The organization can provide assistance with bidding strategy, as well as our experience in the offering and access to bidding resources.
7. Marketing teams need to gather and analyze data on new projects, products, labor, materials, plants, and resources while considering their business scope.
8. Technology, There are three important aspects to consider: the ability to innovate technologically, ensuring sustainable development of technology, and conducting research and development.

Thus, Johari's (2019) study concludes that the competitiveness of Chinese construction, enterprises consist of 8 aspects: project management, organizational structure, human resource organization, competitiveness strategy, relationship, offer, marketing, and technology.

The research of Hui Guo, and Weisheng Lu (2022) Through principal components analysis, the case study discovered that 11 indicators could be grouped into 4 principal components. These components were labeled as "performance" and "capability" and were further categorized under the "profitability" and "solvency"

super-components of a company. Based on the generated weights of the 11 indicators, composite indexes were used to calculate the competitiveness of the enterprise.

For this research used the concept of Porter's Five Forces (Porter, 1980; 1981). They are (1) Competitive rivalry, (2) Supplier power, (3) Buyer power, (4) the threat of new entry, and (5) The threat of substitution. Because the variables are comprehensive to apply to the competition of the construction enterprise.

2.4 Firm Performance

The performance of an organization is measured by the quantity, quality, efficiency, and profits generated by its tasks during a specific period (Niu and Li, 2005). Different research studies use various indices to assess organizational performance, but from a market economy perspective that China is currently striving towards, stakeholders' views provide a more comprehensive understanding (Liu and Li, 2010).

In a market economy, the primary index of economic entities is financial performance, particularly profits, profit rates, and income (Yi-Hsin Lin and Ying-Ying Li, 2013).

Firm performance measures are indicators that determine how well an organization achieves its goals. This may include the direction of the request, client satisfaction, fiscal performance, profitability of the business, or other factors related. The performance is measured in numerous ways, similar to company performance, functional effectiveness, and fiscal effectiveness. It has been accepted that there are no further competition between associations. But it's in the process of force chain capability.

Absolutely, firm performance is indeed important for various reasons. Firm performance refers to the measurement of how well a company is achieving its strategic and operational objectives. It is a critical factor that influences the long-term sustainability, growth, and overall success of a business. Here's why firm performance is important:

2.4.1 Profitability

Firm performance is often closely tied to profitability. A well-performing firm is more likely to generate consistent profits, which are essential for funding operations, expansion, and future investments.

2.4.2 Shareholder Value

Strong firm performance positively impacts shareholder value. When an enterprise performs well, its stock prices tend to increase, leading to higher returns for shareholders.

2.4.3 Sustainability

A company that performs well is better equipped to weather economic downturns and industry challenges. Sustainable performance ensures that a firm can endure unfavorable market conditions and continue its operations over the long term.

2.4.4 Innovation and Growth

Positive firm performance often allows enterprises to invest in research and development, innovation, and expansion into new markets. This drives growth and helps enterprises stay ahead of the competition.

2.4.5 Reinvestment and Upgrading

Strong performance enables enterprises to reinvest profits into improving their operations, technologies, and infrastructure. This leads to better efficiency and overall effectiveness.

In summary, firm performance serves as a key indicator of an enterprise's health, growth potential, and ability to create value for various stakeholders. It's an essential aspect that company leaders, investors, employees, and other stakeholders closely monitor to ensure the continued success of the business.

2.5 The impact of core competitiveness on the performance

Small and medium-sized construction companies in China have a crucial impact on the construction sector. However, they face challenges in maintaining their competitiveness. To support and enhance their competitiveness, this study establishes a theoretical framework to examine how core competencies affect performance in Chinese construction SMEs. The findings show that entrepreneur capability,

relationship marketing, and project management are crucial for achieving exceptional performance (Yan Shigang, 2011).

Cao et al. (2018) suggest that the network structure of cooperation between organizations is characterized by certain factors, when it comes to contracted projects, such as design and construction organizations. These factors include the organization's ability to compete in the long-term, the executives' experience, and the organization's reputation in bidding for important projects in both the government and private sectors. The ownership type, years of service in the industry, and network size in previous periods also play a role in predicting success in winning new contracts and improving competitiveness in the future (Ozorhon et al. 2020).

2.6 Conclusion

The construction enterprise is facing a range of challenges and changes, and as a result, many enterprises are constantly striving to improve their competitiveness. However, only a select few are able to effectively adapt their strategies to remain successful. While there are many proposed systems and requirements to improve operations and profits, they often fail to keep up with the level of competitiveness required in the construction enterprise. Therefore, this research study analyzes the element components of the core competitiveness of construction enterprises and identifies the five essential factors that govern their level of core competitiveness and firm performance.

CHAPTER 3

RESEARCH METHODOLOGY

In this chapter, the research design and its methods are introduced. The research design can be developed on the basis of the research objectives. The researcher has determined the research methods as follows:

1. Population and Sample
2. Research Instrumentation
3. Data Collection
4. Data analysis

3.1 Population and Sample

1. Population

The population studied consists of enterprise owners registered with the Kunming City Commercial Office, China, in 2023 and does not cover sole proprietorships. Because the number of employees is relatively small, organizational management is not possible, so it is described as 1,284 companies (Data from Kunming City Commercial Office, China, 2023).

2. Sample

The samples used in this research are enterprise owners registered with the Kunming City Commercial Office, China, in 2023 and do not cover sole proprietorships. Because the number of employees is relatively small, organizational management is not possible, so it is described as 1,284 companies. The researcher has calculated the sample size using the formula of Taro Yamane (1967), which is set by a confidence level of 95 percent and a level of error of 5 percent. The formula calculation and the following data should be obtained by the calculation formula as follows:

$$n = \frac{N}{1 + Ne^2}$$

while N = Population size

e = is the expected sampling error

n = Sample size

The sampling method of academic staff is as follows:

$$= \frac{1,284}{1 + [1284(0.05)^2]}$$

$$= 304.98$$

The sample size can be calculated as 304.98. The result of the sample size of this study is to know the exact population. A simple random sampling technique was used to obtain data from Kunming City Commercial Office, China, 2023, the People's Republic of China. The sample size can be calculated as 305 construction enterprise owners. The researcher defined the sample as 400 owners of construction enterprises to ensure a comprehensive representation of the population.

3.2 Research Instrumentation

The questionnaires are based on the development of core competitiveness by Porter's Five Forces Model (Porter, 1980). They consist of five factors, namely, 1) Competitive rivalry, 2) Supplier power 3) Buyer power, 4) Threat of new entry, and 5) Threat of substitution, including firm performance factor. Additionally, by developed a questionnaire that focuses on two factors, namely, 1) financial factors, and 2) non-financial factors.

In addition, the questionnaire received recommendations from the advisor and has been revised to reflect this. Research objectives according to the concepts and theories related to the questionnaire. The researcher developed a questionnaire using literature and research to gather data for studies. This questionnaire is divided into four parts, which are as follows:

Part 1. Demography

Its survey includes questions on gender, age, status, education, position or career level, experience in the field of work, and income per month. When collecting data, it is important to use a checklist of questions, use a nominal scale to measure data and measure variables with discrete values.

Part 2. Factors of core competitiveness by Porter's Five Forces Model

The questionnaire will gather information about various factors of the core competitiveness, including 1) competitive rivalry, 2) supplier power 3) buyer power, 4) threat of new entry, and 5) threat of substitution. The questionnaire consists of questions that ask the respondents to indicate the level of importance of the effect firm performance they place on each factor. The data is measured using an interval scale and is considered a continuous variable. The questions is a 5-level rating scale (Rating Scale) applied according to the Likert method (Likert, 1970), which determines 5 levels of importance of the effect job satisfaction with the highest score being 5 and the lowest score being 1. as follows:

Very high important level of the effect firm performance Score 5

High important level of the effect firm performance Score 4

Moderate important level of the effect firm performance Score 3

Low important level of the effect firm performanc Score 2

Very low important level of the effect firm performance Score 1

Part 3. Questionnaire about the firm performance of the enterprise.

The questionnaire uses an interval scale to measure data and consists of questions that respondents consider the firm performance. It is a continuous variable. The questions are a 5-level rating scale (Rating Scale) applied according to the Likert method (Likert, 1970), which determines 5 levels of firm performance with the very high score being 5 and the very low score being 1. as follows:

5 points means a very high level of firm performance.

4 points means high level of firm performance.

3 points means moderate firm performance.

2 points means a low level of firm performance.

1 point means a very low of firm performance.

Part 4. Suggestions regarding the core competitiveness and the firm performance of owner enterprise in Guangxi.

For the process of developing research tools, the researcher constructed the instrument in the following steps.

1. Study documents and research that are similar to this research. Including the concept, theory, and research results related to the variables studied to serve as a guideline for creating questionnaires.

2. It is recommended to seek consultation and advice from qualified advisors. It will help you make informed decisions.

3. Create a questionnaire aligned with research objectives. Develop a conceptual framework and research hypotheses.

4. It is important to bring the questionnaire to the advisor to ensure it adheres to research principles and receive suggestions for improvement.

5. To analyze the reliability of the revised questionnaire, it is recommended to try it out with a sample of 30 individuals who are not a part of the actual sample to be tested. The alpha coefficient formula (Cronbach's Alpha-Coefficient) should be used with a total average confidence value criterion of at least .70 (Cronbach, 1970). By testing the sampling error, an expected value is obtained, which should be higher than the standard. This indicates that the questionnaire can be used to collect data.

6. Firstly, complete the prepared version of the questionnaire. Then, consider the existing questionnaires by the searchers and the different online delivery modes available across various platforms online in China and WeChat. The target sample should be focused on owners of construction enterprises and does not cover sole proprietorships. Because the number of employees is relatively small, organizational management is not possible, so it is described as 1,284.

3.3 Data Collection

1. The researchers surveyed 400 respondents on online delivery platforms in China and WeChat over 3 weeks.

2. Process information with a program for further analysis and statistics.

3.4 Data Analysis

The researcher employs statistical analysis techniques to analyze the data. This is done by utilizing various software packages.

An analysis was conducted on the personal factors of only enterprise owners registered with the Kunming City Commercial Office, China, in 2023. The analysis included factors such as gender, age, status, education, position or career level income, experience in the field of work, and income per month. Statistical methods

were used to calculate the frequency and percentage of the responses obtained through the first part of the questionnaire.

This analysis aims to investigate the impact of core competitiveness on firm performance in Kunming City, the People's Republic of China. The research utilized statistical analysis, specifically the mean and standard deviation of data obtained from the second part of the questionnaire. The scores were divided into five ranges using the range formula (Best and Kahn, 1970).

$$\text{Average level} = \frac{\text{highest score} - \text{lowest score}}{\text{Number of ranges}} \frac{5-1}{5} = 0.80$$

The criteria for interpreting the scores for each of the five periods was set at 0.80. The received scores were then analyzed to calculate the average, which was interpreted based on the level of importance as per the score values outlined by Best and Kahn (1970) as follows:

A score between 4.21-5.00 means it has a very high level of effect.

A score between 3.41-4.20 means it has a high level of effect.

A score between 2.61-3.40 means it has a moderate level of effect.

A score between 1.81-2.60 means it has a low level of effect.

A score between 1.00-1.80 means it has a very low level of effect.

The firm performance of owners of construction enterprises. The research was analyzed using statistical methods. Specifically, the mean and standard deviation were calculated based on data collected from the third section of the questionnaire. This section had five score ranges, which were calculated using the range formula outlined by Best and Kahn (1970).

$$\text{Average level} = \frac{\text{highest score} - \text{lowest score}}{\text{Number of ranges}} \frac{5-1}{5} = 0.80$$

The criteria for interpreting the score in each of the five grades of .80 are as follows:

A score between 4.21-5.00 means having a very high level of firm performance

A score between 3.41-4.20 means having a high level of firm performance

A score between 2.61-3.40 means having a moderate level of firm performance

A score between 1.81-2.60 means having a low level of firm performance

A score between 1.00-1.80 means having a very low level of firm performance

Hypothesis test

The determinants of core competitiveness toward the firm performance of construction enterprise in Kunming, the People's Republic of China. The researcher use inferential statistics with multiple regression analysis (MRA.) by the enter selection technic.

The formula regarding the multivariate regression is as follows:

X is the independent variable and Y is the dependent variable.

The equation $Y = a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4 + a_5x_5$

Y = Overall firm performance level

x = Independent variable

x1 = competitive rivalry

x2 = supplier power

x3 = buyer power

x4 = threat of new entry

x5 = threat of substitution

a = parameter

β = Regression coefficients of the predictors in the form of standard scores.

R = Multiple correlation coefficient

R^2 = Forecast coefficient

Adjusted R^2 = The prediction coefficient value has changed from the original.

SE = Standard error of the forecast

In the process of verifying whether all the necessary requirements for conducting a regression analysis are being met. When conducting multiple regression analysis, it is important to examine the relationship between predictor variables. In the correlations section, correlation coefficients were calculated to test the variables. The results showed that there were no pairs of predictor variables that were highly correlated (values above .80) (Hair et al. 2017). This indicates that the estimates are independent of each other.

When testing for the independence of deviations, one can refer to the test statistics and ensure that Durbin-Watson value falls within the range of 1.5 to 2.5, which indicates that the deviations are independent (Hair et al. 2017). It is essential to examine the problem of effect between independent variables, also known as multicollinearity. This can be achieved by checking the values of the predictive variables to ensure that there is no issue with the relationship being too high and not having a normal distribution correlation coefficient. The tolerance value and the VIF value can help us understand this relationship clearly. The tolerance value should not be less than .10, while the VIF value should not exceed 10 (Ringim et al. 2012).

In addition, Inferential analysis was used to test the assumptions, using Pearson's Product Moment Coefficient of Correlation. To explain the effect of the core competitiveness toward the firm performance of only owners of construction enterprises in Kunming City Commercial Office, China, in 2023.

3.5 Conceptual Framework

The result of the concept review, theory, and related research. The authors concluded that core competitiveness has 5 components, developed from the scales of Porter (1980; 1981). The firm performance can be divided into two types: financial factors and non-financial factors; see Figure 3.1 Conceptual Framework.

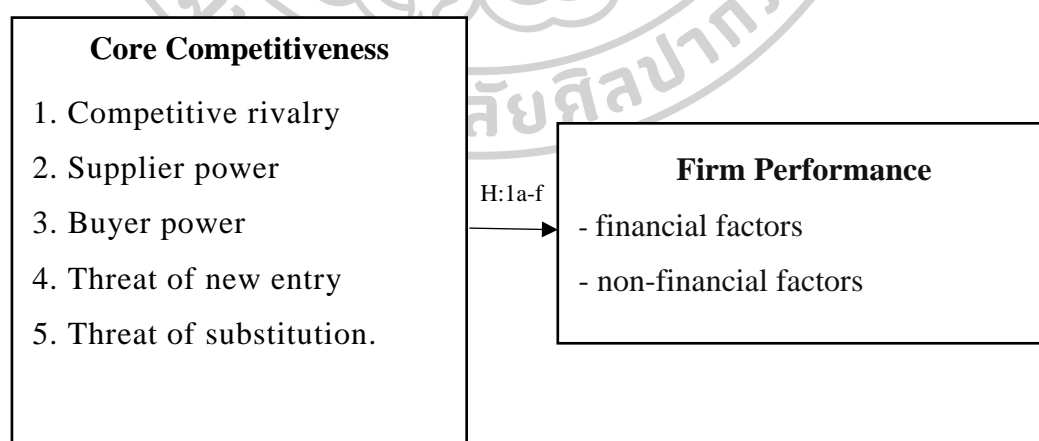


Figure 3.1 Conceptual Framework

3.6 Research Hypothesis

The null hypothesis (H_0) is a statistical hypothesis that assumes that there is no significant difference between two given sets of data. It is used to test an alternative hypothesis (H_a) which assumes that there is a significant difference between the two sets of data being compared.

H0a: The direct effect of competitive rivalry on firm performance of construction enterprises was evident as they do not influence each other.

H1a: The direct effect of competitive rivalry on firm performance of construction enterprises was evident as they influenced each other.

H0b: The direct effect of supplier power on the firm performance of construction enterprises was evident as they do not influence each other.

H1b: The direct effect of supplier power on the firm performance of construction enterprises was evident as they influence each other.

H:1a Competitive rivalry had a direct effect on the firm performance of construction enterprises.

H:1b Supplier power had a direct effect on the firm performance of construction enterprises.

H:1c Buyer power had a direct effect on the firm performance of construction enterprises.

H:1d Threat of new entry had a direct effect on the firm performance of construction enterprises.

H:1e Threat of substitution had a direct effect on the firm performance of construction enterprises.

H:1f The core competitiveness had a direct effect on the firm performance of construction enterprises.

3.7 Research Procedure

Before presenting the result, the determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, China. As shown in Figure 3.2, therefore, the possible scenarios are divided into the following:

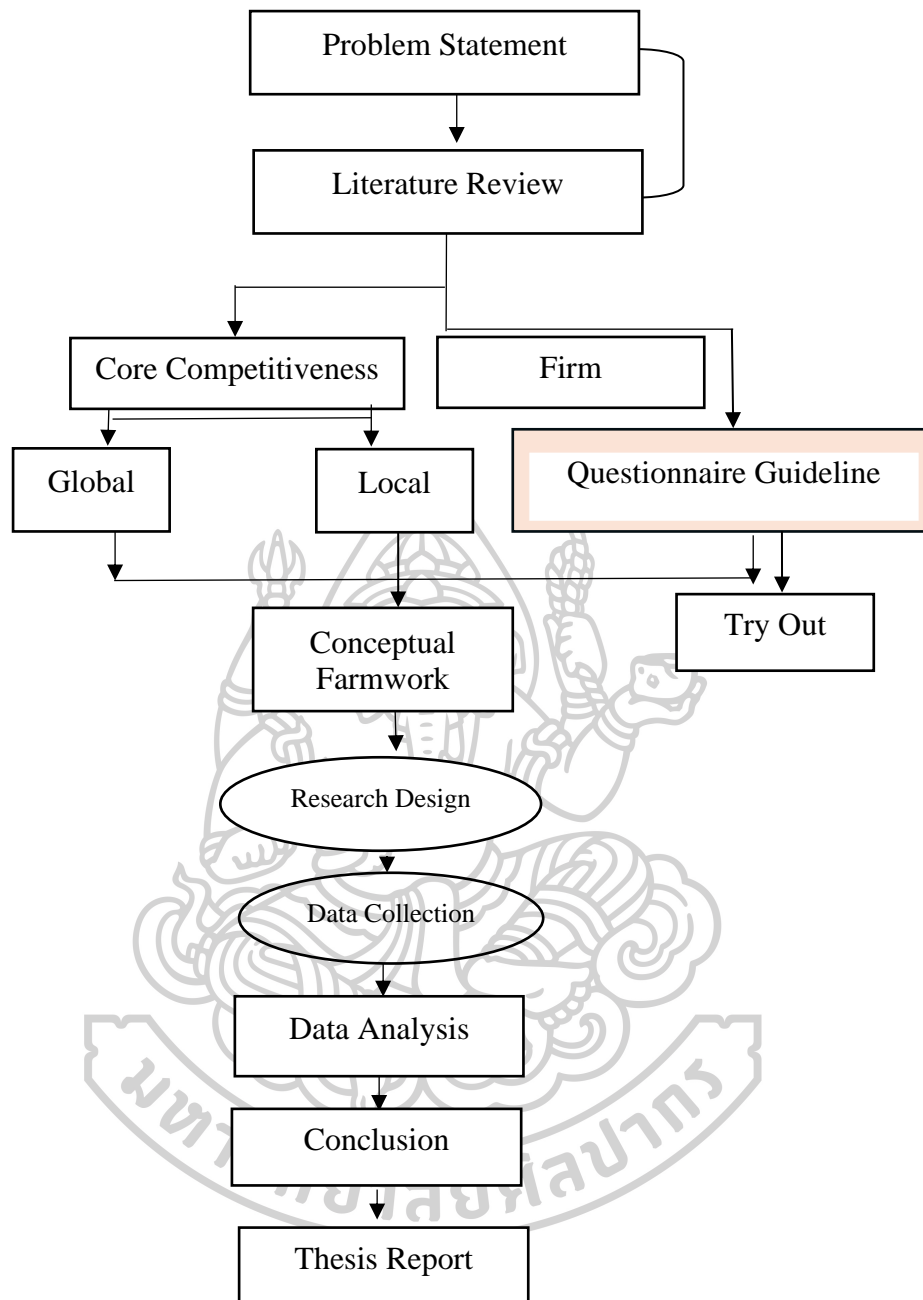


Figure 3.2 Research Process Flow Chart

CHAPTER 4

RESULTS AND ANALYSIS

The key points to study the determinants of core competitiveness toward firm performance of construction enterprise in Kunming, the People's Republic of China. This paper uses a questionnaire as a main tool in order to collect the data.

4.1 Demography

The respondent profile is shown in Table 3; the table shows information about the demographics of only enterprise owners registered with the Kunming City Commercial Office, China, in 2023 and does not cover sole proprietorships by providing the frequency and percentage of each. The research results are summarized, as follows:

Table 4.1 Demography

(n=400)

| General | Demography | Number | Percentage |
|------------------|--------------------------|--------|------------|
| Gender | Males | 246 | 61.50 |
| | Females | 154 | 38.50 |
| Age | Under 30 Years | 36 | 9.00 |
| | 30 – 39 Years | 109 | 27.25 |
| | 40 – 49 Years | 158 | 39.50 |
| | 50 - 59 Years | 91 | 22.75 |
| | 60 Years or older | 6 | 1.50 |
| Status | Single | 64 | 16.00 |
| | Merited | 286 | 71.50 |
| | Separated | 39 | 9.75 |
| | Divorce | 11 | 2.75 |
| Education | Below Bachelor Degree | 5 | 1.25 |
| | Bachelor's Degree | 215 | 53.75 |
| | Master's Degree or above | 173 | 43.25 |
| | Doctoral Degree | 7 | 1.75 |

Table 4.1 Demography (Continued)

(n=400)

| General | Demography | Number | Percentage |
|---------------------------------------|---|---------------|-------------------|
| Position | Owner/ Entrepreneur | 167 | 41.75 |
| | Manager | 233 | 58.25 |
| Experience | Less than 3 Year | 4 | 1.00 |
| | 3-5 Year | 76 | 19.00 |
| | 6-8 Year | 132 | 33.00 |
| | more than 8 Year | 188 | 47.00 |
| Construction enterprises types | Sole Proprietorship | 46 | 11.50 |
| | Limited Partnership | 175 | 43.75 |
| | Limited Company | 165 | 41.25 |
| | Public Company Limited | 14 | 3.50 |
| Investment | Private capital | 67 | 16.75 |
| | Private capital and financial institutions | 124 | 31.00 |
| | Private capital, capital from partners and financial institutions | 209 | 52.25 |
| Past performance | Fix | 58 | 14.50 |
| | Profit Ability | 342 | 85.50 |

Table 4.1 Demography of enterprise owners/entrepreneurs registered with the Kunming City Commercial Office, China, in 2023 According to the research, the majority of individuals who undertake construction industries are male, accounting for 61.50% of the respondents. The age group with the highest representation is between 40 and 49 years old, accounting for 39.50%, followed by the 30-39 age group with 27.25%, and the 50-59 age group with 22.75%. The majority of respondents are married, accounting for 71.50%, followed by single individuals with 16.00%, and separated at 9.75% respectively. Most of the respondents have a Bachelor's degree, 53.75 %, followed by those with a Master's Degree or above,

43.25%. The majority position of respondents are individuals who are managers, 58.25.00%. in the construction industry, 41.75%, followed by owner / entrepreneurs 58.25.00%.

The majority of respondents have more than 8 years of experience, 47.00%, followed by 6-8 years, 33.00%, and 3-5 years, 19.00. The majority of respondents are construction enterprise types, accounting for Limited Partnership, 43.75%, followed by those with a Limited Company, 41.25%, and Sole Proprietorship, 11.50%.

The investment in the construction industry is mostly from Private capital, capital from partners and financial institutions, 52.25%), followed by private capital and financial institutions 31.00%, and private capital, 16.75%.

The majority of the past performance of the construction industry has profit ability, 85.50%, and followed by fix, 15.50%

4.2 Analysis Result of Research Objective 1

4.2.1 To study the importance level of implementing core competitiveness (competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution) and firm performance of construction enterprises in Kunming, the People's Republic of China.

Table 4.2 Descriptive statistic analysis of competitive rivalry

| 1. Competitive rivalry | Mean | S.D. | Level of importance |
|--|-------------|-------------|----------------------------|
| 1.1 The company's marketing operations are affected by competition in the express delivery area | 3.82 | 0.783 | High |
| 1.2 The servitization of your competitors can have an impact on your business | 3.81 | 0.750 | High |
| 1.3 The services provided by various competitors can significantly affect the operations of a business | 3.68 | 0.815 | High |

Table 4.2 Descriptive statistic analysis of competitive rivalry (Continued)

| 1. Competitive rivalry | Mean | S.D. | Level of importance |
|---|-------------|--------------|----------------------------|
| 1.4 Compared to its competitors, the business has the advantage of being able to manage its services with relatively low operating costs. | 3.84 | 0.750 | High |
| 1.5 The service delivery model of this business is unique, attracting more customers than competitors in this area market | 3.83 | 0.791 | High |
| Total average | 3.79 | 0.778 | High |

According to Table 4.2, competitive rivalry is high important. The research shows that the total average is 3.79 with a standard deviation of 0.778, which indicates a high level of importance. Upon analyzing the data, it was found that the first important factor is compared to its competitors, the business has the advantage of being able to manage its services with relatively low operating costs, with a mean of 3.84 and a standard deviation of 0.750. The second factor was the service delivery model of this business is unique, attracting more customers than competitors in this area market, with a mean 3.83, with a standard deviation of 0.791. Lastly, the company's marketing operations are affected by competition in the express delivery area, with a mean 3.82, with a standard deviation of 0.783.

Table 4.3 Descriptive statistic analysis of supplier power

| 2. Supplier power | Mean | S.D. | Level of importance |
|--|-------------|-------------|----------------------------|
| 2.1 Your business benefits from having a diverse range of efficient suppliers for raw materials | 3.88 | 0.666 | High |
| 2.2 A well-connected network of raw material suppliers with efficient distribution leads to a profitable business. | 3.87 | 0.738 | High |

Table 4.3 Descriptive statistic analysis of supplier power (Continued)

| 2. Supplier power | Mean | S.D. | Level of importance |
|---|-------------|--------------|----------------------------|
| 2.3 The products and services provided by raw material suppliers are indispensable and cannot be replaced by any other substitute products or services. | 3.92 | 0.713 | High |
| 2.4 When the cost of switching suppliers is low, it indicates that the supplier has less bargaining power | 3.92 | 0.728 | High |
| 2.5 The limited number of suppliers results in increased costs for goods and services | 3.92 | 0.746 | High |
| Total average | 3.90 | 0.718 | High |

According to Table 4.3, supplier power is high important. The research shows that the total average is 3.90 with a standard deviation of 0.718, which indicates a high level of importance. Upon analyzing the data, it was found that the important factor, there are 3 factors that have the same value was the products and services provided by raw material suppliers are indispensable and cannot be replaced by any other substitute products or services when the cost of switching suppliers is low, it indicates that the supplier has less bargaining power, and the limited number of suppliers results in increased costs for goods and services with the same proportions, with a mean 3.83 with a same proportions, with a mean 3.92, with a standard deviation of 0.713, 0.728, 0.746. Follow by, Your business benefits from having a diverse range of efficient suppliers for raw materials, with a mean 3.88, with a standard deviation of 0.666. Lastly, A well-connected network of raw material suppliers with efficient distribution leads to a profitable business, with a mean 3.87, with a standard deviation of 0.738.

Table 4.4 Descriptive statistic analysis of buyer power

| 3. Buyer power | Mean | S.D. | Level of importance |
|--|-------------|--------------|----------------------------|
| 3.1 Products and services are so distinctive and different that customers of other businesses cannot purchase them | 3.85 | 0.635 | High |
| 3.2 Customers have access to information about products and transportation services, which gives them the power to negotiate and create pressure on express delivery providers | 3.90 | 0.728 | High |
| 3.3 Customers can purchase products and services at a lower cost compared to other providers in the market | 3.85 | 0.723 | High |
| 3.4 Customers can quickly access news and information from various online sources when using your business's services | 3.93 | 0.749 | High |
| 3.5 If a customer is placing an order for a considerable amount of items, they may have the opportunity to discuss and potentially lower the price | 3.84 | 0.738 | High |
| Total average | 3.87 | 0.715 | High |

According to Table 4.4, buyer power is high important. The research shows that the total average is 3.87 with a standard deviation of 0.715, which indicates a high level of importance. Upon analyzing the data, it was found that the first important factor is customers can quickly access news and information from various online sources when using your business's services, with a mean of 3.93 and a standard deviation of 0.746. The second factor was customers have access to information about products and transportation services, which gives them the power to negotiate and create pressure on express delivery providers, with a mean 3.90, with a standard deviation of 0.728. Lastly, products and services are so distinctive and different that

customers of other businesses cannot purchase them and customers can purchase products and services at a lower cost compared to other providers in the market with the same proportion, with a mean 3.85, with a standard deviation of 0.635, 0.635.

Table 4.5 Descriptive statistic analysis of the threat of new entry

| 4. The threat of new entry | Mean | S.D. | Level of importance |
|--|-------------|--------------|----------------------------|
| 4.1 The express delivery service is well-established and widely recognized, making it difficult for new competitors to enter the market. | 3.93 | 0.714 | High |
| 4.2 The express delivery service is widely known and accepted, making it difficult for new competitors to enter the market | 3.89 | 0.734 | High |
| 4.3 The company's innovative services prioritize speed, making it challenging for new competitors to enter the market | 3.86 | 0.684 | High |
| 4.4 New entrants face high barriers to entry due to their relatively high production and service costs | 3.85 | 0.699 | High |
| 4.5 Your company is being impacted by new competitors who are implementing innovative practices | 3.90 | 0.710 | High |
| Total average | 3.89 | 0.706 | High |

According to Table 4.5, the threat of new entry is high important. The research shows that the total average is 3.89 with a standard deviation of 0.706, which indicates a high level of importance. Upon analyzing the data, it was found that the first important factor is the express delivery service is well-established and widely recognized, making it difficult for new competitors to enter the market, with a mean of 3.93 and a standard deviation of 0.714. The second factor was Your company is

being impacted by new competitors who are implementing innovative practices, with a mean 3.90, with a standard deviation of 0.701. Lastly, The express delivery service is widely known and accepted, making it difficult for new competitors to enter the market, with a mean 3.89, with a standard deviation of 0.704.

Table 4.6 Descriptive statistic analysis of the threat of substitution

| 5. The threat of substitution | Mean | S.D. | Level of importance |
|--|-------------|--------------|----------------------------|
| 5.1 The company has the option to find alternative raw materials or innovative solutions to substitute the ones they currently use | 3.78 | 0.688 | High |
| 5.2 Your company purchases equipment and raw materials in large quantities, making suppliers pay more attention | 3.74 | 0.761 | High |
| 5.3 Consider exploring other options to purchase raw materials at a lower cost | 3.77 | 0.743 | High |
| 5.4 Your company has access to a diverse range of high-quality raw materials from various sources. | 3.80 | 0.725 | High |
| 5.5 Your company has a network of cooperation in various operations | 3.80 | 0.779 | High |
| Total average | 3.78 | 0.739 | High |

According to Table 4.6, the threat of substitution is high important. The research shows that the total average is 3.78 with a standard deviation of 0.739, which indicates a high level of importance. Upon analyzing the data, it was found that the first important factor is two factors where your company has access to a diverse range of high-quality raw materials from various sources, and your company has a network of cooperation in various operations, with a mean of 3.80 and a standard deviation of 0.725, 0.799 with the same proportion. The second factor was the company has the

option to find alternative raw materials or innovative solutions to substitute the ones they currently use, with a mean 3.78, with a standard deviation of 0.688. Lastly, consider exploring other options to purchase raw materials at a lower cost, with a mean 3.77, with a standard deviation of 0.743.

Table 4.7 Descriptive statistic analysis of firm performance

| 6. Firm Performance | Mean | S.D. | Level of importance |
|---|-------------|-------------|----------------------------|
| 6.1 The company has increased profits compared to past operating results | 3.87 | 0.716 | High |
| 6.2 The company has achieved higher profits in comparison to its previous operating results | 3.85 | 0.743 | High |
| 6.3 The company has increased cash flow to compared to last year | 3.93 | 0.699 | High |
| 6.4 The number of customers using the business's services has increased compared to last year | 3.88 | 0.728 | High |
| 6.5 The company has proficient and capable employees who are skilled in delivering high-quality services | 3.90 | 0.697 | High |
| 6.6 The business attracted more customers this year compared to last year, resulting in an increase in service usage | 3.78 | 0.603 | High |
| 6.7 It is important for businesses to be able to adapt to changes in their environment in order to stay relevant and successful | 3.86 | 0.725 | High |
| 6.8 Most of your businesses have customers who repeatedly use their services | 3.67 | 0.789 | High |

Table 4.7 Descriptive statistic analysis of firm performance (Continued)

| 6. Firm Performance | Mean | S.D. | Level of importance |
|---|-------------|--------------|----------------------------|
| 6.9 The process of warehouse rotation has been improved to make it more efficient and streamlined | 3.75 | 0.885 | High |
| 6.10 The business consistently maintains relationships with its customers and partners | 3.98 | 0.695 | High |
| Total average | 3.85 | 0.695 | High |

According to Table 4.7, firm performance is high important. The research shows that the total average is 3.85 with a standard deviation of 0.695, which indicates a high level of importance. Upon analyzing the data, it was found that the first important factor is the business consistently maintains relationships with its customers and partners, with a mean of 3.98 and a standard deviation of 0.695. The second factor was The company has increased cash flow to compared to last year, with a mean 3.93, with a standard deviation of 0.699. Lastly, The company has proficient and capable employees who are skilled in delivering high-quality services, with a mean 3.90, with a standard deviation of 0.697.

Therefore, a total of the importance level of core competitiveness is the independent variable (competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution), and the dependent variable is the firm performance of construction enterprises in Kunming, the People's Republic of China. See Table 4.8

Table 4.8 Descriptive statistical analysis of 6 factors

| Factor | Mean | S.D. | Level of importance |
|---------------------------|------|-------|---------------------|
| 1. Competitive rivalry | 3.79 | 0.778 | high |
| 2. Supplier power | 3.90 | 0.718 | high |
| 3. Buyer power | 3.87 | 0.715 | high |
| 4. Threat of new entry | 3.88 | 0.705 | high |
| 5. Threat of substitution | 3.78 | 0.739 | high |
| 6. Firm performance | 3.85 | 0.695 | high |

According to Table 4.8, All factors have a high level of importance. It should be arranged from the high important to the least important. The supplier power is high important. The total average score was 3.90 with a standard deviation of 0.718, followed by the threat of new entry with a mean score of 3.88 with a standard deviation of 0.705. The buyer power with a mean score of 3.87 with a standard deviation of 0.715. The firm performance with a mean score of 3.85 with a standard deviation of 0.695. The competitive rivalry with a mean score of 3.80 with a standard deviation of 0.778. Lastly, the threat of substitution with a mean score of 3.78, with a standard deviation of 0.739.

4.3 Analysis Result of Research Objective 2

The result of the analysis determinants of core competitiveness toward the firm performance of construction enterprises in Kunming, The People's Republic of China.

The result found that the significance of the 4 predicting the firm performance was identified based on their significance. The effect of a predicting variable is significant if its sig. Value is less than 0.10. According to the research, the key factors that determine a firm's performance are core competitiveness, supplier power, the threat of new entry, competitive rivalry, and the threat of substitution. Among these factors, core competitiveness, including supplier power, had the highest impact on firm performance with a coefficient (β) of 0.529. The threat of new entry had a

coefficient (β) of 0.297, competitive rivalry had a coefficient (β) of 0.089, and the threat of substitution had a coefficient (β) of 0.079. However, one variable, buyer power, had a coefficient (β) of 0.071, which was not statistically significant at the 0.10 level.

Moreover, the adjusted R² was (0.734), which indicated that the model's predictors explained 73.4% variation in the firm's performance of construction enterprise owners of the Chinese in Kunming, The determinants of core competitiveness toward firm performance (R² = .737). This model is highly significant, as indicated by the F-value of F=220.842 (p=0.000<0.10). See Table 2, Fig.2 draws the model of multiple regression analysis by Enter selection technique.

Table 4.9 Result of multiple regression analysis.

Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|------------------------|-----------------------------|------------|---------------------------|--------|--------|-------------------------|-------|
| | B | Std. Error | Beta | | | Tolerance | VIF |
| Constant | .443 | .112 | - | 3.944 | .000 | - | - |
| Competitive rivalry | .072 | .026 | .089 | 2.759 | .006** | .637 | 1.571 |
| Supplier power | .425 | .031 | .509 | 13.865 | .000** | .496 | 2.017 |
| Buyer power | .062 | .043 | .071 | 1.448 | .148 | .279 | 3.584 |
| Threat of new entry | .258 | .041 | .297 | 6.300 | .000** | .300 | 3.338 |
| Threat of substitution | .066 | .027 | .079 | 2.405 | .017** | .623 | 1.604 |

a. Dependent Variable: Firm Performance

Adjust R² = 0.734; R² = 0.737, F = 220.842, Sig = 0.10

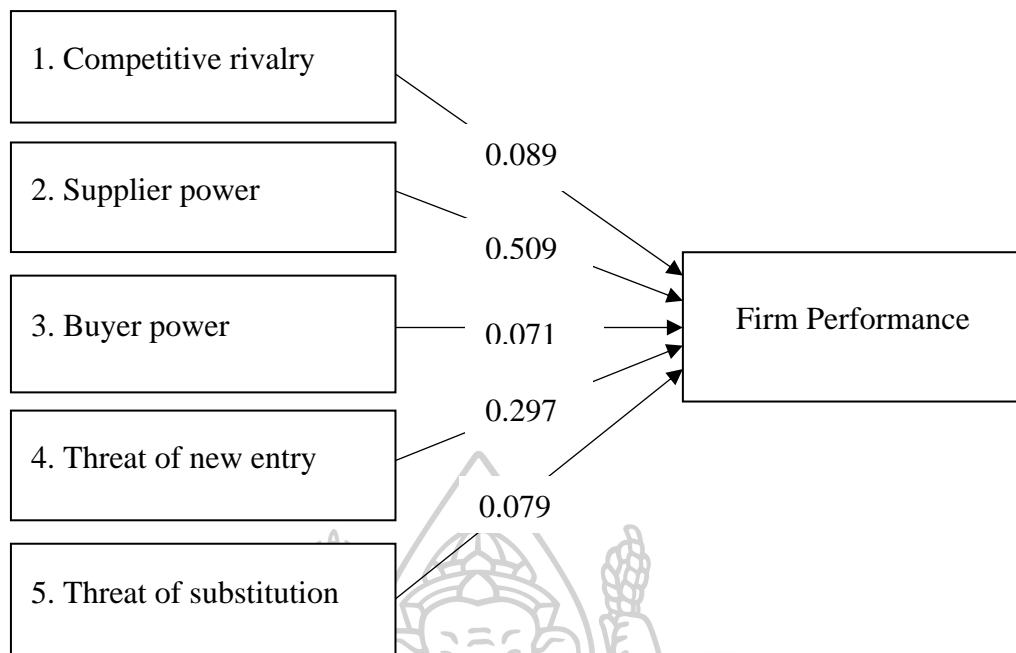


Figure 4.1 The model of multiple regression analysis

Table 4.10 Hypothesis Test

| Hypothesis | Standardized Coefficients | Sig | Result |
|---|---------------------------|--------|------------|
| H:1a Competitive rivalry had a direct effect on the firm performance | .089 | .006** | Support |
| H:1b Supplier power had a direct effect on the firm | .509 | .000** | Support |
| H:1c Buyer power had a direct effect on the firm performance | .071 | .148 | No Support |
| H:1d Threat of new entry had a direct effect on the firm performance | .297 | .000** | Support |
| H:1e Threat of substitution had a direct effect on the firm performance | .079 | .017** | Support |

CHAPTER 5

CONCLUSIONS

This final chapter will be covers the summary of this study and seeks to propose some recommendations for future studies that can be conducted to expand on this research.

5.1 The Results of Research Objective 1

The research objective 1.

The research found that the level of competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution of construction enterprises in Kunming found that supplier power is highly important. The power of suppliers is a critical factor in the construction industry, as it directly affects the cost, availability, and quality of materials and services required for construction projects. It is crucial for construction companies to understand and manage supplier power to achieve successful project outcomes.

Followed by the threat of new entry, The construction industry faces a threat from new entrants, which requires firms to continually evaluate and adjust their strategies to remain competitive in a changing environment. Understanding the bargaining power of buyers, also known as buyer power, is crucial in comprehending the dynamics of any market. It pertains to the level of influence that customers wield over the industry and the firms operating within it [11]. The significance of buyer power in a specific sector, such as the construction industry, can have far-reaching implications.

The firm performance is a multidimensional concept that extends beyond financial metrics. The various aspects contribute to a business's health and success. Continuous monitoring, analysis, and improvement of performance are essential for sustained success.

The level of competitive rivalry in an industry heavily influences the behavior and strategies of the companies within it, shaping the competitive dynamics. It is crucial for firms seeking sustainable growth and success in the marketplace to recognize and adapt to this level of rivalry.

Lastly, the threat of substitution, Advancements in construction industry methods and technologies can introduce substitutes for traditional building practices. For example, modular construction and other innovative techniques may serve as potential substitutes, affecting the demand for conventional construction methods.

5.2 The Results of Research Objective 2

The research objective 2

The research found that the analysis determinants of core competitiveness toward the firm performance of construction enterprises. The supplier power had the highest impact on firm performance. Because the operating resources are crucial for businesses to achieve long-term profitability. This is because they support the raw materials required to produce goods and services. However, supplier power can directly impact a company's cost structure. Suppliers with significant power may increase prices or limit the availability of inputs, which can potentially affect a company's profitability. Therefore, managing supplier relationships is essential for cost control and maintaining a sustainable business.

The threat of new entry had a direct effect on firm performance. Sometimes, partners or entrepreneurs in the same business field come together to start a new venture that has the potential for a large capital investment and utilizes modern machinery and innovative technologies. However, this can have an impact on marketing operations, resulting in a decrease in market share or failure to meet profit goals in the construction industry.

The competitive rivalry had a direct effect on the firm performance. According to the research conducted in [11], a limited number of businesses offering a particular product or service can increase competition and rivalry. This is especially true if the business is unique and difficult to imitate, as it can have a significant impact on the industry's overall growth. or if customers can easily switch to a competitor's product without facing significant expenses. In such cases, businesses may engage in advertising and price wars. Thus, construction industry owners must clearly define their business strengths, such as introducing advanced innovations or establishing strong supplier relationships, to maintain a competitive edge.

The importance of competitive rivalry is vital for businesses to navigate industry challenges, make informed strategic decisions, and create sustainable competitive advantages.

The threat of substitution had a direct effect on firm performance. The force of substitution is the possibility that customers may choose to switch to alternatives or substitutes instead of purchasing a particular company's products or services. The impact of this threat on firm performance can be significant for several reasons, such as price sensitivity, innovation and differentiation, profitability, and overall competitiveness within an industry. Therefore, firms need to carefully assess and respond to this threat to maintain or enhance their performance in the market.

One of the variables, buyer power, was not found to be statistically significant. This is because sometimes the buyers are small entrepreneurs who only need to purchase a small amount of products or raw materials, and their purchases are irregular. As a result, they do not have much bargaining power or influence on the operating results. Moreover, the construction industry has main customers who provide continuous business. Related to the concept of [13], Consumers who make infrequent purchases or choose products that differ greatly from those of other sellers experience a decline in buying power.

5.3 Suggestion

The construction industry is responsible for the planning, design, and construction of various structures, infrastructure, and facilities. This industry covers a wide range of activities, from small-scale residential projects to large-scale commercial and industrial developments. As a result, it is crucial for construction enterprise owners to prioritize timely delivery of work. By focusing on quality and efficient service, they can ensure customer satisfaction for all stakeholders in the construction industry, including upstream, midstream, and downstream participants.

5.4 Future research

For future researchers who are interested in advancing this area of study, According to the findings, the buyer power variable is not significant ($\beta=0.071$). Therefore, it is recommended to examine the relevant factors like the volume of purchase. Large buyers who buy in significant quantities may possess more bargaining power. They can negotiate for lower prices or better terms because of their capability to contribute a considerable portion of a company's revenue.



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APPENDIX



Questionnaire

Research Title

The Determinants of Core Competitiveness Toward Firm Performance of Construction Enterprise in Kunming, the People's Republic of China

This questionnaire is divided into three parts, which are as follows:

Part 1. Demography

Part 2 . To study the important level of core competitiveness, firm performance of construction enterprises in Kunming, the People's Republic of China.

Part 3. Suggestion

Please respond to all items

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Instruction: Please tick (✓) in the that represents the fact.

Part 1: Demography of enterprise owners registered with the Kunming City Commercial Office, China.

1. Gender 1. Males

- 2. Age**
- 1. Under 30 Years
 - 2. 30 – 39 Years
 - 3. 40 – 49 Years
 - 4. 50 – 59 Years
 - 5. 60 Years or older

3. Status

- 1. Single
- 3. Separated
- 4. Divorce

4. Education

- 1. Below Bachelor Degree
- 2. Bachelor's Degree
- 3. Master's Degree
- 4. Doctoral Degree
- 5. Other (Please specify).....

5. Position

- 1. Owner/Entrepreneur
- 2. Manager

6. Experience

- 1. Less than 3 Year
- 2. 3-5 Year
- 3. 6-8 Year
- 4. more than 8 Year

7. Construction enterprise types

- 1. Sole Proprietorship

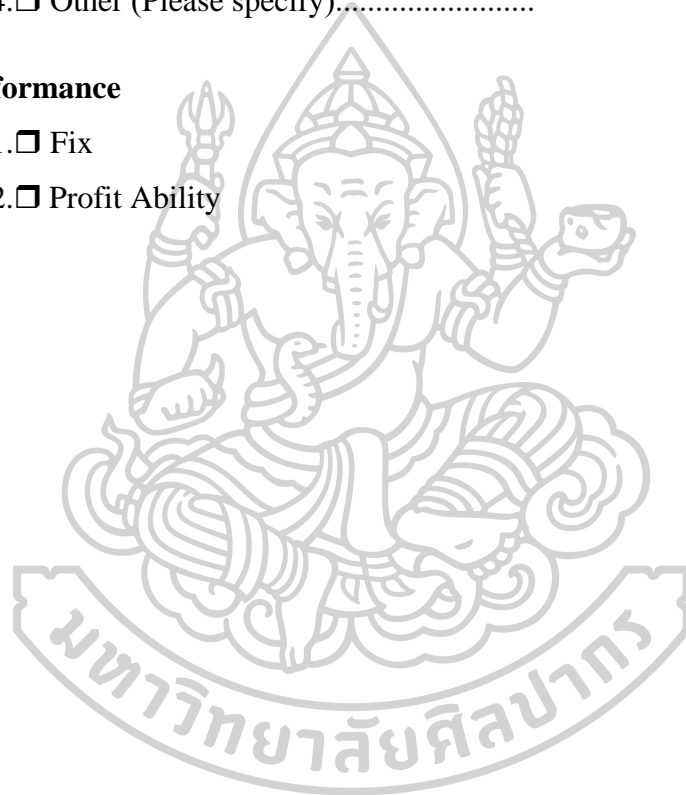
- 2. Limited Partnership
- 3. Limited Company
- 4. Public Company Limited

8. Investment

- 1. Private capital
- 2. Private capital and financial institutions
- 3. Private capital, capital from partners and financial institutions
- 4. Other (Please specify).....

9. Past performance

- 1. Fix
- 2. Profit Ability



Part 2. To study the important level of implementing core competitiveness (competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution) and firm performance of construction enterprises in Kunming, the People's Republic of China.

Instruction: Please tick (✓) in the columns that represent the fact.

| Item | Level of important | | | | |
|---|--------------------|-----------|---------------|----------|------------------|
| | 5 Very High | 4 High | 3 Moderate | 2 Low | 1 Very Low |
| 1. Competitive rivalry | | | | | |
| 1.1 The company's marketing operations are affected by competition in the express delivery area | | | | | |
| 1.2 The servitization of your competitors can have an impact on your business | | | | | |
| 1.3 The services provided by various competitors can significantly affect the operations of a business | | | | | |
| 1.4 Compared to its competitors, the business has the advantage of being able to manage its services with relatively low operating costs. | | | | | |
| 1.5 The service delivery model of this business is unique, attracting more customers than competitors in this area market | | | | | |

| Item | Level of important | | | | |
|--|--------------------|-----------|---------------|----------|------------------|
| | 5 Very High | 4 High | 3 Moderate | 2 Low | 1 Very Low |
| 2. Supplier power | | | | | |
| 2.1 Your business benefits from having a diverse range of efficient suppliers for raw materials | | | | | |
| 2.2 A well-connected network of raw material suppliers with efficient distribution leads to a profitable business. | | | | | |
| 2.3 The products and services provided by raw material suppliers are indispensable and cannot be replaced by any other substitute products or services. | | | | | |
| 2.4 When the cost of switching suppliers is low, it indicates that the supplier has less bargaining power | | | | | |
| 2.5 The limited number of suppliers results in increased costs for goods and services | | | | | |
| 3. Buyer power | | | | | |
| 3.1 Products and services are so distinctive and different that customers of other businesses cannot purchase them | | | | | |
| 3.2 Customers have access to information about products and transportation services, which gives them the power to negotiate and create pressure on express delivery providers | | | | | |

| Item | Level of important | | | | |
|--|--------------------|-----------|---------------|----------|------------------|
| | 5 Very High | 4 High | 3 Moderate | 2 Low | 1 Very Low |
| 3.3 Customers can purchase products and services at a lower cost compared to other providers in the market | | | | | |
| 3.4 Customers can quickly access news and information from various online sources when using your business's services | | | | | |
| 3.5 If a customer is placing an order for a considerable amount of items, they may have the opportunity to discuss and potentially lower the price | | | | | |
| 4. The threat of new entry | | | | | |
| 4.1 The express delivery service is well-established and widely recognized, making it difficult for new competitors to enter the market. | | | | | |
| 4.2 The express delivery service is widely known and accepted, making it difficult for new competitors to enter the market | | | | | |
| 4.3 The company's innovative services prioritize speed, making it challenging for new competitors to enter the market | | | | | |
| 4.4 New entrants face high barriers to entry due to their relatively high production and service costs | | | | | |

| Item | Level of important | | | | |
|--|--------------------|-----------|---------------|----------|------------------|
| | 5 Very High | 4 High | 3 Moderate | 2 Low | 1 Very Low |
| 4.5 Your company is being impacted by new competitors who are implementing innovative practices | | | | | |
| 5. The threat of substitution | | | | | |
| 5.1 The company has the option to find alternative raw materials or innovative solutions to substitute the ones they currently use | | | | | |
| 5.2 Your company purchases equipment and raw materials in large quantities, making suppliers pay more attention | | | | | |
| 5.3 Consider exploring other options to purchase raw materials at a lower cost | | | | | |
| 5.4 Your company has access to a diverse range of high-quality raw materials from various sources. | | | | | |
| 5.5 Your company has a network of cooperation in various operations | | | | | |
| 6. Firm Performance | | | | | |
| 6.1 The company has increased profits compared to past operating results | | | | | |
| 6.2 The company has achieved higher profits in comparison to its previous operating results | | | | | |
| 6.3 The company has increased cash flow to compared to last year | | | | | |

| Item | Level of important | | | | |
|---|--------------------|-----------|---------------|----------|------------------|
| | 5 Very High | 4 High | 3 Moderate | 2 Low | 1 Very Low |
| 6.4 The number of customers using the business's services has increased compared to last year | | | | | |
| 6.5 The company has proficient and capable employees who are skilled in delivering high-quality services | | | | | |
| 6.6 The business attracted more customers this year compared to last year, resulting in an increase in service usage | | | | | |
| 6.7 It is important for businesses to be able to adapt to changes in their environment in order to stay relevant and successful | | | | | |
| 6.8 Most of your businesses have customers who repeatedly use their services | | | | | |
| 6.9 The process of warehouse rotation has been improved to make it more efficient and streamlined | | | | | |
| 6.10 The business consistently maintains relationships with its customers and partners | | | | | |

Part 3 Suggestions about implementing core competitiveness (competitive rivalry, supplier power, buyer power, the threat of new entry, and the threat of substitution) and firm performance of construction enterprises in Kunming, the People's Republic of China.

NAME

Haoyue DENG

