

**MANAGERS' OVERCONFIDENCE AND
CORPORATE CASH HOLDING IN CHINA: THE
INTERACTION EFFECT OF PRODUCT MARKET
COMPETITION**

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**MANAGERS' OVERCONFIDENCE AND
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COMPETITION**

by

BO LE

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LIST OF ABBREVIATIONS

CH	Cash holding
OC	Managers are overconfident
PMC	Product competition market
Size	Firm size
Div	Dividend payment
HIC	Internal control
Du	The two duties are integrated
State	Enterprise nature
Year	The year from 2010 to 2022
Ind	The industry classification of listed companies in 2012 issued by the CSRC serves as the standard
CH	Cash holding

**KEYAKINAN BERLEBIHAN PENGURUS DAN PEGANGAN TUNAI
KORPORAT DI CHINA: KESAN INTERAKSI PERSAINGAN PASARAN
PRODUK**

ABSTRAK

Teori kewangan korporat tradisional berpendapat bahawa manusia adalah rasional sepenuhnya. Walau bagaimanapun, penyelidikan psikologi menunjukkan bahawa orang tidak rasional sepenuhnya, yang bermaksud bahawa apabila orang membuat keputusan, kepercayaan dan keutamaan mereka biasanya menghasilkan berat sebelah sistematik yang ditunjukkan oleh ciri-ciri tingkah laku seperti terlalu yakin dan hilang pengelakan. Teori kewangan korporat tingkah laku muncul secara beransur-ansur apabila penemuan penyelidikan psikologi digunakan untuk kewangan korporat, melonggarkan andaian seorang ekonomi yang rasional. Pengurus berfungsi sebagai pusat kuasa kepimpinan organisasi perusahaan dan mesti menerima beberapa tanggungjawab untuk operasi perniagaan, dan tindakan mereka boleh memberi kesan yang besar terhadap keputusan perusahaan. Tingkah laku pengurus boleh dipengaruhi sedikit sebanyak oleh ciri-ciri psikologi mereka, membayangkan bahawa pengurus tidak rasional sepenuhnya. Oleh itu, tujuan utama kajian ini adalah untuk mengkaji hubungan antara keyakinan berlebihan pengurus dan keputusan pemegang tunai korporat dalam syarikat tersenarai China. Kajian ini juga menyiasat pengaruh persaingan produk pasaran terhadap hubungan antara keyakinan berlebihan pengurus dan keputusan pemegang tunai korporat. Kajian ini menggunakan data syarikat tersenarai dalam A-share di Shanghai dan Shenzhen dari tahun 2010-2022 sebagai sampel dan menggunakan *Fixed Effect Model (FEM)* dan

Generalized Method of Moments (GMM) untuk menganalisis data. Pembolehubah bebas yang digunakan untuk keyakinan berlebihan pengurus diproksikan oleh pampasan relatif untuk pengurusan, perubahan dalam pegangan saham pengurusan dan pegangan saham dan perubahan pendapatan. Sementara itu, persaingan pasaran produk diukur dengan Indeks Lerner dan tahap pegangan tunai perusahaan sebagai proksi untuk pegangan tunai. Keputusan empirikal menunjukkan bahawa keyakinan berlebihan pengurus mempunyai korelasi positif dengan pegangan tunai. Oleh itu, pengurus cenderung untuk memegang lebih banyak tunai untuk pembiayaan dalaman, yang boleh mengurangkan pergantungan berterusan kepada pasaran modal dan tidak perlu memberikan maklumat kepada projek pelaburan modal. Walau bagaimanapun, hubungan positif ini boleh dikurangkan dengan persaingan pasaran produk. Ia menunjukkan bahawa pengurus yang terlalu yakin akan membuat keputusan untuk pegangan tunai dengan tahap pegangan yang lebih rendah disebabkan oleh kesan psikologi tekanan persaingan industri dan meningkatkan kesan negatif tekanan persaingan pasaran terhadap tahap pegangan tunai perusahaan.

**MANAGERS' OVERCONFIDENCE AND CORPORATE CASH
HOLDING IN CHINA: THE INTERACTION EFFECT OF PRODUCT
MARKET COMPETITION**

ABSTRACT

Traditional corporate finance theory holds that people are entirely rational. However, psychological research shows that people are not wholly rational, which means that when people make decisions, their beliefs and preferences usually produce systematic biases manifested by behavioural characteristics such as overconfidence and loss avoidance. The theory of behavioural corporate finance emerges gradually as psychological research findings are applied to corporate finance, loosening the assumption of a rational economic person. Managers serve as the power center of enterprise organisational leadership and must accept some responsibility for business operations, and their actions can have a significant impact on enterprise decisions. Managers' behaviours can be influenced to some extent by their psychological characteristics, implying that managers are not entirely rational. Thus, the main purpose of this study is to examine the relationship between managers' overconfidence and corporate cash holding decisions in Chinese listed companies. This study also investigated the influence of product market competition on the relationship between managers' overconfidence and corporate cash-holding decisions. This study used the data of the A-share listed companies in Shanghai and Shenzhen from 2010-2022 as the sample and applied FEM and Generalized Method of Moments (GMM) for analyzing the data. The independent variable used for manager's overconfidence as proxied by relative compensation for management, changes in management shareholding and shareholding and earnings changes.

Meanwhile, the product market competition is measured by the Lerner Index and enterprise cash holding level as proxied for cash holding. First, the empirical results show that managers' overconfidence have the positive correlation with cash holding. Therefore, managers tend to hold more cash for internal financing, which can reduce the continuous dependence on the capital market and do not need to provide information to capital investment projects. Second, this positive relationship can be alleviated by product market competition. It shows that overconfident managers will make cash decisions with lower holding level due to the psychological impact of the industry competition pressure and enhance the negative impact of the market competition pressure on the cash holding level of enterprises.

CHAPTER 1

INTRODUCTION

1.1 Introduction

As imperfect capital market research became more in-depth, many corporate financial researchers focused on capital issues such as cash holdings. A company's most liquid and essential asset is cash. An organisation's cash holdings can reveal much about its financial decisions and operating strategy. This is because cash holding decisions have a direct impact on the development of enterprises: lower cash holding will result in financial difficulties due to capital shortages (Chen, Ho & Yeh, 2020); too much cash holding will result in the loss of investment income; and high cash holding will increase the risk of managers abusing cash (Dong, 2019).

Researchers have begun to conduct extensive research and exploration on corporate cash holdings from various perspectives since Keynes (1936) first illustrated prevention and speculative motivation for companies to maintain cash liquidity. According to Zhou and Han (2010), companies hold large amounts of cash to avoid the risk of competitors in the product market stealing their investment opportunities and market share. Fazzari (1988) states that investment expenditure is determined by the amount of endogenous capital under external financing constraints. Opler et al. (1999) (1999) finds that enterprise cash holding positively correlates with enterprise growth and size, which strongly supports the static trade-off model of cash holding.

According to Lee (2011), corporate cash holding levels in Australia are positively associated with cash flow volatility, capital expenditure, and net investment but negatively associated with net working capital, implying that continuously holding excess cash will result in higher agency costs. Yang, Qi, and

Wu (2016) examine data from Shanghai and Shenzhen A-share listed companies from 2003 to 2012 and discover that industry growth can positively affect enterprise cash holding levels. Better investment opportunities and the elimination of higher risks are presented to high-growth industries. Therefore, stable financial support is required to maintain market dominance.

However, current research assumes that managers are rational beings. Psychologists have proven through a series of experiments and studies that people are generally overconfident, not wholly rational, and usually result in a decision-making judgement for business managers (Zhang & Wang, 2017). Overconfidence is more severe and may cause decisions to deviate from traditional economic theories (Graham, Kim & Leary, 2007). Although scholars have developed mature theoretical frameworks such as pecking order theory, trade-off theory, and agency theory, existing researchers believe managers are entirely rational and conduct analysis and tests primarily from the perspectives of business characteristics, corporate governance, and the external environment, with little regard for managers' overconfidence(Dao et al., 2023). In addition, studies on the effect of managers' overconfidence on business decisions focus primarily on investment and financing decisions, mergers and acquisitions (M&A)(Pan et al., 2019), and rarely include corporate cash holdings. Therefore, it is necessary to discuss how overconfident managers influence the cash holding level under the assumption of irrational people.

Moreover, prior research indicates that precautionary and agency motives can explain the decision to keep cash. However, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of economics. Therefore, it is

necessary to investigate and analyse the relationship between managerial overconfidence and corporate cash holdings by using behavioural financial theory, particularly for overconfident theory that can efficiently connect psychology and economics.

In addition, external economic changes, such as the political and cultural environment, influence cash holding levels for trading, preventive, and speculative reasons. Acemoglu (2003) discusses that enterprises will maintain high cash holding levels to deal with external uncertainty in countries with imperfect systems and unstable economic environments. Meanwhile, Baum (2008) discovers that when the external economic environment's instability increases, enterprises tend to increase liquidity to avoid uncertainty risks and thus maintain a high cash holding level in an empirical study of data from 1993 to 2002. In addition, Wang (2014) conducts a study on data from Chinese listed companies from 2003 to 2011 and discovers that macroeconomic policy uncertainty affects the cash holding level of enterprises. When macroeconomic policy uncertainty is high, managers increase their free cash for preventive incentives, and the entrusted agent promotes the relationship positively.

Meanwhile, Jiang, Wang and Lei (2015) state that political environment uncertainty has a positive effect on enterprise cash holding levels, but the political impact of state-owned enterprises is relatively small. Scholars have mainly studied macroeconomic uncertainty (Hoberg et al., 2014), national uncertainty aversion culture (Wang, 2014), and institutional environment (Chen, Dou, Rhee & Truong, 2015; Huang et al., 2013; Luo & Qin, 2009) and so on, with little regard for product market competition pressure (Dong, 2019; Sheikh, 2018).

The above analysis reveals that several issues cannot be resolved, so it is critical to address how to make a reasonable cash-holding decision. The first issue is that internal factors and external environment, such as changes in the company's financial indicators, improved corporate governance, and changes in the external political and cultural environment, will influence cash-holding decisions. However, the external governance mechanism has received little attention in the relevant research, particularly for product market competition.

According to the researchers' findings, product market competition can improve information transparency, alleviating external financing constraints and influencing enterprise managers' internal and external financing decisions. Second, existing research assumes that managers make rational decisions and ignore the understanding of their irrational decisions, which does not explain many real economic problems. However, managers' overconfidence can influence cash holding levels due to conflicts between managers' interests and shareholders, resulting in a decline in cash performance and an increase in cash holding costs.

Therefore, enterprises face challenges in determining the level of enterprise cash holding and developing a cash holding plan to achieve high cash performance at a reasonable cost. Third, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of economics. Therefore, in recent years, the academic community has introduced behavioural economics theory as a theoretical hot topic and begun to debate the impact of managers as irrational economic people on enterprise operation and management. As a result, are overconfident managers more optimistic or pessimistic about corporate cash holdings? Is there an effect of product market

competition on the relationship between managerial overconfidence and corporate cash holdings? These issues have hampered listed companies' decision-making.

Therefore, based on the system background of Chinese listed companies, this study will investigate the relationship between managerial overconfidence and enterprise cash holdings and explain how the interaction role of product market competition affects this relationship. Then, in modern corporate finance, this study will assist enterprises in developing a comprehensive and effective enterprise cash-holding plan to assist companies in making scientific cash-holding decisions.

1.2 Background of the Study

Cash is an essential asset of the enterprise because it reflects its financial situation and operating performance, influences investment and financing decisions, and even the enterprise's future survival and development. However, current research focuses on changes in financial indicators and the uncertainty of the macroeconomic and political environment, with little focus on external governance mechanisms such as product market competition. At the same time, existing research is based on the rational economic assumption that managers make rational decisions and ignore the understanding of their irrational decisions.

Moreover, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of economics. Therefore, this study will investigate the interaction role of product market competition on the relationship between managers' overconfidence and cash holdings among Chinese listed companies (Shanghai and Shenzhen) based on the system background of listed companies in China.

1.2.1 Corporate Cash Holding

1.2.1(a) Background of cash holdings

The trade-off theory predicts that enterprise cash holding will affect managerial overconfidence (Chen, 2022) and enterprise performance (Sarfraz, Shah, Ivascu & Qureshi, 2022; Lei, Xu & Jin, 2022). A cash holding that is too small can result in high external financing costs and opportunity costs that are insufficient to meet the needs of investment projects. If the enterprise cash holding plan is too low, it may result in financial chain breaks in production and operation and business failure. Excessive cash holdings can lead to proxy issues. Agents seek personal benefits based on the information advantages of the separation of two rights, causing the enterprise's cash holding performance to decline as cash holding increases. Therefore, determining the level of enterprise cash holding and developing a cash holding plan to achieve high cash performance is complex for each enterprise.

Since the 1990s, scholars have paid more attention to enterprises' significant cash holdings. They have conducted extensive research and analysis on the influencing factors and economic consequences of enterprises, the influencing factors and economic consequences of cash holding value, and the dynamic adjustment of cash holding. Although the conclusions are inconsistent, some more mature theoretical research frameworks have emerged, such as the pecking order theory, agency theory, and trade-off theory.

Nowadays, research on the factors that influence a company's cash holdings is primarily conducted at the micro and macro levels. From the micro level, it primarily focuses on the company's characteristics and governance mechanisms. Scholars focus on company scale, financial leverage, net working capital, investment opportunities, dividend payment, capital expenditure, research and development

(R&D) investment, and so on (Opler et al., 1999; Subramaniam et al., 2011; Yang & Zeng, 2012; Weidemann, 2016), which illustrates that company's size, state and investment opportunities and capital expenditure have a negative relationship. Regarding corporate governance mechanisms, Harford et al. (2008) believe that corporate governance and cash holding level have negative correlations based on free cash flow. Yu et al. (2015) illustrate that the higher the board of directors, the higher the cash holding level in Taiwan-listed companies. Xin and Xu (2006) discover that the better the governance structure, the more reasonable the cash holding level. According to Liao and Xiao's (2009) research, equity concentration, management ownership, and board size significantly and positively correlated with the company's cash holding level.

At the macro level, the industry is primarily concerned with the impact of product market competition on cash holding levels. The plunder risk demonstrates that the higher the cash holding level of enterprises, the greater the product market competition (Zhou & Han, 2010; Haushalter et al., 2007; Hoberg et al., 2014). Countries with better investor protection have lower cash-holding levels regarding policy, environment, and other factors (Huang et al., 2013; Luo & Qin, 2009). Companies tend to hold more cash in areas with a poor institutional environment (Zhou & Xie, 2007). They hold more cash during tight monetary policy than loose monetary policy (Zhu & Lu, 2009). The higher the level of enterprise cash holdings, the higher the level of macroeconomic uncertainty (Wang et al., 2014). Companies listed in countries with individualistic cultures will reduce their corporate cash holding levels. Corporate cash holdings will increase due to the national uncertainty aversion culture (Chen, Dou, Rhee & Truong, 2015).

1.2.1(b) The Condition of the Cash Holding in China

The selected objects for analysing the cash holding level of Chinese listed companies come from CSMAR. The information was gathered from Shanghai and Shenzhen A-share non-financial listed companies between 2010 and 2022. When analysing the cash holding level of listed companies in other countries, the non-financial listed companies in the Wind Database are the chosen objects.

Table 1.1 shows the average cash holding ratio of China's non-financial listed companies in Shanghai and Shenzhen A-shares from 2010 to 2022, in terms of time characteristics for the cash holding level of Chinese listed companies. The median in China was 13%, while the mean was 18%, significantly higher than the median, indicating that Chinese listed companies have high cash holdings.

Table 1.1 The Mean of Cash Asset Ratio between 2010 and 2022

	Percentiles
1%	0.01
5%	0.03
10%	0.04
25%	0.08
50%	0.13
Mean	0.18
75%	0.24
90%	0.38
95%	0.48
99%	0.83

Source: CSMAR (2022)

Figure 1.1 and Table 1.2 shows the change in the cash holding ratio from 2010 to 2022. It can be found that 2010 is a peak year. With the development of the economy, from 2010 to 2014, the average cash holding ratio of enterprises gradually decreased, and then reached a trough in 2014. However, the mean of the cash ratio increased from 2014 to 2017. This is because the stock market rose steadily in the

second half of 2014 and continued until 2015, reaching a new peak in China's stock market. But in the second half of 2015, the stock market crash and the stock market fell sharply, which lead to companies must increase cash holdings to cope with risks.

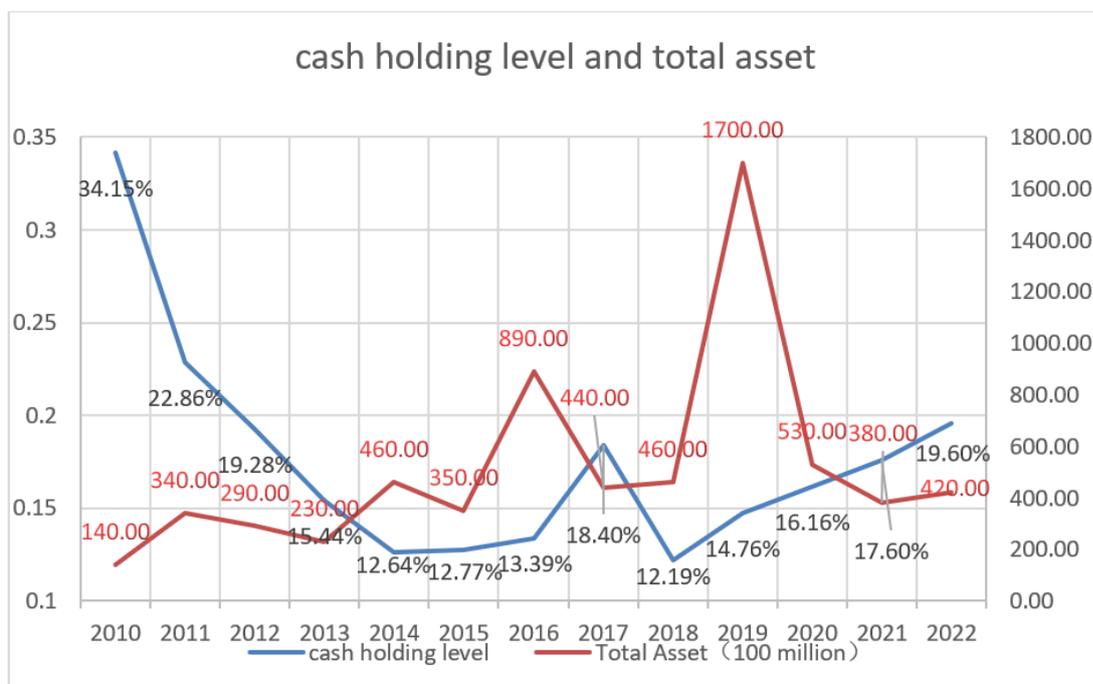


Figure 1.1 The Changes for Cash Holding Level and Total Asset

Source:CSMAR (2022)

In 2018, the GDP for China was 90 trillion yuan, and increase of 6.6% over the previous year. This is the lowest rate of China's economic growth since 1990. Among them, the industry and the real estate industry shrank substantially. The annual slowdown in economic growth has already been traced. Since the first quarter of 2018, China's quarterly GDP growth has fallen for the third consecutive time. Under the influence of national deleveraging, social security reform and the trade war, China's overall economic situation in 2018 is not optimistic. By the end of 2016, China's macro leverage ratio had reached 247%, among which the leverage ratio of the enterprise sector reached 165%, higher than the international warning line.

By the end of the third quarter of 2017, the balance of non-performing loans of Chinese commercial banks had reached 1.67 trillion yuan and continued to

increase. In addition, credit default events in the bond market also increased significantly. To prevent excessive leverage from leading to a run-on financial institution and a drop in financial asset prices, China's macro economy has been themed with "deleveraging" since the beginning of 2018. However, behind the deleveraging, the negative effects of the economic situation have gradually emerged. The deleveraging and the trade war between China and the United States have had a significant negative impact on China's macroeconomic and financial markets.

Table 1.2 Time Characteristics for the Changes about Cash Holding Level

Year	Cash asset ratio (cash + money equivalent) /total Asset
2010	0.341509
2011	0.228647
2012	0.192835
2013	0.154355
2014	0.126423
2015	0.127734
2016	0.133855
2017	0.184014
2018	0.12185
2019	0.147583
2020	0.161569
2021	0.176039
2022	0.196025

Source: CSMAR (2022)

The difficulty of financing for the real economy has become greater, especially in infrastructure construction and the real estate sector, and the stock market, bond market and exchange rate have fluctuated sharply. The overall upward trend of the non-performing loan ratio of commercial banks is contradictory with the downward trend of the growth of the non-performing loan balance, and the non-performing loans of some small and medium-sized banks are rising rapidly. Meanwhile, M2 (M2=Cash +Demand Deposit+ Time Deposit+Resident Savings Deposit +Other Deposit) supply growth in 2018 has slowed to nearly 8% due to the central bank's deleveraging efforts. The total amount of debt defaults exceeds the sum of previous years. From 2020 to 2022, China suffered from COVID-19, which

led to severe damage in China's economy and a sharp decline in corporate income. This also promoted enterprises have to increase the cash holding level.

Table 1.3 and Figure 1.2 show the mean and median cash-to-asset ratios of listed companies in China and some other countries to compare the differences in cash holding levels of China's a-share listed companies and listed companies in other countries. Except for China, enterprises' average cash holding level is high in Australia, Canada, and Japan. In contrast, enterprises in South Korea and Thailand are low, and enterprises in other countries fluctuate between 11% and 18%.

Table 1.3 Cash Holding Levels of Listed Companies in Different Countries

Country	Mean	Median
China	18	13.2
America	17.3	9.3
Britain	15.6	8.6
France	12.7	8.1
Germany	15.3	9.8
Canada	21.6	9.7
Australia	28.1	16.2
New Zealand	10.3	3.3
Japan	19.5	15.1
Korea	8	6.2
Singapore	13.2	8.7
Thailand	8.7	6.1
India	10.9	6.8
Egypt	11.2	8.9

Source: CSMAR (2022)

There are general differences in the cash holding levels of listed companies, and listed companies in China have relatively high cash holding levels compared to most other countries. The difference in cash holdings of listed companies may be due to the capital market's level of development(Khatib et al., 2022), the institutional environment (Diaw, 2021), and the internal governance of different companies(Chen et al., 2020). In addition, it has been discovered that the median cash holding level of listed companies in some countries (such as Canada, New Zealand, the United States,

the United Kingdom, and Germany) is much lower than the mean, implying that more listed companies in these countries have a high cash holding phenomenon.

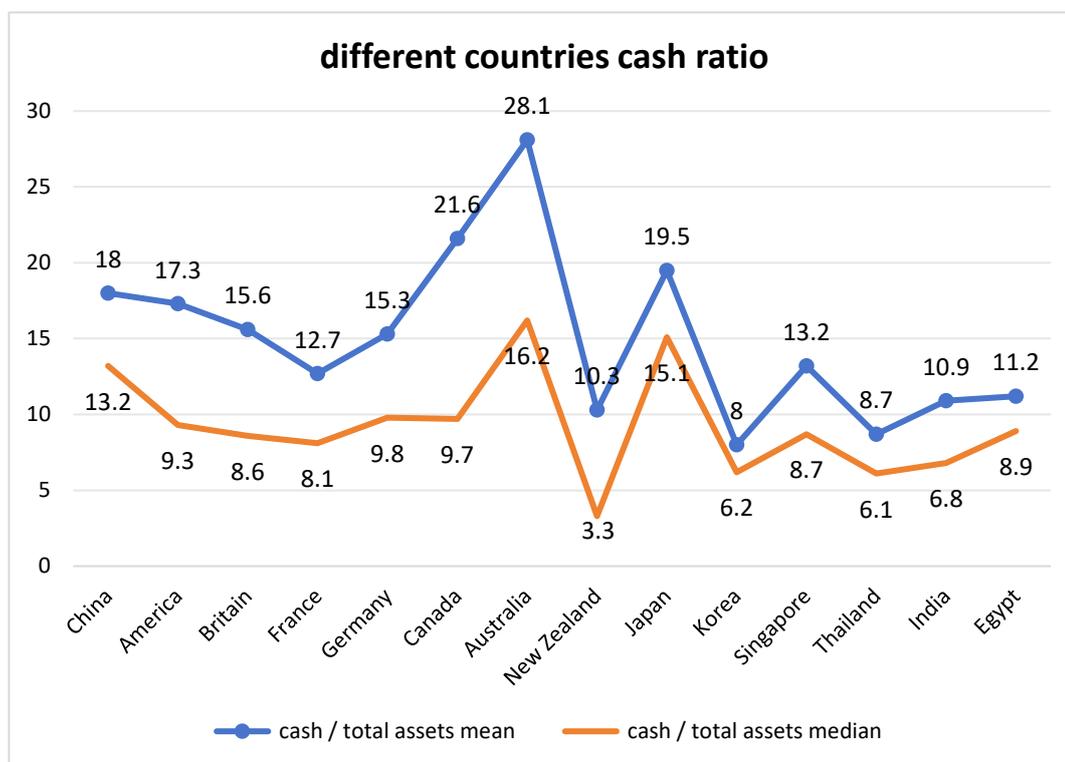


Figure 1.2 Different Countries Cash Ratio
Source: CSMAR (2022)

1.2.2 Managers' Overconfidence

However, existing research is based on the rational economic assumption that enterprise managers make entirely rational decisions; obviously, this is different from reality. People are not wholly rational, according to psychology research; when people make decisions, beliefs and preferences frequently appear to be systematic biases and show overconfidence, which is a typical anchor (Kahneman et al., 1982), and overconfidence is the most stable (DeBondt & Thaler, 1995). Overconfidence has been observed in the judgements of lawyers, negotiators, entrepreneurs, securities analysts, doctors, drivers, scientists, and others in psychological research.

Therefore, in recent years, the academic community has introduced behavioural economics theory as a theoretical hot spot and begun to discuss the influence of managers as irrational economic people on enterprise operation and

management. As the central power in enterprise organisation and leadership, the manager is the strategist and the maker of organisational decisions. Managers must accept responsibility for the enterprise's operation, and their actions will inevitably significantly impact enterprise decision-making (including financial decision-making). Managers' psychological traits should undoubtedly influence their behaviour, implying that they are not entirely rational.

The Hubris hypothesis was proposed by Roll (1986), the first scholar to investigate the impact of manager overconfidence on company decision-making. He investigated the consequences of manager overconfidence from the standpoint of merger and acquisition. He discovered that merger and acquisition behaviour carried out by overconfident managers would eventually harm the enterprise's value. As a result, scholars around the world have paid more attention to managers' incomplete rationality and their influence on enterprise decision-making (Yu et al., 2006; Malmendier & Tate, 2008; Hribar & Yang, 2016), resulting in the rapid development of corporate behaviour and financial research. Weinstein (1980) and Ben-David et al. (2007) discover that people generally overestimate their decision-making ability, particularly in groups such as entrepreneurs and managers.

According to Zheng and Chen (2018), managers in China may be more overconfident for the following reasons. First, culture is the main body of traditional Chinese culture, advocating the hierarchical idea and emphasising the importance of authority in Chinese interpersonal relations, making superior leaders (enterprise managers) vulnerable to "control illusions." Then, Chinese interpersonal relationships developed a self-assured cognitive bias. Second, China's unique transforming economic environment has shaped several "godfather-level" state-owned enterprises leaders and private enterprise founders during these years; their

pivotal role in entrepreneurship and business growth and continued success may strengthen their confident psychology. Third, the flaws in the internal governance and external supervision mechanisms assist Chinese enterprises in creating a suitable "soil" for managers' overconfidence. Jiang, Yi, Su, and Huang (2009) state that the proportion of overconfidence in Chinese-listed companies may be higher than in foreign-listed companies due to the influence of Confucian hierarchy and the imperfect external governance mechanism.

The imperfect external governance mechanism is caused by unique political, economic, and regulatory context of the country. Here are several key points to consider: 1) China operates under a one-party system led by the Chinese Communist Party (CCP). This centralization of power limits the effectiveness of external governance mechanisms typically found in more democratic systems. 2) State Ownership: A significant portion of the economy is state-owned or state-controlled, which can lead to conflicts of interest and reduced accountability. State-owned enterprises (SOEs) may prioritize political objectives over market-driven accountability. 3) Weak Legal Protections: While China has made significant progress in developing its legal framework, enforcement can be inconsistent. The judiciary is not fully independent, which can undermine the rule of law and weaken external governance mechanisms. 4) Ambiguous Regulations: Many regulations are not clearly defined, leading to varying interpretations and enforcement. This ambiguity can create an environment where businesses may not feel compelled to adhere strictly to formal governance standards.

1.2.3 Product Market Competition

Cheng (2013), taking the 1996-2005 the U.S. manufacturing industry, finds that product market competition was significantly and positively correlated with surplus quality. The fully competitive market environment enabled investors and analysts to obtain accurate public and private information, thus conducive to improving the authenticity of corporate earnings. The research of Niu and Li (2007) show that the product market competition and the dispersed shareholding structure have a complementary relationship, and an alternative relationship with the governance of the board of directors and the integration of the two positions. The empirical results of Jiang et al. (2009) also show that market competition can indeed reduce the agency cost of enterprises, improve the efficiency of enterprise agency, and affect the role of the specific internal governance mechanisms.

Yi and Jiang (2010) find that in improving the quality of enterprise information disclosure, product market competition has complementary effects on equity concentration and executive incentive and has an alternative effect on the governance mechanism of the board of directors. The study of Lin (2012) finds that the higher the competition degree in the product market, the more effective the supervision and restraint mechanism, and the higher the enterprise value.

However, the current research on cash holding decisions is mainly analysed from the perspectives of corporate characteristics, corporate governance and external environment, which rarely involves the perspective to connect with manager overconfidence and product market competition together (Dong, 2019). For example, some studies showed that the changes in the company's financial indicators, the improvement of corporate governance, and the changes in the external environment will all affect the level of enterprise cash holding and enterprise value. But these

related research pays more attention to the changes of financial indicators and the uncertainty of the macroeconomic political environment (Deshmukh, 2017). However, it has little research on the external governance mechanism effect of product market competition.

As a result, are overconfident managers more positive or negative related with corporate cash holding? Does the product market competition as an interaction variable can affect the relationship between managerial overconfidence and the cash holding? These problems have plagued public companies to make decisions.

Therefore, this study intends to examine the correlation between managerial overconfidence and the cash holding and illustrates the product market competition how to influence the relationship between manager's overconfidence and cash holding among Chinese listed companies (Shanghai & Shenzhen).

1.3 Problem Statement

Cash is an essential asset for any business. Appropriate cash flow is critical for ensuring smooth business operations and facilitating the enterprise's growth and development. Adequate cash reserves are critical for ensuring the enterprise's day-to-day operations. Until Opler et al. (1999 and other researchers shifted their focus to cash holding issues from the micro perspective of enterprises, scholars explained the problem of enterprise cash holding using three motives: trading motive, preventive motive, and speculative motive.

According to Table 1.2 and Figure 1.1, the cash holding level in China-listed companies was higher from 2010 to 2022, with the maximum and minimum being 34.15% in 2010 and 12.19% in 2018, respectively. According to Zheng and Chen's

(2018) measuring indicators, 10% is a reasonable level in China. However, these results are all higher than the average 10%. It means that Chinese-listed companies have more cash than the average. Hence, this research asks, "Why do Chinese listed companies have a higher cash holding level?"

Overconfident managers frequently engage in irrational behaviour because they underestimate their risks and overestimate their abilities (Shen & Li, 2020; Zheng & Chen, 2018; Dao Nhung, Yilmaz & Robert, 2023). Scholars have used traditional theories to explain the problem of enterprise cash holding for a long time. However, traditional theories assume that people are rational, meaning scholars ignore people's cognitive biases in the real world. Furthermore, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of economics. Therefore, it is necessary to investigate and analyse the relationship between managerial overconfidence and corporate cash holdings using behavioural financial theory, particularly for asymmetric information that can efficiently connect psychology and economics. In addition, it was discovered in previous research that little research has been done on the impact of manager overconfidence on corporate cash holding decision. Managers' overconfidence nowadays focuses primarily on macro-indices (Sun, 2012), personal characteristics (Mun, 2017; Custodio and Metzger, 2014; Orens & Reheul, 2013), financial policies and investment (Deshmukh,2017; Aktas, 2017). As a result, there has been little research on the impact of manager overconfidence on corporate cash holding decisions.

Moreover, except to internal factors, an enterprise's external environment significantly impacts its cash holdings. Scholars have primarily studied

macroeconomic uncertainty (Hoberg et al., 2014), national uncertainty aversion culture (Wang, 2014), institutional environment (Chen, Dou, Rhee & Truong, 2015; Huang et al., 2013; Luo & Qin, 2009), and other topics to better understand the impact of external factors and mechanisms. In an external environment, previous research has shown that product market competition can significantly reduce the impact of asymmetric information, which can then help managers manage their irrational behaviour and avoid cognitive bias (Gong, 2021).

In addition, product market competition represents a distinct corporate governance mechanism that can effectively connect the precautionary incentive of cash holding to maximise profits. On one hand, product market competition is an effective governance mechanism that can discourage executives from pursuing "self-profit" by holding large amounts of cash, thereby reducing corporate cash holdings. On the other hand, market competition has a predatory effect; as market competition intensifies, firms attempt to "plunder" to thwart other competitors.

In summary, it is clear from the preceding analysis that several issues cannot be resolved. First, overconfident managers may accumulate excess cash, resulting in a decline in cash performance, increased cash holding costs, and an agency problem between managers and shareholders. As a result, enterprises face challenges in determining the level of enterprise cash holding and developing a cash holding plan to achieve high cash performance at a reasonable cost. In addition, traditional theories assume that people are rational, meaning scholars ignore people's cognitive biases in the real world. However, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of economics. Therefore, it is necessary to

investigate and analyse the relationship between managerial overconfidence and corporate cash holdings using behavioural financial theory, particularly for overconfident theory that can efficiently connect psychology and economics.

The second issue is that internal and external factors influence cash-holding decisions, and it is uncommon to connect internal and external factors to analyse cash-holding decisions. Most research, for example, focuses on changes in the company's financial indicators, the improvement of corporate governance, changes in the external political and cultural environment, and others. However, connecting with internal factors and the external factors to analysis cash holding decisions has received little attention in the relevant research, particularly using product market competition as the external factor to connect with managers' overconfidence and cash holdings. According to the researchers' findings, product market competition can improve information transparency, alleviating external financing constraints and influencing enterprise managers' internal and external financing decisions. Therefore, connecting with product market competition and managers' overconfidence to analysis how to affect cash holding decision is essentially.

Thirdly, their research objects for listed companies are primarily in international capital markets; however, China's capital market is in an emerging and transitional stage, resulting in significant differences from international capital markets. As a result, the relevance of their research findings to China must be confirmed.

To summarise, this research investigates how managerial overconfidence affects the cash holdings of Chinese publicly traded companies and seeks to assess the impact of product market competition on this relationship.

1.4 Research Objectives

According to the above problem statement, the objectives of this study are as follows:

1. To examine the effect of managers' overconfidence on the decision of corporate cash holdings in Chinese (Shanghai & Shenzhen) listed companies.
2. To examine how product market competition (interaction variable) influence the relationship between managers' overconfidence and corporate cash holdings decision.

1.5 Research Questions

Based on the research problem described in the section above, several questions are raised in this study:

1. Does managers' overconfidence affect the decision of corporate cash holdings in Chinese (Shanghai & Shenzhen) listed companies?
2. Does the product competition market act as an interaction role influence the relationship between managers' overconfidence and corporate cash holdings decisions?

1.6 Scope of the Study

This research covers issues of the relationship between Managers' Overconfidence, Product Market Competition and Corporate Cash Holdings in China. Firstly, this study focuses on verifying the relationship between Managers' Overconfidence and Cash Holding. Meanwhile, this study intends to examine the effect for interaction role of product market competition on the relationship between manager's overconfidence and cash holding among Chinese listed companies

(Shanghai & Shenzhen). It is hoped that these research findings can provide theoretical and empirical evidence for enterprise cash holding.

The scope of the study includes four sections. The first is data source, which come from CSMAR. The second is sample of the study, the number of observations have 6849. The third section is the duration of the study, which from 2010 to 2022. The fourth section is the geographical location covered in the study: China A-share listed companies in Shanghai and Shenzhen from 2010-2022 as the sample.

1.7 Significant of the Study

This study's interaction variable is product market competition, contributing a new research perspective on managerial overconfidence and cash holding. The relevant research focuses on changes in financial indicators and the uncertainty of the macroeconomic and political environment, implying that there is a scarcity of literature combining product market competition with managerial overconfidence and cash holding and conducting in-depth research on the impact of enterprise cash holding behaviour. This study uses product market competition as an interaction variable to explain how to influence the relationship between managers' overconfidence and corporate cash holding.

This study contributes to developing a new theoretical framework to explain the relationship between managerial overconfidence and cash-holding decisions. According to the previous literature analysis, it can be concluded that precautionary and agency motives can explain the decision to keep cash. However, traditional theory cannot effectively connect the relationship between managerial overconfidence and cash holding. This is because managerial overconfidence falls under the purview of psychology, whereas cash holding falls under the purview of

economics. Therefore, it is necessary to investigate and analyse the relationship between managerial overconfidence and corporate cash holdings using behavioural financial theory, particularly for overconfident theory that can efficiently connect psychology and economics.

This study is based on Chinese listed companies (Shanghai and Shenzhen), which effectively fill a research gap in the emerging market, particularly the Chinese capital market. Although scholars have begun to focus on the perspective of product market competition and cash-holding behaviours in recent years, a few scholars have used Chinese-listed companies as samples to conduct research. This study's findings can fill a gap in the Chinese capital market in an efficient and timely manner.

1.8 Definition of Key Terms

1.8.1 Cash Holding

Cash, as a commodity equivalent and transaction payment, is indispensable in the production and operation of enterprises. The cash inflow and outflow in the production and operation of the enterprise cannot be perfectly balanced, so a certain amount of cash holding must be kept ensuring the daily production and operation. Cash can be divided into three categories: monetary cash for daily commodity transactions; cash in stock and monetary funds; cash and cash equivalents with short term and high liquidity. The cash mentioned in this article refers more to the cash flow owned by the enterprise. Jensen (1986) believes that the cash holding of the enterprise is the cash flow held by the enterprise after meeting the cash demand of all items with a net present value greater than zero.

1.8.2 Manager's Overconfidence

Managers' overconfidence come from the deviation that caused by managers overestimating their own ability and knowledge, which causes them to overestimate the probability of decision success and underestimate the risks associated with decision making (Malmendier & Tate, 2005). The existing literature mainly defines manager overconfidence from three aspects: risk, ability and information. In terms of risk, overconfident managers tend to overestimate the returns of investment projects and underestimate the risks of investment projects (Hackbarth, 2008; Goel & Thakor, 2008; Landier & Thesmar, 2009). In terms of ability, overconfident managers tend to consider their abilities better than the "general level" (Moore & Healy, 2008), tend to attribute success to themselves and failure to external factors (Doukas & Petmezas, 2007; Adam et al., 2015); in information, overconfident managers overestimate the accuracy of their information, leading to a high level of the judgment probability of success of future uncertain events (Roll, 1986)..

1.8.3 Relative Compensation for Management

Relative compensation for management indicates as the based on influencing factors (Wang, 2021; Chen, 2020; Dong, 2018). Zhang and Wang (2017) find that the higher the percentage of managers' compensation, the stronger the control over the company and the more likely to have overconfidence. The study uses "the sum of the top three executive compensation / total manager compensation" that the greater this percentage, the higher the degree of manager over-confidence.

1.8.4 Changes in Management Shareholding

Changes in management shareholding indicates as based on outcome performance (Ahmed & Uellman, 2013; Sun & Zhao, 2014; Zheng & Chen, 2018). If

the manager actively increases the shareholding in the current period indicating that the manager has high confidence.

1.8.5 Shareholding and Earnings Changes

Shareholding and earnings changes indicate the connection with different variables to measure (Wang, 2022; Li et al., 2014; Chen & Fang, 2013). In order to measure shareholding and earnings changes, holding growth rate for shareholdings minus the difference of earnings per share growth.

1.8.6 Product Market Competition

Product market competition refers to the competition in the commodity market when the enterprise strives for the market position for the future development of the company (Dong, 2018). In economics, product market competition refers to the behavior of economic subjects competing for trading opportunities from other groups in the same industry and occupying the market share to achieve the purpose of obtaining economic profits. According to the state of product market competition, the market can be divided into complete monopoly market, oligopoly market and complete competitive market.

1.9 Organization of the Thesis

This study comprises five chapters. Chapter 1 introduces the background of the study, a problem statement, research objectives, research questions, the scope of the study and the significance of the study and so on. Chapter 2 presents literature review related to theories, such as Agency theory, Trade-off theory, Pecking Order Theory, Behavioral Financial Theory and Asymmetric Information theory and so on. It also includes hypotheses development about the interaction role of product market competition on the relationship between manager's overconfidence and cash holding