

## Market Competitive Strategy, Government Ownership and Audit Firm Choice: Evidence from China

(Strategi Persaingan Pasaran, Pemilikan Kerajaan dan Pemilihan Firma Audit: Bukti dari China)

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### ABSTRACT

Many serious audit failures of listed companies, mainly in China, have spotlighted the suitability of the appointed audit firm with the companies' market competitive strategy. This study argues that the adopted market competitive strategy, either offensive or defensive, may influence audit firm choice, but the associations remain unclear. This study investigates the association between market competitive strategy and audit firm choice among Chinese listed companies, with government ownership as a moderator. A logistic multivariate regression analysis was conducted by using 9,590 year-observations of Chinese-listed companies during the period of 2018–2021. Results show that companies with aggressive offensive strategies tend to appoint larger audit firms, whereas companies with aggressive defensive strategies favour smaller audit firms. No evidence shows that government-owned companies influence audit firm choice, but government ownership moderates the relationship between market competitive strategies and audit firm choice. The findings are useful for listed companies to select the best audit quality that fits with the adopted market competitive strategy and provide references for regulators to assess and promote the healthy development of China's audit market. This work is a pioneer in providing associations among market competitive strategy, government ownership and audit firm choice.

Keywords: Audit firm choice; China; government ownership; market competitive strategy

### ABSTRAK

Banyak kegagalan audit yang serius melibatkan syarikat tersenarai, terutamanya di China, telah menyerlahkan kesesuaian firma audit yang dilantik dengan strategi persaingan pasaran syarikat. Kajian ini mendakwa bahawa strategi persaingan pasaran yang diguna pakai, sama ada menyerang atau bertahan, mungkin mempengaruhi pilihan firma audit, tetapi hubungan tersebut masih tidak jelas. Kajian ini menyiasat perkaitan antara strategi persaingan pasaran dan pilihan firma audit di kalangan syarikat tersenarai China, dengan pemilikan kerajaan sebagai moderator. Analisis regresi logistik multivariate telah dijalankan dengan menggunakan 9,590 tahun-pemerhatian syarikat tersenarai China untuk tempoh 2018–2021. Keputusan menunjukkan bahawa syarikat yang mempunyai strategi serangan yang agresif cenderung untuk melantik firma audit yang lebih besar, manakala syarikat yang mempunyai strategi pertahanan yang agresif memilih firma audit yang lebih kecil. Tiada bukti menunjukkan bahawa syarikat milik kerajaan mempengaruhi pilihan firma audit, tetapi pemilikan kerajaan menyederhanakan hubungan antara strategi persaingan pasaran dan pilihan firma audit. Penemuan ini berguna kepada syarikat tersenarai untuk memilih kualiti audit terbaik yang sesuai dengan strategi persaingan pasaran yang digunakan dan menyediakan rujukan kepada pengawal selia untuk menilai dan menggalakkan pembangunan pasaran audit yang sihat di China. Kajian ini merupakan perintis dalam memberikan bukti hubungan antara strategi persaingan pasaran, pemilikan kerajaan dan pilihan firma audit.

Kata kunci: Pilihan firma audit; China; pemilikan kerajaan; strategi persaingan pasaran

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### INTRODUCTION

In recent years, serious audit failures of listed companies have been under the spotlight (Etim et al. 2020). In January 2021, a large number of audit failures by Deloitte were exposed, and cases of audit failures disclosed by its departing employees became a sensation on major social media (Han Ying 2021). In May 2021, the Ruihua CPA firm was investigated by the SEC for alleged financial fraud of listed company Kang De Xin (Chen et al.

2023). Audit failures occur as a result of listed companies choosing unsuitable audit firms. Many examples of this kind of situation can be found in China, pointing to the fact that audit firm choice is a concern.

As China's market economy develops, reliable audits in the securities market are becoming increasingly necessary. Existing studies are mostly concerned with the supply side of audit firms, such as their size, audit quality, and franchise strategy research (Rahmat & Ali 2016; Lai et al. 2017; Habib et al. 2019; Azizkhani et al. 2023). Not enough research has been conducted on how to choose the audit firm as the demand side of the listed companies. Furthermore, the audit market in China is still dominated by buyers, and the choice of audit firms is more autonomous for listed companies (Nguyen et al. 2019).

Previous studies on the factors that influence the choice of audit firms can be divided into two main categories: corporate governance and corporate characteristics (Mahfud et al. 2020). Listed companies tend to choose different audit firms based on their different company characteristics, including equity characteristics (Abbott & Parker 2000; Qomariyah 2019; Guizani & Abdalkrim 2022), size and leverage characteristics (Shan et al. 2019; Shahwan 2021). Many studies also found that the board of directors' characteristics, such as board independence and effective audit committee, influence the auditor's choice (Khudhair et al. 2019).

Market competitive strategy is a series of engagements and actions a company takes to respond to the changing environment and achieve its corporate goals through effective resource allocation to gain core competitiveness advantage in the market and achieve sustained profitability (Miles et al. 1978; Bentley et al. 2013). Market competitive strategy is an important factor that may influence the internal and external governance structure (Miles et al. 1978; Bentley et al. 2013). Market competitive strategies, either offensive or defensive, may affect important matters such as agency costs and financing structure of a company (Muafi et al. 2019), which may influence the auditor choice (Bentley et al. 2013). We argue that the market competitive strategy adopted by the listed company can be considered a potential factor that influences audit firm choice. Unfortunately, few studies have been conducted on market competitive strategies as a determinant that affects the choice of audit firms (Guowei & Xiaoyan 2020). Thus, how the adopted market implements competitive strategy associations with the companies' selection of audit quality remains unclear. Accordingly, the first objective of this study is to examine the effect of corporate market competitive strategy on auditor choice among Chinese listed companies.

In addition, combined with China's special economic system environment, China's government behaviour still has an important influence on the allocation of market resources (Liu et al. 2022). Numerous studies at home and abroad such as those conducted by Yang et al. (2020), Zhang et al. (2022) and Stone et al. (2022) have shown that government-owned firms can obtain more convenient financing and government subsidies than non-government-owned firms can, thus having positive effects on the business activities and economic consequences of firms. Government-owned enterprises in China are larger and have better monitoring systems that create a special institutional monitoring environment (Waddock 2008). Thus, they would demand to choose high audit quality to ensure their security (Du et al. 2020). Thus, we argue that government-owned companies tend to appoint high-quality audit firms over other private enterprises. Additionally, considering the special institutional environment in China and the impact of the nature of government ownership on the selection of audit firms, we also argue that government ownership may moderate the market competitive strategy and audit firm choice. Although a large amount of research has been conducted on the theory of government ownership, most existing studies are focused on government ownership, corporate value and firm performance. Limited studies focus on government ownership and audit firm choice, particularly in China's context. Thus, the next objectives are to examine whether government ownership affects auditor choice and moderates the corporate market competitive strategy and auditor choice relationship.

This paper analyses 9,590 year-observations of listed companies in China for the period between 2018 and 2021. Generally, we found a significant relationship between corporate market competitive strategies and audit firm choice. The findings indicate that companies with offensive market competitive strategies tend to appoint one of the top 10 audit firms in China. We found no evidence to prove that government ownership is associated with auditor choice. However, we found that government ownership in listed companies reduces the association between market competitive strategies, mainly the offensive strategy and auditor choice.

This study firstly contributes to linking organisational and competitive strategy theories in management and audit firm choice in accounting to broaden the scope of management and accounting research by focusing on listed companies in China. The impact of firms' market competitive strategies and government ownership on audit firm choice is explored from the perspective of the audit demand side. Our findings empirically demonstrate the extensiveness of Chinese companies that practice offensive or defensive market competitive strategies to accommodate high-quality audits provided by the top 10 audit firms to complement their strategies. The audit service is similar across audit firms; by demanding high-quality audit services from reputable audit firms, companies may have better strategies to compete in the market. This evidence will be key to understanding why different companies that are pursuing different strategies choose different audit firms. The study also demonstrates the moderating role of government ownership in the relationship between competitive strategies and auditor choice (Muafi et al. 2019). Finally, guidance is provided for listed companies to make rational choices of audit

firms. This work is of practical importance for promoting the overall healthy development of the audit market in China.

The remaining sections are organised as follows. The theory, literature review and hypotheses are presented in Section 2. The research methodology is described in Section 3, and the findings are presented in Section 4. The conclusion of this study is discussed in Section 5.

## LITERATURE REVIEW

Agency theory suggests that investors and creditors should monitor agents through audits to reduce agency costs (Eisenhardt 1989). As agency costs rise, shareholders perceive greater risk in the firm's operations. A greater possibility of misreporting performance or engaging in surplus management exists, creating a greater need for professional audit services. Signalling hypothesis holds that listed companies will hire audit firms capable of performing high-quality audits to obtain public financing opportunities. Investing in listed companies should be made more transparent to reduce the information gap (Connelly et al. 2011). Insurance theory states that the auditor plays a role in assuming a part of the risk; in the event of problems with the audited entity, the audit firm may need to compensate losses to external investors in the enterprise, thus providing an opportunity for companies to pass on the risk (Thoits 2010). Companies with an offensive strategy are more likely to choose high-quality audits to transfer risk due to greater operational risk.

Especially in emerging and transitional markets such as China, where government behaviour has a significant impact on corporate behaviour, insurance theory has evolved into a political guarantee theory, and the management of listed companies is motivated to hire high-quality external auditors to provide political guarantees to reduce political costs and pursue a political future (Liu et al. 2017). In addition, in terms of reputation theory, government-owned firms are an important support of China's national economic system. They may prefer a defensive strategy to maintain a stable and lasting operation, and government-owned firms prefer high-quality audits to signal the truthfulness and reliability of their business performance when auditing to maintain their social reputation (Habib et al. 2019; Bhattacharya & Banerjee 2020).

## AUDIT FIRM CHOICE

At present, numerous scholars at home and abroad have conducted detailed studies on the selection of audit firms by listed companies (Lin & Liu 2010; Rahmat & Ali 2016; Darmadi 2016). Prior studies mainly focused on the audit firm choice of listed companies through the arguments of agency theory and signalling hypothesis (Rahmat & Ali 2016; Hassan et al. 2018; Qomariyah 2019). Scholars often use the listed companies' characteristics instead of agency cost and then analyse the relationship between these proxy variables and the audit firm choice, such as the company's size, financial leverage, management shareholding, accruals and corporate governance (Abbadi et al. 2016). Some scholars have taken an alternative approach by studying the legal system and political connections (Guedhami et al. 2014; Tee 2019).

DeFond and Zhang (2014) argued that the more assets a firm has, the more effort and cost it needs to spend to limit its agency cost problems, and therefore, it chooses a high-quality audit firm. Fujianti and Satria (2020) found that firms with larger assets tend to choose high-quality audit firms. Fang et al. (2017) found that the level of the company's financial leverage influences auditor selection. When a firm's level of indebtedness increases, the need for external oversight by the firm and its creditors strengthens. Thus, the firm tends to choose a high-quality audit firm to conduct the audit to reduce such agency cost problems.

The management's shareholding also influences the selection of the auditors. Low managerial shareholding corresponds to a higher likelihood to be in conflict with the interests of the company's shareholders, and a more serious agency problem may incur a higher cost to respond. Chen et al. (2011) found that low managers' shareholding corresponds to their increased likelihood to choose a high-quality audit firm to carry out the audit. However, Eichenseher and Shields (1985) found an inverse relationship between the choice of high-quality audit firms and the manager's shareholding.

Higher accruals correspond to more serious manipulation of the listed company by the management (Shah et al. 2020). This agency problem requires higher agency costs, including the need to appoint a high-quality audit firm for external auditing. In addition, the auditor's choice can be influenced by the corporate governance practice. Abbott and Parker (2000) argue that good corporate governance practice reduces agency cost problems because the internal audit committee may favour choosing high-quality audit firms. Lin and Liu (2010) suggest that firms with weak internal corporate governance mechanisms tend to switch to smaller or more reliable auditors to sustain the opaqueness gains derived from weak corporate governance.

In sum, many scholars have conducted numerous studies on the choice of high-quality audit firms for listed companies and reached corresponding conclusions. Although these conclusions are not the same, more research results generally show that the governance structure of listed companies and agency cost issues will have a significant impact on the audit firm choice for listed companies (Gerged et al. 2020). The market competitive

strategy is also an important factor that affects the governance structure of a firm, which in turn affects the agency costs of a firm. However, limited evidence is available to prove whether the market competitive strategy would affect auditor choice, particularly among Chinese listed companies. We also raise a concern about the presence of government ownership in state-owned companies, which is prominent in China and may affect auditor choice.

#### MARKET COMPETITIVE STRATEGY AND AUDIT FIRM CHOICE

Market competitive strategy is a series of engagements and actions that a firm takes to respond to the changing environment and achieve its corporate goals through effective resource allocation to gain core competitiveness in the market, win competitive advantage and achieve sustained profitability. In terms of the classification of market competitive strategy types, Porter (1980) proposed two competitive strategies: cost leadership and differentiation. O'Brien (1990) classified the overall market competitive strategy into exploratory strategic enterprises and robust strategic enterprises.

Miles and Snow (1978) used the financial information disclosed by public companies to classify the strategies into offensive, analytical, reactive and defensive strategies in terms of the degree of strategic aggressiveness. These four types of firms are in decreasing order of strategic aggressiveness, with offensive being the most aggressive and defensive being the least aggressive. Our study considers only two strategies: offensive and defensive. Analytical and reactive strategies are not considered in the present study mainly because this study aims to focus on two distinct strategies that are at opposite ends of the strategic unity where the offensive and defensive strategies are located. In the accounting field, Miles and Snow's classification is more appropriate than other classification methods. This classification can cover the mainstream view of current corporate market competitive strategy classification, and this strategy division can be measured by data.

As Leventis et al. (2011) noted, companies adopting a defensive strategy tend to be structured with strict management norms and limited managerial authority. Companies that implement a defensive strategy are more cautious in their growth pattern and achieve their growth mainly through market penetration in concentrated, narrow field lines. The focus is on reducing the cost of products or service and retaining their internal senior managers for a long tenure to mechanically stabilise the organisational structure and reduce the business risk. Thus, we argue that companies with a defensive market strategy have a lower incentive to choose high-quality audit firms.

In contrast, companies that implement an offensive strategy have a flexible organisational structure, diversified operations and greater managerial power. Offensive companies have relatively short tenures, frequent managerial changes and relatively complex organisational structures, which make them relatively risky to operate and may result in higher agency costs to shareholders. We argue that companies with offensive strategies have more serious agency problems and that choosing high-quality audit service providers may be crucial for them. From the perspective of audit insurance theory, large audit firms are more likely to be chosen by listed companies with high business risks because of their large assets and relatively strong financial capacity.

Using Miles and Snow's theory of organisational strategy, Bentley et al. (2013) found that offensive companies that apply more aggressive strategies were more likely to have financial reporting violations than those that apply defensive strategies. Offensive companies are mainly based on market expansion and new product development, and these have higher cash flow requirements. The marketing war in new product promotion can also have an impact on net profit. Thus, such companies are more likely to be in financial distress (Gao 2018). Wu et al. (2016) similarly pointed out that more offensive firms are more likely than firms with defensive strategies to engage in financial reporting fraud. Therefore, shareholders of listed companies implementing an offensive strategy have a greater incentive to hire a large audit firm, hoping to make financial information more accurate through rigorous auditing (Bentley et al. 2013). Thus, this study proposes Hypothesis 1.

H<sub>1</sub> Corporate market competitive strategies are positively associated with audit firm choice among the top 10 audit firms.

#### GOVERNMENT OWNERSHIP AND AUDIT FIRM CHOICE

Scholars generally agree that the unique ownership structure of Chinese enterprises has a unique impact on the choice of audit firms in China (Liu & Subramaniam 2013). Audit firm selection between government-owned and non-government-owned enterprises has certain differences (Wang et al. 2008; Kim et al. 2019; Hall et al. 2020). Therefore, the inclusion of government ownership considerations in the study helps in examining the differences between listed companies in China compared with those in developed countries under specific economic circumstances. Bai et al. (2006) pointed out that because most of the listed companies in China are mainly restructured from former government-owned enterprises, an important feature of public ownership is government intervention. In government-controlled companies, the managers are formally appointed by the board of directors, but all the appointment decisions are still in the hands of the industry authorities.

Some scholars point out that those enterprises with a government background experience economic and work pressure that exists in general enterprises, including the pressure of political performance, reputation and social status. Government-owned companies also adhere to higher moral and ethical standards (Waddock 2008) and will consider adopting more social responsibility (Chiang et al. 2017; Karim et al. 2017). Thus, the need for large audit firms to provide security for government-owned enterprises is greater (Du et al. 2020). Lin and Liu (2009) and Habib et al. (2019) argue that a high-quality independent external audit can provide political assurance to the management of state-owned enterprises and reduce political costs. Government-owned enterprises in China are larger and have better systems, indicating their demand for high-quality audits and thus the need to choose large audit firms. Thus, we predict that the acceptance of high-quality audit firms is greater for government-owned enterprises than for private enterprises with irregular development.

However, the opposite view of government ownership indicates that government-owned companies lack the demand for large audit firms. Wang et al. (2008) argue that government-owned enterprises lack the demand for large or non-local audit firms because the local audit firms in China have better knowledge of local conditions and government-owned enterprises' collusive motives. Thus, government-owned enterprises prefer smaller audit firms. Moreover, Brandt and Li (2003) argue that one of the reasons government-owned enterprises hire small audit firms is that government-owned enterprises enjoy preferential treatment not only in input factors and product markets but also in capital markets. In short, these concessions eliminate the need for government-owned enterprises to secure financing and investment opportunities by hiring large audit firms for credibility assurance.

The current evidence is considered mixed and inconclusive. Thus, filling this research gap is important. On the basis of signalling theory, the demand for choosing auditors depends on the government-owned enterprise's intention, which is prominent. Although large audit firms have more capabilities to play a better role in monitoring and assuring the quality of financial information, government-owned companies may think differently. Thus, we propose the following hypothesis:

H<sub>2</sub> Government ownership is associated with audit firm choice among the top 10 audit firms.

The presence of government ownership in the state-owned enterprise could also play a role in corporate governance. Government ownership in China represents the direction of the Chinese economy and is the pillar of the national economy, which is why the requirements for their financial information disclosure are higher (Chiang et al. 2017; Karim et al. 2017; Du et al. 2020). The presence of government ownership may influence the market competitive strategy used by the companies, either offensive or defensive. If the government-owned companies favour selecting small audit firms, then the need for companies with an offensive competitive market strategy to choose high audit quality as part of their competitive strategy could be minimised, and vice versa. Scarce evidence is available to prove the moderating impact of government ownership of state-owned companies on the companies' market competitive strategy and auditor choice relationship. Thus, we propose H<sub>3</sub>.

H<sub>3</sub> Government ownership moderates the relationship between corporate market competitive strategies and audit firm choice.

## METHODOLOGY

### DATA AND SAMPLE SELECTION

This study uses data from Shanghai and Shenzhen A-share listed manufacturing companies from 2018 to 2021 to test the established hypotheses. The manufacturing industry is chosen for the following reasons: Firstly, manufacturing enterprises pay more attention to product market competitive strategy compared with other enterprises (Wen et al. 2022). Secondly, the number of manufacturing enterprises in China's listed companies is high, exceeding 60% of the total, and more types of manufacturing enterprises and higher heterogeneity among industries are present within the manufacturing industry (Wu et al. 2019). Thirdly, the financial data of manufacturing enterprises are more complete than those of other industries. The data were retrieved from the CSMAR database.

Aligned with past research, this study selects the sample according to the following criteria in Table 1:

- (1) Companies with missing data for other control variables were excluded.
- (2) Companies in the 'other manufacturing' industry were excluded because of the lack of homogeneity among companies in this industry.
- (3) Companies that have financial or other unusual problems in any one of the four years were excluded.

TABLE 1. Sample selection

Selection process	Observations(n)
An initial sample	12,404
Exclude (1) – missing data	1,241
Exclude (2) – non-manufacturing	1,089
Exclude (3) – have financial problem	484
Final sample	9,590

After the data were screened by using the above process, 9,590 year-observations of companies listed in China during the period of 2018–2021 were selected in the final sample.

## REGRESSION MODEL

The general form of the regression model to test the hypotheses is (Wu et al. 2019)

$$\text{AudChoice}_{it} = \beta_0 + \beta_1 \text{MCStrategy}_{it} + \beta_2 \text{GovOwn}_{it} + \beta_3 \text{MCStrategy} * \text{GovOwn}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \text{ROA}_{it} + \beta_6 \text{Quick}_{it} + \beta_7 \text{FSize}_{it} + \beta_8 \text{INV}_{it} + \beta_9 \text{Rec}_{it} + \beta_{10} \text{Opint-1}_{it} + \beta_{11} \text{NSIssue}_{it} + \beta_{12} \sum_{p=1}^p \text{Year} + \beta_{13} \sum_{p=1}^p \text{Ind} + \varepsilon$$

where AudChoice represents the dummy variable of audit firm choice. It is measured by using a dummy variable, i.e. the variable is coded as 1 if the company chooses top 10 audit firms or 0 otherwise. The top 10 audit firms include PricewaterhouseCoopers Zhongtian, Ernst & Young Huaming, Deloitte & Touche Huayong, KPMG Huazhen, Pan-China Certified Public Accountants LLP, Shu Lun Pan, ShineWing, Moore Certified Public Accountants, Vocation International Certified Public Accountant Co. Ltd. and Grant Thornton.

MCStrategy represents listed companies' market competitive strategies, measured by using six market competitive strategy dimensions introduced by Miles et al. (1978) and Wu et al. (2016), namely, R&D, personnel efficiency, business growth rate, marketing and sales, employee stability and estimation of production mechanisation. These six indicators are divided into 5 equal points each year in the order of their actual values from smallest to largest, with the first grade assigned 1 point and so on, and the highest grade assigned 5 points. Finally, the scores of these six indicators are added together to obtain the market competitive strategy score of the company in that particular year (Miles et al. 1978). According to Bentley et al. (2013), higher strategy scores indicate that companies are more inclined to adopt offensive strategies and lower scores indicate that companies are more inclined to adopt defensive strategies. GovOwn represents government ownership and is coded as 1 if the listed company is government owned and 0 otherwise (Rahman et al. 2021).

To control for other factors that may affect the results, this study includes several control variables, including FSize, Lev, ROA, Quick, INV, Rec, Opint-1 and NSIssue. FSize is the company's size, which reflects the company's capital strength and scale of operations. Large companies tend to have higher audit demand and audit fees and may tend to choose more professional and well-known audit firms (Liu & Subramaniam 2013). Lev is a gearing ratio. A higher gearing ratio means that the company is more indebted with high financial risks and uncertainties. The company's leverage may affect the company's decision to choose an audit firm (Ghosh 2011). ROA indicates return on assets, which is measured by earnings before tax divided by the firm's total assets, and is one of the important indicators of business efficiency, reflecting the efficiency of the use and management of the company's assets. Companies with high ROA may be able to pay higher audit fees and are more inclined to choose more well-known and professional audit firms (Bacha et al. 2021).

TABLE 2. Variables definition and measurement

Variables	Descriptions	Measurement
AudChoice	audit firm choice	Dummy Top 10 audit firms - the value is 1 when the sample company employs the "Top 10" audit firms in the current year, and otherwise 0.
MCStrategy	market competitive strategy	Use the six markets competitive strategy by Miles et al. (1978) and Wu et al. (2016). A higher score indicates a more offensive strategy and a lower score indicates a more defensive strategy.
GovOwn	government ownership	Government ownership company is coded as 1, and otherwise 0.
Lev	gearing ratio	total liabilities/total assets
ROA	Return on assets	net income / total assets at year-end
Quick	quick ratio	(Current assets - inventory) / current liabilities
FSize	firm size	natural logarithm of total assets at the end of the year
INV	inventory to total assets	inventory/total assets
Rec	accounts receivable to total assets	accounts receivable/total assets
Opint-1	previous year's audit opinion	dummy variable with a value of 1 if a standard unqualified audit opinion is issued in the year t-1 and 0 otherwise
NSIssue	new stock offerings	dummy variable that takes the value of 1 if there is a new share issue in the year, otherwise it is 0
Year	Year	year dummy variables

Quick refers to quick ratio, calculated by using the current ratio, and reflects the strength of the company's short-term solvency. If a company's quick ratio is low, then the company's liquidity is not sufficient, which may limit the company's ability to choose a high-quality audit firm (Boskou et al. 2019). INV is the ratio of inventory to total assets, calculated as the ratio of inventory over the firm's total assets. A high ratio of INV indicates that the company's capital is less liquid, and the company may need more funds for inventory management, which may affect the company's decision to choose an audit firm (Dao et al. 2012). Rec is the ratio of accounts receivable to total assets. A high ratio of accounts receivable to total assets may reflect the financial stability and operational efficiency of the company. A high ratio may mean that the company has a greater credit risk and capital appropriation, which may affect the company's decision to choose an audit firm (Salehi et al. 2019).

Opint-1 is the prior year's audit opinion. The type of prior-year audit opinion—either clean or qualified—may affect the choice of audit firm in the current year. If the previous year's audit opinion is clean, which indicates a good opinion, then it may influence the company to be more likely to choose and appoint the same auditor (He et al. 2017). The dummy variable is coded as 1 if the previous year's audit opinion is clean or unqualified, and 0 otherwise. NSIssue is the issuance of new shares, which may reflect the company's financing needs and development strategy. If a firm has plans to issue new shares, then it may need to choose a more professional and well-known audit firm as a signal to enhance investor confidence and obtain better financing terms (Wu et al. 2019). This paper also controls for year (Year) and industry (Ind) impact (Habib et al. 2019). Table 2 summarises the variables' definition and measurement.

## RESULTS

### RESULTS FOR DESCRIPTIVE STATISTIC

Descriptive statistics were analysed for each variable, and the results are shown in Table 3.

Table 3. Descriptive statistics

VARIABLES	n	mean	Std. dev	min	max
AudChoice	9,590	0.61	0.49	0	1
MCStrategy	9,590	18.36	3.69	6	30
GovOwn	9,590	0.22	0.41	0	1
FSize	9,590	22.11	1.20	17.65	27.55
Lev	9,590	38.70	18.98	0.84	247.10
ROA	9,590	4.87	9.02	-168.30	96.86
Quick	9,590	2.24	2.89	0.05	74.66
INV	9,590	0.14	0.09	0	0.77
Rec	9,590	0.15	0.11	0	0.91
Opint1	9,590	0.91	0.28	0	1
NSIssue	9,590	0.15	0.35	0	1

Note: please refer to Table 2 for a details definition of the variables.

The full sample indicates that the number of samples is large, no values are missing and the total number of samples remains 9,590, which satisfies the condition of large sample regression. In the descriptive statistics, the mean value of AudChoice is 0.61, which indicates that 61% of listed companies choose the top 10 or large audit firms. The minimum value of the firm's market competitive strategy is 6 and the maximum value is 30, indicating a large difference in the choice of market competitive strategy between the samples. The mean value is 18.36, while the theoretical range of this indicator is in the range of 6 to 30 (Wu et al. 2016), which indicates that the strategic indicators of the sample listed firms are relatively reasonable. The mean value of the nature of government ownership is 0.22, which indicates that 22% of the firms are government-owned enterprises. In addition, the maximum value, minimum value, mean and standard deviation of each indicator for each control variable are within the reasonable interval, and the sample quality is good.

### CORRELATION ANALYSIS RESULTS

The correlation and variance inflation factor (VIF) analysis results are shown in Table 4. The correlation coefficient between the market competitive strategy (MCStrategy) and AudChoice among the auditors from the top 10 audit firms is 0.03, which is a significantly positive correlation. The correlation coefficient between government ownership attributes and AudChoice among the auditors from the top 10 audit firms is -0.03, a significantly negative correlation, which is in line with our hypothesis. In addition, a negative correlation exists between financial leverage and ROA, which indicates that a high financial leverage of the firm corresponds to a lower net profit margin. Also, financial leverage is negatively correlated with quick ratio, company size and accounts receivable turnover. This condition means that the higher the financial leverage, the more the company's

solvency and operational efficiency may be affected. The positivity and negativity of the correlation coefficients between the other indicators are also largely in line with expectations.

Additionally, the highest correlation is 0.56 between Quick and Lev, and the second highest is 0.44 between FSize and Lev, while the other correlations are lower than 0.4. This statistic indicates that no crucial multicollinearity issues exist among the independent variables that may influence our results (Gujarati & Porter 2009). VIF analysis was performed to confirm that the model does not suffer from multicollinearity issues. The highest VIF value of all independent variables is 2.15, indicating that all independent variables are free from any multicollinearity issues (Gujarati & Porter 2009).

Table 4. Correlation analysis

	AudChoice	MCStrategy	GovOwn	Lev	ROA	Quick	FSize	INV	Rec	Opint1	NSIssue	VIF
AudChoice	1											
MCStrategy	0.03***	1										1.02
GovOwn	-0.03***	-0.12***	1									1.16
Lev	-0.03***	-0.02*	0.21***	1								2.15
Roa	0.08***	0.02**	-0.07***	-0.38***	1							1.25
quick	0.03**	-0.06***	-0.12***	-0.56***	0.18***	1						1.55
FSize	0.05***	-0.03***	0.33***	0.44***	0.02**	-0.27***	1					1.50
INV	-0.01	-0.05***	0.07***	0.21***	-0.09***	-0.24***	0.01	1				1.09
Rec	-0.02	-0.08***	-0.09***	0.18***	-0.16***	-0.11***	-0.19***	0.06***	1			1.15
Opint1	0.01	0.04***	0.10***	0.06***	-0.05***	-0.16***	0.18***	0.05***	-0.02*	1		1.20
NSIssue	0.04***	0.03***	-0.06***	-0.09***	0.09***	0.13***	0.01	-0.07***	-0.04***	-0.34***	1	1.16

Note: AudChoice is an audit firm choice measured as a dummy. Its value is 1 when the sample company employs the top 10 audit firms in the current year, and 0 otherwise. MCStrategy is a market competitive strategy, measured by using the six market competitive strategies by Miles et al. (1978) and Wu et al. (2016). A higher score indicates a more offensive strategy, and a lower score indicates a more defensive strategy. GovOwn indicates a government-owned company, coded as a dummy. A government-owned company is coded as 1, and a non-government owned company is coded as 0. FSize is firm size, calculated as the natural logarithm of total assets at the end of the year. Lev is a gearing ratio, calculated as the ratio of total liabilities/total assets. ROA is the return on assets, calculated by net income/total assets at year-end. Quick is the quick ratio, calculated based on (current assets–inventory)/current liabilities. INV is calculated as the ratio of inventory to total assets. Rec is accounts receivable to total assets, calculated as accounts receivable/total assets. Opint-1 is a previous year’s audit opinion, coded as a dummy variable with a value of 1 if the opinion issued in year t-1 is a standard unqualified audit opinion, and 0 otherwise. NSIssue is a new share issuance, measured as a dummy, coded with the value of 1 if there is a new share issue in the year, and 0 otherwise. The year is a vector that represents the observation year and is coded by using the dummy variable. Ind is a vector to represent an industry classification based on the China stock market and coded as dummy variables. \*\*\* represents  $p < 0.01$ , \*\* represents  $p < 0.05$ , \* represents  $p < 0.1$ .

## REGRESSION RESULTS

We run the logistic regression for testing the hypotheses, and the results are shown in Table 3. Model 1-Logit presents the direct relationships between market competitive strategy (MCStrategy) and auditor choice. The model also controls several factors that may influence the auditor’s choice, including the year effect. The industry effect is excluded as the sample is only selected from the manufacturing industry. Table 5 shows that the odds ratio for MCStrategy is positively related to AudChoice at approximately 3.23 for Model 1-logit, with significance at  $p < 0.01$ . The finding shows that Chinese companies’ market competitive strategy increases the potential of companies to choose the top 10 audit firms. The result confirms that the companies favour selecting reputable audit firms as part of their market competitive strategy to penetrate the market (Wu et al. 2019; Dong et al. 2021).

TABLE 5. Regression results for MCStrategy, GovOwn, and AudChoice

Variables	(Model 1-Logit)	(Model 2-GLS)
	$\beta$ (Odds ratio)	$\beta$ (t-value)
MCStrategy	0.02 (3.23)***	0.01 (3.22)***
GovOwn	0.25 (0.96)	0.06 (0.97)
MCStrategy*GovOwn	-0.03 (-1.66)*	-0.01 (-1.67)*
Fsize	0.13 (5.53)***	0.03 (5.59)***
Lev	-0.00 (-0.99)	-0.00 (-1.06)
ROA	0.02 (5.72)***	0.01 (5.80)***
Quick	0.02 (1.57)	0.00 (1.57)
INV	-0.15 (-0.55)	-0.04 (-0.55)
Rec	0.07 (0.29)	0.01 (0.25)
Opint1	0.10 (1.14)	0.02 (1.14)
NSIssue	0.17 (2.50)**	0.04 (2.50)**
Constant	-3.12 (-5.75)***	-0.21 (-1.71)*
Year	controlled	controlled
Observations (n)	9,590	9,590
Pseudo/adjusted R <sup>2</sup>	23.6%	23.6%

Note: t-statistic values in parentheses, \*\*\* represents  $p < 0.01$ , \*\* represents  $p < 0.05$ , \* represents  $p < 0.1$

We repeated the regression by using the GLS estimation technique because the model includes an interaction variable, MCStrategy\*GovOwn. GLS can minimise the possible autocorrelation and heteroscedasticity issue in the model (Gujarati & Porter 2009). The results are shown in Table 3. Model 2-GLS shows that the coefficient (t-value) for MCStrategy is also positively related to AudChoice at approximately 0.01 ( $t = 3.22$ ), which is



significant at  $p < 0.01$ . The result is consistent and robust after controlling the differential effect of the year, which aligns with the logistic regression results. The significant and positive association between the market competitive strategy and companies' auditor choice may indicate that the more offensive strategies firms implement, the more they tend to choose larger audit firms for auditing, while the more defensive strategies firms implement, the more they tend to choose smaller audit firms, thus verifying Hypothesis 1.

Table 3 also shows the results for the direct effect of GovOwn on AudChoice. Both Model 1-Logit and Model 2-GLS show that the odds ratio and t-value of the models are insignificantly related to AudChoice. The result does not support H<sub>2</sub>, and notably, no evidence proves that the presence of government ownership influences the companies in selecting and appointing the top 10 audit firms or vice versa. Government-owned companies may prefer a defensive strategy because they have a national mandate and seek stability and may not need a large audit firm to prove their value (Bentley et al. 2013; Guedhami et al. 2014; Lin & Liu 2019; Tihanyi et al. 2019).

Meanwhile, the interaction terms of the firm's government ownership and the market competitive strategy are significantly negative. The odds ratio is  $-1.66$  and the t-value is  $-1.67$  for Model 1-Logit and Model 2-GLS, respectively. However, the associations are considered weak, being significant only at  $p < 0.10$ . The evidence shows that government ownership plays a negative moderating role in the effect of the market competitive strategy on audit firm choice, thus verifying Hypothesis 3. Government-owned companies may favour implementing a defensive market strategy, which reduces the need to select the reputable top 10 audit firms. The coefficients of the control variables ROA, FSize and NSIssue are also significant at  $p < 0.01$ , indicating that corporate profit, corporate size and new share issuance are the variables that significantly influence the choice of top 10 audit firms. It could be derived from the intent to send good and robust signals to the firm's external investors.

## ROBUSTNESS CHECKS

To ensure the reliability of the findings, we perform a robustness test, in which the maximum and minimum values of the variables are subjected to 1% tailoring. This test eliminates the potential effect of extreme or outlier observations to obtain better results. The logistic and the GLS models were re-estimated, and the results are reported in Table 6. Similarly, we control the year differential effect (Year) to control for the effects of different years.

TABLE 6. Robustness checks

Variables	(Model 1-Logit) $\beta$ (Odds ratio)	(Model 2-GLS) $\beta$ (t-value)
MCStrategy	0.03 (3.18)***	0.01 (3.18)***
GovOwn	0.39 (1.23)	0.09 (1.22)
MCStrategy*GovOwn	-0.03 (-1.68)*	-0.01 (-1.68)*
FSize	0.13 (5.35)***	0.03 (5.39)***
Lev	-0.00 (-0.35)	-0.00 (-0.39)
ROA	0.05 (8.02)***	0.01 (8.07)***
Quick	0.01 (1.37)	0.00 (1.34)
INV	-0.14 (-0.53)	-0.03 (-0.52)
Rec	0.09 (0.38)	0.02 (0.37)
Opintl	0.15 (1.76)*	0.04 (1.78)*
NSIssue	0.16 (2.43)**	0.04 (2.44)**
Constant	-3.33 (-6.07)***	-0.26 (-2.08)**
Year	Controlled	controlled
Observations (n)	9,590	9,590
Pseudo R <sup>2</sup> /adjusted R <sup>2</sup>	23.71%	23.71%

Note: t-statistic values in parentheses, \*\*\* represents  $p < 0.01$ , \*\* represents  $p < 0.05$ , \* represents  $p < 0.1$

Overall, the results are the same as the main regression results, thus validating the previous conclusions. The companies' market competitive strategy increases companies' intention to choose auditors among the top 10. Government ownership does not influence Chinese companies to select the top 10 audit firms, and the presence of government ownership reduces the priority of companies to choose auditors among the top 10 audit firms as part of their offensive market strategy. These findings confirm the robustness of our models and results.

## DISCUSSION

This paper explores the impact of market competitive strategy and government ownership on audit firm choice and further explores the moderating role of government ownership in market competitive strategy on audit firm choice. This paper takes Shanghai and Shenzhen A-share listed companies in the manufacturing industry from 2018 to 2021 as the sample. Firstly, descriptive statistics and correlation analysis were conducted on the sample, followed by logistic regression to verify the research hypotheses and then by robustness analysis.

The analysis showed that listed companies with aggressive offensive strategies tend to favour bigger audit firms, while listed companies with aggressive defensive strategies tend to favour smaller audit firms. Scholars

believe that large audit firms provide more reliable audit opinions in the case of audit failures, in terms of legal litigation, and surplus management (DeFond & Zhang 2014). Firms implementing offensive strategies tend to choose large accounting firms, a result that can be explained precisely by the motivation to choose large accounting firms to send good signals to the capital market, supported by audit signalling theory, and to transfer risk, supported by audit insurance theory.

The results also indicate no evidence to show that corporate government ownership affects audit firm selection, which is inconsistent with the views of some previous scholars who argued that government ownership companies are more willing to hire large audit firms due to reputation, social responsibility and other considerations that demand high audit quality (Du et al. 2020). Nevertheless, this study finds that government ownership plays a negative moderating role in the effect of market competitive strategies on audit firm choice. This result is consistent with prior research on auditor selection in government-owned enterprises, as government-owned enterprises are at lower risk of financial distress and bankruptcy due to their close relationship with the government, relatively liberal financing environment and easier access to government subsidies (Chiang et al. 2017). Although the implementation of an offensive strategy leads to a sharp increase in risk, the potential litigation risk in government-owned enterprises is relatively lower compared with that of non-government-owned enterprises. Thus, government ownership reduces the likelihood that enterprises implementing an offensive strategy will choose a large accounting firm.

This study offers theoretical and practical contributions in a few ways. The findings enrich the literature on strategic theories in management and audit to explain how the market competitive strategy used by the companies influences the selection of audit firms. This study also expands the use of insurance theory to explain the association between the aggressiveness of companies' market competitive strategy and audit firm choice. In addressing the lack of systematic research that considers government ownership as a moderating factor in the array of governance quality, this research theoretically affirmed the substantial moderating role of government ownership in companies' market competitive strategy and auditor choice relationship. Our findings may help investors evaluate the influence of market competitive strategies and government ownership on audit firm choice, thereby reducing the risks associated with investment decisions. At the same time, it can provide decision-making advice to listed companies on how to choose the appropriate audit firm for the implemented corporate market strategy. The findings also offer practical implications for policymakers and governments and can assist regulators in finding regulatory priorities, improving capital market regulatory measures and better protecting investors' interests.

## CONCLUSION

Firms' market competitive strategies, as an important factor that affects corporate governance and financing needs, have a deep influence on firms' audit firm choices. Prior research remains unclear about the relationship between the two. On the basis of exploring the underlying reasons that affect audit firm choice, our study is developed to reduce the research gap in this field. This study proposes three research objectives. The first is to examine the relationship between different market competitive strategies and audit firm choice of Chinese listed companies; the second is to consider the impact of government ownership on audit firm choice; and the third is to examine the impact of government ownership on the relationship between market competitive strategies and audit firm choice. The results show that listed companies with aggressive offensive strategies tend to choose larger audit firms to gain better audit quality. No evidence shows that government ownership affects the choice of audit firms. However, government ownership has a significantly negative moderating effect on the relationship between market competitive strategy and audit firm choice in China.

This study has several limitations. Firstly, the lack of information in the sample collection of this study led to some deficiencies in some samples, thereby affecting the quality of the sample as a whole. Secondly, the measurement of corporate market competitive strategy needs to be improved. The market competitive strategy is an important explanatory variable, and this paper refers to previous studies and uses the indicator synthesis method to measure it in both the multiple regressions and the subsequent robustness tests. Although the financial indicator measurement is used in this study for the convenience of empirical analysis, the market competitive strategy also includes non-financial indicators, and its meaning is more complex and abstract. Subsequent research is crucial to find a more precise measurement to solve the noise measurement problem. Additionally, our testing model is based on Wu et al. (2019). Thus, we did not control in greater detail the corporate governance monitoring factors other than government ownership for audit firm choice. Hence, our findings may not be generalised to the presence of corporate governance attributes. Future studies should investigate this matter further.

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