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LAND PURCHASING BEHAVIOR OF REAL ESTATE ENTERPRISES: AN ORGANIZATIONAL STATUS PERSPECTIVE

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Abstract. Based on resource dependency and signaling theories, this study examines how organizational status affects land purchasing behavior in listed real estate enterprises on China's Shanghai and Shenzhen A-shares from 2006 to 2023. The findings indicate that the organizational status of real estate enterprises positively impacts their land purchase area, price, and quantity. Further analysis reveals that managerial overconfidence mediates this relationship. Heterogeneity analysis shows that the organizational status of state-owned real estate enterprises positively influences all three types of land purchasing behaviors, while for non-state-owned enterprises, it only significantly affects the area and price of land purchases, not the quantity. This study enriches the theory on land purchasing behavior of real estate enterprises, expands the application scope of organizational status, reveals the mechanisms through which organizational status affects land purchasing behavior and provides valuable insights for guiding rational competition among real estate enterprises, optimizing land resource utilization, and promoting the healthy and sustainable development of the real estate industry.

Keywords: organizational status, real estate enterprises, land purchase behavior, resource dependence, signaling theory, managerial overconfidence.

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1. Introduction

Land is a critical foundational resource for the operations and development of real estate enterprises (Liu, 2023), directly affecting their economic benefits and market competitiveness. In recent years, China's government has strengthened regulatory policies on the real estate market, such as the "housing is for living, not speculation," "three red lines" and "double concentration" land supply policies. These regulations require real estate enterprises to continually adjust their land purchasing strategies to adapt to the new market environment. In practice, the differences in land purchasing behaviors among real estate enterprises have become increasingly evident. Leading enterprises, like Poly Real Estate and China Overseas Land & Investment, leverage their substantial financial resources, strong brand influence, and extensive market experience to gain a significant competitive advantage in the land market (Wang et al., 2021). Conversely, small and medium-sized enterprises (SMEs) often face disadvantages due to limited resources. This disadvantage is exacerbated by tightening financing policies, which further compress the survival space for some smaller firms, accelerating industry consolidation and clarifying the market competition landscape (Sun & Zhang, 2022). Chinese real estate enterprises often lack systematic theoretical guidance in land purchasing decisions, causing SMEs to imitate the land purchasing strategies of larger firms (Yang & Shen, 2016). However, due to the significant differences in their circumstances, such imitation can lead to substantial operational risks, potentially resulting in losses or even bankruptcy. Therefore, it is crucial to explore the land purchasing behaviors of different real estate enterprises and the underlying mechanisms of these behaviors. This exploration is essential for enriching the theory of land purchasing behavior and providing correct guidance for real estate enterprises in making informed land purchasing decisions.

Scholars have conducted in-depth research on the driving mechanisms of land purchasing behavior in real estate enterprises. Some researchers have found that macroeconomic factors, policy environment, and market opportunities influence these behaviors (Zhao & Liu, 2024; Yang & Sun, 2024; Dou et al., 2023). Specifically, better economic development, more lenient land and financial policies, and more intense market competition make real estate enterprises more likely to purchase land at higher prices. Meso-level studies indicate that local government financial pressures increase the number of land bids from government financing platforms, leading other real estate

enterprises to reduce their land purchases (Huang & Du, 2018). Other studies have shown that micro-level factors such as the financial condition, financing capacity, and the experience of the management team of real estate enterprises can impact their land acquisition behavior. However, the mechanisms behind the differentiated land purchasing behaviors of various real estate enterprises are not fully understood, and there is a lack of solid theoretical support.

Organizational status represents a firm's overall competitiveness and influence within a specific market environment and social context. It reflects the firm's competitive position in the market and serves as an important indicator of its social recognition (Kilpi et al., 2017). Organizational status refers to the relative position of real estate enterprises within the real estate industry, market, or social networks. Organizations with higher social status often enjoy certain privileges and receive more external support. As a result, enterprises have a strong motivation to improve their own status. From the perspective of organizational status theory, real estate enterprises with higher status have stronger capabilities in areas such as capital raising and market forecasting, making them more competitive in the land market (B. Li & R. Li, 2021), and thus affecting their land purchasing behavior.

Managerial overconfidence refers to the tendency of managers to overestimate their abilities, the accuracy of their judgments, and their control over information during decision-making (Hao et al., 2023). Typical manifestations of this overconfidence include underestimating risks, overestimating future returns, and ignoring the uncertainty of external environments in decision-making. Managerial overconfidence has been widely used to study the influence of executive behavior on corporate decisions, particularly in areas such as investment decisions, capital structure, and mergers and acquisitions (Deshmukh et al., 2013; Malmendier & Tate, 2008). In real estate enterprises, enterprises with higher organizational status tend to exhibit stable growth, have historically high investment returns, ample financial reserves, and better access to information and resources (B. Li & R. Li, 2021). These enterprises have established a strong competitive advantage and positive reputation in the market, which leads managers to attribute the enterprise's success to their personal abilities and judgment rather than external factors. This bias further reinforces the managers' overconfidence, manifesting as an overestimation of future market returns and an underestimation of investment risks, which in turn can influence future land purchasing decisions. Therefore, how managerial overconfidence affects land purchasing behavior is a topic worth exploring. This study provides a new perspective by examining the role of managerial overconfidence in this relationship. Unfortunately, there is still insufficient research in the academic community on how the organizational status of real estate enterprises influences land purchasing behavior, particularly in terms of the role of managerial psychological states, such as overconfidence, in this process. Therefore, the aim of this study is to explore the following questions: (1) From the perspective of organizational status, how does the organizational status of real estate enterprises affect their land purchasing behavior? (2) What is the mechanism by which managerial overconfidence influences the relationship between organizational status and land purchasing behavior in real estate enterprises? (3) How does the organizational status of real estate enterprises with different ownership structures affect their land purchasing behavior? This research aims to provide theoretical support for understanding the decision-making mechanisms of land purchasing behavior in real estate enterprises and to offer valuable decision-making support for real estate enterprises and policymakers.

The following sections cover Theoretical analysis and hypotheses (Section 2). Research methods and data (Section 3) introduce the selection of relevant variables, sample and data, and research models. Descriptive statistics, correlation analysis, baseline regression analysis, mediation effect analysis, and ownership heterogeneity analysis and results will be discussed in Econometric analysis and results (Section 4). The subsequent conclusion (Section 5) presents the study's findings and discusses its practical implications, limitations, and future directions.

2. Theoretical analysis and hypotheses development

Based on resource dependence theory, organizations enhance their market competitiveness and survival capabilities by securing key resources. Once real estate enterprises reach a certain scale, they tend to accumulate more land to expand their portfolio and increase their profitability (Jing & Zhao, 2020). When purchasing land, these enterprises must effectively utilize their resources to maximize value. Different real estate enterprises adopt unique land purchasing strategies based on their resources and market positioning. High-status enterprises typically have stronger bargaining power and market influence (Su & Huang, 2011), allowing them to secure better prices through brand advantages, financial strength, and development experience. However, these enterprises often prefer high-quality, high-priced land, leading to higher overall costs despite their bargaining power. Low-status enterprises face intense market competition and cost control challenges, requiring careful selection and negotiation within budget constraints to ensure profitability and sustainability (Flynn et al., 2003). High-status enterprises, with their extensive experience and ample funds, tend to purchase larger tracts of land for development, while lower-status enterprises opt for smaller parcels to manage risk and market adaptation. Additionally, high-status enterprises leveraging their resource advantages, often adopt strategies of geographic diversification and multi-project expansion, leading to higher land acquisition volumes, which help create national or regional networks (Sun & Zhang, 2022). In contrast, lower-status enterprises focus on fewer

cities to build competitive advantages and market barriers (Jing & Zhao, 2020), resulting in fewer purchases.

From the perspective of signaling theory, Yu (2011) found that organizational status not only reflects an enterprise's overall strength but also serves as a medium to convey information about product quality and brand credibility to external parties. High-status firms are more effective at signaling their product advantages and brand reliability to the market, thereby strengthening their competitiveness and resource acquisition capabilities (Li & Zhang, 2021). Specifically, high-status real estate enterprises effectively communicate the quality of their products and brand reliability to local financial institutions, government agencies, and consumers. This signaling enhances market competitiveness and builds trust and recognition among stakeholders, including financial institutions and homebuyers, laying a solid foundation for long-term development. Consequently, high-status real estate enterprises, with their substantial funds and high market recognition, enjoy better credit ratings with banks and other financing institutions, making it easier for them to acquire land. This leads to more aggressive land purchasing behavior, with higher prices, larger areas, and more parcels purchased. Based on these theories, the following hypotheses are proposed.

Hypothesis 1a: The higher the organizational status of a real estate enterprise, the higher the land purchase price.

Hypothesis 1b: The higher the organizational status of a real estate enterprise, the larger the total area of land purchased.

Hypothesis 1c: The higher the organizational status of a real estate enterprise, the more parcels of land purchased.

Managerial overconfidence originated in the fields of behavioral finance and psychology. With the growth of behavioral finance, "overconfidence" has gradually been incorporated into management studies to explore its impact on organizational decision-making, particularly in the decision-making behaviors of business managers. Managerial overconfidence is a widespread phenomenon, particularly in studies related to organizational status (Kaplan et al., 2022). According to overconfidence theory, real estate enterprises with high organizational status generally perform well, benefiting from past investment success, ample funds, and better access to information and resources. The accumulation of success and resources can lead to cognitive biases that increase managers' overconfidence in their decision-making abilities, causing them to believe that their decisions are the key to the enterprise's success, and leading to excessive self-assurance in their capabilities (Gervais et al., 2011). Additionally, according to social comparison theory, managers of enterprises with high organizational status derive a sense of achievement from comparing themselves to lower-status firms. The drive for profit and the sense of accomplishment from the enterprise's superior status further reinforce the manager's overconfidence (Kaplan et al., 2022). Therefore, this study posits that the organizational status of real estate enterprises promotes managerial overconfidence.

Managerial overconfidence affects land purchasing behavior in three ways: First, overconfident managers, due to their strong decision-making power and control (Dong, 2021), often reject criticism (Phua et al., 2018), ignore external advice, and rely excessively on optimistic forecasts, underestimating potential risks. This can lead to higher risk costs, inflated land prices, excessive land area, and increased land purchases. Second, overconfident managers tend to overestimate their abilities and judgment, exaggerating future expected returns, leading to higher land prices and increased purchasing costs (Zhou et al., 2020). They aim to acquire a large amount of high-quality land, resulting in higher purchase prices, larger areas, and more parcels. Third, overconfident managers often overestimate the enterprise's resource endowment and underestimate the resources needed for new projects. They mistakenly believe that the enterprise's internal resources are sufficient to support new project expansions, and any resource shortfall will lead to additional costs. As a result, managers may actively seek to expand the enterprise's scale and market share, thereby increasing land purchase areas and quantities. Based on this, the following hypotheses are proposed.

Hypothesis 2a: The higher the organizational status of a real estate enterprise, the higher the managerial overconfidence, leading to higher land prices.

Hypothesis 2b: The higher the organizational status of a real estate enterprise, the higher the managerial overconfidence, leading to larger land purchase areas.

Hypothesis 2c: The higher the organizational status of a real estate enterprise, the higher the managerial overconfidence, leading to more land parcels purchased.

Different types of real estate enterprises face distinct inherent conditions and pathways (Hau & Ouyang, 2024), leading to variations in their organizational status and consequently their land purchasing behavior. Compared to non-state-owned real estate enterprises, state-owned real estate enterprises have significant advantages in land acquisition, showing a stronger investment tendency with higher amounts, larger scales, and more frequent purchases. As government-controlled entities, state-owned enterprises benefit from privileged access to information and lower financing costs, providing them with inherent advantages in acquiring key resources and policy support (J. Zhang & Y. Zhang, 2024). This results in a more significant impact of organizational status on their land purchasing behavior. Non-state-owned real estate enterprises, on the other hand, often lack the financial strength and brand influence to bear high land costs, leading them to be more cautious and prudent in land purchases, focusing on profitability and risk control. Consequently, the influence of organizational status on their land purchasing behavior is relatively low.

From an institutional theory perspective, real estate land auctions have high entry barriers, with only those real estate enterprises that possess sufficient status and financial strength being able to participate. This allows state-owned real estate enterprises, with their strong financial resources and status advantages, to dominate land auctions (Z. Li et al., 2024). Despite the declining

thresholds for land purchases in recent years, overall poor sales in the real estate industry and average land clearance expectations, coupled with financial pressures, prevent non-state-owned enterprises from actively acquiring land. Successful land transactions are still dominated by state-owned enterprises, making the impact of organizational status on non-state-owned enterprises' land purchasing behavior less noticeable. Based on this, the following research hypotheses are proposed:

Hypothesis 3: The status of state-owned real estate enterprises positively and significantly influences their land purchase price, area, and quantity.

Hypothesis 4a: The status of non-state-owned real estate enterprises does not significantly influence their land purchase price.

Hypothesis 4b: The status of non-state-owned real estate enterprises does not significantly influence their land purchase area.

Hypothesis 4c: The status of non-state-owned real estate enterprises does not significantly influence their land purchase quantity.

3. Research methods and data

3.1. The variables

(1) Dependent variable

Land purchasing behavior refers to the decisions and patterns through which enterprises acquire land for their reserves in the land market. In this study, land purchasing behavior primarily includes characteristics such as purchase price, land area, and quantity of land acquired. The land area and number of plots acquired by a firm over a specific period reflect the enterprise's focus on land reserves and its expansion intentions. The scale of land acquisition generally forms the foundation for future project reserves, while the quantity of land purchased indicates the enterprise's market expansion pace. The purchase price of land is influenced by multiple factors, including market competition, the enterprise's resource position, and the policy environment (B. Li & R. Li, 2021). Whether a enterprise acquires land at a reasonable price impacts the profit margins and market competitiveness of future development projects. Therefore, this study decomposes real estate enterprises' land purchasing behavior (*Lpb*) into land purchase price, purchase area, and purchase quantity, defining them as the dependent variables. Specifically:

Purchase price (*Price*): The transaction price of land purchases in a given year.

Purchase area (*Area*): The total area of land purchased in a given year.

Purchase number (*Number*): The number of land parcels purchased in a given year.

(2) Independent variables

Organizational status reflects an organization's position and influence within a specific industry or market. Common methods for measuring organizational status include social network position metrics, ranking-based measures, and comprehensive financial indicators (Sauder et al., 2012; Lin et al., 2009; Liu & Sun, 2023). The first two methods have inherent limitations. Specifically, social network position metrics focus on static connections and may overlook the dynamic evolution of networks. Additionally, data acquisition channels are limited and often private. Ranking-based measures can suffer from biases in standards and data sources, and data may not be comprehensive. Considering the ease of data acquisition and practical applicability, this paper primarily uses comprehensive financial indicators as the main method for defining the independent variable, supplemented by ranking-based measures for robustness checks.

Drawing on Zhang (2023)'s research, this study constructs eight secondary indicators across three dimensions: scale, growth, and efficiency. The weights of these sub-indicators are set based on the findings of Jin et al. (2014), ultimately determining the organizational status level of real estate enterprises (See Table 1). To maintain variable consistency, the organizational status of enterprises is log-transformed. If the original value is negative, the absolute value is taken before log transformation, retaining the negative sign.

Table 1. Measurement index for the organizational status of real estate enterprises

Index	Name	Weight (%)	Data source
Scale subfactors	Total operating revenue	20	CSMAR Database, log-transformed data
	Net assets	11	CSMAR Database, log-transformed data
	Net profit	16	CSMAR Database, log-transformed data
Growth subfactors	Revenue growth rate (last 3 years)	17	[(Current period total operating revenue/Total operating revenue from three reporting periods prior)^(1/3)-1]*100
	Net profit growth rate (last 3 years)	14	[(Current period net profit/Net profit from three reporting periods prior)^(1/3)-1]*100
Efficiency subfactors	Return on net assets	8	(Current period net profit/Net assets)*100
	Contribution rate of total assets	8	(Current period net profit/Total assets)*100
	Labor productivity	6	(Total operating revenue/Total workforce size)*100

(3) Control variables

This study selects seven control variables from both corporate and managerial levels (Fan et al., 2022; Zhang et al., 2020). At the corporate level, the variables are firm age (*Age*), management expense ratio (*ME*), quick ratio (*QR*), price-to-earnings ratio (*PE*), and current asset ratio (*CAR*). At the managerial level, the variables are CEO duality (*Dual*) and ownership concentration (*Top*1). Year effects are also included.

(4) Mediating variable

In measuring managerial overconfidence, the academic literature primarily uses two approaches: one based on compensation performance and the other on investment performance. Regarding investment performance, overconfident managers are likely to influence corporate investment decisions. Overconfident managers may engage in more mergers, acquisitions, and investments, and therefore, their investment decisions can be used to measure the extent of their overconfidence. Managerial overconfidence (*Ocon*) is used as the mediating variable, measured following the approach of Yi et al. (2015).

$$y_{i,t} = \beta_0 + \beta_1 (Sales\_Growth)_{i,t} + \varepsilon_{i,t}.$$

The rate of increase in firm revenue (*Sales_Growth*) is calculated using the formula: (current year revenue – revenue at the beginning of the year)/revenue at the beginning of the year. The residual obtained from this calculation, after subtracting the industry median residual, defines the degree of managerial overconfidence. If this value is greater than 0, it indicates managerial overconfidence for that year, assigned a value of 1. If less than or equal to 0, it indicates no overconfidence, assigned a value of 0.

(5) Grouping variable

This study uses the nature of property rights as the grouping variable, distinguishing between state-owned real estate enterprises and non-state-owned real estate enterprises. State-owned real estate enterprises (*Soe*) are those where the government holds a majority stake, including wholly state-owned and state-controlled enterprises. In contrast, non-state-owned real estate enterprises include private firms, foreign-funded firms, and township enterprises, encompassing a diverse ownership structure (Zhang et al., 2020). The key to defining property rights nature lies in identifying the type of ultimate controller. If the ultimate controller is the State-owned Assets Supervision and Administration Commission (SASAC), including local SASAC, or central or local government agencies, the enterprise is classified as state-owned, assigned a value of 1. If the ultimate controller is an individual, collective, or foreign entity, the enterprise is classified as non-state-owned, assigned a value of 0. Variable symbols and measurements are presented in Table 2.

3.2. Sample and data

The sample consists of A-share listed real estate enterprises from the Shanghai and Shenzhen stock exchanges, with land transaction data spanning from 2006 to 2023. Land transaction data were obtained from China Real Estate Information Corporation Database (CRIC), data on A-share listed enterprises from Shanghai and Shenzhen were sourced from Tonghuashun Database (THS Database) and Wind Information Co., Ltd Database (Wind Database), organizational status of real estate enterprises was referenced from Table 1, and other variables were sourced from the China Stock Market & Accounting Research Database

Table 2. Variable definitions and measurements

	Variable name	Symbol	Measurement
Independent variable	Corporate organizational status	*Status*	A set of comprehensive financial indicators for measurement
Dependent variables	Land purchase price	*Price*	The logarithm of land transaction prices
	Land purchase area	*Area*	The logarithm of the total land acquisition area
	Number of land purchases	*Number*	The natural logarithm of the number of land parcels acquired
Mediating variable	Managerial overconfidence	*Ocon*	If the computed value is greater than 0, it is assigned a value of 1; otherwise, it is assigned a value of 0
Control variables	Firm age	*Age*	Ln(sample year – year of enterprise registration) + 1
	Dual role	*Dual*	If the chairman and general manager are the same person, the variable is assigned a value of 1; otherwise, it is assigned a value of 0
	Management expense ratio	*ME*	Management expenses/main business income
	Quick ratio	*QR*	Quick assets/current liabilities
	Price earnings ratio	*PE*	Stock price/earnings per share
	Current assets ratio	*CAR*	Average current assets/average equity ratio
	Ownership concentration	*Top*1	The proportion of shares held by the largest shareholder
Grouping variable	Ownership nature	*Soe*	If the enterprise is state-owned, it is assigned a value of 1; otherwise, it is assigned a value of 0

(CSMAR). To ensure data quality, the following preprocessing steps were performed:

(1) Firms with abnormal operations (ST/*ST) were excluded based on CSRC industry classification standards.

(2) Only firms with at least 50% of their main business in real estate development were included, excluding those primarily engaged in real estate services.

(3) Firms with significant missing data on key variables such as organizational status and land purchase data were excluded.

(4) To mitigate the influence of outliers, all variables were winsorized at the 1% and 99% percentiles.

After these data cleaning and processing steps, 494 valid observations involving 69 real estate enterprises were obtained.

3.3. The models

(1) Main effect model

To investigate the impact of organizational status of real estate development firms on land purchase behavior, we must consider the significant influence of temporal factors. Given the 17-year study period, during which policy environments and corporate land purchasing decisions have varied greatly. Following the approach of Chao et al. (2024), we control for time effects in the regression analysis by using a fixed effects model to mitigate any potential bias from temporal factors.

$$Ldp_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}. \quad (1)$$

Model (1) tests the hypothesis that organizational status influences the land purchase behavior of real estate enterprises, while controlling for variables and fixed effects. Here, $\mu_{i,t}$ denotes the firm-specific fixed effects, and the inclusion of year dummy variables captures the year fixed effects. $Ldp_{i,t}$ represents the land purchase strategy of the i real estate enterprise in year t. $STATUS_{i,t}$ indicates the comprehensive status level of the enterprise; $control_{i,t}$ are the control variables in the regression model, and $\varepsilon_{i,t}$ is the random error term. For further model testing, the above model is refined into three models (2), (3), and (4).

$$Price_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}; \quad (2)$$

$$Area_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}; \quad (3)$$

$$Number_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}. \quad (4)$$

In these models, $Price_{i,t}$ represents the total land purchase price of the t real estate enterprise in year i, $Area_{i,t}$ represents the total land purchase area of the t real estate enterprise in year i, and $Number_{i,t}$ represents the amount of land purchased by the t real estate enterprise in year i. The definitions of other variables and symbols remain consistent with those mentioned earlier. β_1 is used to estimate the impact of the organizational position of the real estate enterprise on the land purchase price, area, and quantity.

(2) Mediating effect model

To test the mediating effect of managerial overconfidence, we extend regression model (1) by incorporating the mediating variable of managerial overconfidence ($Ocon_{i,t}$). Following the approach of Cheng et al. (2022), we constructed a mediation model to examine the role of managerial overconfidence in mediating the effect of organizational status on land purchasing behavior in real estate enterprises:

$$Price_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \beta_2 Ocon_{i,t} + \beta_3 STATUS_{i,t} \cdot M_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}; \quad (5)$$

$$Area_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \beta_2 Ocon_{i,t} + \beta_3 STATUS_{i,t} \cdot M_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}; \quad (6)$$

$$Number_{i,t} = \beta_0 + \beta_1 STATUS_{i,t} + \beta_2 Ocon_{i,t} + \beta_3 STATUS_{i,t} \cdot M_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}. \quad (7)$$

In these models, $STATUS_{i,t}$ represents the organizational status of real estate enterprises i in year t, while $Ocon_{i,t}$ reflects the level of managerial overconfidence of real estate enterprises i in year t. The definitions of other variables remain consistent with those in previous sections. Model (5) tests whether the organizational status of a real estate enterprise is influenced by managerial overconfidence in its land purchase decisions. If β_1, β_2 and β_3 are significant, it indicates that managerial overconfidence mediates the relationship between organizational status and land purchase price. However, if β_1 is significant but β_2 and β_3 are not, there is no mediating effect of overconfidence. Similar tests are conducted for models (6) and (7).

4. Econometric analysis and results

4.1. Descriptive statistics of variables

The descriptive statistics of the variables are shown in Table 3. The results show that the mean organizational status of real estate enterprises is 1.448, with a maximum value of 8.689 and a minimum value of –8.407, indicating significant differences in organizational status across enterprises. Compared to land purchase price and area, the number of land acquisitions exhibits higher volatility due to the retention of original data, with a standard deviation of 38.55, a mean of 19.56, a maximum value of 207, and a minimum value of 1. In the regression analysis, multicollinearity tests were conducted (See Table 4). The results show that the variance inflation factor (VIF) for each variable is less than 3, indicating no significant multicollinearity among the variables.

Table 3. Descriptive statistics results (source: Authors' contribution)

Category	Variable name	Sample size	Mean	Standard Deviation	Min	Max
Dependent variables	*Price*	494	12.64	1.824	8.399	16.62
	Area	494	12.53	1.743	8.949	16.33
	Number	494	19.56	38.55	1	207
Independent variable	*STATUS*	494	1.448	5.810	–8.407	8.689
Mediating variable	*Ocon*	494	0.468	0.499	0	1
Control variables	*Age*	494	22.00	6.028	2	44
	Dual	494	0.164	0.371	0	1
	ME	494	0.0445	0.0319	0.00669	0.274
	PE	494	1.972	1.590	0	8
	QR	494	0.209	0.312	0	1.791
	*Top*1	494	39.09	15.29	7.120	76.95
	CAR	494	0.685	0.778	0	6

Table 4. Multicollinearity test results

Main effects			With mediating effects		
Variable	VIF	1/VIF	Variable	VIF	1/VIF
Area	4.650	0.215	*Area*	4.650	0.215
Price	3.930	0.255	*Price*	4.090	0.244
Number	2.420	0.413	*Number*	2.420	0.413
PE	2.210	0.452	*PE*	2.220	0.451
QR	2.180	0.458	*QR*	2.190	0.457
Age	1.410	0.712	*Age*	1.410	0.712
ME	1.080	0.927	*Ocon*	1.180	0.846
CAR	1.060	0.946	*ME*	1.090	0.916
*Top*1	1.050	0.955	*Top*1	1.070	0.934
Dual	1.050	0.956	*CAR*	1.060	0.945
			Dual	1.050	0.953
Mean	VIF	2.100	Mean	VIF	2.040

4.2. Correlation analysis

According to the correlation analysis results in Table 5, the relationship between the organizational status of real estate enterprises and land purchase behavior is significantly positive at the 1% level. Similarly, the organizational status of real estate enterprises is significantly positively correlated with the mediating variable of managerial overconfidence. Additionally, managerial overconfidence is significantly positively correlated with purchase price, purchase area, and purchase quantity. Based on this information, we can preliminarily conclude that Hypotheses 1 and 2 are supported. Further regression analysis is required to validate these conclusions.

4.3. Main effect regression analysis

The baseline regression results are shown in Table 6. Regression analysis using models (2), (3), and (4) reveals that the organizational status of real estate enterprises is significantly positively related to land purchase price, area, and quantity at the 1% level, with coefficients of 0.079, 0.068 and 1.291, respectively. Thus, Hypothesis 1 is validated.

4.4. Testing the mediating effect of managerial overconfidence

Following the stepwise regression method for testing mediating effects proposed by Wen et al. (2004), we examined whether the mediating effect of managerial overconfidence holds. The regression results of the mechanism test are shown in Table 7. They indicate that the organizational status of real estate enterprises significantly positively affects managerial overconfidence, with a coefficient of 0.0153. Additionally, managerial overconfidence positively influences land purchase price, area, and quantity. This confirms that managerial overconfidence serves as a mediator in the relationship between organizational status and land purchase behavior in real estate enterprises, Hypothesis 2 is tested.

Table 5. Correlation analysis results

	STATUS	Price	Area	Number	Ocon	Age
STATUS	1					
Price	0.250***	1				
Area	0.281***	0.830***	1			
Number	0.238***	0.671***	0.749***	1		
Ocon	0.113**	0.340***	0.287***	0.249***	1	
Age	–0.136***	0.233***	0.112**	0.217***	0.107**	1
Dual	0.0340	0.0560	0.076*	0.085*	0.0670	–0.0230
ME	–0.171***	–0.234***	–0.168***	–0.126***	0.0150	0.00900
PE	0.139***	–0.131***	0.0590	–0.0490	–0.086*	–0.457***
QR	0.118***	–0.219***	–0.0450	–0.106**	–0.0680	–0.459***
*Top*1	–0.0160	–0.143***	–0.079*	–0.120***	0.095**	–0.0480
CAR	0.116**	0.144***	0.131***	0.116***	0.0280	0.0320
	Dual	ME	PE	QR	Top1	CAR
Dual	1					
ME	–0.0420	1				
PE	0.0530	0.00700	1			
QR	–0.0500	0.0360	0.705***	1		
*Top*1	0.0590	0.0200	0.0140	0.078*	1	
CAR	–0.103**	0.0670	–0.099**	–0.0740	0	1

Note: *, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

Table 6. Baseline regression results

	Model (2)	Model (3)	Model (4)
	Price	Area	Number
STATUS	0.079***	0.068***	1.291***
	(6.19)	(5.17)	(5.18)
Age	0.051***	0.058***	1.871***
	(3.25)	(4.11)	(5.76)
Dual	0.303	0.317	7.823
	(1.59)	(1.45)	(1.51)
ME	–11.482***	–8.995***	–136.218***
	(–3.70)	(–3.63)	(–2.93)
PE	0.291***	0.308***	2.414
	(3.28)	(3.26)	(1.35)
QR	–0.526*	–0.561*	–5.491
	(–1.74)	(–1.71)	(–1.05)
*Top*1	–0.012***	–0.005	–0.237**
	(–2.69)	(–1.04)	(–2.39)
CAR	0.312***	0.259**	3.496
	(2.98)	(2.49)	(1.22)
Year FE	YES	YES	YES
_cons	11.671***	11.019***	–15.485**
	(27.06)	(26.96)	(–2.07)
N	493	493	493
R^2	0.264	0.186	0.177

Note: Values in parentheses are robust standard errors. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

To further test the robustness of the mediating effect of managerial overconfidence and obtain the standard errors and confidence intervals for direct and indirect effects, we used Bootstrap resampling with 5000 iterations. The bootstrap estimates and test results indicate that the confidence intervals for the indirect effects (BC) do not contain 0, confirming that the selected mediating variable passed the Bootstrap fitting test. This demonstrates the validity of the three impact pathways.

4.5. The impact of organizational status on land purchase behavior under different ownership structures

Different ownership structures can lead to varying impacts of organizational status on land purchase behavior in real estate enterprises. In this paper, the nature of property rights (*Soe*) is divided into state-owned enterprises and non-state-owned enterprises. The results in Table 8 indicate that for state-owned enterprises, as shown in columns (1), (2), and (3), an increase in organizational status has a significantly positive impact on all three land purchase behaviors, with the effect on the number of land purchases being the most significant. Column (6) shows that for non-state-owned enterprises, the correlation between organizational status and the number of land purchases is not significant. This indicates that an increase in organizational status does not promote the number of land purchases in non-state-owned enterprises, confirming Hypothesis 4c and demonstrating the heterogeneity in regression results under different ownership structures.

Table 7. Mediating effect regression results for managerial overconfidence

Variable	Price	Ocon	Price	Area	Area	Number	Number
STATUS	0.0795***	0.0153***	0.0620***	0.0676***	0.0520***	1.2910***	1.0051***
	(6.191)	(3.806)	(5.106)	(5.169)	(4.110)	(5.183)	(4.255)
Ocon			1.1892***		1.0751***		19.8113***
			(7.753)		(6.539)		(5.324)
Control variables	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
_cons	11.6708***	0.0157	11.6529***	11.0193***	11.0033***	–15.4854**	–15.7782**
	(27.061)	(0.117)	(28.879)	(26.959)	(27.794)	(–2.069)	(–2.207)
N	493	493	493	493	493	493	493
R^2	0.227	0.136	0.309	0.145	0.217	0.135	0.183

Note: Values in parentheses are robust standard errors. *** $p < 0.01$, ** $p < 0.05$.

Table 8. Heterogeneity analysis results by ownership nature

	State-owned enterprises (*Soe* = 1)			Non-state-owned enterprises (*Soe* = 0)		
	(1) Price	(2) Area	(3) Number	(4) Price	(5) Area	(6) Number
STATUS	0.0780***	0.0584***	1.3935***	0.0695*	0.0872**	0.6762
	(5.291)	(4.525)	(4.178)	(2.225)	(2.691)	(1.049)
Age	0.0773***	0.0754***	2.2299***	–0.0122	0.0642**	0.7168
	(4.196)	(6.586)	(9.670)	(–0.566)	(3.704)	(1.158)
Dual	0.3239	0.1778	10.3840**	–0.2002	–0.3596	–7.2852
	(1.230)	(0.701)	(2.636)	(–0.817)	(–1.007)	(–0.960)
ME	–10.5076***	–9.3033***	–154.0041***	–9.9806*	–5.6432*	116.4577**
	(–3.090)	(–3.490)	(–3.517)	(–2.516)	(–2.099)	(3.872)
PE	0.2944	0.3715***	3.9178*	0.2882	0.2453	3.0504
	(1.704)	(2.977)	(1.844)	(1.450)	(0.931)	(0.680)
QR	–0.4575	–0.5946	–14.0297**	–1.7160*	–1.0876	–13.8878
	(–1.207)	(–1.068)	(–2.366)	(–2.513)	(–1.637)	(–1.800)
*Top*1	–0.0152**	–0.0088*	–0.3148***	0.0262	0.0495***	0.7162**
	(–2.515)	(–1.838)	(–4.032)	(1.753)	(6.011)	(3.190)
CAR	0.3406***	0.2846***	3.5320**	–0.7489	–2.1814**	–25.4125**
	(3.327)	(3.875)	(2.346)	(–0.944)	(–3.563)	(–2.620)
_cons	11.1459***	10.6236***	–22.1760***	11.5850***	10.5161***	–25.0103
	(21.573)	(40.222)	(–3.485)	(12.003)	(11.082)	(–1.558)
Year FE	YES	YES	YES	YES	YES	YES
N	396	396	396	68	68	68
R^2	0.182	0.139	0.137	0.291	0.344	0.186

Columns (4) and (5) reveal that for non-state-owned enterprises, there is a significantly positive relationship between organizational status and both purchase price and purchase area, contrary to Hypotheses 4a and 4b. Possible reasons include: first, some non-state-owned enterprises are in high-status industries, giving them advantages in financial strength and brand influence, which may result in special support or preferential policies from the government. Second, the land market is constrained by various factors such as policy environment, economic fluctuations, and market demand, all of which can influence land purchase decisions and lead to results contrary to predictions. Third, the study only has 68 valid data points for non-state-owned enterprises, which may result in sample selection bias and data incompleteness, potentially causing deviations in the research findings.

4.6. Robustness tests

(1) Endogeneity test

Given the potential reverse causality between the independent and dependent variables, and considering that

during expansion periods, real estate enterprises often experience simultaneous increases in land purchases and organizational status over several years. Referring to Ma and Sang (2024), we conduct an endogeneity test using the lagged explanatory variable as an instrument. Since the specified instrumental variable is highly correlated with the current independent variable and is a predetermined variable. Then, following the approach of Tang and Leung (2018), and using two-stage least squares (2SLS) method with instrumental variables, we reestimate the model.

$$X_{i,t} = \alpha_0 + \alpha_1 IV_{i,t} + control_{i,t}\gamma + \varepsilon_{i,t}; \quad (8)$$

$$Y_{i,t} = \beta_0 + \beta_1 S_{i,t} + \sum \beta_k control_{i,t} + \mu_{i,t} + Year_i + \varepsilon_{i,t}. \quad (9)$$

In the model, $IV_{i,t}$ represents the lagged instrumental variable for organizational status, where $X_{i,t}$ and $S_{i,t}$ are the organizational status and the dummy of the organizational status. The meanings of the other variables are consistent with those discussed earlier.

The results are shown in Table 9. Column (1) indicates that the organizational status of real estate enterprises is significantly positively correlated with the instrumental variable at the 1% level. The regression coefficients in the following three columns are all positive and significant at the 1% level, aligning with our expectations. Specifically, the LM statistic for the under-identification test is significant at the 1% level, and the F statistic for the weak instrument variable test is 71.58, far exceeding the 10% critical value. These results indicate that the instrumental variable passes the endogeneity test and the weak instrument variable test.

Table 9. Endogeneity test results

Variables	(1) STATUS	(2) Price	(3) Area	(4) Number
IV	0.385***			
	(8.46)			
Age	0.046	0.064***	0.069***	2.273***
	(0.90)	(3.50)	(3.73)	(5.08)
Dual	0.384	0.255	0.286	9.780*
	(0.59)	(1.12)	(1.23)	(1.75)
ME	–25.685***	–8.116**	–6.735**	–85.934
	(–3.15)	(–2.53)	(–2.06)	(–1.09)
PE	0.106	0.323***	0.320***	2.379
	(0.32)	(2.75)	(2.68)	(0.83)
QR	0.278	–0.478	–0.530	–7.342
	(0.23)	(–1.12)	(–1.21)	(–0.70)
*Top*1	–0.005	–0.017***	–0.006	–0.296**
	(–0.28)	(–2.96)	(–1.07)	(–2.15)
CAR	0.178	0.286**	0.212*	2.505
	(0.55)	(2.50)	(1.82)	(0.89)
LM	61.37			
F	71.58			
	{16.38}			
STATUS		0.149***	0.134***	3.234***
		(3.59)	(3.16)	(3.17)
Year FE	YES	YES	YES	YES
N	397	397	397	397
R^2		0.162	0.115	0.118
Number of years	15	15	15	15

Note: The value in {} for the Cragg-Donald Wald F statistic is the critical value at the 10% level for the Stock-Yogo test.

(2) Replacement of the explanatory variable

To further validate the robustness of the results, we adopt an alternative independent variable. Following the approach of Liu et al. (2023), we use a ranking-based measurement method to assess the organizational status of real estate enterprises, resulting in a new independent variable: comprehensive organizational status (*STATUS*_1). The specific calculation method is as follows:

$$STATUS\_1_t = \frac{101 - G_t}{100} + \frac{count(ep)_t - Y_t + 1}{count(ep)_t},$$

where G_t represents the rank of the real estate enterprise in the top 100 real estate enterprises in China in year, $count(ep)_t$ represents the number of A-share listed real estate enterprises from Shanghai and Shenzhen in the top 100 list in year; and Y_t represents the rank of the real estate enterprise among A-share listed enterprises from Shanghai and Shenzhen in the top 100 list in year. To better observe the data results, we applied a time lag to the land purchase behavior, matching the rankings from 2007–2023 to the land purchase data from 2006–2022. We also excluded enterprises that appeared in the rankings only once or not at all. For enterprises that appeared more than once but did not appear in the top 100 list in a given year, we set the organizational status for that year to 0, resulting in 295 observations. The regression results are shown in Table 10, indicating that the results are consistent with the baseline regression.

(3) Excluding special periods

Considering the sensitivity of the real estate market environment, and to prevent the impact of major macroeconomic shocks on the relationship between organizational status and land purchase behavior of real estate enterprises, we used the onset of the COVID-19 pandemic in 2020 as a dividing point. We re-selected sample observation data from 2006 to 2019, controlling for year fixed effects, resulting in 369 new observations. Based on models (2), (3), and (4), we re-ran the regressions for robustness testing.

The regression results are shown in Table 11. The coefficients for the three variables–land purchase price, purchase area, and purchase quantity–indicate that the organizational status of real estate enterprises has significant and positive effects, with coefficients of 0.0681, 0.0617, and 1.0778, respectively. These results remain consistent with the original baseline results, confirming Hypothesis 1

Table 10. Regression results with alternative measurement of organizational status

	(1) Price	(2) Area	(3) Number
STATUS_1	1.4510***	1.5799***	41.5711***
	(16.761)	(18.073)	(14.231)
Age	0.0126	0.0197	1.4331***
	(0.986)	(1.513)	(3.784)
Dual	0.0345	0.2759	4.5525
	(0.193)	(1.549)	(0.859)
ME	–8.0934**	2.2727	110.7066*
	(–2.091)	(0.815)	(1.716)
PE	0.1112	0.1452	–1.7222
	(1.163)	(1.570)	(–0.866)
QR	–0.4511	–0.3818	–17.3553**
	(–0.745)	(–0.600)	(–2.002)
*Top*1	0.0093**	0.0134***	0.1482
	(1.971)	(2.735)	(1.266)
CAR	0.2271**	0.0263	–1.1742
	(2.190)	(0.215)	(–0.287)
Year FE	YES	YES	YES
_cons	11.7704***	10.9386***	–32.0227***
	(27.440)	(24.236)	(–3.055)
N	295	295	295
R^2	0.577	0.527	0.541

and demonstrating that the organizational status of real estate enterprises indeed promotes their land purchase behavior.

(4) Reducing control variables

To ensure the robustness of the results, following the approach of Wang and Tian (2023), we reduced the control variables by excluding the financial indicators quick ratio (QR) and current asset ratio (CAR), which might have endogenous effects on the independent variable, organizational status. Based on this adjustment, we re-ran the regression analysis. The results are shown in Table 12. It can be seen that after reducing the control variables, the organizational status remains significant at the 1% level, with stable positive estimated coefficients. This is highly consistent with the earlier baseline regression results, indicating strong robustness in the empirical findings.

5. Conclusions

Based on a sample of real estate enterprises listed on the Shanghai and Shenzhen A-shares from 2006 to 2023, the study explores the impact of organizational status on land purchasing behavior, providing a fresh perspective on the behavior of real estate enterprises in the land market. First, the study finds a significant positive correlation between the organizational status of real estate enterprises and their land purchasing behavior. Higher organizational status is associated with higher land purchase prices, larger total areas, and greater numbers of land plots purchased, indicating that high-status enterprises are able to bear higher land costs and larger investment scales, highlighting the crucial role of organizational status in land purchase decisions. After conducting endogeneity tests using instrumental variables and robustness checks with

Table 11. Regression results based on samples from 2006 to 2019

	Price	Area	Number
STATUS	0.0681***	0.0617***	1.0778***
	(4.261)	(3.738)	(3.149)
Age	0.0547***	0.0614***	2.1821***
	(2.772)	(3.088)	(4.430)
Dual	0.2764	0.3138	8.1181
	(1.229)	(1.266)	(1.312)
ME	–4.0020	–1.3547	33.0460
	(–1.235)	(–0.424)	(0.352)
PE	0.2846***	0.3040***	2.1715
	(3.018)	(3.041)	(1.121)
QR	–0.1851	–0.1301	–2.5706
	(–0.576)	(–0.385)	(–0.449)
*Top*1	–0.0157***	–0.0072	–0.2259*
	(–3.145)	(–1.318)	(–1.815)
CAR	0.2985**	0.1962	2.9860
	(2.139)	(1.408)	(0.804)
_cons	11.1565***	10.6915***	–26.1189**
	(22.114)	(19.960)	(–2.495)
N	369	369	369
R^2	0.168	0.073	0.069

Table 12. Regression results with reduced variables

	Price	Area	Number
STATUS	0.0821***	0.0699***	1.3203***
	(6.294)	(5.311)	(5.357)
Age	0.0560***	0.0629***	1.9292***
	(3.568)	(4.449)	(6.062)
Dual	0.2472	0.2785	7.1747
	(1.341)	(1.311)	(1.419)
ME	–10.8453***	–8.4525***	–129.1384***
	(–3.685)	(–3.582)	(–2.797)
PE	0.2675***	0.2861***	2.1621
	(3.076)	(3.073)	(1.234)
*Top*1	–0.0123***	–0.0050	–0.2366**
	(–2.641)	(–1.056)	(–2.372)
Year FE	YES	YES	YES
_cons	11.6816***	11.0032***	–15.2853**
	(27.408)	(26.959)	(–1.986)
N	493	493	493
R^2	0.211	0.132	0.133

alternative explanatory variables, the conclusions remain valid. Second, the mediation effect test reveals that the organizational status of real estate enterprises can indirectly promote proactive land purchases by increasing managerial overconfidence. Finally, there are significant differences between state-owned and non-state-owned real estate enterprises in terms of the impact of organizational status on land purchasing behavior. State-owned enterprises show a more pronounced effect in promoting land purchases compared to non-state-owned enterprises. Notably, the increase in organizational status for non-state-owned enterprises does not significantly affect the number of land purchases. This may be due to limitations in funding, resources, and risk management faced by non-state-owned enterprises. The findings of this study provide practical guidance to real estate development firms in making informed land purchasing decisions based on their organizational status.

The theoretical significance of this study lies in two main areas. First, it incorporates organizational status as a key factor into the land purchasing behavior analysis framework, broadening the research perspective on real estate enterprises' land purchasing behavior. Second, by using managerial overconfidence as a mediator, this study reveals the mechanism by which organizational status influences land purchasing behavior, enriching the theory on the relationship between organizational status and land purchasing behavior in real estate enterprises. In terms of practical significance, first, for real estate enterprises, this study analyzes land purchasing strategies for enterprises at different organizational levels, providing a reference for decision-making and helping companies make informed land purchasing decisions based on their organizational status. Second, for the government, it can implement more precise and effective policy regulation based on the different organizational statuses of enterprises, ensuring the healthy and stable development of the real estate market. At the same time, the government can optimize land resource allocation based on the status differences between real estate enterprises, guiding rational competition among enterprises and promoting the sustainable development of the entire real estate industry.

Although this study provides empirical evidence on the impact of organizational status on land purchase behavior in real estate enterprises, there are still some limitations. First, the study focuses on real estate development firms listed on the Shanghai and Shenzhen A-shares, which, while representative, does not encompass all real estate developers due to data accessibility issues. Moreover, this study examines the mediating role of managerial overconfidence in the relationship between organizational status and land purchase behavior. However, land purchase behavior in real estate enterprises is also influenced by factors such as policy, market environment, and government actions. Future study could explore these more complex mechanisms from perspectives such as real estate policy, market dynamics, and government behavior.

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