Managerial Overconfidence and Investment Decision Biases: Classical Theories and Chinese Evidence

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Abstract. This study provides a systematic exploration of theoretical developments and novel measurement paradigms in CEO overconfidence research. Existing academic work reveals a methodological divide: behavioral finance scholars emphasize numerical measures, while organizational behavior researchers focus on cultural adjustment.Research conducted in China's unique context has achieved breakthroughs through two key innovations. Technologically, institutional characteristics have been transformed into measurable parameters. Theoretically, a three-dimensional analytical framework was created, significantly enhancing explanatory capacity.The study introduces two methodological advancements: policy-text coupling analysis and relational network modeling. The former enables quantification of policy sensitivity, while the latter helps identify culturally specific decision-making clusters.Future research directions include developing multi-modal dynamic capture technologies, building institutional friction behavioral models, and constructing digital governance moderation frameworks. These developments would facilitate a paradigm shift toward dynamic system analysis. By bridging behavioral finance and organizational theory, this research offers valuable corporate governance insights. The combined approach demonstrates how cognitive biases interact with institutional settings through power relations and transitional arrangements. This understanding enables business leaders to more effectively apply these concepts in daily operations.

1 Introduction

The concept of managerial overconfidence refers to executives often overestimating how accurate their decisions are. This review focused on how this behavior impacts investment choices in China's developing market, where imperfect capital markets can make cognitive biases worse.This research field has two key parts. First, in theory, the measurement system by Hayward and Hambrick successfully linked psychology theories to real-world corporate finance. Second, in practice, Roll's work proved useful in explaining why investments in changing economies sometimes fail.Past studies have mainly gone in two directions. Some, like Aktas et al., examined thinking patterns such as the "illusion of control" idea. Others, like Wu, tested findings across different cultures, especially in digital transformation cases.

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It's worth mentioning that Li et al. improved research methods by adding time-based learning analysis. This helped experts see how managerial overconfidence changes over time. Moreover, Chatterjee and Hambrick's work on narcissistic CEOs presented a relevant view on executive psychology which might also affect investment decisions and well - established conclusions included the fact that overconfidence led to M&A premiums in Western markets and the moderating function of pricing efficiency in China's market, and unresolved matters covered the cognitive consequences of digital transformation. The possible influence of CEOs' individual traits examined by Chatterjee and Hambrick, and the continuing disputes about measurement validity between behavioral substitutes and subjective evaluation methods. And also, Marra et al.'s research on CEOs buying companies in their home countries spotlighted another aspect of managerial decision - making which might be influenced by overconfidence [8]. What's more, the market - for - control theory suggested by Jensen and Ruback provided a way to understand the role of corporate takeovers in keeping managers in check, and the potential impact of managerial overconfidence on these decisions and this review dealt with methodological scatteredness via a four - part structure: First, tracing the development of theories [9]. Second, analyzing China - specific contextual adjustments, including the special institutional elements that might interact with managerial overconfidence. Third, discussing measurement disputes. Fourth, putting forward a research framework for the digital age that took China's unique institutional elements into account and special attention was paid to the capital market pricing mechanisms pointed out by Li et al., and the digital transformation effects shown by Wu et al. [10]. The study by Mkrtchyan et al. about CEO activism and company value showed ways for more research. These could help explain how manager overconfidence connects to investment choices in digital times. To study this well, the research used a full framework with theories, situation checks, measuring ways, and digital change effects. The work is important because it puts separate studies into one clear system. This helps changing economies most and starts talks about measuring across cultures. For real use, the results help rule makers lower wrong thinking in money markets. They also help company boards watch boss choices better. Next studies should look more at digital changes and CEO personal things to know more about how actions affect company money.

2 Domain Definition and Research scope

Managerial overconfidence, a key idea in behavioral finance, pertains to executives having a consistent tendency to overvalue the precision of their decision - making processes [2], and its influence on corporate investment choices has been a major area of study in corporate finance for the last thirty years. This article thoroughly looks into how this theory has developed in terms of its applicability within China's growing market environment, stressing the need to reevaluate how cognitive biases show up in the digital age. The importance of this research is threefold: it offers a new way of measuring behavior that goes beyond standard financial measures, introduces methods for studying things over time, and shows that overconfidence behaves differently in China's unique economic setup [1, 4, 6]. There are two main areas of research: one focuses on how different cognitive biases interact with each other, and the other explores how digital changes affect traditional ways of measuring overconfidence [3, 5]. Most researchers agree that overconfidence leads to extra costs in mergers and acquisitions (M&A) in Western markets, but in China, these extra costs are less due to more efficient pricing. However, there is still disagreement about the best way to measure overconfidence, particularly whether certain methods are accurate enough and whether traditional approaches can still predict outcomes effectively. Additionally, people are not sure how digital tools might reduce cognitive biases. This review is innovative because it creates a three - part system for analyzing these issues and points out what needs

to be adjusted when considering China's policies and legal frameworks. The rest of the paper will cover reconstructing the theory's development, combining evidence specific to China, examining measurement disputes, and presenting a new model that includes digital aspects.

2.1 The development of research theories on CEO overconfidence

The utilization of textual analysis within the domain of CEO overconfidence research has progressed through three discrete stages.

From 2008 to 2015, Phase One was predominantly spearheaded by Western academics who primarily relied on objective metrics, such as stock-option exercises. However, these methodologies encountered significant applicability challenges within China's market context due to the fundamental disparities in executive compensation structures inherent in Eastern and Western corporate governance paradigms.Between 2016 and 2020, during Phase 2 of the research, researchers delved into text - based techniques by using manually coded lexicon means and enhanced Linguistic Inquiry and Word Count (LIWC) dictionaries to spot distinct Chinese managerial communication styles.But although these methods were useful, they had difficulties in grasping subtle expressions and required a great deal of manual work.However, this time was crucial for laying the foundation to comprehend culture - specific instances of executives' overconfidence in annual reports and public statements.In Phase 3 (from 2021 till now), the far - reaching influence of the deep - learning revolution was made clear when BERT - based semantic parsing models were utilized to closely examine Chinese Management Discussion and Analysis (MD&A) texts so as to spot implicit language patterns and meanwhile eye - tracking research offered new understandings regarding the behavioral details noticed during risk evaluation procedures. And at present, the area was moving towards the creation of comprehensive cognitive profiles by combining multimodal analytical methods which looked into both verbal and non - verbal communication patterns.

The developmental phases showed how research methods have evolved. Initially, studies relied only on single financial indicators. Later, they progressed to more sophisticated behavioral analyses. This shift demonstrated a deeper understanding of cognitive biases in executive decision-making processes.Furthermore, newer approaches increasingly emphasize two key requirements. First, they highlight the importance of real-time assessment. Second, they stress the need for cross-cultural validation of measurement tools. These developments are particularly relevant when studying Chinese managers, who exhibit unique psychological characteristics and corporate communication styles.

2.2 The particularity of the Chinese situation

The distinctiveness of Chinese contextual traits in the study of managerial excessive self - confidence presents multi - dimensional aspects and Li et al.'s empirical research methodically disclosed three local expressions of excessive self - confidence in China's burgeoning market setting: Firstly, policy vagueness considerably magnifies executives' sense of having control [6], their examination of listed firms between 2015 and 2020 indicated that the volatility in investment decisions under overconfident chief executive officers was much greater than that of their Western equivalents, this "policy - sensitive excessive self - confidence" had a direct connection to China's characteristic of frequently adjusting industrial policies, showing up as executives overestimating policy trends and investing in herds in fields like new energy vehicle production and semiconductor manufacturing; Secondly, state - owned enterprise leaders demonstrated special "institutional excessive self - confidence" stemming from the emphasis on scale rather than efficiency in political promotions, this was manifested as unwarranted eagerness for policy - driven

undertakings like new infrastructure projects often leading to misallocation of resources and redundant construction in areas such as 5G networks and industrial parks; Thirdly, the moderating influence of capital market pricing efficacy showed a unique degree, in the A - share market dominated by retail investors, overconfident managers were more prone to initiating self - reinforcing cycles of mispricing which were intensified by media coverage and market herd behavior. Wu et al.'s research on digital shift exposed a more up - to - date contradiction: While big - data tools via supply - chain finance platforms partly curbed traditional excessive self - confidence by making information more transparent, reliance on algorithms fostered fresh "technological overweening pride" - managers regarded algorithm results as absolutely true creating more subtle thinking flaws in areas like automated advisory services [5], this overweening pride appeared as blind faith in algorithm models and purposeful ignoring of their drawbacks; It is worth noting that both sets of research confirmed the intensifying impact of China's "relationship - based culture": Decision - making patterns founded on informal networks like alumni or regional connections escalated individual excessive self - confidence into system - wide organizational perils through group polarization - a cultural difference that was especially evident when compared cross - nationally, in China's unique "circle culture", decision - makers excessively favored the views of insiders while overlooking external expertise further strengthening excessive self - confidence in closed - door decision - making situations. To sum up, these outcomes suggested that China's research on excessive self - confidence needed to incorporate a three - part framework: Institutional changes, Digital transformation, and Cultural traditions, this ecosystem not only accounted for Sino - Western distinctions in how excessive self - confidence showed up but also offered new ways of thinking for understanding corporate decision - making in emerging markets, future research should further probe into the interactions within this framework and their different effects across ownership types and industries.

2.3 Methodological disputes and integration paths

Regarding the measurement of managerial overconfidence, existing research has split into two opposing camps. Scholars in the behavioral indicator camp were the first to build a Delta value indicator based on CEO option exercise data, which measures systematic differences between exercise prices and market prices and shows great potential in forecasting irrational corporate investments [1], but when applied in the Chinese market, this method encounters difficulties like the rarity of stock option incentives and data invalidation caused by policy interventions. On the other hand, the subjective evaluation camp uses a media tone analysis approach, creating a sentiment analysis model for CEO reports in the People's Daily, which performs well in Chinese - context measurements and includes most non - listed companies [6]. These two camps have different strong points: the behavioral indicator camp stresses the objectiveness of quantitative data, whereas the subjective evaluation camp focuses on fitting cultural contexts, which reflects the basic conflict between "precision and applicability" in management psychology measurement methods.

There has long been a methodological split which has given rise to continuous theoretical discussions regarding the essence of overconfidence, some academics hold that overconfidence shows up diversely within various institutional settings thus indicating that measuring instruments need to take into account the contextual differences in executives' behaviors, while others insist that fundamental psychological processes are always universal so demanding standardized measuring methods, this argument goes on to have practical consequences for corporate governance since every measuring method offers distinct perspectives for board supervision and incentive planning, moreover new combined methodologies are trying to close this gap by merging quantitative market data with

qualitative evaluations. Although these methods encounter their own difficulties in application and understanding, recent theoretical progress implies that future research ought to concentrate on creating dynamic measuring systems that could grasp the changing characteristics of overconfidence throughout different business cycles and organizational situations all the time, while keeping methodological strictness and cultural awareness.

3 New research paradigm

Research frameworks in the digital era face new methodological demands. They must move beyond traditional static analysis approaches. Modern studies require multidimensional dynamic perspectives to properly capture corporate decision-making complexities.Three key analytical upgrades are necessary for such frameworks. First, they should integrate temporal data analysis. This tracks how CEO decision patterns change across different business cycles. Second, they need cross-market comparison capabilities. These must account for regional legal environment variations. Third, they should employ digital trace mining techniques. This includes analyzing social media sentiment and earnings call transcripts.Advanced technical components are equally crucial. Machine learning enables automatic semantic adjustment in analysis. For China's unique market characteristics, specialized methods prove valuable. Policy text coupling analysis helps quantify institutional dynamics. Relational network modeling translates cultural factors into measurable parameters.

The implementation of the framework necessitates rigorous consideration of various operational challenges. Firstly, the integration of heterogeneous data sources mandates robust preprocessing mechanisms to ensure comparability across diverse formats and temporal intervals; Secondly, the dynamic nature of digital platforms necessitates continuous recalibration of the model to maintain accuracy in the face of evolving communication patterns; Thirdly, the framework must equilibrium the intricacy of algorithms with their comprehensibility to uphold practical utility for corporate governance applications. These aspects highlight the necessity for cooperative work among data scientists, behavioral economists, and corporate governance specialists to create very effective research tools for the digital age.

3.1 Construction of CEO decision-making behavior

The Long-term Follow-up Method offers significant methodological advantages. It enables systematic explanation of dynamic development trends in CEOs' sequential decision-making processes. Through rigorous time-series analysis, researchers can identify meaningful connections between critical decision points. This approach particularly helps detect the gradual accumulation of managerial overconfidence during strategy formulation.Unlike case-focused studies, this temporal research method examines behavioral pattern changes. It tracks these transformations across the entire decision-making continuum rather than isolating single decision events. The longitudinal perspective reveals how confidence levels evolve through multiple strategic choices.

While constructing cross - market comparison models, it was essential to incorporate the evolution of the legal environment as a principal explanatory element, which entailed meticulously scrutinizing the methodical differences among diverse areas (such as civil law systems emphasizing codified laws in contrast to common law systems relying on past cases) regarding significant regulatory matters like the stringency of disclosure requirements, and the thresholds for shareholder derivative lawsuit risks, and also explored how these institutional components functioned as moderating forces influencing media - induced biases towards CEOs' decision - making behaviors. The framework is innovative because it goes beyond the limits of traditional single - source data by promoting the multimodal fusion

analysis of new digital behavioral traces (like social media sentiment trends, acoustic traits in earnings calls, semantic aspects of executive online communications) together with traditional text data (for example, the Management Discussion & Analysis parts in annual reports, board meeting minutes, and based on this combination, deep - learning - based natural language processing techniques, especially transformer-architecture pre-trained models are brought in to realize automated identification and adjustment of semantic biases.

The resultant evaluation system has two main benefits: firstly, it grasps the time-related patterns of decision-making behaviors by dynamically monitoring them.And secondly, it guarantees that research findings can be compared across different markets through analyzing institutional contexts. In the end, this presents an analytical framework for studying corporate governance in the digital economy that is both solid in theory and useful in practice.

3.2 Innovative characteristic methodology for CEO behavior

In China's special institutional and cultural setting, this study presents two localized research approaches in an innovative manner: the Policy Text Coupling Analysis makes use of natural language processing techniques to carry out profound semantic alignment between policy papers released by various government tiers and corporate strategic declarations, building a policy sensitivity evaluation framework which takes policy semantic resemblance as its central measure to quantify the particular "overconfidence induced by policies" among CEOs by computing cosine similarity scores between corporate decision - making texts and concurrent policy directions, and its creative merit is in converting China - specific institutional phenomena, such as Five - Year Plan cycles and the frequency of industrial policy modifications into quantifiable time - series variables so as to grasp the dynamic connection mechanisms between policy development and managerial psychological characteristics. On the other hand, the Relational Network Influence Modeling, based on social network analysis theory, builds a multi - level network diagram encompassing both official organizational ties and unofficial social connections via three parameterized cultural aspects - Structural Positioning (gauging managers' network positions using centrality algorithms), Reputation Propagation (tracking the spread of "relationship reputation" through text models), and Group Polarization (assessing the influence of cultural values via a polarization index), allowing for network topology examination that visually represents the penetration of "guanxi culture" while pinpointing culturally distinct decision groupings through modularity detection. Eventually creating a behavioral research tool set suited to China's transitional economy that offers methodological innovations for understanding the dual institutional - cultural forces driving managerial decision - making mechanisms.

4 Conclusion

4.1 The summary of this study

This study systematically integrated the theoretical development, contextual distinctiveness in China, and methodological progress in research regarding managerial overconfidence.Theoretically, it was based on Roll's "hubris hypothesis" and Malmendier and Tate's measurement framework to examine how managerial overconfidence systematically skewed investment decisions via two psychological mechanisms, namely "illusory control" and "learning deficiencies", and importantly, when applying Western theories to China's context, localized adjustments were required, specifically taking into account three unique aspects: policy sensitivity, the special structural traits of China's capital

markets, and the intricate interaction between traditional culture and contemporary digital technologies.

Methodologically, the field has witnessed substantial development.Initially, studies mainly depended on conventional quantitative measures like option data and then shifted to text - based analysis which entailed manually marking particular lexical characteristics. Recently, the progress in artificial intelligence has made it possible for complex methods such as deep learning to be widely utilized. Thus transforming the research model from relying on a single - source data to integrating multimodal data, this methodological advancement has not only improved measurement accuracy but also widened research scopes.

In China's distinct context, the study put forward two novel analytical frameworks: the first one is policy - linking analysis which employed NLP to compute the semantic resemblance between corporate decision - making documents and policy directions so as to spot unique behavioral patterns. The second is relationship network modeling that analyzed managerial decisions from the perspective of social networks, and moreover, the research underlined the crucial moderating function of various market institutional settings in cross - national comparative research.

In the prospective research landscape, three pivotal domains emerge: investigating the influence of digital governance mechanisms on enduring cognitive biases, employing time-series dynamic tracking methodologies, and developing theoretically robust frameworks that integrate institutional transformation, digital evolution, and cultural legacies. These research trajectories are poised to provide novel theoretical perspectives and methodological support, thereby enhancing the understanding of managerial cognitive biases and propelling the field towards scholarly advancement.

4.2 Direction of the future study

Future research could advance along three primary dimensions. Theoretically, developing a behavioral finance model with institutional friction coefficients remains essential. Such models should account for transition economy constraints like policy volatility and market fragmentation. Integrating institutional components into traditional behavioral finance frameworks would elucidate the dynamic interplay between managerial overconfidence and institutional environments. This approach would offer theoretically nuanced perspectives on irrational decision-making in emerging markets while incorporating cultural and historical influences on managerial cognition.Methodologically, priority should be given to constructing big-data-driven real-time bias monitoring systems. These systems would synthesize diverse data streams including vocal semantics analysis, micro-expression tracking, and decision timing patterns. Leveraging advanced machine learning techniques could establish dynamic early-warning mechanisms. This represents a paradigm shift from static evaluation to continuous process monitoring, significantly enhancing detection sensitivity for subtle shifts in managerial psychological profiles during longitudinal studies.Practically, developing tailored digital cognitive training modules for Chinese executives presents substantial value. These programs should authentically integrate local management contexts with cutting-edge virtual simulation platforms. By employing immersive VR technology, the training aims to help executives identify cognitive blind spots and establish robust reflection-feedback mechanisms grounded in realistic decision scenarios. Repeated learning cycles within these simulated environments would systematically enhance metacognitive abilities in complex situations.The synergistic combination of these three research directions could dramatically improve the precision, applicability, and operational value of managerial behavior studies. Such integration would better align theoretical constructs with empirical implementations within China's unique business context, ultimately strengthening the field's academic rigor and practical relevance.

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