TOP MANAGERS AND OVERCONFIDENCE: ARE THERE AGE-RELATED DIFFERENCES?

Juliana Osmani *, Sanie Doda **

* *Corresponding author,* Business Faculty, "Aleksander Moisiu" University of Durres, Durres, Albania
Contact details: Business Faculty, "Aleksander Moisiu" University of Durres, Rr. Miqesia, 2001, Spitalle, Durres, Albania
** Business Faculty, "Aleksander Moisiu" University of Durres, Durres, Albania

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Abstract

The external environment in which organizations operate is becoming more and more dynamic, and as a result, strategic managers have to make decisions under uncertainty and complexity conditions, often based on intuition. Intuitive decision-making is fast and requires little effort, but relies on immediate and unconscious judgments. Cognitive biases affect organizational performance, sometimes with positive effects and others with negative ones. This study investigates the financial sector in Albania, and is based on the upper echelons perspective, trying to examine how age influences overconfidence bias for top managers. It attempts to identify factors and discover possible correlations between them, in order to elaborate some conclusions about managers' demographic characteristics and organizational strategic choices and performance. By employing a quantitative approach, the results of this study provide important implications for both academic and practical levels, in an attempt to investigate the challenges of strategic decision-making. In this research have participated 254 top managers, including chief executive officers (CEOs), chief operating officers (COOs), and chief financial officers (CFOs). According to the findings, there is no significant relationship between the age of C-level executives and overconfidence. By analyzing the complex impact of age on decision-making, this study seeks to contribute to a deeper understanding within the fields of strategic management and organizational performance.

Keywords: Strategic Decision-Making, Top Managers, Overconfidence, Age, Organizational Performance

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1. INTRODUCTION

Strategic management is the process with a significant impact on organizational performance. In conditions when the external environment is becoming increasingly dynamic, the role of top managers in an organization's success or failure becomes essential. The benefits of strategic management are numerous, but this is part of another broad discussion. According to Dess et al. (2021), strategic management is a part of the whole management process that provides the understanding of a company's vision and a more careful planning of its future, improves the understanding of a rapidly changing environment, and orients the efforts of everyone within the organization in one direction.

Top managers can be considered the helm of the organization (Bamford et al., 2024). They play the main role in leading the organization toward vision achievement. Today's business environment is fast evolving, and innovative policies for strategic talent management become essential (Gashi et al., 2024). Finding good top managers is not easy (Rothaermel, 2021). The literature discusses extensively the characteristics of a good and a bad top manager. The current study focuses on overconfidence. Empirical data show that the most negative characteristic that a top manager can have is excessive confidence, which, instead of leading the organization toward growth, can worsen organizational performance or put the organization in critical situations (Chen et al., 2020). According to Lin et al. (2022), overconfident chief executive officers (CEOs) are subject to an elevated likelihood of involuntary turnover. Having self-confident top managers is not bad because they are optimistic (Ben-David et al., 2013), do not feel fear when they face problems and experience less stress (Burks et al., 2013), and are more innovative (Li & Zhang, 2022). All these are important for a positive climate within the organization, with implications for the motivation and commitment of other members. Also, overconfidence determines proactivity. A proactive top manager takes actions in advance, mitigating potential problems and ensuring that opportunities are not overlooked (Nikčević, 2025). Negative consequences arise when self-confidence increases beyond a certain level, turning into overconfidence. Excessive confidence in personal abilities often leads to insufficiently analyzed and reasoned decisions, which tend to be influenced by emotions that can distort objective judgment. Thus, as a result of overconfidence, managers make too risky decisions, which increases the possibilities of bankruptcy, reduction of competitive strengths, and market presence. According to Kowalzick et al. (2024), overconfident CEOs damage turnaround performance. The situation is further complicated, and negative consequences become greater if overconfidence occurs alongside increased optimism, because top managers will not only believe that their abilities surpass those of others, but will also hold a strong conviction that the future will unfold positively.

Although an extensive and expanding body of research focuses on overconfidence, the factors influencing it are not yet clear and understood. Drawing on the upper echelons perspective of Hambrick and Mason (1984), and Hambrick (2007), which emphasizes the importance of focusing on the demographic characteristics of top managers, the present study tries to investigate how top managers' age impacts overconfidence, focusing on the Albanian financial sector. The main objectives of this research extend beyond a simple examination of the relationship between age and top managers' overconfidence. This study seeks to identify key variables and examine their interrelations to generate broader insights into the influence of age on overconfidence, contributing to the burgeoning foundational knowledge in strategic management and organizational performance.

It is important to emphasize that, to the best of our knowledge, no previous research has specifically examined the relationship between age and overconfidence in the specific context of Albania, for top managers or the entire population. By exploring the strategies and experiences of Albanian top managers, the research contributes valuable insights and outlines key implications for scholars and policymakers.

The paper is organized as follows. Section 2 provides a review of the relevant literature. Section 3 analyses the methodology employed to conduct the empirical investigation of age-related effects on overconfidence in strategic decision-making. Section 4 presents the results obtained from the analyzed companies, Section 5 discusses the findings, while Section 6 offers the conclusion.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Referring to Kahneman (2011), we can distinguish two systems of thinking:

- *System 1*: Refers to intuitive thinking, which is typically fast, automatic, effortful, implicit, and emotional.
- *System 2*: Is about logical thinking, which is slower, conscious, requires more commitment, and is explicit.

In many situations, System 1 of thinking may be sufficient, in other cases, System 2 is preferable. Many managers trust their intuition and rely more often on System 1. Others may not prefer System 1, but are forced to use it due to an increasingly dynamic external environment and the need to make decisions under uncertainty and ambiguity conditions. What should be noted is that even the most intelligent and experienced decision-maker can make errors under the influence of System 1. The use and influence of heuristics and cognitive biases are greater for System 1 of thinking (Pherson et al., 2024). Since System 1 operates automatically and cannot be turned off at will, intuitive thinking errors are often difficult to prevent.

One of the most widely studied cognitive biases, due to its significant impact on organizational performance, is overconfidence. We can refer to it as the tendency of managers to overestimate personal abilities, knowledge, and skills in making accurate predictions about the future (Kumar & Prince, 2023; Karki et al., 2024). There are three forms of overconfidence (Moore & Healy, 2008; Binnendyk & Pennycook, 2024). We can distinguish overestimation of the achieved performance, overplacement of personal performance compared to others, and overprecision of personal beliefs. Self-confident managers inspire confidence

in others and lead to high results, but overconfidence may compromise the quality of decisions (Gaba et al., 2023; Boyle et al., 2025). An overconfident decision-maker can convince others to accept her/his point of view and agree with her/him. This is attributable to the fact that an overconfident decision-maker is perceived by others as an expert and influences their judgments. Arrogance can be one of the signs of overconfidence (Cohee & Barnhart, 2024). Decisions made under its influence are usually associated with a higher level of risk, precisely because of the better competencies and skills that the decision-maker thinks he has.

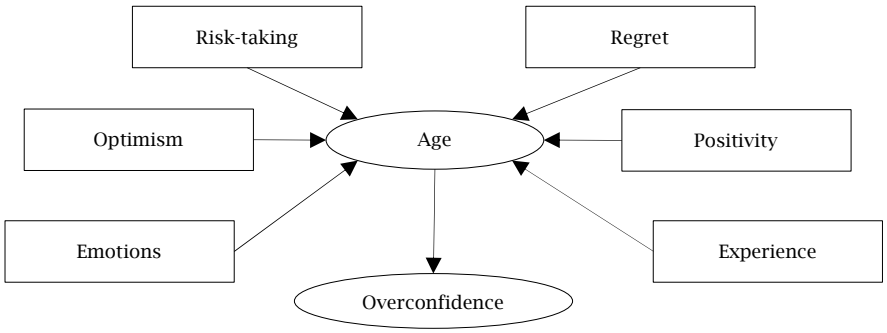
The discussion on overconfidence bias is quite complicated because empirical data show that it is intertwined with other biases. According to Merkle (2017), hindsight bias can lead to overconfidence, while Kumar and Prince (2023) highlight its relation with confirmation bias. Also, overconfidence is related to the illusion of control (Qadri & Shabbir, 2014). On the other hand, previous studies provide mixed results regarding the consequences of this bias on organizational performance. They can be grouped into studies that emphasize the positive effects of overconfidence and studies that shed light on its negative consequences. So, according to Malmendier and Tate (2005), CEOs who are overconfident have the tendency to overestimate the returns of their decisions on project investments and consider external financing as to much expensive. As a consequence, they overinvest in the case of considerable internal financial resources, but reduce investments that need external funding. Malmendier and Tate (2008) found that firms with overconfident CEOs have a 65% higher likelihood of making an acquisition, and this effect is strongest for diversified acquisitions that do not need external financing. Referring to Hirschleifer et al. (2012), overconfident CEOs are more risk and innovation prone, and obtain more patents. However, Simon and Houghton (2003) found that organizations with overconfident CEO have to face the problem of unsuccessful innovative products. On the other side, Hribar and Yang (2016) found that CEO overconfidence increases optimism and precision in management forecasts. Furthermore, Kenny et al. (2018) provide evidence that overconfident CEOs influence stakeholders to engage in activities that support the leader's vision. Referring to Mundi (2021), overconfident CEOs have a preference for debt financing over equity financing, and as a debt form, they prefer short-term debt rather than long-term debt. Lee et al. (2020) found that banking institutions with overconfident CEOs are more vulnerable to systemic risk compared to banks with less overconfident CEOs. The study of Fang et al. (2024) demonstrates that CEO overconfidence reduces an organization's total profitability, shareholder profitability, and stock performance. Zhu et al. (2024) found that CEO overconfidence contributes to enterprise digital transformation, which can improve resource allocation and reduce external uncertainty. Focusing on managers' traits, Liça and Gashi (2024) suggest that age and education are important determinants of managers' overconfidence and favor business innovation and internationalization. According to Kraft et al. (2025), overconfident CEOs are beneficial for innovation, but this depends on board characteristics.

Empirical evidence regarding overconfidence is abundant, as it is considered a bias with a significant impact on organizational performance. Most of these studies are limited to the positive or negative effects of overconfidence, but there is a gap in the literature regarding overconfidence determinants. Drawing upon the upper echelons theory, which highlights the significant impact of managers' observable characteristics on strategic decision-making, the present study tries to evidence the age impact on the overconfidence level of top managers, in order to understand how C-level executives' age affects organizational performance.

Adults' decision-making differs from that of young people, and overconfidence is a bias that further emphasizes the differences between them. However, it should be noted that research findings are not consistent. There is research that found greater overconfidence for adults (Hansson et al., 2008; Bruine de Bruin et al., 2012; Guan & Wang, 2025). On the other side, Pliske and Mutter (1996) and Kovalchik et al. (2005) found a reduced overconfidence for adults compared to younger decision-makers. Prims and Moore (2017) provide little evidence that overestimation and overplacement are correlated with age, but overprecision increases with age. Referring to Friehe and Pannenberg (2019), overplacement increases with age. Focusing on financial overconfidence, the results obtained by Garcia et al. (2022) suggest that there is a negative correlation between overconfidence and age. Also, the investigation of Bernile et al. (2025) showed that experience decreases overconfidence. However, other studies found no correlation between age and overconfidence (Hershey & Wilson, 1997; Osmani, 2018; Binnendyk & Pennycook, 2024).

The relationship between age and overconfidence is multifaceted, and despite extensive research, it is still ambiguous. To support our hypotheses, we drew upon the upper echelons perspective proposed by Hambrick and Mason (1984) and Hambrick (2007), incorporating previous empirical findings on how age impacts overconfidence, but also studies that highlight other differences between adult and young decision-makers. This allowed us to elaborate a theoretical model that aims at the understanding of factors that drive overconfidence.

Figure 1. Theoretical model



Source: Authors' elaboration.

Previous investigations provide results that support age-related differences in risk-taking. Referring to banking institutions and insurance companies, Brouthers et al. (2000) found that decisions of adult top managers were riskier than those of younger top managers. According to Holmström (1999), younger CEOs adopt more conservative investment policies in order to preserve future career opportunities. Also, Cid-Aranda and Lopez-Iturriaga (2022) and Loukil and Yousfi (2022) found that CEO's age increases risk-taking. Other studies highlight that as they age, decision-makers become more risk-averse. Wilson et al. (2021) found that older adults had a significantly lower risk-taking than younger adults on the behavioral measure of risk. Older adults also had significantly lower analytic thinking, slower processing speed, and worse executive control compared to younger adults. More recently, Nolte and Hanoch (2024) found that adults are more cautious toward risk-taking in different contexts. Furthermore, there is evidence that CEOs with long career horizons tend to exhibit greater risk-seeking than those with short career horizons (Aktas et al., 2021; Agnihotri et al., 2025). Although the results on the relationship between age and risk-taking are not consistent, based on the study of Dohmen et al. (2023), which emphasizes the correlation between overconfidence-risk attitude, we believe that there are significant differences in top managers' overconfidence, due to age.

Mather and Johnson (2000) found that as they age, individuals tend to distort memory in order to support the choices made. Furthermore, Kim et al. (2008) and Carstensen and DeLiema (2018) argued that adults experience less regret because they prioritize positivity when they evaluate the results of their decisions. In the context of financial decisions, according to Eberhardt et al. (2018), experience-based knowledge is essential for adults' decisions, and they are less influenced by negative emotions. Also, the research of Matarazzo et al. (2021) and Huang et al. (2023) found that there is a negative relationship between regret and age. More recently, Nolte and Löckenhoff (2025) provide evidence that adults experience lower levels of regret for not achieving desirable decision outcomes. According to Liu (2024), self-confidence is associated with regret, while referring to Chochoiek et al. (2024), positivity and optimism are associated with overconfidence. Based on this evidence, we believe that young and adult top managers differ in the extent to which they feel overconfident.

Based on the conclusions of previous investigations, which directly or indirectly assess how age influences overconfidence, aligned with the research aim, we formulated the hypotheses as follows:

H1: There are significant differences between young and adult top managers in feeling overconfident.

H2: Age determines and helps to predict overconfidence.

3. RESEARCH METHODOLOGY

3.1. Sample and data collection

The study investigates the age impact on overconfidence, focusing on the attitudes of Albanian top managers in the financial sector. This research is restricted to this target population for several reasons. First, strategic decisions are not easy to make. They are often long-term and affect the whole organization, require extensive organizational resources, good conceptual and diagnostic skills, and a lot of intuition. Decisions made by top managers have the greatest influence on organizational continuity, on its success or failure. Therefore, we strongly believe that overconfidence and its consequences on organizational performance and future decisions are more significant for strategic decisions. Second, the financial sector is critical for economic activities and has a significant role in supporting the overall economic growth. Decisions in this sector are made under risk and uncertainty conditions and are complex, which require the coordination of several influential factors. Third, we anticipated challenges in accessing and contacting CEOs. Therefore, considering the potential low participation of CEOs, chief financial officers (CFOs), and chief operating officers (COOs) were also included in order to have a sample size adequate for robust statistical analysis. Furthermore, after reviewing previous studies on top managers' overconfidence, we realized that most of them focused only on CEOs. In our judgment, CFOs and COOs are also involved in important strategic decision-making and face risk and uncertainty.

In the last decade, the financial sector in Albania has undergone significant restructuring and currently includes various actors. In order to have a sample size large enough, the study includes banks, investment companies, insurance companies, and real estate companies, located in Durres and Tirana, as the two most important cities in the industrial context. According to the Albanian Institute of Statistics (INSTAT, 2023), Tirana and Durres stand as hubs of industry and business within Albania, as at the end of 2023, more than 60% of active companies are concentrated in these two cities.

Companies included in this investigation are identified through Chambers of Commerce registers, supplemented by secondary data from industry reports and official publications. Corporate governance data are collected from companies' websites and additional contacts, ensuring an appropriate age distribution among participants. In line with the research purpose and the willingness of top managers to be part of this research, the non-probability sampling approach was employed, specifically in the form of convenience sampling. So, the participants are selected based on their involvement in strategic decision-making and their roles as C-level managers in the financial sector. Also, information provided by key informants or privileged sources was employed in order to identify other participants, anyway trying to ensure compliance with predetermined selection criteria. So, alongside convenience sampling, the snowball sampling technique was also employed. This selection of participants allowed us to reduce data collection costs, to have a high response rate, and to minimize the time for data collection and processing, adding value to the findings of this study. From 327 distributed questionnaires, 254 were completed and returned, yielding a response rate of 77.7%.

3.2. Statistical methods

The level of overconfidence is assessed using a structured questionnaire with a five-point Likert scale, designed on the basis of a thorough review of the literature addressing the impact of age on overconfidence and its implications for strategic management and organizational performance. Statements 1, 2, and 3 try to assess overestimation, statements 4, 5, and 6 try to assess overplacement, while statements 7 and 8 try to assess overprecision. We have administered a pilot test to assess the validity and objectivity of the questionnaire. Its purpose was to detect any potential difficulties that participants might face in completing the items and recording their answers. Cronbach's alpha (0.735) confirmed acceptable internal consistency and data reliability.

This investigation relies on a quantitative approach, with data analyzed using SPSS software. This methodology facilitates the generalization of conclusions to a wider population. The statistical methods employed in the research include:

1. Descriptive statistics, to examine the distribution of responses and to provide an overall picture of top managers' attitudes on overconfidence. Here are included the percentage frequency distribution, minimum and maximum value, mean, and standard deviation.

2. Spearman correlation analysis, to measure the correlations between age and overconfidence. This analysis helps us to understand the strength and direction of the relationship between age and each statement included in the questionnaire.

Although the quantitative methodology is considered suitable for this research, alternative methods may also yield significant insights. For example, a case study approach could be employed to gather qualitative data, enabling a deeper exploration of issues that may enhance the interpretation and explanation of the findings. Furthermore, a comparative analysis could examine how age influences overconfidence among top managers in Albania's financial sector and the financial sector of other countries or regions, or companies in other industries. Also, an experimental investigation could be considered to assess the relationship between age and overconfidence. This method requires the design of controlled experiments aimed at manipulating variables and conditions to evaluate their effects on participant attitudes. However, experimental research allows for causal inference, but may not fully capture real-world complexities.

4. RESULTS

The results of this study contribute to the understanding of age implications for overconfidence in the context of strategic decision-making. Based on the analysis of the responses of 254 participants (C-level executives), key models, problems, and opportunities are identified, shedding light on the complex and ambiguous nature of overconfidence and its predictors. In this section are presented statistical analysis (descriptive statistics and correlations). The most important findings of this investigation are included in Tables 1 and 2. More specifically, Table 1 offers a synthesized overview of descriptive statistics, while Table 2 presents Spearman's correlation coefficients for age and each statement included in the questionnaire.

Table 1. Descriptive statistics

Dependent variables	*Strongly disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly agree*	*Min*	*Max*	*Mean*	*SD*
1. *I feel confident in my knowledge and abilities for optimal strategic choices.*	0%	1.2%	4.5%	51.8%	42.5%	1.00	5.00	4.36	0.627
2. *I feel confident in my abilities to control situations and problems.*	0.8%	9.7%	13.4%	29.9%	46.2%	1.00	5.00	4.11	1.024
3. *I feel confident that my decisions will outperform the forecasts.*	0%	1.6%	6.1%	46.8%	45.5%	1.00	5.00	4.37	0.673
4. *I feel confident about my skills to make better decisions compared to others.*	0%	0.8%	3.3%	37.2%	58.7%	1.00	5.00	4.54	0.603
5. *I trust my opinions more than others.*	0.4%	3.2%	9.7%	58%	28.7%	1.00	5.00	4.11	0.735
6. *My decisions lead to higher outcomes than those of my colleagues.*	32%	25.9%	10.1%	25.1%	6.9%	1.00	5.00	2.49	1.346
7. *I feel confident in my ability to forecast with high accuracy the future outcomes of my decisions.*	0.8%	2%	4.1%	58.3%	34.8%	1.00	5.00	4.24	0.697
8. *I am always optimistic about the future outcomes of my decisions.*	22.7%	34.4%	22.7%	17%	3.2%	1.00	5.00	2.44	1.113

Source: Authors' elaboration using SPSS.

In Table 1 are reported descriptive statistics, which summarize characteristics of the data and offer important information about the percentage frequency distribution and the central tendency for each dependent variable. The mean for *variable 1* is 4.36 (SD = 0.627), reflecting a positive tendency to feel confident for optimal decisions. Participants have a positive attitude toward *variable 2*, because the mean is 4.11 (SD = 1.024). In the case of *variable 3*, the mean is 4.37 and the standard deviation is 0.673. These results show that top managers agree with feeling confident that their decisions will outperform the forecasts, and a low standard deviation indicates a small spread in participants' attitudes. For *variable 4*, the mean is 4.54 (SD = 0.603), which can be interpreted as significant support by participants for this variable, underlining that top managers feel confident in their skills to make better decisions than others. Also, for *variable 5*, with a mean of 4.11 (SD = 0.735), participants have an important positive tendency to trust their opinions more than others. Regarding *variable 6* (M = 2.49, SD = 1.346), data reflect a neutral tendency of top managers toward the outcomes of the decisions compared to those of their colleagues. For *variable 7*, the mean of 4.24 (SD = 0.697) indicates a strong tendency of participants to believe that they can predict the outcomes of their decisions with a high degree of accuracy. Descriptive statistics for *variable 8* (M = 2.44; SD = 1.113) show that top managers are not optimistic about the future outcomes of their decisions.

Table 2. Spearman correlation for all variables

Spearman's Rho		***Age***	***Variable 1***
Age	Correlation coefficient	1.000	-0.042
	Sig. (2-tailed)		0.508
	N	254	254
Variable 1	Correlation coefficient	-0.042	1.000
	Sig. (2-tailed)	0.508	
	N	254	254
Spearman's Rho		***Age***	***Variable 2***
Age	Correlation coefficient	1.000	0.070
	Sig. (2-tailed)		0.273
	N	254	254
Variable 2	Correlation coefficient	0.070	1.000
	Sig. (2-tailed)	0.273	
	N	254	254
Spearman's Rho		***Age***	***Variable 3***
Age	Correlation coefficient	1.000	-0.059
	Sig. (2-tailed)		0.354
	N	254	254
Variable 3	Correlation coefficient	-0.059	1.000
	Sig. (2-tailed)	0.354	
	N	254	254
Spearman's Rho		***Age***	***Variable 4***
Age	Correlation coefficient	1.000	-0.052
	Sig. (2-tailed)		0.418
	N	254	254
Variable 4	Correlation coefficient	-0.052	1.000
	Sig. (2-tailed)	0.418	
	N	254	254
Spearman's Rho		***Age***	***Variable 5***
Age	Correlation coefficient	1.000	-0.014
	Sig. (2-tailed)		0.822
	N	254	254
Variable 5	Correlation coefficient	-0.014	1.000
	Sig. (2-tailed)	0.822	
	N	254	254
Spearman's Rho		***Age***	***Variable 6***
Age	Correlation coefficient	1.000	0.017
	Sig. (2-tailed)		0.795
	N	254	254
Variable 6	Correlation coefficient	0.017	1.000
	Sig. (2-tailed)	0.795	
	N	254	254
Spearman's Rho		***Age***	***Variable 7***
Age	Correlation coefficient	1.000	-0.045
	Sig. (2-tailed)		0.482
	N	254	254
Variable 7	Correlation coefficient	-0.045	1.000
	Sig. (2-tailed)	0.482	
	N	254	254
Spearman's Rho		***Age***	***Variable 8***
Age	Correlation coefficient	1.000	-0.032
	Sig. (2-tailed)		0.617
	N	254	254
Variable 8	Correlation coefficient	-0.032	1.000
	Sig. (2-tailed)	0.617	
	N	254	254

Source: Authors' elaboration using SPSS.

In Table 2, Spearman correlation analysis is reported. The calculations indicate that there are no age variances between C-level executives in feeling confident about their knowledge and abilities for optimal strategic choices (Sig. = 0.508 > 0.05). Spearman correlation coefficient is negative, which means that adult strategic managers disagree with this statement, but it is weak and not statistically important (rs = -0.042). There is another statistical correlation not important for age and *variable 2*. So, top managers do not differ in feeling confident about their abilities to control situations and problems (Sig. = 0.273 > 0.05, rs = 0.07). For *variable 3*, there are no age-related variances in feeling confident that their decisions will outperform the forecasts (Sig. = 0.354 > 0.05). Although the Spearman correlation coefficient is negative, it is very weak and not statistically significant (rs = -0.059). Also, for *variable 4,* Spearman correlation is negative, but weak, and we can conclude that there are no differences between top managers. So, top managers do not differ in feeling confident about their skills to make better decisions than others (Sig. = 0.418 > 0.05, rs = -0.052). Furthermore, referring to *variable 5*, top managers do not differ in trusting their opinions more than others (Sig. = 0.822 > 0.05, rs = -0.014) and regarding the perception that their decisions will achieve better returns than those of their peers (Sig. = 0.795 > 0.05, rs = 0.017). Trying to assess overprecision, we included in the investigation *variable 7* and *variable 8*, but the calculations show correlations not significant. So, there is no important statistical correlation between age and the prediction of future outcomes of the decisions with high accuracy (Sig. = 0.482 > 0.05). The negative Spearman correlation coefficient indicates that adult top managers disagree with this statement, but the coefficient is weak and not statistically important (rs = -0.045). Also, for *variable 8*, we didn't find an important correlation with age. Top managers do not differ in feeling optimistic about the future outcomes of their decisions (Sig. = 0.617 > 0.05, rs = -0.032).

5. DISCUSSION

Overconfidence is a cognitive bias that has always received significant attention in strategic management and decision-making literature. This research offers a valuable contribution by providing some interpretations on the relationship between age and overconfidence, taking into consideration Albanian top managers. We would like to underline that the results of previous studies are mixed and do not allow for general conclusions. After a careful analysis of the theory and previous studies, we have developed the hypotheses that there are age-related differences in being overconfident for top managers and that age is an important variable to determine and predict overconfidence. However, the findings of the research indicate that age does not influence overconfidence. In this section, we discuss the results obtained, offering some interpretations.

Top managers have the responsibility for leading the organization toward achieving its vision, mission, and objectives, and the decisions they make have the highest impact on the organization's failures and successes. As a result, top managers' recruitment is based on a careful assessment of past experiences. There is evidence that overconfidence increases with experience (Glaser et al., 2013; Gaba et al., 2023), but there is also evidence that suggests the opposite (Singh et al., 2024; Bernile et al., 2025). As age influences experience and professionalism, we expected to find an important impact of age on feeling confident about personal knowledge and abilities for making good strategic decisions. The results suggest that between these variables, there is no association, not supporting age's influence on overestimation. This result is in line with the study of Allen and Evans (2005), which concluded that experience has little effect on overconfidence.

Illusion of control is a cognitive bias with important consequences on strategic decision-making behavior. It refers to the tendency to overestimate personal abilities to control events that are uncertain and uncontrollable outcomes. According to Langer (1975), the illusion of control can be defined as an expectancy of a personal success probability inappropriately higher than the objective probability would warrant. There is evidence that the illusion of control leads to overconfidence (Qadri & Shabbir, 2014; Khan et al., 2019). We were not able to find previous evidence about the age impact on the illusion of control, but we found evidence on the power impact on this bias. So, according to Fast et al. (2009), power is a cause of the illusion of personal control. As top managers have important power and are more experienced, we believed they would be more influenced by the illusion of control bias and, therefore, would have a higher level of overconfidence. However, the results of this study do not support our expectations. We did not find age-related variances in feeling confident in personal abilities to control situations or problems.

Overconfident managers are affected by positivity bias and think they know more than they do, and that their predictions and forecasts will come true. Referring to Hoorens (2014), positivity bias can be described as the tendency to have a positive perception of reality, to expect positive outcomes, and to rely on positive information during the reasoning process. There are age-related differences in positivity bias. According to Carstensen and DeLiema (2018), adults have the tendency to retrieve from memory more positive information if compared to young people. Levin et al. (2021) found that there is an age-related increase in the orientation toward incentives of positive emotions compared to negative incentives, with important implications for information search and choice satisfaction. We expected to find a strong correlation between participants' age and feeling confident that their decisions would outperform predictions and forecasts, but this expectation found no support.

Overconfidence is often associated with self-attribution bias. According to Hoffmann and Post (2014), under the effect of self-attribution bias, individuals associate successes with personal skills, while failures are attributed to factors out of personal control. In their study, focusing on financial decision-making, the authors found that when the outcomes of a previous decision are high, the decision-makers are convinced that their recent performance is explained by their investment abilities and knowledge. Self-attribution bias impacts more CEOs' behavior (Malmendier & Tate, 2005; Lehmberg & Tangpong, 2020). There is large evidence that self-attribution bias reinforces overconfidence (Chung et al., 2024) and its three

types: overestimation, overplacement, and overprecision (Moore & Healy, 2008). Overconfident CEOs have a great belief in their opinions and a higher preference for individual decision-making (Chen et al., 2014). Although empirical data regarding the influence of age on self-attribution bias and also on the relationship between self-attribution and overplacement are missing, based on the strong evidence that overconfidence is influenced by age and reinforced by self-attribution bias, we expected to find a positive relationship between age and overplacement. The results obtained do not confirm our expectations. So, adult top managers do not differ from young top managers in feeling confident about their skills to choose better than others, about their belief in personal opinions, and about the outcomes that their decisions will achieve.

As discussed previously, another form of overconfidence is overprecision. According to Moore and Healy (2008), overprecision is the excessive precision in one's beliefs. Overprecision leads decision-makers to disregard other perspectives (Ortoleva & Snowberg, 2015; Moore, 2023). Referring to Hribar and Yang (2016), overconfident CEOs have the tendency to predict more optimistic returns. In the past, has been found a significant positive correlation for optimism and overprecision. Optimism increases positivity and decreases negative emotions such as fear and self-doubt. Managers with high performance are more satisfied with their job and inspire positivity (Cania & Prendi, 2024). According to Chochoiek et al. (2024), optimism is a characteristic of strategic decision-makers. Prims and Moore (2017) found that overprecision increases with age. The authors suggested that experience, rather than leading to higher accuracy, may induce confidence in personal abilities and judgments. The current study found no age-related differences for overprecision. So, adult and young strategic managers do not differ in the accuracy of future outcomes prediction or in their optimism for decisions made.

A possible explanation for the results obtained could be that other factors, such as industry structural characteristics, organizational culture and climate, the way strategic decisions are made, and other demographic or personality characteristics of top managers, may play a more important role in shaping overconfidence. This highlights the need for further research, with a more comprehensive and multidimensional approach, to better understand the mechanisms that influence overconfidence and top managers' behaviors in important decision-making contexts.

6. CONCLUSION

Following the upper echelons perspective and drawing upon an attentive exploration of the literature, we designed a theoretical model to investigate the relationship between top managers' age and overconfidence. Based on a quantitative methodology, the present study sought to shed light on the correlation between these variables and to offer some interpretations in order to have a comprehensive understanding of what can predict overconfidence.

We found no support for our hypotheses, and the results show that there are no age-related differences in overconfidence. So, more specifically, we found no differences between top managers in terms of the impact on the tendency to feel confident for optimal decisions. The same can be said about the confidence in personal abilities to control situations and problems. Furthermore, we found no differences between adult and young top managers in feeling confident that their decisions will outperform the forecasts and will be better than those of others. We obtained the same result for the investigation about top managers' confidence in their own opinions compared to the confidence in opinions of others, as well as for the belief that the decisions made will have higher outcomes compared to the outcomes generated by the decisions made by their colleagues. Also, the demographic variable we took into analysis is not statistically important in different top managers in predicting with high accuracy and feeling optimistic about the future outcomes of their decisions.

Although past investigations on top managers' age and overconfidence are mixed, the findings of this research were unexpected. However, our results are aligned with the conclusions of previous studies, which emphasize that age is not a determinant of being overconfident (Hershey & Wilson, 1997; Osmani, 2018; Binnendyk & Pennycook, 2024).

The lack of significant correlations between the investigated variables can be interpreted in several ways. First, it is possible that overconfidence, as a complex bias, is not easily influenced by age. At the top management level, decision-making is often structured, collective, and influenced by external and internal circumstances such as shareholder pressure, market context, organizational culture, and decision-making policies and procedures. These factors may moderate the impact of age on feeling overconfident. Second, it is possible that C-level executives, regardless of age, have developed strong decision rationalization strategies, which may reduce the impact of personal characteristics on overconfidence. Third, decision-making processes at senior levels often involve in-depth analysis and extensive consultation, which may reduce the sensitivity to personal abilities, judgments, and chances of success.

Overall, these findings suggest that age, as a traditional demographic factor, is not a significant predictor of overconfidence in the context of strategic management. This highlights the need to broaden the theoretical framework and include, in future research, other potentially influential demographic or non-demographic factors.

By investigating the behaviors of Albanian C-level executives, the study provides significant contributions. The research expands the existing theoretical framework and empirical findings by challenging some of the common assumptions and offering a basis for new and more comprehensive explorations. The findings of this research can encourage scholars to investigate deeper related topics or examine particular aspects of overconfidence, cognitive biases, and strategic decision-making. These contributions collectively enhance the knowledge base in these fields. Referring to managers, the study contributes to the understanding that age diversity of the top management team, by improving creativity, inclusivity, and collaborations, creates suitable conditions for good strategic decisions and firms' performance. Referring to policymakers, first, they should encourage and incentivize ethical practices of employment, promotion, and performance

evaluation. Second, policymakers and managers can create collaboration bridges in order to design policies that promote human resources growth and development, age equality, and avoid discrimination due to demographic characteristics.

This study may have certain limitations, but it also offers a foundation for future investigation. First, it aims to identify age-related variances in overconfidence in the context of strategic management. Although this study contributes by offering valuable findings about the behavior of top managers in strategic decision-making, we are not able to understand if the results also depend on the company's activity, industry type, or other characteristics of top managers. These can be possible areas of investigation in the future. Second, for this research a quantitative approach is adopted. This methodology helps for generalized conclusions, but it may not provide a detailed and context-specific understanding. Another limitation of the study can be the focus on a specific country and on a specific geographic area. We cannot know if the findings would be the same for strategic managers in different geographic areas within or outside Albania. Third, this study is carried out within a particular timeframe, and the results can be influenced by the external environment conditions in that specific period. Economic, political, and social factors, and also market forces, evolve rapidly, impacting strategic management, the decision-making process, and firms' performance. Future investigations, utilizing data from different time periods, could offer valuable insights into top managers' overconfidence and age impact.

REFERENCES

Agnihotri, A., Bhattacharya, S., & Satya Prasad, V. K. (2025). CEO career horizon influence strategic novelty of a firm: A study under the boundary condition of CEO's temporal focus. *Journal of Management & Organization, 31*(2), 740–760. https://doi.org/10.1017/jmo.2022.69

Aktas, N., Boone, A., Croci, E., & Signori, A. (2021). Reductions in CEO career horizons and corporate policies. *Journal of Corporate Finance, 66*, Article 101862. https://doi.org/10.1016/j.jcorpfin.2020.101862

Albanian Institute of Statistics (INSTAT). (2023). *Regjistrat e biznesit* [Business registers]. https://www.instat.gov.al/media/13413/regjistrat-e-biznesit-2023.pdf

Allen, W. D., & Evans, D. A. (2005). Bidding and overconfidence in experimental financial markets. *Journal of Behavioral Finance, 6*(3), 108–120. https://doi.org/10.1207/s15427579jpfm0603_1

Bamford, C. E., Hoffman, A. N., Wheelen, T. L., & Hunger, J. D. (2024). *Strategic management and business policy: Globalization, innovation and sustainability* (16th ed.). Pearson Education

Ben-David, I., Graham, J. R., & Harvey, C. R. (2013). Managerial miscalibration. *The Quarterly Journal of Economics, 128*(4), 1547–1584. https://doi.org/10.1093/qje/qjt023

Bernile, G., Bonaparte, Y., & Delikouras, S. (2025). Stock market experience and investor overconfidence: Do investors learn to be overconfident? *Journal of Banking & Finance, 174*, Article 107431. https://doi.org/10.1016/j.jbankfin.2025.107431

Binnendyk, J., & Pennycook, G. (2024). Individual differences in overconfidence: A new measurement approach. *Judgment and Decision Making, 19*, Article 28. https://doi.org/10.1017/jdm.2024.22

Boyle, P. J., Russo, J. E., & Kim, J. (2025). When deciding creates overconfidence. *Judgment and Decision Making, 20*, Article 15. https://doi.org/10.1017/jdm.2024.39

Brouthers, K. D., Brouthers, L. E., & Werner, S. (2000). Influences on strategic decision-making in the Dutch financial services industry. *Journal of Management, 26*(5), 863–883. https://doi.org/10.1177/014920630002600506

Bruine de Bruin, W., Parker, A. M, & Fischhoff, B. (2012). Explaining adult age differences in decision-making competence [Special Issue]. *Journal of Behavioral Decision Making, 25*(4), 352–360. https://doi.org/10.1002/bdm.712

Burks, S. V., Carpenter, J. P., Goette, L., & Rustichini, A. (2013). Overconfidence and social signaling. *The Review of Economic Studies, 80*(3), 949–983. https://doi.org/10.1093/restud/rds046

Cania, L., & Prendi, L. (2024). Strategic talent management: Enhancing corporate performance and governance. *Corporate Law & Governance Review, 6*(3), 103–112. https://doi.org/10.22495/clgrv6i3p11

Carstensen, L. L., & DeLiema, M. (2018). The positivity effect: A negativity bias in youth fades with age. *Current Opinion in Behavioral Sciences, 19*, 7–12. https://doi.org/10.1016/j.cobeha.2017.07.009

Chen, S. S., Ho, K. Y., & Ho, P. H. (2014). CEO overconfidence and long-term performance following R&D increases. *Financial Management, 43*(2), 245–269. https://doi.org/10.1111/fima.12035

Chen, Y. R., Ho, K. Y., & Yeh, C. W. (2020). CEO overconfidence and corporate cash holdings. *Journal of Corporate Finance, 62*, Article 101577. https://doi.org/10.1016/j.jcorpfin.2020.101577

Chochoiek, N., Huber, L. R., & Sloof, R. (2024). Optimism and overconfidence of strategic decision makers — Comparing entrepreneurs and managers with employees. *Journal of Economics & Management Strategy, 33*(3), 674–695. https://doi.org/10.1111/jems.12615

Chung, C. Y., Choi, C., & Fard, A. (2024). Self-serving attribution and managerial investment decision. *Bulletin of Economic Research, 76*(3), 749–772. https://doi.org/10.1111/boer.12444

Cid-Aranda, C., & Lopez-Iturriaga, F. J (2022). C.E.O. characteristics and corporate risk-taking: Evidence from emerging markets. *Economic Research, 36*(2), Article 2175008. https://doi.org/10.1080/1331677X.2023.2175008

Cohee, G. L., & Barnhart, C. M. (2024). Often wrong, never in doubt: Mitigating leadership overconfidence in decision-making. *Organizational Dynamics, 53*(3), Article 101011. https://doi.org/10.1016/j.orgdyn.2023.101011

Dess, G., McNamara, G., Eisner, A., & Lee, S. H. (2021). *Strategic management: Text and cases* (10th ed.). McGraw-Hill.

Dohmen, T., Quercia, S., & Willrodt, J. (2023). On the psychology of the relation between optimism and risk taking. *Journal of Risk and Uncertainty, 67*(2), 193–214. https://doi.org/10.1007/s11166-023-09409-z

Eberhardt, W., Bruine de Bruin, W., & Strough, J. (2018). Age differences in financial decision making: The benefits of more experience and less negative emotions. *Journal of Behavioral Decision Making, 32*(1), 79–93. https://doi.org/10.1002/bdm.2097

Fang, H., Chung, C. P., Lu, Y. C., & Lee, Y. H. (2024). Effects of CEO's overconfidence and his/her power on the performance of Chinese firms. *Journal of Economics and Finance, 48*(1), 15–50. https://doi.org/10.1007/s12197-023-09642-x

Fast, N. J., Gruenfeld, D. H., Sivanathan, N., & Galinsky, A. D. (2009). Illusory control: A generative force behind power's far-reaching effects. *Psychological Science, 20*(4), 502–508. https://doi.org/10.1111/j.1467-9280.2009.02311.x

Friehe, T., & Pannenberg, M. (2019). Overconfidence over the lifespan: Evidence from Germany. *Journal of Economic Psychology, 74*, Article 102207. https://doi.org/10.1016/j.joep.2019.102207

Gaba, V., Lee, S., Meyer-Doyle, P., & Zhao-Ding, A. (2023). Prior experience of managers and maladaptive responses to performance feedback: Evidence from mutual funds. *Organization Science, 34*(2), 894–915. https://doi.org/10.1287/orsc.2022.1605

Garcia, J., Gómez, Y., & Vila, J. (2022). Financial overconfidence, promotion of financial advice, and aging. *Journal of Business Research, 145*(2), 325–333. https://doi.org/10.1016/j.jbusres.2022.02.068

Gashi, S., Liça, D., Trebicka, B. (2024). Digitalization and competitive advantage: Insights from manufacturing sector. *Corporate & Business Strategy Review, 5*(3), 94–105. https://doi.org/10.22495/cbsrv5i3art9

Glaser, M., Langer, T., & Weber, M. (2013). True overconfidence in interval estimates: Evidence based on a new measure of miscalibration. *Journal of Behavioral Decision Making, 26*(5), 405–417. https://doi.org/10.1002/bdm.1773

Guan, F., & Wang, T. (2025). Do CEO overconfidence and demographic characteristics moderate the effect of R&D investment on firm performance? *Marketing Intelligence & Planning, 43*(1), 127–151. https://doi.org/10.1108/MIP-05-2023-0242

Hambrick, D. C. (2007). Upper echelons theory: An update. *The Academy of Management Review, 32*(2), 334–343. https://doi.org/10.5465/amr.2007.24345254

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *The Academy of Management Review, 9*(2), 193–206. https://doi.org/10.2307/258434

Hansson, P., Rönnlund, M., Juslin, P., & Nilsson, L. G. (2008). Adult age differences in the realism of confidence judgments: Overconfidence, format dependence, and cognitive predictors. *Psychology and Aging, 23*(3), 531–544. https://doi.org/10.1037/a0012782

Hershey, D. A., & Wilson, J. A. (1997). Age differences in performance awareness on a complex financial decision-making task. *Experimental Aging Research, 23*(3), 257–273. https://doi.org/10.1080/03610739708254283

Hirschleifer, D., Low, A., & Teoh, S. H. (2012). Are overconfident CEOs better innovators? *Journal of Finance, 67*(4), 1457–1498. https://doi.org/10.1111/j.1540-6261.2012.01753.x

Hoffmann, A. O. I., & Post, T. (2014). Self-attribution bias in consumer financial decision-making: How investments returns affect individuals' belief in skill. *Journal of Behavioral and Experimental Economics, 52*(1), 23–28. https://doi.org/10.1016/j.socec.2014.05.005

Holmström, B. (1999). Managerial incentive problems: A dynamic perspective. *The Review of Economic Studies, 66*(1), 169–182. https://doi.org/10.1111/1467-937X.00083

Hoorens, V. (2014). Positivity bias. In A. C. Michalos (Ed.), *Encyclopedia of quality of life and well-being research* (pp. 4938–4941). Dordrecht: Springer. https://doi.org/10.1007/978-94-007-0753-5_2219

Hribar, P., & Yang, H. (2016). CEO overconfidence and management forecasting. *Contemporary Accounting Research, 33*(1), 204–227. https://doi.org/10.1111/1911-3846.12144

Huang, Y., Pat, N., Kok, B. C., Chai, J., Feng, L., & Yu, R. (2023). Getting over past mistakes: Prospective and retrospective regret in older adults. *Journals of Gerontology — Series B, 78*(3), 469–478. https://doi.org/10.1093/geronb/gbac159

Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

Karki, U., Bhatia, V., & Sharma, D. (2024). A systematic literature review on overconfidence and related biases influencing investment decision making. *Economic and Business Review, 26*(2), 130–150. https://doi.org/10.15458/2335-4216.1338

Kenny, P., Mandy, T. T., & Chishen, W. (2018). Are overconfident CEOs better leaders? Evidence from stakeholder commitments. *Journal of Financial Economics, 127*(3), 519–545. https://doi.org/10.1016/j.jfineco.2017.12.008

Khan, M. T. I., Tan, S. H., & Chong, L. L. (2019). Overconfidence mediates how perception of past portfolio returns affects investment behaviors. *Journal of Asia-Pacific Business, 20*(2), 140–161. https://doi.org/10.1080/10599231.2019.1610688

Kim, S., Healey, M. K., Goldstein, D., Hasher, L., & Wiprzycka, U. J. (2008). Age differences in choice satisfaction: A positivity effect in decision making. *Psychology and Aging, 23*(1), 33–38. https://doi.org/10.1037/0882-7974.23.1.33

Kovalchik, S., Camerer, C. F., Grether, D. M., Plott, C. R., & Allman, J. M. (2005). Aging and decision making: A comparison between neurologically healthy elderly and young individuals. *Journal of Economic Behavior & Organization, 58*(1), 79–94. https://doi.org/10.1016/j.jebo.2003.12.001

Kowalzick, M., Ahrens, J. P., Lauterbach, J. G., & Tang, Y. (2024). Overconfident CEOs in dire straits: How incumbent and successor CEOs' overconfidence affects firms turnaround performance. *Journal of Managements Studies, 61*(5), 1985–2032. https://doi.org/10.1111/joms.12962

Kraft, P. S., Dickler, T. A., & Withers, M. C. (2025). When do firms benefit from overconfident CEOs? The role of board expertise and power for technological breakthrough innovation. *Strategic Management Journal, 46*(2), 381–410. https://doi.org/10.1002/smj.3657

Kumar, J., & Prince, N. (2023). Overconfidence bias in investment decisions: A systematic mapping of literature and future research topics. *FIIB Business Review, 12*(3), 347–360. https://doi.org/10.1177/23197145231174344

Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*(2), 311–328. https://doi.org/10.1037/0022-3514.32.2.311

Lee, J. P., Lin, E. M. H, Lin, J. J., & Zhao, Y. (2020). Bank systemic risk and CEO overconfidence. *The North American Journal of Economics and Finance, 54*(3), Article 100946. https://doi.org/10.1016/j.najef.2019.03.011

Lehmberg, D., & Tangpong, C. (2020). Do top management performance attribution patterns matter to subsequent organizational outcomes? A two-country study of attribution in economic crisis. *Journal of Management & Organization, 26*(5), 736–755. https://doi.org/10.1017/jmo.2018.32

Levin, F., Fiedler, S., & Weber, B. (2021). Positivity effect and decision making in ageing. *Cognition & Emotion, 35*(4), 790–804. https://doi.org/10.1080/02699931.2021.1884533

Li, Z., & Zhang, Y. (2022). CEO overconfidence and corporate innovation outcomes: Evidence from China. *Frontiers in Psychology, 13*, Article 760102. https://doi.org/10.3389/fpsyg.2022.760102

Liça, D., & Gashi, S. (2024). Exploring the role of women entrepreneurs in firm internationalization strategic decision-making. *Corporate Board: Role, Duties and Composition, 20*(2), 20–26. https://doi.org/10.22495/cbv20i2art2

Lin, C. M., Chang, M. C., & Chao, Y. H. (2022). The forced effect on an overconfident CEO: Evidence from Taiwan-listed firms. *Sage Open, 12*(1), 1–13. https://doi.org/10.1177/21582440221079915

Liu, Z. (2024). The asymmetric impact of decision-making confidence on regret and relief. *Frontiers in Psychology, 15*, Article 1365743. https://doi.org/10.3389/fpsyg.2024.1365743

Loukil, N., & Yousfi, O. (2022). Do CEO's traits matter in innovation outcomes? *Journal of International Entrepreneurship, 20*(3), 375–403. https://doi.org/10.1007/s10843-022-00309-y

Malmendier, U., & Tate, G. (2005). CEO overconfidence and corporate investment. *The Journal of Finance, 60*(6), 2661–2700. https://doi.org/10.1111/j.1540-6261.2005.00813.x

Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics, 89*(1), 20–43. https://doi.org/10.1016/j.jfineco.2007.07.002

Matarazzo, O., Abbamonte, L., Greco, C., Pizzini, B., & Nigro, G. (2021). Regret and other emotions related to decision-making: Antecedents, appraisals, and phenomenological aspects. *Frontiers in Psychology, 12*, Article 783248. https://doi.org/10.3389/fpsyg.2021.783248

Mather, M., & Johnson, M. K. (2000). Choice-supportive source monitoring: Do our decisions seem better to us as we age? *Psychology and Aging, 15*(4), 596–606. https://doi.org/10.1037/0882-7974.15.4.596

Merkle, C. (2017). Financial overconfidence over time: Foresight, hindsight, and insight of investors. *Journal of Banking & Finance, 84*, 68–87. https://doi.org/10.1016/j.jbankfin.2017.07.009

Moore, D. A. (2023). Overprecision is a property of thinking systems. *Psychological Review, 130*(5), 1339–1350. https://doi.org/10.1037/rev0000370

Moore, D. A., & Healy, P. J. (2008). The trouble with overconfidence. *Psychological Review, 115*(2), 502–517. https://doi.org/10.1037/0033-295X.115.2.502

Mundi, H. S. (2021). Impact of CEO overconfidence on capital structure decisions: Evidence from S&P BSE 200. *Vision: The Journal of Business Perspective, 27*(1), 63–78. https://doi.org/10.1177/0972262921998837

Nikčević, G. (2025). Culture as the foundation of entrepreneurial success: Organizational and national context. *Interdisciplinary Journal of Research and Development, 12*(1), 9–18. https://doi.org/10.56345/ijrdv12n102

Nolte, J., & Hanoch, Y. (2024). Adult age differences in risk perception and risk taking. *Current Opinion in Psychology, 55*, Article 101746. https://doi.org/10.1016/j.copsyc.2023.101746

Nolte, J., & Löckenhoff, C. E. (2025). What factors are associated with age differences in intentional decision avoidance? *Experimental Aging Research*. Advance online publication. https://doi.org/10.1080/0361073X.2025.2473849

Ortoleva, P., & Snowberg, E. (2015). Overconfidence in political behavior. *American Economic Review, 105*(2), 504–535. https://doi.org/10.1257/aer.20130921

Osmani, J. (2018). Decision-making and overconfidence: Is there a correlation with age? *Conference Proceedings: 2nd International Scientific Conference ITEMA*, 945–951. https://doi.org/10.31410/itema.2018.945

Pherson, R. H., Donner, O., & Gnad, O. (2024). Understanding how we think: System 1 and System 2. In *Clear thinking: Structured analytic techniques and strategic foresight analysis for decision makers* (pp. 5–19). Springer.

Pliske, R. M., & Mutter, S. A. (1996). Age differences in the accuracy of confidence judgments. *Experimental Aging Research, 22*(2), 199–216. https://doi.org/10.1080/03610739608254007

Prims, J. P., & Moore, D. A. (2017). Overconfidence over the lifespan. *Judgment and Decision-making, 12*(1), 29–41. https://doi.org/10.1017/S1930297500005222

Qadri, U. Y., & Shabbir, M. (2014). An empirical study of overconfidence and illusion of control biases, impact on investor's decision making: An evidence from ISE. *European Journal of Business and Management, 6(14)*, 38–45. https://iiste.org/Journals/index.php/EJBM/article/view/13302

Rothaermel, F. T. (2021). *Strategic management* (5th ed.). McGraw-Hill.

Simon, M., & Houghton, S. M. (2003). The relationship between overconfidence and the introduction of risky products: Evidence from a field study. *Academy of Management Journal, 46*(2), 139–149. https://www.jstor.org/stable/30040610

Singh, D., Malik, G., Jain, P., & Abouraia, M. (2024). A systematic review and research agenda on the causes and consequences of financial overconfidence. *Cogent Economics & Finance, 12*(1), Article 2348543. https://doi.org/10.1080/23322039.2024.2348543

Wilson, J. M., Sevi, B., Strough, J., & Shook, N. J. (2021). Age differences in risk-taking: Now you see them, now you don't. *Neuropsychology, Development and Cognition, 29*(4), 651–665. https://doi.org/10.1080/13825585.2021.1885608

Zhu, C., Li, N., & Ma, J. (2024). Impact of CEO overconfidence on enterprise digital transformation: Moderating effect based on digital finance. *Finance Research Letters, 59*(1), Article 104688. https://doi.org/10.1016/j.frl.2023.104688