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Full length article

## Working capital management of SMEs in COVID-19: role of managerial personality traits and overconfidence behavior

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## ABSTRACT

The study intends to investigate the role of managerial personality traits on working capital management of Chinese SMEs with the mediating role of overconfidence behavior. Data from the Chinese SMEs managers is collected through a close-ended survey questionnaire using multi-stage cluster sampling and structural equation modeling is applied for empirical analysis. The results shown that extroversion, openness to experience, and agreeableness traits determines overconfidence behavior among the managers. While, conscientiousness and neuroticism traits were found insignificant with overconfidence behavior. Overconfidence behavior significantly mediated during COVID-19 between managerial personality traits (e.g., extroversion and agreeableness traits) and working capital management. Limited time remained a major limitation in completing this study. The study extended the knowledge by investigating the working capital management practices during COVID-19 in Chinese SMEs and contributed by presenting multiple practical implications for effective working capital management.

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## 1. Introduction

Managerial behavioral perspectives such as personality traits (e.g., big five personality traits) and overconfidence bias have an essential role in managing working capital (Qasim et al., 2019). The nexus between managerial personality traits and working capital management with the mediating part of overconfidence bias do not reach their intended effects (Jonason and Zeigler-Hill, 2018; Jonason et al., 2019; Katper et al., 2019). There is a need to understand better the conditions under which the role of overconfidence bias and managerial personality traits is influential for effective working capital management (Ramiah et al., 2016; Sadi et al., 2011). However, to understand this need, recent study intends to estimate the nexus between managerial personality traits and working capital management with the mediating role of overconfidence bias.

The efficient management of working capital appears to depend on working capital managers (Oladipupo and Okafor, 2013). When managers manage working capital based on accurate financial information, actual economic facts, practical work experience, and a rational approach can positively affect (Baker et al., 2007). Conversely, poor financial information and an irrational work approach promote the irrationality among the managerial personality traits and develop biased behaviors, leading to inefficient working capital management practices (Pompian, 2011, p. 229). Combining the rational personality traits of the managers with overconfidence bias, managers may fail to enhance efficiency in working capital

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management (Hong, 2019). Consequently, this certifies that managerial personality traits depend upon organizational behavior (e.g., rational or biased) to influence working capital management practices (Qasim et al., 2019). The entitlement that working capital management depends upon working capital managers is not new (Dhole et al., 2019), but, with some exceptions-operational capital managers affect the active capital management process. Personality traits and biased behaviors like overconfidence bias are the main reasons affecting the overall working capital management process and are rarely inferred quantitatively. However, there is a need to study the missing link of biased behaviors (e.g., overconfidence bias) between personality traits and working capital management by considering the population of working capital managers to present fresh insight.

Working capital management is one of the essential aspects of corporate financing and is necessary to design corporate performance (Boisjoly et al., 2020). Working capital managers have an imperative role in developing efficient working capital management strategies, and up till now, this topicality has been less studied Aktas et al. (2015). Before this, a linear relationship of working capital is tested with corporate performance (Sharma and Kumar, 2011; García-Teruel and Martínez-Solano, 2007; Deloof, 2003). Later on, Baños-Caballero et al. (2012) contradicted this by arguing that there is an open relationship between working capital and firm performance in SME business units. Ramiah et al. (2016) extended the debate by findings that biased behaviors of managers have a significant role in working capital management. Singh and Kumar (2014) proposed studying personality traits and discriminatory behaviors with working capital management in upcoming studies for more refinement of knowledge. Endorsing these directions, recent research aims to know how working capital managers' personality traits and biased behaviors contribute (e.g., positively or negatively) to working capital management, signifying a wide-ranging corporate financial strategy (Padachi, 2006). Historically, in the domain of corporate finance, working capital management is widely studied with capital structure (Burgstaller and Wagner, 2015), corporate investment (Aktas et al., 2015), profitability and dividend policies (Wasiuzzaman, 2015). Recently, Ramiah et al. (2016) cited that it is high time to advance the literature and present the way forward for efficient working capital management in emerging corporate markets by studying the behavioral aspects of working capital managers. Besides, rational personality traits and behaviors allow managers to design efficient functional capital strategies for the business (Pompian, 2012, p.112). Managerial personality traits reproduce the attitudes, feelings, and moods, indicating the consistency and accuracy of working capital managers (Bergner et al., 2010). Overconfidence bias (OCB) is the behavioral partiality of managers misjudging the corporate financial ability over the actual level (Kim and Nofsinger, 2008). OCB is an honest mistake that reason working capital managers to act without correct considerations (Bhandari and Deaves, 2006).

The contribution of the study is multifold. Firstly, the study contributes by studying working capital management activities in Chinese SMEs during the COVID-19 crisis. Secondly, the study benefits the corporations by appointing the working capital managers who are assigned a formal and active role in functional capital management. Such managers are expected to be rational and unbiased in managing corporate financial affairs. The study contributes by presenting the missing link of overconfidence bias between managerial personality traits and working capital management. Thirdly, our research contributes by testing the hypothesis of the study based on underpinning theory (e.g. bounded rationality theory) theorized in recent studies. These are theoretical contributions. Fourthly, the study extends the contribution by presenting the ways forward on effective working capital management to secure the firm value by discussing the behavioral aspects. This is the practical contribution to answering how the stakeholders must manage behavioral factors like personality traits and overconfidence bias to produce an effective working strategy. Fifth, the study also contributes by proving the implication of economic policies to make small and medium-sized enterprises survive in the wake of COVID-19 and beyond.

Endorsing contributions to the study, a large number of researchers studied personality traits with behavioral biases (Rzeszutek, 2015; Jonason and Zeigler-Hill, 2018; Jonason et al., 2019; Katper et al., 2019) and Ramiah et al. (2016) declared that working capital managers were found as overconfidently biased during working capital management. Approving the literary proof, the objective of the preceding study is to extend the work by testing the mediating role of overconfidence bias between managerial personality traits (e.g., openness to experience, extroversion, neuroticism, Conscientiousness, and agreeableness) and working capital management (e.g., cash management, inventory management, and working capital) in a recent study. The motivation of the study is to understand how managerial personality traits and overconfidence bias make working capital management effective (Iqbal and Bilal, 2021).

The structure of the study is categorized into different sections, including section one explaining motivation, problem statement, and study contribution, section two presents the review of the literature and theoretical framework of the study, including the research framework, the third section elaborates on methodology, the fourth section interpreted and discussed study results and last quarter concluded the subject matter of fundamental research and presented the recommendations for stakeholders including working capital managers and economic policy developers of China.

## 2. Literature review

### 2.1. SMEs and economic growth

Over the last twenty years, China's small and medium-sized businesses (SMEs) have grown rapidly and steadily. As a result of this expansion, China's economy has grown steadily. Lack of market access, insufficient technical innovation, and a lack of SME finance has contributed to the slow development experienced by small and medium-sized enterprises (Bilal

et al., 2022). This highlights the need for state services for small and medium-sized businesses to be more streamlined and competent to improve their competitiveness. Chinese state-owned companies (SOE) began to transform into smaller and smaller non-SOEs due to trade reforms in China. In the meantime, introducing a non-SOE promotion strategy encouraged the emergence of additional SMEs. As a result, urban community businesses (UCE), town and village enterprises (TVE), and the private and self-employment sector have been flourishing all across China since then. Growth in China's economy has been fueled mainly by expanding small and medium-sized enterprises (SMEs) and provides regional solutions during COVID-19 crises (Taghizadeh-Hesary et al., 2022).

In today's China, they make up more than 98% of all businesses. Small and medium-sized enterprises (SMEs) make up at least 60 percent of China's GDP and employ more than 82 percent of its workforce. SME clusters boost SMEs' worldwide competitiveness, produce and disseminate new ideas, and provide all stakeholders with multiple SMEs' financing advantages (Ma and Cheok, 2022). SMEs play a critical role in China's economic growth. In 2007, there were 4459 significant corporations, 4,2291 medium-sized businesses, and 2,327,969 small businesses recognized in the nation, just 0.19 percent of the total number of active companies. Small and medium-sized enterprises (SMEs) make up 99.7 percent of all businesses in China. Small and medium-sized firms (SMEs) generate 60.42 percent of overall profits, while small companies generate 6.54 trillion in sales or 23.70 percent. 66.28% of industrial income is generated by small and medium-sized businesses, with total revenue of \$11.7 trillion representing a 37.29% share. Small and medium-sized enterprises (SMEs) are becoming an increasingly significant source to use credit guarantees (Yoshino and Taghizadeh-Hesary).

SME clusters have the potential to help small towns flourish, but there are still several issues that keep these businesses from achieving their full potential. If you are a small business in Jiangsu Province, you are likely to have difficulty getting funding or admission to a bank account. Industrial districts and host towns have high operating costs, inadequate national infrastructure, and high operating costs. Furthermore, there is a lack of financial and technological resources. As a result of these issues, small and medium-sized enterprises (SMEs) are forced to concentrate in urban centers where they may be structured. Small- and medium-sized firm clusters are the sole source of infrastructural projects, whereas small town economic growth relies on private capital and government budgetary assistance. Local resources are critical to small business clusters' success. It is common for SME activities to be operated by families rather than large-scale factories. As a result, the business climate tends to be inflexible, and entrepreneurs and managers have fewer resources and abilities to succeed. The lack of entrepreneurial spirit or desire to take calculated risks and managerial inefficiencies is a consequence of these issues, which need training. Small business directors and management systems must be upgraded in terms of performance and intercultural competency.

All public-funded projects must adapt to company requirements, correct market failures, and bring value to the economy. Ensure the business support network offers companies with the required service. Business expansion has essential policy consequences for government programs that policymakers at national and regional levels must acknowledge and address. In addition to ensuring that employees get high-quality training from schools and private enterprises, many small businesses rely on training brokerage services. Provide local government programs while also implementing socioeconomic control. The government should draw up a preferential policy for the development of S.E.s, help S.E.s to choose the appropriate region, and adjust their development direction. Entrepreneurship should be fostered with the assistance of local authorities. Entrepreneurs in the Small-Medium Business Cluster have long been recognized as valuable assets in the growth of their companies' workforces. An entrepreneur-friendly setting must be created, including policies such as favorable treatment, a fully functional legal framework, and a set of equally applied market regulations, to name just a few.

## 2.2. Managerial personality traits and overconfidence behavior

The deliberation of psychological aspects designing beliefs, sensations, conducts controlled by intelligence, aspiration, stimulation, supernaturalism, custom, and style is named as a personality of a person (Irengün and Arikboğa, 2015). Sustaining a rational personality is imperative in the social and professional workplace (Jeung et al., 2016). Personality facets are inherent and learned behaviors that enhance corporate management achievements (Isaga, 2018; Antoncic et al., 2018; Shalender and Yadav, 2019). Corporate environment and workplace versatility are linked with individual personality and move to expedite critical indicators of corporate success (Pletzer et al., 2018). Five personality aspects, namely, "Agreeableness", "Extroversion", "Conscientiousness", "openness to experience", and "Neuroticism", were proposed by Digman (1990) to filter individual abilities in a social setting. Personality is also defined as a well-built psychological structure in human beings that transform social attributes (Larsen and Buss, 2009).

Fascinatingly, personality traits are interdisciplinary and are stable, irrespective of the corporate sector, activities, and responsibilities. Consequently, personality dimensions are generalized in the broader spectrum and are moveable in any professional occupation (Grönlund and Magnusson, 2018; Salgado and De Fruyt, 2017; Forer, 1953). An unsystematic or behavioral design of beliefs and emotions diverging from rational intelligence is pronounced as biases (Anh Tu et al., 2021). This unsystematic pattern of biases has a significant association with investor behavior (Pompian and Longo, 2005), financial decision-making (Kumar and Goyal, 2015), and working capital management (Ramiah et al., 2016). Behavioral biases can be perfectly measured by a critical bias named overconfidence bias, which significantly contributes to false financial management practices (Ancarani et al., 2016). As disclosed in the Handbook of Baker et al. (2007), overconfidence biases are a non-static and vulnerable set of behavioral traits that adversely affect corporate financial outcomes and are predicted by managerial personality traits.

Working capital managers falling into the overconfidence trap usually are less focused on attaining a grip on personal cognitive abilities for rational financial planning and decision making (Ritter, 2003). In interdisciplinary economic research, less attention is given to overconfidence bias in managerial personality (Metz et al., 2017; Durand et al., 2013). Extending to it, Mitsopoulou and Giovazolias (2015) conducted a meta-analysis on behavioral biases to present a summarized frame of personality (e.g., personality traits, empathy, overconfidence, and flexibility) as the determinants of behavioral biases. Curtis et al. (2015) used these big-five personality traits (e.g., openness, extroversion, agreeableness, neuroticism & Conscientiousness) as a proxy measure of personality to study individual cognitive ability across a diverse sample of older adults. Another research has revealed that personality is an antecedent of behavioral biases, from which overconfidence bias is one of the significant biases affecting working capital management practices (Ramiah et al., 2016; Sadi et al., 2011). It significantly proves that overconfidence bias is linked with big-five personality traits (Kalra Sahi and Pratap Arora, 2012). Moreover, Kubilay and Bayrakdaroglu (2016) also concluded that personality dimensions of managers, speculators, agents, and investors are associated with overconfidence bias. Hence, based on this evidence, we hypothesize that:

*H1: Managerial personality traits (a) extroversion, (b) openness, (c) neuroticism, (d) conscientiousness, and (e) agreeableness have a significant association with overconfidence behavior*

### 2.3. Overconfidence behavior and working capital management

Deloof (2003) defined working capital as the number of funds used for daily operational requirements over a specific financial year. Working capital management (WCM) includes strategies (e.g., aggressive, conservative, and moderate strategy of WCM) for managing regular operations (Talonpoika et al., 2016). The aggressive policy of WCM shows a decline in net assets (e.g., net current assets). Consequently, the sale of the company is compromised by a reduction in support, a decrease in trade credit, and trade discounts (Wang, 2002). According to Ng et al. (1999), these states of affairs maximize business opportunity costs by up to 20% approximately.

The problem of inadequate or assertive working capital has been raised in several previous research. A more proactive stance may lead to higher profits since less money is being held in current assets. It is possible that an aggressive working capital approach would raise the risk of cash shortages or inventory depletion (Aktas et al., 2015). According to Li et al. (2021a), proactive liquidity management is related to increased profitability in some, but not all, of the seven U.S. industrial sectors, studied. It is also a high-risk and high-return strategy because of its aggressive nature.

On the other hand, an excessive policy minimizes the likelihood of crisis or production issues but at the price of diminishing profitability. A dangerous approach, having too much working capital, may lead to a company's financial woes and even insolvency. This is because the money spent in cash reserves may have been used to participate in more lucrative prospects.

Some prior research in this area has shown that working capital investment has a negative linear association with company performance. For example, Deloof (2003) found a significant negative linear association between operational performance and working capital in major Belgian enterprises. Profits are expected to rise due to a decrease in working capital investment. While, examine the profitability of Chinese SMEs and find that working capital management harms profitability. Furthermore, the previous studies research examines the negative association between manufacturing business profitability and working capital in China. An analysis of a sample of Vietnamese enterprises by Li et al. (2021b) shows that the value of, profitability, and risk for, firms are all negatively correlated with net working capital. In addition, it is found that the quantitative evidence of the impact correlation between gross working capital and business performance during the 2008 financial crisis by analyzing 28 European Union (E.U.) listed companies. As shown by the research mentioned above, a lower level of working capital investment would lead to increased profit, establishing a weak linear connection.

A recent study extends the value by measuring working capital management on a scale to present a deep insight into the behavioral approach by conceptualizing OCB and MPT with WCM. Working capital management is suggested as a function of corporate financial practices that originated from managerial behaviors. Historic investigations argued that overconfidence bias has negative and positive outcomes (Rayfield and Unsal, 2019; Bailey et al., 2011). OCB has a notable role in human judgment (Slovic, 1972), investor type (Jhandir and Elahi, 2014), financial decision making (Masini and Menichetti, 2012), and corporate-family reputation (Gerken et al., 2018). In the Amman stock exchange context, Alrabadi et al. (2018) found that overconfidence bias is a vital facet affecting corporate performance. Siraji (2019a,b) confirmed that overconfidence behavior is the critical hurdle in corporate financial benefits and reducing financial performance (Iqbal and Bilal, 2021). Contrary to this, Hoppe and Kusterer (2011) summarized that cognitive reflection in economic and financial management is critical and can be achieved by controlling overconfident behaviors based on bounded rationality principles. Extended it, Ramiah et al. (2016) supported the above findings and concluded that overconfidence bias is significant in working capital management. Thus, following the fundamentals of B.R. theory and empirical findings, we hypothesize that:

*H2: Overconfidence bias has a significant relationship with working capital management*

## 2.4. Overconfidence bias as a mediator

The administration of a company's working capital substantially influences its overall performance and value. Of course, it is a significant amount of a company's shareholders' equity. For various reasons, businesses continue to retain their working capital investments. Firms may cut supply costs and protect themselves from price changes by maintaining a constant inventory balance. According to [Iqbal and Bilal \(2021\)](#), keeping stock helps businesses better serve consumers while also preventing excessive production costs caused by changes in output. It is also crucial to enable credit terms to boost sales and profitability. It has been argued by Emery (1984) that trade credit is a better short-term investment than marketable securities. Investing in working capital may protect a company from the negative impacts of a cash-flow deficit. According to [Deloof \(2003\)](#), enterprises that spend too much in working capital risk losing money in the long run since idle investment diminishes returns and raises financing costs. As a result, making the most efficient use of working capital is essential. In addition to investing in working capital, companies must convert their working capital accounts to cash. Firms might face liquidity issues if they cannot convert working capital to currency. Managing the cash conversion cycle is essential for effective working capital management.

A preliminary study has shown that managing the cash conversion cycle is critical for small businesses that may be financially limited or companies with considerable growth prospects. According to [Iqbal and Bilal \(2021\)](#), a quicker cash conversion cycle improves shareholder value by using a case study of a publicly-traded Brazilian corporation as an example. As seen above, effective working capital management can impact shareholder value. [Ramiah et al. \(2016\)](#) are the pioneer authors who studied behavioral biases with working capital management (WCM). Later, [Zia-ur-Rehman \(2017\)](#) explained behavioral biases as critical behavioral traits of SME owners affecting corporate financial position. Overconfidence bias is one of the behavioral biases widely investigated in corporate performance ([Baker et al., 2018](#)). Depicting the findings of [Baker et al. \(2018\)](#), individual personality is the significant antecedent of overconfidence bias and is pivotal in designing managerial cognition.

Moreover, OCB is a significant predictor of working capital management ([Iqbal and Iqbal, 2019](#)). Thus, overconfidence bias is a possible mediator between managerial personality dimensions and working capital management. Therefore, we hypothesize that:

*H3: Overconfidence behavior significantly mediates the association between (a) extroversion, (b) openness, (c) neuroticism, (d) conscientiousness, (e) agreeableness, and working capital management*

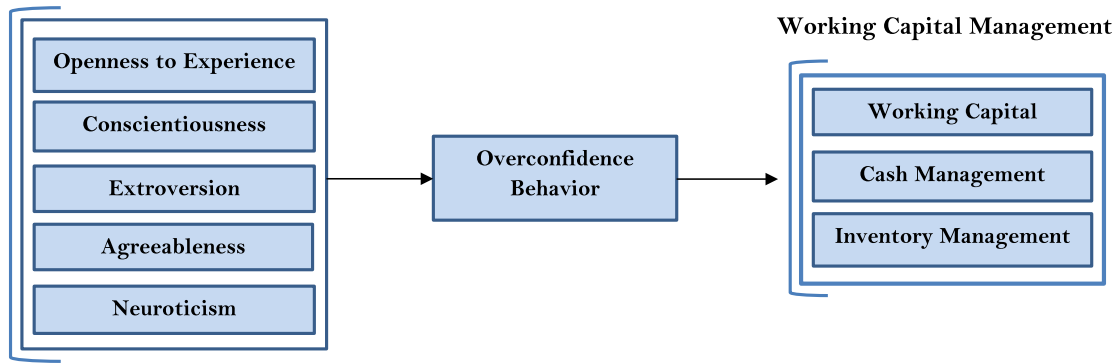
## 2.5. Theoretical framework

The dynamic nature of bounded rationality theory has improved its importance and is widely used for theoretical support ([Barberis and Thaler, 2003](#); [Kumar and Goyal, 2015](#)). Bounded rationality (B.R.) theory argues that individuals managing corporate financial affairs are limited in thinking, cognitive, and decision-making capacity ([Simon, 1982](#)). Such limitations lead to poor economic performance ([Barber and Odean, 1999](#)). Behaviorally, limited cognitive intelligence is one of the main reasons for poor performance ([Sewell, 2007](#)). For a recent study, bounded rationality theory is considered as a theoretical support in studying the mediating role of overconfidence bias in estimating working capital management. B.R.'s approach provides academic support to our study. This theory supports that the overconfident managers value less accurate and fair financial information and follow cognitive short-cuts for working capital management. Theoretically, the bounded rationality (B.R.) theory directed financial managers to acquire trustworthy and appropriate information for perfect monetary judgment and rational financial management (e.g., working capital management) precisely ([Swinnen et al., 2005](#)). By considering assumptions of B.R. theory, we assume that managers of registered SMEs in the study context are overconfidently biased, irrational, cognitively limited, financially illusionist in management practices, inconsistent in financial decision making and choice ([Weiss-Cohen et al., 2019](#); [Simon, 1990](#)). Thus, based on B.R.'s theory arguments, we expect a rational personality of working capital managers in managing working capital. Hence, based on empirical and theoretical discussions, managerial character promotes behavioral biases, and behavioral biases significantly affect working capital management ([Ramiah et al., 2016](#)) (see [Fig. 1](#)).

## 3. Methodology

### 3.1. Design of study

The researcher's belief in viewing reality clarifies the investigation mechanism ([Creswell et al., 2003](#)). It warrants researchers to get a fair view of the prototype of the investigation ([Denzin and Lincoln, 2011](#)). Thus, we objectively believed in quantitative design to view the reality of working capital management in the study context, for which the survey method is used to collect the data. The study is managed by using a questionnaire. The motivation to use quantitative design is to test the study hypothesis and objectively measure the reality of study knowledge.



**Fig. 1.** Theoretical framework of current research.  
 Source: Prepared by Authors.

**Table 1**  
 Demographic information.  
 Source: Author’s findings.

Etymology	Grouping	Percentage
Gender	Male	82.20
	Female	17.80
Age	25–40 years	29.00
	40–65 years	38.30
	>65 years	32.70
Experience	<5 years	29.00
	=5 years	31.00
	>5 years	40.00

Note:  $n = 127$ .

### 3.2. Population, sample & sampling

More than 300 SME firms belonging to China were selected for data collection. Chinese SME firms are operating with more than 30 sub-sectors. The working capital managers working in registered SMEs of China were taken as the study sample contributing to economic development through SMEs industries. This is a sizeable population of study and is dispersed geographically. For such conditions, multi-stage sampling is the best fitting technique providing the room to develop the stratum and clusters for data collection (Heerwegh, 2009). By applying a multi-stage sampling technique, the sample drawn at one stage serves as the population of the subsequent stage (Sekaran and Bougie, 2009). The study sample represented the entire country and provided us with the data for analysis. In stage two, a list of these cities was made, and the strata of these companies were developed based on the industrial nature of SMEs in China. These registered SMEs amounted to 360 in total.

Thus, 360 questionnaires were sent through the registered courier service (e.g., Local Chinese Post), followed by weekly follow-ups. After 60 days, 253 responses from working capital/finance managers were received back (70.27 percent response rate). This data was collected between the COVID-19 crises (e.g., March 2020 to December 2020). Moreover, the sample size satisfies all the standards and is abundant in applying structural equation modeling. After purifying the responses, we had 227 answers left (see Table 1). Notably, a structured questionnaire was used for data collection classified into two segments; the first is gathering demographic information (e.g., gender, age, experience, company type, state of the company, working capital percentage to sale) pursued by the second section estimating significant study variables (e.g., managerial personality traits, overconfidence bias, and operational capital management).

### 3.3. Ethical approval for data collection

We adopted a formal procedure to collect the data from the study respondents. For this, we applied to the ethical review committee established in our universities to get approval for data collection, and this approval was then submitted to the regulatory office of registered SMEs working in the Security Exchange Commission for further consent to collect the data. After gaining support from both institutions (researcher’s university and regulators), the structured questionnaire of the study was shared with working capital managers to respond. These approvals were taken to ensure ethical consideration (e.g., informed consent, the confidentiality of response, and the privacy of the respondents). A cover letter explaining the study’s purpose was also shared for ethical approval and data collection. The right to withdraw to participate in the survey was also given to study respondents.

### 3.4. Measures

The managers' personality is quantified using 23-items of Big-Five personality traits from the refined study by McCrae and Costa (2003) tied up with a Five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The scale annexes the details against the multiple aspects of personality (e.g., openness to experience, Agreeableness, Neuroticism, Conscientiousness, Extroversion). The scale is extensively operationalized to gauge findings in different domains of study (Zaidi and Tauni, 2012). The personality scale has a sufficient reliability figure ( $\alpha = 0.71$ ).

The 6-item scale of overconfidence bias measure was taken from Baker et al. (2018). The respondents responded on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The scale of overconfidence bias grasped the information on "experience", "feeling", "knowledge", "skills", "experience", "confidence", "believe", and "managerial behavior". The scale had up to the mark reliability ( $\alpha = 0.78$ ).

Different survey items were used as economic development measures for data collection, and it is used to obtain a picture of Chinese SME managers' knowledge about economic development. Most of these questions were based on often-voiced criticisms regarding estimating the GDP metric. Examples of these criticisms are the lack of accounting for environmental damages and the depletion of natural resources or social (e.g., income inequality) costs. Response options ranged from "definitely false", "probably false", "probably true" to "definitely true", and included a "don't know" option. All questions and the descriptive statistics are displayed. These items measured economic development through different items containing questionnaire scores about 'economic job creation', 'life satisfaction', 'economic stability', 'economic recovery', 'government control', and 'GDP skepticism'.

A categorical scale developed by Ramiah et al. (2016) was taken to measure working capital management. The respondents were guided in courier via a letter of information to give their responses on a categorical scale. Three dimensions of working capital management (e.g., cash management, inventory management, and working capital) are carefully obtained. To minimize the overconfidence biasness in working capital management components, the most relevant studies are consulted and reported in the methodology section. In this regard, the guidelines of Ramiah et al. (2016, p.679) indicate the best rehearses, which have been adopted in this paper. This is the theoretical strand of our study.

Nofsinger (2005) extended the argument that debt management and risk management practices are valued by the managers that are loss averse instead of overconfident. Therefore, debt management and risk management practices were omitted, considering overconfidence bias. We selected only three dimensions of working capital management (e.g., cash management, inventory management, and working capital) to study the role of overconfidence bias in working capital management. The items of dimensions include "Which of the following working capital practice does your company adapt?", "Please indicate the approach of cash management used by your company?", "Rate the importance of company-specific and market-specific determinants importance in your cash management decisions" (category 1 = not important to category 4 = very important), "Which approach does your firm do for inventory management?", "What are the factors considered in purchasing inventory for production?", "What are the preferred funding sources of your company?" and "rate the importance of credit rating, tax advantage, bankruptcy, transaction costs, financial flexibility in your debt management" (category 1 = not important to category 4 = very important).

### 3.5. Empirical data analysis

To ensure the data normality, missing values analysis on study data was conducted in SPSS version – 21. We followed the directions of Little and Rubin (1989) to perform a missing value analysis. High flexibility, user-friendly and advanced econometric techniques fitting with the study framework are critical attributes for using AMOS to conduct data analysis. Thus, we applied structural equation modeling (SEM) to infer the direct and indirect paths of the study model, and for measurement model assessment, confirmatory factor analysis (CFA) is applied (Hair et al., 2013; Henseler and Sarstedt, 2013). The mediation modeling of Hayes and Preacher (2014) is used to test the mediating role of OCB between personality traits and working capital management. Data normality and reliability are also inferred to overcome the response and non-response bias in recent empirical verdicts. For this, we adapted well-established scales of study constructs. Secondly, the significance of paths is assessed at a 95% confidence interval with an error margin of 5% ( $p$ -value < 0.05\*). Thirdly, to remove no method bias, our findings resulted that all items of study constructs showed a low correlation in the correlation matrix.

## 4. Results and discussion

### 4.1. Estimation of measurement model

We predicted goodness of fit as 1.797, meeting the standard criteria that "a value of good model fit is less than 3". Hair et al. (2013) verdicts were considered for evaluation and interpretation of CFI, GFI, RAMSEA, PCLOSE, AGFI, and TLI. Thus, measurement model estimated CFI = 0.975, NFI = 0.953, TLI = 0.992, GFI = 0.977, AGFI = 0.888, RMSEA = 0.039 and PCLOSE is equal to 0.475. Moreover, Wong and Yin Cheung (2010) suggested gauging the relationship among constructs in the correlation matrix, for which an econometric parameter – standardized root mean square (SRMR) was inferred.



**Table 2**  
Validity and reliability of constructs.  
Source: Author's findings.

Construct	Dimensions	$\alpha$	CR <sup>a</sup>	AVE <sup>b</sup>	HTMT	VIF
Personality traits	Neuroticism (NE)	0.707*	0.853	0.804	0.84	2.59
	Agreeableness (AG)	0.864*	0.924	0.852	0.89	1.55
	Conscientiousness (CO)	0.731*	0.849	0.805	0.80	2.84
	Extroversion (EX)	0.882*	0.987	0.846	0.86	1.19
	Openness to experience (OP)	0.753*	0.933	0.830	0.95	1.84
Overconfidence behavior		0.860*	0.900	0.828	0.92	1.98
Working capital management	Working Capital (WC)	0.842*	0.943	0.861	0.70	1.92
	Cash Management (CM)	0.922*	0.928	0.843	0.79	1.28
	Inventory Management (IM)	0.915*	0.936	0.890	0.83	1.01
Economic development		0.772*	0.838	0.785	0.89	1.02

**Note:**  $\alpha$ , Cronbach's  $\alpha$ . Composite reliability = (square of the summation of the factor loadings)/[(square of the overview of the factor loadings) + (square of the summation of the error variance)];  $^{a}ave =$  (Summation of squared factor loadings)/(Summation of squared factor loadings) (Summation of error variances). None of the factor loadings was removed due to low factor loadings. All loadings are sufficiently meeting the criteria, \* $p < 0.05$ .

The results indicated a 0.07 value of SRMR, which is less than the recommended value of 0.09. The factor loadings of all main constructs were significantly loaded ( $p < 0.05$ ) in this analysis. Hence, the model of managerial personality, OCB, and WCM were proved as good-fit-model (see Table 3).

After this, the reliability and validity of variables were tested by inferring outer loadings, composite reliability (C.R.), and average variance extracted (AVE). Chin (1988) recommended that factor loading values be more significant than 0.6, and Hair et al. (2006) also proposed that AVE should meet the value of 0.5 and C.R. should be higher than 0.7. For discriminant validity, Hetrotrath -Monotrait (HTMT) ratio is the most sophisticated econometric tool that captures the reflection of one variable in another variable and itemizes the correlation at a minor point (Paul and Batinic, 2010, p.240). Thus, the HTMT ratio reported a lack of discriminant validity with 0.919 (Mussel, 2010). Considering Hair et al. (2013) on multicollinearity variance inflation factor (VIF) was identified as less than 3.00, which specified the absence of multicollinearity in the topical survey. (see Table 2).

The cross loadings of the constructs patronized discriminant validity in measurement model appraisal where big-five personality traits, overconfidence behavior and dimensions of working capital were established. The factor loading of neuroticism reported as NE1 = 0.60, NE2 = 0.53, NE3 = 0.55 and NE4 = 0.87\*. Openness to experience shown as OP1 = 0.98\*, OP2 = 0.84\*, OP3 = 0.86\*, OP4 = 0.94\* and OP5 = 0.91\*. Factor loading of conscientiousness were CO1 = 0.47, CO2 = 0.50, CO3 = 0.61, CO4 = 0.78\* and CO5 = 0.96\*. AG1 = 0.96\*, AG2 = 0.89\*, AG3 = 0.94\* and AG4 = 0.78\* of agreeableness. Extroversion revealed as EX1 = 0.85\*, EX2 = 0.87\*, EX3 = 0.72\* and EX4 = 0.97\*. Overconfidence bias loaded as OCB1 = 0.96\*, OCB2 = 0.83\*, OCB3 = 0.75\*, OCB4 = 0.84\*, OCB5 = 0.78\* and OCB6 = 0.75\*. Working capital laden as WC1 = 0.76\*, WC2 = 0.79\*, WC3 = 0.85\*, WC4 = 0.94\* and WC5 = 0.87\*. CM1 = 0.74\*, CM2 = 0.71\*, CM3 = 0.90\*, CM4 = 0.85\*, CM5 = 0.74\*, CM6 = 0.80\*, CM7 = 0.82\*, CM8 = 0.73\*, CM9 = 0.77\*, CM10 = 0.79\*, CM11 = 0.93, CM12 = 0.98\* and CM13 = 0.85\* of cash management. Inventory management plotted the loadings as IM1 = 0.78\*, IM2 = 0.74\*, IM3 = 0.71\* and IM4 = 0.97\*.

Our results validated that overconfidence bias (OCB) mediated between personality traits of managers and working capital management. Specifically, OCB negotiated between extroversion, openness to experience, and agreeableness (three dimensions of personality traits), working capital, cash management, and investor management (three dimensions of working capital management). In comparison, other personality traits, such as Conscientiousness and neuroticism, resulted in an insignificant association with OCB and working capital management in both direct and indirect effects. So the study hypothesis (e.g., H1, H2, H3) are accepted. Our findings are parallel to Lang and Presbitero (2018) that biased behaviors have sensed contribution to the management style of the managers. Study results also confirm that demographic factors of managers like age, experience and career track, and consistency are essential factors in managing working capital. Moreover, working capital management is necessary for industry nature, sales volume, and corporate size (see Table 4).

The analysis of inquiry is extended toward structural model estimation by taking the measurement model results as preliminary confirmation. In structural modeling, paths' direct and indirect effects were tested econometrically (Preacher and Hayes, 2008). For this, structural equation modeling was used as the best choice fitting with the nature of the framework and data. Bootstrapping strategy with 5000 resamples resulted that Conscientiousness and neuroticism are insignificant with OCB in H1 (c)  $\beta = 0.157, p > 0.05$  and H1 (d)  $\beta = 0.148, p > 0.05$ . As a result, neuroticism and Conscientiousness have not predicted mediating associations toward WCM. Likewise, agreeableness, extroversion, and openness to experience were significant with OCB and predicted negotiating relationships with WCM (Sarstedt et al., 2014).

#### 4.2. Discussion

There is a long-held belief that smaller businesses (SMEs) significantly impact job creation, GDP growth, and industrial flexibility in regional and worldwide competitiveness. Many experts, shown that SMEs have a significant impact on the

**Table 3**

Results of structural model assessment.

Source: Author's findings.

Hypothesis	Dimension	Path	B	t-value	Decision
H1	a.	NE → OCB	0.157	0.209	Not supported
	b.	EX → OCB	0.241	1.059	Supported
	c.	OE → OCB	0.742	2.135	Supported
	d.	AG → OCB	0.245	0.293	Supported
	e.	CO → OCB	0.148	0.349	Not supported
H2	a.	OCB → WC	0.129	0.064	Supported
	b.	OCB → CM	0.463	2.002	Supported
	c.	OCB → IM	0.245	0.355	Supported
H3	a.	NE → OCB → WC	0.405	1.140	Not supported
	b.	EX → OCB → WC	0.065	1.119	Supported
	c.	OE → OCB → WC	0.348	0.066	Supported
	d.	AG → OCB → WC	0.654	0.079	Supported
	e.	CO → OCB → WC	0.111	0.041	Not supported
	a.	NE → OCB → IM	0.040	2.559	Not supported
	b.	EX → OCB → IM	0.281	3.388	Supported
	c.	OE → OCB → IM	0.479	0.867	Supported
	d.	AG → OCB → IM	0.242	0.608	Supported
	e.	CO → OCB → IM	0.607	0.476	Not supported
	a.	NE → OCB → CM	0.444	5.004	Not supported
	b.	EX → OCB → CM	0.102	3.974	Supported
	c.	OE → OCB → CM	0.263	5.511	Supported
	d.	AG → OCB → CM	0.684	5.889	Supported
	e.	CO → OCB → CM	0.200	0.154	Not supported
H4:	a	WC → ED	0.229	0.181	Supported
	b	IM → ED	0.117	0.129	Supported
	c	CM → ED	0.346	0.274	Supported

**Note:** the italicized values are insignificant

**Notes:** N.E., neuroticism; EX, extroversion; O.E., openness to experience; A.G., agreeableness; C.O., Conscientiousness; OCB, overconfidence bias; W.C., working capital; CM, cash management; I.M., inventory management, \* $p < 0.05$ .

**Table 4**

Robustness analysis through model fit assessments.

Source: Author's findings.

Parameters	MM <sup>a</sup>	SM <sup>b</sup>	Value
$\chi^2$	346.659	415.105	–
CFI	0.975	0.981	>0.95
AGFI	0.87	0.85	>0.80
NFI	0.953	0.922	>0.90
TLI	0.992	0.930	>0.90
GFI	0.977	0.938	>0.90
RMSEA	0.088	0.047	<0.08
PCLOSE	0.95	0.092	>0.05

**Note :**<sup>a</sup>Measurement model.<sup>b</sup>Structural model.

economic determinants of nations (2016). The importance of small and medium-sized companies (SMEs) in the economy has attracted the attention of policymakers. Small and medium-sized enterprises (SMEs) are a vital aspect of Asian economies, especially in emerging nations, according to the Asian Development Bank (ADB) (2018). Small and medium-sized enterprises (SMEs) make up 96 percent of all firms in Asian countries, according to Yoshino and Taghizadeh-Hesary (2019). Southeast Asian nations' economies rely heavily on small and medium-sized enterprises (SMEs). More than 95 percent to 99 percent of all business establishments and between 51 and 97 percent of employment in several ASEAN participating nations are driven by and contribute to the ASEAN GDP. Small and medium-sized enterprises (SMEs) provide a considerable share of Gdp, ranging from 23 percent to 58 percent, and exports, from 10 percent to 30 percent. They also make it possible for women and young people to be more fully integrated into the economy. In the ASEAN area, small and medium-sized enterprises (SMEs) can promote regional collaboration. Indonesia's economic development depends heavily on small and medium-sized enterprises (SMEs), as well as Singaporean SMEs play a significant role in the country's industrial development.

This study is motivated by the idea that the COVID-19 epidemic might harm a company's ability to manage its working capital effectively. Empirical proof of the link between WCM and COVID-19-exposed enterprises, on the other hand, is lacking. According to Yang et al. (2022), several businesses are having difficulty handling their working capital and short-term cash flows (W.C.). However, progress is considerably more difficult because of the specific hurdles posed by the

COVID-19 pandemic. As a result of widespread social isolation and a desire to keep COVID-19 from spreading, according to PwC, commercial activity in the United States has slowed. Thus, companies are now confronting or foreseeing significant constraints on cash and W.C. resources. As a substantial portion of a company's balance sheet, short-term capital is required to meet operational demands (Le, 2019). According to Jensen and Meckling (2019), W.C. measures are linked to the firm's operational cycle metrics (CCC). A longer-term connection between companies is supported by a higher CCC, which may enhance sales and profitability.

While this suggests inefficient WCM, it also means more capital is locked up and that the company is more likely to turn to external finance, resulting in more significant funding costs. According to Li et al. (2021), businesses with smaller inventories and receivables days are more profitable, whereas firms that delay paying suppliers are less profitable. The COVID-19's influence on the combined effect of receivables, merchandise, and payables is examined in this research (CCC). Over-diversification is said to cause value loss, according to the existing literature. When organizations have much cash, they may overinvest in businesses with weak investment potential, according to Jensen (1986), and others. Firms with more significant growth potential have less free capital. Suppose a company's value diminishes due to poor capital allocation. A firm's worth rises as the number of days' cash is locked up grows; therefore, businesses with more investment options are more efficient at WCM to protect themselves from cash constraints. In addition, companies are given incentives by the government, such as the investment tax credit (ITC). Meyer et al. (1993) noted that ITC might be used to stimulate investment as part of a countercyclical fiscal policy or as part of a long-term economic growth strategy.

Huang (2009) argues that boosting the Chinese SMEs during the pandemic era would allow enterprises to enhance the U.S. economy financially because they are more likely to file for deferred taxes (D.T.) and ITC increases. As much working capital as a company needs to manage stockout costs and improve relationships with customers and suppliers, this high level of working capital will pressure financing costs, decrease profitability, and increase the likelihood of financial distress. These findings strongly imply that working capital management must be improved. To optimize the firm's worth via optimum working capital, companies want to attain that level as rapidly as possible, as our study empirically demonstrates this. A well-managed working capital balances short-term cash needs and long-term financing costs. It is even more critical for financially limited enterprises to maintain a proper balance between short-term and long-term funding since a poorly managed working capital exacerbates financial limitations.

It is argued that under financial restrictions, the level of fixed assets competes with the present asset level and so harms the CCC. According to Iqbal and Bilal (2021), the value of an extra dollar spent on working capital is more significant for financially restricted organizations than those not economically limited. It is further shown that the optimum investment point in working capital for financially little organizations is lower than the optimal investment point for financially unconstrained businesses. Anh Tu et al. (2021) demonstrated that enterprises with longer CCCs must issue short-term debt to fund their more significant levels of working capital, and firms with higher levels of short-term debt perform poorly during the financial crisis. Incorporating ownership structure into this paradigm that the value of non-government-controlled enterprises with more financial limitations has a non-linear and negative connection with the degree of working capital.

## 5. Conclusion and recommendations

The research found that managerial personality traits are not constantly irrational and overconfidence bias is not a wicked quality of managers frequently, as claimed in previous literature (Pompian, 2011; 2005; Pompian and Longo, 2004). Interestingly, personality traits that predicted overconfidence bias and overconfidence biases significantly contributed to working capital management (e.g., cash management and inventory management). Overconfident managers usually manage working capital efficiently by exhausting cash management techniques and inventory management models instead of debt and risk management. A manager should behave as a loss-averse to corporate risk and debt management instead of overconfident (Ramiah et al., 2016; Fairchild, 2005). Thus, our study developed the novel findings that being an overconfident manager is not a bad habit for working capital management. It improves the ability to better estimate working capital by forecasting corporate cash requirements and inventory usage in upcoming financial years. Indeed, overconfident in working capital management can make mistakes that need directions and implications to correct. However, the following implications are suggested,

### 5.1. Practical implications for economic policymakers

Several nations have taken action to assist small and medium-sized businesses (SMEs) in light of the present challenges they face. While public health is a top priority for governments, steps are being taken to lessen the financial burden of the coronavirus on smaller enterprises. There are several forms that such policies might take. However, this study suggests;

- (1) To help the Chinese economy and SME firms, the local government has to take broader initiatives, such as how SMEs might assist in preventing the spread of the coronavirus. Other industries try to ease the burden on businesses and employees by reducing working hours, allowing for temporary layoffs and sick leave.
- (2) The procurement process and late payments are now the focus of many governments' efforts. As a bonus, several nations have made steps to assist SMEs in implementing new methods of operation and expanding their market reach. Finally, Chinese commercial banks must take initiatives to provide easy loan schemes and an easy repayment system for adequate working capital financing during the COVID-19 crisis.

- (3) There are several financial aid programs needed in place to assist businesses in dealing with the immediate effects like temporary tax relief to SMEs, disaster relief loan programs, direct financial assistance, new public guarantees, zero-interest loans with no collateral, and speedier credit approval times for banks and national action financing plan to stabilize economic outlook of SMEs in China.

## 5.2. Practical implications for SMEs working capital managers

The study suggested multiple practical implications for effective working capital management during the structural imposed crises like COVID-19:

- (1) A CEO and CFO whose working capital manager overconfidently estimates cash, inventory, and working capital should ask the working capital manager to review the cash, inventory, and working capital balance of the last two years to estimate the working capital requirement in recent and upcoming years. If these estimates perform poorly, then advise going back extra in time. The corporate CEO or CFO should regularly monitor the working capital account (e.g., weekly or bi-weekly). Suppose a corporate history for working capital management shows extreme transactions in terms of cash inflows, outflows, and inventory purchases and fewer transactions on credit sale of assets. In that case, the best recommendation is to ask for a detailed record of such transactions and then compare the role of such working capital transactions in corporate profitability, return on assets, and return on equity.
- (2) Overconfidence bias is cognitive in its nature, and by doing historical reviews based on previous financial information, this bias can correct working capital managers and reduce the margin of errors in this way. Overconfident managers usually underestimate the probability of loss and risk. For this, a manager should come out of the shell of this bias, review the potential transactions that deceived them, and then get guidance from high-quality published research by different practitioners and emerging researchers. This will suggest a practical way forward for working capital managers.
- (3) When a manager is wrong as being overconfident, they should ask a question to him or: “If my over and under projections in inventory, cash, and working capital are not favoring my company, would I go with these strategies again?” If it responds as “no”, then there is a need to review the critical antecedents of inventory management (e.g., product price, inflation rate, market supply, and tax) and cash management (e.g., interest rate, cash conversion cycle, average receipt and payment period, reserve ratio, and profitability margin). Based on such financial information, a manager should carefully decide to implement the most suitable and optimal working capital strategy. Up till now, the framework of our research is the latest and unique.
- (4) We extended the literature on behavioral and corporate finance by studying working capital managers to understand what they are and what they are not. Thus, the contribution of this inquiry is manifold. We contributed to the literature by presenting the missing link between managerial personality, overconfidence bias, and working capital management. Secondly, we tested the mediating role of overconfidence bias between executive character and WCM. Thirdly, we proposed a way forward to make working capital as effective for a company when the manager is overconfident. Completing this study promptly was a significant limitation. Therefore, we could not inquire about this framework with longitudinal design and control group sessions. Thus, we suggest challenging a recent framework by using a longitudinal approach by studying the working capital manager at different time lags.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## References

- Aktas, N., Croci, E., Petmezas, D., 2015. Is working capital management value-enhancing? Evidence from firm performance and investments. *J. Corp. Financ.* 30, 98–113.
- Alrabadi, D.W.H., Al-Abdallah, S.Y., Aljarayesh, N.I.A., 2018. Behavioral biases and investment performance: Does gender matter? Evidence from Amman Stock Exchange. *Jordan J. Econ. Sci.* 5 (1).
- Ancarani, A., Di Mauro, C., D'Urso, D., 2016. Measuring overconfidence in inventory management decisions. *J. Purch. Supply Manage.* 22 (3), 171–180.
- Anh Tu, C., Chien, F., Hussein, M.A., Ramli, M.M., Psi, M.M., Iqbal, S., Bilal, A.R., 2021. Estimating role of green financing on energy security, economic and environmental integration of BRI member countries. *Singap. Econ. Rev.*

- Antoncic, J.A., Antoncic, B., Grum, D.K., Ruzzier, M., 2018. The big five personality of the SME manager and their company's performance. *J. Dev. Entrep.* 23 (4), 1850021.
- Bailey, W., Kumar, A., Ng, D., 2011. Behavioral biases of mutual fund investors. *J. Financ. Econ.* 102 (1), 1–27.
- Baker, H.K., Kumar, S., Singh, H.P., 2018. Behavioral biases among SME owners. *Int. J. Manage. Pract.* 11 (3), 259–283.
- Baker, M., Ruback, R.S., Wurgler, J., 2007. Behavioral corporate finance. In: *Handbook of Empirical Corporate Finance*. Elsevier, pp. 145–186.
- Baños-Caballero, S., García-Teruel, P.J., Martínez-Solano, P., 2012. How does working capital management affect the profitability of Chinese SMEs? *Small Bus. Econ.* 39 (2), 517–529.
- Barber, B.M., Odean, T., 1999. The courage of misguided convictions. *Financ. Anal. J.* 55 (6), 41–55.
- Barberis, N., Thaler, R., 2003. A survey of behavioral finance. *Handb. Econ. Financ.* 1, 1053–1128.
- Bergner, S., Neubauer, A.C., Kreuzthaler, A., 2010. Broad and narrow personality traits for predicting managerial success. *Eur. J. Work Organ. Psychol.* 19 (2), 177–199.
- Bhandari, G., Deaves, R., 2006. The demographics of overconfidence. *J. Behav. Financ.* 7 (1), 5–11.
- Bilal, A.R., Fatima, T., Iqbal, S., Imran, M.K., 2022. I can see the opportunity that you cannot! A nexus between individual entrepreneurial orientation, alertness, and access to finance. *Eur. Bus. Rev.*
- Boisjoly, R.P., Conine, Jr., T.E., McDonald, M.B., 2020. Working capital management: Financial and valuation impacts. *J. Bus. Res.* 108, 1–8.
- Burgstaller, J., Wagner, E., 2015. How do family ownership and founder management affect SMEs' capital structure decisions and adjustments? *J. Risk Financ.*
- Curtis, R.G., Windsor, T.D., Soubelet, A., 2015. A review reviews the relationship between Big-5 personality traits and cognitive ability in older adults. *Aging Neuropsychol. Cogn.* 22 (1), 42–71.
- Deloof, M., 2003. Does working capital management affect the profitability of belgian firms? *J. Bus. Financ. Account.* 30 (3–4), 573–588.
- Denzin, N.K., Lincoln, Y.S. (Eds.), 2011. *The Sage Handbook of Qualitative Research*. Sage.
- Dhole, S., Mishra, S., Pal, A.M., 2019. Efficient working capital management, financial constraints and firm value: A text-based analysis. *Pac.-Basin Finance J.* 58, 101212.
- Digman, J.M., 1990. Personality structure: Emergence of the five-factor model. *Annu. Rev. Psychol.* 41 (1), 417–440.
- Durand, R., Newby, R., Tant, K., Trepongkaruna, S., 2013. Overconfidence, overreaction and personality. *Rev. Behav. Financ.* 5 (2), 104–133.
- Fairchild, R., 2005. Behavioral finance in a principal-agent model of capital budgeting. *Icfai J. Behav. Financ.* 2 (1), 34–44.
- Forer, B.R., 1953. Personality factors in occupational choice. *Educ. Psychol. Meas.* 13 (3), 361–366.
- García-Teruel, P.J., Martínez-Solano, P., 2007. Effects of working capital management on SME profitability. *Int. J. Manage. Financ.*
- Gerken, W.C., Starks, L.T., Yates, M., 2018. The importance of family: The role. Available at SSRN 2022503.
- Grönlund, A., Magnusson, C., 2018. Do atypical individuals make atypical choices? Examining how gender patterns in personality relate to occupational choice and wages among five professions in Sweden. *Gender Issues* 35 (2), 153–178.
- Hair, E., Halle, T., Terry-Humen, E., Lavelle, B., Calkins, J., 2006. Children's school readiness in the ECLS-K: Predictions to academic, health, and social outcomes in first grade. *Early Child. Res. Quarterly* 21 (4), 431–454.
- Hair, J.F., Ringle, C.M., Sarstedt, M., 2013. Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Plan.* 46 (1–2), 1–12.
- Hayes, A.F., Preacher, K.J., 2014. Statistical mediation analysis with a multicategorical independent variable. *Br. J. Math. Stat. Psychol.* 67 (3), 451–470.
- Heerwegh, D., 2009. Mode differences between face-to-face and web surveys: an experimental investigation of data quality and social desirability effects. *Int. J. Public Opin. Res.* 21 (1), 111–121.
- Henseler, J., Sarstedt, M., 2013. Goodness-of-fit indices for partial least squares path modeling. *Comput. Statist.* 28 (2), 565–580.
- Hong, S., 2019. A behavioral model of public organizations: Bounded rationality, performance feedback, and negativity bias. *J. Public Adm. Res. Theory* 29 (1), 1–17.
- Hoppe, E.I., Kusterer, D.J., 2011. Behavioral biases and cognitive reflection. *Econom. Lett.* 110 (2), 97–100.
- Huang, X., 2009. Strategic decision making in Chinese SMEs. *Chin. Manag. Stud.*
- Iqbal, S., Bilal, A.R., 2021. Investment performance: emotional beasts are dragging into the darkness of the castle. *Glob. Bus. Rev.* 09721509211044309.
- Iqbal, N., Iqbal, S., 2019. English-impact of islamic religiosity, islamic associations, biased behaviors and working capital management: Evidence from OIC countries. *Sch.-Islam. Acad. Res. J.* 5 (1), 129–145.
- İrengün, O., Arıkoğlu, Ş., 2015. The effect of personality traits on social entrepreneurship intentions: A field research. *Proc.-Soc. Behav. Sci.* 195, 1186–1195.
- Isaga, N., 2018. The relationship of personality to cognitive characteristics and SME performance in Tanzania. *J. Small Bus. Enterpr. Dev.* 25 (4), 667–686.
- Jensen, M.C., Meckling, W.H., 2019. Theory of the firm: Managerial behavior, agency costs and ownership structure. In: *Corporate Governance*. Gower, pp. 77–132.
- Jeung, H., Schwieren, C., Herpertz, S.C., 2016. Rationality and self-interest as economic-exchange strategy in borderline personality disorder: Game theory, social preferences, and interpersonal behavior. *Neurosci. Biobehav. Rev.* 71, 849–864.
- Jhander, S.U., Elahi, M.A., 2014. Behavioral biases in investment decision making and moderating role of investor's type. In: *SZABIST's 20th National Research Conference*, 10th May.
- Jonason, P.K., Fletcher, S.A., Hashmani, T., 2019. Externalizing and internalizing, but not rationalizing: Some psychodynamic biases associated with the Dark Triad traits. *Pers. Individ. Differ.* 137, 9–11.
- Jonason, P.K., Zeigler-Hill, V., 2018. The fundamental social motives that characterize dark personality traits. *Pers. Individ. Differ.* 132, 98–107.
- Kalra Sahi, S., Pratap Arora, A., 2012. Individual investor biases: a segmentation analysis. *Qual. Res. Financ. Mark.* 4 (1), 6–25.
- Katper, N.K., Azam, M., Karim, N.A., Zia, S.Z., 2019. Behavioral biases and investors' decision-making: The moderating role of socio-demographic variables. *Int. J. Financ. Eng.* (1950020).
- Kim, K.A., Nofsinger, J.R., 2008. Behavioral finance in Asia. *Pac.-Basin Finance J.* 16 (1–2), 1–7.
- Kubilay, B., Bayraktaroglu, A., 2016. An empirical research on investor biases in financial decision-making, financial risk tolerance and financial personality. *Int. J. Financ. Res.* 7 (2), 171–182.
- Kumar, S., Goyal, N., 2015. Behavioral biases in investment decision making—a systematic literature review. *Qual. Res. Financ. Mark.* 7 (1), 88–108.
- Lang, V.F., Presbitero, A.F., 2018. Room for discretion? Biased decision-making in international financial institutions. *J. Dev. Econ.* (130), 1–16.
- Larsen, R., Buss, D.M., 2009. *Personality Psychology*. McGraw-Hill Publishing.
- Li, W., Chien, F., Hsu, C.C., Zhang, Y., Nawaz, M.A., Iqbal, S., Mohsin, M., 2021a. Nexus between energy poverty and energy efficiency: estimating the long-run dynamics. *Resour. Policy* 72, 102063.
- Li, W., Chien, F., Ngo, Q.T., Nguyen, T.D., Iqbal, S., Bilal, A.R., 2021b. Vertical financial disparity, energy prices and emission reduction: empirical insights from Pakistan. *J. Environ. Manag.* 294, 112946.
- Little, R.J., Rubin, D.B., 1989. The analysis of social science data with missing values. *Sociol. Methods Res.* 18 (2–3), 292–326.
- Ma, C., Cheok, M.Y., 2022. The impact of financing role and organizational culture in small and medium enterprises: Developing business strategies for economic recovery. *Econ. Anal. Policy* 75, 26–38.

- Masini, A., Menichetti, E., 2012. The impact of behavioral factors in the renewable energy investment decision making process: Conceptual framework and empirical findings. *Energy Policy* 40, 28–38.
- McCrae, R.R., Costa, P.T., 2003. *Personality in Adulthood: A Five-Factor Theory Perspective*. Guilford Press.
- Metz, I., Kulik, C.T., Cregan, C., Brown, M., 2017. The manager as employer agent: The role of manager personality and organizational context in psychological contracts. *Pers. Rev.* 46 (1), 136–153.
- Meyer, J.P., Allen, N.J., Smith, C.A., 1993. Commitment to organizations and occupations: extension and test of a three-component conceptualization. *J. Appl. Psychol.* 78 (4), 538.
- Mitsopoulou, E., Giovazolias, T., 2015. Personality traits, empathy and bullying behavior: A meta-analytic approach. *Aggress. Violent Behav.* 21, 61–72.
- Mussel, P., 2010. Epistemic curiosity and related constructs: Lacking evidence of discriminant validity. *Pers. Individ. Differ.* 49 (5), 506–510.
- Ng, C.K., Smith, J.K., Smith, R.L., 1999. Evidence on the determinants of credit terms used in inter-firm trade. *J. Finance* 54 (3), 1109–1129.
- Nofsinger, J.R., 2005. Social mood and financial economics. *J. Behav. Financ.* 6 (3), 144–160.
- Oladipupo, A.O., Okafor, C.A., 2013. Relative contribution of working capital management to corporate profitability and dividend payout ratio: Evidence from Nigeria. *Int. J. Bus. Financ. Res.* 3 (2), 11–20.
- Padachi, K., 2006. Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *Int. Rev. Bus. Res. Pap.* 2 (2), 45–58.
- Paul, K.I., Batinic, B., 2010. The need for work: Jahoda's latent functions of employment in a representative sample of the German population. *J. Organ. Behav.* 31 (1), 45–64.
- Pletzer, J.L., Bentvelzen, M., Oostrom, J., De Vries, R., 2018. Personality and workplace deviance: A meta-analysis. In: *Academy of Management Proceedings Vol. 2018*. Academy of Management, Briarcliff Manor, NY 10510, p. 12363. (1).
- Pompian, M.M., 2011. *Behavioral Finance and Wealth Management: How to Build Investment Strategies that Account for Investor Biases*. John Wiley & Sons, p. 667.
- Pompian, M.M., 2012. *Behavioral Finance and Investor Types: Managing Behavior to Make Better Investment Decisions*. John Wiley & Sons.
- Pompian, M.M., Longo, J.M., 2004. A new paradigm for practical application of behavioral finance: creating investment programs based on personality type and gender to produce better investment outcomes. *J. Wealth Manage.* 7 (2), 9–15.
- Pompian, M.M., Longo, J.M., 2005. Incorporating behavioral finance into your practice. *J. Financ. Plan.* 18 (3).
- Preacher, K.J., Hayes, A.F., 2008. Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. 40 (3), 879–891.
- Qasim, M., Hussain, R., Mehboob, I., Arshad, M., 2019. Impact of herding behavior and overconfidence bias on investors' decision-making in Chinese. *Accounting* 5 (2), 81–90.
- Ramiah, V., Zhao, Y., Moosa, I., Graham, M., 2016. A behavioral finance approach to working capital management. *Eur. J. Finance* 22 (8–9), 662–687.
- Rayfield, B., Unsal, O., 2019. Do overconfident CEOs stay out of trouble? Evidence from employee litigations. *Rev. Behav. Financ.*
- Ritter, J.R., 2003. Behavioral finance. *Pac.-Basin Finance J.* 11 (4), 429–437.
- Rzeszutek, M., 2015. Personality traits and susceptibility to behavioral biases among a sample of polish stock market investors. *Int. J. Manag. Econ.* 47 (1), 71–81.
- Sadi, R., Asl, H.G., Rostami, M.R., Gholipour, A., Gholipour, F., 2011. Behavioral finance: the explanation of investors' personality and perceptual biases effects on financial decisions. *Int. J. Econ. Financ.* 3 (5), 234–241.
- Salgado, J.F., De Fruyt, F., 2017. Personality in personnel selection. *Blackwell Handb. Pers. Sel.* 174–198.
- Sarstedt, M., Ringle, C.M., Henseler, J., Hair, J.F., 2014. On the emancipation of PLS-SEM: A commentary on Rigdon (2012). *Long Range Plan.* 47 (3), 154–160.
- Sekaran, U., Bougie, R., 2009. *Research method for business*.
- Sewell, M., 2007. *Behavioral Finance*. University of Cambridge, pp. 1–14.
- Shalender, K., Yadav, R.K., 2019. Strategic flexibility, manager personality, and firm performance: The case of Indian automobile industry. *Glob. J. Flex. Syst. Manage.* 20 (1), 77–90.
- Sharma, A.K., Kumar, S., 2011. Effect of working capital management on firm profitability: Empirical evidence from India. *Glob. Bus. Rev.* 12 (1), 159–173.
- Simon, H.A., 1982. *Models of Bounded Rationality: Behavioral Economics and Business Organizations*. Jg. Cambridge (M.A.).
- Simon, H.A., 1990. Bounded rationality. In: *Utility and Probability*. Palgrave Macmillan, London, pp. 15–18.
- Singh, H.P., Kumar, S., 2014. Working capital management: a literature review and research agenda. *Qual. Res. Financ. Mark.*
- Siraji, M., 2019a. Heuristics bias and investment performance: Does age matter. pp. 1–14.
- Siraji, M., 2019b. Heuristics bias and investment performance: Does age matter? Evidence from colombo stock exchange.
- Slovic, P., 1972. Psychological study of human judgment: Implications for investment decision making. *J. Finance* 27 (4), 779–799.
- Swinnen, S., Voordeckers, W., Vandemaele, S., 2005. Capital structure in SMEs: pecking order versus static trade-off, bounded rationality and the behavioral principle. *Eur. Financ. Manage. Assoc.* (7), 1–40.
- Taghizadeh-Hesary, F., Phoumin, H., Rasoulnezhad, E., 2022. Covid-19 and regional solutions for mitigating the risk of SME finance in selected ASEAN member states. *Econ. Anal. Policy* 74, 506–525.
- Talonpoika, A.M., Kärri, T., Pirttilä, M., Monto, S., 2016. Defined strategies for financial working capital management. *Int. J. Manage. Financ.* 12 (3), 277–294.
- Wang, Y.J., 2002. Liquidity management, operating performance, and corporate value: evidence from Japan and Taiwan. *J. Multinat. Financ. Manage.* 12 (2), 159–169.
- Wasiuzzaman, S., 2015. Working capital and firm value in an emerging market. *Int. J. Manage. Financ.*
- Weiss-Cohen, L., Ayton, P., Clacher, I., Thoma, V., 2019. Behavioral biases in pension fund trustees' decision making. *Rev. Behav. Financ.*
- Wong, K.Y.A., Yin Cheung, S., 2010. Confirmatory factor analysis of the test of gross motor development-2. *Meas. Phys. Educ. Exerc. Sci.* 14 (3), 202–209.
- Yang, Y., Liu, Z., Saydaliev, H.B., Iqbal, S., 2022. Economic impact of crude oil supply disruption on social welfare losses and strategic petroleum reserves. *Resour. Policy* 77, 102689.
- Yoshino, N., Taghizadeh-Hesary, F., 2019. Optimal credit guarantee ratio for small and medium-sized enterprises' financing: Evidence from Asia. *Econ. Anal. Policy* 62, 342–356.
- Zaidi, F.B., Tauni, M.Z., 2012. Influence of investor's personality traits and demographics on overconfidence bias. *Inst. Interdiscip. Bus. Res.* 4 (6), 730–746.
- Zia-ur-Rehman, M., 2017. Impact of behavioral biases on long term financial decisions and corporate performance: An evidence from non-financial sector of Chinese. *NICE Res. J.* 1–28.