

## **EFFECT OF INVESTORS' OVERCONFIDENCE AND MENTAL ACCOUNTING ON INVESTMENT PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA**

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### **Abstract**

Behavioral finance theory documents that the actions of individual investors have demonstrated that individuals appear to respond to and perceive the same information differently, generating cognitive biases. It is against this backdrop that this study empirically examines the effect of mental accounting and investors' overconfidence on the investment performance of deposit money banks in Nigeria. The study used 960 daily observations on the population of thirteen (13) and a sample size of eight (8) deposit money banks in Nigeria that paid annual dividends from the period 2013 to 2022. The study employed a secondary source of data collection and was gathered from the monthly share market data and annual financial reports from 2013 to 2022. The study data were analyzed through descriptive statistics, correlation analysis, and the multiple regression model to test the formulated hypothesis for the study. After conducting the diagnostic tests such as the mean VIF test and Hetttest, the study established that the Ordinary Least Squares (OLS) model is the study-appropriate model for the study. The findings of the study showed that mental accounting and the overconfidence of investors have a positive and significant effect on the investment performance of deposit money banks in Nigeria. Based on the results of the study, it is recommended that mental accounting and overconfidence should be considered during financial investment decision-making processes because it has been empirically established that they both, had a favorable and significant effect on investment performance.

**Keywords:** Investors overconfidence, mental accounting, investment performance, banks and Nigeria.

### **1.0 Introduction**

Investors in the capital market are concerned with returns in the form of capital investments such as dividend payments, bonus issues, and market share price appreciation. Investment performance appreciation or drop is an indicator of how well or poorly a firm is performing. According to Özyeşil (2019), investment performance is referred to as the investment's returns. Aljughaiman and Chebbi (2022) stated that equity investment is described as the buying and holding of shares within a share market. This is done by individual investors in anticipation of returns on equity investment. The efficient markets hypothesis (EMH) is based on the idea of investor's rationality which is supposed to be perfect. However, Bouteska and Regaieg (2020) argued that numerous studies have revealed findings quite different from the market efficiency theory predictions, which may explain some financial market anomalies.

As these anomalies have become increasingly important phenomena, a new paradigm began to emerge called behavioral finance.

Behavioral finance experts argue that investors' decisions are affected by psychological factors (Ouma & Oluoch, 2019). These psychological factors include mental accounting and the overconfidence of investors. Therefore, mental accounting is a set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities (Lad & Tailor, 2018). Similarly, Rajeshwaran (2020) argued that mental accounting is a process by which individual or people think about and evaluate their financial transactions. More so, the overconfidence is a bias that exists when the individual is very confident of his or her knowledge and abilities. According to Armansyah (2021) overconfidence tends to lead to overestimation of his knowledge and to underestimate predictions made because of the excess abilities an individual has. Therefore, overconfident investor is one who overestimates his own capacities to generate information which will allow him/her to build forecasts. Therefore, the aim of this research study is to create an understanding about behavioral factors such as mental accounting and investors overconfidence on investment performance of deposit money banks in Nigeria.

The motivation for this study is as a result of the witnessed cases of stock market reactions in Nigeria economy that is caused by extreme price volatility which point to the possibility of underlying behavioral bias of investors that impacts on the shareholder value (Security and Exchange Commission, 2018). According to Ouma and Oluoch (2019) and Cherono et al. (2018) mental accounting and investors' overconfidence provides testable implications due to investors' overreaction caused by assumptions about private information and overestimation of abilities as well as being biased and self-judgmental. Therefore, investor behavior model is used in this study to explain the observed pattern of returns that explains investment performance (stock market performance) as against the use of questionnaires administered by previous empirical studies. This therefore creates a gap to fill by examining the effect of investor mental accounting, and overconfidence on investment performance as proxied by stock market performance in Nigeria.

Several past empirical studies from both Nigeria and foreign have examine the effect of mental accounting and overconfidence on investment performance with the consideration of using qualitative data such as the study of Kasoga, (2021), Adeleke et al., (2020), Audu and Abubakar (2019)Hamidon and Kehelwalatenna (2020), Areiqat et al., (2019), Njenga and Kagiri (2018), Naomi et al., (2018), Ibrahim and Umar, (2017), , however this suggest the limitation of models and statistical analysis to determine the effect of behavioral bias on investors performance in Nigeria to the best of the researcher knowledge. Therefore, an investor behavior model was needed to explain the observed pattern of abnormal returns that explained stock market performance. The research used investor behavioral bias, such as mental accounting and overconfidence to determine investment performance in Nigeria deposit money banks. This study is to fill this research gap by employing secondary sources of data to empirically established a basis whether investor behavior influence their performance. To this end, does mental accounting and overconfidence influence investment performance of deposit money banks in Nigeria?

### **Hypotheses of the Study**

To achieved the objective of this study, the hypothesis was developed in null form

H<sub>01</sub>: Mental accounting has no significant effect on investment performance

H<sub>02</sub>: Investors overconfidence has no significant influence on investment performance

## **2.0 Literature Review**

### **Investment Performance**

Investment performance is the prime driver to investment in shares or stocks. Investment performance is determined by the rate of stock returns. Investment performance refers to the extent to which investors derive satisfaction the rate of return of their recent stock or shares investment, as compared to their expected returns and with their investment decisions (Zain ul Abdin, etal. 2022). Investment performance is measure by the share market performance (Ibrahim & Umar 2017). Therefore, share market performance is use in this study as a criterion to measure investment performance.

### **Mental Accounting**

Mental accounting is referred to as psychological accounting. Mental accounting involves a set of the cognitive processes used by individuals or groups to organize, evaluate, and track their financial activities (Abd El Mohammed & Shaqfa, 2021). Mental accounting is an economic concept developed by Richard Thaler that contends that individuals divide their current and future assets into separate, non-transferable portions(Santi & Sahara, 2019). it can also be referred to as a series of mental actions performed by economic proxies in managing, evaluating, and maintaining financial activities (Mohammad et al., 2021). Mental accounting is the behavior of people who always use mental counting to make investment decisions by weighing the costs and benefits of everything they do or decision taken by individuals (Armansyah, 2021). Therefore, mental accounting is referred to situation where an individual investor is expected to always calculate the potential profits or benefit and considers the costs that will be incurred.

### **Overconfidence**

Overconfidence is a cognitive bias. It is psychological bias that influence investment decision making of individual (Armansyah, 2021). overconfidence bias refers to investors' tendency to either overestimate or underestimate their abilities or the difficulty of the task (Rasheed et al, 2018). It is the tendency to overestimate one's own skills and predictions for success (Antony & Joseph, 2017). Overconfidence is act that lead to overestimation of once knowledge and to underestimate predictions made because of the excess abilities the individual has. Overconfidence is act of overestimation individual person's abilities or future possibilities. However, Wang and Nuangjamnong (2022) argued that some investors are overconfident, and they tend to predict the stock market price inaccurately. Ouma and Oluoch (2019) state that a higher level of overconfidence leads to a higher trading volume. The hypothesis of whether overconfidence leads to higher trading volume is likewise tested by Bouteska and Regaieg, 2020) for the US stock markets. They argued that a high trading volume led to higher returns because success with investments leads to higher levels of investor overconfidence.

### **Empirical Review**

Edeh et al. (2023) examines the influence of behavioral factors on stock investors' performance in Nigeria's capital market. Three hundred and eighty-four (384) respondents were sampled by

an online survey method through a questionnaire from active investors using the top ten brokerage firms in Nigeria. Data were examined and analyzed by STATA software using the structural equation model technique (SEM) as the statistical tool. The data revealed that behavioral factors such as overconfidence and mental accounting have considerable positive influence on investment performance. However, the study is limited to qualitative data as against the qualitative model adopted for this study.

Sherani and Naveed (2022) assess the impact of cognitive and behavioral biases on trade performance from an Emerging Economy. The research adopted a quantitative and deductive approach with an explanatory research design. The individual investors who trade on the Pakistan Stock Exchange constitute the study's population, while the sample size for the study was 600 respondents. The analysis of the study was done with the support of SMART-PLS and SPSS. The results revealed that mental accounting has a significant and positive impact on individual investor performance in terms of trading.

Singh and Jain (2021) examine the impact of behavioral biases on investment objective and expected rate of return of female investors. The sample size of the study is 345 working women. The study adopted both primary and secondary sources of data. Multiple regression techniques were used to analyze the extracted data and the findings of the study revealed that mental accounting has a negative and significant impact on expected rate of returns. Moreover, Mohammad et al. (2021) assess the impact of corporate performance on mental accounting in financial decisions of 40 graduate students as investors, while the second one consists of 40 accountants in a real estate company as managers. The findings of the study indicate that the performance of companies affects the mental accounting of managers in making their financial decisions.

Rashwan and Shaqfa (2021) examine the impact of mental accounting on financial and investment decision-making among Palestinian investors. The study used the descriptive analytical method, and a questionnaire was distributed to the sample of the study consisting of (136) Palestinian investors. The results of the study found that mental accounting contributes to enhancing the financial and investment decisions of Palestinian investors. Armansyah (2021) examine the effect of mental accounting on investment decision in real assets and financial assets. This study uses primary data and the data was administered to 250 respondents through an electronic questionnaire distributed to investors who are members of a brokerage company in Indonesian Stock Exchange. The results of the study showed that mental accounting has positive and significantly affected investors' investment decisions in the Indonesian capital market.

Nusa (2021) identify and confirm the theory of mental accounting on informed decisions and investor considerations in investing in the capital market in Indonesia. The study was conducted by using a questionnaire to 100 respondents of capital market participants. A purposive sampling method was adopted in the study. The descriptive analysis method was used in the research. The results of the study indicate that mental accounting positively and significantly affects investors' investment decisions in stocks. Furthermore, Zain ul Abidin et al. (2022) investigate the effect of overconfidence bias on the investment performance of investors in the Pakistan stock exchange. A mixed-method approach is used for this research. The study approached 1000 individual investors for the questionnaire survey through the help

of a brokerage house. 400 individuals agreed to participate in the study and 378 were return valid. The findings of the study revealed that overconfidence biases have a positive and significant effect on investment performance.

Kasoga (2021) examines the effect of overconfidence biases on investment decisions through multiple mediation mechanisms of risk tolerance and financial literacy in Tanzanian. A sample of 316 individual investors in the Tanzanian stock market was obtained through questionnaires. The findings of the study show that overconfidence exerts a stronger influence on investment decisions. Likewise, the study of Gunathilaka and Fernando (2021) investigate how overconfidence behavioral biases influence decision making of individual and institutional investors based in Colombo Stock Exchange. A questionnaire was utilized to collect the data and the final sample consisted with 104 individual and 71 institutional respondents. Findings of the study revealed that overconfidence bias has positive and insignificant impact on the individual investors' investment decisions. Similarly, Tin and Hii (2020) examine the influence of overconfidence on investment performance on debt securities in Johor. The study collected data through the primary method and a personal administered questionnaire sources were used to collect the data. Fifty (50) debt securities owners in Johor respondents to the questions. Smart-PLS 3.0 was used for the data analysis. The findings of the study revealed that overconfidence has a positive and no significant influence on investment performance of debt securities in Johor.

### **Theoretical Review**

The following theories shall be adopted to guide this study; prospect theory and heuristic theory;

#### **Prospect Theory**

Prospect theory assumes that losses and gains are valued differently, thus individuals make decisions based on his or her mental ability and skills. The prospect theory is focused on the mental decision making that is influenced by investors' value systems. Theory of prospect variable described some of the effective mental conditions on the decision-making process such as mental accounting (Wawro et al., 2008). Mental accounting is a term referring to the process by which people think about and evaluate their financial transactions (Barberis & Huang, 2001). Mental accounting allows investors to organize their portfolio into separate accounts. Therefore, mental accounting has a great role on investment performance.

#### **Heuristics Theory**

This research was informed by Heuristic theory; it is a tenet, which an individual use in an uncertain situation to make decisions easy and resourceful (Ritter, 2003). Heuristics are simple efficient rules of thumb, which have been proposed to explain how people make decisions, come to judgment and solve problems, typically when facing complex problems or incomplete information. Waweru et al., (2008) explains, heuristics are quite useful, particularly when time is limited or dealing with situations relating to overconfidence bias on investment decision. Rehan et al. (2021) overconfidence arises when investors use their skills and knowledge to make investment decision. Thus, investors overconfidence can lead to achieved their objective. Therefore, this study is underpinned by heuristic theory due to the situation relating to overconfidence bias of investors and it impact of investment performance.

### 3.0 Methodology

Ex-post facto research design is adopted for this study because the study uses panel data research and a cross-sectional study that involve the use of historical data. The population of this study consist of fourteen (14), while the sample size is eight (8) deposit money banks in Nigeria that paid annual dividend from 2013 to 2022. A secondary source of data was collected through the published monthly share market reports from the Nigeria stock market and annual financial report of the study DMB’s in Nigeria 2023 to 2022. The census sampling technique was adopted in the study. Multiple regressions model is used to analyzing the extracted panel data and a post estimation tests such as Multicollinearity and Heteroskedasticitywas usedto ensure the fitness of the selected model. Therefore, OLS regression is the most appropriate model for the study. The model encapsulates the contribution of mental accounting and overconfidence on investment performance in Nigeria.

$$IP_{it} = \beta_0 + \beta_1 MA_{it} + \beta_2 OC_{it} + \beta_3 DPS_{it} + \varepsilon_{it} \text{----- I}$$

Where:

**IP= Investment Performance** proxy by ROE and measure by profit before tax to shareholder funds

**MA = Mental Accounting:** is measured by natural logarithms of price-dividend ratio. Price-dividend ratio is financial ratio that indicates how much a company pays out in dividends each year relative to its share price (Cherono, 2020). The formula was as follows:

$$\frac{P_0}{D_1} = K$$

Where:

P<sub>0</sub> = the price of stock

D<sub>1</sub> = the dividend paid that year and K is the price dividend ratio.

A stock with a high price-dividend ratio i.e. a growth stock was often one that has done well in the past, accumulating prior gains for the investor, who then views it as less risky and requires a lower average return. A stock with a low price-dividend ratio was a value stock had often had dismal prior performance, burning the investor, who now views it as riskier, and required a higher average return.

**OC= Overconfidence** is measured by natural logarithms of monthly trading volume to ascertain turnover. Turnover rate will be used as a measure of volume of transactions (Adel & Mariem, 2021). The trading volume is measured by turnover as follows:

$$\frac{n_{it}}{N_{it}}$$

Where **n<sub>it</sub>** is the number of shares traded shares i (volume traded at end of the month); **N<sub>it</sub>** is the number of exchanges of shares i (number of deals daily); t is time; i is listed company. Excessive trading of shares on investor confidence contributes to excessive volatility.

#### Control variables

DP= Dividend policy measure as dividend per share

### 4.0 Results and Discussion

#### Descriptive Statistics

**Table 1:**

***Summary of Descriptive Statistics***

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Variable	Obs	Mean	Std.Dev.	Min	Max
IP	960	0.1482	0.0833	-0.0842	0.3208
MA	960	1.2513	0.3692	0.67	2.941
OC	960	1.0427	0.0418	0.758	1.166
DPS	960	0.8685	0.89941	0.05	3.6

Source: STATA 13 Result.

Table 1 summarized the descriptive statistics of the average investment performance (ROE). Total observation of cross-sectional investment performance, mental accounting and overconfidence is 960. The average returns of investment performance for deposit money banks in Nigeria was 0.142, this indicate that the study banks have an average return varies due to value of standard deviation of 0.033 which is high. The minimum and maximum value of returns are -0.0842 and 0.3208 respectively. Mental Accounting showed the average mean value of 1.2513, the minimum value is 0.67, maximum value is 2941, while the standard deviation is 0.3692. Furthermore, Overconfidence revealed a minimum value of 0.758 and maximum value of 1.166, the average mean value is 1.0427 with the standard deviation of 0.0418. Finally, the minimum and maximum value of dividend per share revealed to be 0.05 and 3.6 respectively while the mean value reflect a value of 0.865 and the standard deviation of 0.89941 which show a low dispersion from the mean value.

### Correlation Analysis

Table 2:

#### *Summary of Correlation Analysis*

Variables	IP	MA	OVC	DPS
IP	1.0000			
MA	0.0415 0.1994	1.0000		
OVC	-0.1616* 0.0000	-0.1757* 0.0000	1.0000	
DPS	0.5670* 0.0000	-0.3689* 0.0000	-0.2347 0.0000	1.0000

Source: STATA 13 Result.

Table 2 shows the assessment of the degree of relationship among the variables to check for unhealthy multicollinearity among independent variables and ensure an unbiased estimate in the regression results. The results of the correlation matrix indicate that investment performance has a positive and insignificant relationship with mental accounting with a coefficients value of 0.0415 and p-value of 0.1994, and significant negative relationship with overconfidence with coefficients value of -0.1616 and a corresponding p-value of 0.0000. while the investment performance revealed a significant positive relationship with dividend policy. Furthermore, the mental accounting revealed a significant negative relationship with overconfidence and dividend policy with a coefficient value of -0.1757 and -0.369 with corresponding p-value of 0.0000 and 0.0000 respectively. Mores so, overconfidence revealed a significant negative relationship with with dividend policy. This shows that there is no

evidence of multicollinearity among the variables because none of the coefficient value is above 10. The study thus confidently proceeds with the regression analysis.

**Regression Analysis**

Table 3 present the panel regression model that establishes the effect of mental accounting and investors overconfidence on investment performance. Following the preliminary analysis of multi-collinearity, and heteroskedasticity performed it was confirmed that OLS regression is more appropriate for the study. The panel ordinary least squares (OLS) model was conducted and the diagnostic test indicated that the OLS model had no heteroskedasticity issues with a chi2 of 1.94 and p-value of 0.1636 which is not significant. VIF of 1.97 revealed that the model has no multicollinearity problem. Furthermore, the result in F-statistics displays the general model's goodness of fit statistic in the models. The F-statistic value for the model recorded at 209.68 with a corresponding p-value of 0.000, which was less than the benchmark value of 0.05 and the R square value is 0.3969

**Table 3**  
**Summary of Roust Panel OLS Regression Result**

<b>Variables</b>	<b>Coeff.</b>	<b>p-value</b>
MA	0.0692`	0.000
OC	0.1095	0.042
<b>Constant</b>	<b>0.0641</b>	<b>0.000</b>
F-Statistics	209.68	0.0000
R <sup>2</sup>	0.3969	
Hetest	1.94	0.1636
Mean VIF	1.24	

**Source:** Stata 13 Result Output

**Effect of Mental Accounting on Investment Performance**

Table 3 presented the summary of OLS model and the results of the multiple linear regressions revealed that mental accounting coefficient value was recorded at 0.0692 with a p-value of 0.000. This implies that mental accounting has a significant positive influence on investment performance of deposit money banks in Nigeria. This finding rejects the null hypothesis that mental accounting has no significant effect on investment performance. This constant disclosed that a rise in investor mental accounting by 1% will increase investment performance by 6.9%. The positive effect shows that investors view the companies that pay less dividend as the ones that will have a high return in the future thus these stocks would be termed as more viable. The findings of this study are in line with the study done by Armansyah (2021) but conflict with the study of Road et al. (2013) and Ouma and Oluoch (2019) that concluded that mental accounting negatively affects investment decision.

**Effect Of Investors Overconfidence on Investment Performance**

Table 3 presented the OLS model and the results of the multiple linear regressions revealed that investors overconfidence coefficient value was recorded at 0.1095 with related p-value of 0.042. This implies that investors overconfidence has a significant positive effect on investment performance of deposit money banks in Nigeria. This finding rejects the null hypothesis that investor overconfidence has no significant effect on investment performance. This constant

disclosed that a rise in investors overconfidence by 1% will increase investment performance by 10.9%. This implies that increase in Investor overconfidence would cause a positive increase in market return. The findings of this study are in line with the study done by Aljughaiman and Chebbi (2022) and Wafula et al. (2023) but conflict with the study of Bouteska and Regaieg (2020) that concluded that overconfidence investor negatively affects market performance.

### 5.0 Conclusion and Recommendation

The objective of this study was to examine how mental accounting and investor overconfidence affect investment performance, by evaluating the monthly share market data of eight (8) deposit money banks in Nigeria over a 10year period (2013–2022). Findings from this study demonstrate that mental accounting of investors and investors overconfidence have positive and significant effect on investment performance of deposit money banks in Nigeria. This implies that mental and accounting and overconfidence investors do not consider fundamental analysis rather it is more of behavioral bias. Therefore, investors' personal investment choices are substantially impacted by emotional biases, such as mental accounting and overconfidence because investors have demonstrated that their judgments are impacted by behavioral bias. Based on the empirical findings of the study, the study recommends increasing individual investors awareness of the emotions of investors so they can better grasp the financial landscape and invest with more confidence.

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