The Role of Auditors' Biases and Decision Making on Errorswith a Cognitive Approach in Capital Market (A Case Study: Securities and Exchange's Certified Auditors)

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Abstract

Based on the capital market's nature, accountants and auditors' information is provided by an effective influence of personal decisions and market results, derived systematically by information structure and market participants' features. Auditors' choices are influenced by perception, judgment and decision options processes, which may affect auditing errors. The study purpose is to investigate auditors' different biases and decision-making factors on errors based on a cognitive approach in the capital market. The model's objective is practical based on a descriptive-analytical methodology. The statistical population of the study includes all certified auditors of Iran's Securities and Exchange Organization (SEO), whom were provided with the researcher-made questionnaires with valid narration and reliability. The collected data were analyzed by AMOS software. The findings indicate that components of the cognitive bias are predictable by auditors' errors based on the priority level and maximum influences, including mental accounting bias (63%), availability bias (45%), heuristic bias (60%), and ambiguity aversion bias (58%). Also, components of decision-making are predictable by auditors' errors based on the priority level and maximum influences, including decision case (54%), job experience (57%), decision-making situation (58%) and individual features (45%).

***Keywords**: Auditors' errors, cognitive bias, decision-making factors*

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1. Introduction

The capital market refers to interactions among firms or organizations with funding needs and investors with surplus funds for investments whereby firms raise debt and equity capital for their operations, and investors make funds available to firms either in the form of debt or equity investments at a return. In highly developed capital markets, firms are able to raise debt or equity capital from the market much easily and investors are able to place their surplus funds much easily. The converse is the case for less developed capital markets where it is difficult for firms to raise capital and those who have surplus funds do not have readily available channels for placing those funds for productive ventures (Atuilik & Salia, 2018).

There are a number of factors that may possibly influence the level of development of capital markets. The appropriate legal and regulatory infrastructure, such as an effective Securities Exchange Commission, an active stock exchange market, and the availability of accurate and reliable corporate financial information about firms' financial performance and financial position are key influencers of the level of development of the capital market. Thankfully, Osei (1998) observed that there seems to be appropriate and effective legal and regulatory structures in Ghana to promote the development of the Ghanaian capital market (Raposo & Lehmann, 2019).

On the other hand, There are generally two approaches regarding personal errors; one is the behavioral approach, which considers mistakes resulted by errors from personal interaction with the environment, and the other one is the cognitive approach which searches errors inside individuals and explains their process. During recent years, as cognitive sciences develop with more positive effects in eliminating personal errors and solving problems, (scholars intend to complete researching this field (Kohandel, 2019).

Incidentally, accounting plays a prominent role in capital markets, since an entity’s financial statements provide a summary of economic outcomes from business activities, depicting them as financial statements to be transferred to shareholders and other economic information users. Here is the area of auditors to meticulously review the statements with their unbiased nature of profession in order to provide accurate and precise economic information. Auditing is by essence processes of adjudication, in which auditors implement their professional judgment in order to create a general credit on corporates’ financial statements, considering the fact that auditors’ judgment quality can be affected by individual characteristics (Nealchi & Ahmadian, 2017).

Also, cognitive processes include a group of perception, judgment and decision choices processes encompassing information shifting and modification in relation to the decision maker's behavior encountering auditing

information. Decision maker's judgments determine their analyses and perception of information. Decision choices are affected by perception and judgment processes (Mollanazari & Esmaeili Kia, 2014).

Professional adjudication is affected by several key factors. Scholars are currently studying auditing business environment, decision-making process, as well as qualitative features of judgment; notwithstanding the applied instruments and methods, it seems that auditing is a judgment-based process more than anything else and auditors need to decide and make judgments (Abbasian Fereydoon; et al., 2015).

Moreover, what was found to be a problem is non-reflection of all available financial information on stock prices (Salami and Acquah-Sam, 2013). Embedded in this problem is the question of the reliability of the financial information generated by firms listed on the Ghana Stock Exchange. It is in this regard that it is necessary to take steps first to improve the credibility of the financial information generated by firms listed on the Stock exchange, and then to ensure that the financial information available is actually used by investors to make investing decisions. Generating reliable financial information by firms listed on the Ghana Stock Exchange is thus a necessary step towards uplifting Ghana's capital market (Aloke et al., 2009).

Investor confidence in the auditing of public financial reporting is critical to expand our capital markets. Whether the audit is compulsory or not, the companies seeking capital pay for audits to receive a benefit. That benefit is in the form of a lower cost of capital than capital-market participants would otherwise require, access to more capital markets, and greater investor demand for their securities (Harris, 2014). Although it is companies that receive the benefit of the audit, governments, by requiring the audit to enter their capital markets, also invest in audit quality. The audit is a critical contributor to economic growth, without which there is jeopardy to social peace and preservation of our democratic institutions. But the assertions of a broad, public benefit implicit in my first proposition would not now go unchallenged. They see auditing as a regulatory cost — a required cost of doing business, best kept as low as possible to meet the compliance objective.

The PCAOB's work increasingly involves coordination with our counterparts in other jurisdictions, many of whom have representatives here today, and that coordination runs deep. Together, we have begun, and are making stronger still, a foundation upon which our nations can build vibrant programs for capital formation and investment, and economic growth (Doty, 2015). They would point to the fact that the public rarely shows interest in auditing. They do not feel the pull of public demand. For its part, the public takes auditing for granted and demonstrates little interest in it, except in the breach. Breaches

attract acute public interest. But if the breaches are rare, some might yet think that the breaches are a bearable cost of a protection system that is not unbearably costly the rest of the time (DeFond & Zhang, 2014). The mission of the PCAOB as spelled out in Section 101 of the Act is "to protect the interests of investors … in the preparation of informative, accurate and independent audit reports…" Basically, we work to ensure that audits are conducted properly by independent auditors (Harris, 2014).

However, the increasing need for more effective and efficient tasks by auditing and auditors considers a prominent role of psychology in the auditing process. Besides, in auditing literature, using analytical examinations in the independent auditing is introduced as a technique driving more efficiency and lowering auditors' biases (Nikoomaram et al. 2014).

Cognitive biases may also affect human judgments in decision making process of any subject, specifically though they are more destructive in complex issues and under comprehensive systematic pressures, as well as imposed pressures on auditors' judgments during an independent auditing (Kohandel, 2019). Psychological studies reveal that cognitive biases are usually seen in adjudicating and repetitious jobs. There are many examples of assumptions affecting auditors' judgments mostly due to their personal interests. Excessive expectations or pre-judgment about a contractor's unmodified report are evidences about an auditor's lack of independence (Fattahi Asl et al. 2013).

In this study, as a result, the role of biasing and deciding based on auditors' errors regarding the cognitive approach is reviewed in capital market.

2. Theoretical Foundation

2.1. Auditing

Auditing is an orderly and regulated process to collate and evaluate unbiased evidence regarding economic activities and events in order to determine their adaptability with determined parameters and to report the results to stakeholders (Asgari, 2013).

Moreover, an auditor is an individual or entity which bears the final responsibility of financial statements, auditing or providing related services (Royaie et al., 2014).

Auditing can be categorized based on different foundations: content, job execution method, organizational allegiance and the commissioning reason (Hajiha et al., 2012).

2.2. Auditing errors

Business units may prepare their financial statements including errors, these can be resulted by: a- wrong calculation (mathematical errors), b- wrong applying of accounting principles (methods), and c- overlooking and wrong perception of existing realities in financial statements preparation. An example for correction is shifting from unorthodox accounting principles (method) to a conventional and accepted accounting principle (method) (Auditing Organization Technical Committee, publication 2008).

2.2.1. Auditing errors varieties

Many auditing errors are discovered as a result of implementation of adapters in the two-sided registration system. Although local adapter system in a business unit may disclose some auditing errors, some of them might remain undisclosed until future periods. In some cases, errors may be never discovered. The major problem is happening when errors report the business unit's income incorrectly or unrealistically.

2.3. Cognitive biases varieties

Cognitive biasing is repeating or insisting on errors in thinking, evaluating or other cognitive processes, and is the deviation paradigm from judgment standards, and based on that deductive results might be illogical. Cognitive biasing is a paradigm which may cause deviation in judgment or reasoning, and may subsequently bring illogical results about other individuals or situations.

Individuals make up their "mental social reality" through observing inputs. Forming an individual's "social reality" dictates the personal behavior in a society, but not objective inputs of the individual; as a result, cognitive biasing may finally distort perception and cause incorrect judgment, irrational interpretation or what is widely called indiscretion.

Cognitive inclinations include mental accounting, self attribution, heuristics, and conservatism, ambiguity aversion bias, etc. Intuitive behaviors are also including over confidence, anchoring and adjustment, availability bias, representativeness. Emotional inclinations are resulted from motivation and intuition, encompassing endowment bias, loss aversion bias, and self control bias, etc (Knapp & Knapp, 2012).

2.3.1. Availability bias

The bias is an attempt to tackle mental discomfort caused by two cognitions' conflict. By cognition, it means attitude, emotions, beliefs and values. Individuals usually experience a kind of mental discomfort once they face some new information in conflict with their previous perceptions. Availability bias is a type of imbalance in response as an attempt or a challenge in order to

make conflicts compatible and to overcome mental discomfort (Hirshleifer & Hirshleifer, 2017).

2.3.2. Ambiguity aversion bias

People react to unknown possibilities distribution with an interest to accept risks. They are generally hesitant against ambiguous situations with an inclination which is called ambiguity aversion. Overall, unknown situations are scarier than risky ones (Knapp & Knapp, 2012).

2.3.3. Heuristics

In such a bias, the reality frame is more reacted than its essence by a decision maker. As an example, a pack of coffee and mug together in a store may seem less expensive than buying coffee and the mug separately, since both items are in one box. In reality, the offering frame is initially considered before noticing if there is any bulk discount on the product, and the consideration drives more purchasing with a mental judgment for the discount (Hirshleifer & Hirshleifer, 2017).

2.3.4. Mental accounting bias

The bias refers to the fact that individuals are willing to decide about different financial issues in separate mental accounts, ignoring the hypothesis that all decision making are better made in a portfolio. Mental accounting actually declines the interaction between different decision makings (Rahnamay Roudposhti & Jalili, 2010).

2.4. De-biasing

Such techniques reduce cognitive bias effects (Hilbert, 2012).

2.5. Decision making factors

It refers to different methods of information processing. There are various classifications for the methods, categorized in two groups: 1- practical or management individuals with their initial analyses based on differences or situation changes; 2- scholars or scientists with judgments based on similarities discovered in comparing situations and objectives (Masih Abadi & Pour Yousef, 2008).

2.5.1. Decision Case

The factors which make mental (cognitive) processes in order to select an action among attractive actions are called decision cases, which are indicated either as prescriptive or descriptive kinds (Hassas Yeganeh & Rahimian, 2007).

2.5.2. Decision-making conditions

Decisions are a function of decision makers' perception of their actions, abilities and capacities. In fact, decision making conditions are formed based on the decision makers' perception of their environmental features (Jalili & Moshiri, 2013).

These conditions can be classified based on different factors; however, they are regarded by three new points of timing, complexity and level of thought, each includes the followings: based on timing (urgent, delayed, approximate), based on complexity (simple, complicated), and based on level of thought (emotional, logical, collaborative) (Rajni & Parmod, 2015).

2.5.3. Individual features

In this article, by individual features the individual differences are intended, which are caused by cognitive and motivational styles, as well as the personality (Masihabadi & Pour Yousef, 20080).

Decisions' frame implemented by decision makers is a function of job structure and individual features of decision makers. The features include confidence in personal judgment, organizational independence and status, professional qualification and moral capacity (Turkmani, 2010).

2.5.4. Job experience

It is referred to a profession adopted by an individual for a considerable period of life-time, including promotional opportunities (job, welfare and social security ministry). That an investors' attitude towards the capital market is a function of personal psychology, ideas, viewpoints, as well as positioning against risks. Studies reveal that numerous micro and macro factors, measurable or otherwise, affect investors' behaviors (Gorji and Khan Mohammadi, 2017).

3. Literature

Barzideh et al. (2018) have designed and developed the identity paradigm in the auditing judgment. The quantity reviews show that environmental conditions effect on auditing judgment and professional identity authority. Moreover, identity in auditing judgment is effective on the significance and authority of professional identity. Finally, the significance and authority of the

professional identity have effects on auditing quality level improvement and the macro and national consequences of auditing.

Valian and Safari Gerayli (2018) provided a paradigm to comprehend auditors' professional hesitancy with an approach to analyze contents. Considering the research findings at quality level, 4 main and 13 subsidiary parameters are introduced as model parameters. At quantity level, regression model testing results indicate that psychological and personality features, professional skills and environmental factors have positive and meaningful effect on auditors' professional hesitancy.

NiIlchi and Ahmadian (2017) analyzed the accounting role on behavioral finance. In this study, it is mentioned that mental evaluations usually include biasing with human factors' interference. As individual judgments are applied in different financial steps of standard setting, financial statements preparation and official auditing, the remarks are based on inner factors and several properties including the auditor's culture, knowledge and expertise, as well as professional and institutional commitment and gender affect them. Moreover, accountants are able to reduce decision-making errors raised by such factors via identifying and better understanding of the behavioral effective parameters.

Saidi Geraghani and Naseri (2017) reviewed individual differences and auditors' professional judgment. In this study, effects of four individual features, including two demographic (gender and experience) and two psychological (optimism and self-confidence) features on professional judgments were reviewed. The statistical population of the research is the employed auditors in the member institutions of Iranian Association of Certified Accountants. In order to do the study, an experimental project, and to collect data and examine subjects' personality, a standard psychological questionnaire is applied. The collected data are analyzed by the student's t-test. Findings indicate that all variables of optimism, self-confidence, experience and gender emphasize the existence of a difference in auditors' professional judgment.

Alizadeh (2017) reviews perception biasing in auditing. The studies confirm that auditing profession is also affected by individuals' perception bias, i.e. individuals' expectations may change immediately once a decision's result is reached. Negative emotional burden resulted from the situations with undesirable returns creates unreliable expectations from an auditors; as a result the auditor will be complained and the equities will be sold when negative results are reached; such an incident is not a negative point for the profession though.

Karami and Parvizi (2017) studied cognitive biases on auditors' professional judgment. In this review, cognitive bias is considered as the individuals'

interest in committing adjusting systematic errors at the time of decision making. Such errors are usually resulted by mental revelation behaviors or information processing shortcuts, which have substituted human beings in the decision making process. Dozens of cognitive biases have been identified and categorized by psychologists, while some of them are even used in daily conversations; however, a number of them have more importance in auditing.

Hormozi et al. (2016) reviewed psychological effects on auditors' professional hesitancy. The findings indicated that the studied biases have negative effects on auditors' professional hesitancy, and reduced auditors' capabilities to implement an adequate level professional hesitancy in the auditing process.

Andeelini et al. (2016) research auditors' relationships and focus on decentralized decision making issues. The study reviews information transfer between two decision makers who perform certain measures on two dates. The first decision maker has private information in relation to the nature of the related information. The first decision maker sends a message to the second decision maker. The second party may choose only to view the message or has the authority to supervise the first party, auditor's operations and confirm the situation. In the balanced status, no decision will be confirmed, and the second decision maker may choose between auditing and disclosure. When a disorder happens in priority choice, and operational bias (bias on the decision-maker's performance by the person) is indicated, the second decision maker chooses auditing in the balances status. When a disorder happens in priority choice and ideological bias is indicated, a decision maker prefers to act with a bias comparing other decision-makers; therefore, in greater disorders, the second decision maker chooses disclosure in the balanced status. Research findings indicate that avoidance ability in accounting out values for the secondary status.

Tahir (2015), in a PhD dissertation reviews auditors' independence development in decision making through shareholder's viewpoint. Heuristic analysis findings demonstrate there are 9 structures and components for measuring auditors' independence: perceived objectivity, perceived integrity, perceived hesitancy, avoiding personal interest threat, avoiding self-evaluation threat, avoiding acquaintance threat, avoiding intimidating threat, avoiding supportive threat, safeguard implementation. The second stage is to review such measurements and evaluations among national directors and selected companies. Data from 62 CFOs of large companies were collected and were analyzed by structural equations modeling. The results indicate that accountants' independence measurement for decision making is highly reliable and practicable.

Ojala et al. (2014) reviewed auditing quality and corporate's decision making. It found that there was no considerable relationship between four auditors' partnership and no auditing benefit existed. However, the findings provide some compatible evidence regarding the relationship between business owner/directors perception and external accounting reliability, as well as perceptional benefits in auditing. It was also figured out that the companies not using electronic processes in their accounting systems, more possibly value internal control benefits provided by an auditor.

Knapp & Knapp (2012) evaluated cognitive biases in auditing operations. In this study, cognitive bias refers to a situation in which personal interests will unconsciously lead to a systematic wrong decision making process. Such errors are usually resulted from professional behaviors and shortcut methods, as well as individual initiatives established in information processing as a habit to make adjudicative decisions.

4. Hypotheses

First main hypothesis

Different biases are effective on auditors' errors based on cognitive approach in behavioral finance.

Sub- hypotheses

Availability bias is effective on auditors' errors.
Ambiguity aversion bias is effective on auditors' errors.
Heuristic bias is effective on auditors' errors.
Cognitive accounting bias is effective on auditors' errors.

Second main hypothesis

Decision making factors are effective on auditors' errors based on cognitive approach in behavioral finance.

Sub-hypotheses

Decision case is effective on auditors' errors.
Decision making situation is effective on auditors' errors.
Individual features are effective on auditors' errors.
Job experience is effective on auditors' errors.

Third main hypothesis

There is a meaningful difference between various biases over auditors' errors.
There is a meaningful difference between each decision making factor over auditors' errors.

Auditors are able to apply proper de-biasing for each of biases.

5. Methodology

The research philosophy is realistic with an inductive (minor to major) approach. It was done is a specific period of time. The study's objective is a fundamental one, accomplished in a hybrid form. Collection method of data is library-field. In the hybrid method, the researcher uses different instruments in order to collect information, which includes interviews, records and questionnaires. The existing researcher-made questionnaire comprises of two parts of demographics and related dictions of research variables. Different stages of doing the research will be given later. Initially, library studies were done, and significant related indicators of the subject were extracted. Based on the projected variables, the questionnaire was designed. It was tested for reliability and narration.

The statistical population includes all certified auditors of Securities and Exchange Organization who received the confirmed questionnaire as a census and via electronic mail. Then the resulted data were entered into AMOS software to be analyzed. The variables were rated by Expert Choice software. Tests were exercised in descriptive and deductive forms. In the descriptive part, a review of mean, abundance and abundance percentage are pointed out, which include the demographic review of the questionnaire. In the deductive part, the relationship level between variables and each of their effectiveness was specified by correlation tests between variables and structural equation model test. Finally, the conclusions were made and compared with the previous studies.

6. Variables

6.1. Independent variables

The independent variables of the research include various cognitive biases of auditors (availability, ambiguity aversion, heuristics, cognitive accounting) and decision making factors (decision case, decision making conditions and auditors' individual features).

6.2. Dependent variable

In this study, the dependent variable is auditing errors level. At the end of the research, a model is provided based on cognitive approach.

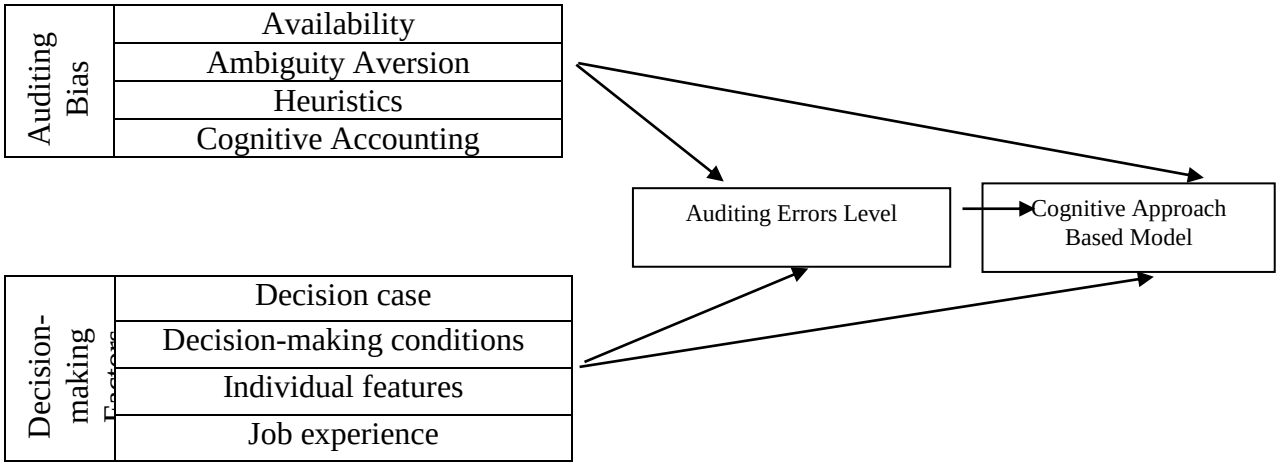

Figure (1) Research Conceptual model (Knapp & Knapp, 2012)

7. Findings

7.1. Descriptive Statistics

Respondents are mostly (79%) male and about 20% female. Most of them (53%) were reported as graduates, and as few as 9% associate degree holders. Those with 11 to 20 years of job experience outnumbered at 75%, and respondents with 21 to 30 years of experience were only 10% of the total.

7.2. Deductive Statistics

In order to normalize data distribution of research variables, Kolmogorov-Smirnov test limitation is its high sensitivity to critical amount and quantity fluctuations. The test's findings review indicates that data distribution is normal. Therefore, parametric tests are proper tests to review the research's hypothesis. To continue with testing hypothetical model accuracy and calculating coefficients of effectiveness, structural equations modeling method with Amos software was applied.

7.2.1. First main hypothesis

There is a meaningful difference between each kind of bias on auditors' errors based on cognitive approach in the behavioral finance.

Table (1) Bias role analysis test on auditors' errors based on standard coefficients and significant numbers

Cognitive biases varieties		Standard Beta	Significance coefficient	Standard Errors	Significance Level	Stat
Availability	Auditors Errors	0.49	4.16	85651.	0.0000	H confirmed
Ambiguity Aversion	Auditors Errors	0.58	7.25	93271.	0.0000	H confirmed
Heuristics	Auditors Errors	0.60	4.70	88042.	0.0000	H confirmed
Cognitive Accounting	Auditors Errors	0.63	5.95	08960.	0.0000	H confirmed

Availability bias is effective on auditors' errors and the level of this relationship is 49% statistically confirmed, as the significance level is lower than 0.05 in the positive direction. In other words, it is possible to use availability bias variable based on structural equation test and standardized data number to forecast up to 49% of auditors' errors. Based on the table, it can be stated that "ambiguity aversion bias" can forecast up to 58% of auditors' errors based on structural equation model test and standardized beta number. "Heuristics bias is able to forecast the errors by using structural equation model test and standardized beta number up to 60% based on cognitive approach in the behavioral finance. "Cognitive accounting bias" forecasts up to 63% of auditors' errors based on structural equation model test and standardizes beta number.

Table (2) Goodness of fit indices model of bias role on auditors' errors based on standard coefficients and significance numbers

Fitness Index	CMIN/DF	SRMR	RMSEA	GFI	AGFI	NFI	NNFI	IFI
Acceptable amounts	< 3	< 0.05	< 0.08	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9
Calculated amounts	1.52	0.04	0.03	0.97	0.98	0.97	0.98	0.92

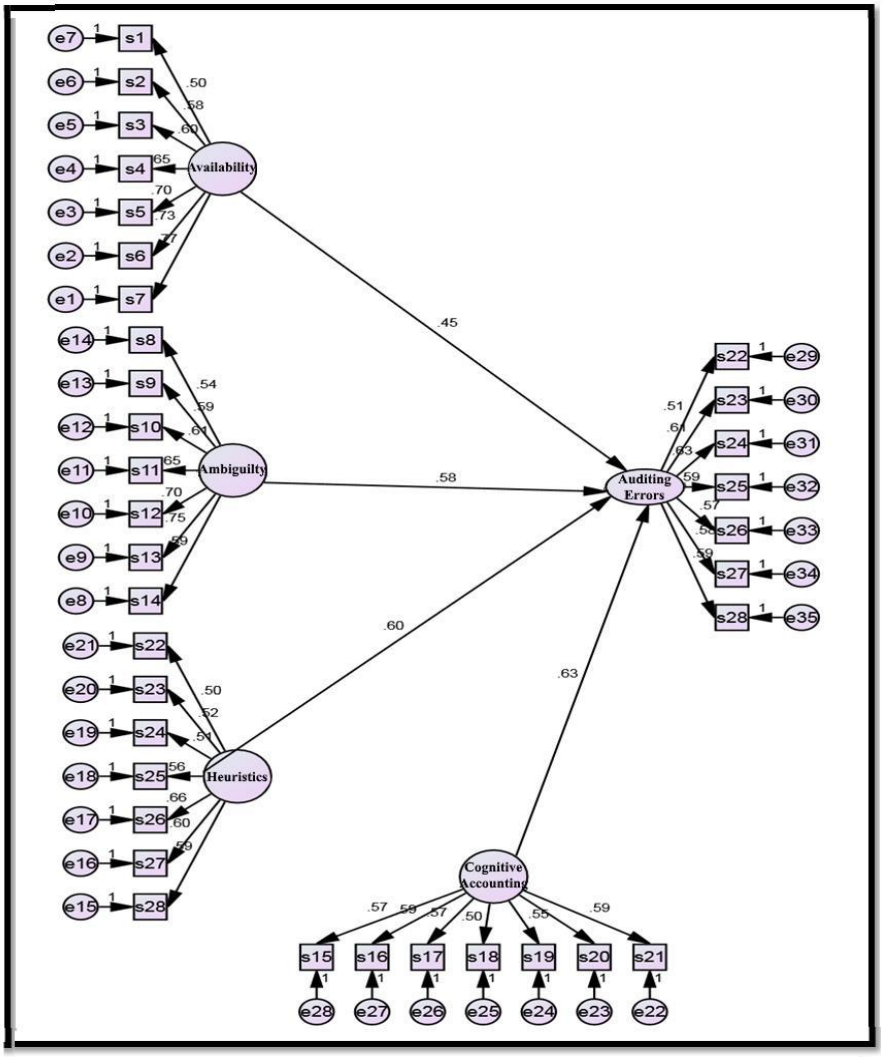

Figure (2) Analysis Findings of reviewing bias varieties role on auditors' errors based on standardized coefficients

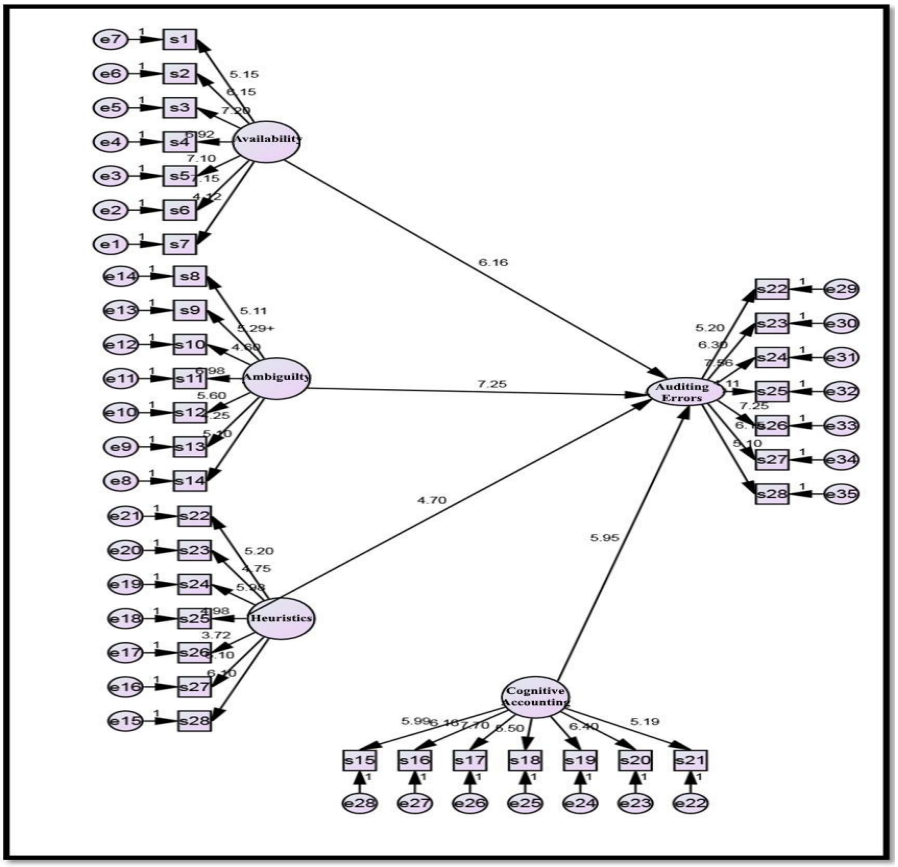

Figure (3) Structural equations Findings regarding the role of bias varieties on auditors' errors based on significant coefficients

As can be seen in Figures (2) and (3), the coefficient between auditors' errors acceptance covert variable and accounting bias is 63%, heuristics 60%, ambiguity aversion 58%, availability 95%. Also, the static coefficient for auditors' errors is considered 1. For the second time factor analysis, these path coefficients are meaningful at 95% level of confidence. Therefore, important bias parameters effective on auditors' errors are rated by respondents, respectively as accounting, heuristics, ambiguity aversion, and availability biases. In fact these variables affect the mentioned biases over auditors' errors.

7.2.2. Second main hypothesis

There is a meaningful difference between any decision-making varieties over auditors' errors based on cognitive approach in the behavioral finance.
Initially, model's fitness indices were reviewed.

Table (3) Role relationship path analysis test for varieties of decision making over auditors' errors based on standardized coefficients and significance numbers

Decision making factors		Standardized beta	Significance coefficients	Standard error	Level of Significance	Statistical result
Decision case	Auditors' errors	0.58	6.14	1564.	0.000	H confirmed
Decision conditions	Auditors' errors	0.54	7.25	7236.	0.000	H confirmed
Individual features	Auditors' errors	0.45	4.15	82364.	0.000	H confirmed
Job experience	Auditors' errors	0.57	5.35	45326.	0.000	H confirmed

It can be stated based on the table that "decision case" forecasts up to 58% of auditors' errors based on structural equations model test and standardized beta number. Up to 54% of auditors' errors can be also predicted by "decision conditions" based on structural equations model test and standardized beta number. "Individual feature" is using the same model test and standardized beta number to forecast up to 45% of auditors' errors based on cognitive approach in the behavioral finance. "Job experience" can predict up to 57% of auditors' errors based on structural equations model test and standardized equations model test and standardized beta number.

Table (4) Model goodness fit indices of decision making roles over auditors errors based on standardized coefficients and significance numbers

Fitness index	CMIN/DF	SRMR	RMSEA	GFI	AGFI	NFI	NNFI	IFI
Acceptable amounts	< 3	< 0.05	< 0.08	> 0.9	> 0.9	> 0.9	> 0.9	> 0.9
Calculated amounts	1.28	0.03	0.04	0.96	0.98	0.99	0.95	0.95

Two important indices of the model fitness in table (4) are (RMSEA) and (CMIN/ DFX²/df).

The amount of the latter equals 1.28, and more it is smaller than 3, the better fitness has the model. RMSEA index is the model's mean square errors, and equal to 0.04. The index is made based on model errors with the accepted amount of 0.04, which means amounts under 0.08 are acceptable and under 0.05 are very good. Other indices are placed in an acceptable area, and therefore, it can be said that the model enjoys an appropriate fitness.

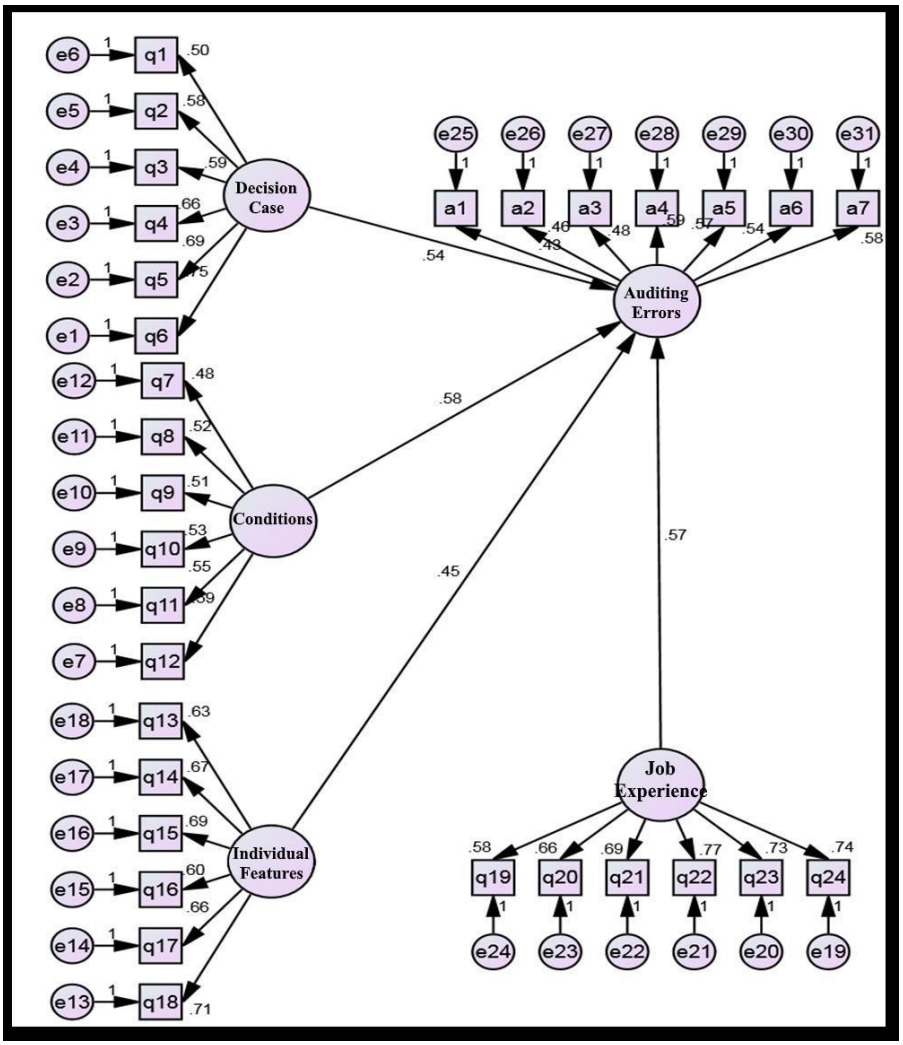

Figure (4) Analysis of decision making factors effect over auditors' errors based on cognitive approach and *significant coefficients*

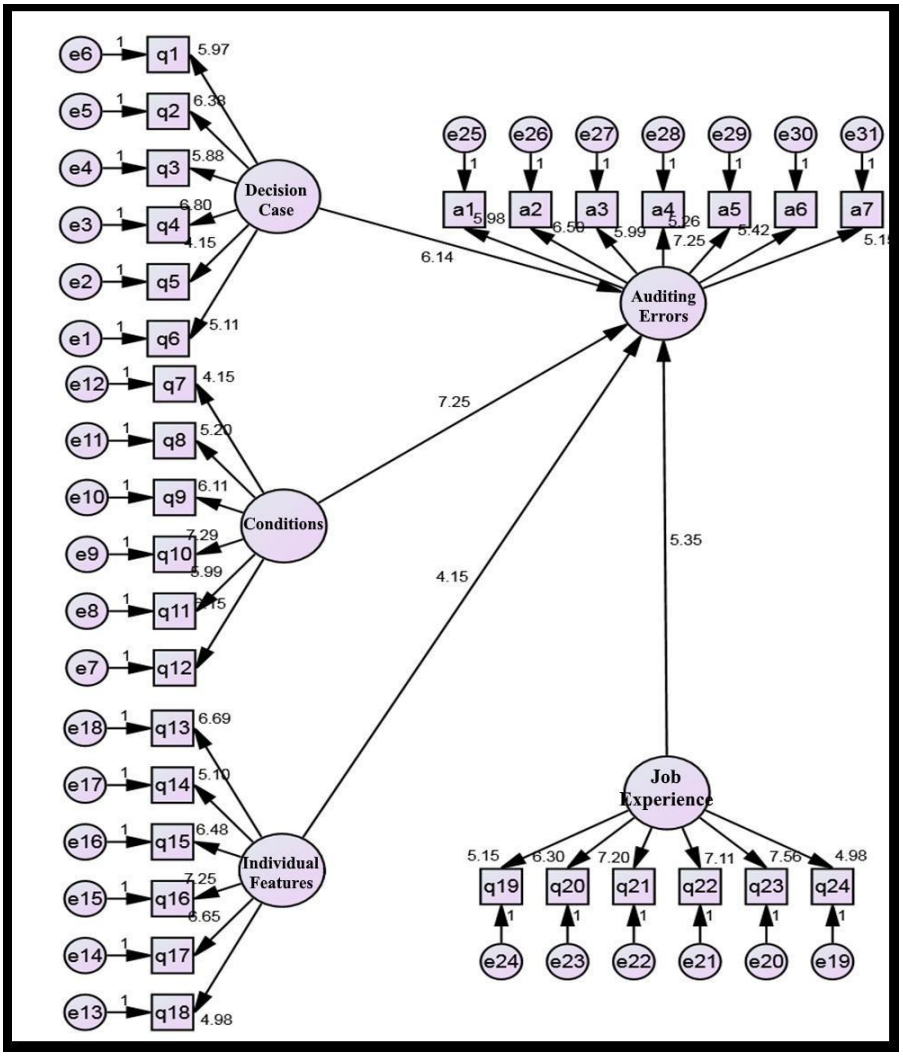

Figure (5) Analysis of decision making factors effect over auditors' errors based on cognitive approach and standardized coefficients

As depicted in figure (4) and (5), path coefficient between covert variable of auditors' errors acceptance and decision case factor is 0.54, decision conditions 0.58, individual features 0.45 and job experience 0.57. Also, number 1 is considered for path coefficient of auditors' errors, which is fixed by the researcher for the second time factor analysis; such path coefficients are meaningful at the confidence level of 95%. As a result, it can be stated that important parameters of decision making factors affecting on auditors' errors are ranked respectively as decision making conditions, job experience, decision case and individual features; such variables, in fact, affect decision making factors over auditors' errors. Moreover, as table (3) information demonstrates, the stats covered surface of the perceived standardized beta was more than 5%, and it means that the collected data related to variables indicates an appropriate fitness from different bias varieties. Also, based on table (4) root mean squared error of approximation is another criterion which will turn the model as an inappropriate one if the index exceeds 10%. Considering the fact that the error's level in the model is 4%, the model's fitness is proper. Other fitness indices of the model also seem suitable.

7.2.3. Third main hypothesis

There is a meaningful difference between each bias variety over auditors' errors based on cognitive approach in the behavioral finance.

Table (5) Findings of each bias effect over auditors' errors

Bias variety		Rankin average	Rank	Statistical result
Mental accounting	Auditors errors	2.93	First	H confirmed
Availability	Auditors errors	2.58	Second	H confirmed
Heuristic	Auditors errors	2.43	Third	H confirmed
Ambiguity aversion	Auditors errors	2.05	Fourth	H confirmed
Statistical result	Value = 30.48		df = 3	sig = 0.0000

The findings of Friedman test indicate that decision making factor over auditors' errors is decision making case and the least important one is individual features and this relationship is also statistically confirmed, since the perceived significance level is lower than 0.005; therefore, it can be resulted that there is a meaningful relationship in each decision making factors over auditors' errors based on cognitive approach in the behavioral finance.

8. Results and discussion

The present study's finding show that cognitive bias parameters based on priorities include cognitive accounting, availability, heuristics and ambiguity

aversion biases over auditors' errors. Moreover, decision making parameters are categorized based on the most effects, respectively as decision case, job experience, decision making conditions and individual features, resulting in auditors' errors.

Different biases are effective over auditors' errors based on cognitive approach. Also, availability bias is effective over auditors' errors by 45%, cognitive accounting by 63% and heuristics by 60%, as well as ambiguity aversion bias which is effective over auditors' biases by 58%, and decision case by 54%; the effect is 58% by decision making conditions, and 45% by individual features. Job experience also affects auditors' errors by 57%.

The significant difference between each kind of biases over auditors' errors is confirmed. Also, the significant difference is confirmed between each decision making factor over auditors' errors, and finally proper de-biasing was provided for each of the auditors' errors. It was accompanied by some mechanisms for each of auditors' biases; the cognitive accounting mechanisms include: dismissing any mental assumption regarding numbers in calculations, not comparing mental calculations with each other and implementing a correct perception of numbers in each equation separately. The heuristic mechanisms are: viewing a single phenomenon from different angles, accurate perception of relating and avoiding too much attention over a single issue.

The availability mechanism include: partial compatibility of old sciences with new situation, realizing values, opinions and perceiving new ideas, especially from new generations. The mechanisms of ambiguity aversion are named as: avoiding too much reliance of mind on expertise and considering different voices, gradual learning in various fields, consulting with other professionals and removing the effect of mental assumptions. Decision case mechanisms are given as: accurate understanding based on timing, accurate understanding based on personal-institutional internets, accurate understanding based past, present and future conditions, reviewing other experiences and consulting with experts. The mechanisms for decision making conditions include: reviewing factors resulting in decision making conditions, accurate understanding of the situation and decision appropriately, accurate understanding of the situation and deciding promptly.

The mechanisms for individual features include: mental focusing over internal issues of job environment and considering the decision making, avoiding mental focusing over people's physical, age, and marital status for proper decisions and mental focus on decision-making consequences. The mechanisms of job experience are provided as: mental disregarding of the past mistakes in the job and avoiding the effect of mental assumptions, as well as mental disregarding of others' job experience for making proper decisions.

At the end, for further studies, it is recommended reviewing most frequent behavioral and cognitive biases, including confirmability, conservatism, self-control, event orientation, regret-aversion, loss aversion, etc in auditors' society. Group psychological training courses such as capital market, empowerment, etc. should be designed and provided for auditors in order to lower different cognitive and behavioral bias.

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